

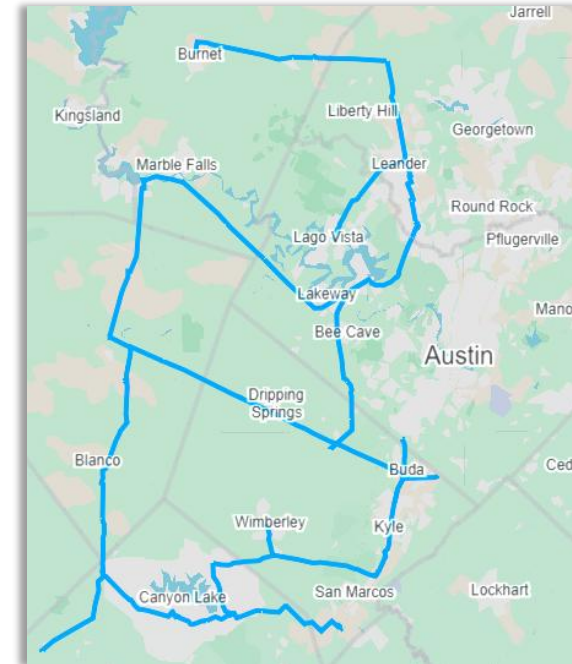
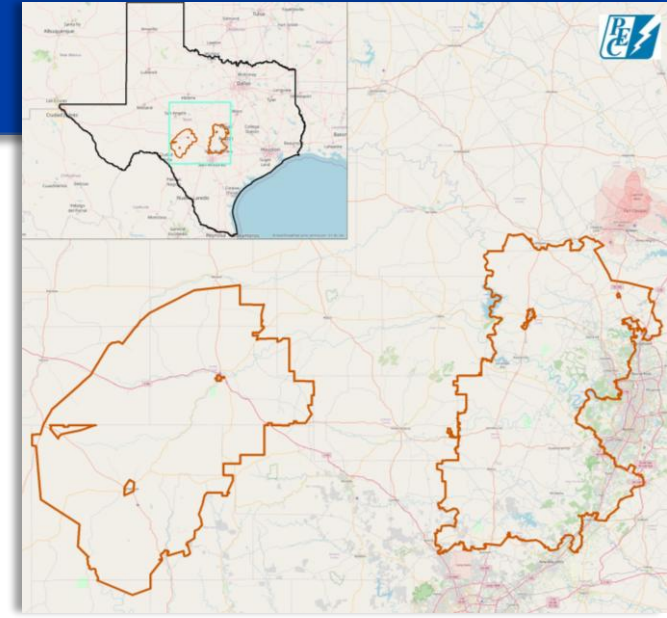


Overview of RPG Project – Liberty Hill Area Capacity Improvement

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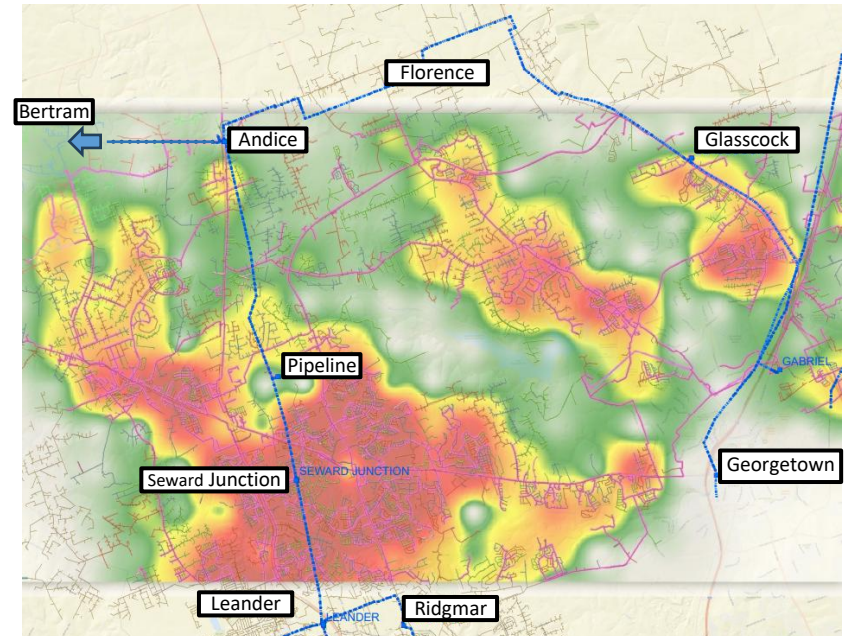
About PEC

