



# **AEPSC and Oncor Barilla Junction Transmission Project – ERCOT Independent Review**

RPG Meeting  
September 20, 2016

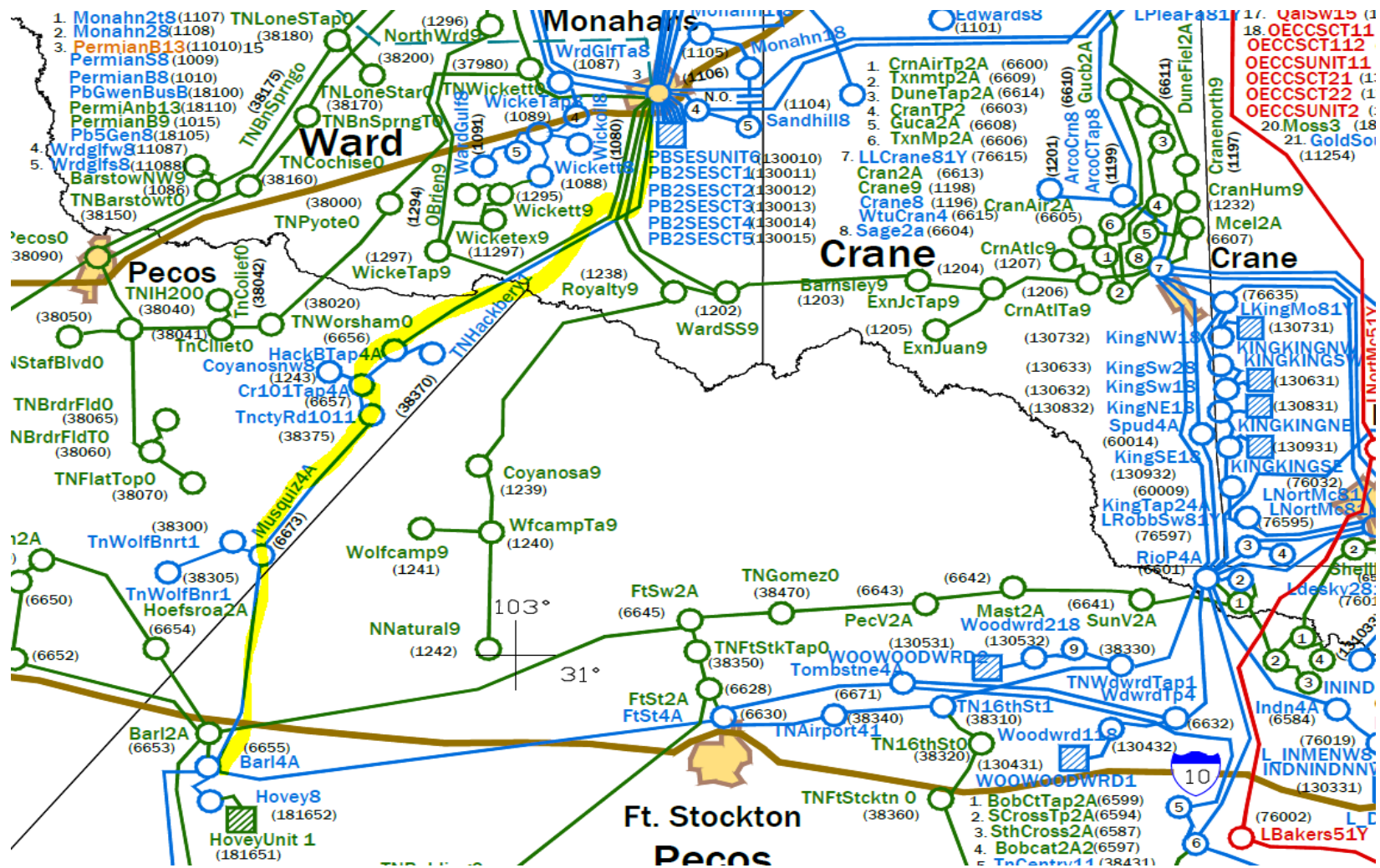
# Status of AEPSC and Oncor Barilla Junction Transmission Project RPG Review

- ❑ ERCOT presented the study assumptions, the results for the need analysis, and the option evaluation results in the June RPG.

