



Tab 10: STEC KEC-MEC Load Addition Regional Planning Group (RPG) Project

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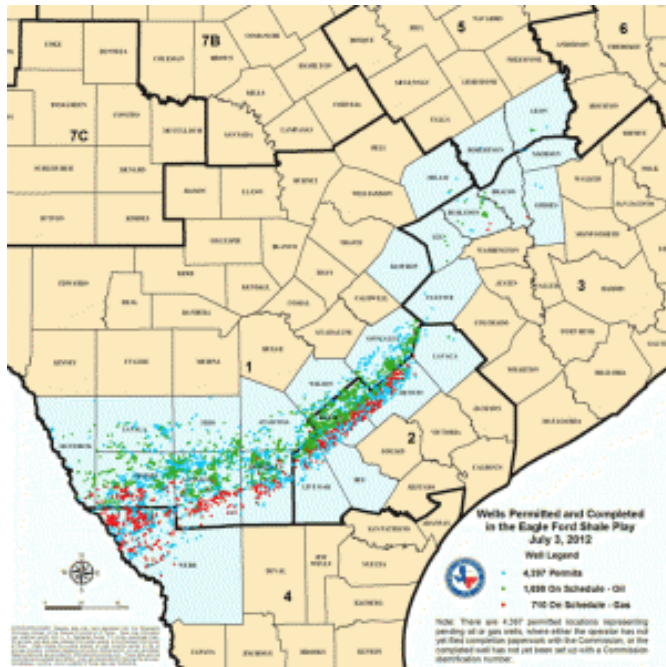
Manager, Transmission Planning

Board of Directors Meeting

ERCOT Public

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- **Eagle Ford Shale exploration and production is rapidly increasing in South Texas**
 - Oil reserves estimated at 3 billion barrels and trillions of cubic feet of natural gas
 - May be sixth largest oil field discovery in U.S.



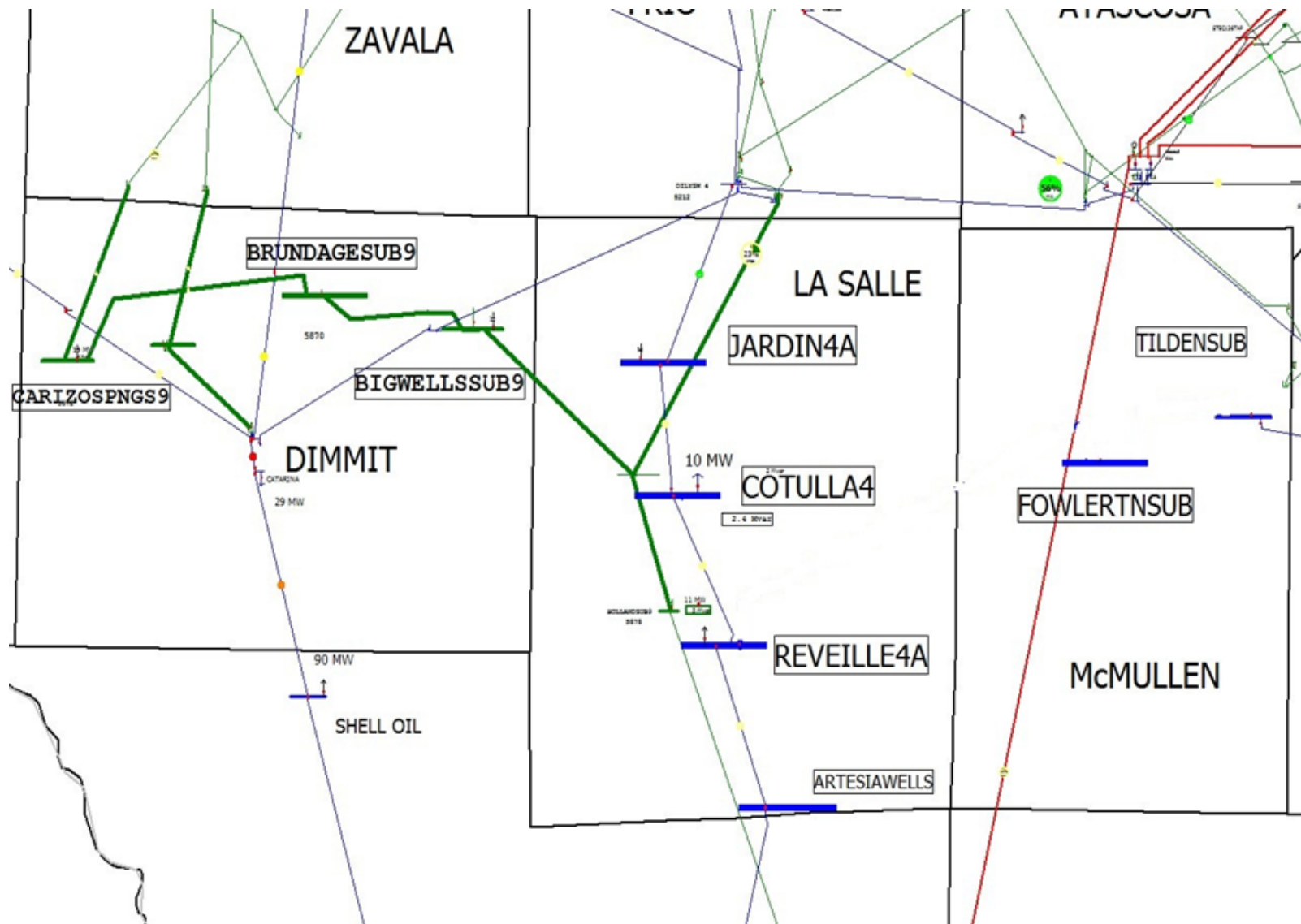
- Projected 247 MW load increase on Karnes Electric Cooperative (KEC) and Medina Electric Cooperative (MEC) systems in Dimmit, La Salle and McMullen Counties
 - Total existing load = 28 MW
 - Load increase based on committed customer requests at specific locations
 - Multiple RPG projects addressing needs in other counties

