



**TNMP – Silverleaf and Cowpen 345/138-kV  
Stations Project ERCOT Independent  
Review Status Update**

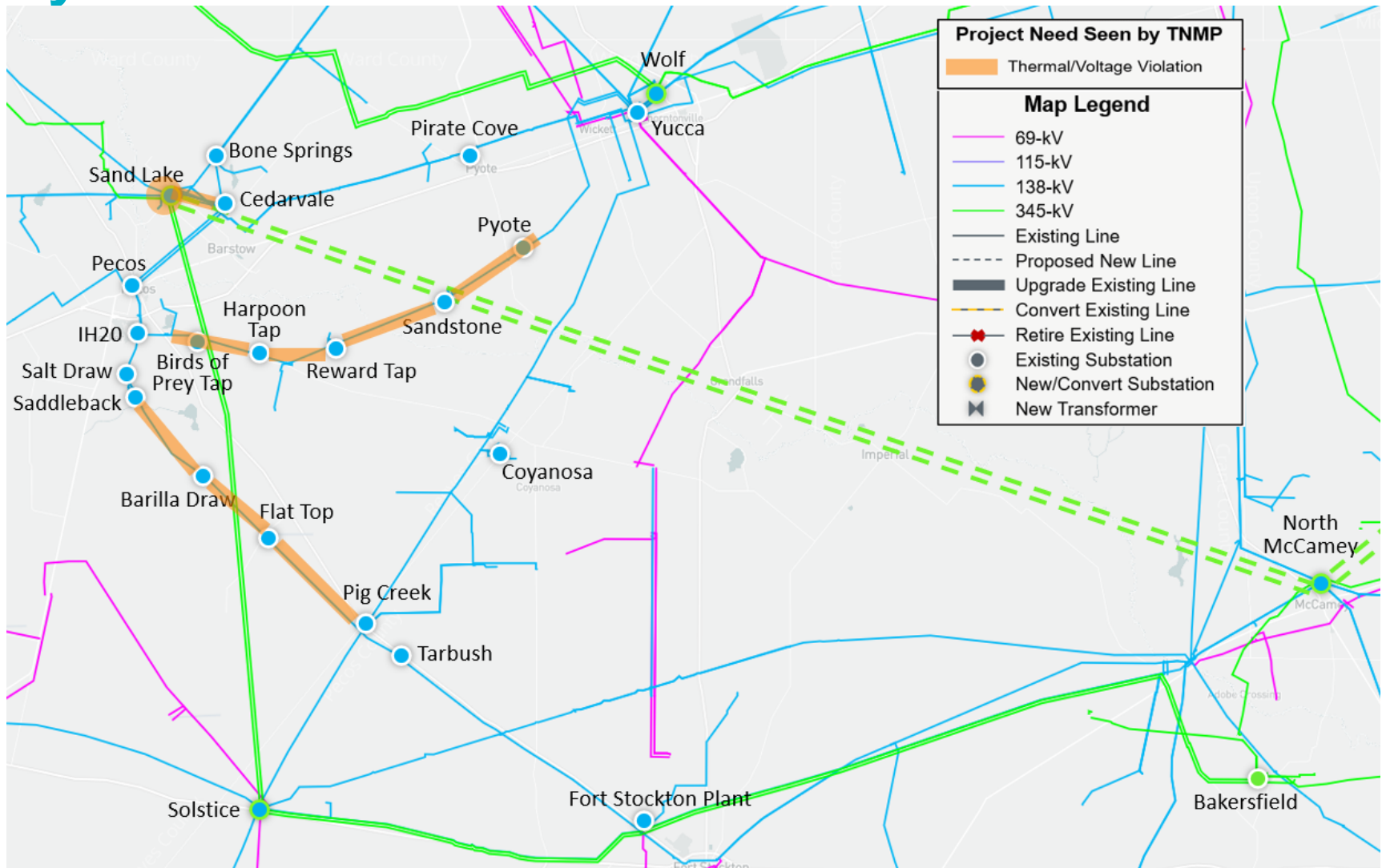
Ying Li

RPG Meeting  
Sep 19, 2023

# Recap

- TNMP submitted the Silverleaf and Cowpen 345/138-kV Stations Project for Regional Planning Group (RPG) review in May 2023
  - This Tier 1 project is estimated to cost \$299 million and will require Certificate of Convenience and Necessity (CCN) filings
  - Estimated in-service date
    - June 2027
  - Addresses both thermal overloads and voltage violations in the Reeves and Ward Counties in the Far West weather zone
  - TNMP has expressed need for “critical status designation”
- TNMP provided an overview presentation and ERCOT provided the study scope at the July RPG Meeting
  - <https://www.ercot.com/calendar/07182023-RPG-Meeting>
- ERCOT will present the need analysis and project evaluation during this presentation