[http://www.ercot.com/content/wcm/key\\_documents\\_lists/77730/AEPSC and Oncor Barilla Junction Area Improvement Project EIR Update.pdf](http://www.ercot.com/content/wcm/key_documents_lists/77730/AEPSC_and_Oncor_Barilla_Junction_Area_Improvement_Project_EIR_Update.pdf)

- ❑ ERCOT evaluated the dynamic need of the project.
- ❑ ERCOT identified a potential solution to address the reliability need.

# Study Region



# Project Options Summary

Option	Brief Description	Resolved Reliability Issues?	Cost	New ROW
A	Rebuild the existing Barrilla Junction/Solstice to Permian Basin AEP-TNC/Oncor 138 kV transmission line. Install one 100 MVAR SVC at Hackberry Tap/Lotebush. Install one 100 MVAR SVC at Ft. Stockton plant.	Yes	\$94M*	None**.
B	Rebuild the existing Barrilla Junction/Solstice to Permian Basin AEP-TNC/Oncor 138 kV transmission line. Install one 100 MVAR SVC at Hackberry Tap/Lotebush.	Yes	\$77M*	None**.
C	Build a new ~50 miles 138 kV line from Rio Pecos to Musquiz. Build a new ~26 miles 138 kV line from Permian Basin to Lotebush. Install one 100 MVAR SVC at Hackberry Tap/Lotebush.	Yes	\$90.8M	76 miles of 138 kV lines.

\* The line costs assume that the Barrilla Junction /Solstice to Permian Basin 138 kV line will be rebuilt “energized”. The costs associated with the “energized” rebuild are included.

\*\* New Right of Way is not needed. Temporary supplement Right of Way / easements are needed.

# Option Comparison

- ❑ While all three upgrade options can address the reliability need in the study area, Option C still has lines loaded between 98% and 100% of their emergency rating. In addition, Option C requires around 76 miles of new Right of Way.
- ❑ Option B is the most cost effective option and requires no new Right of Way.
- ❑ The Barrilla Junction/Solstice to Pig Creek section of the Barrilla Junction/Solstice to Permian Basin 138 kV line is recommended for upgrade as an economic project in the 2015 RTP.

# Sensitivity Analysis with Latest Area Updates

- ❑ After the initial studies were completed, new updates were received in the area including both transmission network updates and new generators meeting Planning Guide Section 6.9 requirements.
- ❑ Additional sensitivity studies were performed incorporating those changes for the least cost option, Option B, using the 2022 WFW summer peak case from the 2016 RTP.
- ❑ The new generators included in the studies are RE Maplewood 2a Solar–100 MW, RE Maplewood 2b Solar–200 MW, RE Maplewood 2c Solar–100 MW and RE Maplewood 2d Solar–100 MW.
- ❑ In the sensitivity study, both the TNMP line 69H and the Oncor Riverton-Sand Lake projects were included.
- ❑ Study results showed that there are no reliability violations in the study area.

# Dynamic Load Model

- ❑ AEP submitted additional report to address the dynamic need in the study area.
- ❑ The pumps and compressor loads were modeled using the composite load model to represent the dynamic load characteristics, including stall and trip features.
- ❑ With the provided load model, the load is likely to trip during any nearby normally cleared three-phase faults.

# Dynamic Need of the Project

- ❑ ERCOT applied the same dynamic load model provided by AEP.
- ❑ ERCOT evaluated several alternative options, including SVC, synchronous condensers, and static caps.
- ❑ ERCOT verified that the a 100 MVAR SVC option provides best dynamic response, eliminating the voltage violations.



# ERCOT Recommendation

- ❑ ERCOT recommends Option B as the preferred option to address the reliability need in the study region
  - Rebuild the existing Barrilla Junction/Solstice to Permian Basin AEP-TNC/Oncor 138 kV transmission line.
  - Install one 100 MVAR SVC at Hackberry Tap/Lotebush.

The total cost estimate for Option B is approximately \$77 million.

The projected in service date of the project is June 2019.

## Next Steps

- ❑ ERCOT will finalize the Independent Review Report.
- ❑ ERCOT will present the project recommendation to TAC and to ERCOT Board of Directors.

# Questions?