2022 RTP – Final Update

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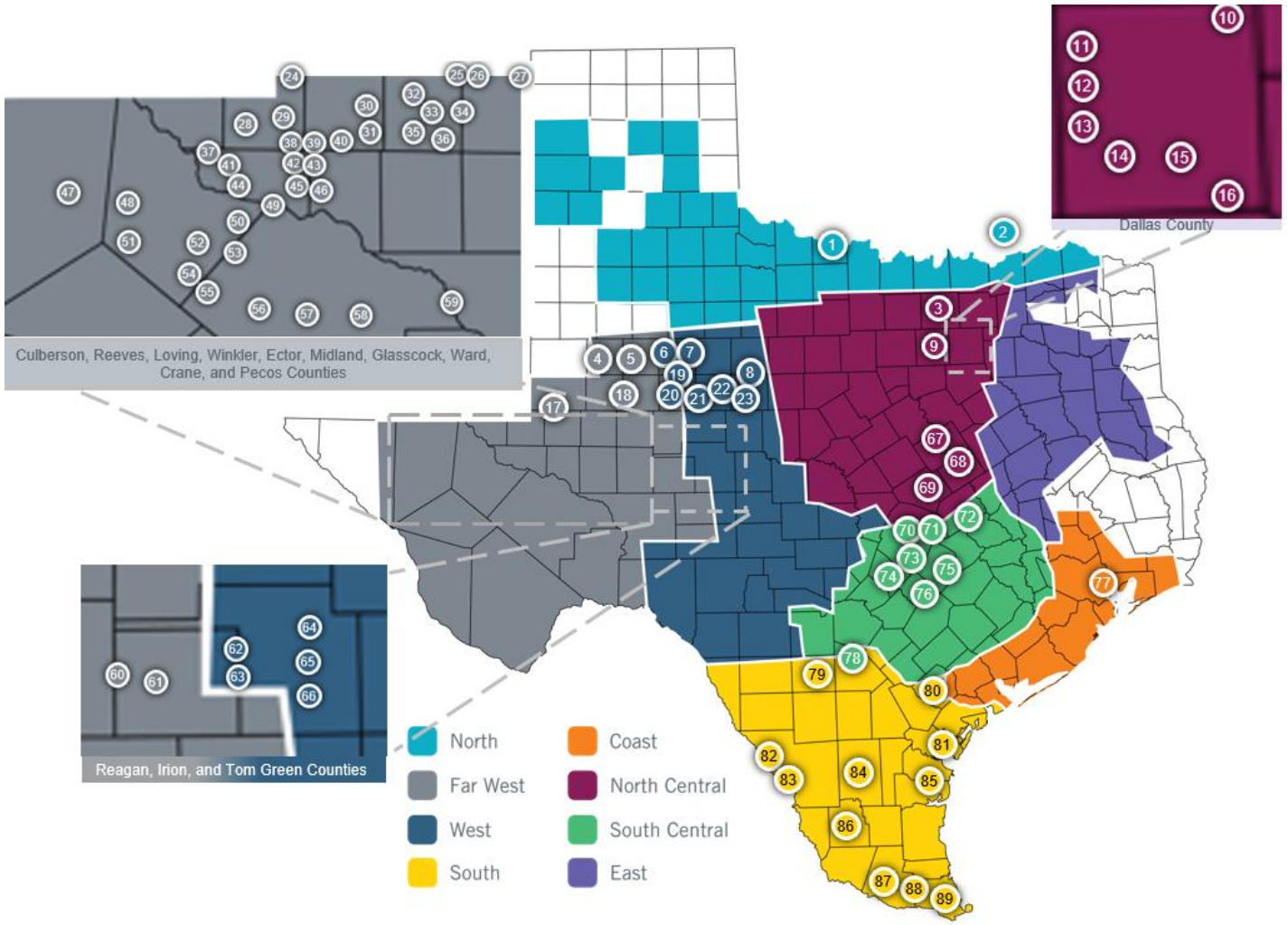
