



# Arc Flash Panel Discussion EEI Spring S&H Conference

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# National Grid

- ◆ **National Grid is a wholly owned subsidiary of National Grid plc. The core U.S. business is the delivery of electricity and natural gas.**
- ◆ **National Grid is one of the ten largest utilities (by number of customers) in the US and has the largest electricity transmission and distribution network in the New England/New York region.**
- ◆ **National Grid serves approximately 3.4 million customers across 29,000 square miles in New York, Massachusetts, Rhode Island, and New Hampshire.**
- ◆ **The electricity network includes 72,000 miles of distribution lines**
- ◆ **National Grid owns and operates approximately 6,000 miles of transmission lines in upstate New York and 3,000 miles of transmission lines in New England.**

# Previous Arc Flash Work

- ◆ **FR Clothing Program in place for approximately 10 years; HRC 1**
- ◆ **Four FR vendor arrangements exist in the legacy companies**
- ◆ **Indoor substation exposure assessments were completed in 2004 and requirements for PPE formalized in Substation Maintenance Standard; HRC 3 arc flash suits provided for switching**
- ◆ **Generating stations (Long Island) have existing procedure and detailed PPE matrix developed. Consultants were used for arc flash analysis**

# Approach to NESC 410 Compliance

- ◆ **Committee established; Safety, Engineering, Work Methods**
- ◆ **Training class attended; consulted other utilities, purchased ArcPro software**
- ◆ **Electric System data gathered and assumptions for calculator parameters made**
- ◆ **Sample substations selected for worse case scenario evaluations**
- ◆ **Developing matrix by job tasks/activities: OH, UG, Stations**
- ◆ **Corporate Policy drafted**

# Challenges

- ◆ **Past practices; bringing legacy companies together**
- ◆ **Differences in electric protection systems**
- ◆ **Development of “Lines of Business” organizational structure; multiple engineering and management staffs**
- ◆ **Safety Governance Committee structures (union/management); involvement in safety program development (many unions)**
- ◆ **Perceptions of higher arc rated FR being too hot and confusion in regard to “layering” of garments (use of non FR fabrics; nonmelting, flammable materials)**
- ◆ **Overlapping and changing regulations**
- ◆ **Committee members re-assigned**

# Progress

- ◆ **Arc Flash Committee is reviewing options for upgrading FR Clothing requirements; strong consideration for transition to HRC 2**
- ◆ **Safety Governance sub-committees (OH, UG, Stations, Generation) will review incident energy assessments to ensure anticipated exposures have been calculated.**
- ◆ **Procurement will re-bid FR clothing contracts with goal to standardize; emphasis on global specifications**
- ◆ **Safety will finalize policy based on review by stakeholders**
- ◆ **Continuation of Arc Flash Committee to evaluate secondary voltages (use new NESC Table)**

## National Grid's "Ambition" (Vision)

**We, at National Grid, will be the foremost international electricity and gas company, delivering unparalleled efficiency, reliability and safety, vital to the well being of our customers and communities.**

**We are committed to being an innovative leader in energy management and to safeguarding our global environment for future generations.**

# Innovation

- ◆ **The arc flash analysis project is leading management to consider engineering and work method controls to mitigate risk**
- ◆ **Decision to continue R&D funding of the second phase of EPRI Arc Flash Project**