

# **LCRA TSC and CPS Energy Transmission System Additions**

by

**Charles M. DeWitt**

and

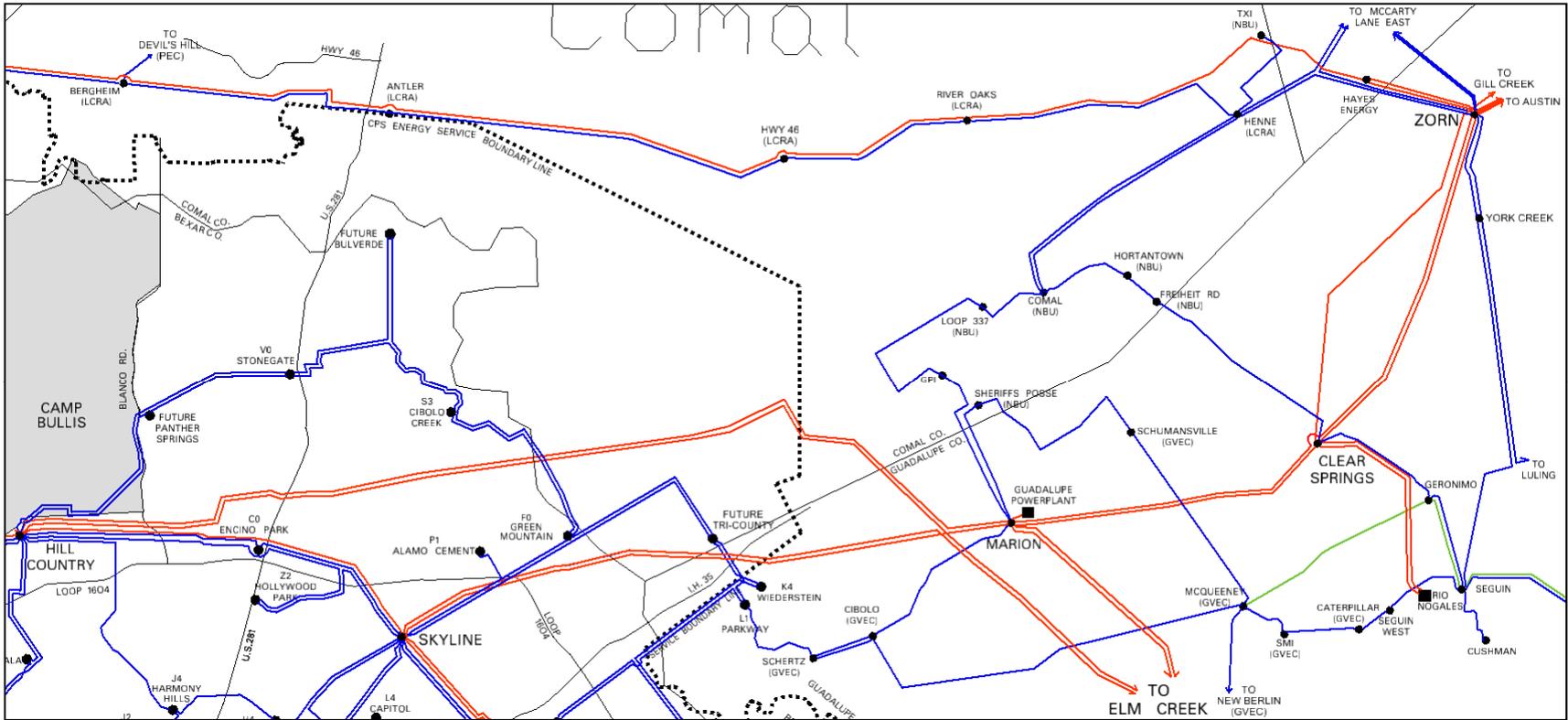
**Erick P. Kasalika**



# Overview

- **CPS Energy**
  - The nation's largest gas and electric municipal utility serving Bexar County and portions of Atascosa, Bandera, Comal, Guadalupe, Kendall, Medina, and Wilson counties
- **LCRA TSC**
  - A non-profit corporation providing regulated transmission, transformation, and metering services in ERCOT

