



ERCOT Permian Basin Reliability Plan Study - Addendum

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Document Revisions

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Addendum

On July 25, 2024, ERCOT submitted the Reliability Plan for the Permian Basin Region as directed by the Public Utility Commission of Texas (Commission) in its December 14, 2023 order. The Reliability Plan identifies the transmission facilities needed to meet the forecasted demand in the Permian Basin region of Texas.

ERCOT is submitting this addendum to the Reliability Plan for the Permian Basin Region to change the recommended endpoint of one of the 345-kV import paths, Import Path 4. Specifically, ERCOT now recommends that this Import Path 4 should terminate at Howard 345-kV instead of Fowlerton 345-kV. This change will require the addition of a new 345-kV substation—"New Substation 3"—in place of the proposed new Hamilton 345-kV substation. ERCOT is recommending this change to the endpoint of Import Path 4 to better accommodate the changing load and generation patterns across the larger system, as identified in the initial 2024 Regional Transmission Plan (RTP). ERCOT has conducted additional reliability assessments consistent with the methodology identified in the Permian Basin Reliability Plan Study and confirmed that the proposed new endpoint to Import Path 4 meets the overall reliability need and performance of the 345-kV import path in the Permian Basin Reliability Plan Study. Figure 1.1 shows the original proposed 345-kV import paths for 2038, and Figure 1.2 shows the modified 345-kV import paths for 2038.

Modified Import Path 4:

- Construct a new 345-kV "New Substation 3" substation. Add new dynamic reactive devices (350 MVar) at New Substation 3 345-kV substation; and
- Add new Howard – New Substation 3 – Bottlebrush – Solstice 345-kV double-circuit lines with a normal and emergency rating of at least 2988 MVA per circuit. This will require approximately 370 miles of new right of way (ROW).

