



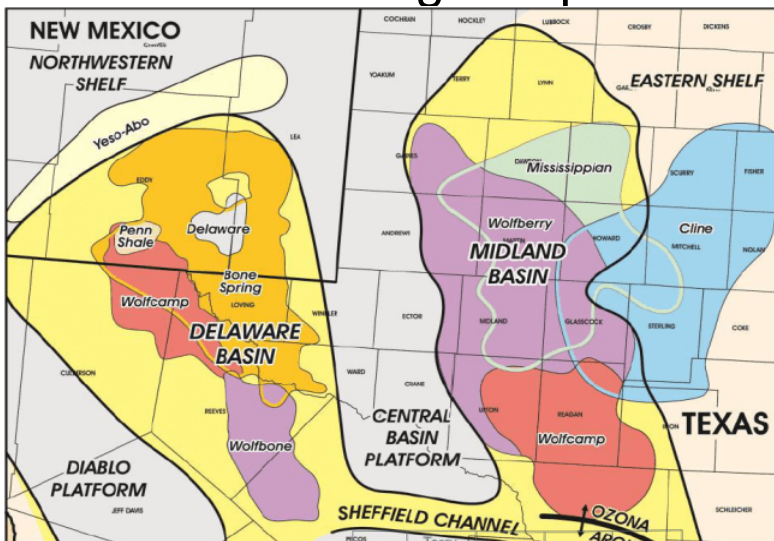
# Delaware Basin Load Integration Study

ERCOT Transmission Planning

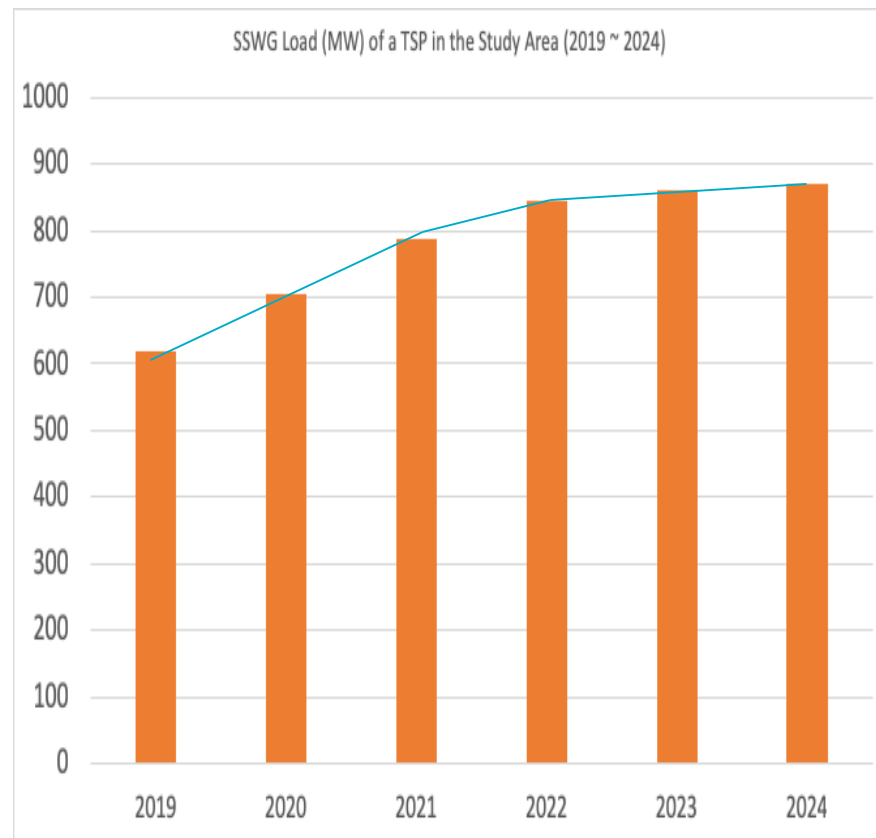
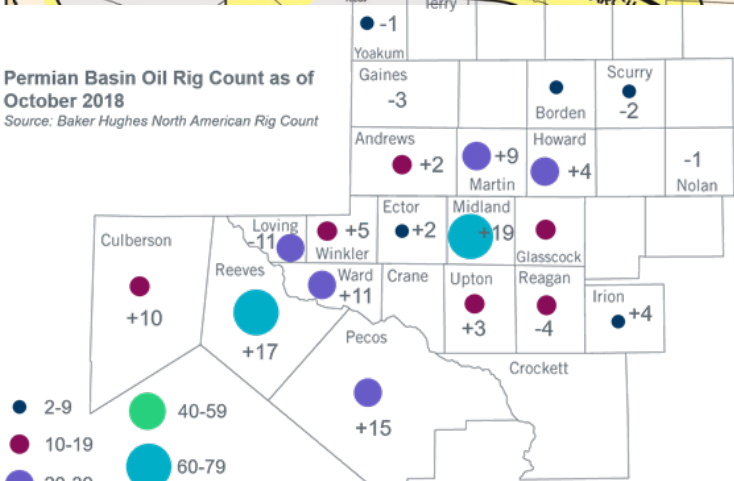
Regional Planning Group  
November 27, 2018

