Oncor – Roanoke Area Upgrades – ERCOT Independent Review Scope

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Regional Planning Group
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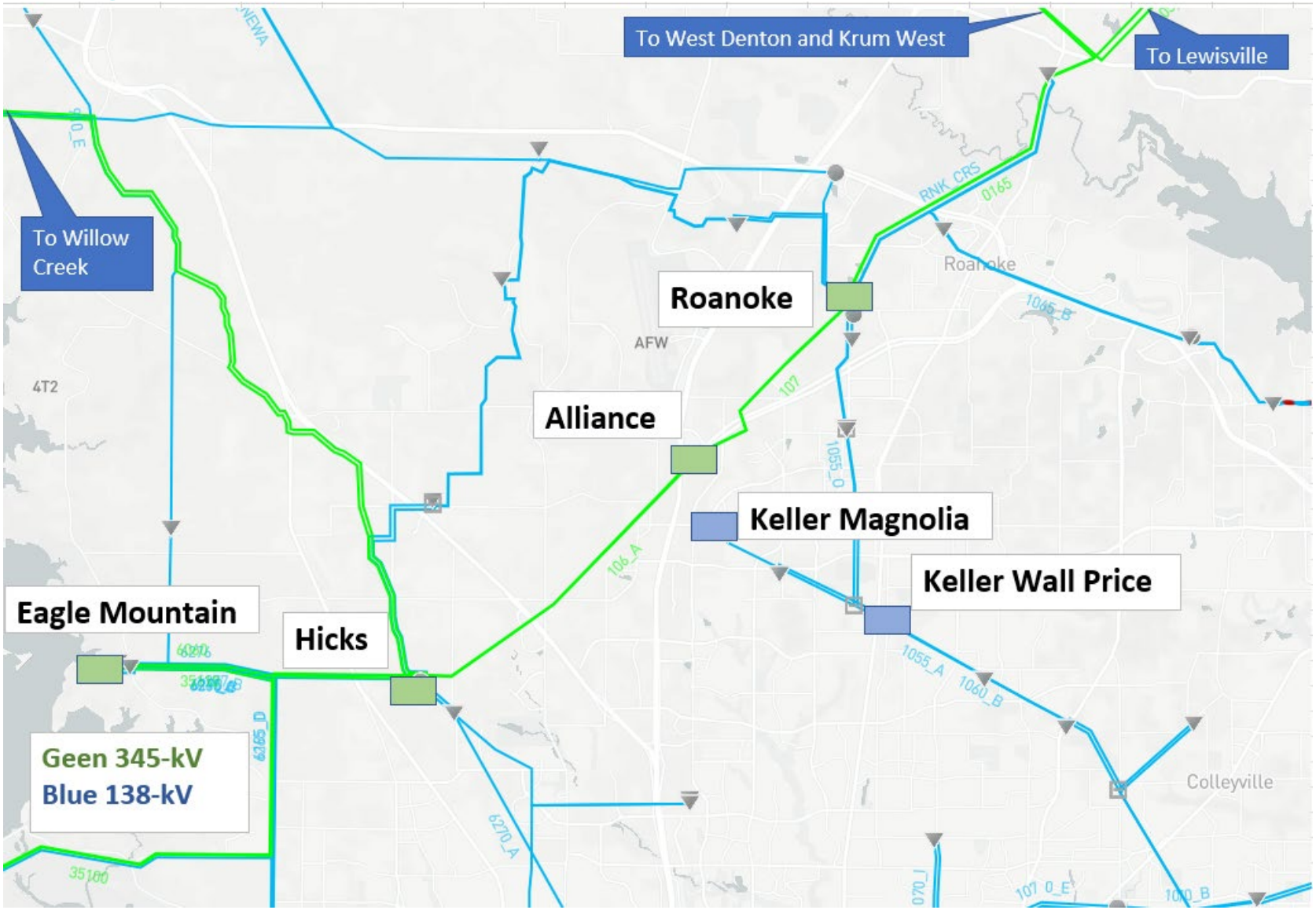
Recap