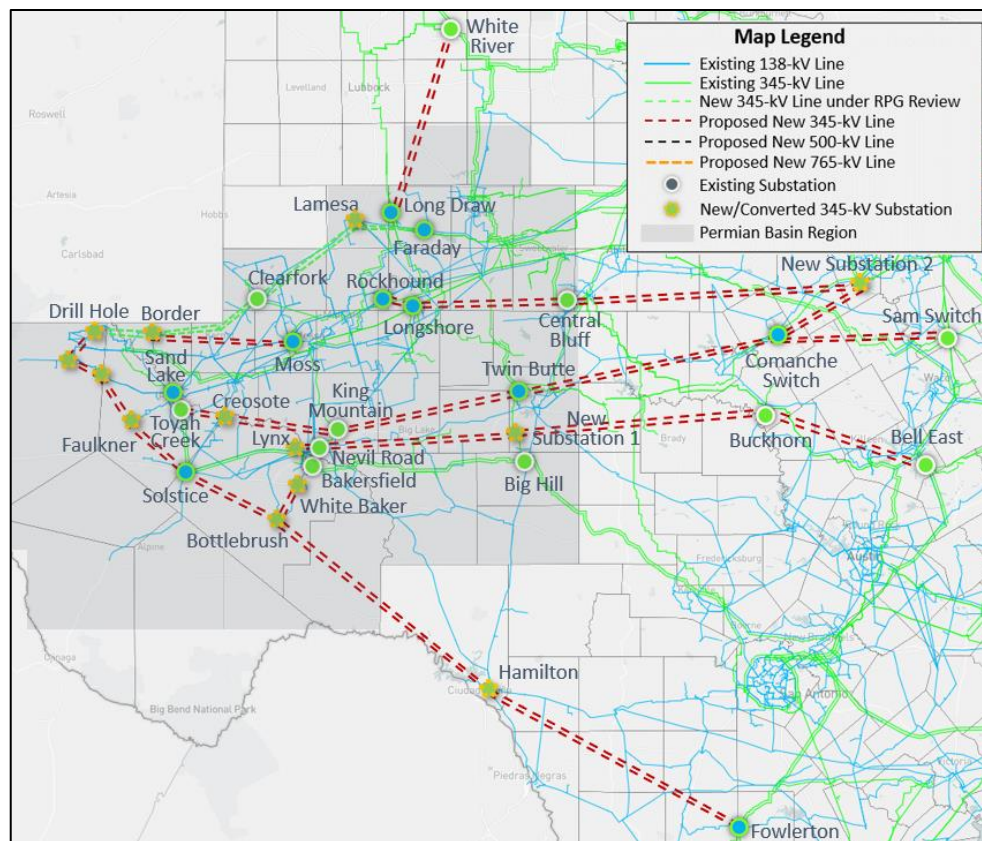


Figure 1.1: 345-kV Import Paths in 2038

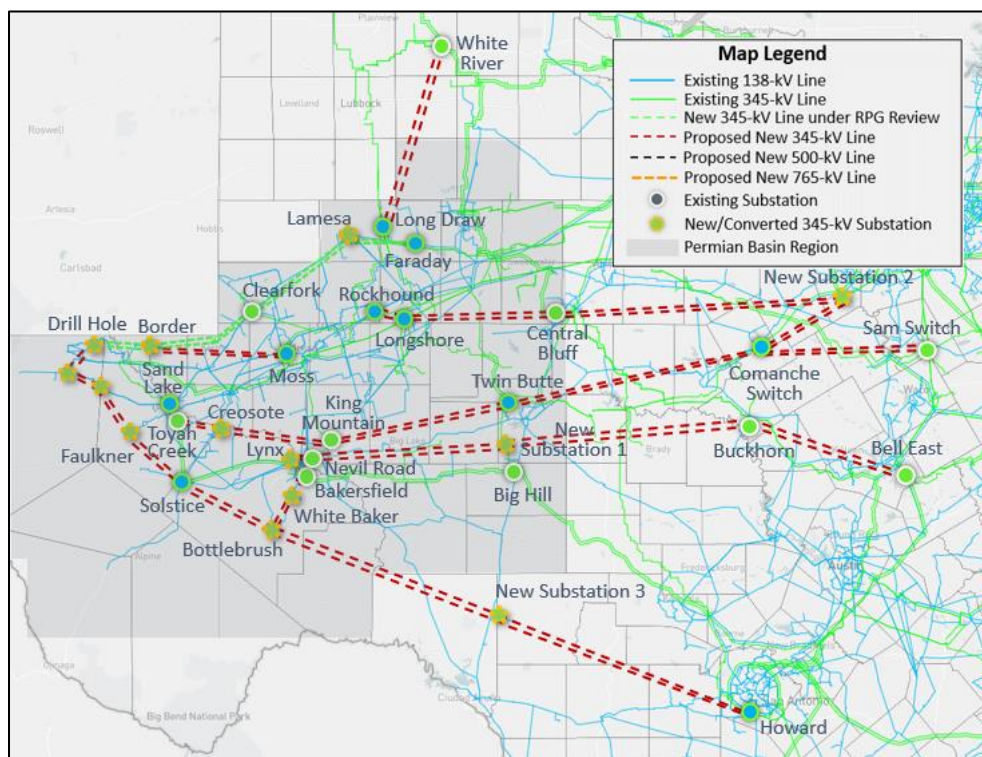


Figure 1.2: Modified 345-kV Import Paths in 2038

ERCOT does not anticipate any significant difference in new ROW requirements and anticipates the cost of the 2038 345-kV import path plan with the modified Import Path 4 would be consistent with the cost estimate provided in the Permian Basin Reliability Plan Study. Table 1 shows the complete list of 345-kV import paths and associated incremental local transmission upgrades for 2038, including the modified Import Path 4.

