



# **BEC Hamilton County Conversion Project – ERCOT Independent Review Study Status Update**

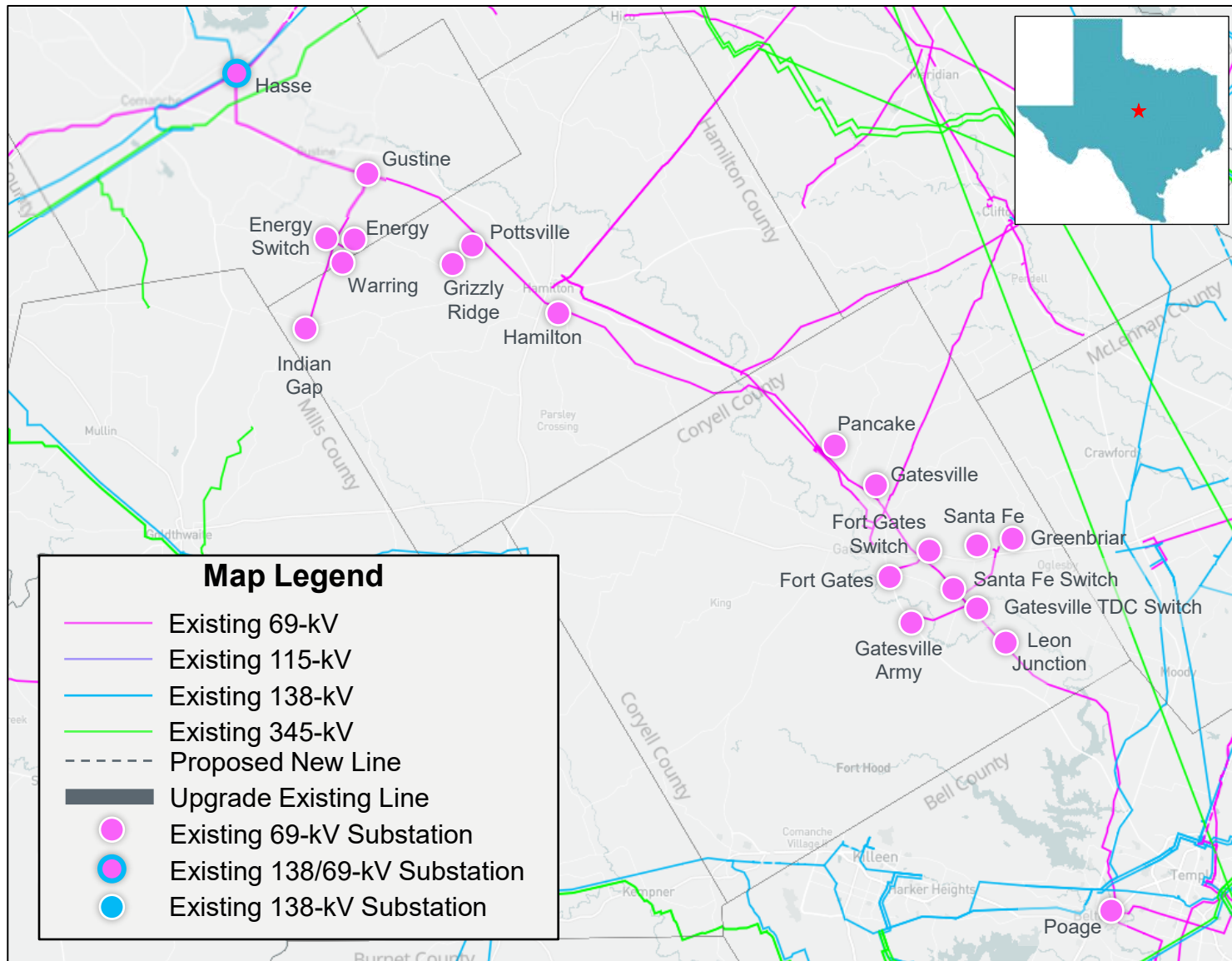
Travis Head

RPG Meeting  
August 26, 2025

# Introduction

- BEC submitted the Hamilton County Conversion Project for Regional Planning Group (RPG) review in February 2025
  - This Tier 2 project is estimated at \$90.0 million and will require a Convenience and Necessity (CCN)
  - Estimated in-service date (ISD) is Fall 2030
  - Is a GTC Exit Strategy for the Hamilton GTC
- BEC presented a project overview and ERCOT provided a project scope at the April 2025 RPG Meeting
  - <https://www.ercot.com/calendar/04292025-RPG-Meeting>
- ERCOT provided status updates in the June and July RPG Meetings
  - <https://www.ercot.com/calendar/06172025-RPG-Meeting>
  - <https://www.ercot.com/calendar/07292025-RPG-Meeting>
- This project is currently under ERCOT Independent Review (EIR)

