Rayburn Electric Cooperative Canton Loop - ERCOT Independent Review Study Status Update

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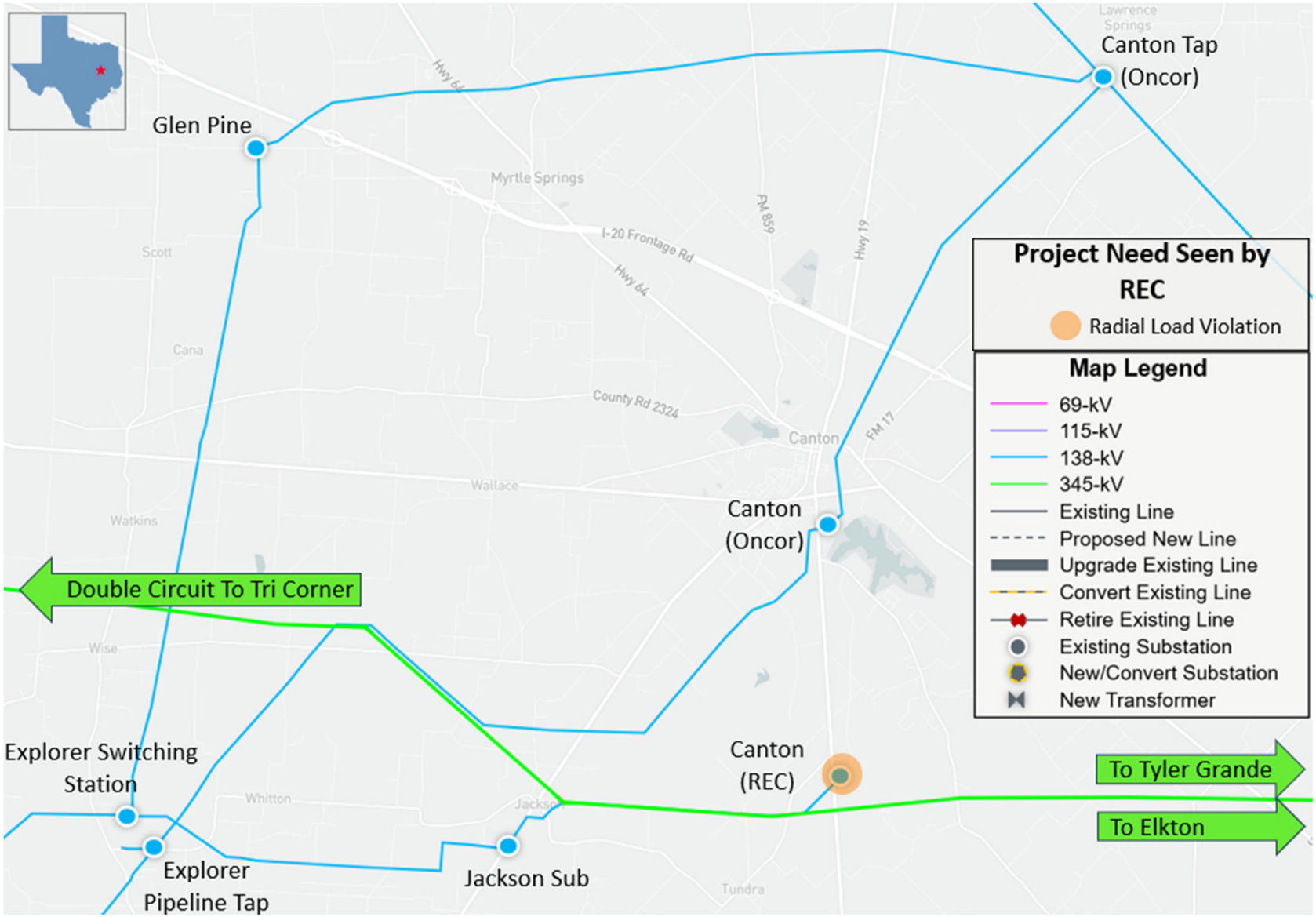
RPG Meeting
August 13, 2024

