Update for 2024 RTP Economic Study

ERCOT Staff

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Preamble

- ERCOT created the 2024 RTP economic cases (2026 and 2029) and evaluated economics of the proposed transmission projects using
  - Production cost savings test
  - Generator revenue reduction test
  - Total consumer energy cost reduction test (*)

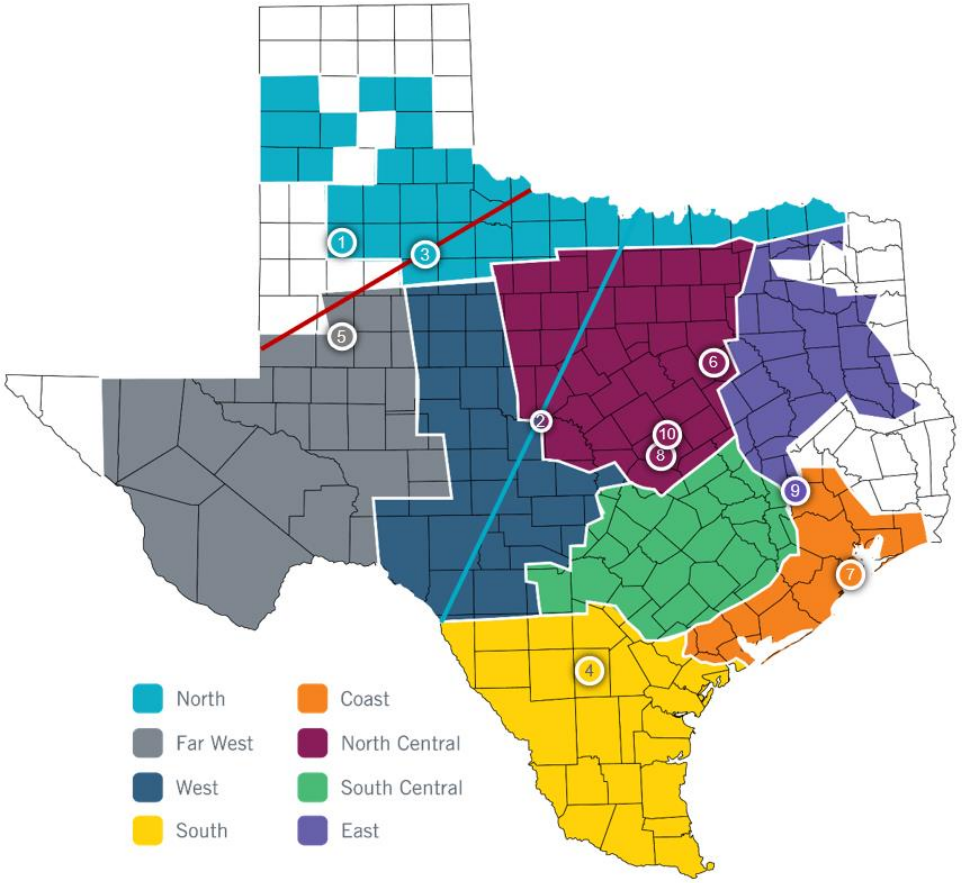
- Financial assumptions used were presented in February RPG meeting (https://www.ercot.com/calendar/02122024-RPG-Meeting)
  - 12.9% is used as the first-year annual revenue requirement for production cost savings test
  - 12.6% is used as the average of the first three-year annual revenue requirement for generator revenue reduction test and total consumer energy cost reduction test

(*) This is provided for information only. The details can be found at https://www.ercot.com/files/docs/2024/09/20/draft-congestion-cost-savings-test-evaluation-guideline-.pdf

Top Congested Constraints from 2026 and 2029 Study Years

- The total congestion rent for 2026 and 2029 is $1.1B and $928M, respectively.