# Study Area Map



# Recap – Preliminary Results of Reliability Assessment – Base Case

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

\*G-1 Generators tested: Grizzly Ridge Solar S1, Panda Temple C1, Logans Gap Wind W1

\*\*X-1 Transformers tested: Hasse X1, Comanche Switch X1, Temple Switch X1

# Updated – Preliminary Results of Planned Maintenance Outage Evaluation

- ERCOT conducted planned maintenance outage evaluation on the options
  - Load level in the North-Central Weather Zone was scaled down to 82.0% of its 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 Bell, Bosque, Comanche, Coryell, and Hamilton Counties were monitored in the maintenance outage evaluation
- Planned maintenance outage analysis results

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

# Option 1 – BEC Proposed Project

- Convert existing Hasse to Gustine 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 418 MVA or greater, approximately 14.0-mile;
- Convert the existing Gustine, Energy, Energy Switch, Waring, Indian Gap, Pottsville, Hamilton, Gatesville, Fort Gates Switch, Fort Gates, Gatesville TDC Switch, Leon Junction, Poage 69-kV substations to 138-kV operation;
- Construct a new Gustine to Indian Gap 138-kV transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, which will require new right of way (ROW), approximately 11.65-mile;
- Rebuild existing Gustine to Energy Switch 69-kV transmission line as a 138-kV transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, which will require new ROW, approximately 5.1-mile;
- Rebuild existing Energy Switch to Energy 69-kV transmission line as a 138-kV transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, which will require new ROW, approximately 1.0-mile;

# Option 1 – BEC Proposed Project cont'd

- Rebuild existing Energy Switch to Indian Gap 69-kV transmission line as a 138-kV transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, which will require new ROW, approximately 6.6-mile;
- Convert existing Gustine to Pottsville 69-kV transmission line to operate a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 11.0-mile;
- Convert existing Pottsville to Hamilton 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 7.6-mile;
- Convert existing Pottsville to Grizzly Ridge 69-kV transmission line to operate as a 138-kV transmission line with normal rating of 220 MVA and emergency rating of 242 MVA or greater, approximately 0.1-mile;
- Install two 138/69-kV autotransformers at the existing Pancake 69-kV substation with normal and emergency ratings of 60 MVA;
- Convert existing Hamilton to Pancake 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 21.9-mile;