Introduction

- Rayburn Electric Cooperative (REC) submitted the Canton Area Loop Project for Reginal Planning Group (RPG) review in March 2024
  - This Tier 2 project is estimated at $26.03 million and will require a Convenience and Necessity (CCN)
  - Estimated completion date is October 2026
  - To address REC planning criteria to limit radial load to less than 20 MW
  - Provide “Looped Service” for REC Canton Switchyard
- ERCOT presented study scope for this ERCOT Independent Review (EIR) at the May RPG Meeting:
  - https://www.ercot.com/calendar/05142024-RPG-Meeting
- ERCOT provided status update at the June RPG meeting
  - https://www.ercot.com/calendar/06112024-RPG-Meeting

Recap - Study Area Map with Project Need Seen by REC



Recap - Preliminary Results of Reliability Assessment – Need Analysis

- ERCOT conducted steady-state load flow analysis for the study base case according to the NERC TPL-001-5.1 and ERCOT Planning Criteria to identify project need

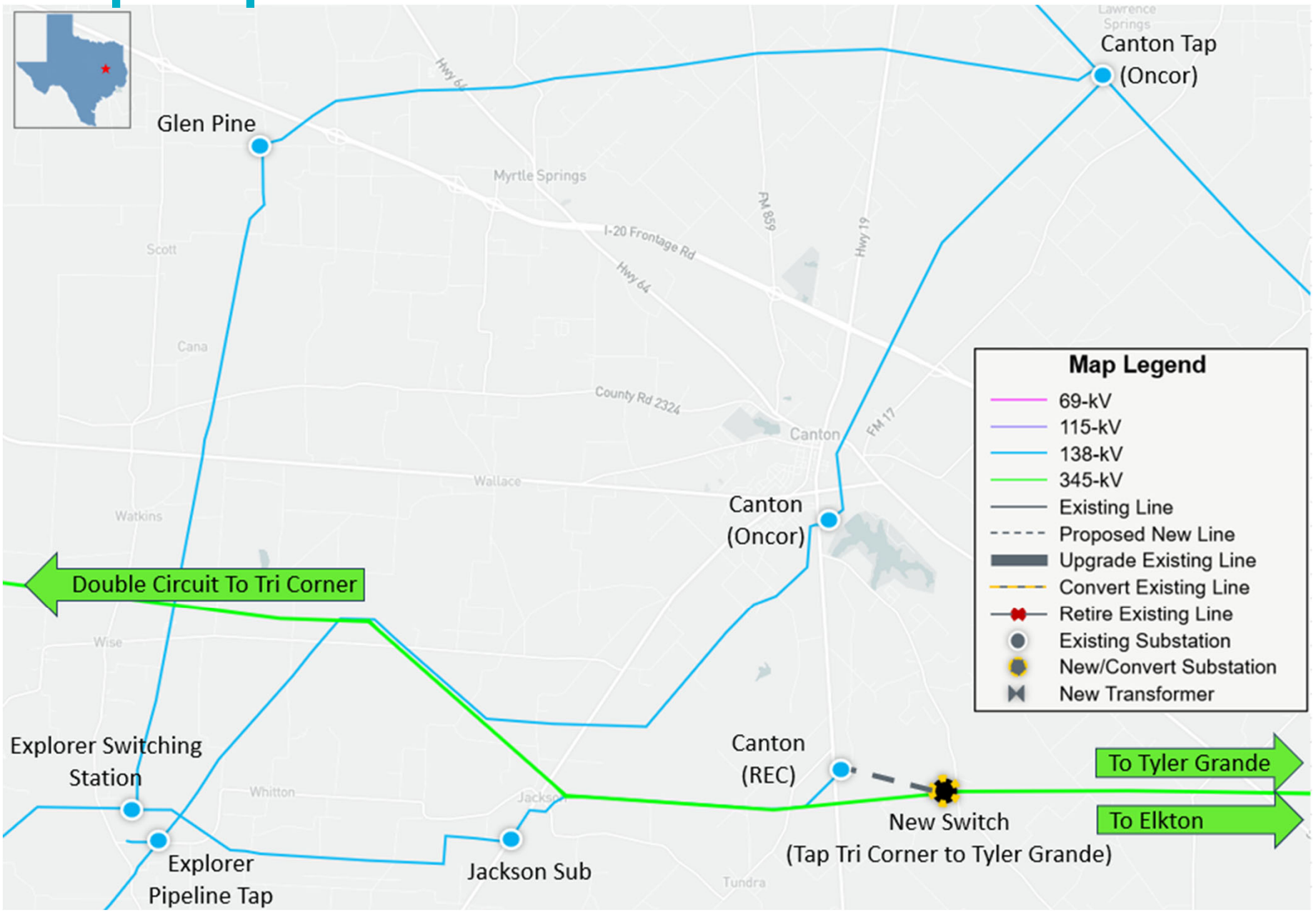
Contingency Category	Voltage Violations	Thermal Violations	Unsolved Power Flow
N-0 (P0)	None	None	None
N-1 (P1, P2-1, P7)	None	None	None
G-1+N-1 (P3)*	None	None	None
X-1+N-1 (P6-2)**	None	None	None

