Permian Basin Reliability Plan Study – Status Update

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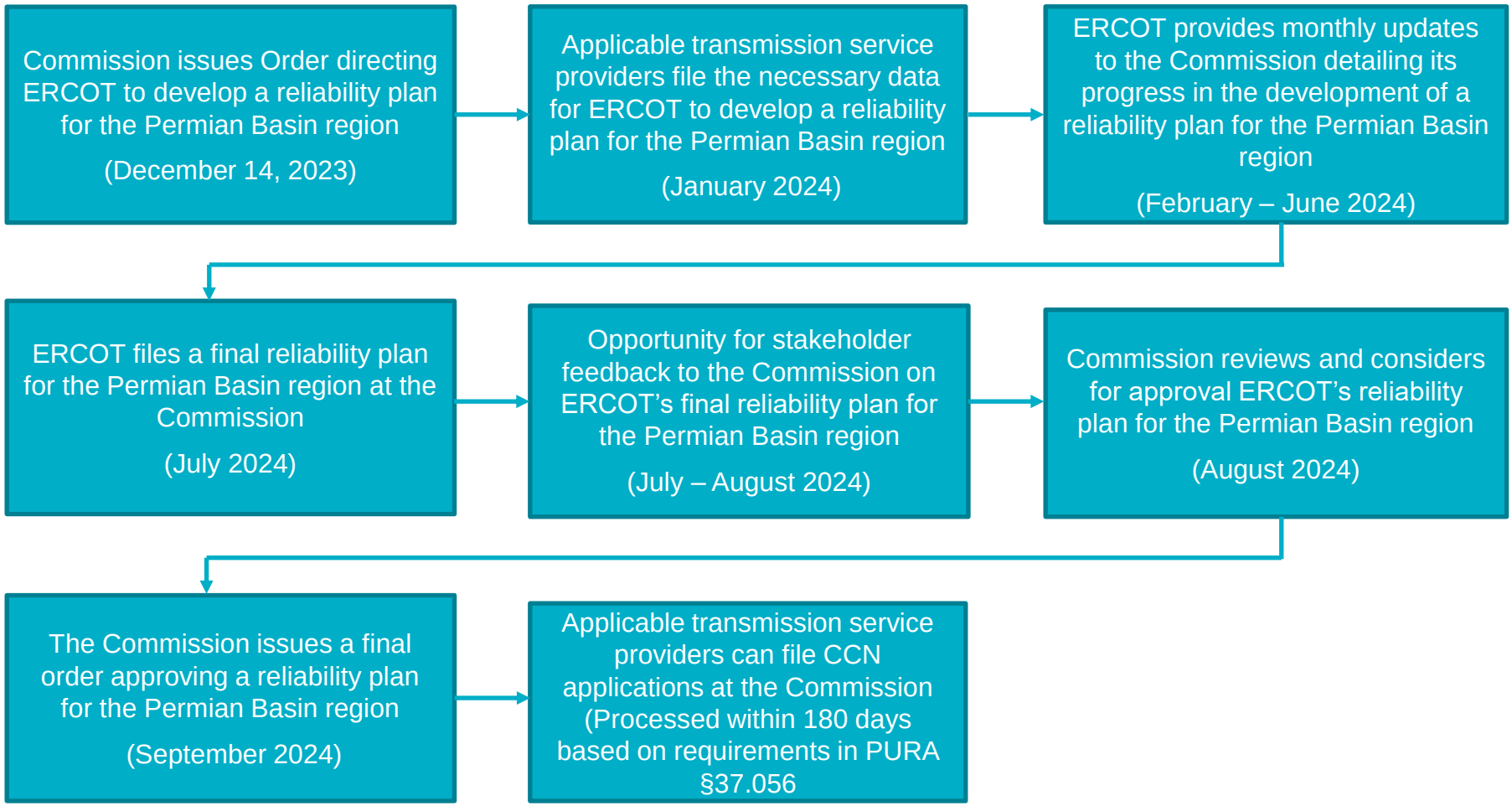
RPG Meeting
April 09, 2024

Recap: Introduction

- Significant progress has been made to address the high demand growth in the Permian Basin area
  - Delaware Basin Load Integration Study in 2019
  - Permian Basin Load Interconnection Study in 2021
- In part, H.B. 5066 (May 2023) requires the PUCT to direct ERCOT to develop a Reliability Plan for the Permian Basin region and that the plan must:
  - Address extending transmission service to areas where mineral resources have been found
  - Address increasing available capacity to meet forecasted load for the next decade
  - Provide available infrastructure to reduce interconnection times in areas without access to transmission service
- PUCT Order Project No. 55718 (December 2023)
  - Procedural Process and Timeline
  - Not later than July 2024, ERCOT must file a final reliability plan at the Commission in this project, and after opportunity for stakeholder feedback, and Commission will review and approve a reliability plan for the Permian Basin region
  - The applicable transmission service providers (TSPs) responsible for constructing the transmission infrastructure in the Commission-approved reliability plan can then move forward with filing the necessary applications for certificate of convenience and necessity (CCN) at the Commission