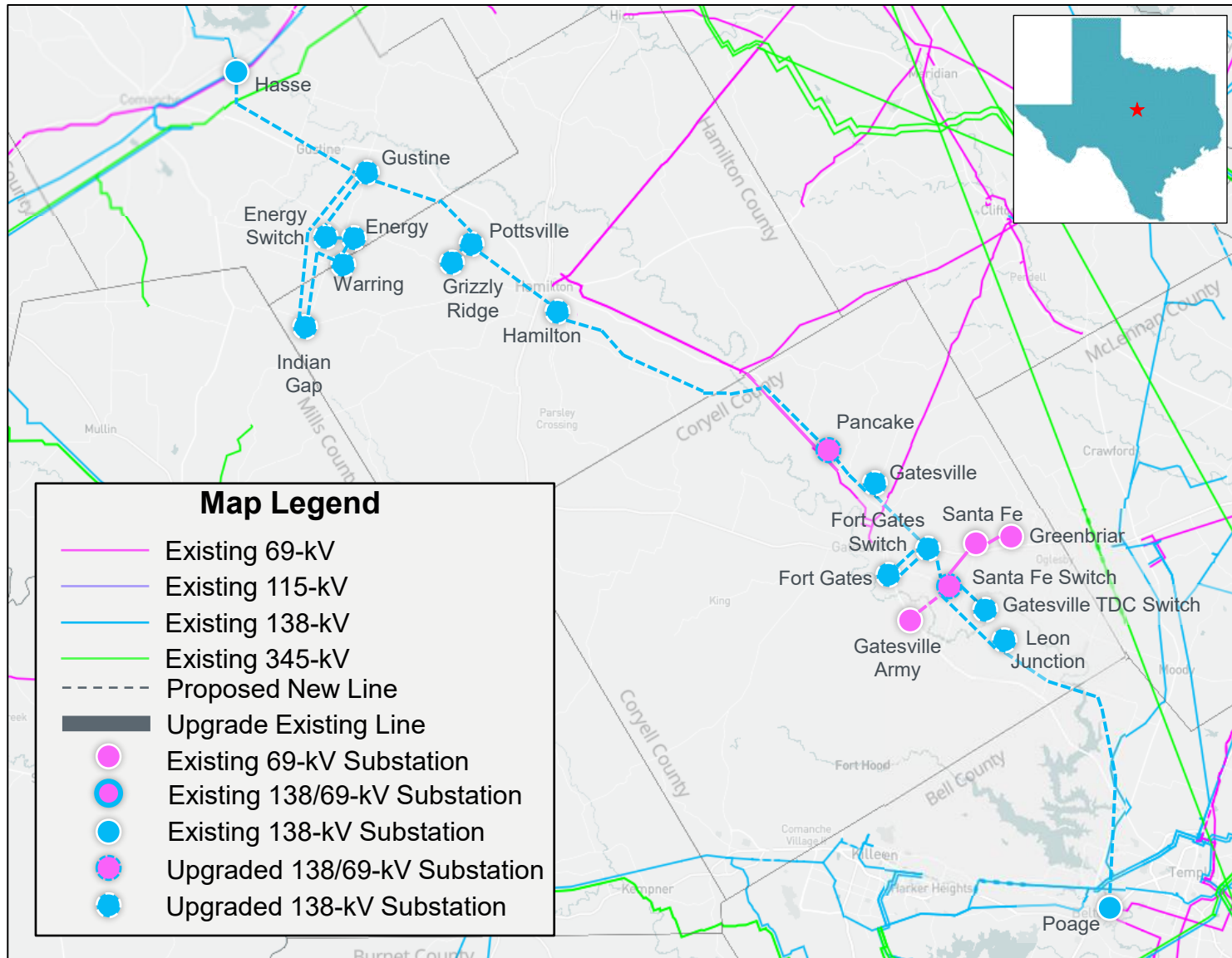
# Option 1 – BEC Proposed Project cont'd

- Convert existing Pancake to Gatesville 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 4.0-mile;
- Convert existing Gatesville to Fort Gates 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 7.5-mile;
- Rebuild existing Fort Gates Switch to Fort Gates 69-kV transmission line as a 138-kV double-circuit transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, which will require new ROW, approximately 2.0-mile;
- Convert existing Fort Gates to Santa Fe Switch 69-kV transmission line as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 3.9-mile;
- Install two 138/69-kV autotransformers at the existing Santa Fe Switch 69-kV substation with normal and emergency ratings of 60 MVA;

# Option 1 – BEC Proposed Project cont'd

- Rebuild existing Santa Fe Switch to Gatesville TDC Switch 69-kV transmission line as a 138-kV double-circuit transmission on double-circuit structures line with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, which will require new ROW, approximately 0.8-mile;
- Move existing Gatesville TDC Switch to Gatesville Army 69-kV tie line to connect to Santa Fe Switch creating the Santa Fe Switch to Gatesville Army 69-kV tie line;
- Convert existing Santa Fe Switch to Leon Junction 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 4.0-mile;
- Convert existing Leon Junction to Poage 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 24.4-mile; and
- Retire Poage autotransformer (Installed from Temple Area Improvements RPG).

# Option 1 – BEC Proposed Project



## Option 2 – ERCOT Proposed Option

- Convert the existing Gustine, Energy, Energy Switch, Waring, Indian Gap, Pottsville, and Hamilton 69-kV BEC owned substations to 138-kV operation;
- Remove existing 138/69-kV transformers at Hasse;
- Convert existing Hasse to Gustine 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 418 MVA or greater, approximately 14.0-mile;
- Convert existing Gustine to Energy Switch 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, which will require new ROW, approximately 5.1-mile;
- Convert existing Energy Switch to Energy 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, which will require new ROW, approximately 1.0-mile;
- Convert existing Energy Switch to Indian Gap 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, which will require new ROW, approximately 6.6-mile;

