STEC Nueces Green Ammonia Load Interconnection Project – ERCOT Independent Review (EIR) Status Update

Travis Head

RPG Meeting
March 17, 2026

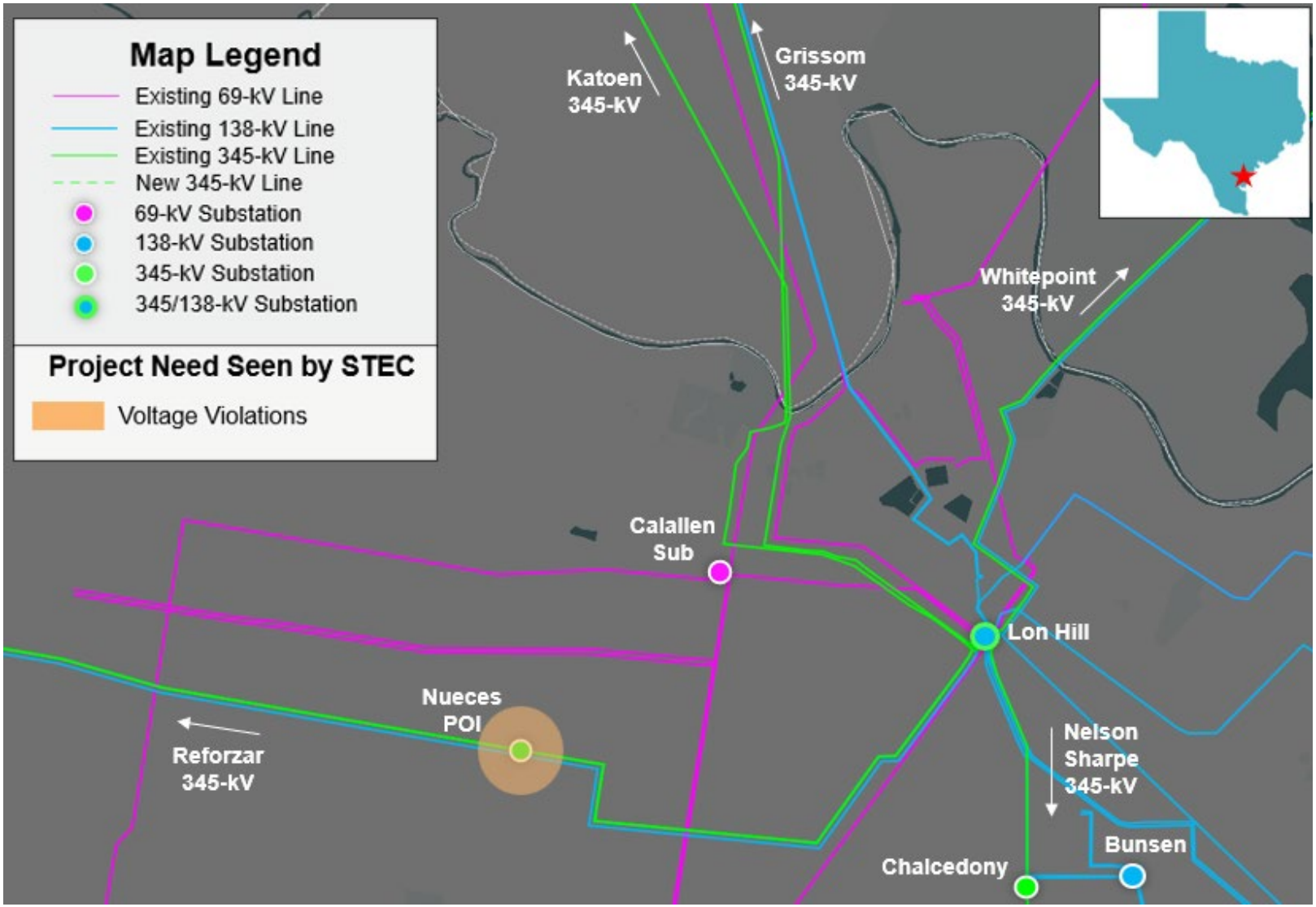
Introduction

- STEC submitted the Nueces Green Ammonia Load Interconnection Project for Regional Planning Group (RPG) review in June 2025
  - This is a Tier 2 project with an original estimated cost of $74.0 million and will require a Certificate of Convenience and Necessity (CCN)
  - Estimated in-service date (ISD) is June 2027
  - This project is needed to address post-contingency voltage violations in the Nueces County
- STEC presented a project overview and ERCOT provided a project scope at the July 2025 RPG Meeting
  - https://www.ercot.com/calendar/07292025-RPG-Meeting

Introduction (cont.)

- ERCOT provided a project update at the October, November, December 2025, January, and February 2026 RPG Meetings
  - https://www.ercot.com/calendar/10282025-RPG-Meeting
  - https://www.ercot.com/calendar/11112025-RPG-Meeting-_-Webex
  - https://www.ercot.com/calendar/12162025-RPG-Meeting
  - https://www.ercot.com/calendar/01162026-RPG-Meeting
  - https://www.ercot.com/calendar/02022026-RPG-Meeting
- This project is currently under ERCOT Independent Review (EIR)