Table 1: Modified 2038 345-kV Import Paths and Associated Incremental Local Transmission Upgrades

Project ID	Proposed Transmission Upgrades (Note: Assumed ratings can be found in Section 5)	Year of Study Case with Reliability Need Starting to Appear	Approximate Cost Estimate (\$M)
Import 1	Construct a new 345-kV New Substation 2, about 2 miles southeast of the existing Comanche Peak Switch, cutting into the existing Comanche Peak – Wolf Hollow/Mitchell Bend 345-kV double-circuit line and Comanche Peak – Timberview/Johnson 345-kV double-circuit line	2030	1,832.0
Import 1	Add a new New Substation 2 – Comanche Switch 345-kV double-circuit line	2030	
Import 1	Add a new New Substation 2 – Central Bluff 345-kV double-circuit line	2038	
Import 1	Add a new Central Bluff – Longshore 345-kV double-circuit line	2038	
Import 1	Add a new Longshore – Rockhound 345-kV double-circuit line	2038	
Import 1	Add a new Moss – Border 345-kV double-circuit line	2038	
Import 2	Add a new Sam Switch – Comanche Switch 345-kV double-circuit line	2030	1,447.7
Import 2	Add a new Comanche Switch – Twin Butte 345-kV double-circuit line	2030	
Import 2	Add a new Twin Butte – King Mountain 345-kV double-circuit line	2030	
Import 3	Add a new Bell East – Buckhorn 345-kV double-circuit line	2038	1,679.7
Import 3	Establish a new New Substation 1 345-kV substation cutting into the existing Big Hill – Twin Butte 345-kV line, about 16 miles away from Big Hill	2038	
Import 3	Add a new Buckhorn – New Substation 1 345-kV double-circuit line	2038	
Import 3	Add a new New Substation 1 – Nevil Road 345-kV double-circuit line	2038	
Import 3	Establish a new Lynx 345-kV Station at the existing Lynx station	2038	
Import 3	Add a new Nevil Road – Lynx 345-kV double-circuit line	2038	
Import 4	Establish a new 345-kV New Substation 3 substation	2030	2,062.9
Import 4	Add a new Howard – New Substation 3 345-kV double-circuit line	2030	
Import 4	Add a new New Substation 3 – Bottlebrush 345-kV double-circuit line	2030	
Import 4	Add a new Bottlebrush – Solstice 345-kV double-circuit line	2030	
Import 4	Add dynamic reactive devices (e.g., Synchronous Condenser) at New Substation 3	2030	
Import A1	Bypass the series capacitors at Edison and add dynamic reactive devices (e.g., Synchronous Condenser) at Edison	2030	120.0
Import A2	Add a new White River – Long Draw 345-kV double-circuit line	2038	538.6
L2	Establish a new Border 345/138-kV substation and install two new 345/138-kV transformers	2038	95.0
L2	Loop the Stage 5 upgrade of new Clearfork – Drill Hole 345-kV double-circuit line into the new Border 345-kV substation	2038	
L2	Add a new Border – Quarry Field 345-kV double-circuit line	2038	
L6	Upgrade the existing Cowpen – Birds of Prey Tap 138-kV line	2038	2.0

Project ID	Proposed Transmission Upgrades (Note: Assumed ratings can be found in Section 5)	Year of Study Case with Reliability Need Starting to Appear	Approximate Cost Estimate (\$M)
L7	Add a new King Mountain – Creosote 345-kV double-circuit line	2030	340.0
L9	Establish a new FT Stockton Switch 345/138-kV substation at the existing FT Stockton Switch and install three new 345/138-kV transformers	2038	104.1
L9	Loop the existing Solstice – Bakersfield 345-kV double-circuit line into the new FT Stockton Switch 345-kV substation	2038	
L13	Upgrade the existing White Baker – Bottlebrush 138-kV line	2030	41.8
L16	Upgrade the existing Moss – Midland County NW 345-kV line and add a second circuit	2030	649.0
L16	Upgrade the existing Gardendale – Clearfork 345-kV line and add a second circuit	2030	
L16	Upgrade the existing Gardendale – Telephone Road 345-kV line and add a second circuit	2030	