# Recap: Study Area Map with Project Need Seen by TNMP

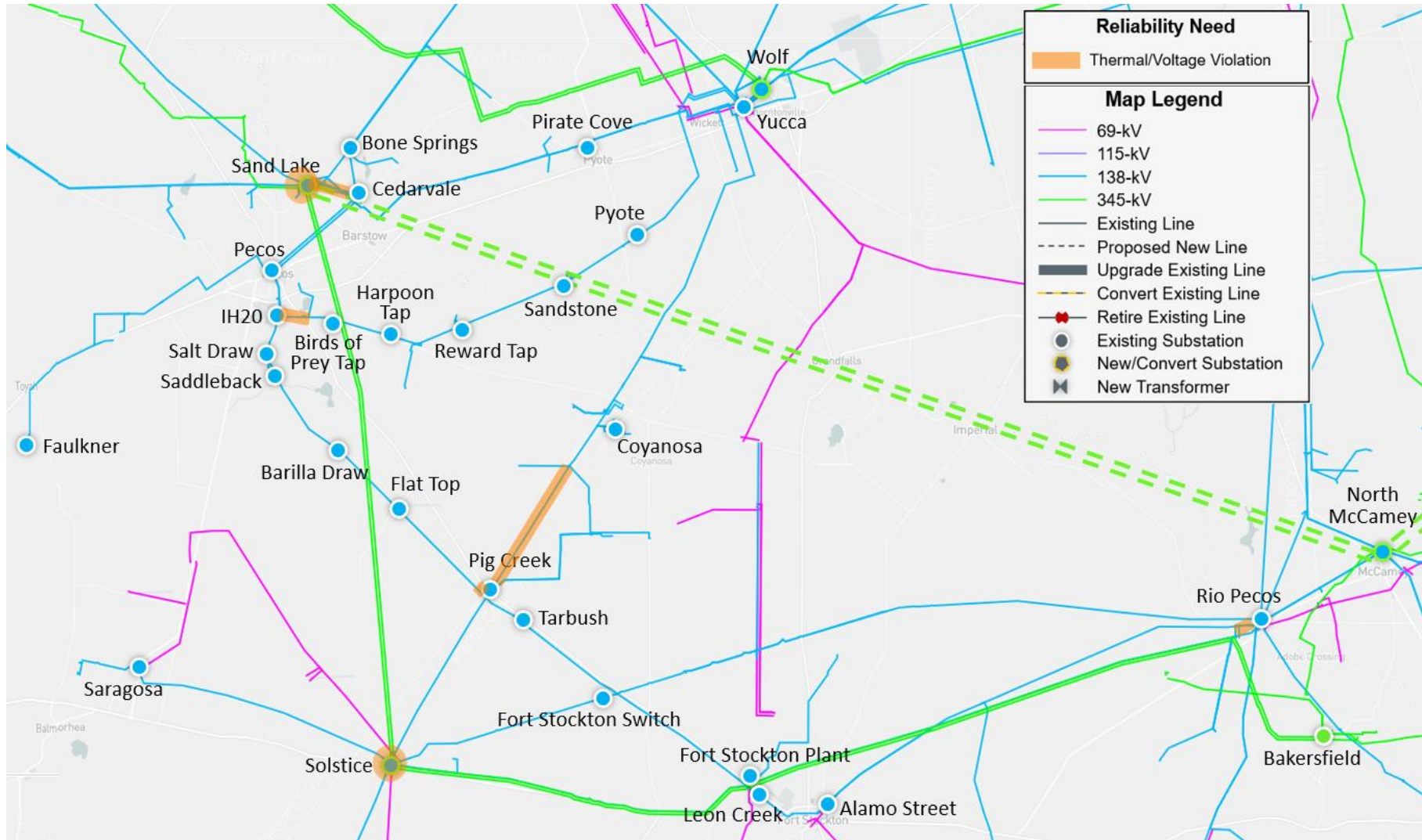


# Preliminary Results of Reliability Assessment – Need Analysis

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

Contingency Category	Thermal Overloads	# of Unsolved Contingencies
N-0 (P0)	Two 345/138-kV transformers, 2 circuit miles of 138-kV line	0
N-1 (P1, P2-1, P7)	16.1 circuit miles of 138-kV line	3
G-1+N-1 (P3)	2.5 circuit miles of 138-kV line	2
X-1+N-1 (P6-2)	Three 345/138-kV transformers, 5 circuit miles of 138-kV line	
Total	Five 345/138-kV transformers, 25.6 circuit miles of 138-kV line	5

# Project Need (P0, P1, P2-1, P3, P6-2, and P7) as Seen by ERCOT



# Upgrades Included for All Options

- Reactive Support
  - Add capacitor banks (total 160 Mvar) at Coyanosa (38380) 138-kV substation
- Transmission Upgrades
  - Upgrade the existing Rio Pecos to Girvin 138-kV circuit 2 (~ 0.53 miles) to 717 MVA
  - Upgrade the existing Pig Creek to Foxtail 138-kV double circuits (~ 0.2 miles) to 717 MVA (A new Tier 4 TPIT # 76348 with the expected in-service date of Summer 2026)