Recap: Procedural Process and Timeline per PUCT Order Project No. 55718



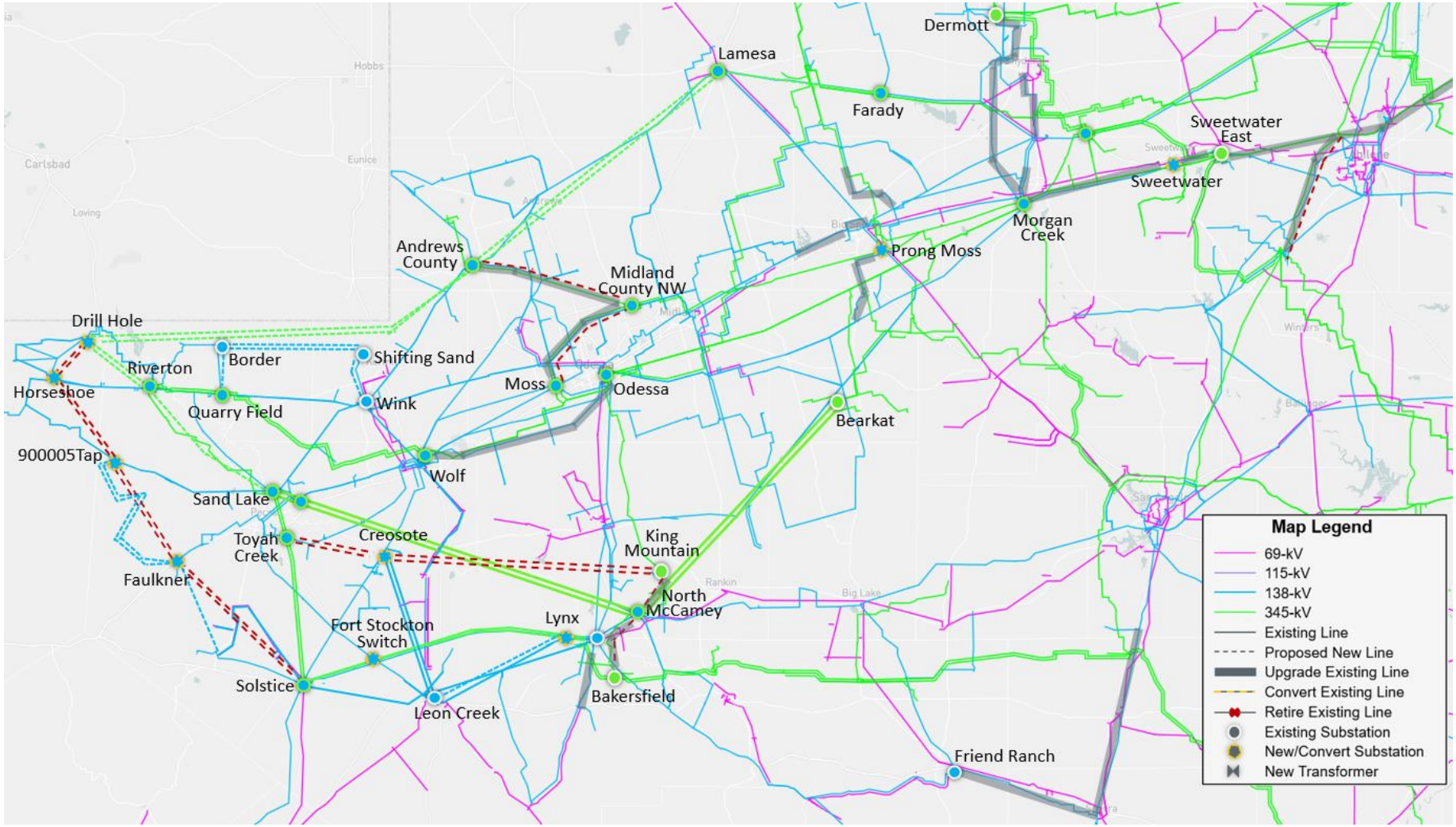
Status Update

- ERCOT presented the draft study scope at January RPG meeting
  - https://www.ercot.com/calendar/01172024-RPG-Meeting
- ERCOT presented the updated study scope at February RPG meeting
  - https://www.ercot.com/calendar/02122024-RPG-Meeting
- ERCOT presented the status update at March RPG meeting
  - https://www.ercot.com/calendar/03182024-RPG-Meeting-_-Webex
- ERCOT continued working on the potential local transmission upgrades to serve the S&P Global Permian Basin load plus the all the additional non-oil & gas load
- ERCOT will present the initial local transmission upgrades in 2038 to serve the S&P Global Permian Basin load plus the all the additional non-oil & gas load

