



CNP Baytown Area Load Addition – ERCOT Independent Review Scope

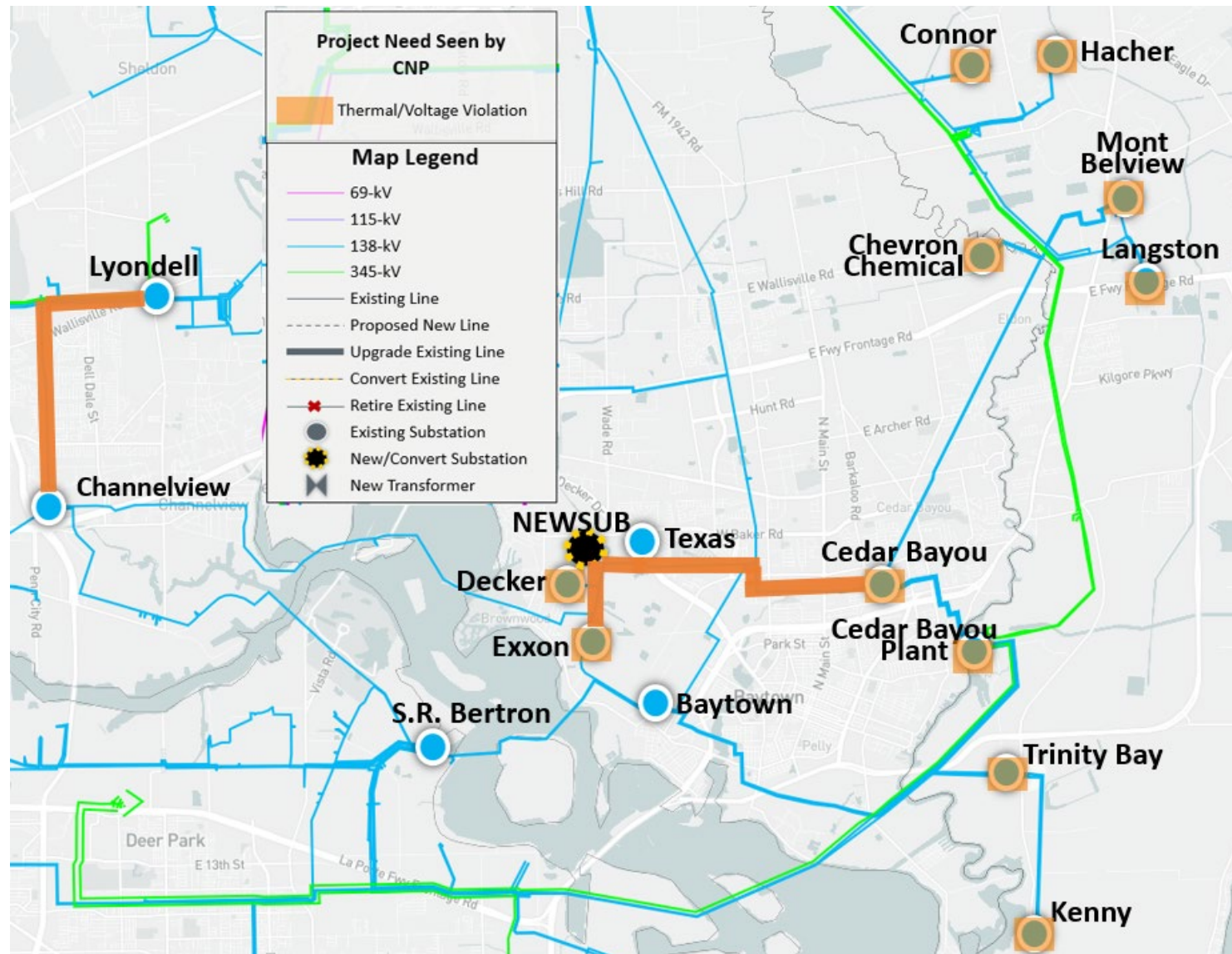
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RPG Meeting
November 12, 2024