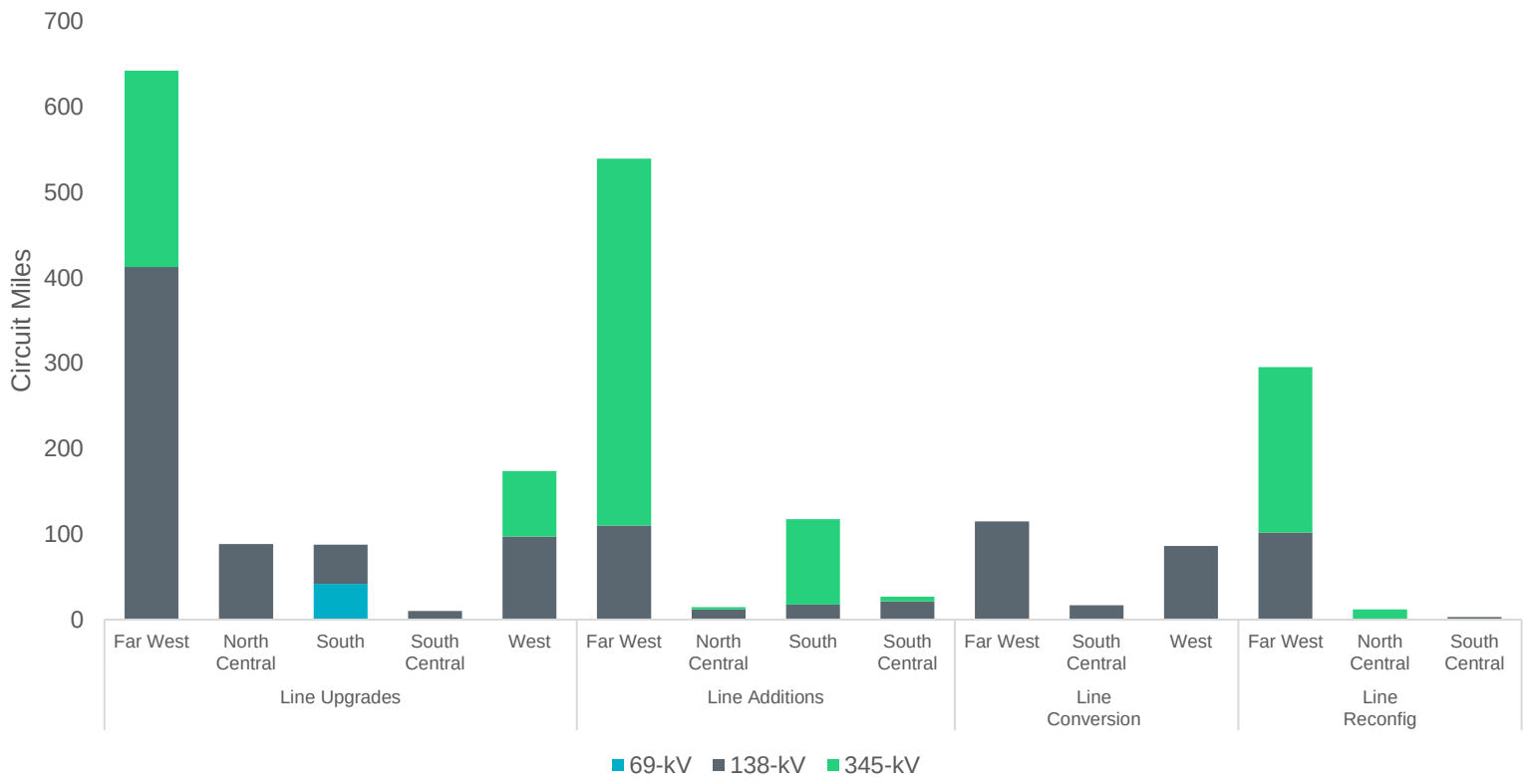
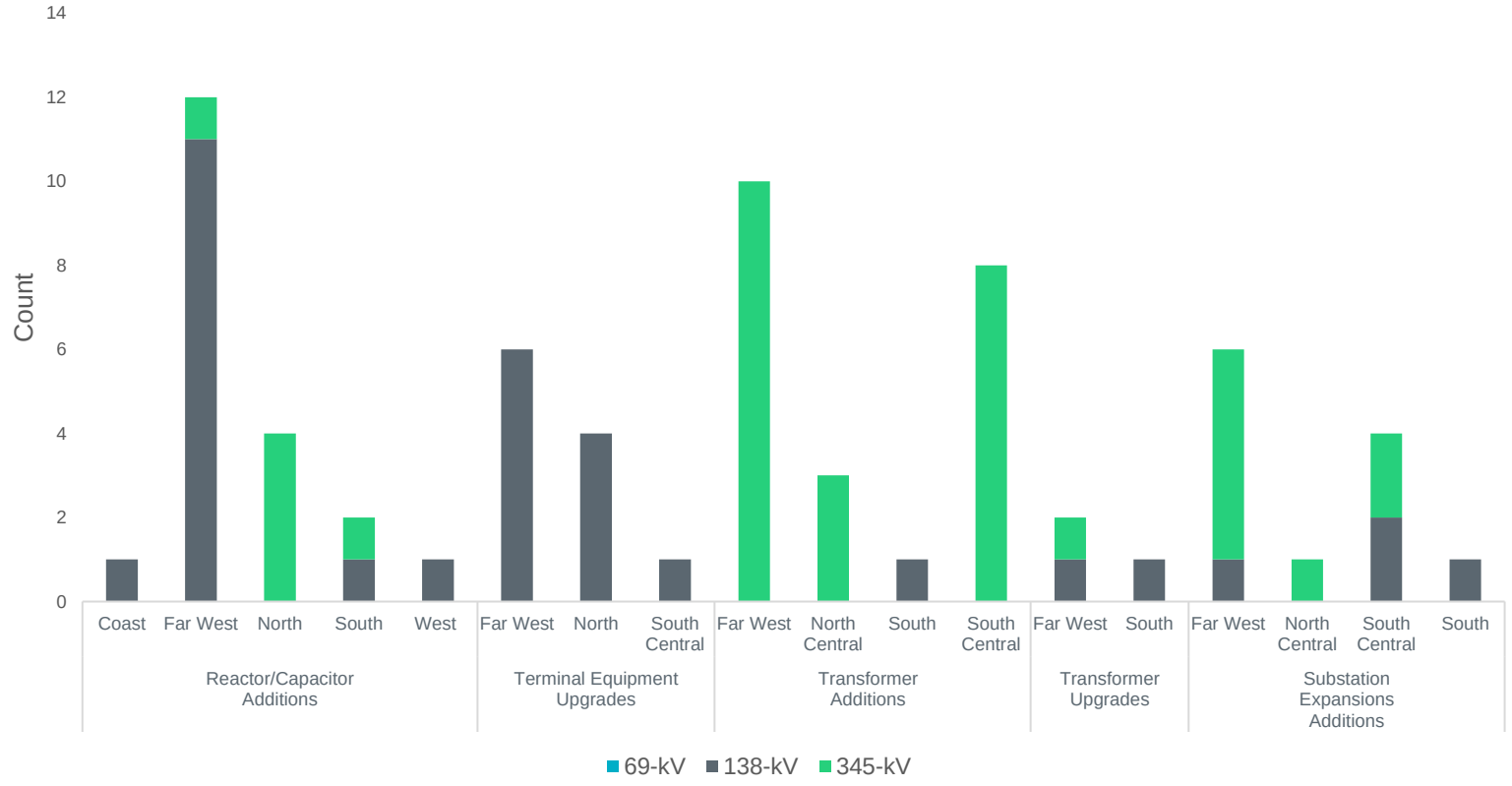
2022 RTP Reliability Project Locations