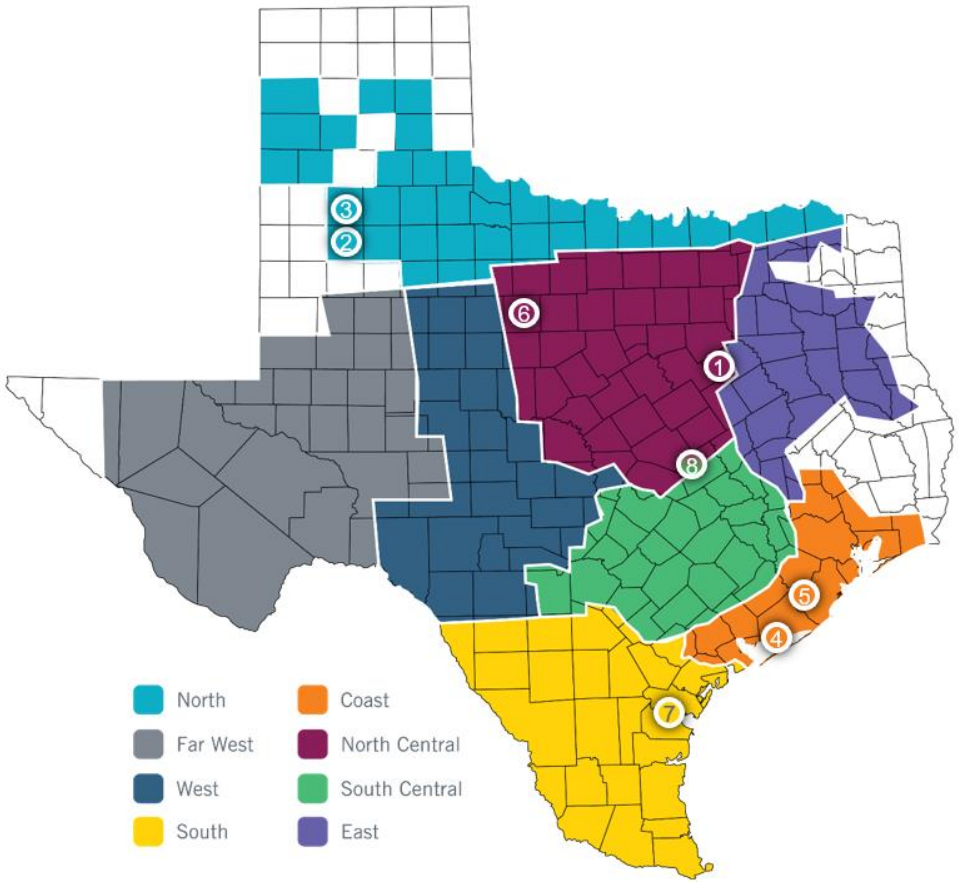
		Congestion Rent* ($M)	
Index	**Constraint**	**2026**	**2029**
1	MacKenzie Substation - Northeast Substation 115 kV Line	15	181
2	West Texas Export Interface	178	49
3	Panhandle Interface	139	100
4	Fowlerton - Tilden 138 Sub 138-kV Line	108	19
5	Farmland - Wett Long Draw 345-kV Line	19	64
6	Navarro - Richland 69-kV Line**	62	-
7	Meadow - PH Robinson 345-kV Line	54	42
8	Stagecoach - Killeen Elm 138-kV Line	49	24
9	North - Houston Interface	46	34
10	Temple North - Pepper Creek Switch 138-kV Line	-	40



*Congestion rent indicates areas of the system where economic transmission projects may be beneficial. It is not an indication of whether a project to reduce specific congestion would or would not meet the ERCOT economic planning criteria.
**A placeholder RTP proposed project (2023-NC39) was recommended in 2023 RTP to resolve the reliability issue on Navarro - Richland 69-kV Line in 2028.

Evaluated Projects

Index	Description
Project 1	Richland to Wortham 69-kV Upgrade
Project 2	Farmland Area Improvement (Upgrade Farmland – Long Draw and Farmland – Fiddlewood Switch 345-kV lines)
Project 3	Lubbock Area Improvement (Upgrade 115-kV transmission lines: Yellow House – Northwest – McDonald – Mackenzie – Northeast – Dunbar – Holly)
Project 4	Coast Weather Zone Improvement Option 1 (New 345-kV line: STP – Bailey and Bailey – PH Robinson)
Project 5	Coast Weather Zone Improvement Option 2 (Project 4 Plus New 345-kV line Bailey – Zenith Upgrade Zenith – TH Wharton DCKT and PH Robinson – Meadow 345-kV line)
Project 6	Murray-Paint Creek 138 kV Upgrade
Project 7	Lon Hill-White Point 345 kV Upgrade
Project 8	Bell County East Switch - Scooter 345-kV Upgrade