# Overview



Transmission System in Bexar, Comal and Guadalupe Counties

# Background

- **2012 Long Term System Assessment**
- **In October 2013, CPS Energy announced suspension of operations at J.T. Deely**
- **In November 2013, ERCOT issued a final determination stating that reliability concerns related to suspended operations at J.T. Deely can be addressed through the transmission planning process**
- **2013 ERCOT Regional Transmission Plan (2013 RTP) identified overloads in the transmission interface between LCRA TSC and CPS Energy, without consideration of the J.T. Deely suspension**

# Project Need

- **Load Growth**

- Bexar, Comal and Hays Counties growing in excess of 3% per year
- An increase of 873 MW between 2015 and 2019 based on the 2013 ALDR

- **Power Transfers**

- 2013 RTP reported 345 kV overloads in 2018

- **Generation Retirements in San Antonio**

- J.T. Deely (850 MW) suspension of operation in 2018 announced October 2013

# Project Need

- **Evaluated Transmission Performance under two scenarios**
  - **Base Case**
  - **Generation Retirement Case**
- **Using three power flow cases**
  - **2018 Summer Peak (SSWG October 2013)**
  - **2018 Summer Peak (ERCOT RTP Aug 2013)**
  - **2020 Summer Peak (SSWG October 2013)**

# **Project Need – N-1, G-1, A-1**

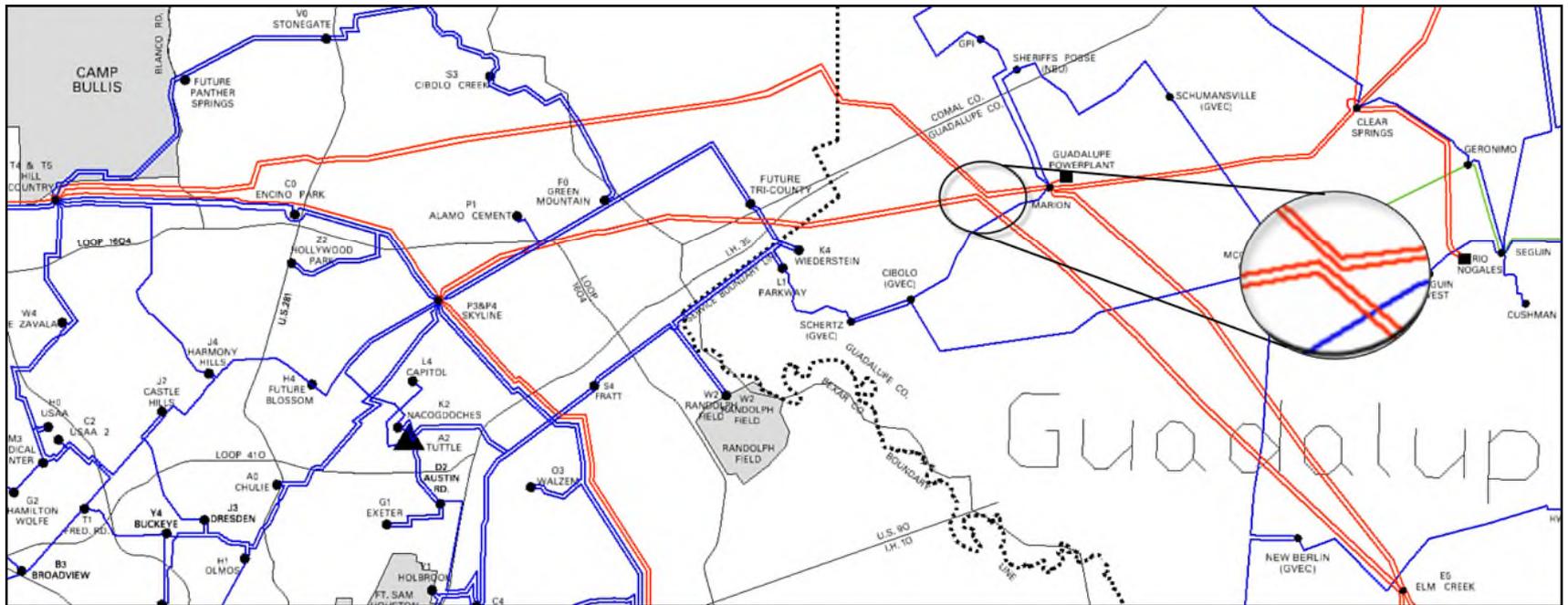
- **345 kV Overloads**
  - **Skyline to Marion**
  - **Marion to Clear Springs**
  - **Zorn to Marion**
  - **Cagnon, Hill Country, Marion,  
and Clear Springs Autotransformers**
- **138 kV Overloads**
  - **Henne to Comal to Loop 337 to GPI, Henne to  
McCarty Lane, Henne to Zorn**