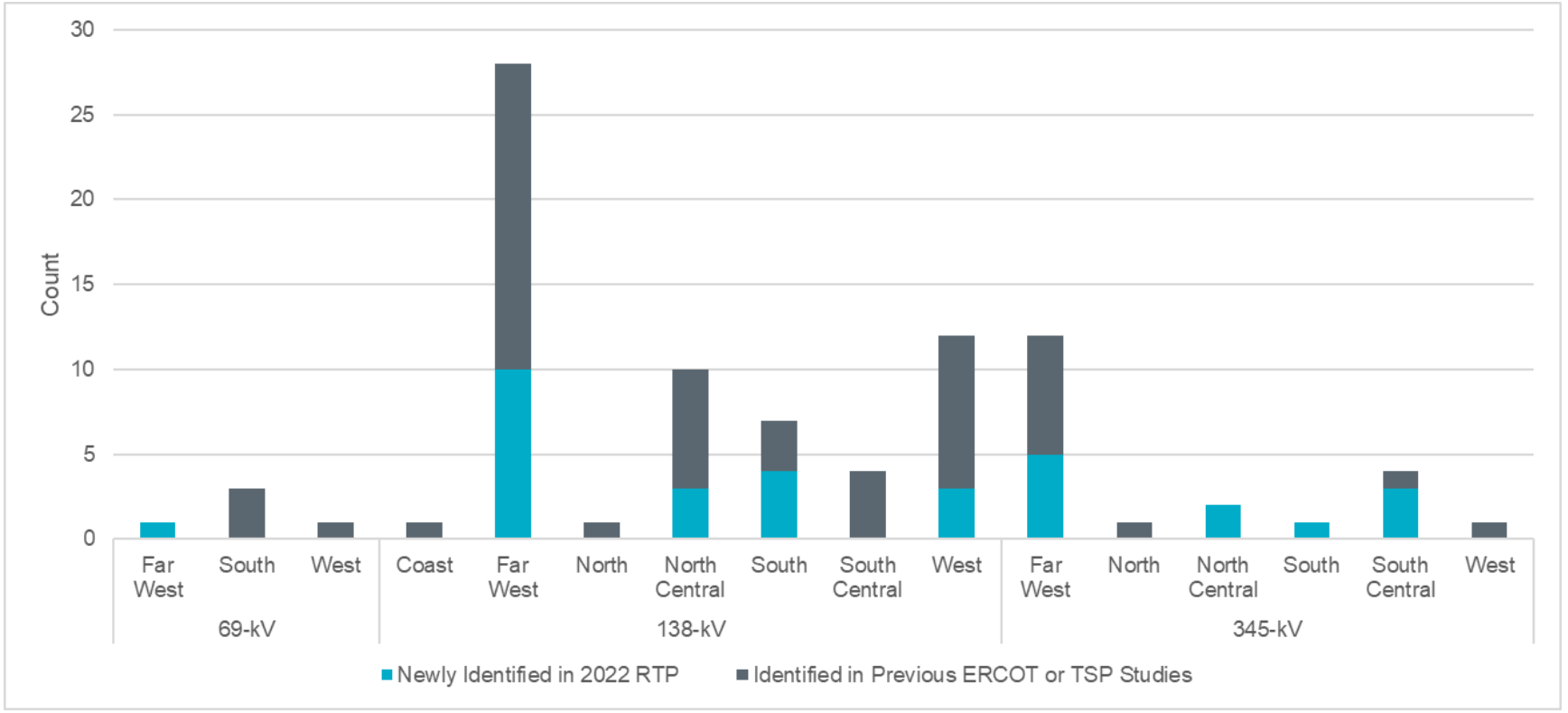
Line Upgrades, Additions, and Conversions



