



**Combined CPS Energy Reactive Power  
Planning Project & CPS Energy Helotes  
345/138-kV Switching Station and  
Autotransformer Addition at Eastside  
Switching Station Project – ERCOT  
Independent Review (EIR) Status  
Update**

Travis Head

RPG Meeting  
March 17, 2026

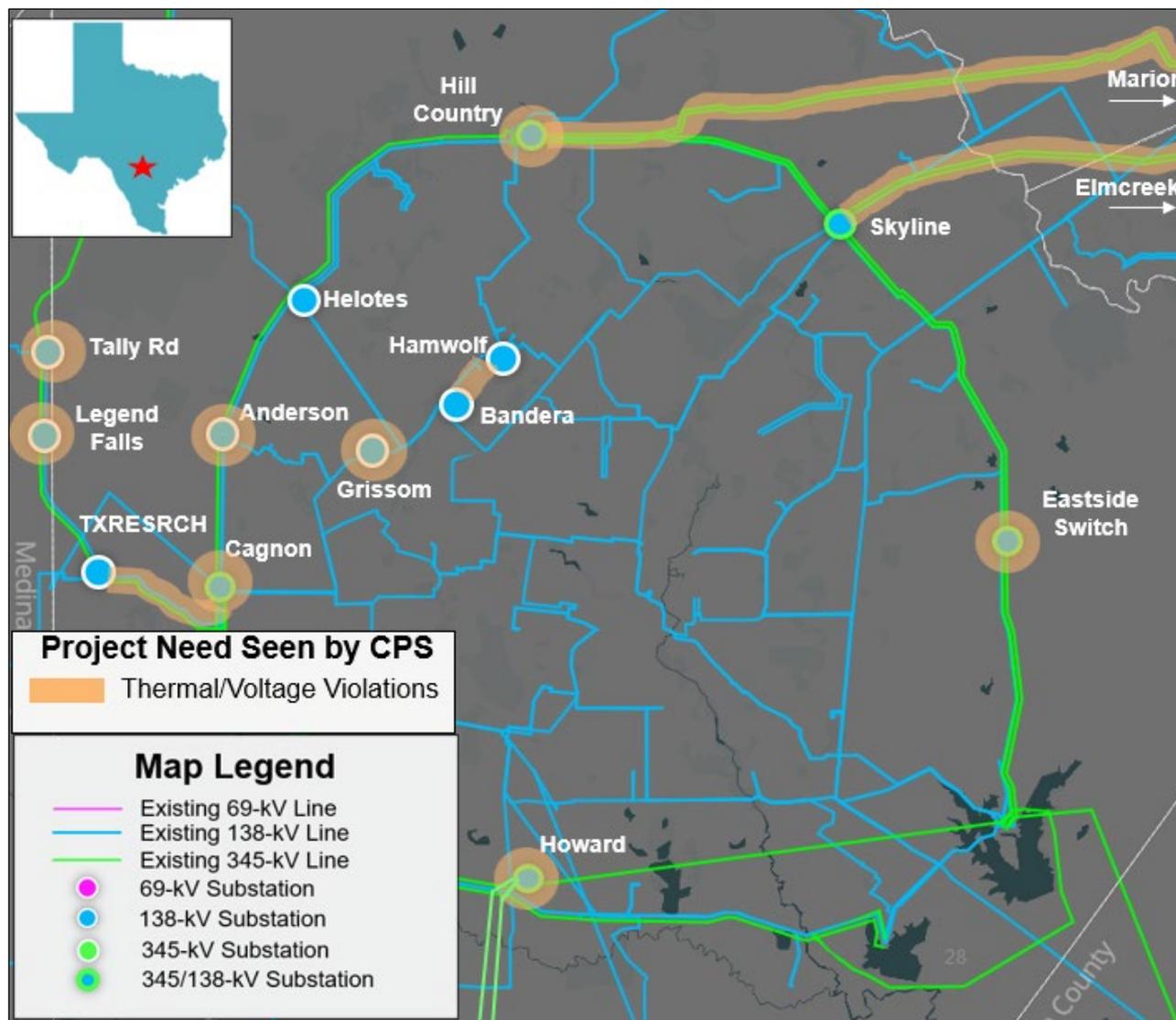
# Introduction

- CPS Energy Reactive Power Planning Project (25RPG013) for Regional Planning Group (RPG) review in May 2025
  - This is a Tier 1 project with an estimated cost of \$116.50 million and will not require a Certificate of Convenience and Necessity (CCN)
  - Estimated in-service date (ISD) is December 2029
  - This project is needed to address post-contingency voltage violations in the Bexar County
- CPS Energy Helotes 345/138-kV Switching Station and Autotransformer Addition at Eastside Switching Station Project (25RPG017) for Regional Planning Group (RPG) review in May 2025
  - This is a Tier 1 project with an estimated cost of \$110.0 million and will not require a Certificate of Convenience and Necessity (CCN)
  - Estimated ISD is Summer 2028 and Summer 2029
  - This project is needed to address post-contingency thermal violations in the Bexar County