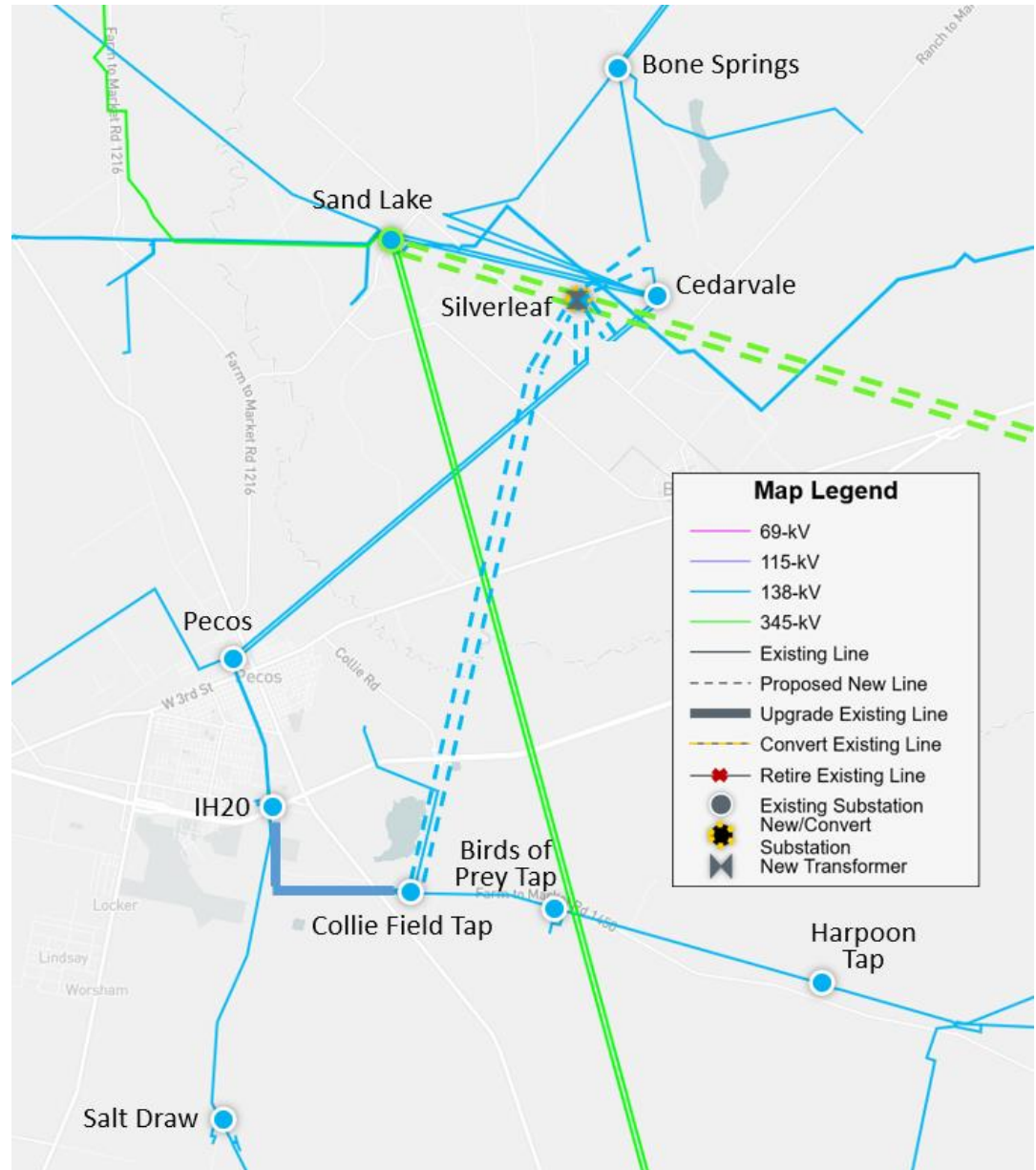
# Option 1 - Proposed Project by TNMP

- Add a new 345-kV New Substation 1, nearby existing Cedarvale station, by cutting into the planned North McCamey – Sand Lake 345-kV double-circuit line
- Add a new 345/138-kV Silverleaf station, nearby New Substation 1, with three transformers, connecting to the New Substation 1 via three 345-kV tie lines
- Loop the existing Cedarvale – Pecos 138-kV line #1 and #2, and Cedarvale – Bone Springs 138-kV line into the new Silverleaf station
- Add a new 345-kV New Substation 2, ~ 13 miles away from the existing Sand Lake station, by cutting into the existing Sand Lake – Solstice 345-kV double-circuit line
- Add a new 345/138-kV Cowpen station, nearby New Substation 2, with two transformers, connecting to the nearby New Substation 2 via two 345-kV tie lines
- Loop the existing IH20 – Salt Draw 138-kV line and Birds of Prey Tap – Harpoon Tap 138-kV line into the new Cowpen station



