



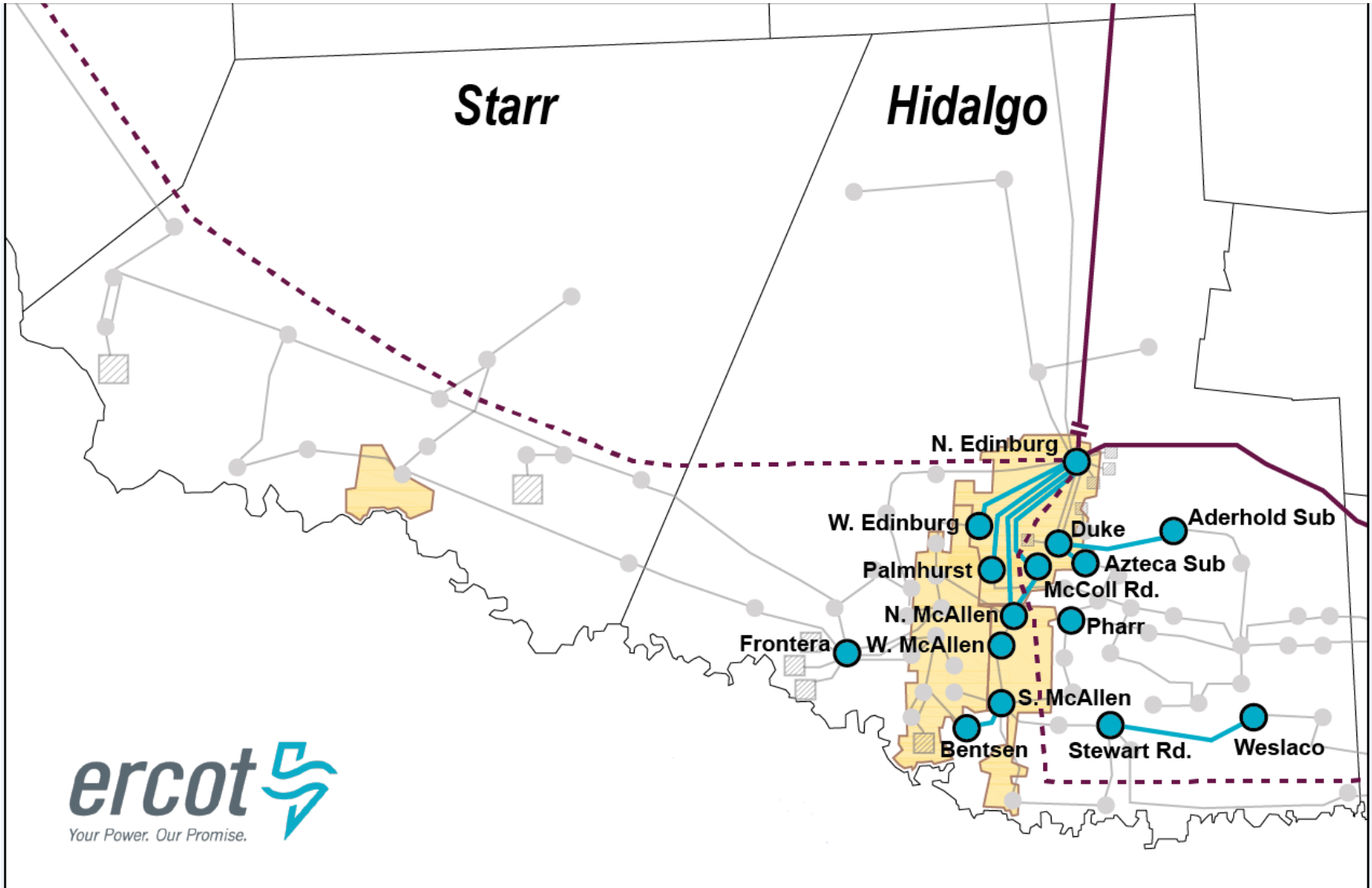
AEPSC Hidalgo-Starr Transmission Project – ERCOT Independent Review

RPG Meeting
May 17, 2016

Status of AEPSC Hidalgo-Starr Transmission Project RPG Review

- ❑ ERCOT presented the study assumptions and the results for the need analysis in the January RPG.
http://www.ercot.com/content/wcm/key_documents_lists/77716/Draft_AEPSC_Hidalgo_Starr_Transmission_Project_ERCOT_Update.pdf
- ❑ ERCOT presented the option evaluation results in the March RPG.
http://www.ercot.com/content/wcm/key_documents_lists/77758/AEPSC_Hidalgo_Starr_Transmission_Project_ERCOT_Independent_Review_Update.pdf
- ❑ ERCOT identified a potential solution to address the reliability need.