# Introduction

- CPS presented a project overview and ERCOT provided a project scope at the July 2025 RPG Meeting
  - <https://www.ercot.com/calendar/07292025-RPG-Meeting>
- ERCOT provided a project update at the August, October, December 2025, January, and February 2026 RPG Meetings
  - <https://www.ercot.com/calendar/08262025-RPG-Meeting>
  - <https://www.ercot.com/calendar/10282025-RPG-Meeting>
  - <https://www.ercot.com/calendar/12162025-RPG-Meeting>
  - <https://www.ercot.com/calendar/01162026-RPG-Meeting>
  - <https://www.ercot.com/calendar/02022026-RPG-Meeting>
- ERCOT is currently conducting a single ERCOT Independent Review (EIR) by combining these two projects (25RPG013 and 25RPG017)

# Study Area Map with Project Needs Seen by CPS



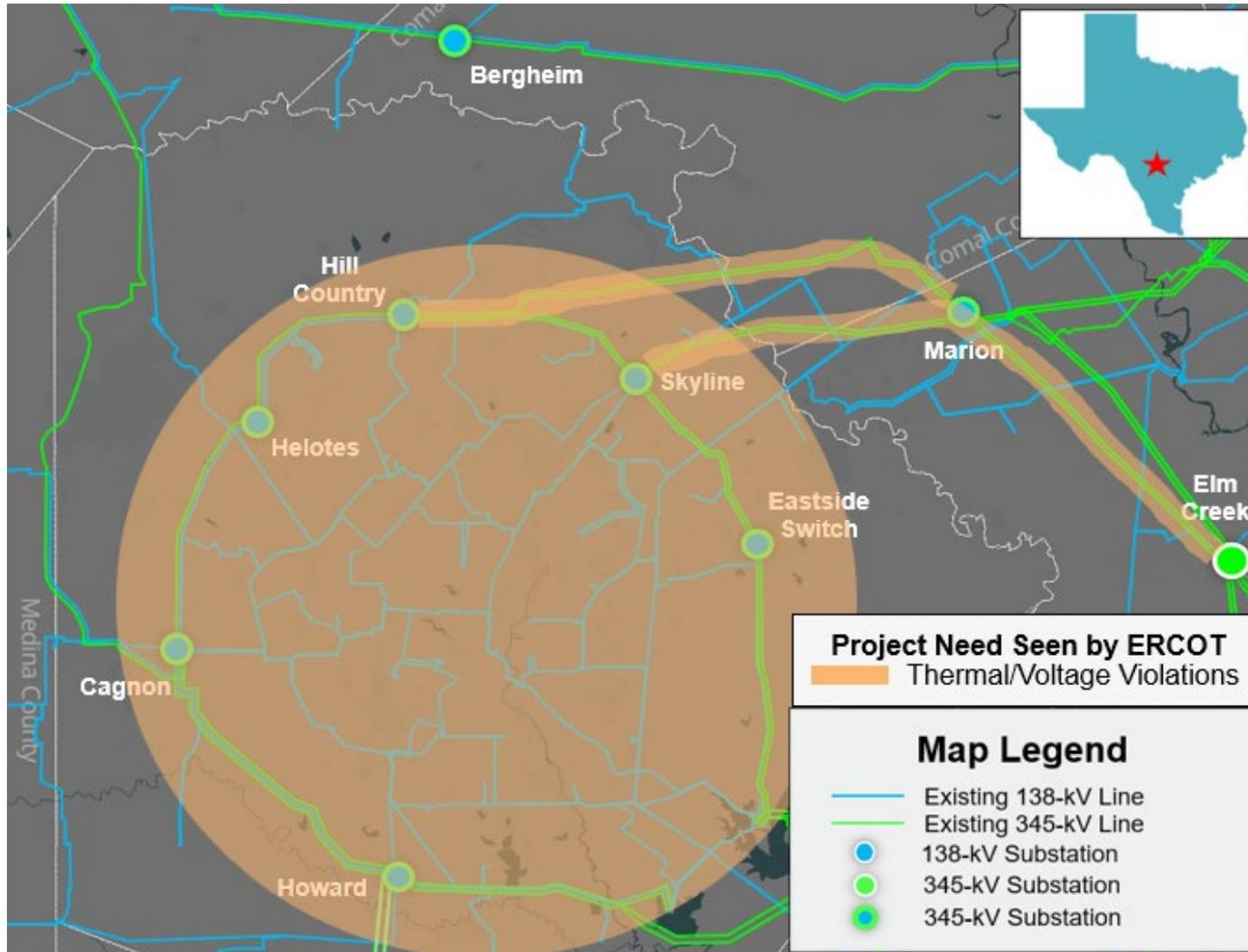
# Update – Preliminary Results of Reliability Assessment – Updated Base Case