- **Oncor submitted the Roanoke Area Upgrade Project for Regional Planning Group review in February 2022. This is a Tier 1 project that is estimated to cost $285.9 million.**
  - Proposed for May 2025. Oncor has expressed a need for “critical status designation”.
  - Address rapid load growth in Roanoke area, existing capacity limitations and forecasted thermal and voltage violations.
  - Increase thermal capacity and operational flexibility in Roanoke area
- **ERCOT provided study scope for ONCOR Roanoke Area Upgrade Project during March 2025 RPG meeting:**
  - https://www.ercot.com/files/docs/2022/03/11/Oncor_Roanoke_Area_Upgrades_EIR_Scope_03_15_2022.pdf
  - Based on comments updated scope to include Denton Data Center load at Jim Christal 138-kV bus

Study Area


To West Denton and Krum West
To Lewisville
To Willow Creek
Roanoke
Alliance
Keller Magnolia
Keller Wall Price
Eagle Mountain
Hicks
Geen 345-kV
Blue 138-kV
AFW
4T2
Roanoke
Colleyville
RNK_CRS
0165
1045_B
107
1055_0
106_A
1055_A
1060_B
6270_A
35100
070_J
107_0_E
100_B

Contingencies and Criteria

- **Contingencies for Study Region**
  - NERC TPL-001-4 and ERCOT Planning Criteria (http://www.ercot.com/content/wcm/current_guides/53526/04_050115.doc):
    - P0 (Normal system condition)
    - P1, P2-1, P7 (N-1 conditions)
    - P2, P4, and P5 (EHV only)
    - P3: G-1 + N-1 (G-1: Handley, Panda Sherman generator train outages)
    - P6-2: X-1 + N-1 (X-1: Roanoke, Hicks, Lewisville, Eagle Mountain 345/138-kV transformer outages)
- **Criteria**
  - Thermal
    - Monitor all transmission lines and transformers in study region
    - Use Rate A for pre-contingency conditions
    - Use Rate B for post-contingency conditions
  - Voltages
    - Monitor all busses 60 kV and above in the study region
    - Voltages exceeding their pre-contingency and post-contingency limits
    - Voltage deviations exceeding 8% on non-radial load busses

Preliminary Results of Reliability Assessment

Contingency Category*	Unsolved Power Flow	Thermal Overloads (Quantity of Elements)
P1	0	0
P2.1	0	0
P3 (G-1+N-1)**	0	15.4 miles of 345-kV lines (1) 345/138-kV transformers
P6.2 (X-1+N-1)* *	0	17.7 miles of 138-kV lines 25.9 miles of 345-kV lines (3) 345/138-kV transformers
P7	0	0
Total	0	17.7 miles of 138-kV lines 25.9 miles of 345-kV lines (3) 345/138-kV transformers

*Bus voltage violations were also identified

**See slide 4 for list of G-1 generators and X-1 transformers tested

Study Procedure

- **Project Evaluation**
  - ➢ Project alternatives will be tested to satisfy the NERC and ERCOT reliability requirements.
  - ➢ ERCOT may also perform the following studies:
    - Long-term Load Serving Capability Assessment
    - Planned maintenance outage
    - Dynamic stability impact
- **Generation and Load Scaling Sensitivity Analyses**
  - – Planning Guide Section 3.1.3(4)
- **Subsynchronous Resonance (SSR) Assessment**
  - – Nodal Protocol Section 3.22.1.3(2)
- **Congestion Analysis**
  - ➢ Congestion analysis will be performed to ensure that the identified transmission upgrades do not result in new congestion within the study area.

Deliverables

- **Tentative Timeline**
  - Status updates at RPG meetings
    - May 2022
    - June 2022
  - Final recommendation – July 2022

Stakeholder Comments Also Welcomed to Sun Wook Kang:

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