Study Area Map with Project Need Seen by STEC



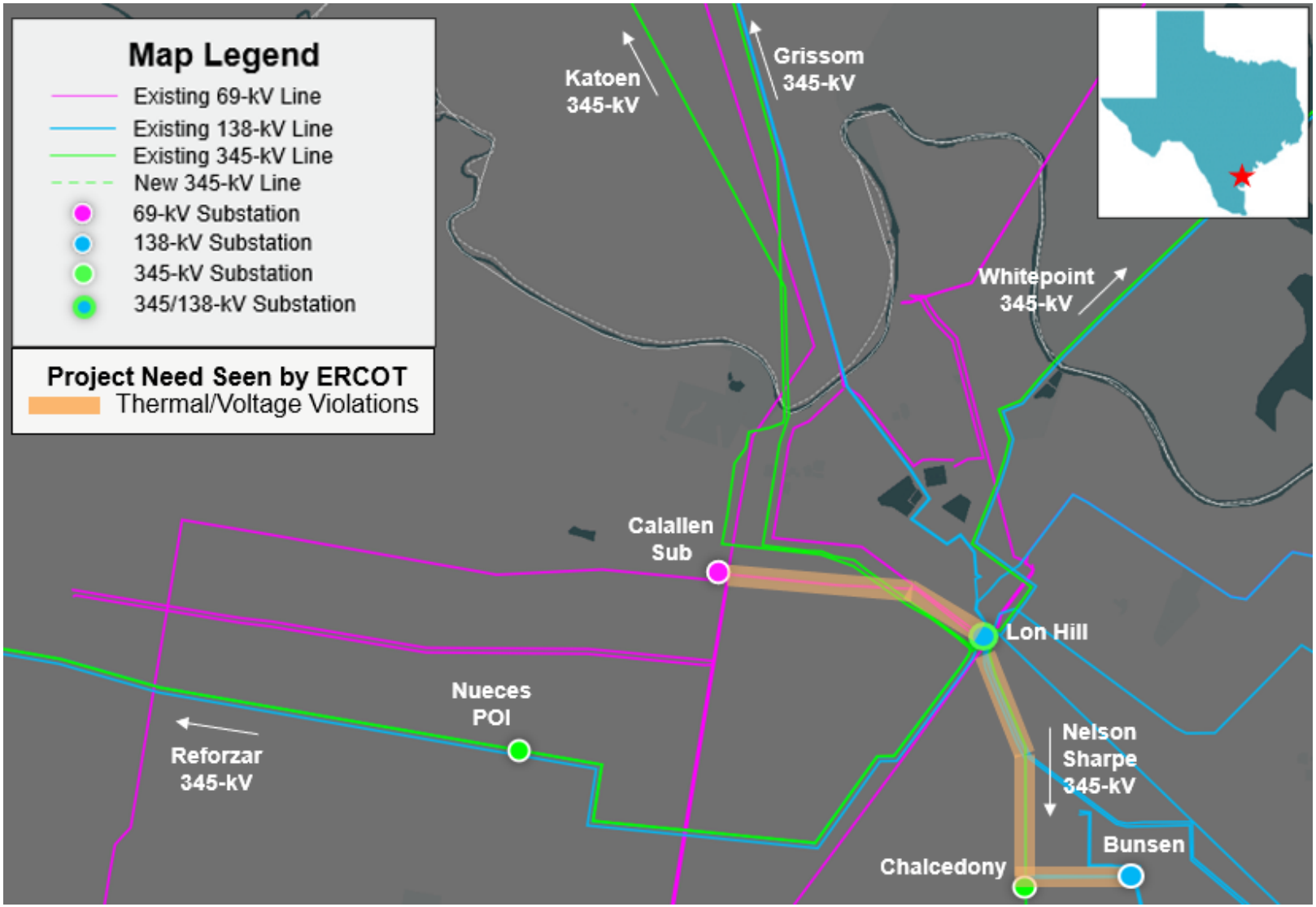
Results of Reliability Assessment – Updated Base Case

Contingency Category	Unsolved Power Flow	Voltage Violations	Thermal Overloads
P1	1*	None	2*
P2, P4, P5	None	None	None
P3 (G-1+N-1)**	1*	None	2*
P6.2 (X-1+N-1)**	1*	None	2*
P7	1*	None	None

*Violations seen in the basecase under P1 and P7 events were also seen under G-1+N-1 and/or X-1+N-1 events