Contingency Category	Unsolved Power Flow	Voltage Violations	Thermal Overloads
P1	None	None	5*
P2, P4, P5	5	None	None
P3 (G-1+N-1)**	20+	100+	20+
P6.2 (X-1+N-1)**	10+	100+	20+
P7	8*	100+*	11*
<b>Total</b>	<b>20+</b>	<b>100+</b>	<b>20+</b>

\*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 Needs Seen by ERCOT



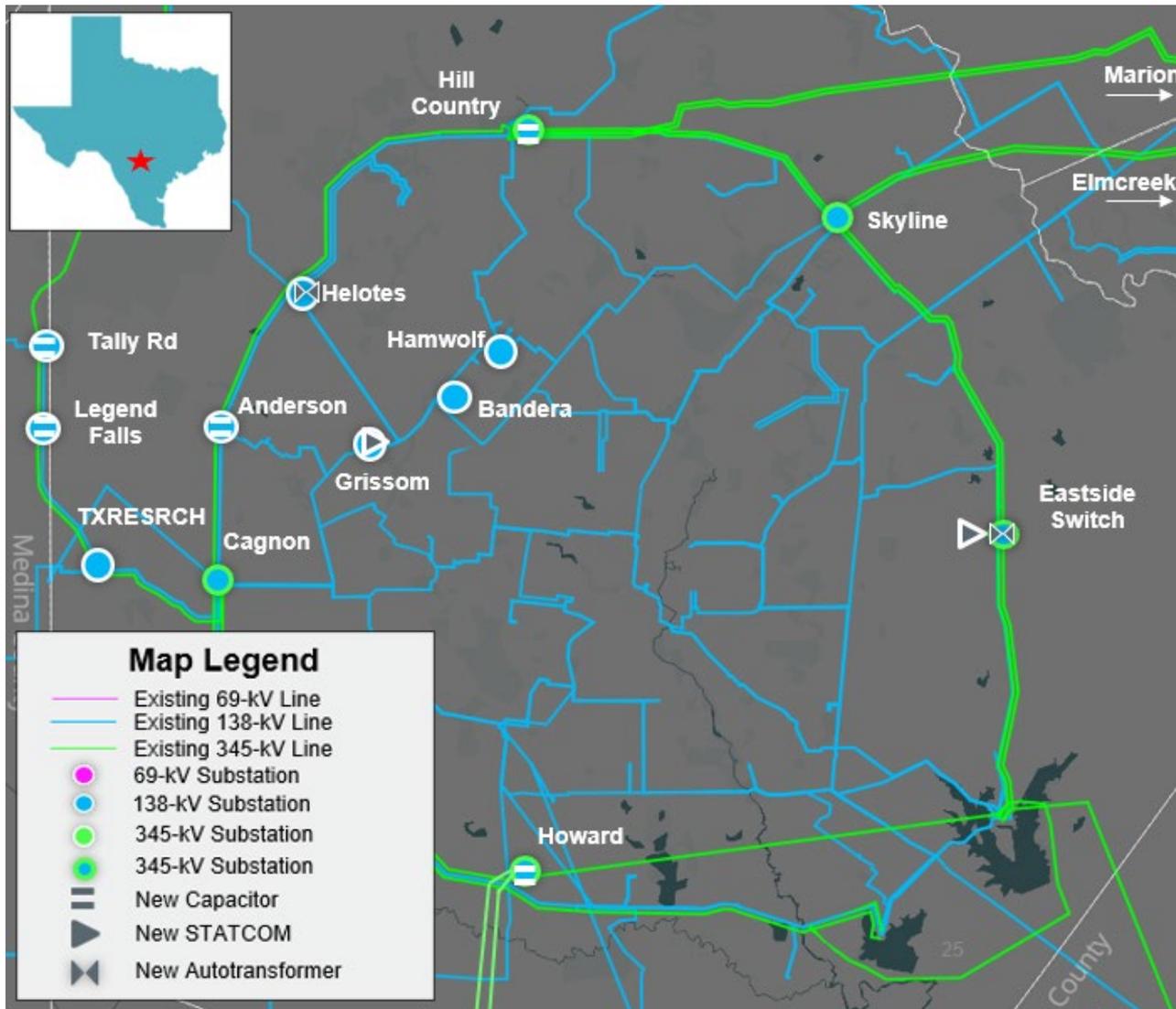
# Option 1 – Combined CPS Project

- Construct a new Helotes 345-kV substation;
- Convert the existing Helotes 138-kV substation to a new 345/138-kV switching substation;
- Install two new 345/138-kV autotransformers at the new Helotes 345/138-kV switching substation with normal and emergency ratings of at least 600 MVA;
- Loop in the existing Hill Country to Cagnon 345-kV transmission line into the new Helotes 345-kV substation;
- Install a new 345/138-kV autotransformer at the existing Eastside 345/138-kV substation with normal and emergency ratings of at least 600 MVA; and

