Lower Rio Grande Valley Project - ERCOT Independent Review Status Update

Regional Planning Group
January 21, 2020

Overview

- ERCOT provided an update on Lower Rio Grande Valley ("Valley") Transmission Expansion project on December 17, 2019

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

- To integrate potential LNG load, potential transmission upgrades were identified to meet reliability criteria

- Currently, there is no confirmed LNG load in the Valley area

Overview

- The existing system condition is expected to reliably serve the forecasted year 2026 Valley load

- With the addition of potential LNG load:
  - One new Valley Import EHV line will be required
  - Upgrades inside the Valley will be required
  - The transmission improvements needed to serve native Valley load will be accelerated as presented at the previous RPG in December 2019

- ERCOT re-conducted stability analysis with updated Generation Interconnection Status (GIS) information in the study area as of November 2019[1] and identified potential improvement options to serve projected future Valley load growth

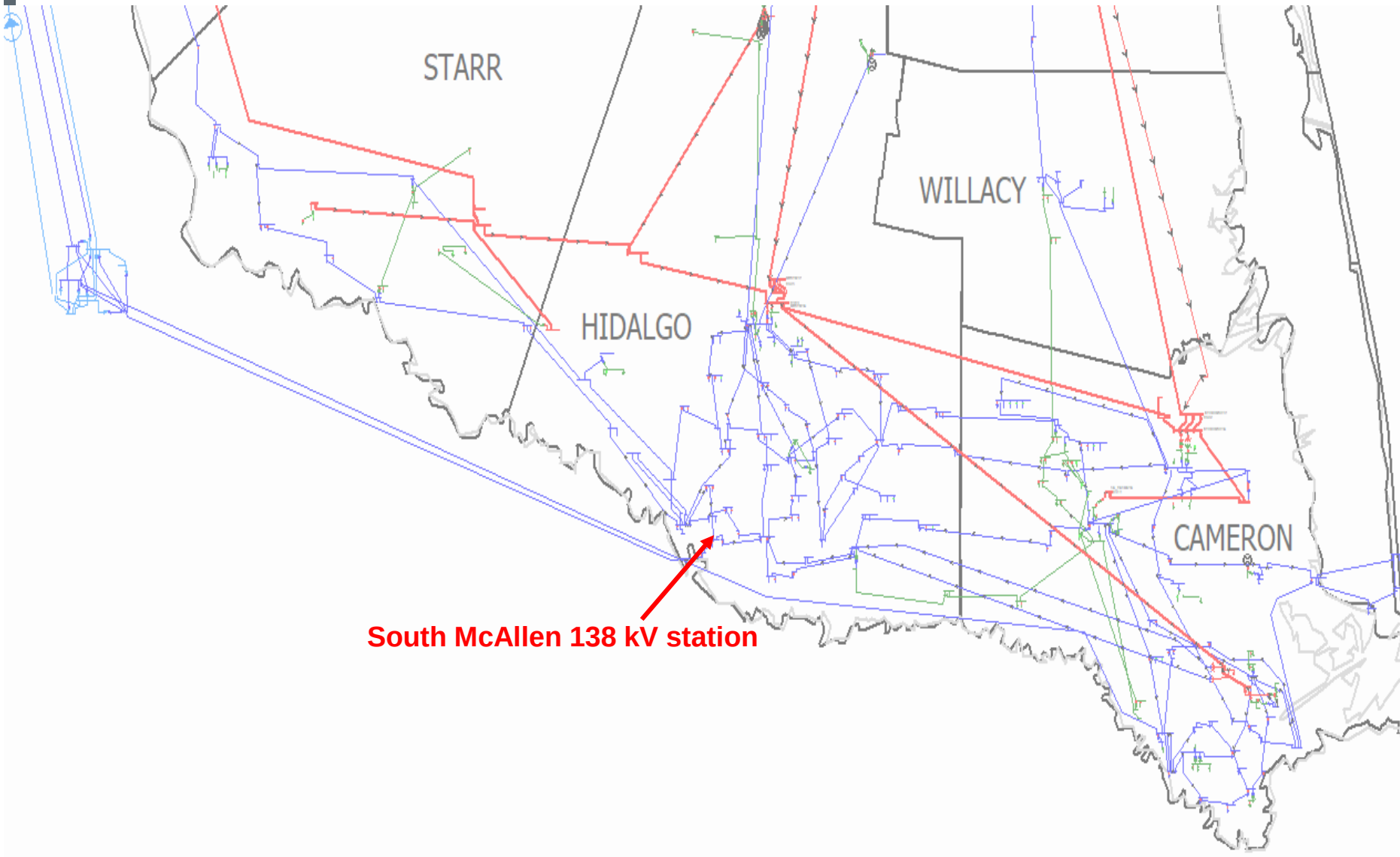
Contingency Type	Transient Stability Limit (MW)	Limiting Condition
G1-G1	3200	Slow voltage recovery/ UVLS