**See Appendix D for list of G-1 generators and X-1 transformers tested

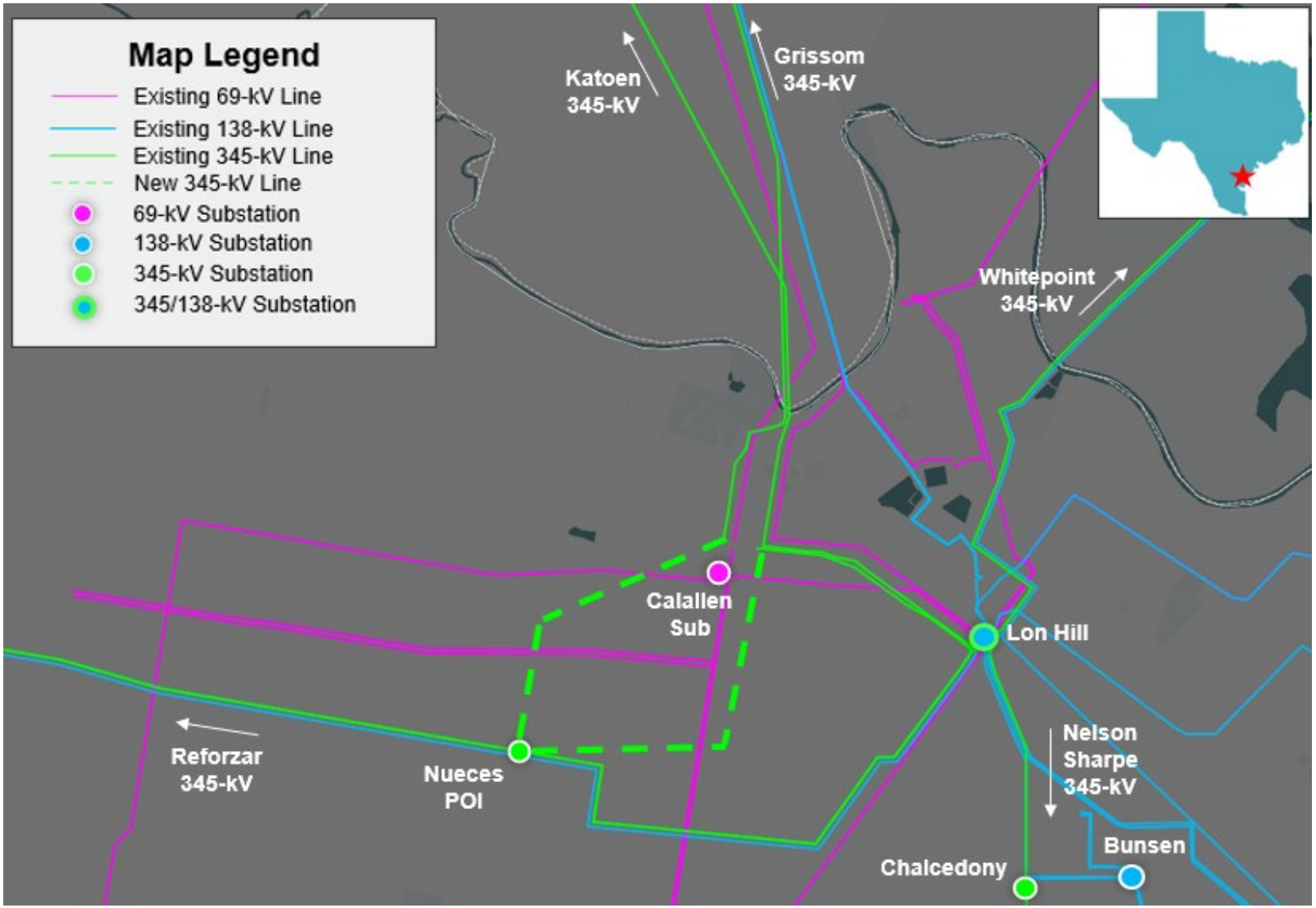
Study Area Map with Project Need Seen by ERCOT



Option 1 – STEC Proposed Project

- Construct a new Nueces Load POI 345-kV substation cutting in on the existing Reforzar to Lon Hill 345-kV transmission line; and
- Loop in the new Nueces Load POI onto the existing Lon Hill to Grissom 345-kV transmission line using single-circuit structures, with normal and emergency ratings of at least 1059 MVA and 1195 MVA respectively, approximately 5.9-mile.

