

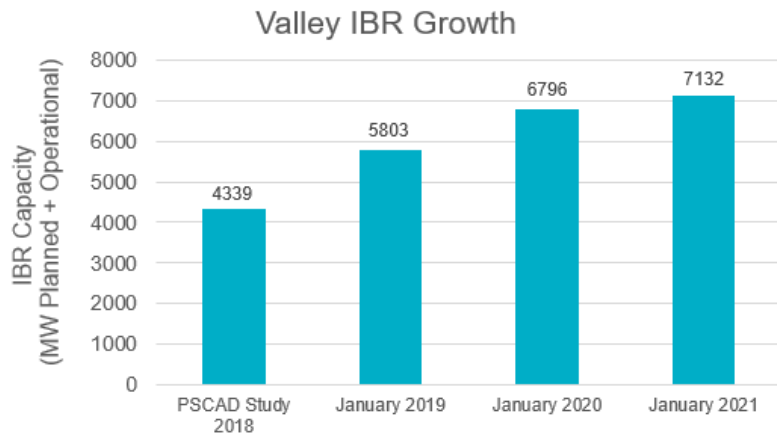


South Texas Stability Assessment Update

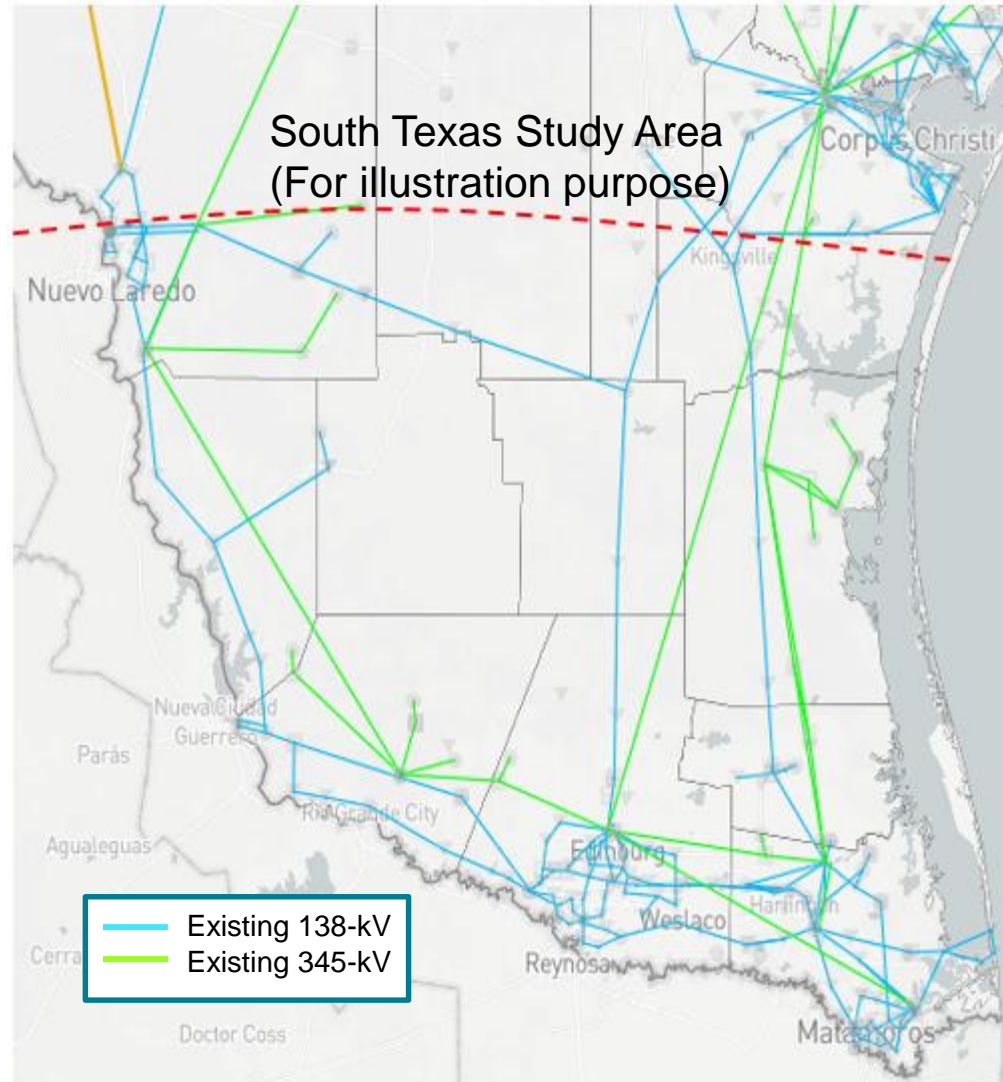
Regional Planning Group

April 06, 2021

South Texas Overview



- In recent years, significant amount of Inverter-Based Resources (IBRs), including wind and solar, have interconnected to the South Texas region.
 - The interconnection study queue shows more IBRs plan to connect to the South Texas region in the future.



Purpose of the Study

- To assess the system strength and control stability of South Texas region
 - Export condition with limited or no synchronous generators
 - Both PSS/e and PSCAD are used to perform the simulation
- To evaluate the existing Valley load serving capability
 - Summer Peak (import) condition
 - Both VSAT and PSS/e are used to perform the simulation
- ERCOT also provided an update to ROS in February

http://www.ercot.com/content/wcm/key_documents_lists/214002/5.2021-02-ROS_STX.PDF

Export Scenario

- DWG 2023 HWLL case was utilized
 - Added generation that met PG 6.9 requirements as of October 2020 GIS report when the study was started

Task	Description	Status
1	Model review and case preparation	Complete(1)
2	Simulation (both PSS/e and PSCAD)	In Progress
3	Report	TBD

(1) Reviewed performance and quality of each PSCAD model and provided feedback to Resource Owners

- Several models still have deficiencies/performance issues
- PSCAD model status summary regularly provided to ROS

http://www.ercot.com/content/wcm/key_documents_lists/214002/5.2021_Feb_ruary_ROS_PSCADModelStatusUpdate.xlsx

Import Scenario

- Evaluated existing Valley load serving capability