# Option 1 – Combined CPS Project

- Install the following sized capacitors at the following 138-kV substations:
  - 50 MVAR, Hill Country
  - 50 MVAR, Anderson
  - 25 MVAR, Legend Falls
  - 50 MVAR, Howard
  - 25 MVAR, Talley Rd
- Install the following STATCOMs at the following 138-kV substations:
  - 300 MVAR, Grissom
  - 300 MVAR, Eastside Switch

# Option 1 – Combined CPS Project



## Option 2 – ERCOT Proposed Option

- Construct a new Helotes 345-kV substation;
- Convert the existing Helotes 138-kV substation to a new 345/138-kV switching substation;
- Install two new 345/138-kV autotransformers at the new Helotes 345/138-kV switching substation with normal and emergency ratings of at least 600 MVA;
- Loop in the existing Hill Country to Cagnon 345-kV transmission line into the new Helotes 345-kV substation;
- Install a new 345/138-kV autotransformer at the existing Eastside 345/138-kV substation with normal and emergency ratings of at least 600 MVA;

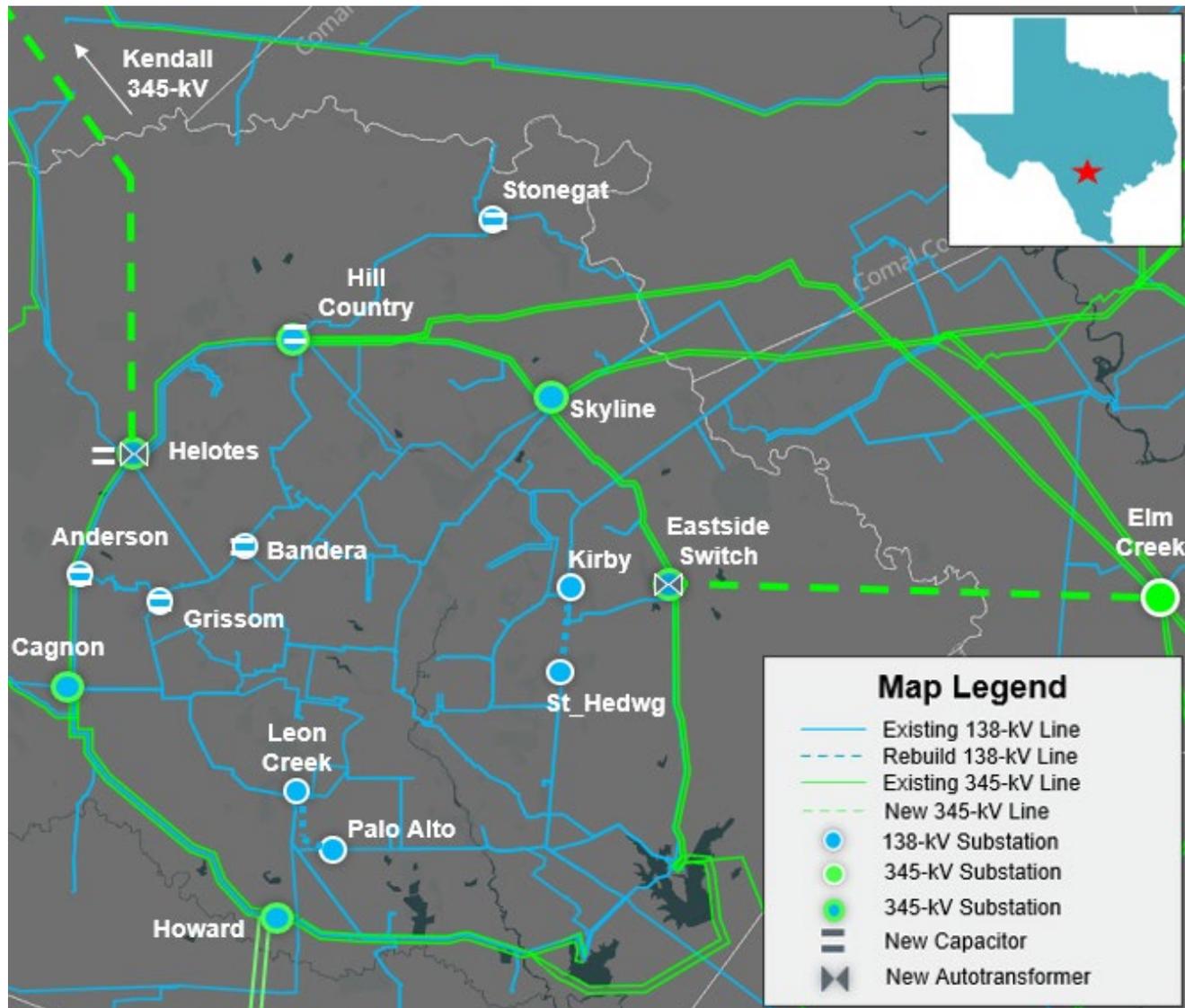
## Option 2 – ERCOT Proposed Option

- Construct a new Kendall to Helotes 345-kV transmission line on double-circuit structures with one circuit in place, with normal and emergency ratings of at least 1980 MVA, approximately 39.1-mile;
- Construct a new Elm Creek to Eastside 345-kV transmission line on double-circuit structures with one circuit in place, with normal and emergency ratings of at least 1980 MVA, approximately 23.4-mile;