- **South Texas Electric Cooperative submitted project for RPG Review in April 2012**
- **Transmission system in area of load additions either does not exist or is mainly made up of 4/0 conductor 69 kV lines (40 MVA)**
 - New transmission lines needed along with significant upgrades to existing system
- **ERCOT Independent Review analyzed five options**
 - Performed 2017 analysis with 2021 sensitivity
 - AC steady-state contingency thermal and voltage analysis
 - Additional sensitivity for load growth 15% above 2021 levels
 - Also performed generator outage analysis
 - Recommended most cost effective solution

- **ERCOT requests the ERCOT BOD endorse the following improvements:**
 - Construct a new Tilden – Fowlerton – Reveille 138 kV double circuit line (approx. 47 miles on new R.O.W.) so that each circuit Rate B is at least 240 MVA
 - Construct a new 138 kV substation near the STEC 69 kV Cotulla substation and loop the AEP Dilley – Cotulla 138 kV line into it
 - Add a (69/138 kV) autotransformer (with reverse power relays) at Cotulla so that the Rate B is at least 150 MVA
 - Construct a 69 kV substation on the AEP Carrizo – Crystal City 69 kV line and loop the STEC Brundage – Carrizo Springs 69 kV line into it
 - Construct a new 69/138 kV BEVO substation near where the LCRA Asherton – Conoco Chittam Tap 138 kV line crosses the STEC Carrizo Springs – West Crystal 69 kV line. Loop these lines into BEVO and add a (69/138 kV) 150 MVA autotransformer
 - Add reverse power relays on the George West autotransformer
 - Add a 9.6 MVAR capacitor bank at George West 69 kV substation
 - Add 19.2 MVAR capacitor banks at Tilden, Fowlerton and Jardin 138 kV substations
 - Add a 9.6 MVAR capacitor bank at Freer 69 kV substation
 - Add a 14.4 MVAR capacitor bank at Carrizo Springs 69 kV substation
 - Add a 4.6 MVAR capacitor bank at Brundage 69 kV substation
- **The cost estimate for these improvements is ~ \$57 million**

Questions?

Appendix – Map of Study Area



Appendix – Map of Improvements