Other Upgrades and Additions

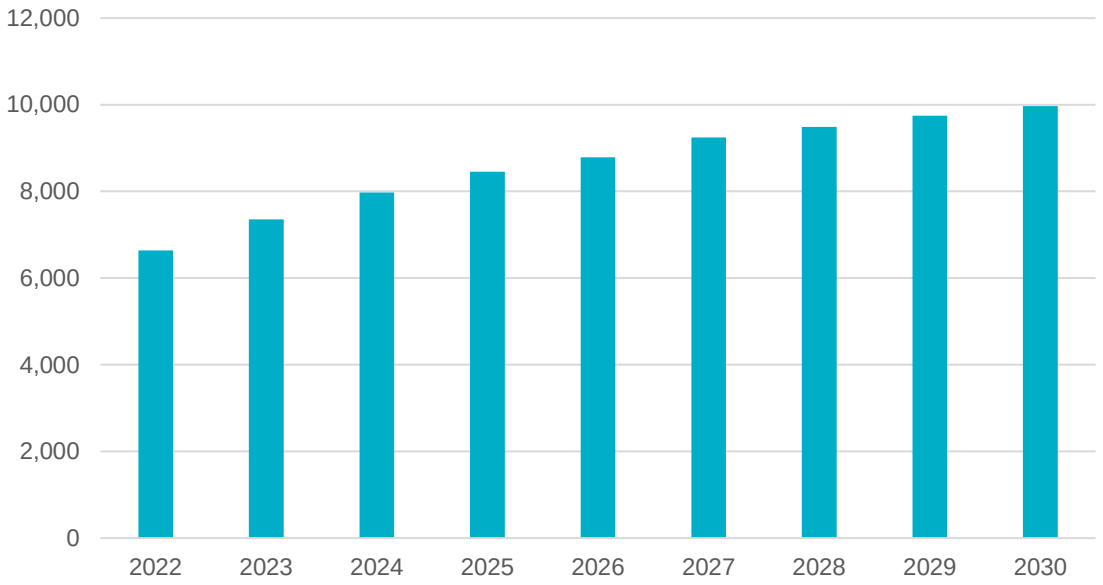


Previously VS. Newly Identified Projects



West/Far West Study Findings

- Permian Basin load forecast from IHS Markit study was adopted in 2022 RTP



IHS Markit Study Permian Basin Summer Peak Load Forecast (MW)