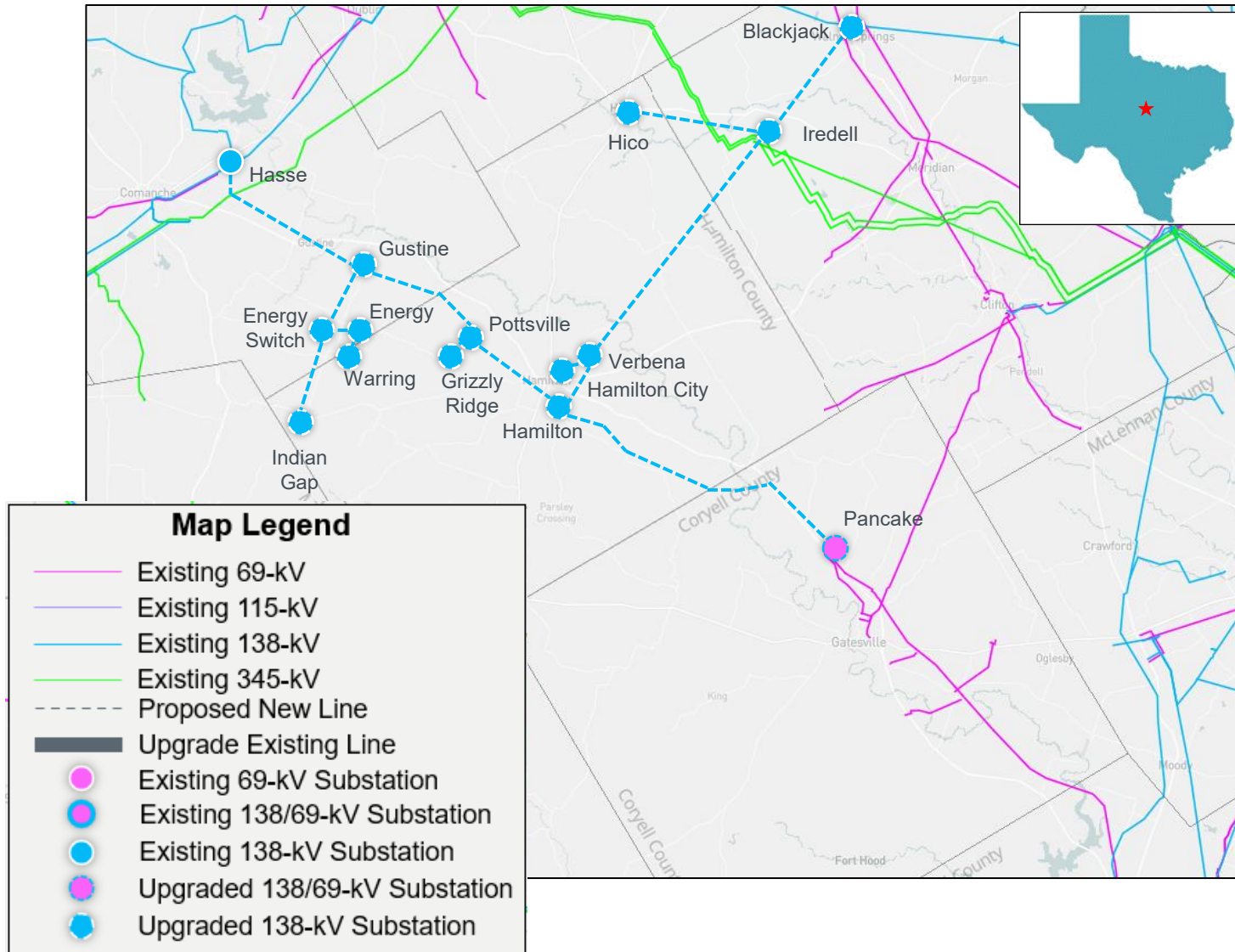
## Option 2 – ERCOT Proposed Option cont'd

- Convert existing Gustine to Pottsville 69-kV transmission line to operate a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 11.0-mile;
- Convert existing Pottsville to Hamilton 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 7.6-mile;
- Convert existing Pottsville to Grizzly Ridge 69-kV transmission line to operate as a 138-kV transmission line with normal rating of 220 MVA and emergency rating of 242 MVA or greater, approximately 0.1-mile;
- Install two 138/69-kV autotransformers at the existing Pancake 69-kV substation with normal and emergency ratings of 60 MVA;
- Convert existing Hamilton to Pancake 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 21.9-mile;
- Convert the existing Hamilton City, Verbena, Hico, Iredell, and Blackjack 69-kV TNMP owned substations to 138-kV operation;

## Option 2 – ERCOT Proposed Option cont'd

- Construct a new Hamilton to Verbena 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, which will require new ROW, approximately 2.0-mile;
- Convert existing Hamilton City to Verbena 69-kV transmission line to operate a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 0.9-mile;
- Convert existing Verbena to Iredell 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 22.3-mile;
- Convert existing Iredell to Blackjack 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 10.5-mile;
- Convert existing Iredell to Hico 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 9.9-mile; and
- De-energize the existing Verbena to Jonesboro 69-kV transmission line.