- Pedernales Electric Cooperative, Inc. (PEC) is the largest distribution cooperative in the nation
- PEC is an ERCOT-registered TSP and became a NERC-registered Transmission Operator in March 2024
- PEC currently owns and operates over 300 miles of transmission lines and over 70 substations in Central Texas
- 8,100 square miles of service territory, encompassing 24 counties and 45 cities
- In addition to being a NERC registered Distribution Provider, PEC has historically been a Transmission Owner and Transmission Planner



Project Needs

- The Proposed RPG Project is in Williamson County. The county's growth summary report,¹ dated June 2025, states that Williamson County is the 10th fastest growing county in the nation.
- Due to the heavily loaded feeders and substations in the Liberty Hill area and the high expected future growth of the area, PEC Distribution Planning requested a transmission solution to address the growing capacity needs of the immediate area and help offload and provide contingency to the surrounding area feeders and substations as well.
- Moreover, the added transmission infrastructure will provide essential thermal relief and voltage stability to the Burnet – Andice – Leander 138-kV system under various contingencies.

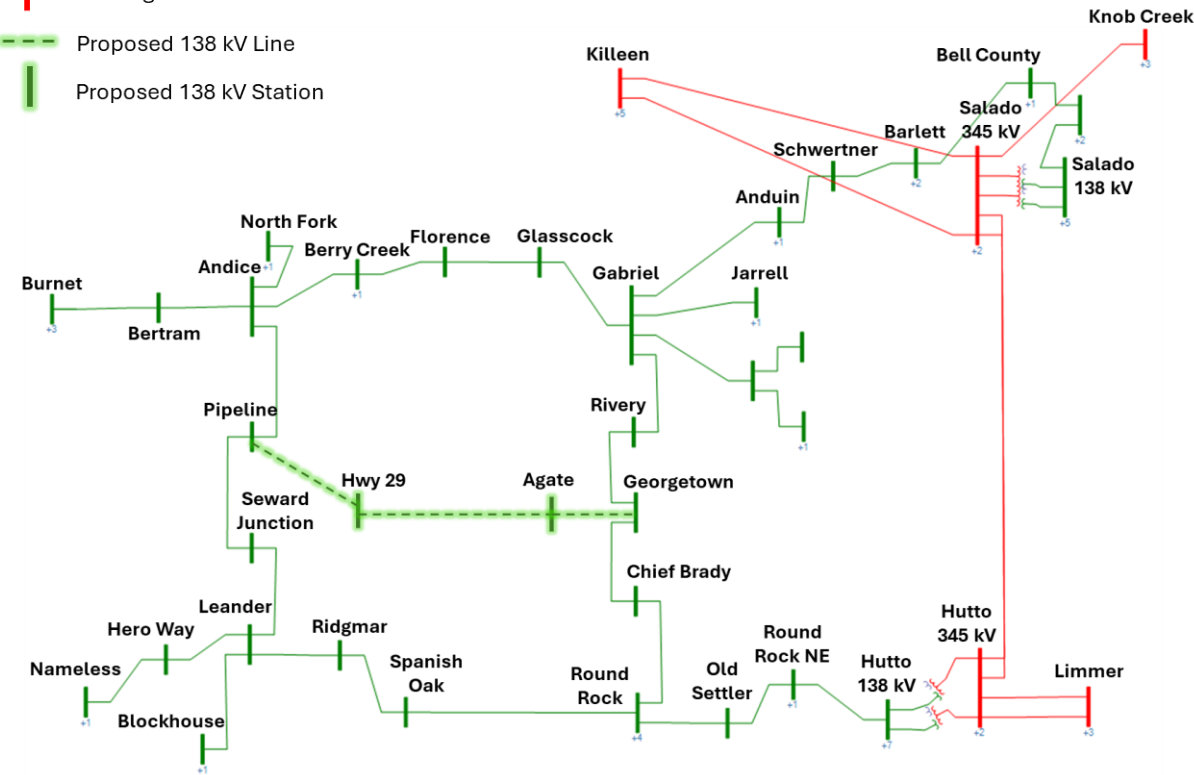


¹Growth At A Glance (June 2025 update)
https://www.wilcotx.gov/DocumentCenter/View/2824/Growth-at-a-Glance-2025_PDF?bidId=