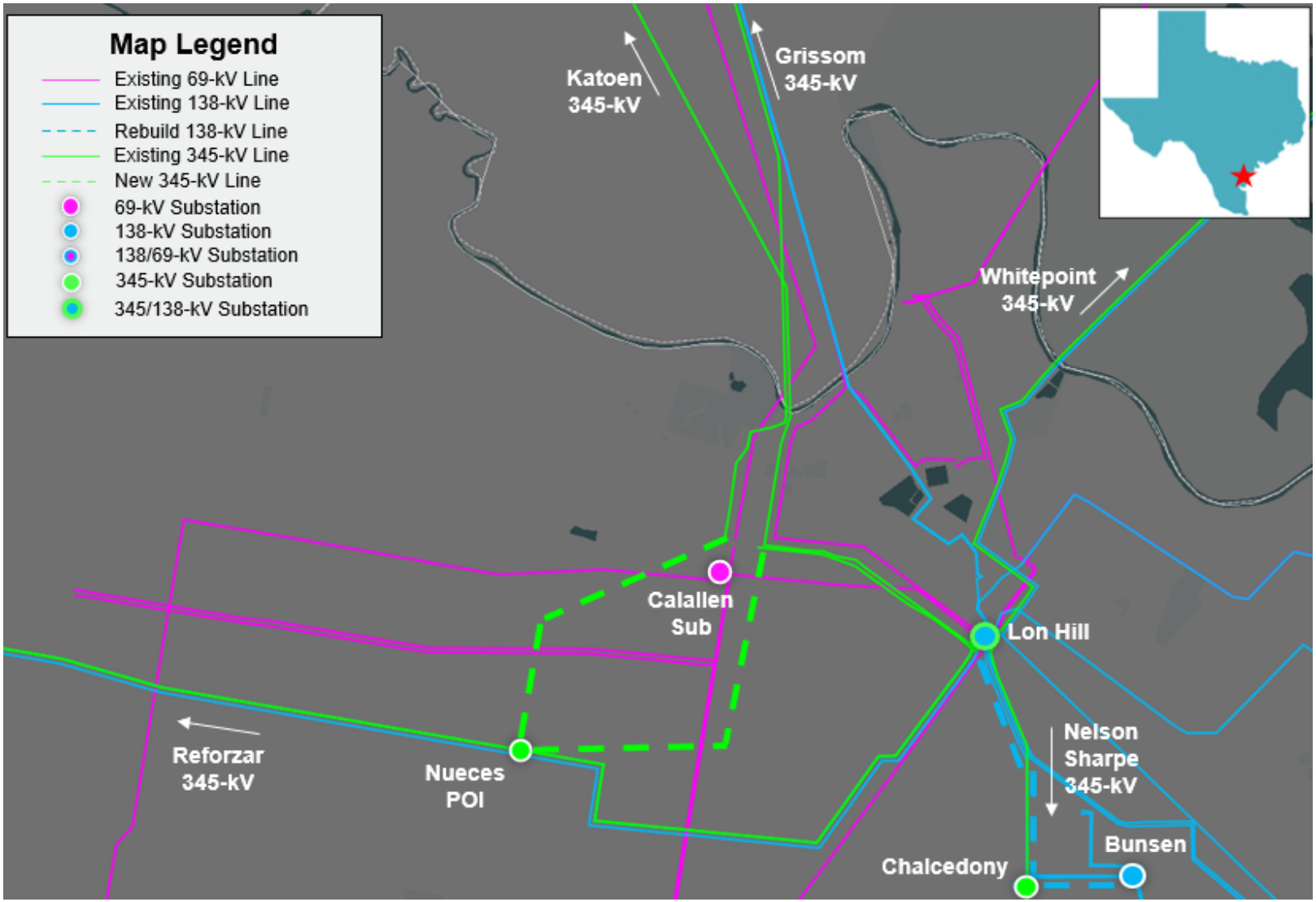
Option 1 – STEC Proposed Project



Option 1A – ERCOT Proposed Project

- Construct a new Nueces Load POI 345-kV substation cutting in on the existing Reforzar to Lon Hill 345-kV transmission line;
- Loop in the new Nueces Load POI onto the existing Lon Hill to Grissom 345-kV transmission line using single-circuit structures, with normal and emergency ratings of at least 1059 MVA and 1195 MVA respectively, approximately 5.9-mile; and
- Rebuild the existing Lon Hill to Bunsen 138-kV transmission line on double-circuit structures with one circuit in place where not sharing a common tower, with normal and emergency ratings of at least 400 MVA, approximately 2.6-mile.

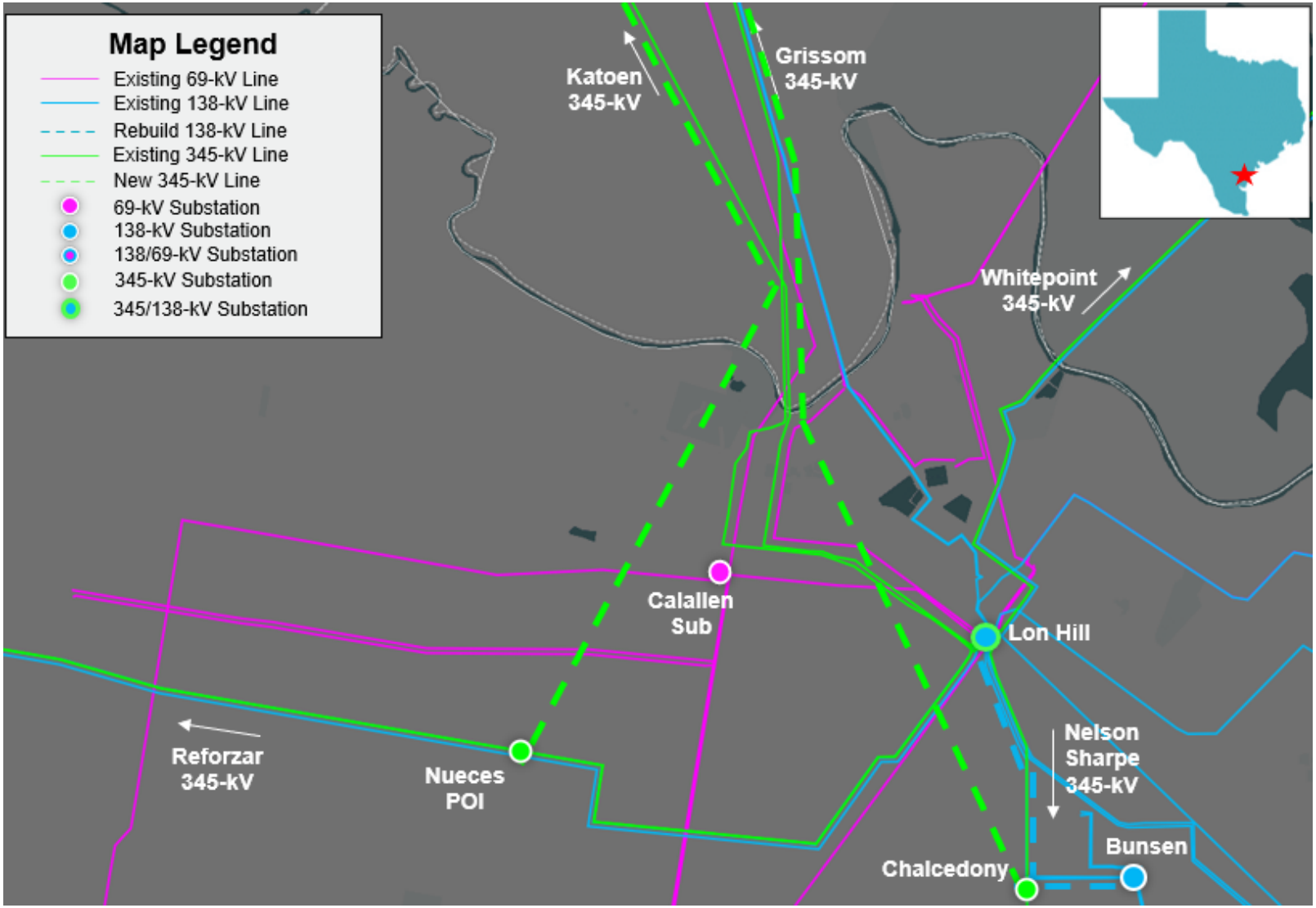
Option 1A – ERCOT Proposed Project



Option 2 – ERCOT Proposed Project

- Construct a new Nueces Load POI 345-kV substation cutting in on the existing Reforzar to Lon Hill 345-kV transmission line;
- Construct a new Grissom to Chalcedony 345-kV transmission line on double-circuit structures, with normal and emergency ratings of at least 2000 MVA, approximately 33.46-mile;
- Construct a new Katoen to Nueces POI 345-kV transmission line on double-circuit structures with one circuit in place, with normal and emergency ratings of at least 2000 MVA, approximately 16.1-mile; and
- Rebuild the existing Lon Hill to Bunsen 138-kV transmission line on double-circuit structures with one circuit in place where not sharing a common tower, with normal and emergency ratings of at least 400 MVA, approximately 2.6-mile.