# Option 2 – ERCOT Proposed Option



## Option 3 – Combined Option

- Convert the existing Gustine, Energy, Energy Switch, Waring, Indian Gap, Pottsville, and Hamilton 69-kV BEC owned substations to 138-kV operation;
- Remove existing 138/69-kV transformers at Hasse;
- Convert existing Hasse to Gustine 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 418 MVA or greater, approximately 14.0-mile;
- Convert existing Gustine to Energy Switch 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 524 MVA or greater, which will require new ROW, approximately 5.1-mile;
- Convert existing Energy Switch to Energy 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 524 MVA or greater, which will require new ROW, approximately 1.0-mile;
- Convert existing Energy Switch to Indian Gap 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 524 MVA or greater, which will require new ROW, approximately 6.6-mile;

## Option 3 – Combined Option cont'd

- Convert existing Gustine to Pottsville 69-kV transmission line to operate a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 11.0-mile;
- Convert existing Pottsville to Hamilton 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 7.6-mile;
- Convert existing Pottsville to Grizzly Ridge 69-kV transmission line to operate as a 138-kV transmission line with normal rating of 220 MVA and emergency rating of 242 MVA or greater, approximately 0.1-mile;
- Install two 138/69-kV autotransformers at the existing Pancake 69-kV substation with normal and emergency ratings of 60 MVA;
- Convert existing Hamilton to Pancake 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 21.9-mile;
- Convert the existing Hamilton City, Verbena, Hico, Iredell, and Blackjack 69-kV TNMP owned substations to 138-kV operation;

## Option 3 – Combined Option cont'd

- Construct a new Hamilton to Verbena 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, which will require new ROW, approximately 2.0-mile;
- Convert existing Hamilton City to Verbena 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 0.9-mile;
- Convert existing Verbena to Iredell 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 22.3-mile;
- Convert existing Iredell to Blackjack 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 10.5-mile;
- Convert existing Iredell to Hico 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 9.9-mile;
- De-energize the existing Verbena to Jonesboro 69-kV transmission line;