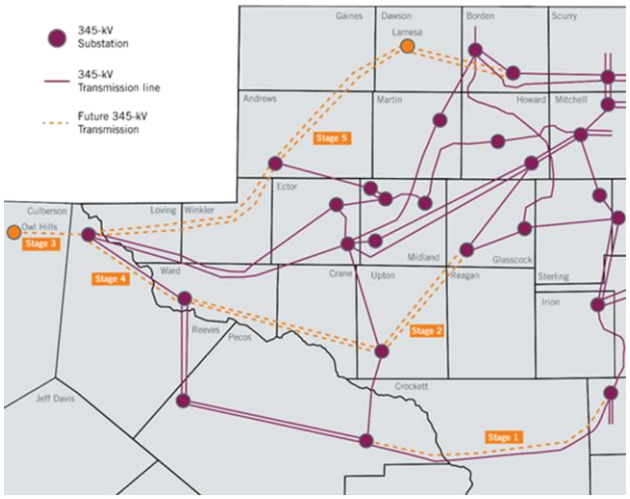
- More than 3 GW* of Large Load was also incorporated in 2022 RTP, which brought the total Far West load to more than 12 GW in 2028 study year study region.

* Some Large Load request status changed recently and the changes will be reflected in the 2023 RTP.

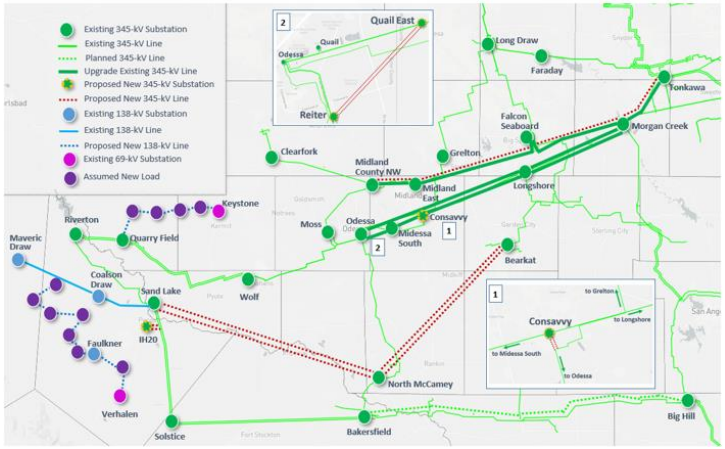
West/Far West Study Findings

- 55 reliability projects were identified for the West and Far West study region
- The following major system improvements identified by ERCOT in previous special studies were needed to reliably serving the load in the region:
  - Bearkat - North McCamey - Sand Lake 345-kV double-circuit line addition[1]
  - Faraday - Lamesa - Clearfork - Riverton 345-kV double-circuit line addition[2]
  - 213 circuit miles of 345-kV line upgrade/rebuild and 123 circuit miles of new 345-kV line[3]
- The 2022 RTP also identified the need to add a significant amount of reactive power support devices in Far West Texas, including dynamic reactive power devices to support the interconnection of the large load.

Delaware Basin Load Integration Study Road Map



Permian Basin Load Interconnection Study Preferred Reliability Upgrade for 2030



[1] ERCOT Delaware Basin load integration study stage 2 project; endorsed by ERCOT Board in 2022
[2] ERCOT Delaware Basin load integration study stage 5 project
[3] ERCOT Permian Basin load interconnection study preferred projects

ERCOT Coincident Winter Peak Load Sensitivity

- Identify any additional reliability needs in order to ensure the reliable serving of load under winter peak conditions
  - Assumptions were presented at the May 2022 RPG meeting

