



# **Lower Rio Grande Valley (LRGV) Area Transmission Upgrade ERCOT Review**

**ERCOT System Planning**

***November 20, 2015***

***ERCOT Regional Planning Group Meeting***

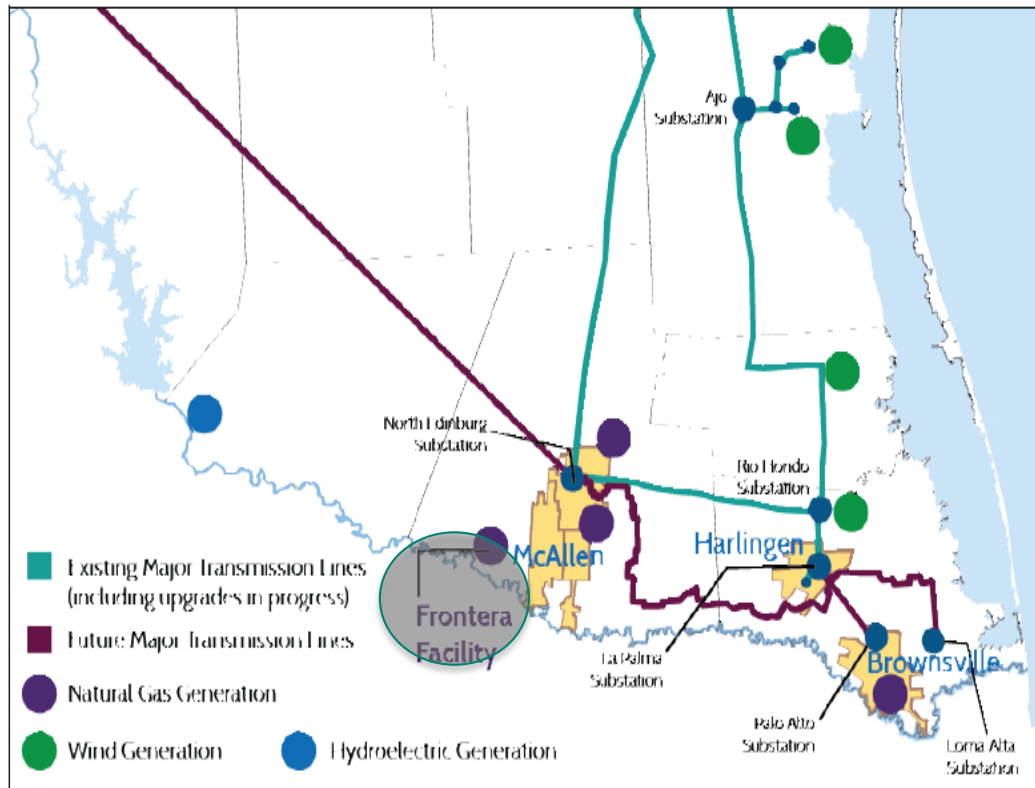


# Outline

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- Valley Overview
- Study Update
- Next Step

# LRGV Overview



Generation in and near LRGV Area		
Capacity (MW)	Gas	Wind
Existing (a)	1245	1737
Planning (Meet PG6.9)	225	2641
Total	1470	4378

(a) Exclude Frontera Facility

LRGV Area Load (MW) <sup>(b)</sup>			
2021 SSC RTP	SSWG 2021 Summer Peak	AEP 2021 Summer Peak 90/10 Forecast	AEP 2021 Winter Peak 90/10 Forecast
2725	2469	2660	2911

(b) Include DG in the Valley

# Background

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- RPG proposal
  - April 16, 2015: AEPSC LRGV Area Transmission Improvements Project
  - September 15, 2015: CPS Energy and Sharyland LRGV Import Project

# Study Update

- Base Case
  - 2021 S/SC peak RTP case (Steady State)
  - FY2021 DWG Flat Start Case (Transient Studies)
- Valley Area (six zones)
  - 610 (E-Valley), 615 (W-Valley), 800 (PBUB), 829 (SHRY), 875 (MVEC\_E), and 876 (MVEC\_W 2021 S/SC peak RTP case)
- Assumptions
  - Frontera Facility is offline
  - DC Tie: Assume 300MW export to Mexico for N-1 analysis and 0 MW transfer for G-1+N-1 and X-1+N-1 analysis
- Contingencies and criteria of reliability analysis
  - The study will include all contingencies consistent with Planning Guides Section 4.1.1.2 and criteria consistent with 2015 RTP
  - N-1, G-1+N-1 and X-1+N-1 analysis were performed

# Case Comparison -- Generation

Project Name	Size (MW)	Type	AEPS C	RTP	CPS and Sharyland	RPG
Patriot Wind (Petronilla)	180	Wind		X	X	X
Sendero Wind	78	Wind		X	X	X
Redgate G	225	Gas		X	X	X
Javelina Wind	250	Wind				X
Torrecillas Wind A	200	Wind			X	X
Torrecillas Wind B	200	Wind			X	X
Los Vientos V	110	Wind				X
Los Vientos IV	200	Wind				X
Hidalgo & Starr	250	Wind				X
Chapman Ranch Wind I	250	Wind				X
Redfish W 2a	115	Wind				X
Redfish W 2b	115	Wind				X
San Roman	103	Wind			X	X

# Preliminary Study Observations

- Steady State:
  - Both the thermal and voltage violations are localized issues that can be fixed by local projects and they are not included in the consideration of the Valley import reliability need analysis.
- Voltage Stability Analysis:

Case	Valley Load (MW) at Voltage Stability Limit <sup>(b)</sup>	Total Load (MW) in the Valley in Base Case (2021) <sup>(b)</sup>
N-1	3097	2782
G-1+N-1	3047	2782
G-1+N-1 Sensitivity <sup>(a)</sup>	2377	2782

(a). Assuming no reactive support from Wind Generation Resources in South weather zone

(b). Exclude DG in the Valley

# Preliminary Study Observations

- Dynamic Stability Analysis

Case	Valley Load (MW) <sup>(a)</sup>	Acceptable Results <sup>(b)</sup>	UVLS (MW)	Comments	Limiting Outages
0	2580	Yes	0	Voltage profile ~1.03 pu	--
1	2710	No	~50	Voltage profile ~1.03 pu	G1+G1
2	2710	No	~500	Voltage profile ~1.0 pu	G1+G1
3	2810	No	~60	Voltage profile ~1.03 pu	G1+G1
4	2910	No	~520	Voltage profile ~1.03 pu	G1+G1
5	2910	No	~50	Voltage profile ~1.03 pu	N1+N1
6	2910	No	~60	Voltage profile ~1.03 pu	N1+G1

(a). Exclude DG in the Valley

(b). With AEP summer load dynamic model





# Next Step

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- Test Upgrade Options
- Sensitivity analysis
  - projected LNG load in the Valley
  - Generation projects in the Valley not meeting Planning Guide Section 6.9 requirements
- LRGV transmission system export capability analysis