[1] http://mis.ercot.com/misdownload/servlets/mirDownload?mimic_duns=000000000&doclookupId=689966331

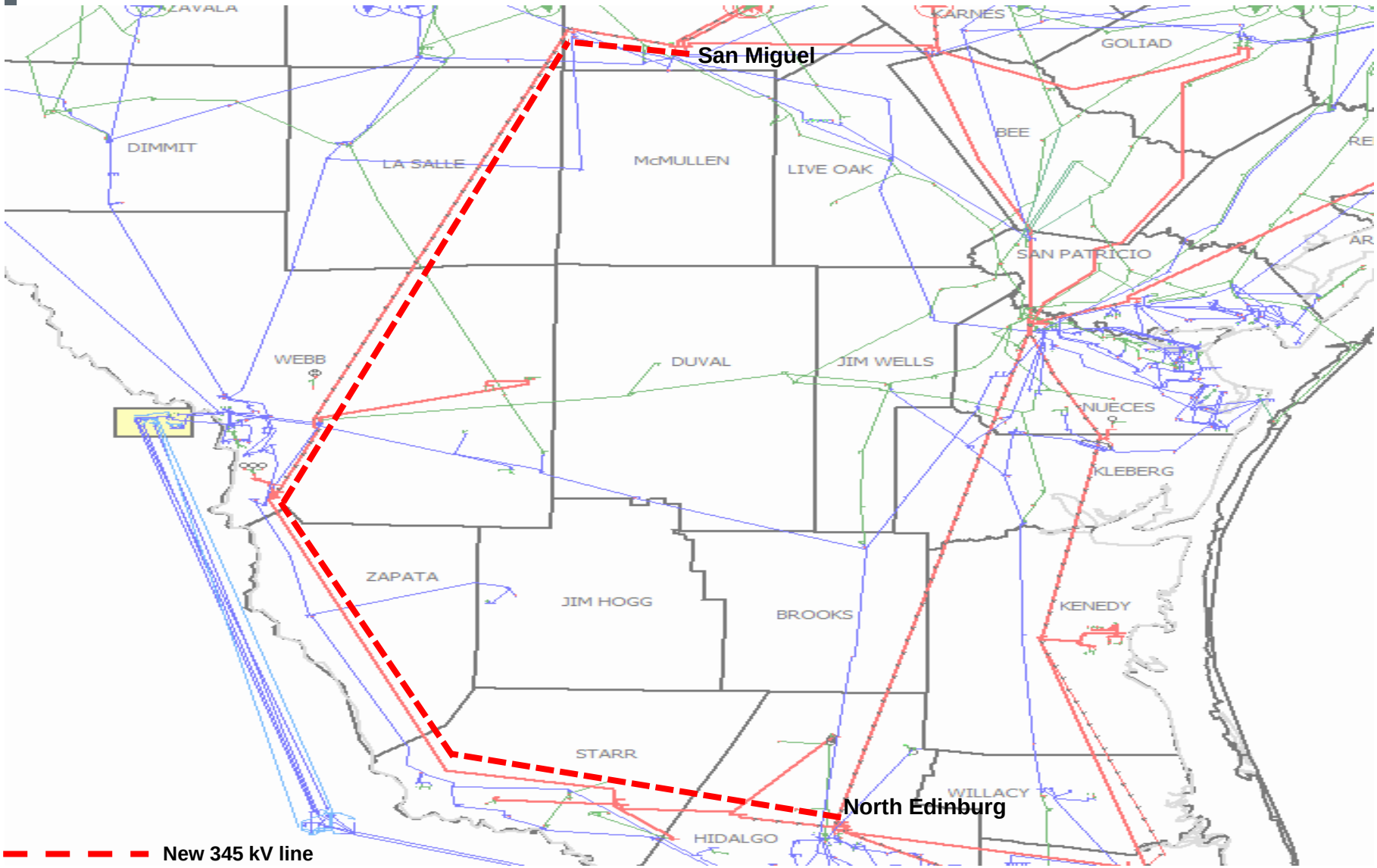
Upgrade Options for Valley Load beyond 2026

- Five upgrade options were tested to address the stability issues identified for native Valley load:
  1. Add a 300 MVAR STATCOM at South McAllen 138 kV station
  2. Add a 600 MVAR STATCOM at South McAllen 138 kV station
  3. Build 345 kV San Miguel – Lobo – North Edinburg Circuit #2 on existing structures
  4. Build 345 kV Lobo – North Edinburg Circuit #2 on existing structures with electrically separated Circuit #1
  5. Build a new 345 kV Del Sol – Frontera line