Economic Analysis Results

Index	Description	Production cost savings ($M)	Generator revenue reduction ($M)	Total consumer energy cost reduction ($M)
1	Richland to Wortham 69-kV Upgrade	$ 1.08	-	$ 25.00
2	Farmland Area Improvement (Upgrade Farmland – Long Draw and Farmland – Fiddlewood Switch 345-kV lines)*	$ 5.54	-	$ 27.23
3	Lubbock Area Improvement (Upgrade the following 115-kV transmission lines: Yellow House – Northwest – McDonald – Mackenzie – Northeast – Dunbar – Holly)*	$ 0.50	$ 3.57	$ 35.91
4	Coast Weather Zone Improvement Option 1 (New 345-kV line STP – Bailey New 345-kV line Bailey – PH Robinson)	$ 6.59	-	-
5	Coast Weather Zone Improvement Option 2 (Project 4 Plus New 345-kV line Bailey – Zenith Upgrade Zenith – TH Wharton DCKT 345-kV Upgrade PH Robinson – Meadow 345-kV line)	$ 7.85	-	-
6	Murray-Paint Creek 138 kV Upgrade*	$ 2.45	$ 3.90	$ 23.63
7	Lon Hill-White Point 345 kV Upgrade	$ 0.62	$ 6.93	$ 17.00
8	Bell County East Switch - Scooter 345-kV Upgrade*	$ 2.36	-	-

1. All cost savings are in 2026 dollars except designated as (*) is in 2029 dollars.
2. The details for the cost savings evaluated for 8 transmission projects will be also provided in Appendix P of the 2024 Regional Transmission Plan report.

Benefit to Cost Ratio Based on Generic Cost Estimate

Project	Project Name	Production cost savings test	Generator revenue reduction test	Total consumer energy cost reduction test
1	Richland to Wortham 69-kV Upgrade			
2	Farmland Area Improvement (Upgrade Farmland – Long Draw and Farmland – Fiddlewood Switch 345-kV lines)			
3	Lubbock Area Improvement (Upgrade the following 115-kV transmission lines: Yellow House – Northwest – McDonald – Mackenzie – Northeast – Dunbar – Holly)			
4	Coast Weather Zone Improvement Option 1 (New 345-kV line STP – Bailey New 345-kV line Bailey – PH Robinson)			
5	Coast Weather Zone Improvement Option 2 (Project 4 Plus New 345-kV line Bailey – Zenith Upgrade Zenith – TH Wharton DCKT 345-kV Upgrade PH Robinson – Meadow 345-kV line)			
6	Murray-Paint Creek 138 kV Upgrade			
7	Lon Hill-White Point 345 kV Upgrade			
8	Bell County East Switch - Scooter 345-kV Upgrade			

	<12.6%
	between 12.6% and 20%
	between 20% and 50%
	>=50%

*This is for information only and to determine whether these projects meet the economic planning criteria the capital cost estimate provided by the TSPs should be used.

Questions

Send questions or comments to:

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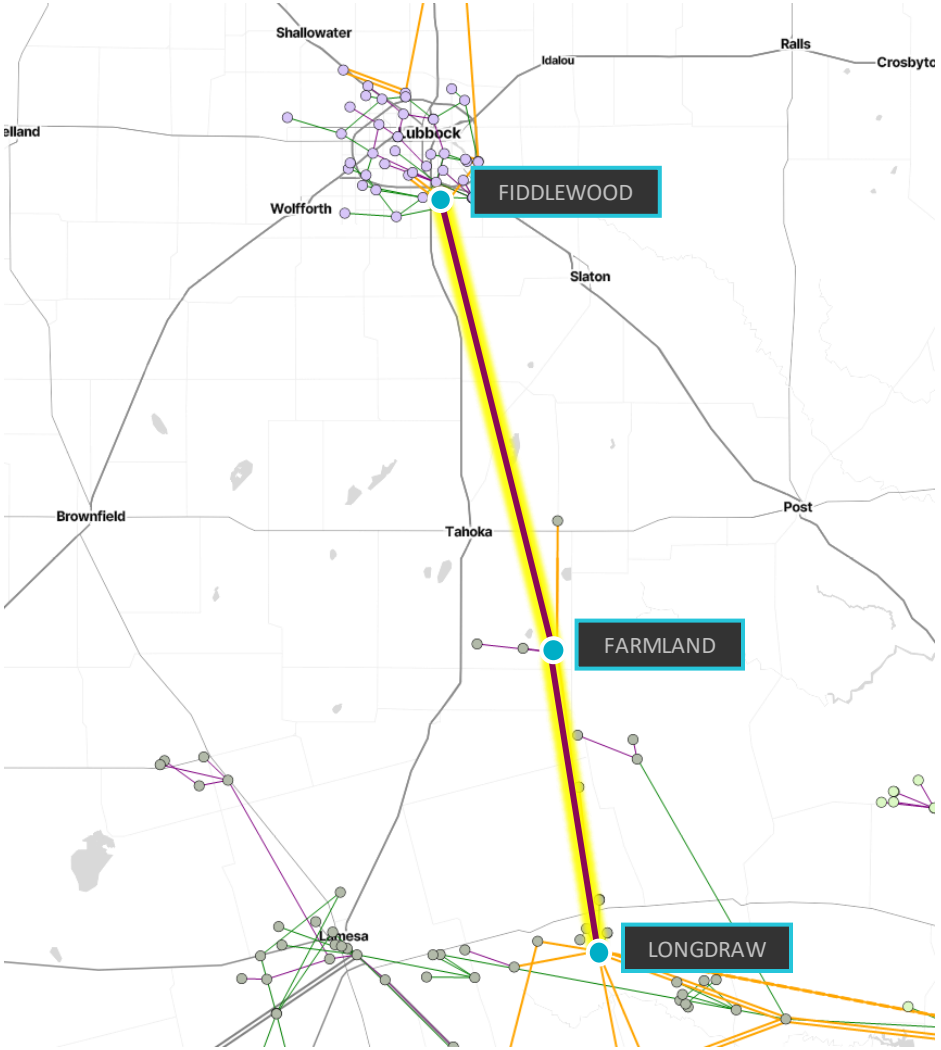
Appendix