Introduction

- CNP submitted the Baytown Area Load Addition Project for Regional Planning Group (RPG) review in September 2024
 - This Tier 1 project is estimated to cost \$141.65 million and will not require a Certificate of Convenience and Necessity (CCN)
 - Estimated in-service date is January 2028
 - Addresses the thermal and voltage violations caused by the new 500.5 MVA load addition at the new customer-owned NEWSUB 138-kV substation.
- This project is currently under ERCOT Independent Review (EIR)

Study Area Map with Violations seen by CNP



Proposed Project by CNP

- Loop S.R. Bertron to Texas Ckt. 87 138-kV line into NEWSUB
- Loop Cedar Bayou East to Decker Ckt. 83 138-kV line into NEWSUB
- Rebuild S.R. Bertron to NEWSUB to Texas Ckt. 87 138-kV line with conductor rated to at least 600/600 MVA Normal/Emergency rating in existing (estimated 2.88 mile) right-of-way (ROW)
- Rebuild Texas to Cedar Bayou Tap Ckt. 87 138-kV line with conductor rated to at least 838/893 MVA Normal/Emergency rating in existing (estimated 3.91 mile) ROW
- Rebuild Decker to Exxon Ckt. 83 138-kV line with conductor rated to at least 636/636 MVA Normal/Emergency rating in existing (estimated 0.72 mile) ROW
- Rebuild Decker to DCKRMC01_83 Ckt. 83 138-kV line with conductor rated to at least 567/626 MVA Normal/Emergency and DCKRMC01_83 to NEWSUB Ckt. 83 138-kV line with conductor rated to at least 838/893 MVA Normal/Emergency in existing (estimated 0.27 mile) ROW

Proposed Project by CNP

- Rebuild Baytown to Exxon Ckt. 66 138-kV line with conductor rated to at least 838/893 MVA Normal/Emergency rating in existing (estimated 1.93 mile) ROW
- Rebuild Hermann to Grant Ckt. 08 138-kV line with conductor rated to at least 478/525 MVA Normal/Emergency rating in existing (estimated 0.7 mile) ROW
- Upgrade Substation equipment to increase Channelview to Lyondell Tap Ckt. 03 138-kV line to at least 440/561 MVA Normal/Emergency rating
- Install a new 100 Mvar capacitor bank at Cedar Bayou East 138-kV substation
- Upgrade S.R. Bertron 138-kV bus to 80 kA fault duty rating

Study Assumptions – Base Case

- Study Region
 - Coast Weather Zone, focusing on the transmission elements in Harris and Chambers Counties.
- Steady-State Base Case
 - Final 2023 Regional Transmission Planning (RTP) 2028 summer peak case for East and Coast (EC) Weather Zones, posted in Market Information System (MIS), will be updated to construct the summer peak load study base case
 - Case: 2023RTP_2028_SUM_EC_12222023
 - Link: <https://mis.ercot.com/secure/data-products/grid/regional-planning>

Study Assumptions – Generation

- New generation that met Planning Guide Section 6.9(1) condition with Commercial Operation Date (COD) before January 1, 2028, in the study area at the time of the study, but not already modeled in the RTP cases, will be added to the case based on the September 2024 Generator Interconnection Status (GIS) report posted in MIS in October 2024
 - GIS Link: <https://www.ercot.com/gridinfo/resource>
 - See Appendix C for a list of generation projects added
- 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 Assumption - Transmission

- Based on the October 2024 Transmission Project and Information Tracking (TPIT) posted on MIS, projects with in-service dates before January 1, 2028, within the study area, will be added to the study base case if not already modeled in the case
 - TPIT Link: <https://www.ercot.com/gridinfo/planning>
 - See Appendix A for a list of transmission projects added
- Transmission projects identified in the 2023 RTP as placeholder projects within the study area will be removed to develop the study base case
 - See Appendix B for a list of placeholder projects removed

Study Assumptions – Load & Reserve

- Load in study area
 - Loads in the EC Weather Zone will be maintained to be consistent with the 2023 RTP
 - New confirmed loads will be added to the study base case
- Reserve
 - Load outside of study Weather Zone(s) will be adjusted to maintain the reserve consistent with the 2023 RTP