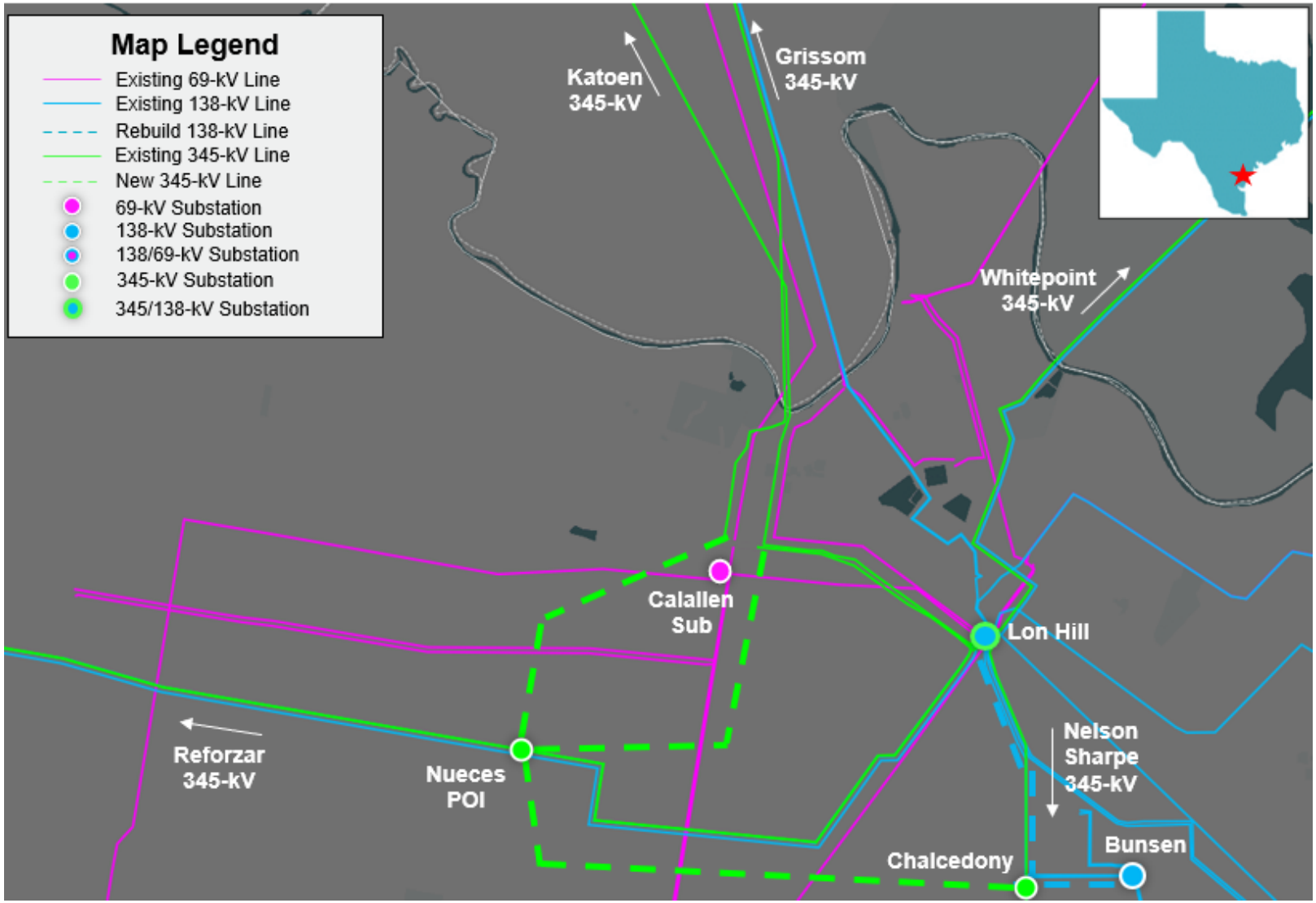
Option 2 – ERCOT Proposed Project



Option 3 – ERCOT Proposed Project

- Construct a new Nueces Load POI 345-kV substation cutting in on the existing Reforzar to Lon Hill 345-kV transmission line;
- Loop in the new Nueces Load POI onto the existing Lon Hill to Grissom 345-kV transmission line using single-circuit structures, with normal and emergency ratings of at least 1059 MVA and 1195 MVA respectively, approximately 5.9-mile;
- Construct a new Chalcedony to Nueces Load POI 345-kV transmission line on double-circuit structures with one circuit in place, with normal and emergency ratings of at least 2000 MVA, approximately 4.5-mile; and
- Rebuild the existing Lon Hill to Bunsen 138-kV transmission line on double-circuit structures with one circuit in place where not sharing a common tower, with normal and emergency ratings of at least 400 MVA, approximately 2.6-mile.

Option 3 – ERCOT Proposed Project



Results of Reliability Assessment – Options

	N-1		G-1+N-1*		X-1+N-1*	
Option	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations
1	None	None	None	None	None	None
1A	None	None	None	None	None	None
2	None	None	None	None	None	None
3	None	None	None	None	None	None

*See Appendix D for list of G-1 generators and X-1 transformers tested

Results of Maintenance Outage Evaluation

- ERCOT conducted a maintenance outage evaluation on the options
  - Load level in the South Weather Zone was scaled down to 89.2% of their summer peak loads in the study base case, respectively based on ERCOT load forecast and historical load, in order to mimic the off-peak load condition
  - N-2 contingencies were tested as a proxy for N-1-1. Any applicable violating contingencies were further tested with system adjustments
  - The transmission elements in the Nueces County were monitored in the maintenance outage evaluation
- Maintenance outage analysis results

