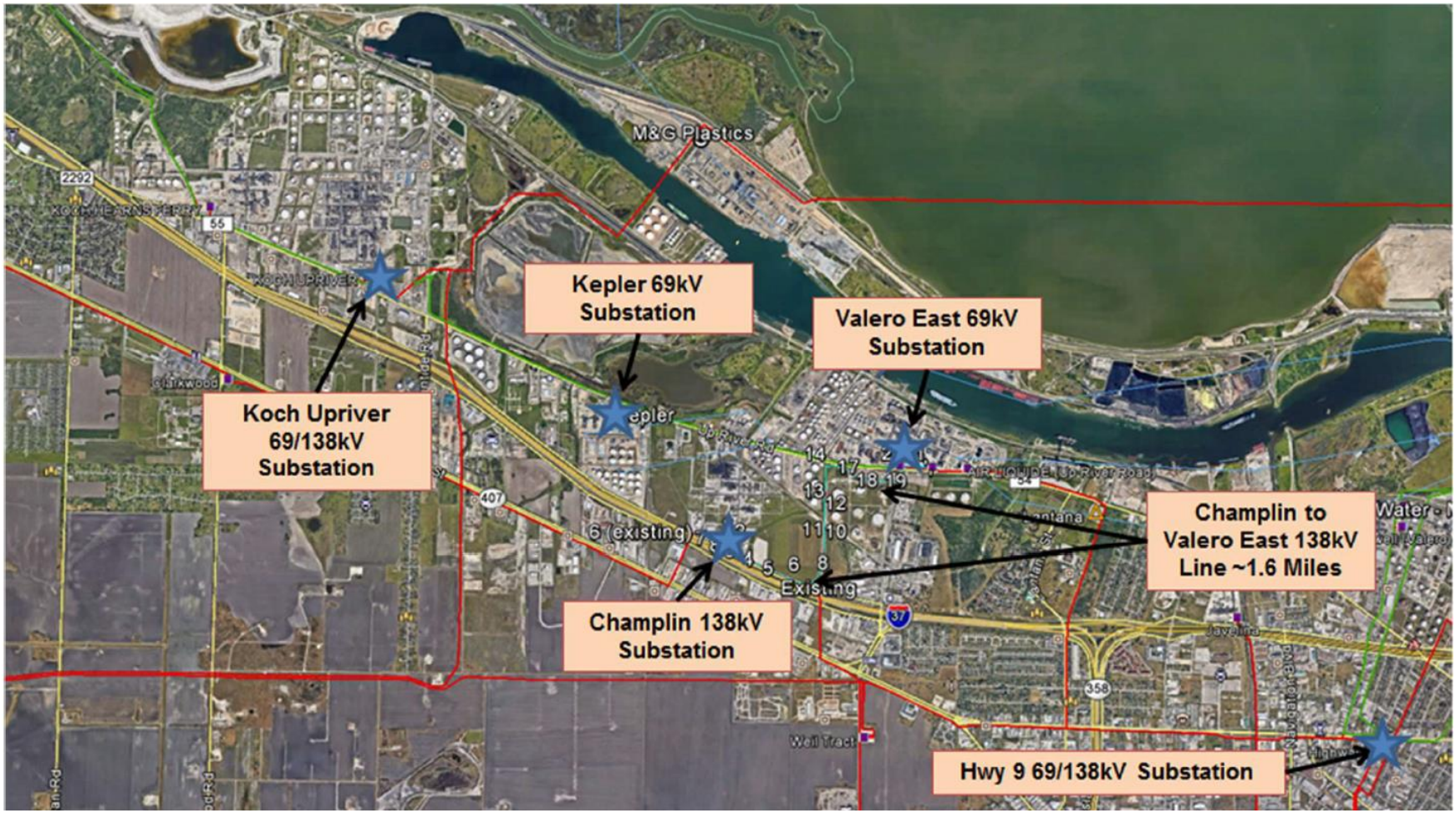
AEP Nueces 69kV Reinforcement Project - ERCOT Independent Review

July 16, 2019

Overview

- American Electric Power Service Corporation (AEPSC) submitted Nueces 69kV Reinforcement project for Regional Planning Group review. This is a Tier 2 project that is estimated to cost $ 17.6 million.
  - Reliability Needs:
    - Thermal overload of Koch Upriver – Kepler 69 kV line under certain G-1+N-1 condition
  - In-service year of the proposed project: 2021

Overview



Corpus Christi Area 69kV Transmission System

Study Assumptions

- Study Region
  - South Weather zone in ERCOT system, focusing on the Corpus Christi area

- Base Case
  - The final 2018 RTP 2021 South/South Central (SSC) summer peak case will be used to construct the study case
    - Case Name: 18RTP_2021_SUM_SSC_12202018

    (https://mis.ercot.com/pps/tibco/mis/Pages/Grid+Information/Regional Planning)

Study Assumptions

❑ Generation Update

- Generator additions that meet Planning Guide Section 6.9 for inclusion in the planning models at the time of the study will be added to the cases

GINR	NAME	MW Capacity
17INR0037	Palmas Atlas Wind	144.9
18INR0014	Karankawa Wind	206.64
18INR0035	CityVict	100
19INR0053	Hidalgo II Wind	51
19INR0074	Karankawa 2 Wind	101
19INR0112	Cranel Wind	220
20INR0042	Chalupa Wind	174

- These new wind generators in the study area will be dispatched according to 2019 RTP methodology
- The status of the units either mothballed or retired at the time of study will be turned off to be consistent with the 2019 RTP
- 2800 MW of reserve will be maintained for the steady state summer peak study case

Study Assumptions

❑ Transmission Update

- The following transmission line and transformer will be backed out from the case as it is part of the proposed project.
  - 138 kV line from Champlin to Valero (~1.6 miles) (TPIT 4487)
  - 138/69 kV transformer at Valero East (TPIT 4487)

❑ Load Update

- The load levels of the study weather zone in the steady-state summer peak case will be maintained at their peak load levels.

Study Methodology

❑ Contingency for Study Region

- NERC TPL-001-4 and ERCOT Planning Criteria (http://www.ercot.com/content/wcm/current_guides/53526/04_050115.doc):
  - Normal system condition (P0)
  - N-1 conditions (P1, P2-1, P7)
  - P2, P4, and P5 (EHV only)
  - X-1 + N-1 (X-1 represents 345/138 kV transformer outage)
  - G-1 + N-1 (G-1 represents generator outage)
  - Certain N-1-1 (P6) events in the region
- Criteria:

  Monitor all 60 kV and above transmission lines, and transformers in the study region (excluding generator step-up transformers)
  - Thermal
    - Use Rate A for Normal Conditions
    - Use Rate B for Emergency Conditions
  - Voltages
    - Monitor all busses 100 kV and above
    - 0.95 < 1.05 Normal
    - 0.90 < 1.05 Emergency
    - Voltage deviations exceeding 8% on non-radial load busses

Study Methodology

- **Need Analysis**
  - The reliability analysis will be performed to identify the need using the study base case

- **Project evaluation**
  - Project alternatives will be tested to satisfy the NERC and ERCOT reliability requirements
  - ERCOT will also consider maintenance outages
  - ERCOT will also conduct a sensitivity analysis for potential Marina load (TPIT 6774) which is scheduled for Jan 2026

- **Congestion Analysis**
  - Congestion analysis will be performed to ensure that the identified transmission upgrades do not result in new congestion within the study area

Deliverables

- Tentative timeline
  - Status updates – August 2019
  - Final recommendation – September 2019

Stakeholder Comments Also Welcomed to Sun Wook Kang:

skang@ercot.com