# Option 2

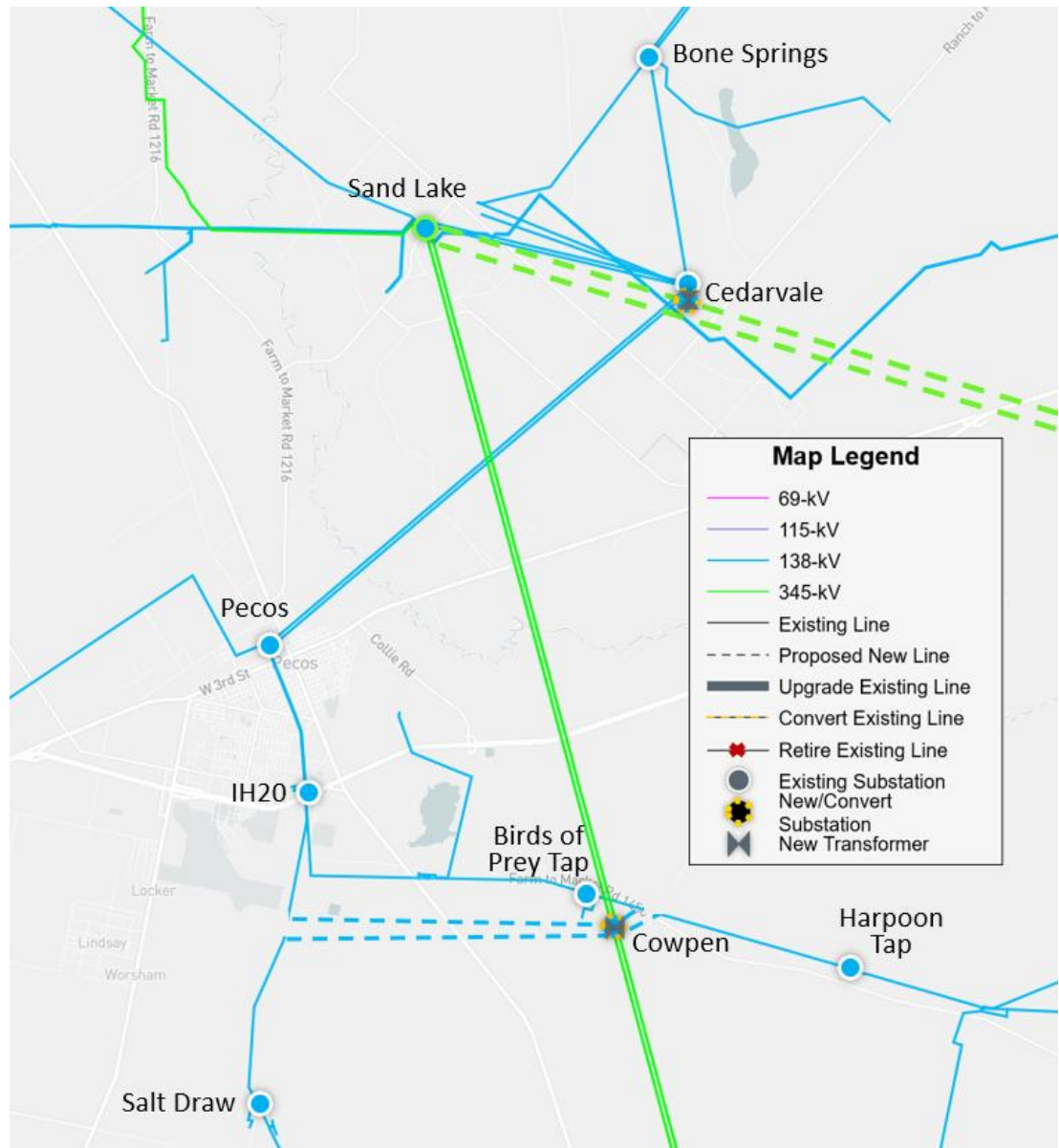
- Add a new 345-kV New Substation 1, nearby existing Cedarvale station, by cutting into the planned North McCamey – Sand Lake 345-kV double-circuit line
- Add a new 345/138-kV Silverleaf station, nearby New Substation 1, with three transformers, connecting to the New Substation 1 via three 345-kV tie lines
- Loop the existing Cedarvale – Pecos 138-kV line #1 and #2, and Cedarvale – Bone Springs 138-kV line into the new Silverleaf station
- Add a new 138-kV double-circuit line from the new Silverleaf to Collie Field Tap
- Upgrade the existing IH20 – Collie Field Tap 138-kV line (2.95 miles)
- Upgrade Girvin – Soaptree 138-kV line (1.94 miles)