* G-1: Trinidad Unit 6 and Glenpine Solar
** X-1: Elkton, Tyler Grande, Forest Grove, and Sulphur Springs 345/138-kV autotransformers

Recap - Option 1

- Construct a new 345/138-kV Switchyard, at a tap point on the Tri Corner to Tyler Grande 345-kV line
- Upgrade Canton 138-kV (REC) to 3-breaker ring bus configuration
- Construct a new approximately 0.4-mile Canton (REC) to new 345/138-kV Switchyard 138-kV transmission line with ratings of at least 669/752 MVA Normal/Emergency Rating

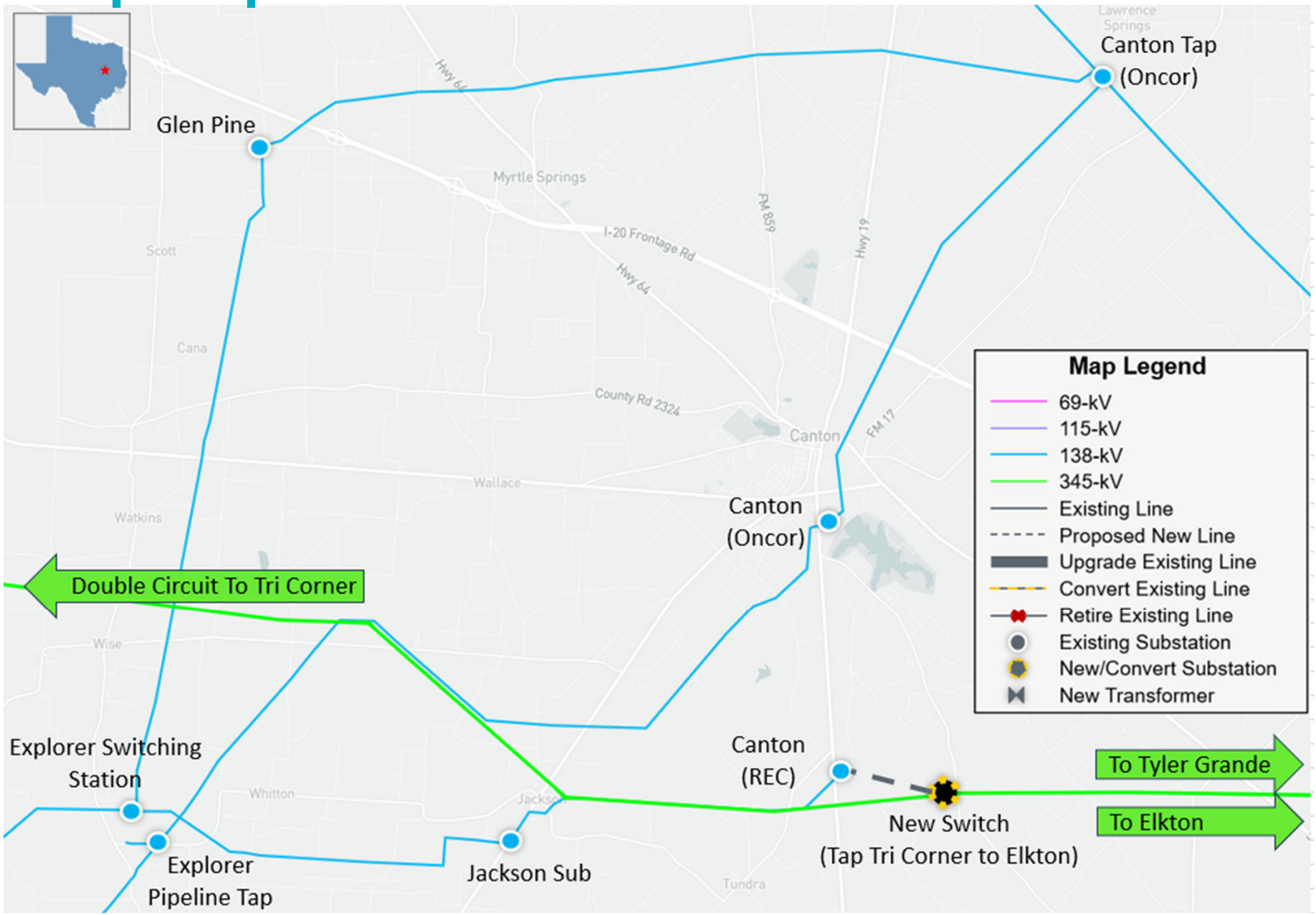
Recap - Option 1



Recap - Option 2

- Construct a new 345/138-kV Switchyard, at a tap point on the Tri Corner to Elkton 345-kV line
- Upgrade Canton 138-kV (REC) to 3-breaker ring bus configuration
- Construct a new approximately 0.4-mile Canton (REC) to new 345/138-kV Switchyard 138-kV transmission line with ratings of at least 669/752 MVA Normal/Emergency Rating

Recap - Option 2



Recap - Option 3

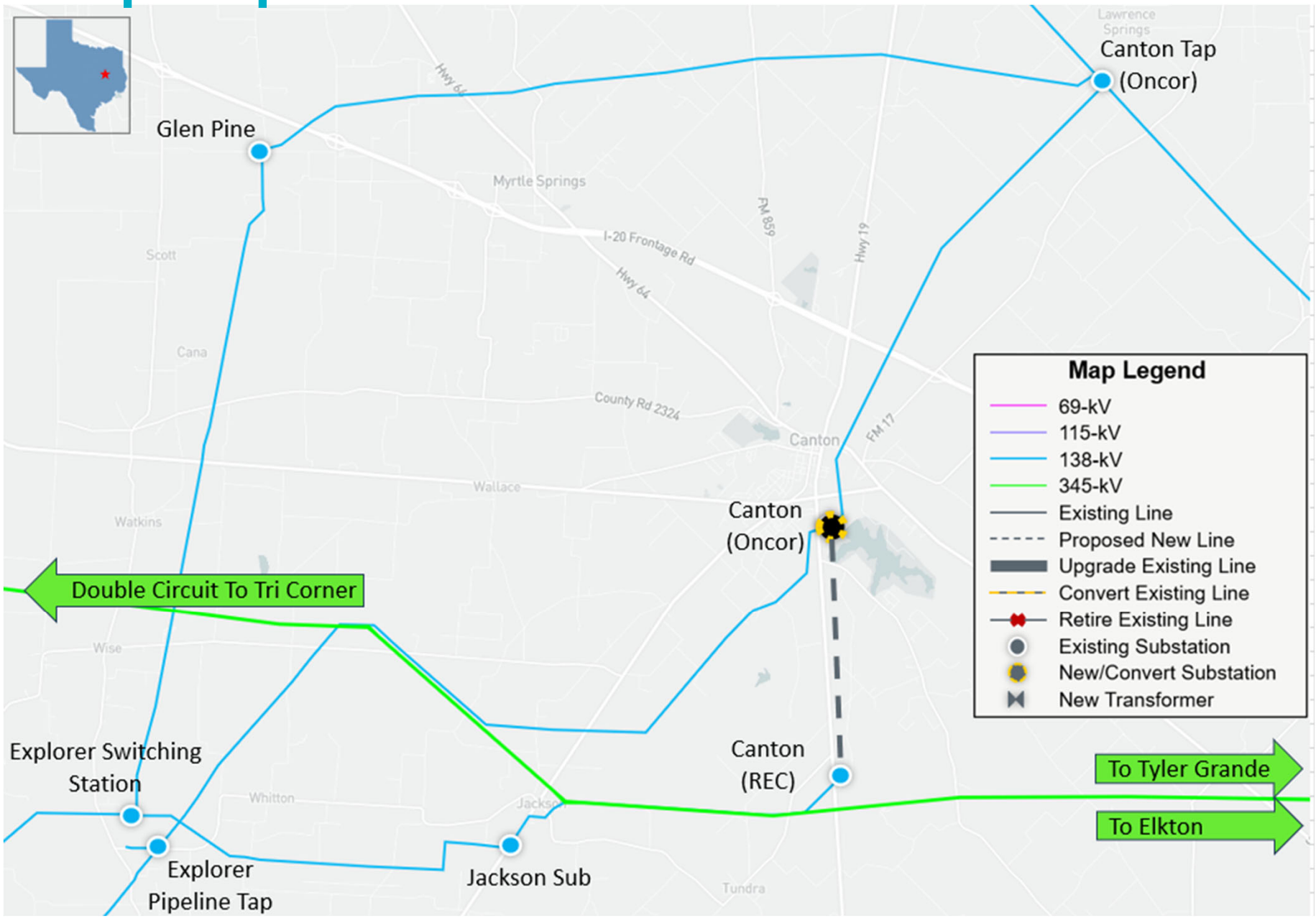
- Construct a new Oncor 138-kV Switchyard, with 3-breaker ring bus configuration, at a tap point between Canton (Oncor) and Explorer Pipeline Tap
- Upgrade Canton 138-kV (REC) to 3-breaker ring bus configuration
- Construct a new approximately 4.2-mile Canton (REC) to new Oncor Switchyard 138-kV transmission line with ratings of at least 669/752 MVA Normal/Emergency Rating

Recap - Option 3

Recap - Option 4

- Upgrade existing Oncor 138-kV Canton Substation, with 3-breaker ring bus configuration
- Upgrade Canton 138-kV (REC) to 3-breaker ring bus configuration
- Construct a new approximately 4.2-mile Canton (REC) to upgraded Oncor Canton Substation138-kV transmission line with ratings of at least 669/752 MVA Normal/Emergency Rating

Recap - Option 4



Preliminary Results of Planned Maintenance Outage Evaluation

- ERCOT conducted planned maintenance outage evaluation on the base case to identify project need
  - Load level in the North-Central and East Weather Zones were scaled down to 81.3 and 84.2% of their summer peak loads in the study base case, respectively based on ERCOT load forecast and historical load, in order to mimic the off- peak load condition
  - N-2 contingencies were tested as a proxy for N-1-1. Any applicable violating contingencies were further tested with system adjustments
  - The transmission elements in the Van Zandt, Rains, Hunt, Wood, Smith, Kaufman, and Henderson Counties were monitored in the maintenance outage evaluation
- Planned maintenance outage analysis results

Option	Voltage Violations	Thermal Overloads	Unsolved Power Flow
1	None	None	None
2	None	None	None
3	None	None	None
4	None	None	None