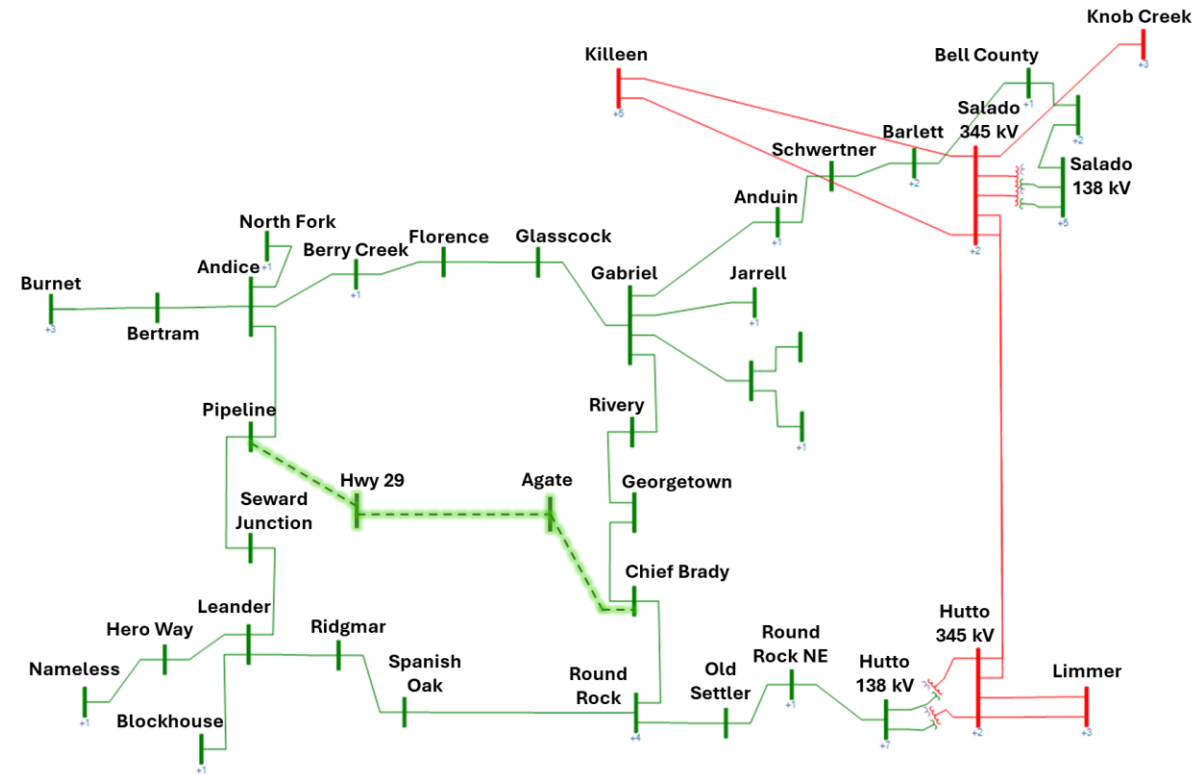
The load demand heat map shows the location and density of PEC's 2030 forecast load demand.

Project Alternatives (East-West Network Connection)

- Existing 138 kV Line
- Existing 345 kV Line
- | Existing 138 kV Station
- | Existing 345 kV Station
- - - Proposed 138 kV Line
- | Proposed 138 kV Station