- DWG 2022SP case was used as the Basecase
 - Added generation that met PG 6.9 requirements as of October 2020 GIS report
 - Included dynamic load models provided by TSPs
 - Renewable and DC ties dispatch methodology consistent with 2020 RTP
- Also evaluated the impact of a potential new Del Sol – Frontera 345 kV line identified in the 2019 RPG independent review* and impact of Del Sol and Cenizo series capacitors on Valley load serving capability

http://www.ercot.com/content/wcm/key_documents_lists/189706/2020_RTP_Update_DCTies_and_Wind_Dispatch_March_2020_RPG.PDF

*http://www.ercot.com/content/wcm/key_documents_lists/165315/LRGV_Transmission_Expansion_Project_-_Dec_17_RPG.PDF

Preliminary Valley Load Serving Capability Tests

Scenario		VSAT Limit (MW)	VSAT Critical CTG**	PSSE Dynamic Limit (MW)	Dynamic Critical CTG***	PSSE Load Model Tripping* (MW)
1	Basecase	3795	N1N1	3800	G1G1 and G1N1	531
2	Basecase + one 345 kV line (Del Sol – Frontera)	4000	N1N1	4100	N1N1	569
3	Basecase + Series Capacitor Bypassed at Del Sol and Cenizo	3650	N1N1	3800	G1G1 and G1N1	535
4	Basecase + Del Sol – Frontera 345 kV line + SC bypassed	3750	N1N1	4100	N1N1	682

*Dynamic load model assumed a fraction of industrial load would disconnect itself due to voltage protection

**N: transmission circuit, G: generator, including combined cycle train

***faults were applied to the second outage

- In 2019 RPG project assessments, the Valley load serving capability was calculated to be 3200 MW
 - Automatic tripping of load was disabled in TSP provided dynamic load model

Next Steps

- ERCOT plans to complete the study in Q2 2021 and will provide regular updates at future RPG meetings.