Long-Term Load-Serving Capability Assessment

- Adjusted load up in substations in the Study Area
- Adjusted conforming load down outside of the North Central and East weather zones to balance power
- Based on N-1 contingency limits

Option	Incremental Load Serving Capability (~MW)
1	214
2	215
3	963
4	963

Preliminary Cost Estimate and Feasibility Assessment

- Transmission Service Providers (TSPs) performed feasibility assessments and provided preliminary cost estimates for the four options

Option	Cost Estimates (~$M)	CCN Required (~Miles)	Feasibility
1	49.33	0.4	Yes
2	49.33	0.4	Yes
3	26.03	4.2	Yes
4	N/A	4.2	No*

*Oncor's existing Canton site will not accommodate existing substation and a new switch

Comparison of Options

	Option 1	Option 2	Option 3	Option 4
Meets ERCOT and NERC Reliability Criteria	Yes	Yes	Yes	Yes
Meets REC's Planning Criteria Requirement	Yes	Yes	Yes	Yes
Improves Long-Term Load-Serving Capability	Yes	Yes	Yes (Best)	Yes (Best)
Requires CCN (~miles)	Yes (0.4)	Yes (0.4)	Yes (4.2)	Yes (4.2)
Project Feasibility	Yes	Yes	Yes	No
Cost Estimate* (~$M)	49.33	49.33	26.03	N/A

*Cost estimates were provided by the TSPs

- Option 4 is not feasible since Oncor's existing Canton site will not accommodate addition of a new switch for additional line termination

ERCOT Preferred Option

- Option 3 is selected as the preferred option because it
  - Is the least expensive option that fully addresses REC's Planning criteria with no reliability issues
  - Provides better long-term load-serving capability compared to Options 1 and 2

Additional Analyses

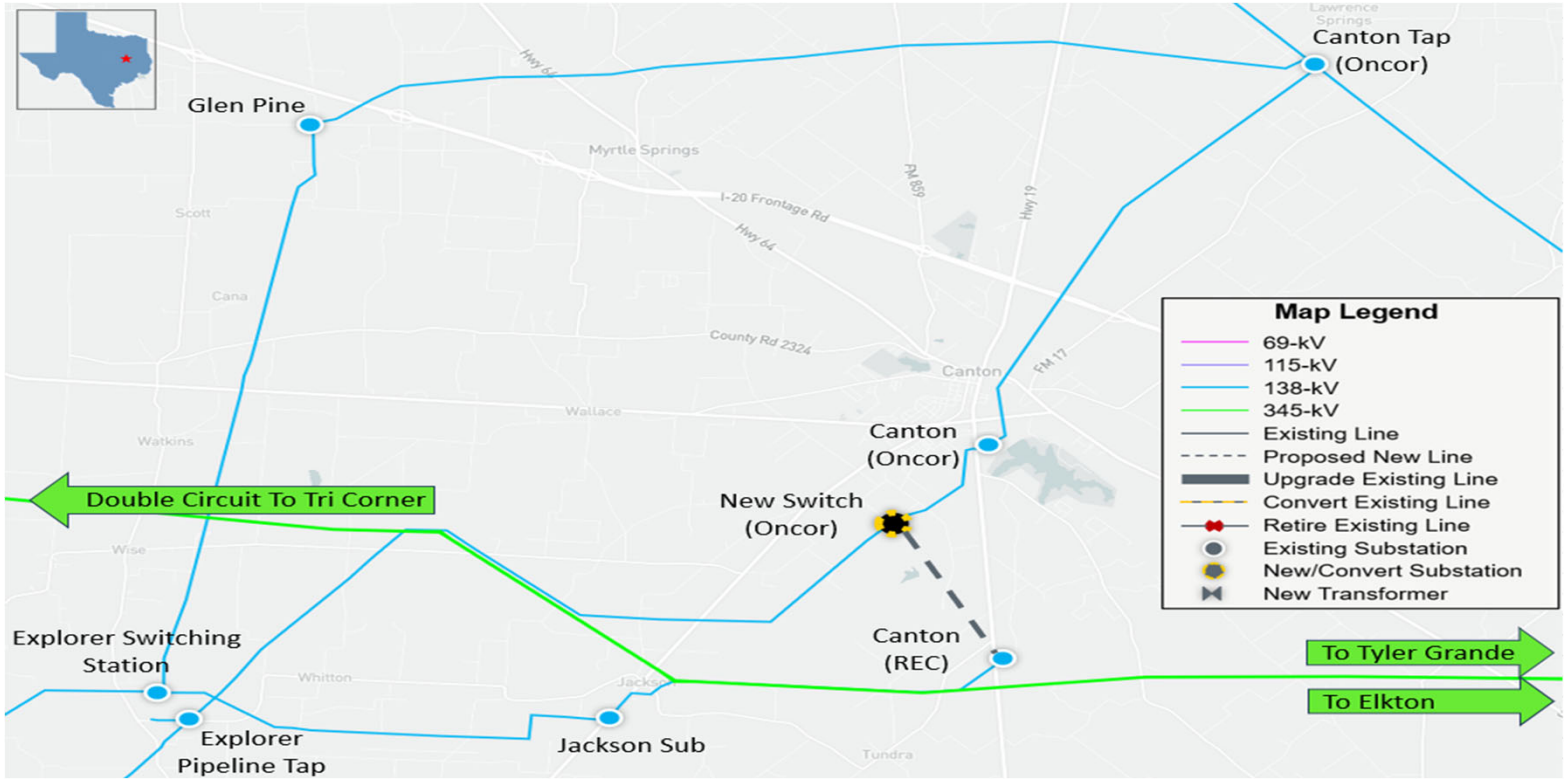
- Congestion Analysis
  - Congestion analysis was performed for the preferred option using the 2023 RTP 2028 economic case
  - The preferred option did not result in any new congestion within the study area