Contingencies & Criteria

- Contingencies for Study Region
 - NERC TPL-001-5.1 and ERCOT Planning Criteria
 - Link: <http://www.ercot.com/mktrules/guides/planning/current>
 - P0 (System Intact)
 - P1, P2-1, P7 (N-1 conditions)
 - P2-2, P2-3, P4, and P5 (345-kV only)
 - P3: G-1+N-1 (G-1: Cedar Bayou Plant, Exxon, Baytown Energy Center, and Diamond Shamrock Battleground)
 - P6-2: X-1+N-1 (X-1: 345/138-kV transformers at Cedar Bayou, Greens Bayou, Bellaire, PH Robinson, and Jordan)
- Criteria
 - Monitor all 60-kV and above busses, transmission lines, and transformers in the study region (excluding generator step-up transformers)
 - Thermal
 - Use Rate A for normal conditions
 - Use Rate B for emergency conditions
 - Voltage
 - Voltages exceeding their pre-contingency and post-contingency limits
 - Voltage deviations exceeding 8% on non-radial load buses

Study Procedure

- Need Analysis
 - The reliability analysis will be performed to identify the need to serve the new load
- 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
 - The TSP will provide the Cost Estimate and Feasibility Assessment
- 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 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 – Q1 2025

Thank you!



Stakeholder comments also welcomed through:

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Appendix A – Transmission Projects

- List of transmission projects added to study base case

TPIT No	Project Name	Tier	Project ISD	County
73371A	BP24 Sub Upgrades	Tier 4	Oct-24	Harris
73371B	BP24 Sub Upgrades	Tier 4	Oct-24	Harris
70665C	Danek (DNK) CEHE Substation for Remy Jade - 23INR0339	Tier 4	Nov-24	Harris
73371H	BP24 Sub Upgrades	Tier 4	Nov-24	Harris
78420	Baytown Distribution Transformer	Tier 4	Dec-24	Chambers
75930	Expand Highlands substation with addition of 3rd distribution transformer. Transformer expected at Ckt.66F Garth to Highlands tap to Haney.	Tier 4	Dec-24	Harris
69892	Deer Park Tap to NOBEL Ckt.21C Upgrades	Tier 4	Dec-24	Harris
67422E	Greens Bayou to Clinton 138kV Conversion	Tier 4	Dec-24	Harris
73371C	BP24 Sub Upgrades	Tier 4	Dec-24	Harris
86009	Expand ADLONG substation for XE Murat Storage (24INR0329)	Tier 4	Dec-24	Harris

Appendix A – Transmission Projects

- List of transmission projects added to study base case – cont.

TPIT No	Project Name	Tier	Project ISD	County
69902B	New 345kV Mission (MSS) substation for generator interconnection to Parliament Solar.	Tier 4	Jan-25	Harris
70660	Plaza to Grant Ckt.08I Upgrade	Tier 4	Feb-25	Harris
75856B	Rebuild and reconductor portions of Ckt.28A to prepare for ETHYL 138kV conversion. Loop into Ckt.06E to create new Ckt.06 Jefferson to ETHYL 138kV to South Channel. Retire ETHYL 69kV substation and remaining portions of 69kV Ckt.16D and Ckt.28A.	Tier 4	May-25	Harris
75856A	Rebuild and reconductor portions of Ckt.28A to prepare for ETHYL 138kV conversion. Loop into Ckt.06E to create new Ckt.06 Jefferson to ETHYL 138kV to South Channel. Retire ETHYL 69kV substation and remaining portions of 69kV Ckt.16D and Ckt.28A.	Tier 4	May-25	Harris
73578C	Heights 138kV Loop Conversion	Tier 4	May-25	Harris
73578H	Heights 138kV Loop Conversion	Tier 4	May-25	Harris
73578I	Heights 138kV Loop Conversion	Tier 4	May-25	Harris
87479I	Upgrade to increase thermal limits as part of FRM upgrades	Tier 4	Jul-25	Harris

Appendix A – Transmission Projects

- List of transmission projects added to study base case – cont.

