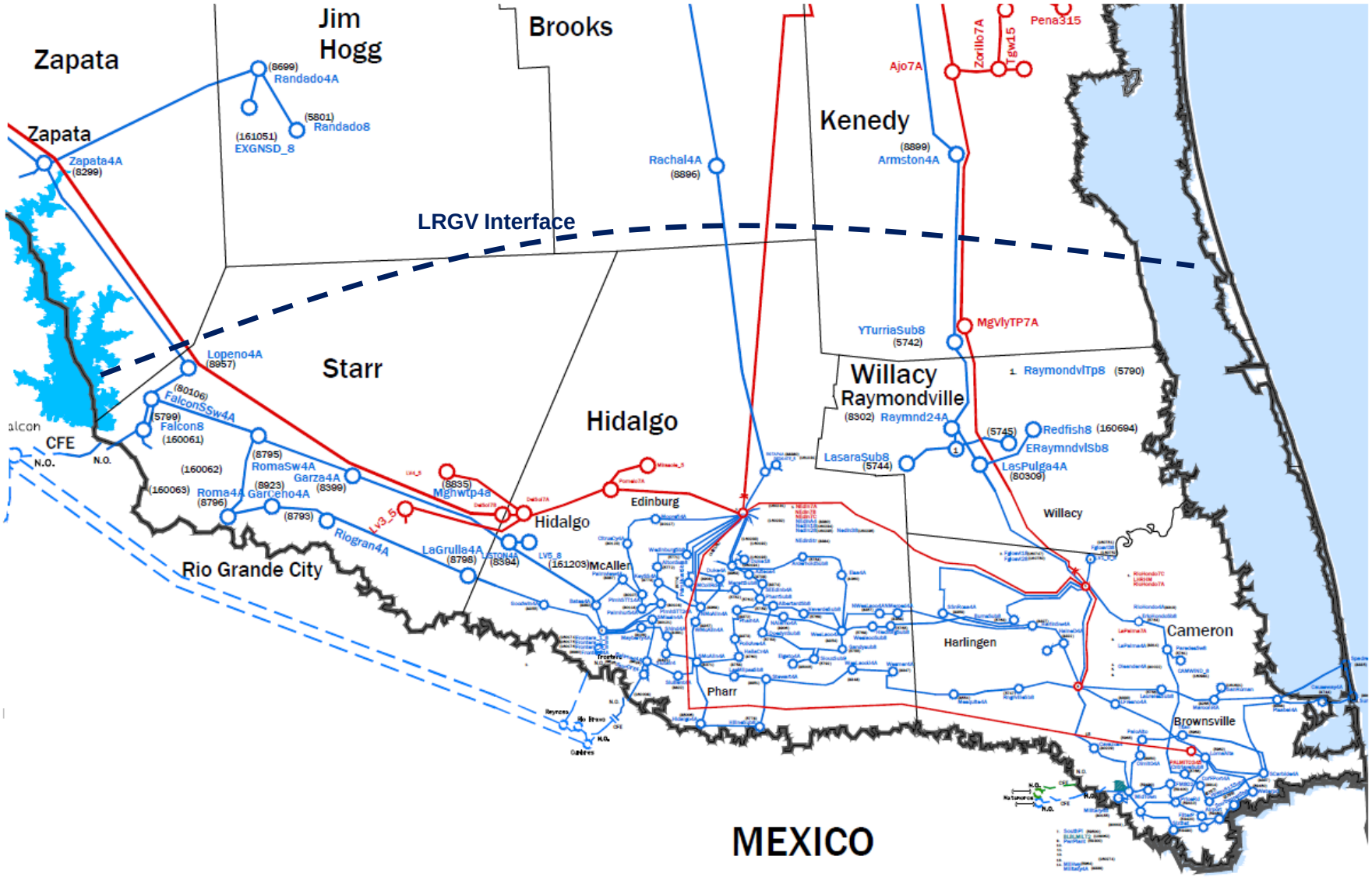
AEPSC LRGV Import Transmission Project – ERCOT Independent Review Update

Regional Planning Group
May 22, 2018

Overview

- **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

Study Area


Zapata
Jim Hogg
Brooks
Kenedy
Starr
Hidalgo
Willacy
Raymondville
LRGV Interface
Zapata
Zapata4A
(8299)
(8699)
Randado4A
(5801)
Randado8
(161051)
EXGNSD_8
Rachal4A
(8896)
Ajo7A
Zorillo7A
Tgw15
Pena315
Armston4A
(8899)
YTurriaSub8
(5742)
MgVlyTP7A
RaymondvlTp8
(5790)
Raymnd24A
(8302)
Redfish8
(160694)
(5745)
ERaymndvlSb8
LasPulga4A
(80309)
LasaraSub8
(5744)
Willacy
Lopeno4A
(8957)
(80106)
FalconSSw4A
(5799)
Falcon8
(160061)
CFE
N.O.
(160062)
(160063)
(8795)
RomaSw4A
Roma4A
(8796)
Garza4A
(8923)
(8399)
Garceno4A
(8793)
Riogran4A
LV3_5
(8835)
Mghwtp4a
Hidalgo
Edinburg
LaGrulla4A
(8798)
LV5_8
(8384)
(161203)
McAllen
Rio Grande City
Harlingen
Cameron
Pharr
Brownsville
MEXICO

Status of AEPSC Lower Rio Grande Valley (LRGV) Import Project

- New Generation Additions
  - Generator additions that meet Planning Guide Section 6.9 requirements in South weather zone at the time of study were 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
- ERCOT presented the study scope in the March RPG

  http://www.ercot.com/content/wcm/key_documents_lists/138680/AEPSC_LRGV_Import_Scope_March2018-RPG.pdf
- Performed project need analysis

Preliminary Results

- Steady-state, voltage stability, and dynamic stability studies were performed to evaluate the reliability need in the LRGV area
- Steady-State Analysis

Contingency Type	Limit (MW)	Limiting Element
G1-N1	3100	Lon Hill – Bessel 138kV

- PV Analysis
  - N-1 contingencies
  - N-1-1 (multiple contingencies)

Contingency Type	Limit (MW)	Limiting Condition
N-1	3840	Voltage Collapse
N-1-1	3160	Voltage Collapse

Preliminary Results

- **Transient Stability Analysis**
  - **Includes Dynamic models**
    - Generators
    - UVLS, UFLS
    - Composite Load Model for Valley (by AEP)
    - Over Excitation Limiting Model (by AEP)
  - **2024 DWG flat start case was used for stability analysis**
  - **UVLS beyond 2850MW summer load level**

Contingency Type	Limit (MW)	Limiting Condition
G1-G1	2850	UVLS

Next Steps

- Determine project options to reliably serve the LRGV load beyond 2850MW level

- EIR Updates to RPG – June 2018

QUESTIONS?

Appendix

LRGV Load Forecast

- 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

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