

NFPA 70E

Standard for Electrical Safety in the Workplace

EEI Safety and Health Meeting
April 2010



NFPA Structure

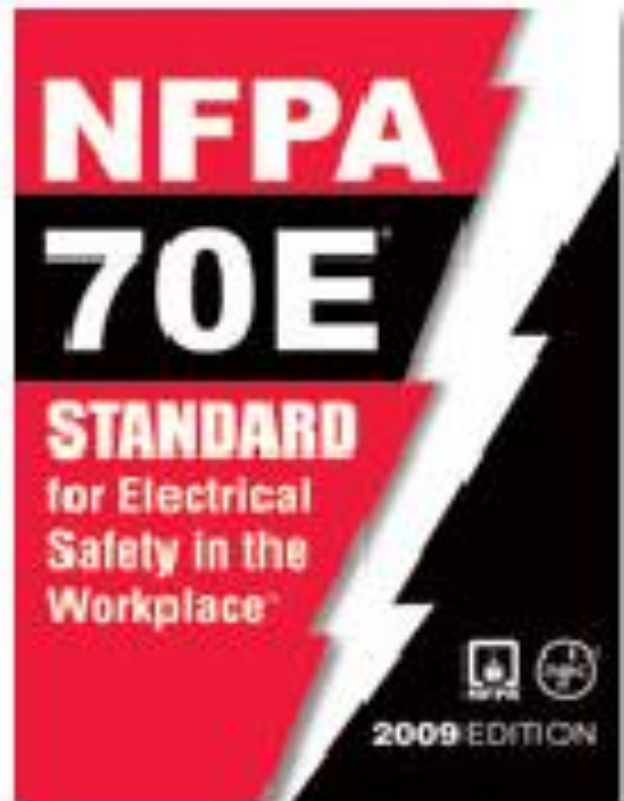
- ◆ **NFPA 70E Technical Committee reports to:**
 - ◆ **NEC Technical Correlating Committee reports to:**
 - ◆ **NFPA Standards Council**
- ◆ **Standards Council has final say.**

NFPA 70E Representatives

- ◆ EEI Representatives to the TC:
 - Kathleen Wilmer, Duke Energy (Principal)
 - John Boothroyd, Entergy (Alternate)
- EEI Representatives to the NEC TCC:
 - Neil LaBrake, Jr., National Grid (Principal)
 - Tom Adams, ComEd Retired (Alternate)
- EEI Staff Liaison
 - Chuck Kelly

2009 NFPA 70E

- ◆ 2009 version available from NFPA.



Arc Flash Standards Overlap

- ◆ **2007 NESC Rule 410A3**
 - ◆ Applies to TD&G at utilities and similar industrial complexes.
 - ◆ “Implement arc flash protection” by 1/1/09.
 - ◆ Adopted by most (not all) utility commissions.
- ◆ **Proposed OSHA Revisions 1910.269 and 1926 Subpart V**
 - ◆ Similar language to NESC rule.
 - ◆ No date for being finalized.
- ◆ **NFPA 70E**
 - ◆ Does not apply to TD&G under exclusive control of electric utilities.
 - ◆ Provides “how” to do arc flash in generating plants.
 - ◆ Does not help with Transmission and Distribution implementation.
 - ◆ Being effectively enforced in non-utility industries through general duty clause.
 - ◆ Not incorporated by current OSHA regulations.

Next Revision Cycle

- ◆ Cycle for 2012 Edition:
 - ◆ Proposals from public due 1/5/2010.
 - ◆ Technical Committee met to act on proposals Feb 8-12,2010.
 - ◆ Report on Proposals will be sent out for comment June 2010.
 - ◆ Comments due on Proposals 9/3/2010
 - ◆ TC will meet to act on Comments Oct-Nov 2010.
 - ◆ Notice of Intent to Make a Motion: 4/8/2011
 - ◆ Approval at Annual NFPA Meeting: 6/2011.

Overview of Proposals

- ◆ **540 proposals received.**
- ◆ **44% rejected.**
- ◆ **Others were Accepted or Accepted in Principle or in Part.**

Key Proposals

- ◆ **Scope:**
 - ◆ “Scope” issues have been moved up to the Technical Correlating Committee.
 - ◆ Neil LaBrake has achieved consensus there.
 - ◆ Most likely scenario:
 - ◆ Utility exclusion will remain in the 2012 standard.
 - ◆ “By other agreements” will go back in.

General Direction

- ◆ **More specific line item requirements. Getting away from performance oriented standard.**
- ◆ **Lowering of acceptable levels of risk.**
 - ◆ Not much change to higher risk/ higher energy tasks. Lot of change at the low energy end.

