

ISO-NE PAC MEETING

01/18/2024

A-201 & B-202 230kV Line Asset Condition Project

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

nationalgrid



Outline

- Purpose
- Background
- Geographic Location
- Needs Assessment
- Alternatives to be Investigated
- Questions

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

Purpose

- Discuss the asset condition needs driving the refurbishment of the 230 kV A-201 and B-202 lines
- Discuss proposed alternatives to address the identified asset condition issues

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

Background

- The 230kV A-201 and B-202 transmission lines were originally constructed in 1930. The lines span between the North Litchfield Switchyard in Londonderry, NH and the Comerford Station in Monroe, NH
- Total length of each mainline and taps is approximately 106 miles
- The structures are predominantly original vintage lattice towers
- 1898 total structures: 1885 lattice, 7 steel pole, 6 wood pole
- Conductor and insulation original vintage
- Shieldwire replaced in 2002
- The driver for this project is Asset Condition
- 100% PTF

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

Geographic Location



This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

National Grid A-201 & B-202 230kV Line Asset Condition Project - 01/18/24

Needs Assessment

- **Asset Condition**

- The asset condition information is derived from the following sources:
- Engineering Ground Line Inspection – 2022 & 2023
- Aerial Comprehensive Inspection – 2019
- Internal and External Inspections – Multiple Years
- Non-destructive conductor testing - 2021

- **Asset issues found include:**

- Wood pole crook/sweep and woodpecker holes
- Conductor tested using non-destructive methods
 - Signs of heavy rust and pitting discovered in various spans of the lines indicating reduced remaining tensile strength of conductor and steel core which increases risk of failure
- Damaged insulators, flashed insulators, insulator surface tracking, and projectile damage throughout the lines
- Lattice structure rust/corrosion and deflecting/damaged secondary members on lattice towers
- Damaged/missing grounds
- Degraded grillage mastic
- Foundation Erosion

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

Needs Assessment (continued)

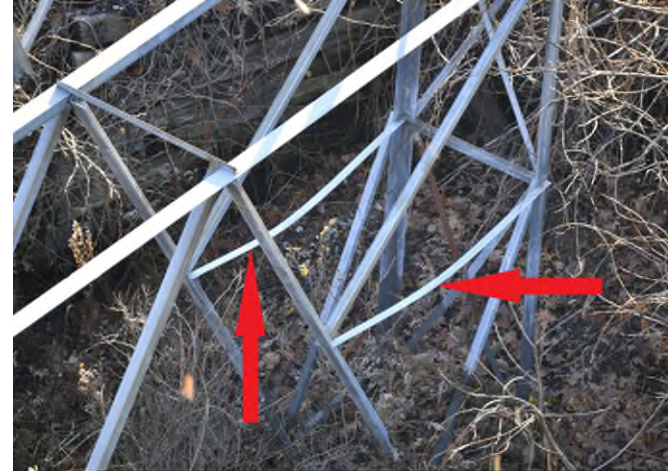
- The telecommunications network operated by National Grid requires expansion as there is lack of private fiber along this route. For diversity two (2) OPGW is to be installed on the A-201 and two (2) OPGW is to be installed on the B-202 Line from Comerford No. 18 to North Litchfield No. 8305 with splice locations at each station or switch along the line.