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

Long-Term Load-Serving Capability Assessment

- Adjusted load up in substations in the Study Area
- Adjusted conforming load down outside of the South Weather Zone to balance power
- Based on N-1 contingency limits

Option	Incremental Load-Serving Capability (~MW)
1	6.4
1A	66.4
2	21.8
3	633.4

Cost Estimate and Feasibility Assessment

- Transmission Service Providers (TSPs) performed feasibility assessments and provided preliminary cost estimates for the four options

Option	Cost Estimates (~$M)	CCN Required (~Miles)	Feasibility	ISD (Year)
1	111.5*	Yes (5.9)	Yes	2031
1A	123.4	Yes (5.9)	Yes	2031
2	379.5	Yes (49.6)	Yes	2032
3	161.1	Yes (10.4)	Yes	2031

*STEC's initial cost estimate did not include AEP's increased capability requirement for the 345-kV transmission rebuild, the addition of AEP's portion of the new Nueces Load POI substation, and the increased cost associated with recent tariff changes and have thus increased from the initial cost estimate

Comparison of Short-Listed Options

- Option 1 and Option 1A continue to demonstrate violations under the maintenance outage evaluation and were removed from further comparison
- Option 2 and Option 3 were selected as short-listed options for further comparison

	Option 2	Option 3
Meets ERCOT and NERC Reliability Criteria	Yes	Yes
Improves Long-Term Load-Serving Capability (~MW)	21.8	633.4
Requires CCN (~miles)	Yes (49.6)	Yes (10.4)
Project Feasibility	Yes	Yes
Cost Estimate* (~$M)	379.5	161.1
ISD (Year)	2032	2031

*Cost estimates were provided by the TSP

ERCOT Preferred Option

- Option 3 is selected as the ERCOT preferred option because it:
  - Addresses the project need in the study area
  - Improves Long-Term Load-Serving Capability
  - Requires the least amount of CCN mileage of the two short-listed options
  - Is the least expensive option of the two short-listed options
  - Has the earliest ISD of the two short-listed options
- Based on the cost estimate provided by the TSPs, the preferred project is categorized as Tier 1 project (ERCOT Protocol 3.11.4.3)

Generation Addition and Load Scaling Sensitivity Analyses

- Generation Addition Sensitivity Analysis
  - Per Planning Guide Section 3.1.3(4)(a), ERCOT performed a generation addition sensitivity by adding the new generation listed in Appendix E to the preferred option case. The additional resources were modeled following the 2024 RTP methodology. ERCOT determined relevant generators do not impact the preferred option
- Load Scaling Sensitivity Analysis
  - Planning Guide Section 3.1.3(4)(b) requires an evaluation of the potential impact of load scaling on the criteria violations seen in this EIR. Starting 2024, ERCOT 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. The study case did not include load scaling as such load scaling sensitivity analysis is no longer needed

Subsynchronous Oscillations (SSO) Assessment

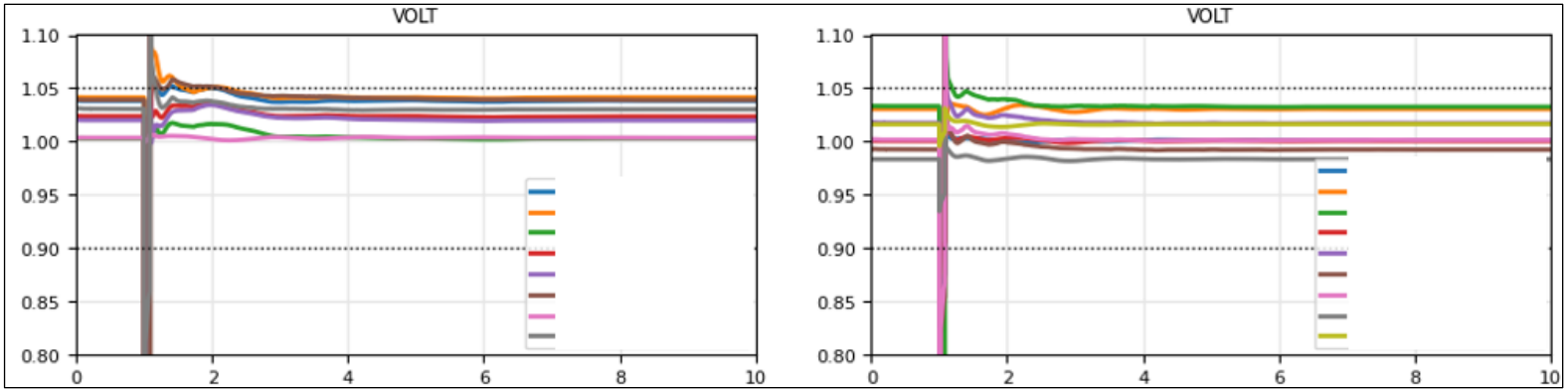
- Subsynchronous Oscillations (SSO) Assessment
  - Subsynchronous Oscillations (SSO) Assessment was conducted for the preferred option per Nodal Protocol Section 3.22.1.3
  - ERCOT found no adverse SSO impacts to the existing and planned generation resources at the time of this study

Congestion Analysis

- Congestion Analysis
  - Congestion analysis was performed for the preferred option using the 2024 RTP 2029 economic case
  - The preferred option did not result in any new congestion within the study area

Dynamic Stability Analysis

- ERCOT performed a dynamic stability analysis for the ERCOT-preferred option. The study utilized the Option 3 case as a starting point. The following key elements were incorporated and evaluated as part of the analysis:
  - Large loads within the study area
  - Critical contingencies within the study area, including P1, P7, and P6
  - Additional generator dynamic models
  - Option 3 (ERCOT's preferred option)
- ERCOT observed no adverse dynamic stability impacts resulting from the implementation of Option 3 (ERCOT's preferred option). Example plots illustrating acceptable performance under certain P1 contingency are provided below



ERCOT Recommendation

- ERCOT recommends Option 3
  - Estimated Cost: approximately $161.1 million
  - Expected ISD: May 2031
  - CCN filling will be required to
    - Construct the looping in of the new Nueces Load POI 345-kV substation onto the existing 345-kV transmission line from the existing Grissom substation to the existing Lon Hill substation due to approximately 5.9-mile of new Right of Way (ROW); and
    - Construct the new 345-kV transmission line from the planned Chalcedony substation to the new Nueces Load POI substation due to approximately 4.5-mile of new ROW.

