



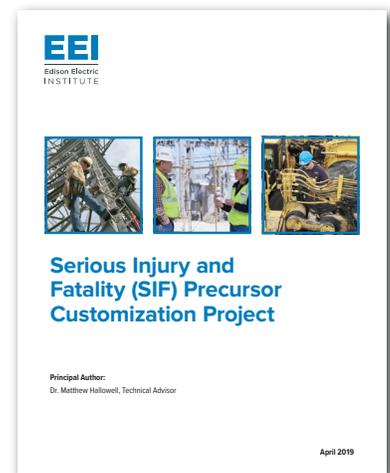
Edison Electric
INSTITUTE

Executive Summary

Serious Injury and Fatality (SIF) Precursor Customization Project

Over the past 30 years, the total recordable injury rate in the electric power generation and delivery sector has decreased substantially. However, in the last decade, the rate of serious injury and fatality events (SIF events) has plateaued. Recent research in other construction sectors found that there are identifiable precursors to SIF events that can be identified systematically through field safety engagements. Inspired by these advancements, the Edison Electric Institute (EEI) formed a team of dedicated safety professionals to explore the customization of precursor analysis for electric power generation and delivery. The two-year effort, as briefly summarized below, combined scientific rigor with a practical perspective to arrive at a research-supported strategy for assessing the likelihood of a SIF event from brief field engagements.

- Precursor analysis is the process of observing an environment and engaging with field personnel prior to beginning work to determine if known warning signs of SIF events are present.
- A total of 28 precursors were tested using actual electric company work scenarios, as provided by the team members' respective companies. The scenarios described situations in which (1) the work resulted in a SIF event and (2) the work was dangerous enough to produce a SIF event, but the work was completed without a SIF event.
- Scenarios were presented randomly to the team who reviewed the responses and observations to make a prediction. Specifically, the team was asked to identify which precursors were present in each case and to predict whether each case resulted in a SIF event or not *without knowing the actual outcome of the case*.
- The resultant dataset was of suitable size to use multivariate statistics to build a predictive equation using generalized linear modeling.



Available Resources:

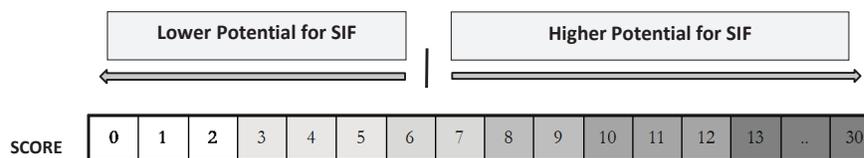
- Project Summary
- Detailed Report
- Implementation Guide
- Sample Engagement Videos
- Video-recorded Conference Presentation

- The statistical procedure revealed 13 precursors with strong predictive power that can be assessed from brief field engagements.
- To enhance practicality, the equation was used to create a precursor analysis scorecard (right).
- The deliverables from this effort are the scorecard, questions, and observations needed to collect field data to make an assessment, and an implementation guide with best practices for field engagements.

The next steps for the team are to validate the strategy with new data, create a comprehensive field implementation strategy, and devise a method to collect, report, and share SIF precursor data within the EEI community.

EEI SIF – Precursor Analysis Scorecard

| PRECURSORS | (check if deficiency is present) | WEIGHT |
|------------------------------|----------------------------------|--------|
| Safe Work Procedure | <input type="checkbox"/> | 3 |
| Hazard Recognition | <input type="checkbox"/> | 2 |
| Departure from Routine | <input type="checkbox"/> | 3 |
| Plan to Address Change | <input type="checkbox"/> | 1 |
| Safety Attitudes | <input type="checkbox"/> | 1 |
| Rules and Procedures | <input type="checkbox"/> | 3 |
| Familiar with the Task | <input type="checkbox"/> | 2 |
| Risk Normalization | <input type="checkbox"/> | 3 |
| Productivity Pressure | <input type="checkbox"/> | 3 |
| Perceived Safety Culture | <input type="checkbox"/> | 3 |
| Stop Work Execution | <input type="checkbox"/> | 2 |
| Workers Inactive in Safety | <input type="checkbox"/> | 2 |
| Pre-Task Plan | <input type="checkbox"/> | 3 |
| TOTAL WEIGHTED SCORE: | | |



Contact

Carren Spencer

Senior Manager, Safety & Health Policy
 (202) 508-5166
 cspencer@eei.org

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The Edison Electric Institute (EEI) is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for about 220 million Americans, and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than 7 million jobs in communities across the United States. In addition to our U.S. members, EEI has more than 65 international electric companies with operations in more than 90 countries, as International Members, and hundreds of industry suppliers and related organizations as Associate Members. Organized in 1933, EEI provides public policy leadership, strategic business intelligence, and essential conferences and forums.