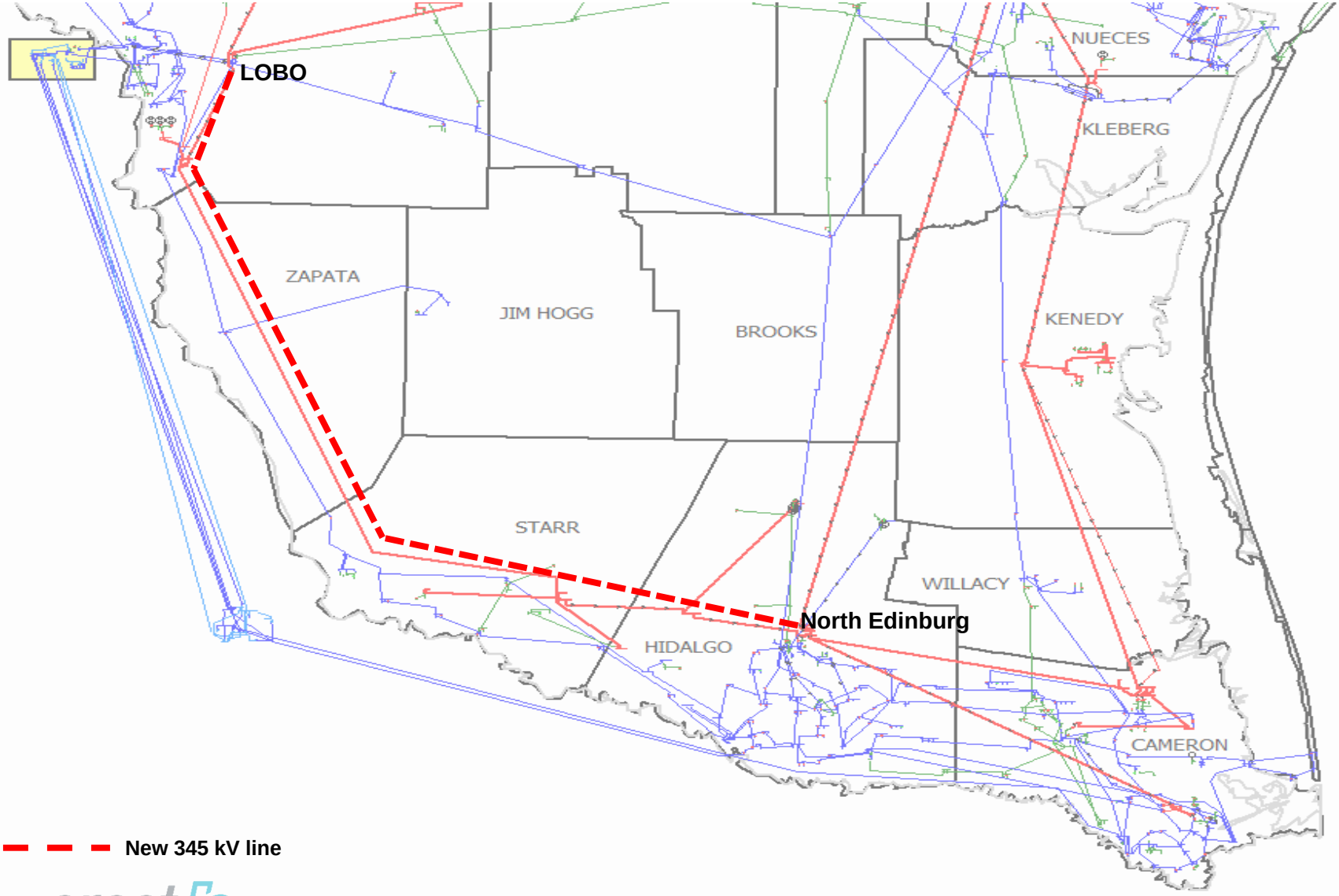
Upgrade Options 1 and 2



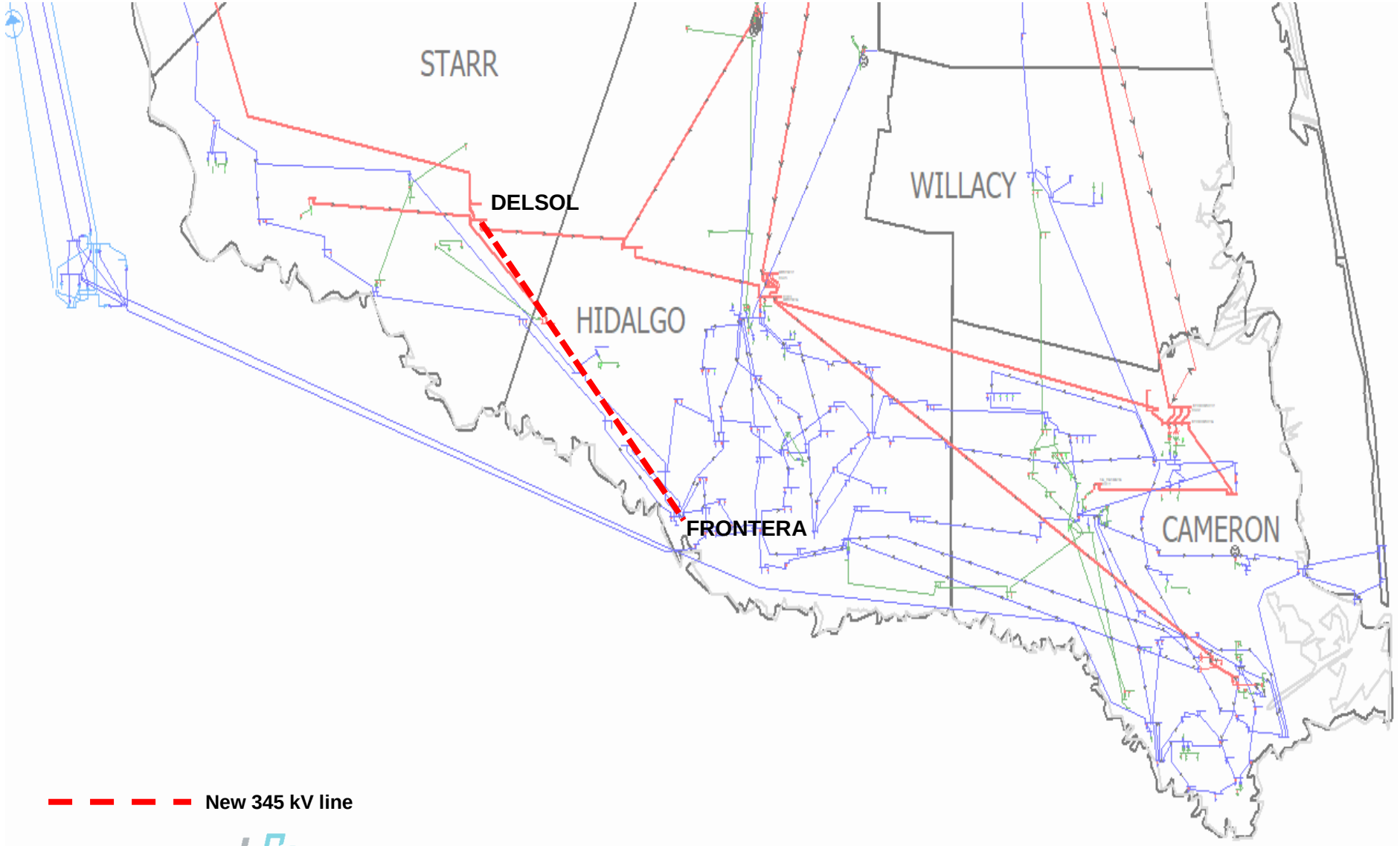
Upgrade Option 3



Upgrade Option 4



Upgrade Option 5



Results of tested upgrade options

	Upgrade Options	Incremental Load Serving Capability (MW)	Critical Contingency
1	300 MVAR STATCOM	+200	G1-G1
2	600 MVAR STATCOM	+300	N1-N1
3	San Miguel – Lobo – North Edinburg 345 kV 2nd Circuit	+300	G1-G1
4	Lobo – North Edinburg 345 kV 2nd Circuit	+250	G1-G1
5	Del Sol – Frontera 345 kV line	+400	N1-N1

- The results for options 1 and 2 indicate the Valley region is becoming overcompensated with respect to reactive power

Impact on existing North Edinburg - LOBO GTC

- ERCOT also analyzed the impact of upgrade options on existing North Edinburg – LOBO (NE_LOB) GTC
  - only for upgrade option comparison purpose, the actual GTC will be determined through the Quarterly Stability Assessment (QSA) process.

	Upgrade Options	NE_LOB GTC Improvement
1	300 MVAR STATCOM	No
2	600 MVAR STATCOM	No
3	San Miguel – Lobo – North Edinburg 345 kV 2nd Circuit	Marginal
4	Lobo – North Edinburg 345 kV 2nd Circuit	Marginal
5	Del Sol – Frontera 345 kV line	Good

Next Steps

- ERCOT will continue to conduct the following analyses:
  - Subsynchronous Resonance (SSR) Assessment
  - Congestion analysis

Stakeholder Comments Also Welcomed to Sun Wook Kang:

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Appendix

Assumed Valley Load Forecast

- Valley area is defined to include four counties: Cameron, Willacy, Hidalgo, and Starr

- Valley load is composed of load in zones 610, 615, 800, 829, 875, and 876

Year	ERCOT 90th Percentile Summer Peak Forecast (MW)
2020	2729
2021	2792
2022	2867
2023	2941
2024	3005
2025	3065
2026	3133
2027	3200