

# Electrical Transmission & Distribution Construction Contractors in Partnership with OSHA, the IBEW and Trade Associations A STRATEGIC Partnership



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APRIL 29, 2024

## Origin & History of the Partnership

In 2004, five companies joined together with the National Electrical Contractors Association, the International Brotherhood of Electrical Workers and the Edison Electric Institute with a common goal of improving worker safety in the high-voltage electric line construction, transmission and distribution industry. Although they are competitors, the Partnership's founders united with a strong commitment to worker safety and health and approached the Occupational Safety and Health Administration to develop a national Strategic Partnership. An agreement was signed in August 2004.

The Partnership is a collaboration of government, industry, union, non-union and trade association safety and health professionals. Since its inception, the Partnership has grown from five to 12 electrical transmission and distribution construction contractors. The current agreement is in effect until December 31, 2028. Goals of the current agreement include:

- ✓ Perform data collection and analysis to establish causes of fatalities, injuries and illnesses for electrical work in the industry.
- ✓ Develop and evaluate the effectiveness of the Best Practices to reduce the number of fatalities, injuries and illnesses and any other significant hazards identified by the industry partners.
- ✓ Ensure that the partners' employees are effectively trained to follow safety and health rules, to utilize the established Best Practices and to change safety culture.
- ✓ Communicate information to improve the safety and health culture within the electrical transmission and distribution industry.

## Partners

Aldridge Electric, Inc.  
Asplundh Tree Expert Co.  
Davis H. Elliot Company, Inc.  
Edison Electric Institute (EEI)  
International Brotherhood of Electrical Workers (IBEW)  
MasTec  
MDU Construction Services Group, Inc.  
Michels Energy Group, Inc.  
MYR Group Inc.

National Electrical Contractors Association (NECA)  
Occupational Safety and Health Administration (OSHA)  
Pike Corporation  
Power Corporation of America  
Primoris Services Corporation (PSC)  
Quanta Services, Inc.  
Riggs Distler & Company, Inc.



## Partnership Structure & