



**GPL - Farmersville Area Reliability Project
– ERCOT Independent Review Final Update**

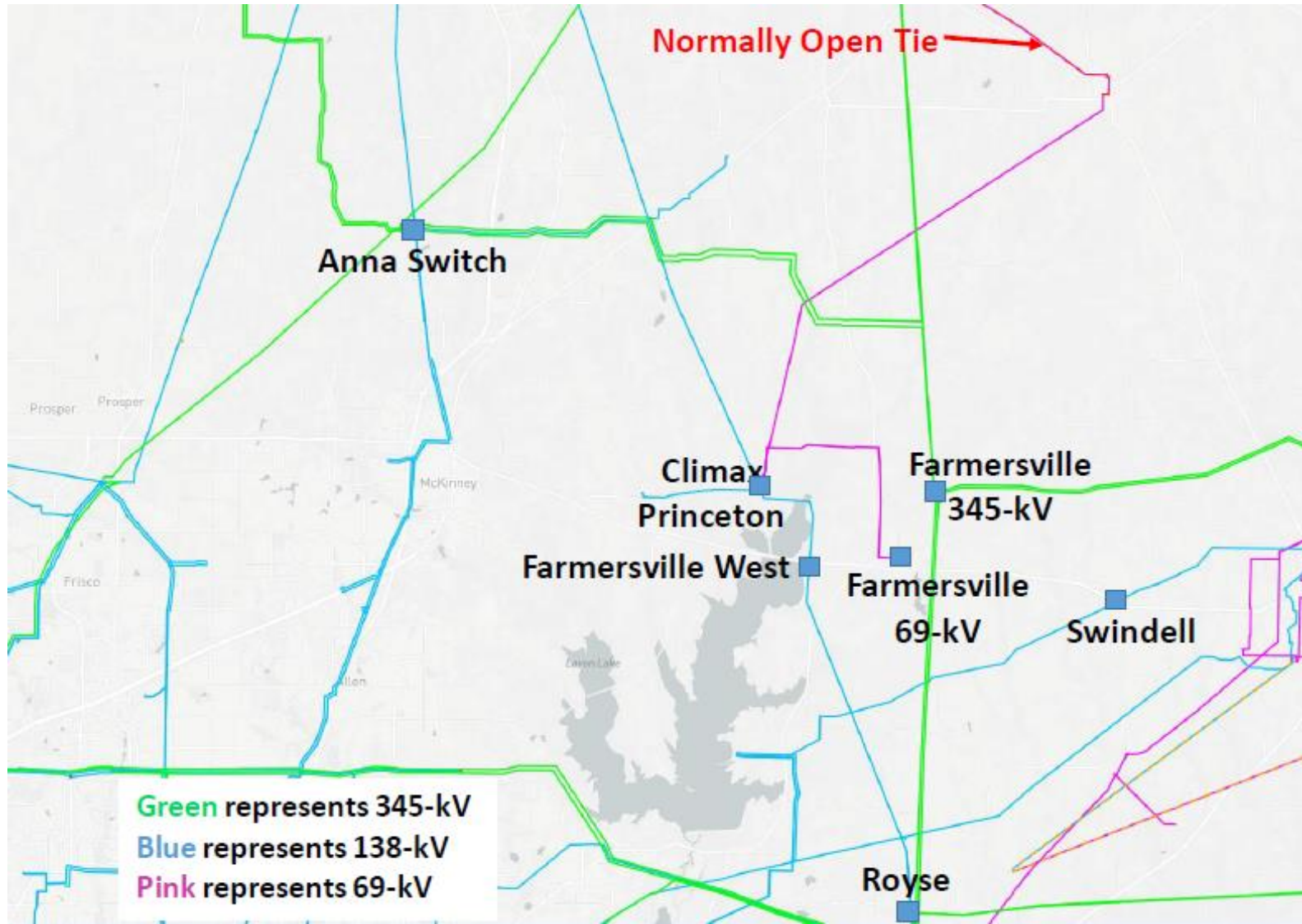
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Introduction

- **Garland Power & Light (GPL) submitted the Farmersville Area Reliability Project for Regional Planning Group (RPG) review in December 2019 to address GPL's Planning criteria violation**
- **This is a Tier 2 project that is estimated at \$26.2 Million**
- **ERCOT presented the study scope and preliminary options at the February 2020 RPG meeting**
http://www.ercot.com/content/wcm/key_documents_lists/189700/GPL_Farmersville_Area_Reliability_Project_2_18_2020.pdf
- **Modified the preliminary options based on the feedback from TSPs as well as system status update**
 - The approved Oncor's Anna SW – Royse SW 138-kV line upgrade Tier 3 project is included in the EIR
 - New generation of Coniglio Solar (20INR0037) was added to the study case based on March 2020 GIS report
 - Sensitivity study of additional conceptual load (25 MW) in the study area before Summer 2022

Study Area



Study Procedure

- **Need Analysis**

- The reliability analysis was performed to identify any reliability needs in the area including the project need (i.e. loss of entire city of Farmerville under a single line outage) using the study base case
- Project need based on TSP's criteria (***Protocol Section 3.11.4.9(4)***)
 - ERCOT's independent review shall consider whether a reliability need exists under the TSP's criteria
 - ERCOT shall recommend a project that would address the need under TSP's criteria as well as any reliability need identified under NERC or ERCOT criteria
 - ERCOT or the ERCOT board will endorse such a project if ERCOT determines that it is justified in part under ERCOT or NERC criteria
 - Neither ERCOT nor the ERCOT Board shall endorse a project that is determined to be needed solely to meet a TSP's criteria

- **Project Evaluation**

- Project alternatives were developed and tested to address the GPL Planning criteria and any reliability issues resulting from the alternatives

Need Analysis

- No reliability violation was identified under NERC or ERCOT Planning criteria
- Consequential load loss of entire city of Farmerville (GPL's Planning criteria violation) under N-1 contingencies of the existing Farmersville - Climax 69-kV line or Climax 138/69-kV transformer

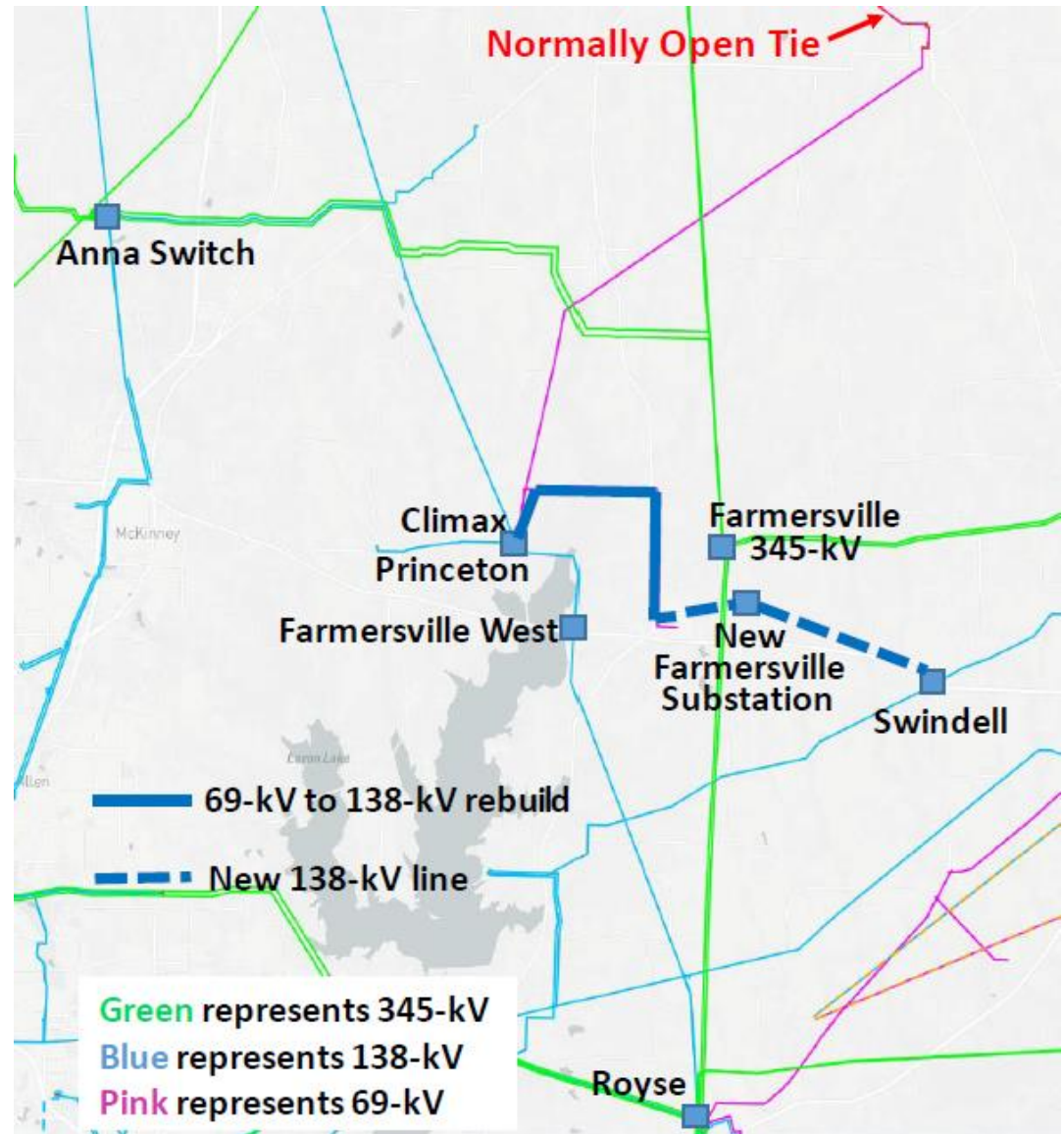
Contingency Condition	GPL's Planning Criteria Violation
N-1	Consequential Load Loss of entire city of Farmersville (~ 7 MW in the 2022 summer peak case)

- According to GPL, a new Farmersville substation is needed because the existing Farmersville substation is within a 100-year flood plain, and the load growth is expected to the east of the city

Option 1 (GPL Proposed Solution)

- Build a new Farmersville 138-kV substation
- Rebuild and convert the existing Climax-Farmersville 69-kV line (~ 9 miles) to 138-kV and construct a new 138-kV line (~ 2 miles of new right of way) to connect the converted 138-kV line to the new 138-kV Farmersville substation
- Build a new single-circuit 138-kV line from Swindell to the new Farmersville substation (~ 5 miles)

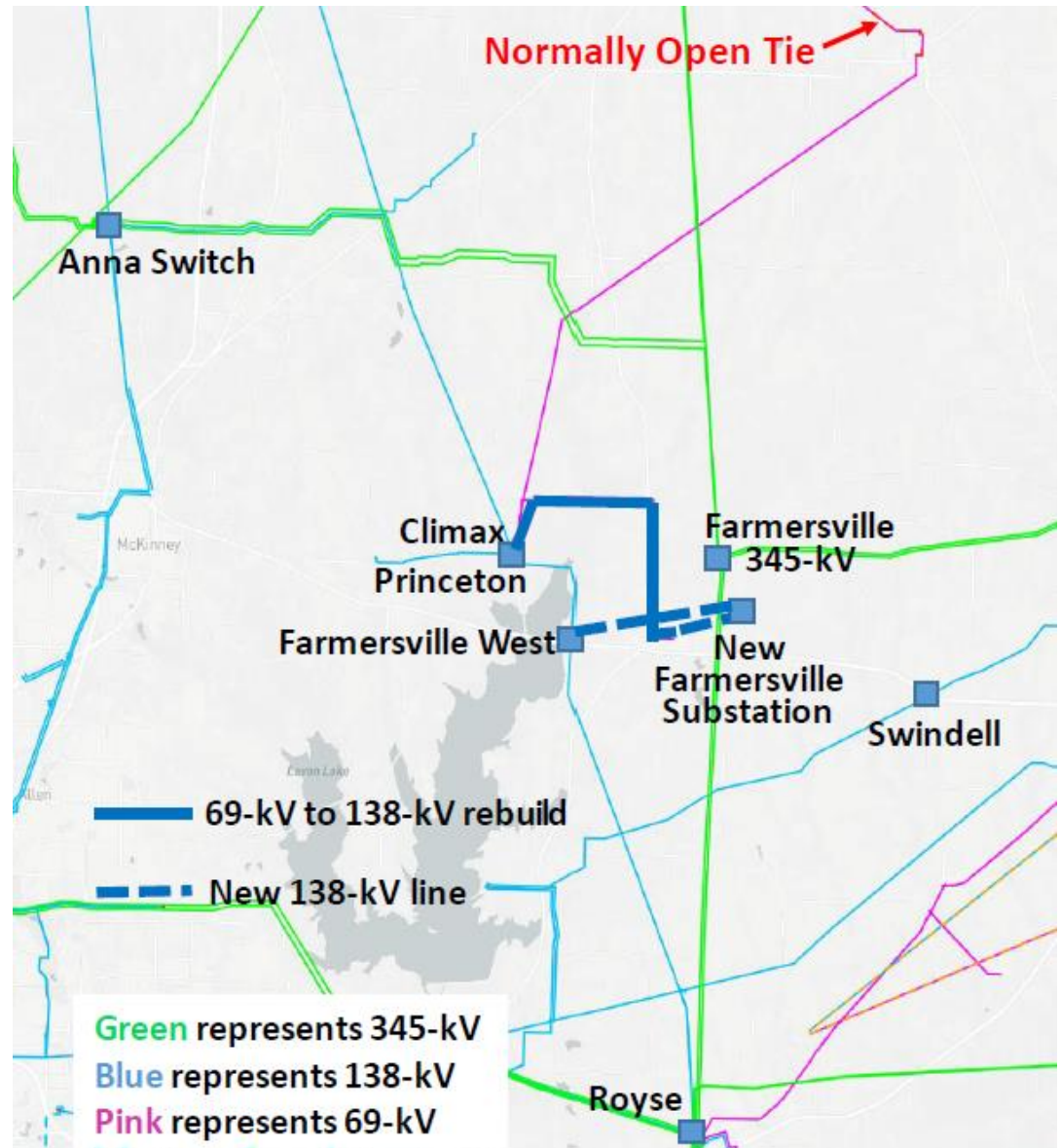
Total Cost Estimate:
\$26.2 Million



Option 2

- Build a new Farmersville 138-kV substation
- Rebuild and convert the existing Climax-Farmersville 69-kV line (~ 9 miles) to 138-kV and construct a new 138-kV line (~ 2 miles of new right of way) to connect the converted 138-kV line to the new 138-kV Farmersville substation
- Build a new single-circuit 138-kV line from Farmersville West to the new Farmersville substation (~ 5 miles)

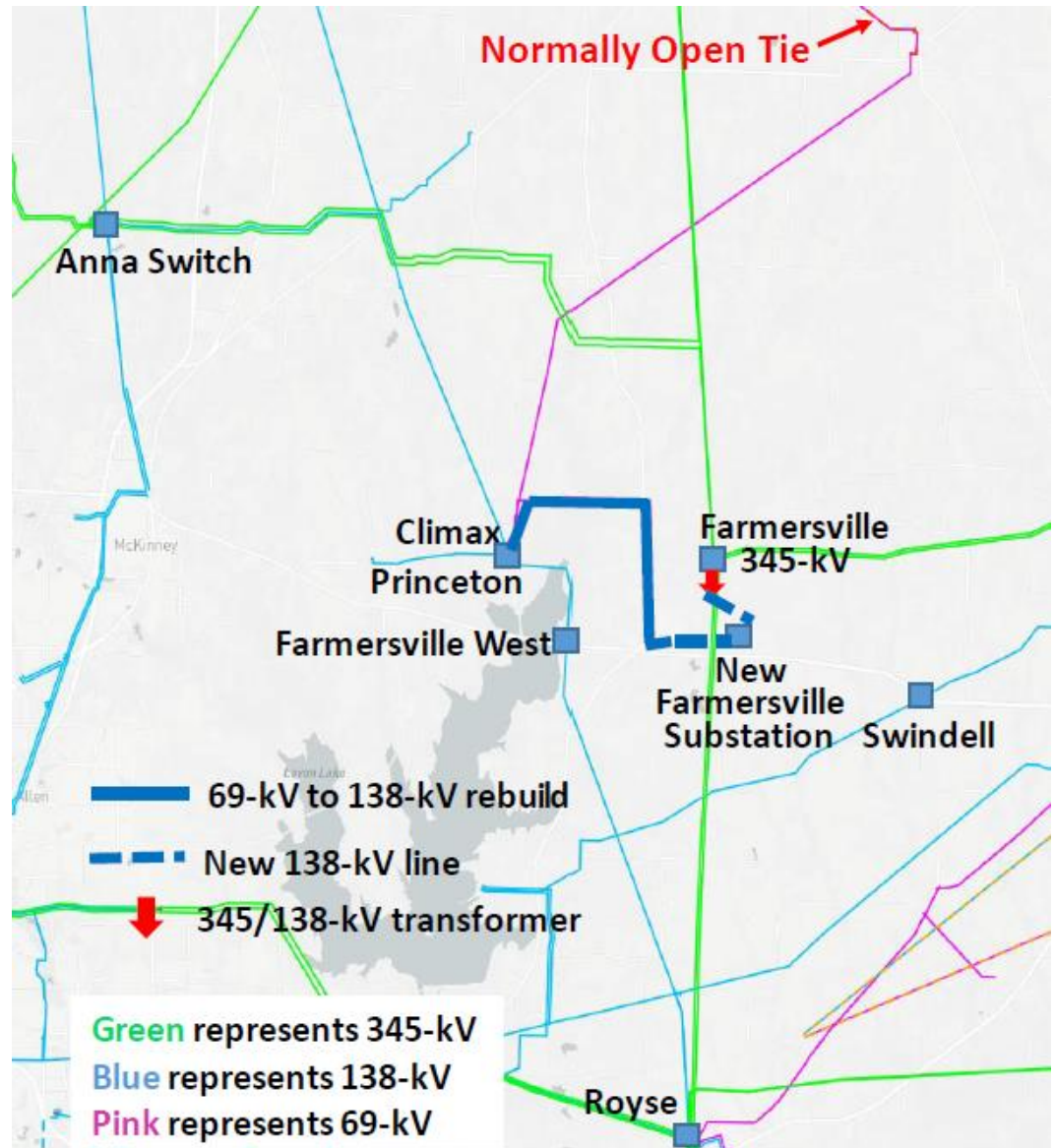
Total Cost Estimate:
\$34.5 Million



Option 3

- Build a new Farmersville 138-kV substation
- Rebuild and convert the existing Climax-Farmersville 69-kV line (~ 9 miles) to 138-kV and construct a new 138-kV line (~ 2 miles of new right of way) to connect the converted 138-kV line to the new 138-kV Farmersville substation
- Install one 345/138-kV transformer at the existing Farmersville Switch 345-kV substation
- Build a new single-circuit 138-kV line from Farmersville Switch to the new Farmersville substation (~ 2 miles)

Total Cost Estimate:
\$36.8 Million



Study Results

- All three options resolved the GPL's Planning criteria violation under N-1. No NERC or ERCOT reliability criteria violations were identified in any of the three options evaluated
- Higher load sensitivity analysis
 - TNMP indicated that a conceptual load (~25 MW) may appear in the study area before Summer 2022
 - No violations were identified in any of the three options in the higher load sensitivity analysis
- Study result and cost estimate

Scenario	Option 1	Option 2	Option 3
Base Load	No Violations	No Violations	No Violations
Higher Load Sensitivity	No Violations	No Violations	No Violations
Cost Estimates	\$26.2 Million	\$34.5 Million	\$36.8 Million

Options Evaluation

- All three options resolved the GPL's Planning criteria violation under base load as well as higher load sensitivity conditions
- Option 1 is the least cost option among all three options
- Option 1 can better serve the city of Farmersville in both normal conditions and planned maintenance outage conditions when compared to the existing configuration

ERCOT Recommendation

- **Based on the review of the system performance and the cost estimate of each option , ERCOT recommends Option 1 as the preferred solution**
 - Build a new 138-kV Farmersville substation (about 2 miles east of the existing 69-kV Farmersville substation, which is owned by GPL)
 - Rebuild and convert the existing Climax-Farmersville 69-kV line (~ 9 miles) to 138-kV and construct a new 138-kV line (~ 2 miles of new right of way) to connect the converted 138-kV line to the new 138-kV Farmersville substation with an emergency rating of at least 235 MVA
 - Build a new single-circuit 138-kV transmission line (~ 5 miles of new right of way) from Swindell, which is owned by GPL, to the new Farmersville substation with an emergency rating of at least 235 MVA
- **In accordance with Protocol Section 3.11.4.9(4), ERCOT will not endorse this project as it is needed solely to meet a TSP's criteria**

Next Step

- A final EIR report will be issued in May 2020



Stakeholder Comments Also Welcomed to Sun Wook Kang:
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