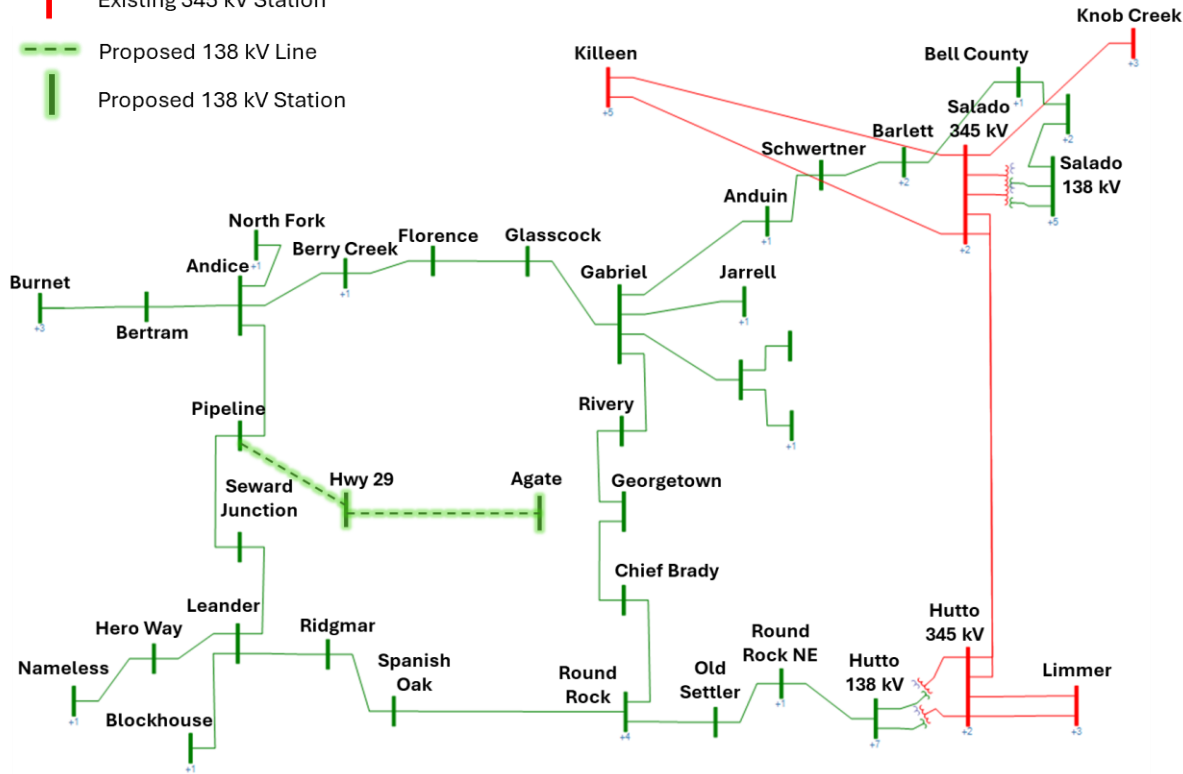
Alt 01: Pipeline-Hwy 29-Agate-Georgetown (Recommended)



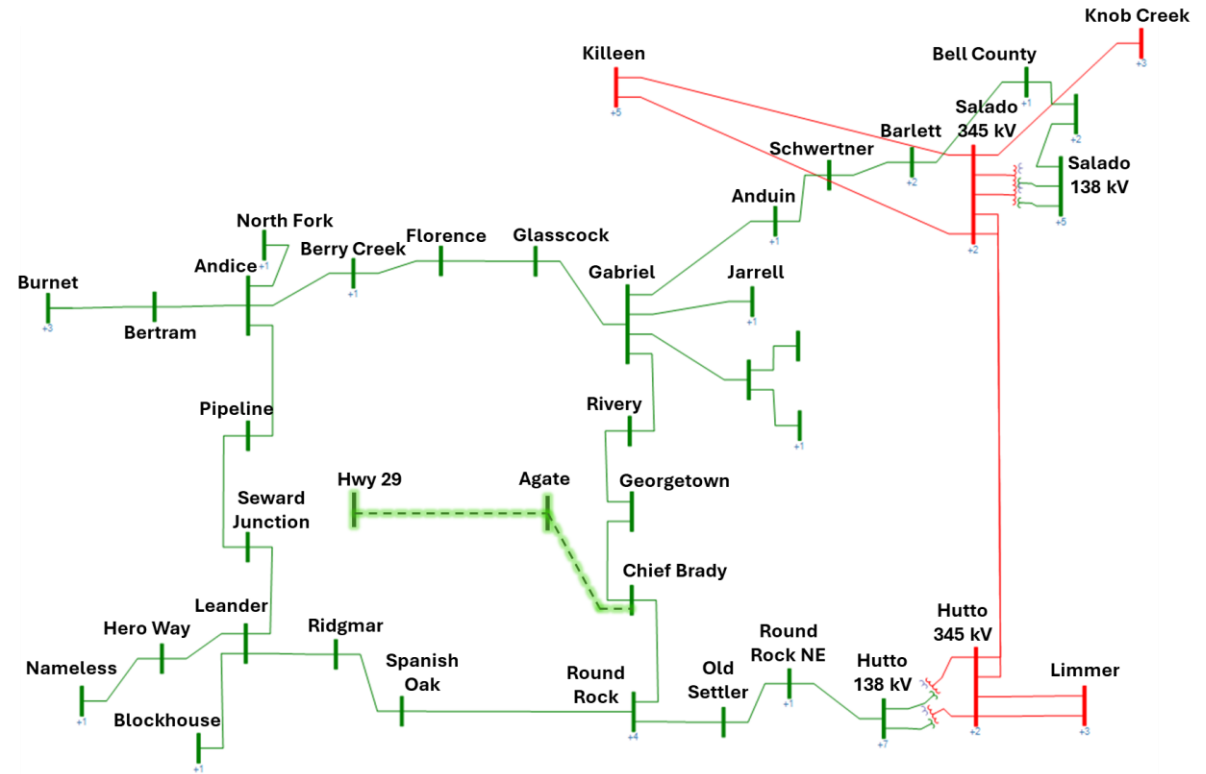
Alt 03: Pipeline-Hwy 29-Agate-Chief Brady