Project 1: Richland – Wortham Junction 69-kV Line Upgrade

- This project is primarily proposed to improve the Richland to Wortham Junction 69-kV line congestion.
- The project results in **$1.3M** production cost saving in 2026 and **$1M** in 2029.
- Generation revenue is decreased by **$3.4M** in 2026 and increased by **$4.3M** in 2029.
- Consumer energy cost is decreased by **$25.9M** in 2026 and by **$27.7M** in 2029.
- Break-even capital cost is **$8.4M** for production cost savings test and **$198.45M** for total consumer energy cost reduction test.

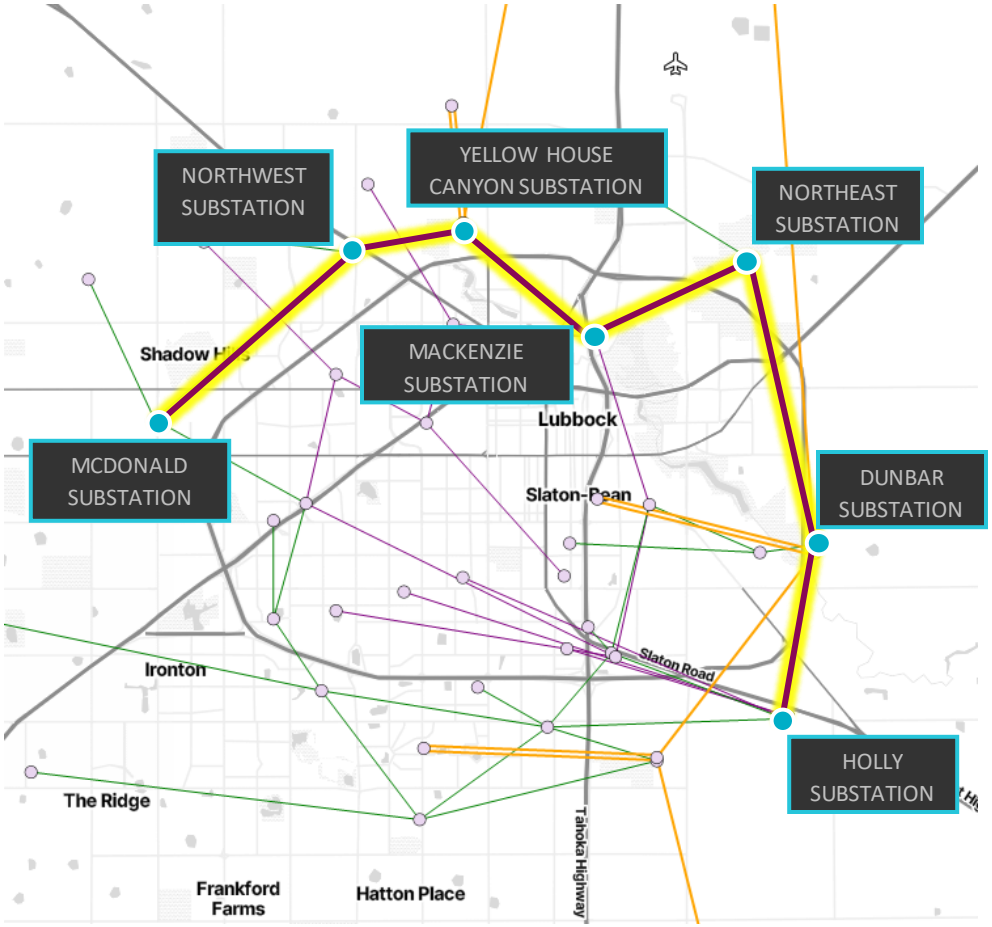
Project 2: Farmland Area 345-kV Upgrade

- This project is primarily proposed to improve the Farmland to Longdraw 345-kV line congestion.
- The project results in production cost savings of **$5.6M** in 2029.