- Rebuild the existing Kirby to St\_Hedwg 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 478 MVA, approximately 2.67-mile;

## Option 2 – ERCOT Proposed Option

- Rebuild the existing Leon Creek to Palo Alto 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 478 MVA, approximately 3.64-mile; and
- Install the following sized capacitors at the following 138-kV substations:
  - 50 MVA<sub>r</sub>, Grissom
  - 50 MVA<sub>r</sub>, Helotes
  - 50 MVA<sub>r</sub>, Bandera
  - 50 MVA<sub>r</sub>, Anderson
  - 50 MVA<sub>r</sub>, Hill Country
  - 50 MVA<sub>r</sub>, Stonegat

# Option 2 – ERCOT Proposed Option



## Option 3 – ERCOT Proposed Option

- Construct a new Helotes 345-kV substation;
- Convert the existing Helotes 138-kV substation to a new 345/138-kV switching substation;
- Install two new 345/138-kV autotransformers at the new Helotes 345/138-kV switching substation with normal and emergency ratings of at least 600 MVA;
- Loop in the existing Hill Country to Cagnon 345-kV transmission line into the new Helotes 345-kV substation;
- Install a new 345/138-kV autotransformer at the existing Eastside 345/138-kV substation with normal and emergency ratings of at least 600 MVA;
- Construct a new Hill Country to Bergheim 345-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 1980 MVA, approximately 14.28-mile;

