Electric distribution resilience valuation – Northeast utilities examples

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Connecticut Example: Avangrid (United Illuminating CT)

- Example of Benefit-Cost Analysis submitted in 2022 rate case – conducted by Resource Innovations
- Used 10-year historical weather data including storms in two 30-year scenarios:
  - Extrapolated as is
  - Assumed increase in storms relative to past 5 years
- Evaluated 3 portfolios for each of 9 designated circuits using All-in SAIDI:
  1. Mixed automation and topology upgrades (lowest cost)
  2. 1. plus overhead hardening
  3. Undergrounding
- Used
  - All-in SAIDI as metric
  - augmented Berkeley Lab ICE Calculator – extrapolated beyond 24 hours

New Hampshire Example: Eversource

- Eversource uses in-house resilience planning model – key elements:
  - Based on All-in SAIDI and SAIFI (including Major Exception Days)
  - Targets vulnerable zones based on analysis of historical data with MEDs
  - Measures in four categories:
    - Undergrounding
    - Aerial cable
    - Reconductoring of tree-wire or spacer cable
    - Resilience tree work (enhanced vegetation management)
  - In each zone, compares estimated All-in SAIDI improvement and cost/mile for potential measures
  - Potential projects ranked by “cost efficiency” – delta SAIDI/cost – and spending determined by an all-in SAIDI target, budgetary constraint, or cost efficiency threshold.

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