# Motivation

- ❑ The Far West Weather Zone, especially in the Delaware Basin area, has had the highest peak demand growth rate in recent years.



Permian Basin Oil Rig Count as of October 2018  
Source: Baker Hughes North American Rig Count



# Purpose of the Study

- ❑ Assess the reliability needs from a steady-state perspective for the Year 5 transmission system in the Far West Weather Zone by incorporating higher-than-expected load growth (including the committed and potential load) in 2024.
- ❑ Identify potential challenges and solutions that address the reliability needs
- ❑ The results of this analysis are intended to be indicative of likely future challenges to be faced in the ERCOT grid.

# Study Assumptions

## ❑ Study Region

- The study will focus on the Delaware Basin-serving transmission system in the Far West Weather Zone in ERCOT system

## ❑ Steady-State Study Base Case

- The latest 2018 RTP 2024 West/Far West (WFW) summer peak case will be used as the starting case and be updated to construct the study case

# Study Assumptions

- **Transmission Update:**
  - ✓ Transmission projects expected to be in-service by 2024 will be added to the case
  - ✓ Tier 1, 2, and 3 RPG projects in the study region that are not approved will be backed out
- **Generation Update:**
  - ✓ Planned generators in the West and Far West Weather Zones that meet PG 6.9 conditions at the time of study will be added to the case
  - ✓ Solar generation will be turned off to represent a stressed system condition as the load in the study area is mainly associated with oil and natural gas loads that are expected to operate as a constant load, 24\*7
  - ✓ Wind generation in the study area will be dispatched consistent with the 2018 RTP methodology

# Study Assumptions

- Load Update:

- ✓ ERCOT will request the TSPs in the study area, the Delaware Basin in the Far West Weather Zone, to provide higher-than-expected load growth (including the committed and potential load) in 2024.
- ✓ ERCOT will work with the TSPs to ensure consistency in approach and will incorporate these load updates in the study cases

- Power Balance

- If necessary, load outside of the study area will be adjusted in order to maintain reserve for summer peak case to allow loss of two largest units, i.e. 2800 MW

# Study Methodology

## ❑ Scenarios

- ✓ Study base case
- ✓ Potential maintenance outage condition may be considered to examine the operation flexibility in the study area

## ❑ Contingencies

- ✓ NERC TPL-001-4 Planning Event: P1 and P7
- ✓ ERCOT-specific event as described in the Planning Guide Section 4

## ❑ Monitored element

- ✓ All transmission facilities in the study region with the voltage level above 60 kV (excluding GSU)

# Study Methodology

## ❑ Criteria

### ✓ Thermal

- Use Rate A for normal conditions
- Use Rate B for emergency conditions

### ✓ Voltage

- $0.95 < V \text{ (pu)} < 1.05$  for normal conditions
- $0.90 < V \text{ (pu)} < 1.05$  for emergency conditions
- Voltage deviations exceeding 8% on non-radial load buses

❑ Economic analysis may be performed based on the potential transmission upgrades to ensure that the identified transmission upgrades do not result in new congestion within the study area.



# Deliverables and Timeline

- ❑ The study is expected to be completed in 6 months and ERCOT will provide regular updates to the RPG
- ❑ Tentative Timeline

Deliverables	Tentative Schedule
Load Update by TSPs (Request will be sent to TSPs in Dec, 2018)	January, 2019
Develop Study Base Case, Conduct Reliability Analysis	March, 2019
Study Potential Transmission Solutions	May, 2019
Study Report to Inform Stakeholders	June, 2019



Stakeholder Comments Also Welcomed to Sun Wook Kang:  
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