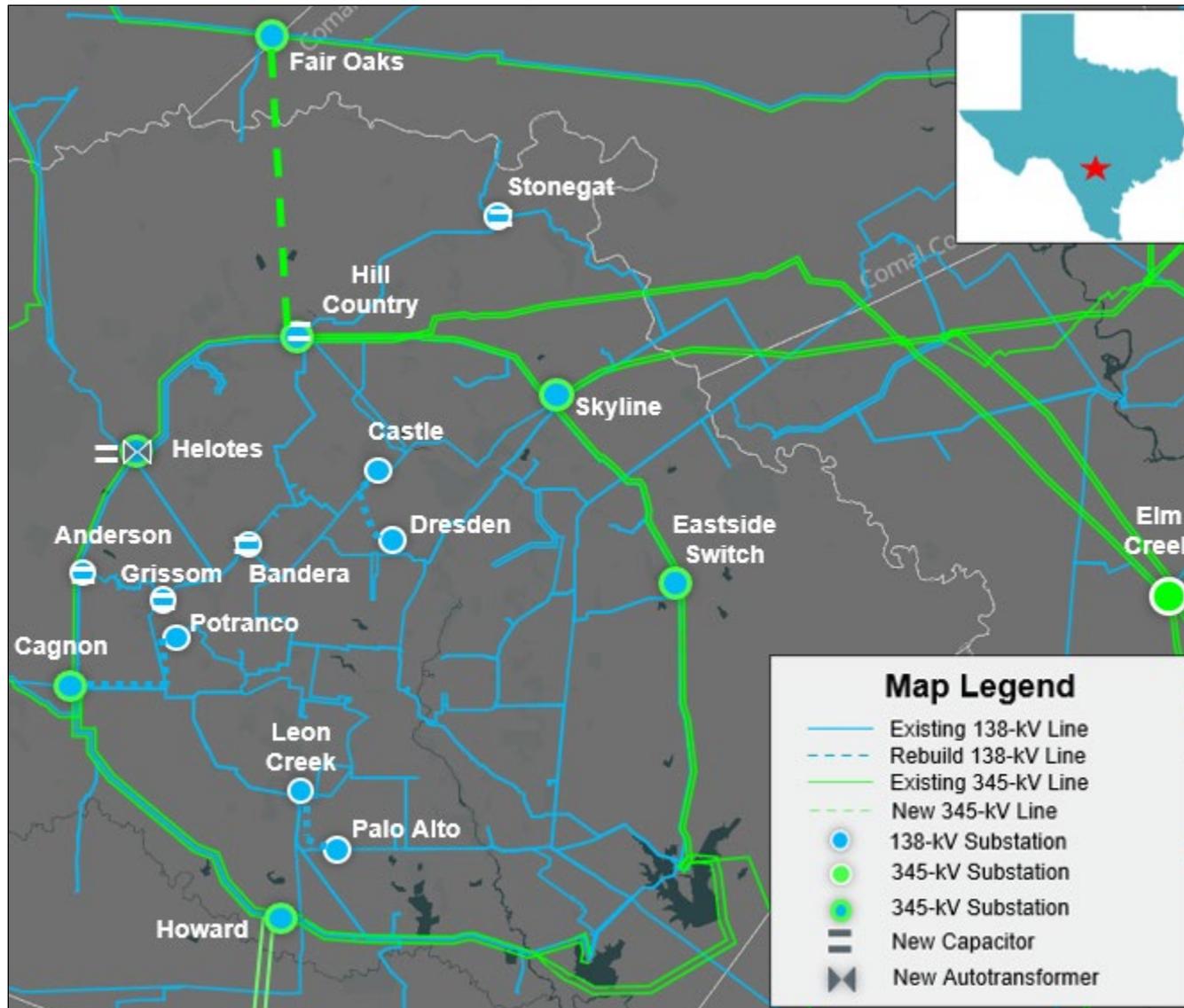
## Option 3 – ERCOT Proposed Option

- Rebuild the existing Castle to Dresden 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 478 MVA, approximately 3.79-mile;
- Rebuild the existing Cagnon to Potranco 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 478 MVA, approximately 5.87-mile;
- Rebuild the existing Leon Creek to Palo Alto 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 478 MVA, approximately 3.64-mile; and

## Option 3 – ERCOT Proposed Option

- Install the following sized capacitors at the following 138-kV substations:
  - 50 MVAR, Grissom
  - 50 MVAR, Helotes
  - 50 MVAR, Bandera
  - 50 MVAR, Anderson
  - 50 MVAR, Hill Country
  - 50 MVAR, Stonegat

# Option 3 – ERCOT Proposed Option



# Option 3A – ERCOT Proposed Option

- Construct a new Helotes 345-kV substation;
- Convert the existing Helotes 138-kV substation to a new 345/138-kV switching substation;
- Install two new 345/138-kV autotransformers at the new Helotes 345/138-kV switching substation with normal and emergency ratings of at least 600 MVA;
- Loop in the existing Hill Country to Cagnon 345-kV transmission line into the new Helotes 345-kV substation;
- Install a new 345/138-kV autotransformer at the existing Eastside 345/138-kV substation with normal and emergency ratings of at least 600 MVA;
- Construct a new Hill Country to Bergheim 345-kV transmission line on double-circuit structures with one circuit in place, with normal and emergency ratings of at least 1980 MVA, which will require a new right of way (ROW), approximately 14.28 miles;

## Option 3A – ERCOT Proposed Option

- Rebuild the existing Castle to Dresden 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 478 MVA, approximately 3.79 miles;
- Rebuild the existing Cagnon to Potranco 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 478 MVA, approximately 5.87 miles;
- Rebuild the existing Leon Creek to Palo Alto 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 478 MVA, approximately 3.64 miles;
- Rebuild the existing Medinabs to 36th Street 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 478 MVA, approximately 8.57 miles;

