



## Oncor – Peck to Driver 138-kV Line Project ERCOT Independent Review Status Update

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RPG Meeting  
March 22, 2023

# Recap

- Oncor submitted the Peck to Driver 138-kV Line Project for Regional Planning Group (RPG) review in December 2022. This is a Tier 2 project that is estimated to cost \$36.2 million
  - The project was submitted to address
    - Reliability need driven by new confirmed load additions primarily in the oil and gas industry under maintenance outage condition
      - ✓ Voltage violations on multiple 138-kV buses
    - Improve system operational flexibility
  - Estimated in-service date
    - Summer 2024
  - The reliability issues may appear before the project in service. If necessary, Oncor will develop and implement Constraint Management Plans (CMPs) such as line sectionalizing or mobile equipment/capacitor installation
- ERCOT provided study scope during January RPG meeting
  - [https://www.ercot.com/files/docs/2023/01/20/EIR%20-%20Oncor%20Peck%20to%20Driver%20138%20kV%20Line%20project%20Scope\\_Jan2023.pdf](https://www.ercot.com/files/docs/2023/01/20/EIR%20-%20Oncor%20Peck%20to%20Driver%20138%20kV%20Line%20project%20Scope_Jan2023.pdf)
- ERCOT will present the need analysis and project evaluation during this presentation

# Analysis Performed

- Load Addition
  - Total 147.6 MW of additional load in the area was added to the study base case to reflect the most recent load development in the area provided by Oncor
- Need Analysis
  - The reliability analysis was performed to identify the need to serve the projected area load using the study base case
- Project Evaluation
  - Project alternatives were tested to satisfy the NERC and ERCOT reliability requirements

# Reliability Assessment Results – Need Analysis

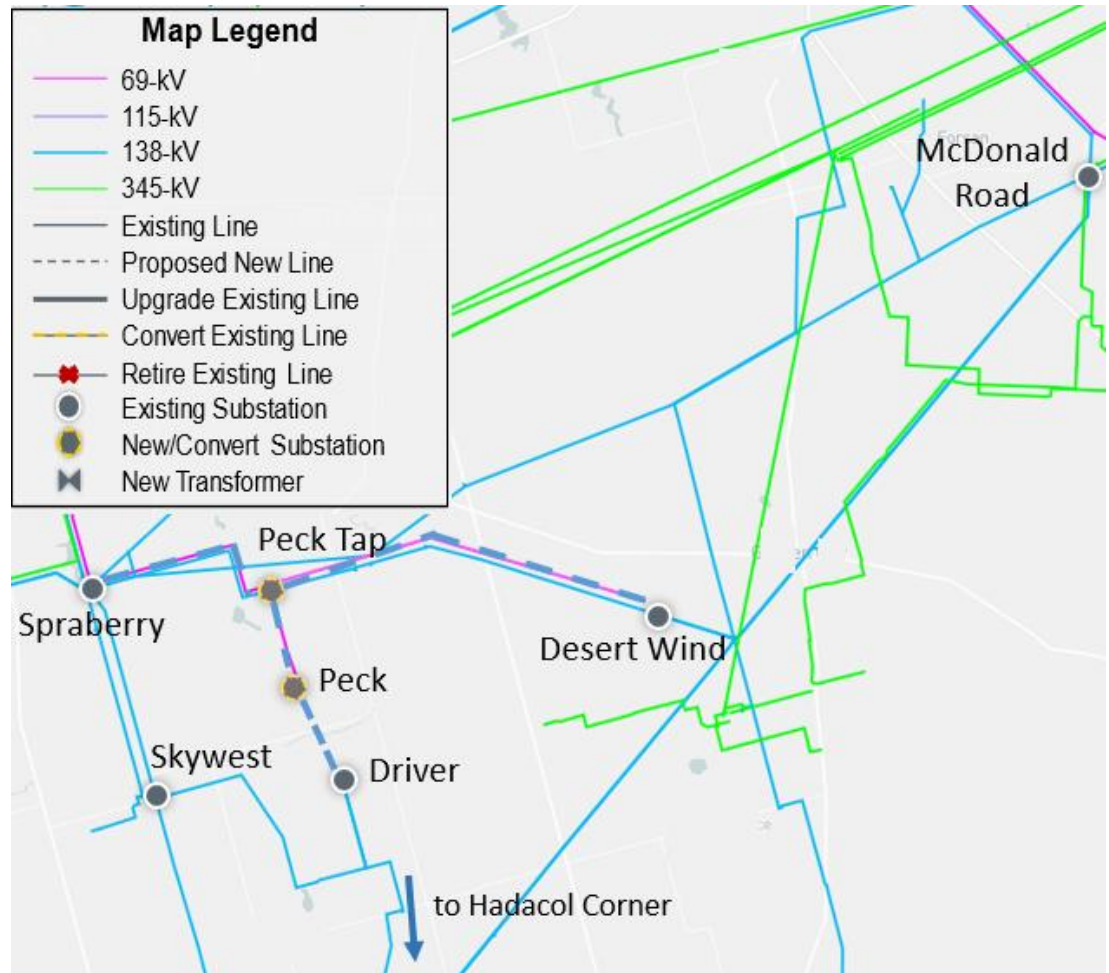
- ERCOT conducted steady-state load flow analysis for the study base case according to the NERC TPL-001-5.1 and ERCOT Planning Criteria