Option 3 – ERCOT Proposed Project

- Construct a new Nueces Load POI 345-kV substation cutting in on the existing Reforzar to Lon Hill 345-kV transmission line;
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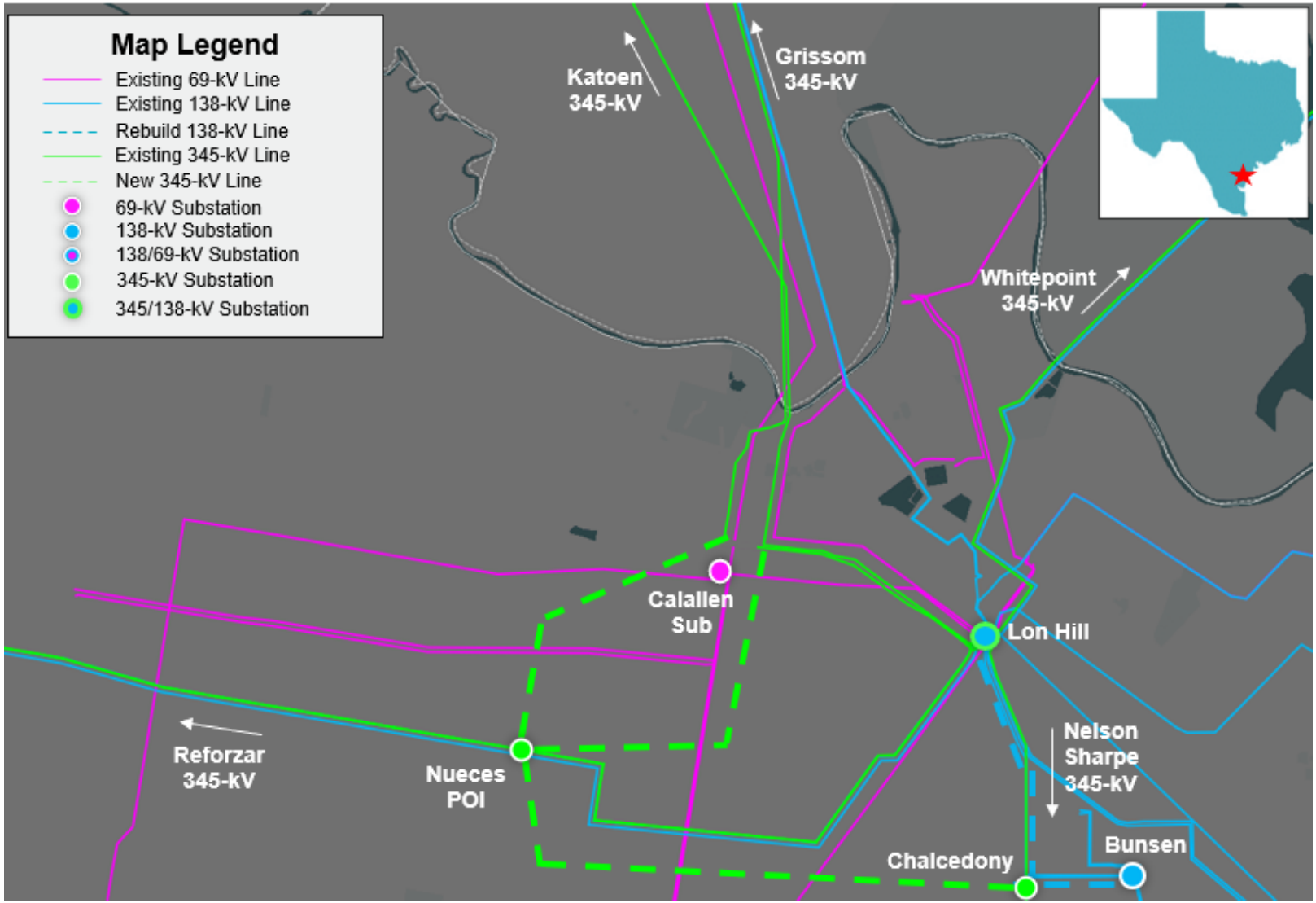
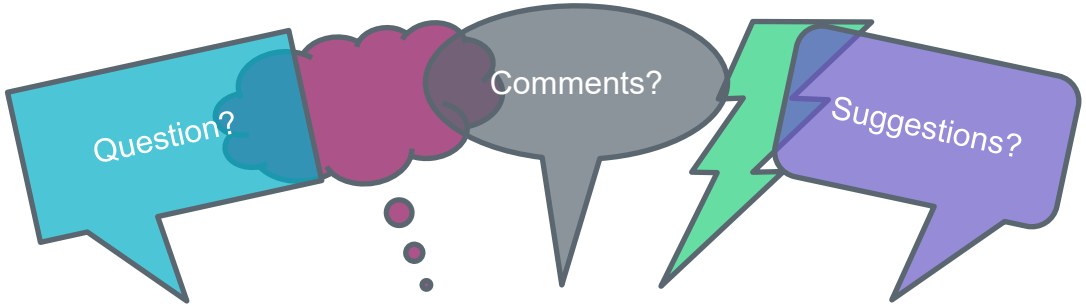
Option 3 – ERCOT Proposed Project



Next Steps and Tentative Timeline

- Tentative Timelines
  - EIR report to be posted in the MIS in March 2026
  - EIR recommendation to TAC in March 2026
  - Seek ERCOT Board of Directors endorsement in April 2026

Thank you!