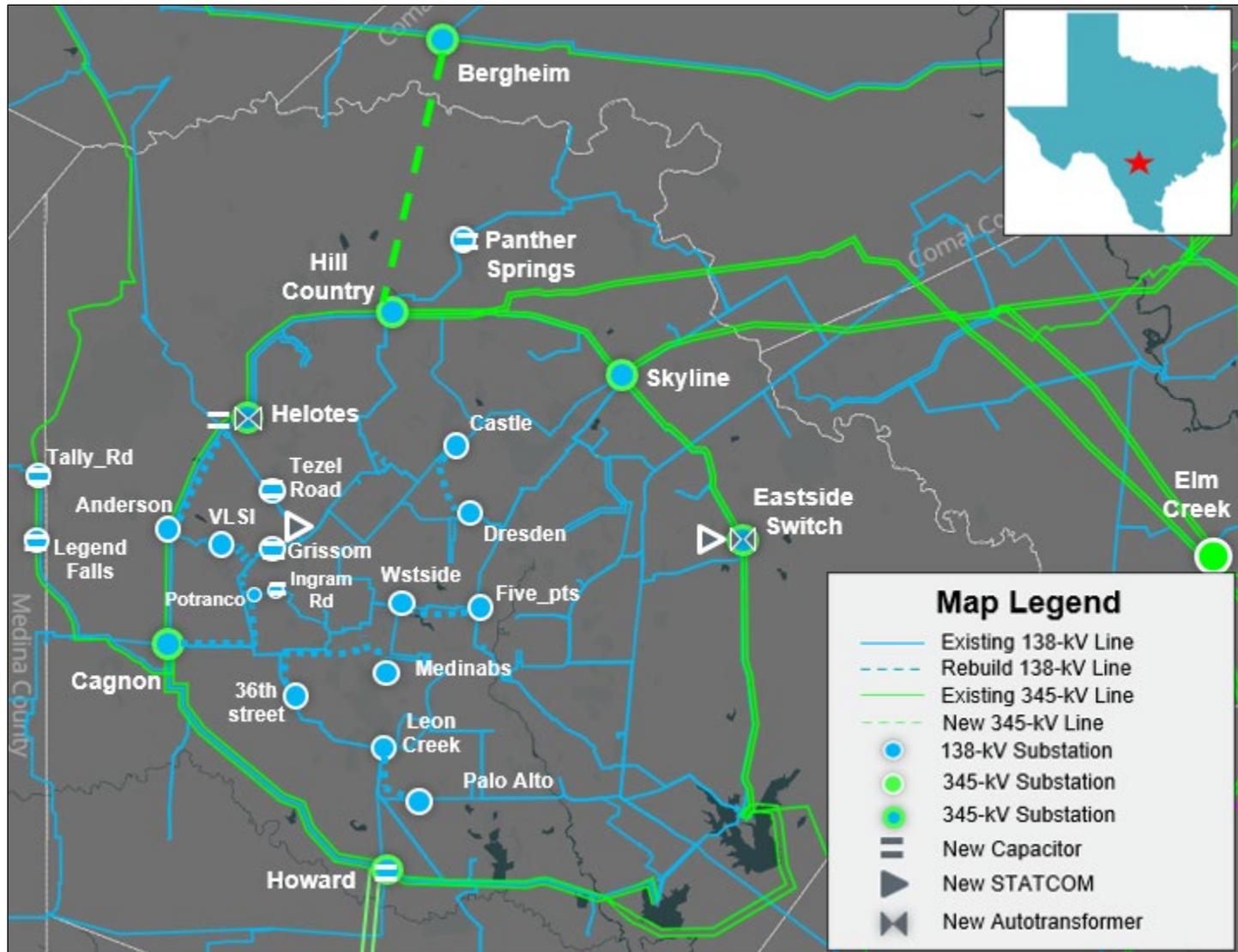
## Option 3A – ERCOT Proposed Option

- Rebuild the existing Cagnon to VLSI 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 478 MVA, approximately 8.74 miles;
- Rebuild the existing Five\_pts to Wstside 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 478 MVA, approximately 3.78 miles;
- Rebuild the existing Grissom to VLSI 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 478 MVA, approximately 3.03 miles;
- Rebuild the existing Anderson to Helotes 138-kV transmission line on single-circuit structures where not sharing a common tower, with normal and emergency ratings of at least 600 MVA, approximately 5.67 miles;

# Option 3A – ERCOT Proposed Option

- Install the following sized capacitors at the following 138-kV substations:
  - 50 MVar, Helotes
  - 50 MVar, Howard
  - 35 MVar, Ingram Road
  - 25 MVar, Legend Falls
  - 50 MVar, Panther Springs
  - 25 MVar, Tally\_Rd
  - 35 MVar, Tezel Road
- Install the following STATCOMs at the following 138-kV substations:
  - 300 MVar, Grissom
  - 300 MVar, Eastside Switch

# Option 3A – ERCOT Proposed Option



# Update – Preliminary 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	7	None	None	None
2	None	None	None	None	None	None
3	None	None	None	None	None	None
3A	None	None	None	None	None	None

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

# Update – Preliminary Results of Maintenance Outage Evaluation

- ERCOT conducted planned maintenance outage evaluation on the options
  - Load level in the South-Central Weather Zone was scaled down to 80.3% 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 Bexar County were monitored in the maintenance outage evaluation
- Maintenance outage analysis results

Option	Voltage Violations	Thermal Overloads	Unsolved Power Flow
Base	None	12	None
1	None	18	None
2	None	5	None
3	None	5	None
3A	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-Central Weather Zone to balance power
- Based on N-1 contingency limits