# Alternatives

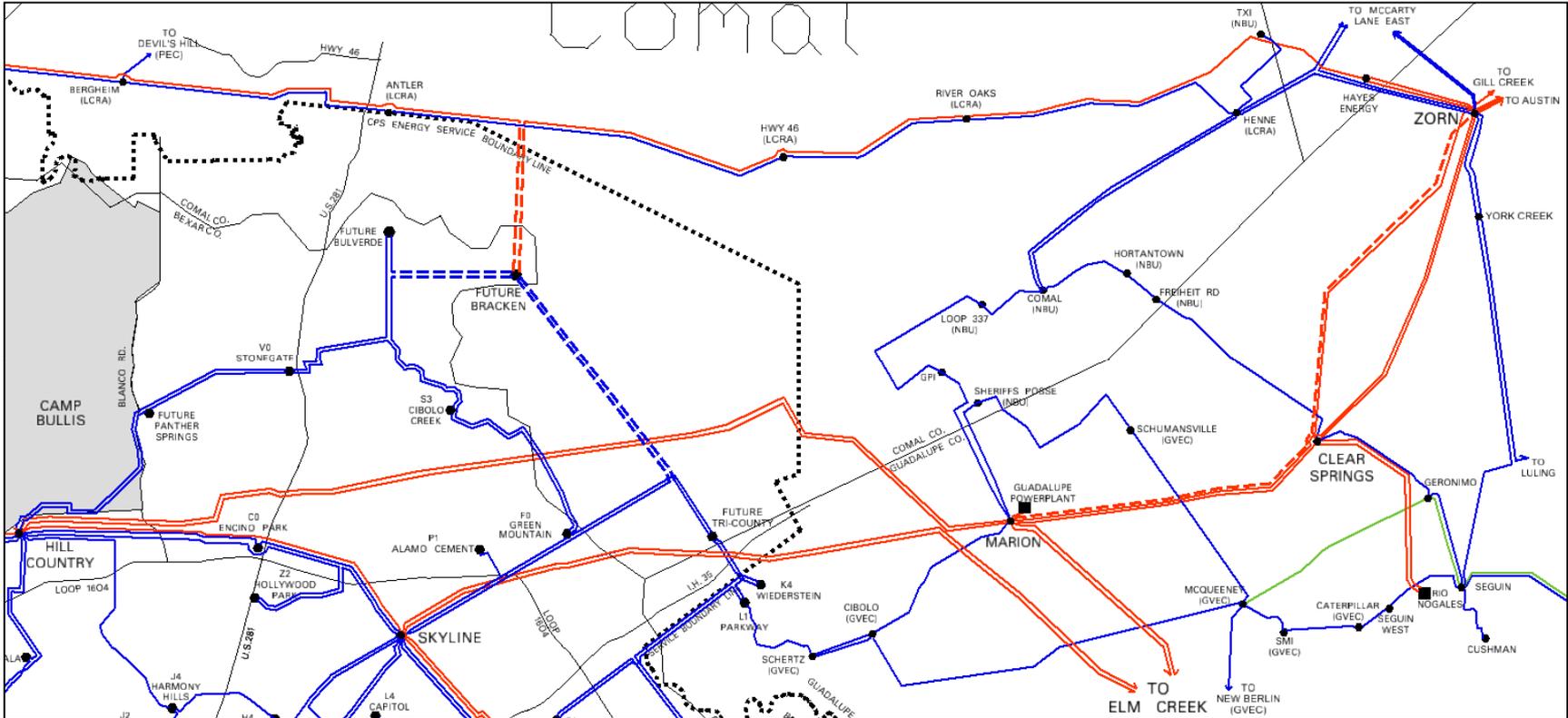
- **Eight (8) Alternatives are presented in the filing.**
- **Elements Common to all alternatives:**
  - Add two (2) 345/138 kV Autotransformers at Howard Road
  - Add second 345/138 kV Autotransformer at Marion
  - Rebuild Kerrville Stadium to Kendall 138 kV line
  - Upgrade Kendall to Comfort 138 kV line
  - Reconfigure the Skyline double-circuit to Marion and Elm Creek and the Hill Country double-circuit to Marion and Elm Creek to become a double-circuit from Hill Country to Marion and a double-circuit from Skyline to Elm Creek