Contingency Category	Thermal Overloads (mi)	# of Voltage Issues	# of Unsolved Contingencies
P0	0	0	0
P1	0	0	0
P2-1	0	0	0
P3 (G-1+N-1)	0	0	0
P6-2 (X-1+N-1)	0	0	0
P6-1, P6-3	0	10	1
P7	0	0	0

*Adding shunt reactive support alone is not enough to resolve above identified reliability issues. Details of the voltage issues were provided in the Appendix*

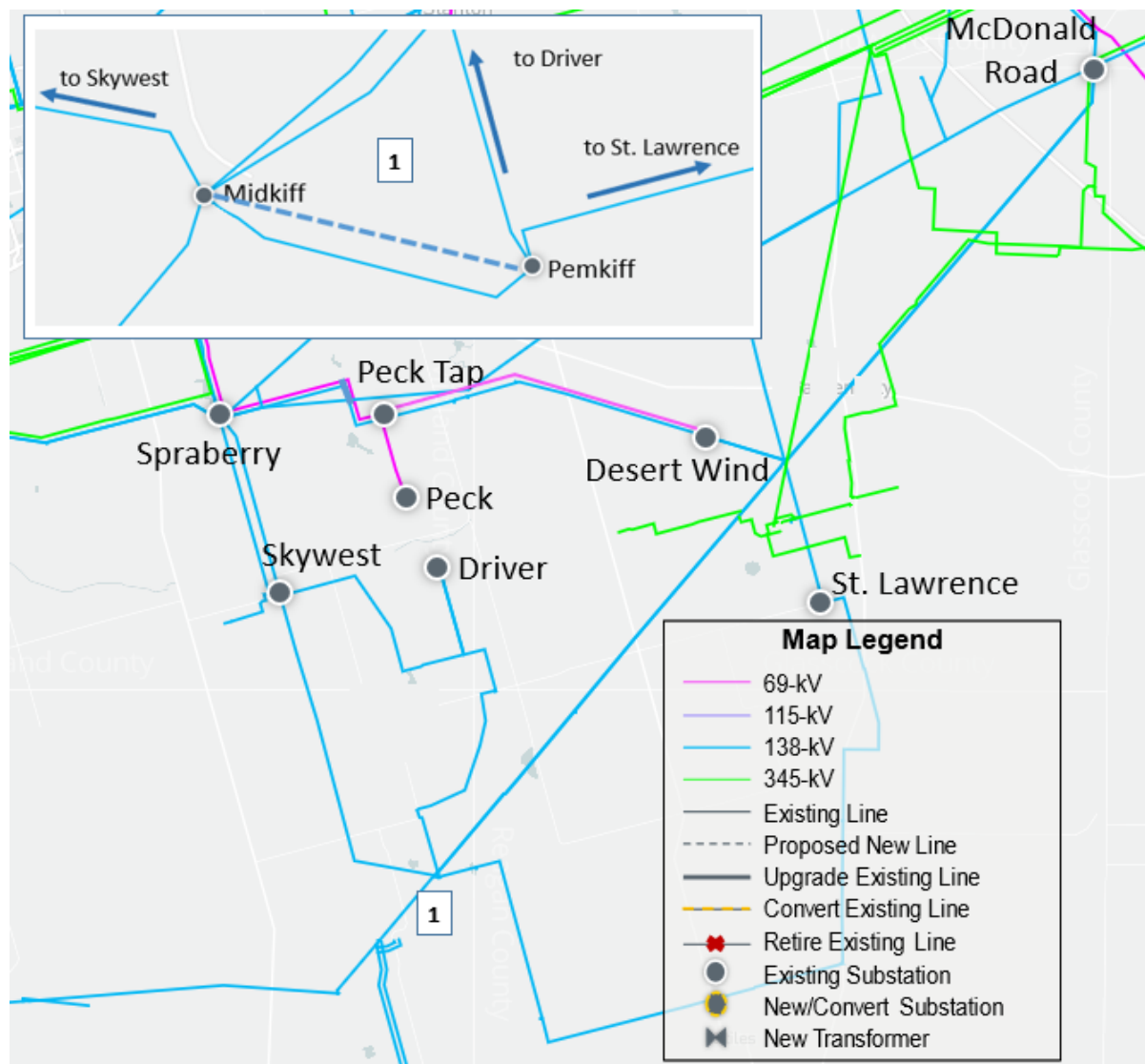
# Option 1: New Peck – Driver 138-kV Line (Oncor Proposed Solution)