ERCOT Recommendation Option

- ERCOT recommends Option 3
  - Estimated Cost: approximately $26.03 million
  - Expected ISD: October 2026
  - CCN filling will be required to
    - Construct a new Canton (REC) to the new Oncor Switchyard 138-kV transmission line on double-circuit capable structures with one circuit in place, on a new Right of Way (ROW), approximately 4.2-mile

ERCOT Recommendation Option 3

- Construct a new Oncor 138-kV Switchyard, with 3-breaker ring bus configuration, at a tap point between Canton (Oncor) and Explorer Pipeline Tap
- Upgrade Canton 138-kV (REC) to 3-breaker ring bus configuration
- Construct a new Canton (REC) to new Oncor Switchyard 138-kV transmission line with normal and emergency ratings of at least 669 MVA and 752 MVA, respectively, on a new Right of Way (ROW), approximately 4.2-mile



RPG Acceptance and ERCOT Endorsement

- ERCOT Protocol Section 3.11.4.9(4)

> (4) If a TSP asserts a need for a proposed Tier 1 or Tier 2 project based in part or in whole on its own planning criteria, then ERCOT's independent review shall also consider whether a reliability need exists under the TSP's criteria. If ERCOT identifies a reliability need under the TSP's criteria, then ERCOT shall recommend a project that would address that need as well as any reliability need identified under NERC or ERCOT criteria, but shall explicitly state in the independent review report that ERCOT has assumed the TSP's criteria are valid and that an assessment of the validity of the TSP's criteria is beyond the scope of ERCOT's responsibility. ERCOT or the ERCOT Board may provide a qualified endorsement of such a project if ERCOT determines that it is justified in part under ERCOT or NERC criteria, as described in paragraph (1) above. However, neither ERCOT nor the ERCOT Board shall endorse a project that is determined to be needed solely to meet a TSP's criteria.

- In accordance with Protocol Section 3.11.4.9(4), ERCOT will not endorse this project as it is needed solely to meet REC's Planning criteria

Next Step and Tentative Timeline

- Tentative Timelines
  - EIR Report will be posted in the MIS
    - Q3 2024

Thank you!

Stakeholder comments also welcomed through:

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