Climate Vulnerability Study

June 19, 2014

Agenda

- Overview
- Proposal and Rate Case approval
- Scope of Study
- Work conducted to date

Climate Vulnerability Proposal

- Develop a shared understanding of key climate and weather factors
  - Climate Report will contain chapters on temperature, sea level rise, storm surge, and extreme events
- Understand potential design standards that may need to change as a result of projected changes to climate and weather
- Incorporate design changes appropriate to risk mitigation

Commission Directive

- *Con Edison will conduct, with the participation of Collaborative parties, a comprehensive climate change vulnerability study as outlined in the Resiliency Report.*

- *We expect this process to yield additional data necessary for Con Edison to continue to assess, and revisit if indicated, its use of the FEMA + 3 design standard.*

Climate Vulnerability Report

- Con Edison will review available climate (and weather) information every 5-years
  - or as best available science (e.g. IPCC) or standards (e.g. FEMA) are updated
- Chapters developed based on availability of data and research requirements
  - Sea Level Rise & Storm Surge (2013)
  - Temperature (2014)
  - Extreme Events (2015)
    - coastal storms, wind, precipitation

Climate Vulnerability Action Plan

1. Utilize outside expertise to develop a shared understanding of climate science gaps
2. Work with Company and New York City engineering teams to develop future design considerations
3. Develop options for future design considerations

Step 1: Climate Science Gap Analysis

- Identify climate and weather parameters that impact utility infrastructure design
  - EX: Substation/Equip design: Min (-30˚ C) to Max (40˚ C)
- Work with NPCC to develop projected climate data from existing models
- Work with NPCC on longer term research opportunities
- Utilize expertise within the Collaborative for guidance
  - Columbia Climate Change Law center
  - NY State Office of the Attorney General
  - New York City Office of Long Term Planning and Sustainability

Step 1: Update

- NPCC proposal for climate work
  - Short term – (this year) temperature focus
  - Medium to long term – humidity, sea level, storms, wind
- Interviewing potential SME consultants to assist with report and integration

Step 1: Next Steps

July 2014

- Finalize proposals
- Estimate of cost
- Use existing climate data to analyze temperature extremes, heat waves, frequency

Sept. 2014

- Produce initial chapter on temperature
- Identify gaps in climate information
- Develop scope and timeline for to fill gaps

2015-2016

- Research for humidity, storms, wind and sea level rise

Step 2: Future Design Considerations

- Con Edison engineering teams develop design and asset utilization solutions to adapt to future conditions
- Consider dynamic effect of New York City and Westchester Muni initiatives
  - EX: The BIG U
- For uncertain climate variables, consider additional research and evaluate alternative decision-making models
- Develop shared understanding of design impacts with the collaborative

Step 3: Develop Options for Future Design Considerations

- Assign value propositions and costs to design for climate change risk mitigation
  - Incorporate technology advances and customer perspective into solutions (e.g. distributed energy resources)
- Utilize cost/benefit for analysis
- Identify solutions; propose recommendations

Questions?