- Construct the new 138-kV Peck Tap Switch
- Convert the existing 25.4-mile Spraberry – Peck Tap – Desert Wind 69-kV line section to operate at 138-kV
- Construct an approximately 0.1-mile loop of the existing Spraberry – McDonald Road 138-kV line into the new Peck Tap Switch
- Convert the existing 4.0-mile Peck Tap – Peck 69-kV line to 138-kV
- Construct a new Peck – Driver 138-kV line (~ 4.1 miles)
- Reconfigure the existing Desert Wind 138-kV substation from a single-tap configuration to a double-tap configuration so the substation is served from the Peck Tap – Midkiff/McDonald Road 138-kV double-circuit line



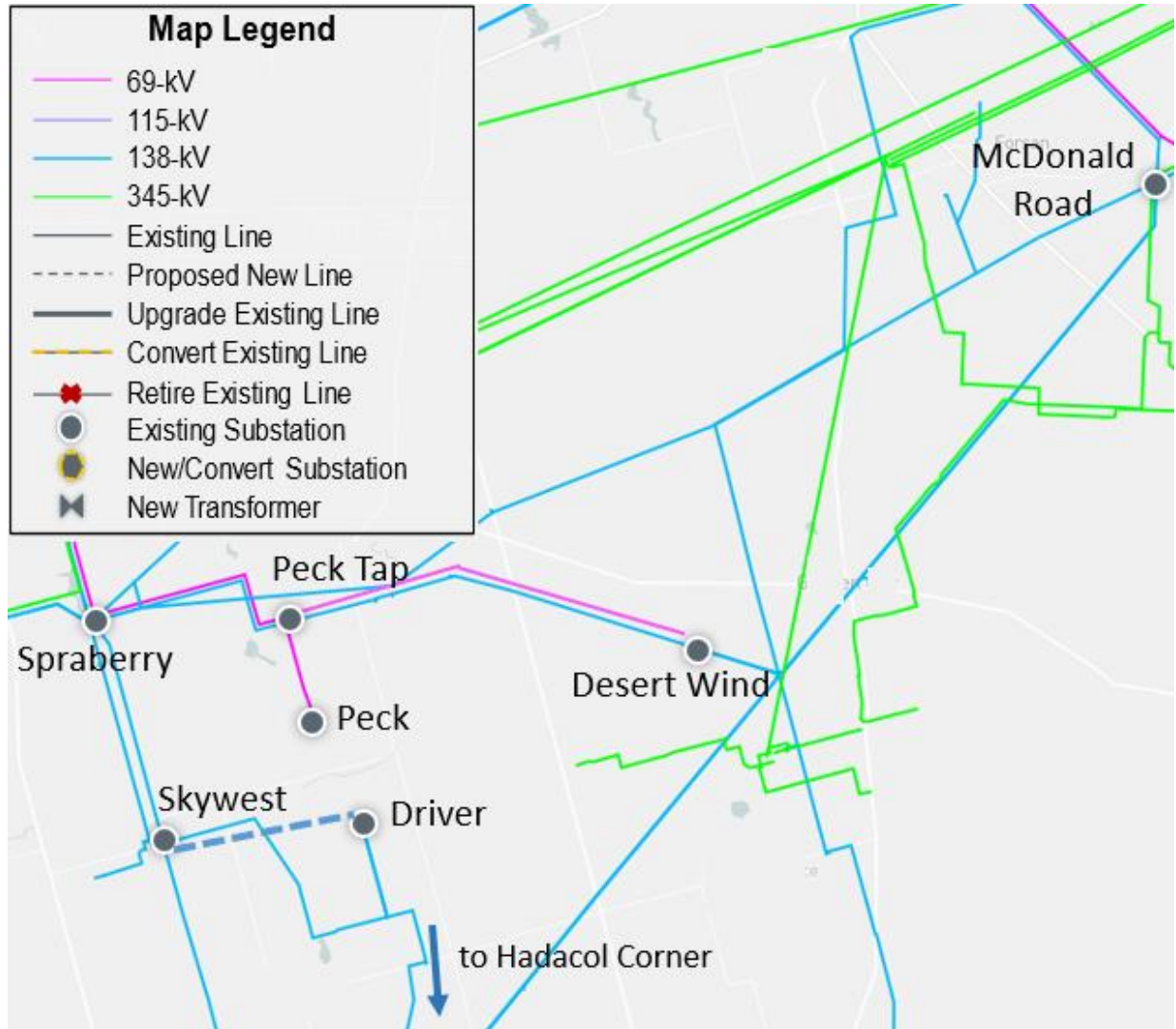
# Option 2: New Midkiff – Pemkiff 138-kV Line