- Generation revenue is increased by **$5.1M** in 2029.
- Consumer energy cost is decreased by **$27.2M** in 2029.
- Break-even capital cost is **$42.93M** for production cost savings test and **$216.09M** for total consumer energy cost reduction test, in 2029 dollars.



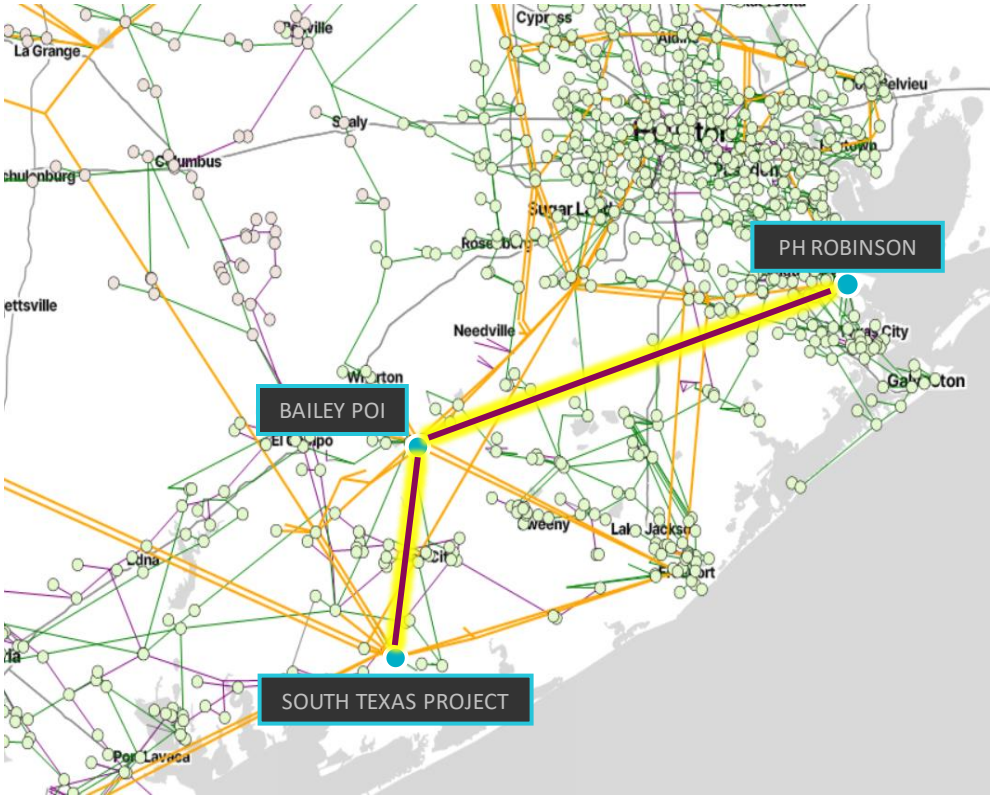
Project 3: Lubbock Area Improvement

- This project is primarily proposed to improve the congestion in the Lubbock area 115-kV network.
- The project results in production cost savings of **$0.5M** in 2029.
- Generation revenue is decreased by **$3.6M** in 2029.
- Consumer energy cost is decreased by **$35.9M** in 2029.
- Break-even capital cost is **$3.91M** for production cost savings test**, $28.37M** for generator revenue reduction test, and **$285.01M** for total consumer energy cost reduction test, in 2029 dollars.