Project Alternatives (Radial-Feed)

- Existing 138 kV Line
- Existing 345 kV Line
- | Existing 138 kV Station
- | Existing 345 kV Station
- - - Proposed 138 kV Line
- | Proposed 138 kV Station



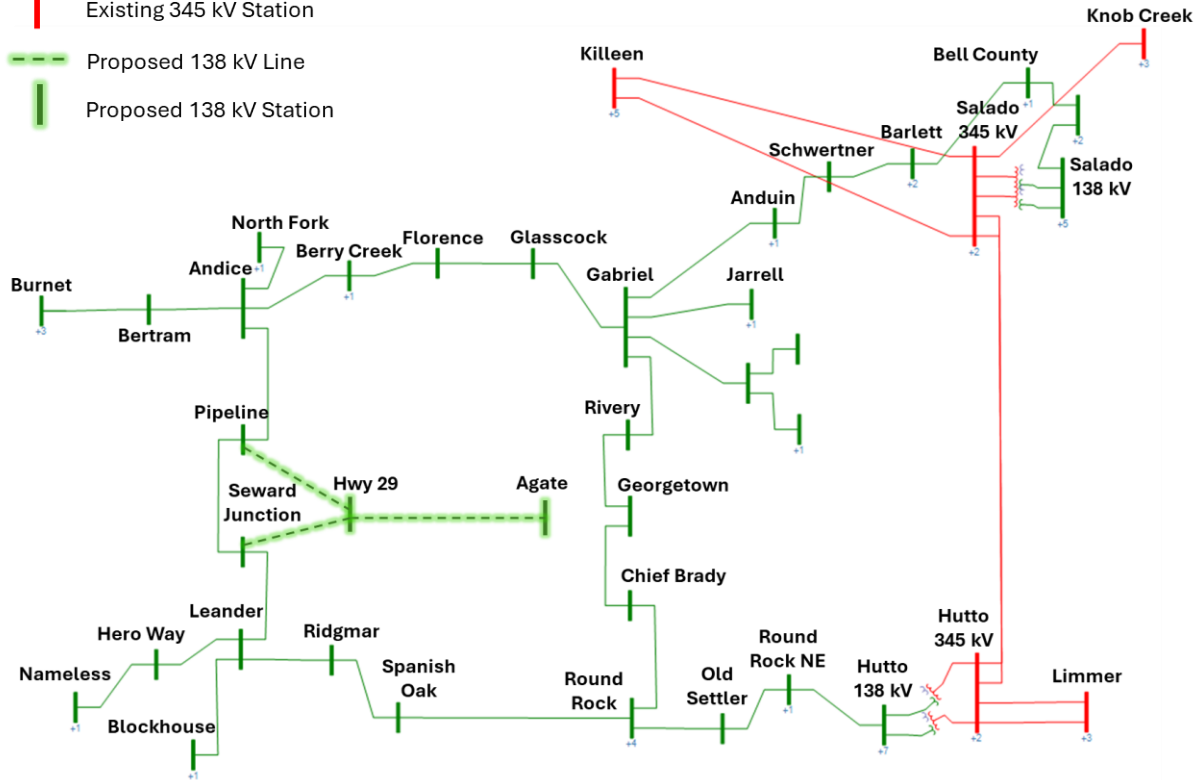
Alt 05: Pipeline - Hwy 29 - Agate