Option	Incremental Load-Serving Capability (~MW)
1	37.7
2	8.7
3	167.7
3A	206.9

# Preliminary 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	233.0	No	No	2029
2	N/A	Yes (62.5)	No	N/A
3	N/A	Yes (14.3)	No	2031
3A	482.7	Yes (14.3)	Yes	2031

# Comparison of Options

	Option 1	Option 2	Option 3	Option 3A
Meets ERCOT and NERC Reliability Criteria	No	No	No	Yes
Improves Long-Term Load-Serving Capability (~MW)	37.7	8.7	167.7	206.9
Requires CCN (~miles)	No	Yes (62.5)	Yes (14.3)	Yes (14.3)
Project Feasibility	No	No	No	Yes
Cost Estimate* (~\$M)	233.0	N/A	N/A	482.7
ISD (Year)	2029	N/A	2031	2031

\*Cost estimates were provided by the TSP

# ERCOT Preferred Option

- Option 3A is selected as the ERCOT preferred option because it:
  - Addresses the project need in the study area
  - Improves Long-Term Load-Serving Capability
  - Is feasible for construction

# 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

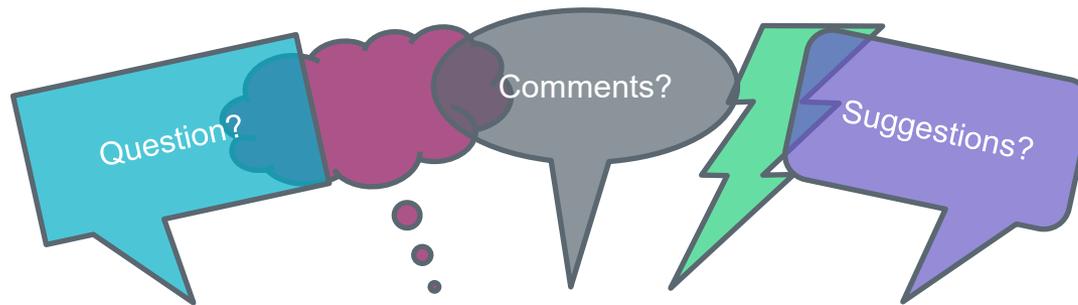
# Congestion Analysis

- 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

# Next Steps and Tentative Timeline

- Additional analyses to be performed on the preferred option
  - Subsynchronous Oscillations (SSO) Assessment
  - Dynamics Assessment to ensure that the identified transmission upgrades do not result in system instability within the study area
- Tentative Timelines
  - Status updates at the future RPG meetings
  - Final recommendation – Q2 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)
89912	GVEC_Olmos to Wilson 138 kV TL, T297	Tier 4	12/01/26	GVEC	Guadalupe

# Appendix B – Transmission Projects Removed

RTP Project ID	Project Name	TSP(s)	County(s)
2024-SC19	Hillje (44200) to Zorn (7042) 345-kV Line Upgrades	CNP, AEN, LCRA TSC	Wharton, Fayette, Bastrop, Caldwell, Guadalupe
2024-SC26	Shaula (5380) to Elm Creek (5133) to Cachena (5068) 345-kV Line Upgrades	CPS	Wilson, Guadalupe, Dewitt

# Appendix C – Generation Added

GINR	Project Name	Fuel	Project COD	Max Capacity (~MW)	County
20INR0162	Diamondback Solar	SOL	12/31/2027	203.8	Starr
21INR0359	Hickerson Solar	SOL	11/21/2025	311.1	Bosque
22INR0220	Lamkin Solar	SOL	08/08/2027	101.5	Comanche
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
23INR0479	Taormina Storage	BESS	05/26/2029	231.9	Bexar
23INR0538	Roadrunner Crossing BESS SLF	BESS	12/31/2025	150.4	Eastland
24INR0126	High Noon Storage	BESS	05/09/2028	94.0	Hill
24INR0181	Bynum Solar Project	SOL	12/01/2025	56.0	Coryell
24INR0188	Tehuacana Creek Solar SLF	SOL	03/10/2027	505.5	Navarro

# Appendix C – Generation Added Cont.

GINR	Project Name	Fuel	Project COD	Max Capacity (~MW)	County
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
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
25INR0046	Blue Skies BESS	BESS	12/31/2027	306.3	Hill
25INR0199	Bonham Solar 1	SOL	08/31/2026	138.4	Limestone
25INR0229	OCI Cobb Creek Solar	SOL	12/01/2026	203.1	Hill

# Appendix C – Generation Added Cont.

GINR	Project Name	Fuel	Project COD	Max Capacity (~MW)	County
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
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
Leon Creek U1	Cagnon X1 345/138-kV
Guadalupe Energy Center CTG 1	Howard Road X1 345/138-kV
	Hill Country X1 345/138-kV
	Martinez X1 345/138-kV