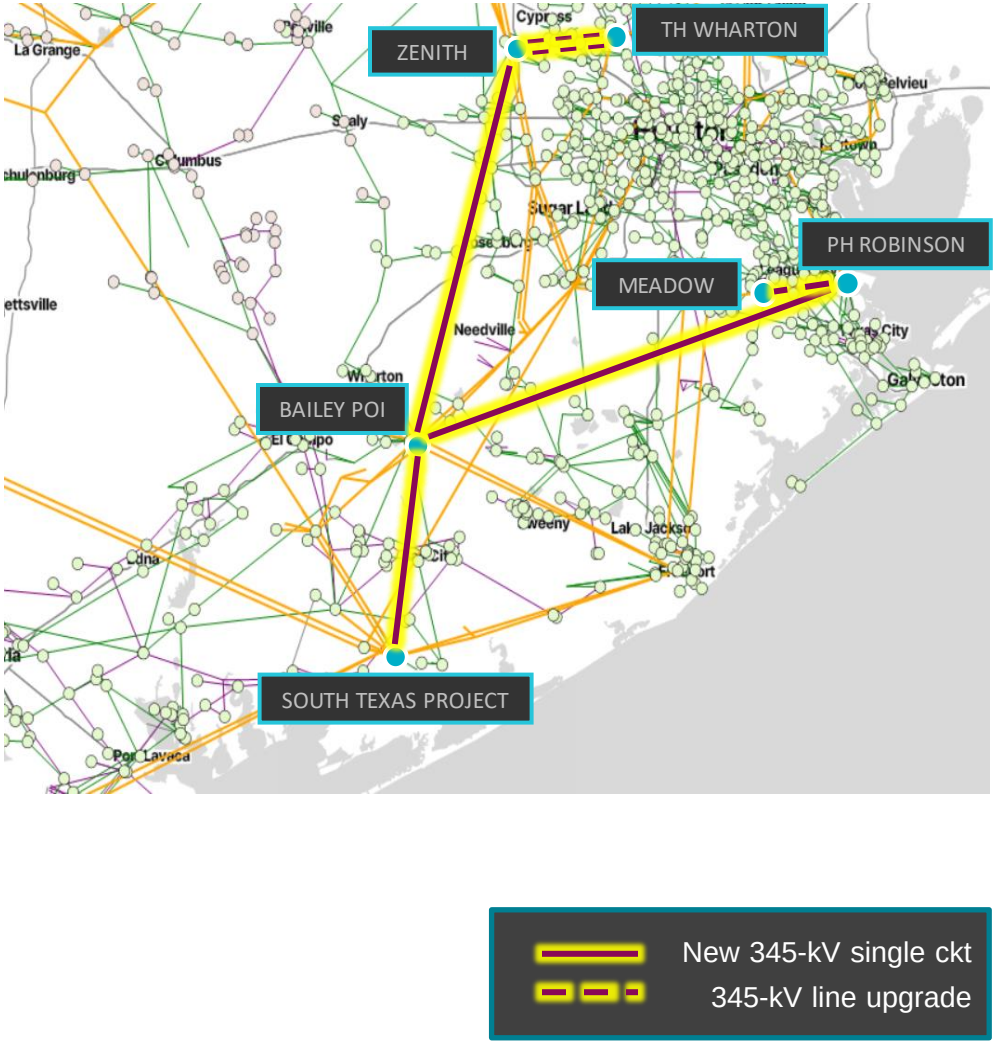
Project 4: Coast Weather Zone Improvement Option 1

- This project is primarily proposed to improve the congestion seen in the Coast Weather Zone 345-kV network (Meadow – PH Robinson, Refuge – Jones Creek, and Zenith – TH Wharton 345-kV lines).
- The project results in production cost savings of **$8.2 M** in 2026 and **$5.9M** in 2029.
- Generation revenue is increased by **$124.3M** in 2026 and by **$160.9M** in 2029.
- Consumer energy cost is increased by **$96.6M** in 2026 and by **$134M** in 2029.
- Break-even capital cost for production cost savings test is **$51.1M.**



