

Assessing Human Performance Solutions to Reduce Serious Injuries and Fatalities

Switching Safety & Reliability

Project Updates

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NATF/NERC Human Performance Conference

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Assessing HP Approaches to reduce SIFs

■ In early 2017, our funders told us.....

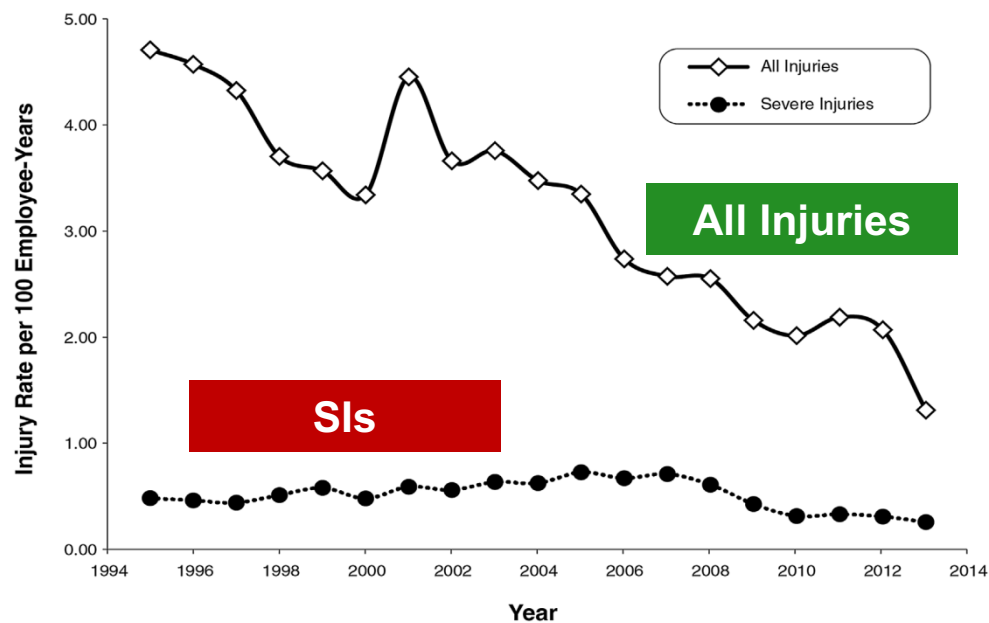
- *EPRI needs to assess opportunities to advance HP to reduce SIFs*
- *SIFs rates have been flat for this industry for 20 years*

■ Our funders asked us.....

- *Are there HP and or Behavioral solutions to reduce SIFs?*

■ We Heard The Members and Acted!

- *Working to identify R&D opportunities that lead us to ascertain solutions....this is the “EPRI space”*



EPRI Switching Safety & Reliability

- **Long-standing EPRI project**
 - Supplemental
- **Focus on Switching – Safety & Reliability aspects**
 - Unique in industry
 - Brings Field and Control Center together
 - Exploring effects of new technologies on safety & reliability



Sources for “State of Practice/Knowledge”

Literature Reviews

- **Books/Handbooks (e.g. DOE, Conklin, Reason)**
- **Journals, Publications, Papers, Articles – peer/lit and gray/lit**
- **Conference/Workshop Proceedings**

Interviews

- **HP Thought Leaders/Practitioners**
- **Electric**
- **Oil/Gas/Petroleum**
- **Aviation**
- **Railroads**
- **Chemical**
- **NTSB**
- **Academia – U of Colorado, Ohio State, Oregon State**
- **Fire Service/First Responders**

Time Line

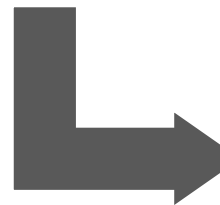
**Literature Review and
Interviews:
9/1/17 - 4/1/18**



**“State of Practice and
Knowledge” Report
3/1/18- 7/1/18**



**Conduct Research
Workshop:
October 23-25, 2018**



**Report Out of
Research
Opportunities:
November 1, 2018**

Potential opportunities for R&D to improve HP effectiveness in reducing SIFs

■ Workforce Sustainability

- Focus on Risk and Reward and good decision making
- Design for Safety - opportunity to be designers of the work

■ Change how data is collected

- Consider ANSI standard injury classification

■ Focus on what's critical (irreversible) for the worker

- Define process that mitigates errors/improves SIF rate
- Take criticality to level of “every time the RIGHT way”
- Balanced approach for sustainability
 - Prevention/Detection/Correction

■ Use of Emergency Response/Military model for “field” decision making



Potential opportunities for R&D to improve HP effectiveness in reducing SIFs

- **Precursor analysis**
 - Starts with good field engagement/collaboration/rapport building
- **More partnerships between utilities and the research community**
- **Study SIF data to find what are the differences between companies with Low SIFs and High SIFs**
- **Effect of conducting After Action Reviews on reducing SIFs**



Potential opportunities for R&D to improve HP effectiveness in reducing SIFs

- **Cultural Aspect of Safety**
 - How does an organization's culture affect SIF rate
- **Involvement of support functions (HR, finance, maintenance, etc.) in incidents**
- **Effect of improved front-end communication on SIF rate**
- **Effect of changes in system on end user**
 - Increase/decrease SIFs



SS&R Key Deliverables 2017

- **“Entering a Substation and Preparing to Switch” Videos**
 - View in it’s entirety or as 8 short Safety & Training Videos
 - PPE to Pre-Job Briefs to Performing a Walk down to 3 Part Communication

- **Field Guide for Switching Personnel**

- **Coupling Capacitor Potential Devices**
 - Field testing results and recommended treatment during switching

- **Near Miss and Event Definitions and Data Model**
 - Consistency
 - Information sharing
 - Available to the Industry

SS&R Key Deliverables 2018

- **New Device Placards Recommendations**
- **Augmented and Virtual Reality - testing and demonstrations for Switching Safety & Reliability**
- **Motor Operated Disconnects and Switches – Training**
- **Switching Safety & Reliability Reference Book**
- **Assessing effects of new technologies on safety & reliability**



SS&R Key Deliverables – *ongoing*

- **Monthly Webcasts**
- **Workshop & Task Force Meeting**
- **Coordination with other EPRI programs related to Safety, HP, and Switching**
- **Conference, Training & Task Force Meeting**



Join us at the 22nd Annual Power Switching Safety & Reliability Conference

Newport Beach, CA. August 20 - 22, 2018

Partial List of Planned Sessions

- Pre-conference training
- Use of VR in switching training
- HP – What's new?
- Augmented Reality – What's working?
- Safety Challenges – Restoration
- Duke's New Switch Order System and Process Harmonization
- Operation of the Correct Switch Demonstration Projects



Thank you!

- Cheeseburger at airport - \$18
- 3 nights at the “Whitley” - \$507
- Opportunity to exchange ideas with all of you -

PRICELESS!

Contact Information

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