



DELAWARE BASIN LOAD INTEGRATION STUDY

STUDY SCOPE

Version 0.2

1. Purpose

The Far West Weather Zone, especially in the Delaware Basin area with significant oil and natural gas load, has had the highest peak demand growth rate percentage in the ERCOT region in recent years. Ensuring that the transmission improvements are in place in time to serve the load has been a challenge. To address the uncertainties regarding rapid load growth in the Far West weather zone, the purpose of this study is to perform higher-than-committed load growth studies to identify cost-effective bulk power system upgrades that may be necessary if load in the Delaware Basin continues to increase at rapid pace through 2024. These potential upgrades will be used to inform stakeholders, decision-makers, and planners as the load develops.

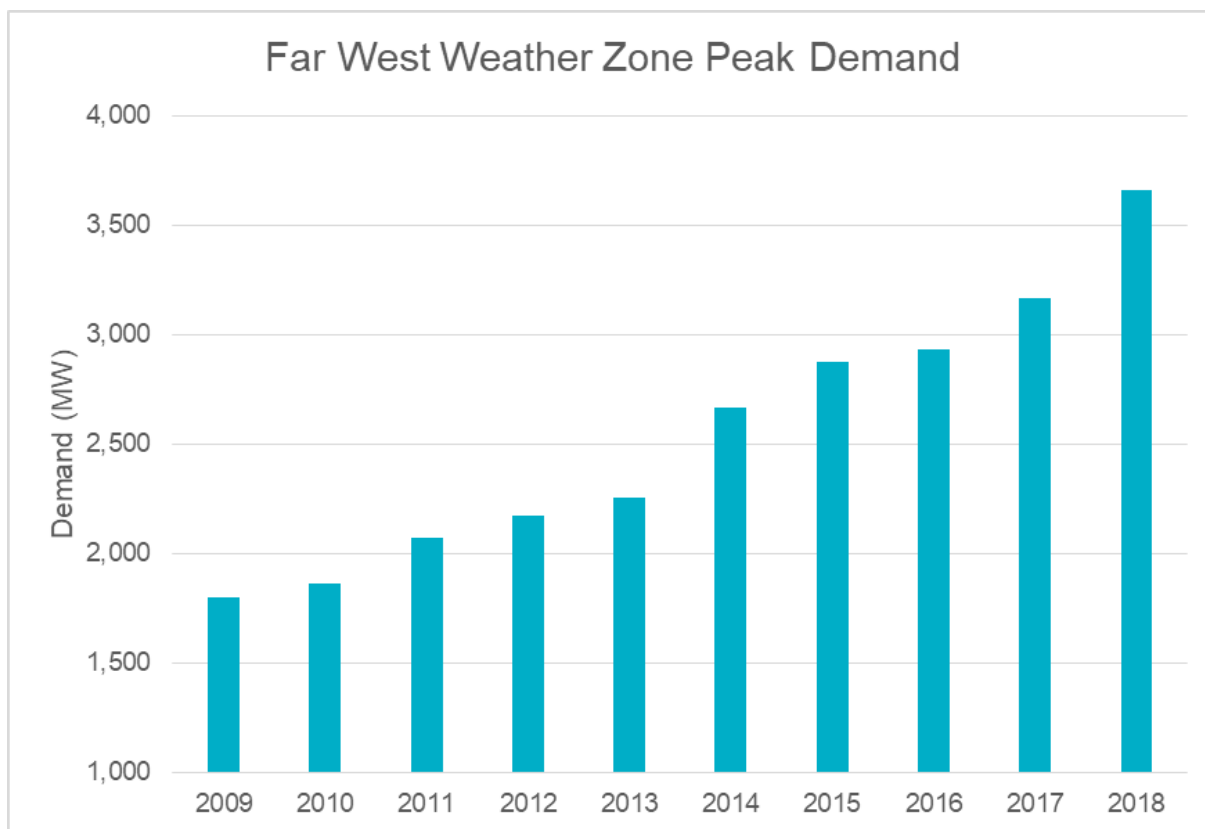


Figure 1: Far West Weather Zone Peak Demand by Year

2. Study Case Development

2.1. Study Area

The study will focus on the Delaware Basin-serving transmission system in the Far West Weather Zone in ERCOT system to identify the potential system needs to integrate the rapid load growth in this area.

2.2. Starting Base Case

The 2024 West/Far West (WFW) summer peak case from the 2018 RTP reliability case will be used as the starting base case.

2.3. Generation

Planned generators in the West and Far West Weather Zones that meet Planning Guide Section 6.9 conditions for inclusion in the base cases at the time this study is initially conducted will be added in the starting base case.

- Solar generation in the study area will be turned off to represent a stressed system condition since the load growth in these zones are mainly 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

	Average Capacity Factor (15th Percentile)
WZ_FAR_WEST	4.36%
WZ_WEST	2.33%

2.4. Potential Load Growth

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.

2.5. 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.

2.6. Transmission

Transmission projects in the study area expected to be in-service by 2024 will be added to the case.

All Tier 1, 2, and 3 projects that have not undergone RPG Project Review will be removed from the starting base case(s).

3. Study Considerations

3.1. Scenarios

In addition to the developed base case as described in Section 2, the potential maintenance outage condition (N-1-1 analysis for the major 345 kV transmission in the region) may be considered with potential transmission upgrade modeled in the study case to examine the operation flexibility in the study area. Steady-state voltage stability analysis (e.g. VSAT type stability study) will be performed to examine the transfer capability among different project options.

3.2. Contingencies and Performance Criteria

This study will conduct steady state power flow and voltage stability assessment. The following NERC and ERCOT events in the study area will be analyzed.

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

The following criteria will be used to identify planning criteria violations.

All 69 kV and above busses, transmission lines, and transformers in the study region were monitored (excluding generator step-up transformers).

- Thermal criteria violations
 - Rate A for Normal Conditions
 - Rate B for Emergency Conditions
- Voltage violation criteria

- $0.95 < V_{pu} < 1.05$ Normal
- $0.90 < V_{pu} < 1.05$ Emergency
- Post Contingency voltage deviations
 - 8% on non-radial load buses

3.3. Economic Analysis

Economic analysis will 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.

4. Tentative Schedule

The study is expected to be completed in 6 months and ERCOT will provide regular updates to the RPG.

Task	Description	Tentative Schedule
1	TSPs Load Update (Send the request to TSPs in December, 2018)	February, 2019
2	Study Base Cases Development and Analysis	March, 2019
3	Upgrade Options Evaluation	May, 2019
4	Study Report and Stakeholder Presentation	June, 2019