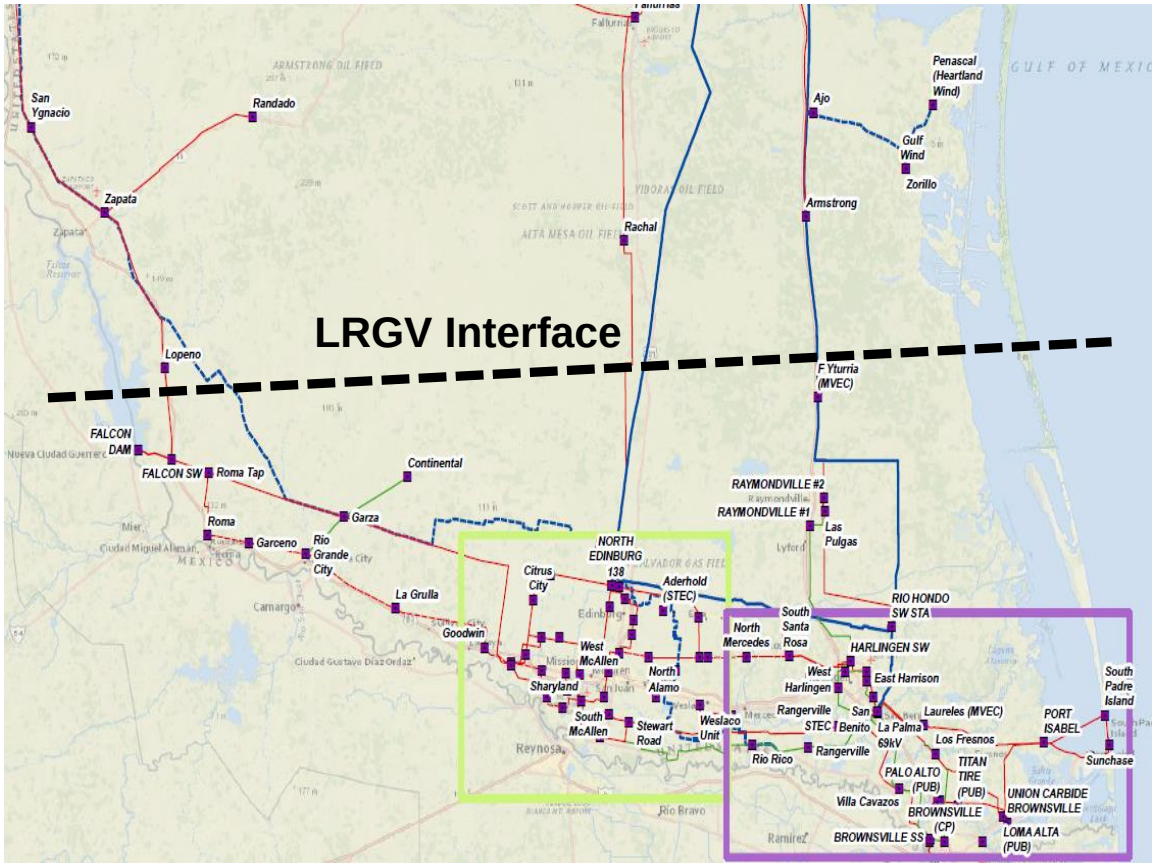
# ERCOT Independent Review of AEP LRGV Import Transmission Project – Study Scope

**Regional Planning Group**
March 27, 2018

# Introduction

- **AEPSC submitted Lower Rio Grande Valley (LRGV) Import Project for Regional Planning Group review in January 2018.**
  - AEPSC's proposed RPG upgrades are in two stages to address the Native LRGV load growth and the addition of potential LNG load
  - Stage 1 Upgrades
    - Lon Hill – Bessel 138kV line rebuild, dynamic reactive support, and shunt capacitor bank addition
    - Estimated cost is about $73 million
  - Stage 2 Upgrades
    - New 345kV BOLD transmission line from Corpus Christi area to Valley
    - Estimated cost is about $357 million
  - Stage 1 Proposed for 2021

# LRGV Overview




| Generation in LRGV | | |
|---|---|---|
| Capacity (MW) | Gas | Wind |
| Existing | 1457 | 1853 |
| Planning (Meet PG6.9) | 0 | 238 |
| Total | 1457 | 2091 |

| LRGV Load (MW) | | |
|---|---|---|
| **2022 SSC RTP** | **ERCOT 2021 Summer Peak 90/10 Forecast** | **AEP 2021 Summer Peak 90/10 Forecast** |
| 2737 | 2792 | 2823 |

# Study Assumptions

## ❑ Study Cases

- Steady-State Study: constructed from the Final 2017RTP reliability summer peak case 17RTP_2022_SUM_SSC.
  - System topology and valley load will be adjusted to reflect 2021 conditions
- VSAT Study: 17RTP_2022_SUM_SSC
- SSR Study: 17RTP_2022_SUM_SSC
- Dynamic Study: 2024 DWG flat start case.
  - System topology and valley load will be adjusted to reflect 2021 conditions
- Economic Study: 2023 economic study case from 2017 RTP
- Study Area:
  - Consistent with AEPSC's RPG report, LRGV is defined to include four counties: Cameron, Willacy, Hidalgo, and Starr
  - LRGV load is composed of load in zones 610, 615, 800, 829, 875, and 876