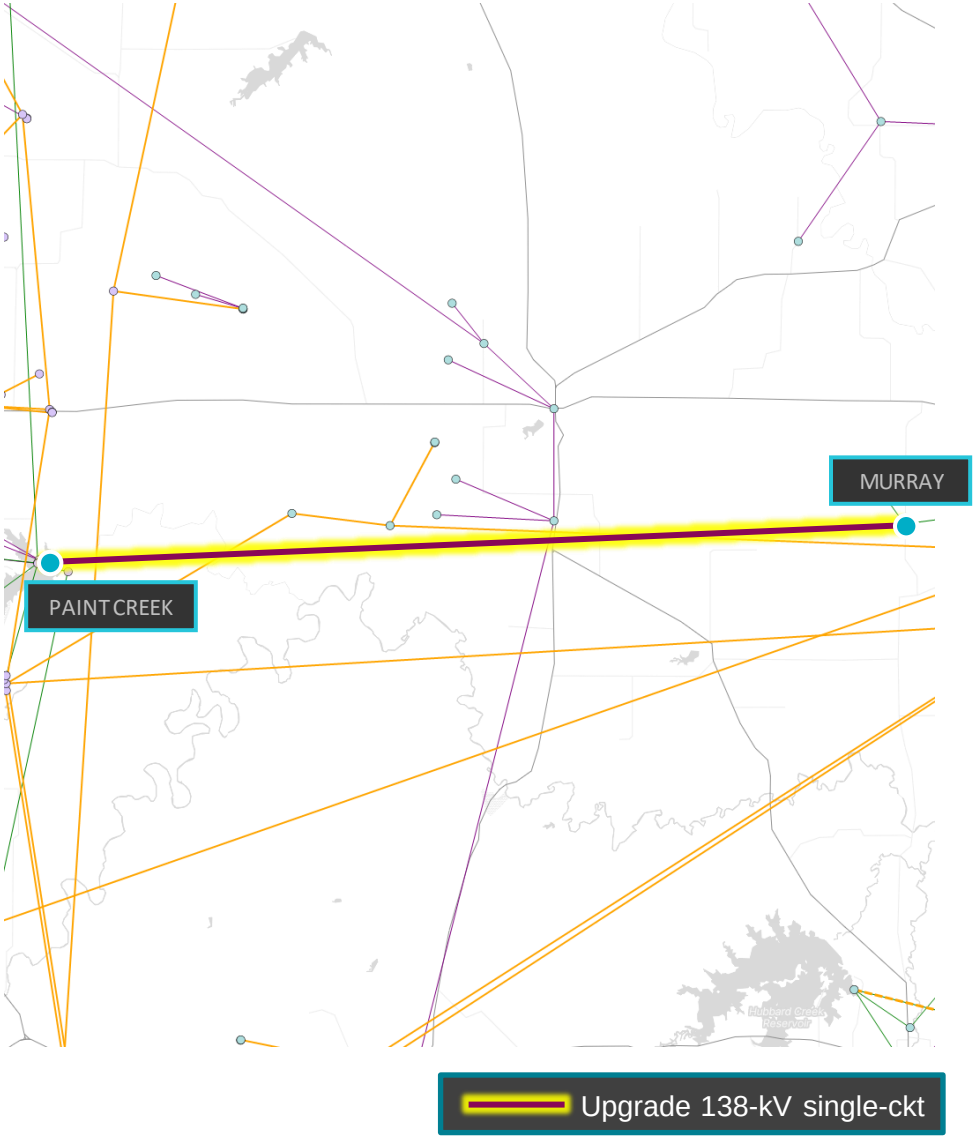
Project 5: Coast Weather Zone Improvement Option 2

- This project is primarily proposed to improve the congestion seen in the Coast Weather Zone 345-kV network (Meadow – PH Robinson, Refuge – Jones Creek, and Zenith – TH Wharton 345-kV lines).
- The project results in production cost savings of **$11.6 M** in 2026 and **$5.1M** in 2029.
- Generation revenue is increased by **$138M** in 2026 and by **$173.2M** in 2029.
- Consumer energy cost is increased by **$101.2M** in 2026 and by **$142.9M** in 2029.
- Break-even capital cost for production cost savings test is **$60.9M.**