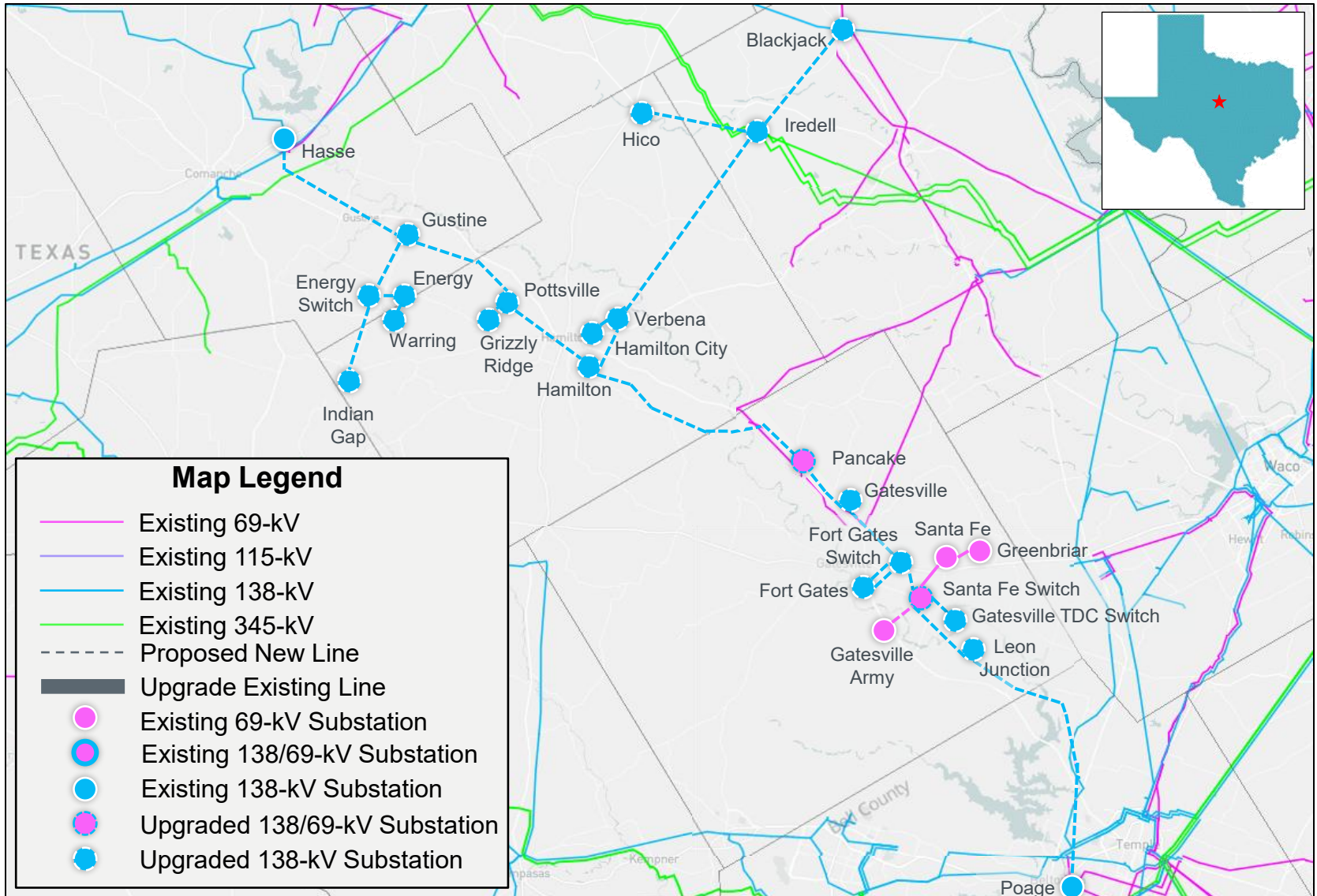
## Option 3 – Combined Option cont'd

- Convert existing Pancake to Gatesville 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 4.0-mile;
- Convert existing Gatesville to Fort Gates 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 7.5-mile;
- Rebuild existing Fort Gates Switch to Fort Gates 69-kV transmission line as a 138-kV double-circuit transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, which will require new ROW, approximately 2.0-mile;
- Convert existing Fort Gates to Santa Fe Switch 69-kV transmission line as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 3.9-mile;
- Install two 138/69-kV autotransformers at the existing Santa Fe Switch 69-kV with normal and emergency ratings of 60 MVA;

## Option 3 – Combined Option cont'd

- Rebuild existing Santa Fe Switch to Gatesville TDC Switch 69-kV transmission line as a 138-kV double-circuit transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, which will require new ROW, approximately 0.8-mile;
- Move existing Gatesville TDC Switch to Gatesville Army 69-kV tie line to connect to Santa Fe Switch creating the Santa Fe Switch to Gatesville Army 69-kV tie line;
- Convert existing Santa Fe Switch to Leon Junction 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 4.0-mile;
- Convert existing Leon Junction to Poage 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 24.4-mile; and
- Retire Poage autotransformer (Installed from Temple Area Improvements RPG).

# Option 3 – Combined Option



# Recap – 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	None	None	None	None
2	None	None	None	None	None	None
3	None	None	None	None	None	None

\*G-1 Generators tested: Grizzly Ridge Solar S1, Panda Temple C1, Logans Gap Wind W1

\*\*X-1 Transformers tested: Hasse X1, Comanche Switch X1, Temple Switch X1

# Recap – Long-Term Load-Serving Capability Assessment

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

Option	Incremental Load-Serving Capability (~MW)
1	22.88
2	33.34
3	22.81

# Recap – Preliminary Cost Estimate and Feasibility Assessment

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

Option	Cost Estimates (~\$M)	CCN Required (~Miles)	Feasibility
1	84.0	15.5	Yes
2	124.1	15.6	Yes
3	141.2	17.5	Yes

# Updated – Economic Evaluation of Options

Option	Total Cost	Annual Cost Passing Requirement %	Consumer Revenue Passing Requirement %	Benefit to Cost Ratio (Annual Production Cost) %	Benefit to Cost Ratio (Consumer Revenue) %
O1 – BEC	84 \$M	13.0 %	12.7 %	4.3 %	17.4 %
O2 – ERCOT	124.1 \$M	13.0 %	12.7 %	3.1 %	12.7 %
O3 – Combined	141.2 \$M	13.0 %	12.7 %	4.7 %	9.5 %

# Dynamics Evaluation of Options

Option	Voltage Instability Events	Frequency Instability Events
1	None	None
2	None	None
3	None	None