Stakeholder comments also welcomed through:

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Appendix A – Transmission Projects Added

TPIT/RPG No	Project Name	Tier	Project ISD	TSP	County(s)
81686	Chalcedony: Construct New 345 kV Station	Tier 4	3/01/2028	AEP TCC	Nueces
91537	Starlite_Substation_Addition	Tier 4	12/01/25	LCRATSC	Nueces
93242	Saxet Substation Upgrade	Tier 4	6/01/2027	LCRATSC	Nueces
24RPG035	Aransas Pass to Rincon 69-kV Line Rebuild Project	Tier 2	1/01/2027	AEP TCC	San Patricio

Appendix B – Transmission Projects Removed

RTP Project ID	Project Name	TSP(s)	County(s)
2024-S1	Dupont Area 138-kV Line Upgrades	AEPSC	San Patricio, Nueces
2024-S3	San Diego Sub (5654) to Orange Groves Switch (5658) 69-kV Line Upgrade	STEC	Duval, Jim Wells
2024-S6	Seabird (84250) 138-kV Cap Bank Addition	AEPSC	San Patricio
2024-S8	Lon Hill Area 345-kV Upgrades	AEPSC	Kleberg
2024-S11	Caravel (85010) 138-kV Cap Bank Additions	AEPSC	Nueces
2024-S12	Lon Hill (8452) to Bunsen (8459) 138-kV Line Upgrade	AEPSC	Nueces
2024-S13	Nelson Sharpe 345/138-kV Transformer Addition	AEPSC	San Patricio
2024-S14	Naismith 345/138-kV Transformer Addition	AEPSC	Aransas, Calhoun, San Patricio

Appendix C – Generation Added

GINR	Project Name	Fuel	Project COD	Max Capacity (~MW)	County
21INR0359	Hickerson Solar	SOL	11/21/2025	311.1	Bosque
22INR0239	Rockefeller Storage	BESS	06/01/2027	206.8	Schleicher
22INR0437	TORMES SOLAR	SOL	03/31/2027	382.1	Navarro
22INR0457	Anson BAT	BESS	08/01/2026	150.6	Jones
22INR0605	Camino Santiago Solar	SOL	02/18/2027	196.3	Milam
23INR0078	Shaw Solar	SOL	04/29/2026	124.7	Bandera
23INR0181	Starling Storage	BESS	05/15/2027	63.6	Gonzales
23INR0225	MRG GOODY SOLAR	SOL	05/02/2026	170.8	Lamar
23INR0538	Roadrunner Crossing BESS SLF	BESS	12/31/2025	150.4	Eastland
24INR0181	Bynum Solar Project	SOL	12/01/2025	56.0	Coryell
24INR0188	Tehuacana Creek Solar SLF	SOL	03/10/2027	505.5	Navarro
24INR0189	Tehuacana Creek BESS SLF	BESS	03/10/2027	419.0	Navarro
24INR0305	MRG Goody Storage	BESS	05/02/2026	52.3	Lamar
24INR0355	Anatole Renewable Energy Storage	BESS	03/31/2027	207.8	Henderson
24INR0364	Pitts Dudik II	SOL	02/04/2026	30.2	Hill

Appendix C – Generation Added Cont.

GINR	Project Name	Fuel	Project COD	Max Capacity (~MW)	County
24INR0386	Black & Gold Energy Storage	BESS	06/30/2027	254.6	Menard
24INR0453	Longfellow BESS I	BESS	01/31/2026	55.0	Pecos
24INR0455	Longfellow BESS II	BESS	01/31/2026	105.8	Pecos
24INR0493	Crowned Heron BESS 2	BESS	03/31/2026	154.2	Fort Bend
24INR0528	Blanquilla BESS	BESS	05/15/2026	200.8	Nueces
24INR0533	Padua Grid BESS Unit 2	BESS	03/15/2026	150.9	Bexar
24INR0584	Houston IV BESS	BESS	06/03/2026	164.6	Harris
25INR0018	Yellow Cat Wind	WIN	04/01/2027	262.0	Navarro
25INR0199	Bonham Solar 1	SOL	08/31/2026	138.4	Limestone
25INR0229	OCI Cobb Creek Solar	SOL	12/01/2026	203.1	Hill
25INR0233	OCI Cobb Creek ESS	BESS	12/01/2026	201.6	Hill
25INR0391	Purple Sage BESS 1	BESS	05/30/2027	156.0	Collin
25INR0392	Purple Sage BESS 2	BESS	05/30/2027	156.0	Collin
26INR0034	Bracero Pecan Storage	BESS	04/01/2027	232.0	Reeves
26INR0296	Sherbino II BESS SLF	BESS	02/08/2026	77.4	Pecos

Appendix C – Generation Added Cont.

GINR	Project Name	Fuel	Project COD	Max Capacity (~MW)	County
26INR0543	Three Canes Solar SLF	SOL	03/10/2027	333.0	Navarro
28INR0024	Padua Grid BESS Unit 3	BESS	05/15/2026	201.4	Bexar

Appendix D – G-1 Generators and X-1 Transformers

G-1 Generators	X-1 Transformers
Papalote Creek Wind II	Lon Hill X1 345/138-kV
El Algoden Alto W U1	Whitepoint X1 345/138-kV
Cranell Wind	Pawnee X1 345/138-kV

Appendix E – List of Units for Generation Addition Sensitivity Analysis

GINR	Project Name	Fuel	Project COD	Max Capacity (~MW)	County
25INR0375	NavBoot BESS	BESS	11/11/2027	303.7	Nueces