# 345 kV Reconfigure

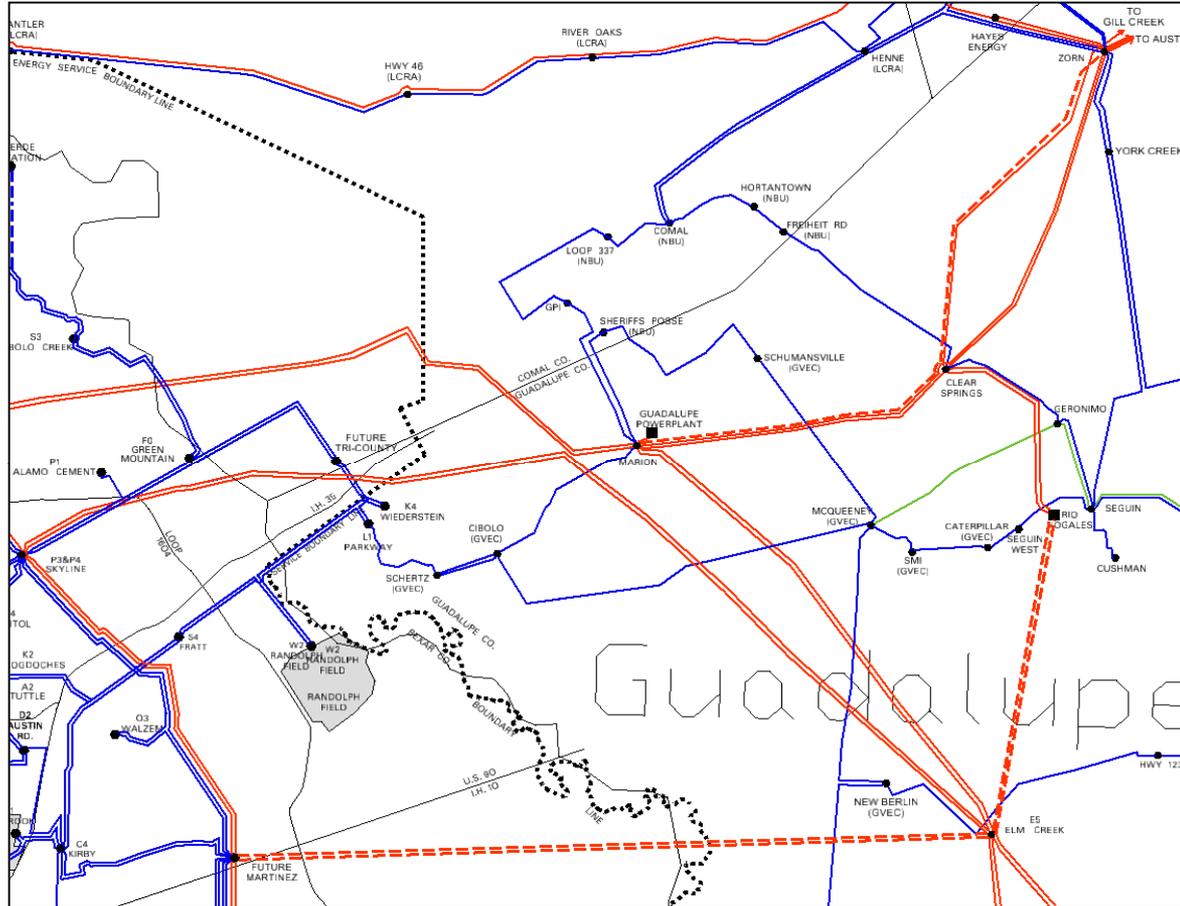


# Alternatives



Recommended Alternative (Alternative 3)

# Alternatives



Alternative 8

# Alternatives - Costs

Alternative	Description	Total Cost (\$M)
1	1) Bracken to Hwy 46 2) Loop Zorn to Marion into Clear Springs, Rebuild Marion to Clear Springs 3) Clear Springs to Bracken	\$ 342.7
2	1) Loop Hays to Kendal into Bracken 2) Zorn to Marion 3) Clear Springs to Bracken	\$ 341.7
3	<b>1) Loop Hays to Kendal into Bracken</b> <b>2) Zorn to Marion</b>	<b>\$ 237.3</b>
4	1) Bracken to Hwy 46 2) Zorn to Marion 3) Clear Springs to Bracken	\$ 354.2
5	1) Bracken to Hwy 46 2) Zorn to Marion 3) Marion to Bracken	\$ 328.7
6	1) Bracken to Bergheim 2) Zorn to Marion 3) Clear Springs to Bracken	\$ 385.1
7	1) Bracken to Bergheim 2) Zorn to Marion 3) Marion to Bracken	\$ 350.3
8	1) Rio Nogales to Elm Creek to Martinez 2) Zorn to Marion	\$ 276.3

# Scope of Recommended Alternative

- **Extend the LCRA TSC Kendall to Hays Energy 345 kV line to the new CPS Energy 345/138 kV Bracken switching station**
- **Construct a new LCRA TSC's Zorn to Marion 345 kV line**