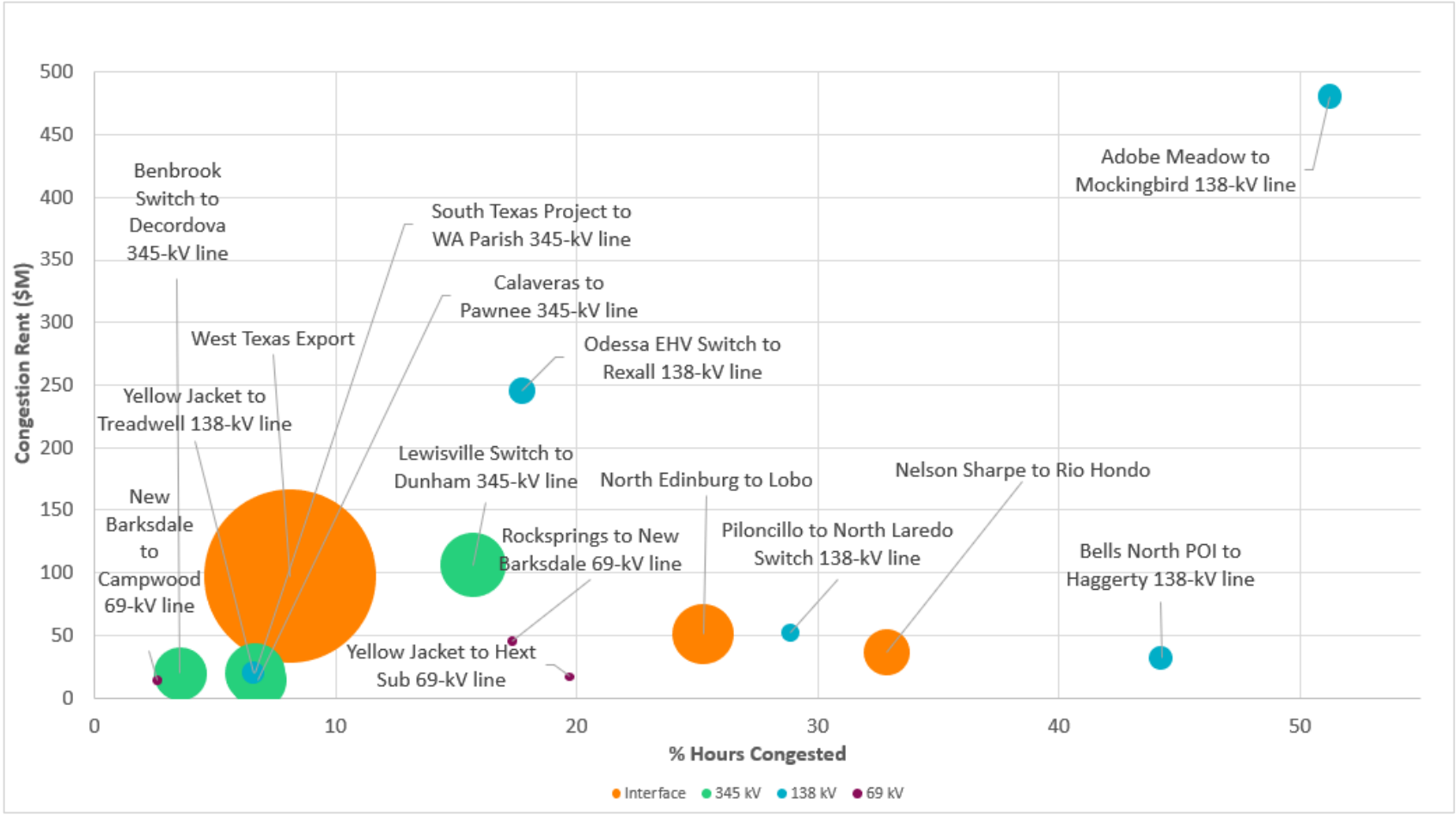
    Winter peak sensitivity assumptions
  - Most challenges observed were in the West and Far West study region
  - The need for additional import capability to the Far West region was observed
  - The need for the stage 3 project (Riverton - Owl Hills 345-kV Line Addition) in the ERCOT Delaware Basin Load Integration study was observed to resolve challenges in the Culberson loop area