TPIT No	Project Name	Tier	Project ISD	County
87479F	Upgrade to increase thermal limits as part of FRM upgrades	Tier 4	Jul-25	Harris
87479H	Upgrade to increase thermal limits as part of FRM upgrades	Tier 4	Jul-25	Harris
87479C	Upgrade to increase thermal limits as part of FRM upgrades	Tier 4	Jul-25	Harris
87479A	Upgrade to increase thermal limits as part of FRM upgrades	Tier 4	Jul-25	Harris
78427A	Bohemian (BOH) 138kV CEHE Substation for Destiny Storage (24INR0397)	Tier 4	Oct-25	Harris
78427B	Bohemian (BOH) 138kV CEHE Substation for Destiny Storage (24INR0397)	Tier 4	Oct-25	Harris
73332	Install Hermann (HER) Distribution Substation	Tier 4	Dec-25	Harris
76350	Install new TARGA 138kV customer substation as Ckt.86 Jordan to TARGA to CITIES.	Tier 4	Dec-25	Chambers
73352C	PH Robinson Area 138kV Upgrades	Tier 4	Dec-25	Harris
87640	New load customer interconnection RAOULT connecting on ckt 86 between DALTON and BRINE.	Tier 4	Jan-26	Harris

Appendix A – Transmission Projects

- List of transmission projects added to study base case – cont.

TPIT No	Project Name	Tier	Project ISD	County
80632	Install Kilgore 35kV Distribution Substation. Loop on Ckt.86B to create new Ckt.86 CHEVRON to Kilgore to LANGSTON	Tier 4	May-26	Chambers
87346	Upgrade Ckt 25 Jeanetta to Westwood to increase thermal limits	Tier 4	May-26	Harris
73578A	Heights 138kV Loop Conversion	Tier 4	May-26	Harris
71106	Dunlavy to HO Clarke Ckt.40A Partial Reconductor	Tier 4	May-26	Harris
73578B	Heights 138kV Loop Conversion	Tier 4	May-26	Harris
73578D	Heights 138kV Loop Conversion	Tier 4	May-26	Harris
73578E	Heights 138kV Loop Conversion	Tier 4	May-26	Harris
86022	Jordan 138kV Substation Expansion for Coneflower Storage (23INR0425)	Tier 4	Oct-26	Chambers
87344	Upgrade 345kV Ckt 71 Addicks-White Oak to increase thermal limits	Tier 4	Oct-26	Harris
68205	GENRAL to Garden Villas Rebuild	Tier 4	Dec-26	Harris

Appendix A – Transmission Projects

- List of transmission projects added to study base case – cont.

TPIT No	Project Name	Tier	Project ISD	County
69888A	Deepwater to Clinton Ckts.33B-33C Line Upgrades	Tier 4	Dec-26	Harris
67427	Greens Bayou to Clinton 138kV Conversion	Tier 4	May-27	Harris

Appendix B – Transmission Projects

- List of transmission projects to remove from the study base case

TPIT No	Project Name	County
78485D	Britmoore to Bellaire Ckt.24B Upgrades	Harris
78490A	Jeanetta Auto Upgrades	Harris
78490B	Jeanetta Auto Upgrades	Harris
78485B	Britmoore to Bellaire Ckt.24B Upgrades	Harris
78490C	Jeanetta Auto Upgrades	Harris
78490D	Jeanetta Auto Upgrades	Harris
78485A	Britmoore to Bellaire Ckt.24B Upgrades	Harris
78485C	Britmoore to Bellaire Ckt.24B Upgrades	Harris
75835A	Upgrade Ckt.66B Stone Lake to Tomball to increase thermal limits. Install 40 MVAR cap bank at Hockley substation and tapped on Ckt.66B Hockley to Stone Lake.	Harris
78485D	Britmoore to Bellaire Ckt.24B Upgrades	Harris

Appendix C – Generation Projects

- List of generation projects to be added to study base case

GINR	Project Name	Fuel	Project COD	Capacity (~MW)	County
23INR0408	TECO GTG2	GAS	10/15/2024	50.0	Harris
22INR0546	Enchanted Rock NEWPP	GAS	11/16/2024	30.0	Harris
22INR0354	XE Murat [Adlong] Solar	SOL	12/30/2024	60.4	Harris
24INR0329	XE Murat Storage	OTH	03/01/2025	60.1	Harris
24INR0397	Destiny Storage	OTH	01/31/2026	205.6	Harris
23INR0425	Coneflower Storage Project	OTH	02/03/2027	178.9	Chambers