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

Needs Assessment – Points of Concern



B-202 Structure 829



B-202 Structure 890

Buckling/Deflecting Steel Members

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

National Grid A-201 & B-202 230kV Line Asset Condition Project - 01/18/24

Needs Assessment – Points of Concern



A-201 Structure 315



B-202 Structure 884

Buckling/Deflecting Steel Members

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

National Grid A-201 & B-202 230kV Line Asset Condition Project - 01/18/24

Needs Assessment – Points of Concern



A-201 Structure 318

Foundation mastic degradation



B-202 Structure 890

Foundation erosion

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

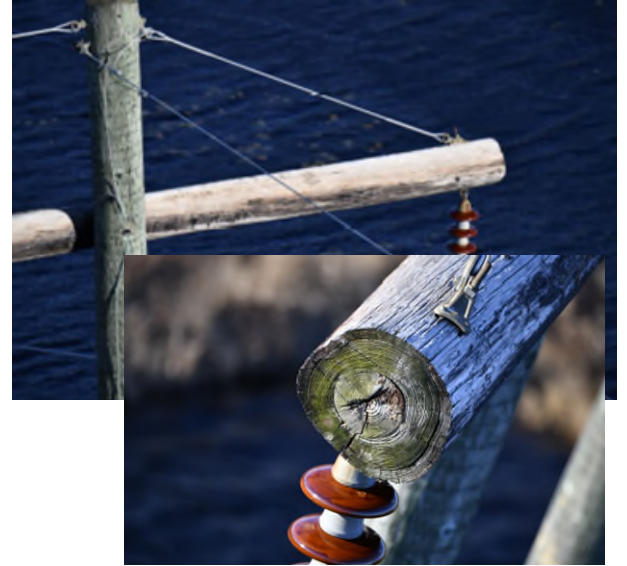
Needs Assessment – Points of Concern



B-202 Structure 230
Wood Pole Crook/Sweep



B-202 Structure 732
Woodpecker hole



B-202 Structure 732
Old wood spar arm

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

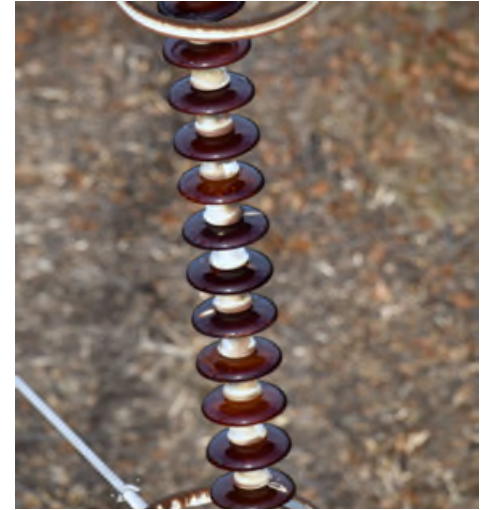
Needs Assessment – Points of Concern



A-201 Structure 22



A-201 Structure 90



B-202 Structure 840

Damaged/Flashed Insulators

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

National Grid A-201 & B-202 230kV Line Asset Condition Project - 01/18/24

Needs Assessment – Points of Concern



A-201 Structure 290



A-201 Structure 93



B-202 Structure 71

Broken Ground Wire

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

Alternatives to be Investigated

Targeted Rebuild using 345kV design standards (operated at 230kV)

- Replace all five (5) wood pole structures with steel pole structures
- Replace lattice tower members as required
- Replace lattice tower structures that do not meet current standards
- Reinsulate for 345kV design and reconductor the entire A-201 and B-202 lines with bundled conductor
- Update grounding to current standard
- Address foundation erosion
- Install OPGW on the A-201 and OPGW on the B-202 from Comerford No. 18 to North Litchfield No. 8305 with splice locations at each station or switch along the line and replace any tower overloaded by the OPGW

Targeted Rebuild using 230kV design standards

- Replace all five (5) wood pole structures with steel pole structures
- Replace lattice tower members as required
- Replace lattice tower structures that do not meet current standards
- Reinsulate and reconductor the entire A-201 and B-202 lines
- Update grounding to current standard
- Address foundation erosion
- Install OPGW on the A-201 and OPGW on the B-202 from Comerford No. 18 to North Litchfield No. 8305 with splice locations at each station or switch along the line and replace any tower overloaded by the OPGW

Estimated in-service date: Q4 2031

This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

Questions

A-201 & B-202 230kV Line
Asset Condition Project



This document has been reviewed and does not contain Critical Energy/Electric Infrastructure Information (CEII).

nationalgrid

national**grid**