High Renewable Light Load Off-Peak Sensitivity Analysis

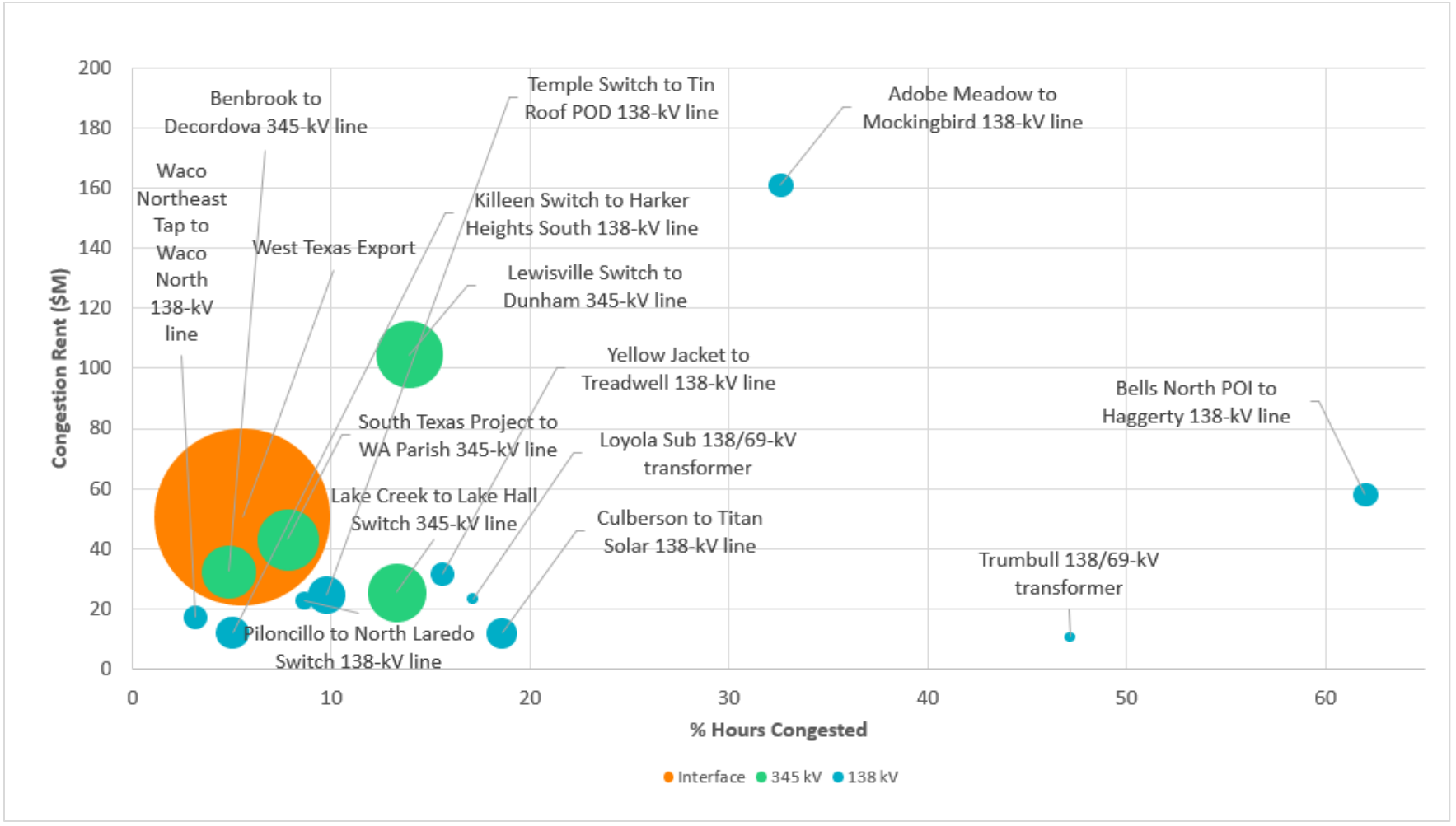
- The purpose of this sensitivity is to provide understanding of potential system impacts under the assumed system conditions rather than recommend specific projects
  - Assumptions were presented at the August 2022 RPG meeting

    High Renewable Light Load sensitivity assumptions
- Key takeaways:
  - Additional local transmission upgrades were needed to facilitate the export of the assumed renewable dispatch level (42 GW, 80% penetration)
  - Transmission upgrades were identified for the West, South and North Central weather zones

Economic Analysis: Top Constraints for 2024



Economic Analysis: Top Constraints for 2027



2022 RTP Report Posting

- 2022 RTP report and final reliability cases were posted on December 22, 2022
- Public version of the report was posted to the following location (http://www.ercot.com/gridinfo/planning)

Questions / Comments

- Please send questions and/or comments to:
  - Ping.Yan@ercot.com