# Comparison of Options

	Option 1	Option 2	Option 3
Meets ERCOT and NERC Reliability Criteria	Yes	Yes	Yes
Meets TSP Criteria	Yes	No	No
Resolves Hamilton County GTC	Yes	Yes	Yes
Improves Long-Term Load-Serving Capability	Yes	Yes	Yes
Requires CCN (~miles)	Yes (15.5)	Yes (15.6)	Yes (17.5)
Project Feasibility	Yes	Yes	Yes
Cost Estimate* (~\$M)	84.0	124.1	141.2
Passes Consumer Revenue Passing Requirement	Yes	Yes	No

\*Cost estimates were provided by the TSP(s)

# ERCOT Preferred Option

- Option 1 is selected as the ERCOT preferred option because it:
  - Addresses the project need in the study area
  - Meets TSP Criteria
  - Resolves the Hamilton County GTC
  - Improves Long-Term Load-Serving Capability
  - Requires the least amount of CCN mileage
  - Is the least expensive option
  - Passes the economic Consumer Revenue Passing Requirement

# Additional Analyses

- 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

# ERCOT Recommendation

- ERCOT recommends Option 1
  - Estimated Cost: approximately \$84.0 million
  - Expected ISD: Fall 2030
  - CCN filling will be required to:
    - Rebuild existing Gustine to Energy Switch 69-kV transmission line as a 138-kV transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, approximately 5.1-mile;
    - Rebuild existing Energy Switch to Energy 69-kV transmission line as a 138-kV transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, approximately 1.0-mile;
    - Rebuild existing Energy Switch to Indian Gap 69-kV transmission line as a 138-kV transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, approximately 6.6-mile;

# ERCOT Recommendation cont'd

- ERCOT recommends Option 1
  - CCN filling will be required to:
    - Rebuild existing Fort Gates Switch to Fort Gates 69-kV transmission line as a 138-kV double-circuit transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, approximately 2.0-mile; and
    - Rebuild existing Santa Fe Switch to Gatesville TDC Switch 69-kV transmission line as a 138-kV double-circuit transmission line on double-circuit structures with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, approximately 0.8-mile.

# ERCOT Recommended Option

- Convert existing Hasse to Gustine 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 418 MVA or greater, approximately 14.0-mile;
- Convert the existing Gustine, Energy, Energy Switch, Waring, Indian Gap, Pottsville, Hamilton, Gatesville, Fort Gates Switch, Fort Gates, Gatesville TDC Switch, Leon Junction, Poage 69-kV substations to 138-kV operation;
- Rebuild existing Gustine to Energy Switch 69-kV transmission line as a 138-kV double-circuit transmission line with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, approximately 5.1-mile;
- Rebuild existing Energy Switch to Energy 69-kV transmission line as a 138-kV double-circuit transmission line with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, approximately 1.0-mile;
- Rebuild existing Energy Switch to Indian Gap 69-kV transmission line as a 138-kV double-circuit transmission line with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, approximately 6.6-mile;

# ERCOT Recommended Option cont'd

- Convert existing Gustine to Pottsville 69-kV transmission line to operate a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 11.0-mile;
- Convert existing Pottsville to Hamilton 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 7.6-mile;
- Convert existing Pottsville to Grizzly Ridge 69-kV transmission line to operate as a 138-kV transmission line with normal rating of 220 MVA and emergency rating of 242 MVA or greater, approximately 0.1-mile;
- Install two 138/69-kV autotransformers at the existing Pancake 69-kV substation with normal and emergency ratings of 60 MVA;
- Convert existing Hamilton to Pancake 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 21.9-mile;
- Convert existing Pancake to Gatesville 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 4.0-mile;