- **Reconfigure the Skyline double-circuit to Marion and Elm Creek and the Hill Country double-circuit to Marion and Elm Creek to become a double-circuit from Hill Country to Marion and a double-circuit from Skyline to Elm Creek**
- **Construct the new CPS Energy 345/138 kV Bracken switching station with two autotransformers**
- **Convert the existing CPS Energy 138 kV Howard Road substation to a 345/138 kV switching station with two autotransformers**
- **Add a second autotransformer at LCRA TSC 345/138 kV Marion switching station**

# Scope of Recommended Alternative

- **Construct a new 138 kV double-circuit transmission line to loop the CPS Energy Bracken switching station into the Bulverde to Green Mountain 138 kV line**
- **Construct a new 138 kV double-circuit transmission line to loop the CPS Energy Bracken switching station into the Skyline to Tri-County 138 kV line**
- **Upgrade the LCRA TSC Kerrville Stadium to Kendall 138 kV line**
- **Upgrade the LCRA TSC Kendall to Comfort 138 kV line**
- **Rebuild the CPS Energy Randolph to Weiderstein 138 kV line**
- **Upgrade the CPS Energy Hamilton Wolfe to Medical Center 138 kV line**

# Summary

- **Project planned in-service date – 2018**
- **Request ERCOT consideration for Critical Designation**

# Questions?