Study Scope

- ERCOT will focus on the 138-kV and above transmission upgrades and TSPs are responsible for the 69-kV transmission upgrades
  - Thermal/voltage violations as well as unsolvable contingencies at or due to 69-kV transmission system limitation will rely on TSPs to resolve
- Capacitor banks were added in the case to address the voltage issues. The capacitor banks can be proposed and added by TSPs when the load is materialized, and will not be included in the project list of this study
- For the planned maintenance outage scenarios, ERCOT will only consider the major 345-kV maintenance outages in the Delaware Basin area since
  - The oil & gas loads are concentrated in the Delaware Basin area
  - The transmission in the Delaware Basin area is relatively sparse
  - Other planned maintenance outage scenarios may be evaluated in following RTP studies or RPG reviews
- Due to the high load level, significant amount of local transmission upgrades, especially in the Delaware Basin area, are needed to served the load. Two steps are taken to address the reliability need:
  - First, identify and evaluate the local transmission upgrades to serve the load
  - Second, evaluate the import paths to the Permian Basin region

Potential Local Transmission Projects for 2038



Initial Local Transmission Projects for 2038 case in Delaware Basin area

- 345-kV
  - Update the Stage 3 upgrade: New 345-kV double-circuit transmission line from Riverton – Drill Hole (instead of new 345-kV single-circuit transmission line from Riverton – Owl Hill)
  - Stage 4 upgrade: Convert the existing Sand Lake – Riverton 138-kV line into 345-kV and add a new 138-kV line from Sand Lake – Riverton
  - Update the Stage 5 upgrade: Faraday – Lamesa – Andrews County South – Drill Hole (instead of Riverton)
  - Add new 345-kV substations with two 345/138-kV transformers each at Horseshoe Spring, 900005Tap (between Culberson and Sand Lake), and Faulkner
  - Add new 345-kV double-circuit transmission lines to form a loop: Riverton - Drill Hole – Horseshoe Spring - 900005Tap – Faulkner - Solstice
  - Add a new 345/138-kV Creosote substation with three 345/138-kV transformers add new 345-kV double-circuit transmission lines from King Mountain to Creosote to Toyah Creek
  - Add new 345-kV substations with three 345/138-kV transformers each at Fort Stockton Switch and Lynx and loop the existing Bakersfield – Solstice 345-kV double-circuit transmission lines into Lynx and Fort Stockton Switch
  - Upgrade the existing Bakersfield - Nevil Road – North McCamey – King Mountain 345-kV transmission lines and add 2nd circuits

Initial Local Transmission Projects for 2038 case in Delaware Basin area (cont.)

- 138-kV
  - Add a 2nd 138-kV circuit from Quarry Field to Border and 2nd 138-kV circuit from Shifting Sand – Wink, and add new 138-kV double-circuit transmissions line from Border – Shifting Sand to connect and serve the new loads and form a loop
  - Add new 138-kV double-circuit transmission lines from 900005Tap to Faulkner to connect and serve the new loads and form a loop
  - Add new 138-kV transmission lines from Faulkner to Saragosa to connect and serve the new loads and form a loop
  - Add a new Woodhouse – Airport 138-kV transmission line
  - Add a 2nd circuit on the existing Lynx – Tombstone – Fort Stockton Plant 138-kV line
  - Upgrade the existing Rio Pecos – North McCamey 138-kV double-circuit transmission line
  - Upgrade the existing Girvin – White Baker 138-kV transmission line

Initial Local Transmission Projects for 2038 case in Midland Basin area

- 345-kV
  - Add a new 345/138-kV Prong Moss substation with two 345/138-kV transformers and loop the existing Bulldog – Elbow 138-kV transmission line into Prong Moss
  - Add a new 345/138-kV Sweetwater substation with two 345/138-kV transformers and loop the existing Sweetwater East – Champion 345-kV transmission line into Sweetwater
  - Upgrade the existing 345-kV double-circuit transmission lines from Cattleman (Morgan Creek) to Sweetwater East to Long Creek to Graham
  - Upgrade the existing Bluff Creek - Abilene Mulberry Creek 345-kV transmission line and add 2nd circuit
  - Upgrade the existing Moss – Midland County NW – Clearfork 345-kV transmission lines and add 2nd circuits
- 138-kV
  - Add a new Friend Ranch – Stockman 138-kV transmission line
  - Add a new Ranger (Morgan Creek) – Frontie 138-kV transmission line
  - Upgrade the existing Ranger – Sun – Demott and Ranger – China Groove – Snyder 138-kV transmission lines
  - Upgrade the existing 138-kV transmission lines near Prong Moss
  - Upgrade the existing 138-kV transmission lines along the path of Odessa to Wolf
  - Upgrade the existing 138-kV transmission lines along and path of Friend Ranch to Like Oak to Santiago

Deliverables and Timeline

- The study is expected to be completed in June 2024 and the final report is ready in July 2024
- Status updates at future RPG meetings
- Tentative Timelines

Deliverables	Tentative Timeline
Load Update by TSPs	January 2024
Review the Data Provided by TSPs	January 2024
Develop Study Base Case and Conduct Reliability Analysis	February 2024
Study Potential Transmission Solutions and Propose Final Reliability Plan	March – June 2024
Final Report	July 2024

Thank you!

Stakeholder comments also welcomed through:

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