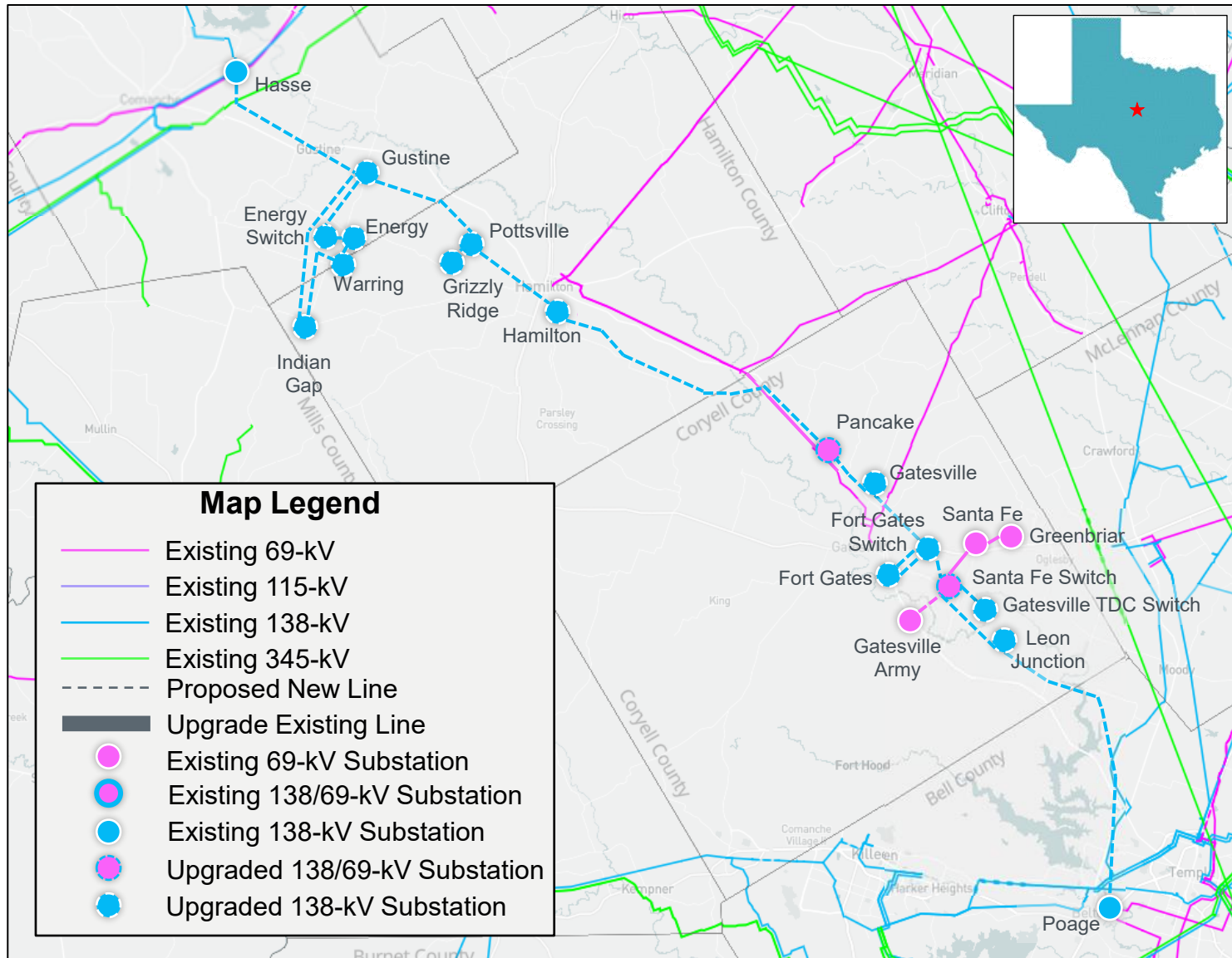
# ERCOT Recommended Option cont'd

- Convert existing Gatesville to Fort Gates 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 7.5-mile;
- Rebuild existing Fort Gates Switch to Fort Gates 69-kV transmission line as a 138-kV double-circuit transmission line with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, approximately 2.0-mile;
- Convert existing Fort Gates to Santa Fe Switch 69-kV transmission line as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 3.9-mile;
- Install two 138/69-kV autotransformers at the existing Santa Fe Switch 69-kV with normal and emergency ratings of 60 MVA;
- Rebuild existing Santa Fe Switch to Gatesville TDC Switch 69-kV transmission line as a 138-kV double-circuit transmission line with normal and emergency ratings of 524 MVA or greater at 138-kV operation and 262 MVA or greater at 69-kV operation, approximately 0.8-mile;
- Move existing Gatesville TDC Switch to Gatesville Army 69-kV tie line to connect to Santa Fe Switch creating the Santa Fe Switch to Gatesville Army 69-kV tie line;

# ERCOT Recommended Option cont'd

- Convert existing Santa Fe Switch to Leon Junction 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 4.0-mile;
- Convert existing Leon Junction to Poage 69-kV transmission line to operate as a 138-kV transmission line with normal and emergency ratings of 238 MVA or greater, approximately 24.4-mile; and
- Retire Poage autotransformer (Installed from Temple Area Improvements RPG).

# Map of ERCOT Recommended Option



# Deliverables

- Tentative Timelines
  - EIR Report will be posted in the MIS in August

*Thank you!*



Stakeholder comments also welcomed through:

[Travis.Head@ercot.com](mailto:Travis.Head@ercot.com)

[Robert.Golen@ercot.com](mailto:Robert.Golen@ercot.com)