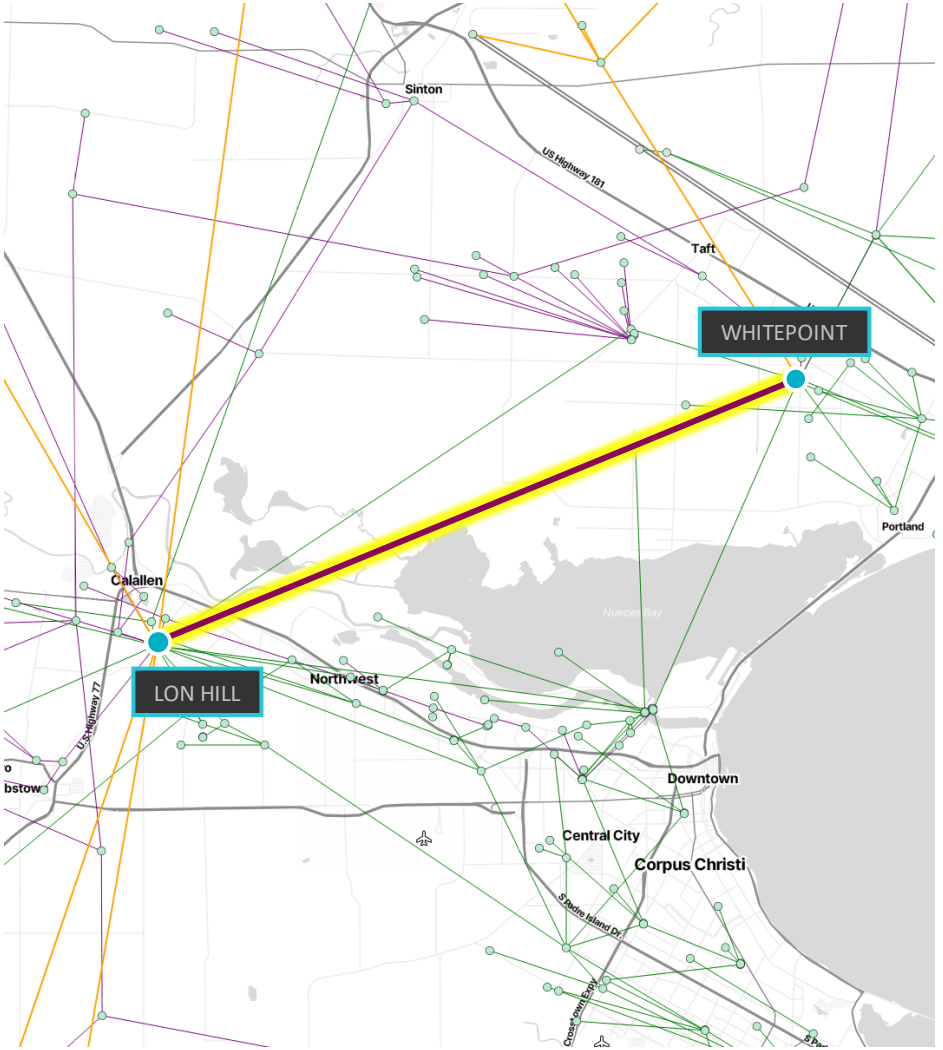
Project 6: Murray – Paint Creek 138-kV Line Upgrade

- This project is primarily proposed to improve the Murray to Paint Creek 138-kV line congestion.
- The project results in production cost savings of in **$2.5M** in 2029.
- Generation revenue is decreased by **$3.9M** in 2029.
- Consumer energy cost is decreased by **$23.6M** in 2029.
- Break-even capital cost is **$19.01M** for production cost savings test, **$30.97M** for generator revenue reduction test, and **$187.55M** for total consumer energy cost reduction test, in 2029 dollars.



Project 7: Lon Hill – Whitepoint 345-kV Line Upgrade

- This project is primarily proposed to improve the Lon Hill to Whitepoint 345-kV line congestion.
- The project results in **$2.1M** production cost savings in 2026 and **$0.8M** production cost increase in 2029.
- Generation revenue is decreased by **$18M** in 2026 and increased by **$3.8M** in 2029.
- Consumer energy cost is decreased by **$29.9M** in 2026 and by **$5.8M** in 2029.
- Break-even capital cost is **$4.8M** for production cost savings test, **$55.02M** for generator revenue reduction test, and **$134.91M** for total consumer energy cost reduction test.



Project 8: Bell County East Switch – Scooter 345-kV Upgrade

- This project is primarily proposed to improve the Bell County East Switch to Scooter 345-kV line congestion.
- The project results in **$2.4M** production cost savings in 2029.
- Generation revenue is increased by **$21.6M** in 2029.
- Consumer energy cost is increased by **$13.7M** in 2029.
- Break-even capital cost is **$18.3M** for production cost savings test.