- Construct a new Midkiff – Pemkiff 138-kV line (~ 0.3 miles) on separate structures



# Option 3: New Skywest – Driver 138-kV Line

- Construct a new Skywest – Driver 138-kV line (~ 9.4 miles) on separate structures



# Preliminary Results of Reliability Assessment – Study Options

- No reliability violations were observed under P0, P1, P2-1, P3, P6-2, and P7 contingency categories for all three options
- Preliminary results under P6-1, P6-3

Option	Thermal Overloads (mi)	# of Voltage Issues	# of Unsolved Contingencies
Study Base Case	0	10	1
Option 1	0	4	0
Option 2	0	10	0
Option 3	0	10	0

- The bus low voltage issues in Options 1, 2, and 3 could be addressed by adding shunt reactive devices



# Preliminary Results of Long-Term Load Serving Capability Assessment

- Based on the review of study area, loads in Glasscock, Midland, Upton, and Reagan counties were increased for the load serving capability assessment
- Long-term load serving capability under N-1 condition

Option	Load Serving Capability (MW)	Violation
Option 1	210	Bus Low Voltage
Option 1 plus capacitor bank	800	Bus Low Voltage
Option 2	90	Thermal
Option 3	90	Thermal

- In Option 1, adding capacitor bank at a 138-kV bus could significantly increase the load serving capability (~ 800 MW)
- In Options 2 & 3, thermal overload of 69-kV system was observed with additional 90 MW load in the four counties. Adding shunt reactive support would not be able to relieve the thermal overload

# Options Evaluation and Short-Listed Options

- No reliability violations were observed under P0, P1, P2-1, P3, P6-2, and P7 contingency categories for all three options
- Option 1 could address all reliability violations under maintenance outage condition in the study area by adding shunt reactive support at one location
- Options 2 and 3 could address all reliability violations under maintenance outage condition in the study area by adding shunt reactive support at two different locations
- The results of the long-term load serving capability assessment indicated Option 1 performed better than Options 2 and 3
- Option 2 performs the same as Option 3 but requires less new Right of Way (ROW) (about 0.3 miles vs. 9.4 miles)
- Based on the study results, Options 1 and 2 were selected as the short-listed options for further evaluation

# Next Step and Tentative Timeline

- Short-listed Options
  - Cost estimates and feasibility assessment
- Congestion Analysis
  - Congestion analysis will 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
- Tentative Timeline
  - Status update at the April RPG meeting
  - Final recommendation – Q2 2023

*Thank you!*



Stakeholder comments also welcomed through:

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# Appendix: Reliability Issues under Maintenance Outage Condition – Low Voltages

Bus Number	Bus Name	kV	County
1226	Aruba POI	138	Midland
1221	Tex Harvey	138	Midland
11226	Pemberton Draw Pod	138	Midland
11227	Thirtysix Draw Pod	138	Midland
1218	Garden City	69	Glasscock
1223	Peck Sub	69	Midland
1222	Peck Tap	69	Midland
900036	Other_130	138	Midland
11222	Desert Wind	138	Midland
1330	Spraberry Switch	69	Midland