Study Region



Project Options Summary

Option	Brief Description*	Resolved Reliability Issues?	Cost	ROW
A	Two 345/138 kV transformers at Frontera and one new 345 kV line from Frontera to Pomelo	Yes	\$94.3M	One 23-mile 345 kV line
B	Two 345/138 kV transformers at South McAllen and two new 345 kV lines (on separate ROW) from South McAllen to loop the North Edinburg to Loma Alta 345 kV line.	Yes	\$89.5M	Two 12-mile 345 kV lines
C	Two 345/138 kV transformers at South McAllen and one new 345 kV double circuit line from South McAllen to loop the North Edinburg to Loma Alta 345 kV line.	Yes	\$70.0M	One 12-mile 345 kV double circuit line
D	Two 345/138 kV transformers at Stewart Road and one new 345 kV double circuit line from Stewart Road to loop the North Edinburg to Loma Alta 345 kV line.	Yes	\$51.5M	One 5-mile 345 kV double circuit line
E	Two 345/138 kV transformers at Stewart Road and two new 345 kV lines (on separate ROW) from Stewart Road to loop the North Edinburg to Loma Alta 345 kV line. One 345/138 kV transformer at Frontera and one new 345 kV line from Frontera to Pomelo	Yes	\$143.4M	Two 5-mile 345 kV lines and one 23-mile 345 kV line

Note: * Common components in the options are not included in the description

Option Comparison

- ❑ ERCOT performed PV analysis and dynamic analysis for different combinations of the internal Valley upgrade options together with the Valley import upgrade options, and the results concluded that the internal Valley upgrade options have minimal impacts on the Valley import upgrade options.
- ❑ All the five internal Valley upgrade options considered can address the reliability need in the West Lower Rio Grande Valley.
- ❑ Option D is the most cost effective option with the least new right of way.

Sensitivity Analysis with the 2016 RTP Load Forecast and AEPSC Winter Peak Load Forecast

- ❑ The Lower Rio Grande Valley load is 2797 MW (excluding distributed generators) based on the 2021 SSC summer peak case from the 2015 RTP, however, the latest load forecast was updated to 2622 MW (excluding distributed generators) in the 2021 SSC summer peak case from the 2016 RTP.
- ❑ Sensitivity studies were performed using the load forecast from the 2016 RTP.
- ❑ The sensitivity study results showed that transmission projects are still needed to resolve the reliability issues with the 2016 RTP load.
- ❑ Option D is the most cost effective option to address the reliability criteria violations with the updated 2016 RTP load forecast.
- ❑ Sensitivity analysis was also performed for all the options with the AEPSC 2021 90/10 winter peak Valley load forecast (2911MW), and all the options can resolve the reliability issues. The detailed results are available in the March RPG presentation.

ERCOT Recommendation

- ❑ ERCOT recommends Option D as the preferred option to address the reliability need in the study region
 - Expand the existing Stewart Road 138 kV substation to include new breakers and protection equipment for two new 345 kV transmission lines and two 345/138 kV transformers.
 - Install two 345/138 kV autotransformers at Stewart Road 138 kV substation.
 - Construct a new 345 kV double circuit transmission line, approximately 5 miles from Stewart Road 138 kV substation to a tap location on the North Edinburg to Loma Alta 345 kV line, (~30 miles from North Edinburg 345/138 kV substation).
 - Expand the existing West Edinburg 138 kV substation to a new 5 breaker ring bus to accommodate the termination of two new 138 kV transmission lines.
 - Construct 1000 feet of new 138 kV transmission line to loop in the North Edinburg to Palmhurst 138 kV line into the West Edinburg 138 kV substation.
 - Operate the Pharr – North McAllen 138 kV line segment normally closed except for certain N-1-1 conditions.

The total cost estimate for Option D is approximately \$51.5 million.

Next Steps

- ❑ ERCOT will finalize the Independent Review Report.
- ❑ ERCOT will present the project recommendation to TAC on May 26th and to ERCOT Board of Directors on June 14th.

Questions?