Proposals Accepted – EEI Voted Negative

- ◆ **Mandatory documentation of meetings between host employers and contractors.**
- ◆ **Mandatory AED training, even for employers who don't have AEDs.**
- ◆ **Adopting the “regular supervision” clause in 1910.269 for all employers.**
- ◆ **Mandatory retraining every 3 years.**
- ◆ **Expanded situations where Energized Work Permit is required.**
 - ◆ Formerly required for “work on” exposed energized conductors. Now will be required for all work within arc flash boundary or limited approach boundary.

Proposals Accepted – EEI Voted Negative

- ◆ **Changed content of the arc flash labels. No grandfathering means re-labeling for many employers. EEI comment included request to make this apply to labels installed after *mm/dd/yyyy*.**
- ◆ **Label must include:**
 - ◆ Available incident energy **OR** Minimum arc rating of clothing.
 - ◆ Date of arc flash hazard analysis;
 - ◆ Nominal system voltage;
 - ◆ Arc flash boundary.

Proposals Accepted – EEI Voted Negative

- ◆ **Hearing protection required for all work inside arc flash boundary.**
- ◆ **Balaclava required for HRC 2 work. Can't use hard hat and face shield alone.**

Proposals Accepted: EEI voted Affirmative with Comment

- ◆ Reformatted the Task Tables. Eliminated the foot notes. Put SCC and CT into the tables along with Arc Flash Boundary.


Equipment Classification	Removing Bolted Covers				Maximum available short circuit current & clearing time	Arc Flash Boundary
	Hazard/Risk Category	Rubber Insulating Gloves	Insulated and Insulating Hand Tools			
Panelboard, and other equipment rated 240V and below (1)	1	N	N	25kA @ 0.03 sec (2 Cycle)	<u>20</u>	
Cable trough or tray cover removal or installation (5)	1	N	N	65kA @ 0.03 sec (2 Cycle)	<u>55</u>	
Lighting or Small power transformers (600V, maximum) (5)	2*	N	N	65kA @ 0.03 sec (2 Cycle)	<u>55</u>	
Miscellaneous equipment cover removal or installation (5)	1	N	N	65kA @ 0.03 sec (2 Cycle)	<u>55</u>	
600V Class Motor Control Centers(MCC's) (3)	4	N	N	42kA @ 0.33 sec (20 Cycle)	<u>165</u>	
600V Class Switchgear - (with power circuit breakers or fused switches) (4)	4	N	N	35kA @ 0.5 sec (30 Cycle)	<u>235</u>	

Proposals Accepted: EEI voted Affirmative with Comment

- ◆ **Arc flash hoods required for all exposures over 12 cal/cm² if you do calculations.**

Proposals Accepted: EEI voted Affirmative with Comment

- ◆ **New table with PPE requirements for employers who calculate exposures. PPE required for 0 cal/cm²???**

<u>Table H.2: Guidance on Selection of Arc-Rated Clothing and Other Personal Protective Equipment (PPE) for Use when Incident Exposure is Determined by a Hazard Analysis</u>	
<u>Incident Energy Exposure</u>	<u>Protective Clothing and PPE</u>
<u>Less than or Equal to 1.2 cal/cm²</u> 	
<u>Protective Clothing, nonmelting (according to ASTM F 1506-08) or untreated natural fiber</u>	<u>Shirt (long sleeve) and pants (long) or coverall</u>
<u>Other Personal Protective Equipment</u>	<u>Face shield for projectile protection (AN)</u> <u>Safety glasses or safety goggles (SR)</u> <u>Hearing protection</u> <u>Leather gloves or rubber insulating gloves with leather protectors (AN)</u>
<u>Greater than 1.2 to 12 cal/cm²</u>	
<u>Arc Rated Clothing and equipment with an Arc Rating equal to or greater than the incident energy determined in a hazard analysis. (Note 3)</u>	<u>Arc-rated long-sleeve shirt and arc-rated pants or arc-rated coverall or arc flash suit (SR) (Note 3)</u> <u>Arc-rated face shield and arc-rated balaclava or arc flash suit hood (SR) (Note 1)</u> <u>Arc rated jacket, parka, or rainwear (AN)</u>

Proposals Rejected: EEI Agreed

- ◆ **Would have eliminated HRC 0. Would have eliminated use of cotton clothing.**
- ◆ **Would have required leather gloves for HRC 0 work. Gloves for light switches?**
- ◆ **Would have required training to be classroom and on the job.**

New News

- ◆ **Added arc flash requirements for DC Hazards.**
- ◆ **Revised Battery Section.**
- ◆ **New tables and revised tables.**
- ◆ **New and revised annexes.**

Next Steps

- ◆ **ROP to be published June 2010.**
- ◆ **Comments due 9/3/2010.**
- ◆ **No plans for an EEI campaign now.**
- ◆ **If you are a 70E user, study it and send your comments. Send to EEI first!**