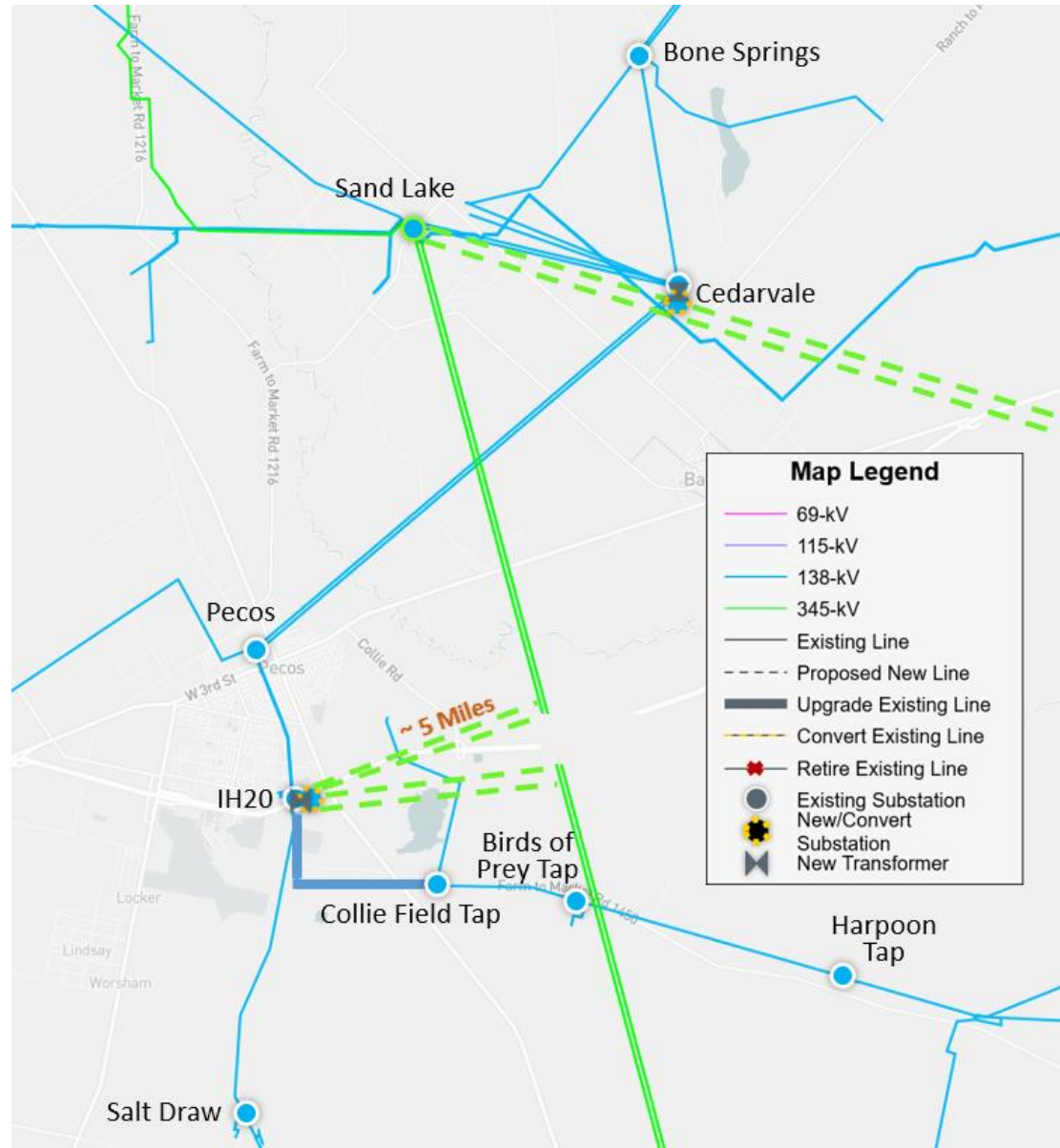
# Option 3

- Expand the existing Cedarvale 138-kV station to 345/138-kV with three transformers
- Loop the planned North McCamey – Sand Lake 345-kV double-circuit line into the Cedarvale 345/138-kV station
- Add a new 345-kV New Substation 2, ~ 13 miles away from the existing Sand Lake station, by cutting into the existing Sand Lake – Solstice 345-kV double-circuit line
- Add a new 345/138-kV Cowpen station, nearby New Substation 2, with two transformers, connecting to the nearby New Substation 2 via two 345-kV tie lines
- Loop the existing IH20 – Salt Draw 138-kV line and Birds of Prey Tap – Harpoon Tap 138-kV line into the new Cowpen station



# Option 4

- Expand the existing Cedarvale 138-kV station to 345/138-kV with three transformers
- Loop the planned North McCamey – Sand Lake 345-kV double-circuit line into the Cedarvale 345/138-kV station
- Expand the existing IH20 138-kV station to 345/138-kV with two transformers
- Loop the existing Sand Lake – Solstice 345-kV double-circuit line into the IH20 345/138-kV station
- Upgrade the existing IH20 – Collie Field Tap 138-kV line (2.95 miles)



# Preliminary Results of Reliability Assessment – Options

	N-1		G-1 + N-1		X-1 + N-1	
	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations
Option 1	None	None	None	None	None	None
Option 2	None	None	None	None	None	None
Option 3	None	None	None	None	None	None
Option 4	None	None	None	None	None	None

# Next Steps and Tentative Timeline

- ERCOT will continue to evaluate options and provide status updates at future RPG meetings
  - Planned maintenance outage analysis
  - Long-term load serving capability assessment
  - Cost estimates and feasibility assessment
  - Congestion analysis
    - Congestion analysis may be performed based on the recommended transmission upgrades to ensure that the identified transmission upgrades do not result in new congestion within the study area
  - Generation addition sensitivity analysis (Planning Guide (PG) section 3.1.3 (4) (a))
  - Load scaling sensitivity analysis (PG 3.1.3 (4) (b))
- Tentative timeline
  - Final recommendation – Q4 2023

*Thank you!*



Stakeholder comments also welcomed through:

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