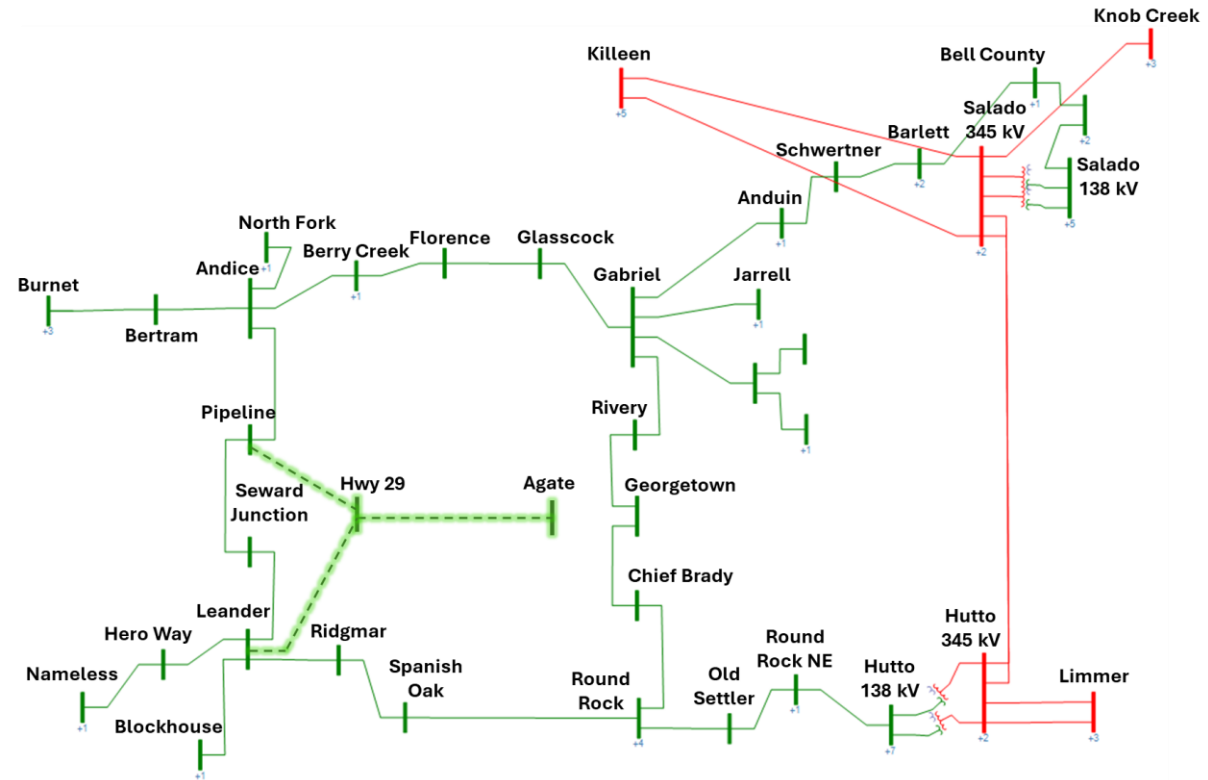
Alt 06: Chief Brady - Agate - Hwy 29

Project Alternatives (Loop-Feed from West)

- Existing 138 kV Line
- Existing 345 kV Line
- | Existing 138 kV Station
- | Existing 345 kV Station
- - - Proposed 138 kV Line
- | Proposed 138 kV Station