# Study Assumptions

## ❑ Transmission Updates

- AEPSC LRGV improvement project endorsed by ERCOT in 2016 were included in the case
- Transmission Projects expected to be in-service within the study area by 2021 at the time of the study will be added to the case 17RTP_2022_SUM_SSC
  - Tier 4 project ID 6741 (Rate A change for Azteca Sub (8708) - SE Edinburg (8374) 138kV line) with effective date as May 2019
- The following RTP projects were included in the case 17RTP_2022_SUM_SSC
  - SE Edinburg (8374) - Pharr (5762) and North Edinburg (8380) - McColl Road (8908) 138-kV terminal equipment upgrade
  - North McAllen (8368) - West McAllen (8367) - South McAllen (8371) 138-kV line upgrades
  - North McAllen (8368) - North Edinburg (8380) 138-kV line upgrade

# Study Assumptions

## ❑ Load Forecast

| Year | ERCOT 90th Percentile Summer Peak Forecast (MW) | AEP Summer Peak Forecast (MW) |
|---|---|---|
| 2018 | 2604 | 2734 |
| 2019 | 2666 | 2767 |
| 2020 | 2729 | 2791 |
| 2021 | 2792 | 2823 |
| 2022 | 2867 | 2852 |
| 2023 | 2941 | 2882 |
| 2024 | 3005 | 2905 |
| 2025 | 3065 | 2939 |
| 2026 | 3133 | 2967 |
| 2027 | 3200 | 2995 |

- No need to start a load review process as AEP load forecast is comparable with ERCOT forecast
- ERCOT load forecast will be used to determine the year the project is needed

# Study Assumptions – Generation Updates

## ❑ New Generation Review

- Generator additions that meet Planning Guide Section 6.9 requirements in South weather zone at the time of study (February 2018 GIS report) will be added to the case
  - Loma Pinta Wind (16INR0112) : 200 MW in La Salle County with COD of Dec 2018
  - Stella 1 Wind (15INR0035) : 201 MW in Kenedy County with COD of Dec 2018
  - Cabezon Wind (17INR0005) : 238 MW in Starr County with COD of April 2019
- Bruenning's Breeze wind units will be modeled at its permanent POI reflected in the latest IA amendment.

## ❑ Generation Retirement

- Recently retired/mothballed coal and natural gas units will be removed from the case (The unit retirement has already been reflected in the 2024 DWG case.)
  - Monticello #1, #2, and #3 (1865 MW)
  - Sandow #4 and #5 (1200 MW)
  - Big Brown #1 and #2 (1208 MW)
  - Barney Davis #1 (330 MW)
- Load outside of South and South Central weather zones will be scaled down to compensate for the coal/natural gas units retirement/mothball plus the 2800 MW reserve requirement.

# Study Assumptions – Miscellaneous

- **Wind Generation Dispatch**
  - South weather zone wind will be dispatched at 15.47% for the Summer Peak case consistent with 2017 RTP, and assumed to have full reactive support available
  - The wind dispatch level in other weather zones including South Central will remain the same as the base case

- **DC Tie Export**
  - Railroad DC tie export is assumed to be zero under P3 and P6 contingency conditions
    - Assume the associate cap banks are also unavailable
  - Laredo and Eagle Pass DC ties dispatch will remain the same as 2017 RTP

- **All the DGs in LRGV will be taken offline**

- **UVLS, Load, and Dynamic Reactive Device Model**
  - Use AEP supplied models

# Contingencies and Criteria

- **Contingencies 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)
    - X-1 + N-1 {X-1 is 345 kV Auto outages}
    - G-1 + N-1
    - N-1-1 {N-1 is for critical 345kV line outage)
- **Criteria**
  - **Thermal**
    - Monitor all transmission lines and transformers in study region (excluding GSU and PUNs)
    - Use Rate A for pre-contingency conditions
    - Use Rate B for post-contingency conditions
  - **Voltages**
    - Monitor all busses 100 kV and above
    - Voltages exceeding their pre-contingency and post-contingency limits
    - Voltage deviations exceeding 8% on non-radial load busses
  - **UVLS**
    - No UVLS in P3 events (G-1 + G-1, G-1 + N-1)
    - UVLS less than 300 MW in P6 events (N-1-1)

# Study Process

## ❑ Need Analysis

- ➢ An analysis will be performed to identify the reliability need to serve the projected LRGV load
- ➢ Both voltage stability and dynamic stability studies will be considered in this analysis.

## ❑ Project Evaluation

- ➢ Focus on the stage 1 upgrades that are needed to satisfy the NERC and ERCOT reliability requirements
- ➢ Addition of LNG load will be included as a sensitivity study to examine the effectiveness of the recommended upgrade option for stage 1 and identify additional upgrades required to accommodate the projected LNG load

# Deliverables

## ❑ Tentative Timeline

- EIR updates to RPG –May/June 2018
- EIR recommendation to TAC – July 2018
- BOD Endorsement – August 2018

# QUESTIONS?