Alt 07: Pipeline - Hwy 29 - Seward Junction

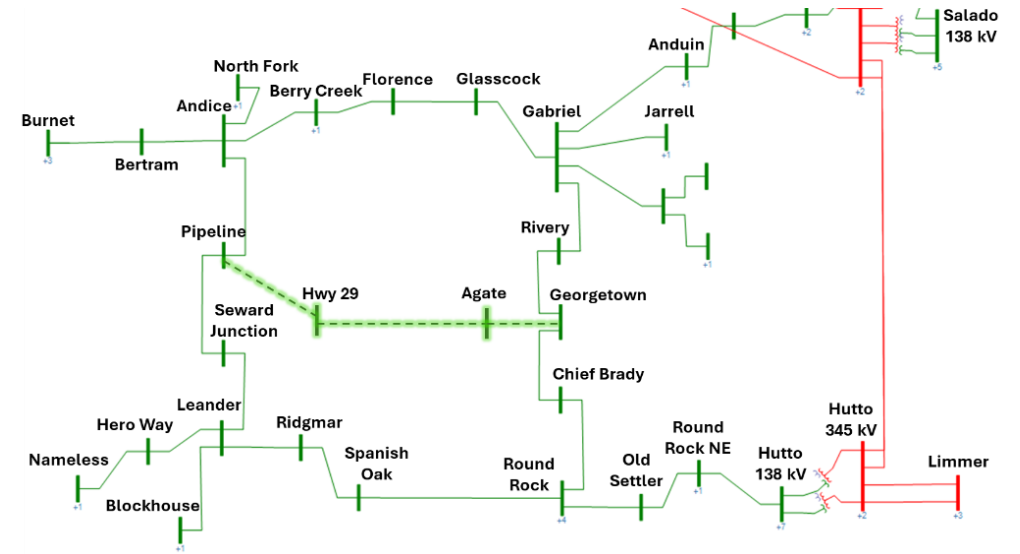


Alt 08: Pipeline - Hwy 29 - Leander

Recommended Project Scope

- ❑ Construct two 138-kV load-serving substations (Highway 29 and Agate)
 - ✓ Each new substation to have a 4-terminal ring-bus layout
 - ✓ Highway 29 Substation: approximately three miles east of the existing Pipeline Substation
 - ✓ Agate Substation: approximately two miles west of the existing Georgetown Substation
- ❑ Construct three single-circuit (double-circuit capable) transmission lines – requiring approximately eleven miles of new Right-of-Way (ROW) and requiring a Certificate of Convenience and Necessity (CCN)
 - ✓ Pipeline – Highway 29 (Straight-line length: ~3 miles)
 - ✓ Highway 29 – Agate (Straight-line length: ~6 miles)
 - ✓ Agate – Georgetown (Straight-line length: ~2 miles)
- ❑ Expand the existing Pipeline substation from a 4-breaker ring bus to a 12-breaker breaker-and-a-half bus with the new termination for Pipeline – Highway 29 line and future interconnections of other transmission lines, transformers, and capacitor banks.
- ❑ Terminate the Agate – Georgetown 138-kV line at Georgetown Substation owned by LCRA TSC.

The total project cost estimate is \$80M
A new CCN request of at least 11 miles of new 138-kV lines is needed.



Steady State Contingency Study Results

	ALT-00	ALT-01	ALT-02	ALT-03	ALT-04	ALT-05	ALT-06	ALT-07	ALT-08
N-0 (P0)	None	None	None	None	None	None	None	None	None
N-1 (P1)	5	None	None	None	None	7	None	6	4
G-1+N-1 (P3)	19	5	5	5	5	32	10	24	19
G-1+N-1 (ERCOT2)	8	None	None	None	None	16	2	9	8
X-1+N-1 (ERCOT3)	None	None	None	None	None	None	None	None	None
N-1-1 (P6)	36	16	22	18	24	93	34	53	18

	ALT-00	ALT-01	ALT-02	ALT-03	ALT-04	ALT-05	ALT-06	ALT-07	ALT-08
N-0 (P0)	None	None	None	None	None	None	None	None	None
N-1	None	None	None	None	None	None	None	None	None
G-1+N-1 (P3)	56	37	38	27	37	73	81	75	48
G-1+N-1 (ERCOT2)	29	22	19	13	22	29	32	29	28
X-1+N-1 (ERCOT3)	None	None	None	None	None	4	25	None	None
N-1-1 (P6)	236	41	30	71	81	422	579	340	161

- The Proposed RPG Project (ALT-01) along with other east-west network alternatives (ALT-02, ALT-03, and ALT-04) **reduces** the number of contingencies that cause thermal overloads and **significantly improves** post-contingency voltage levels.
- In addition, those alternatives perform much **better than** the other alternatives, including the radial-feeding (ALT-05 and ALT-06) and west-loop-feeding (ALT-07 and ALT-08) approaches.

Note that violation counts are based on post-contingency results **before** applying any allowable adjustments, such as non-consequential load loss. The ERCOT 2 and ERCOT 3 violations in the Proposed RPG Project (ALT-01) may be resolved by generation redispatch.

Color coding:

Green: improved performance

Red: worsened performance

Load Serving Capability Study Results

Bus#	Bus Name	Load Serving Capability (MW)								
		ALT-00	ALT-01	ALT-02	ALT-03	ALT-04	ALT-05	ALT-06	ALT-07	ALT-08
70390	P_PIPELI8_1	5.74	110.56	113.97	127.65	109.43	37.42	15.61	32.78	39.15
70520	P_BERTRA8_1	3.69	9.34	14.91	52.51	13.37	5.67	6.55	46.49	7.96
70522	P_ANDICE8_1	3.68	107.16	107.49	123.41	97.75	59.39	13.11	56.05	21.76
70524	P_SEWAJU8_1	7.68	117.98	123.51	126.44	113.54	39.42	31.2	32.89	46.73
70525	P_LEANDE8_1	12.28	201.69	212.7	199.3	194.68	78.22	42.86	121.73	66.71

- In the base case, load capacity is restricted by low voltage and thermal limits.
- While radial or west-side loop feeding offers some improvement, the East-West connection approach (ALT-01 through ALT-04) provides far superior results as highlighted in green.
- Specifically, these alternatives significantly boost the load-serving capabilities of other PEC substations to the west.

Dynamic/Stability Study

- PEC performed dynamic analysis to evaluate the impact of the addition of the Proposed RPG Project on the transmission system in Williamson County. The analysis studied the impacts of contingency events in the project area with and without the Proposed RPG Project in-service. The Proposed RPG Project will not adversely affect the transmission system.

Summary of Alternatives

ALT ID	Short Description	Comments	Cost Estimate
ALT-00	Base Case	Highway 29 and Agate Load modeled at existing substations.	N/A
ALT-01	Pipeline – Highway 29 – Agate – Georgetown	East-West network connection.	\$80M
ALT-02	Seward Junction – Highway 29 – Agate – Georgetown	East-West network connection.	\$90M
ALT-03	Pipeline – Highway 29 – Agate – Chief Brady	East-West network connection.	\$82M
ALT-04	Seward Junction – Highway 29 – Agate – Chief Brady	East-West network connection.	\$92M
ALT-05	Pipeline – Highway 29 – Agate	Radial-feed from west.	\$75M
ALT-06	Chief Brady – Agate – Highway 29	Radial-feed from east.	\$75M
ALT-07	Pipeline – Highway 29 – Seward Junction	Loop-feed from west. Agate on double-circuit feed from Highway 29	\$88M
ALT-08	Pipeline – Highway 29 – Leander	Loop-feed from west. Agate on double-circuit feed from Highway 29	\$88M

Summary & Conclusion

Proposed RPG Project scope:

- ✓ Construct two 138-kV load-serving substations (Highway 29 and Agate)
 - Each new substation to have a 4-terminal ring-bus layout
 - Highway 29 substation: approximately three miles east of the existing Pipeline substation
 - Agate: approximately 2 miles west of the existing Georgetown substation
- ✓ Construct three single-circuit (double-circuit capable) transmission lines – requiring approximately 11 miles of new ROW and requiring a CCN
 - Pipeline – Highway 29 (Straight-line length: ~3 miles)
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 - Agate – Georgetown (Straight-line length: ~2 miles)
- ✓ Expand the existing Pipeline substation from a 4-breaker ring bus to a 12-breaker breaker-and-a-half bus with the new termination for Pipeline – Highway 29 line and future interconnections
- ✓ Terminate the Agate – Georgetown 138-kV line at Georgetown Substation owned by LCRA TSC.
- The estimated cost of the Proposed RPG Project is \$80 million.
- Pursuant to Section 3.11.4.3(1)(a) of the ERCOT Nodal Protocols, the Proposed RPG Project should be classified as a Tier 2 project.
- The needed in-service date for the Proposed RPG Project is June 2030.

Questions?



PEDERNALES ELECTRIC COOPERATIVE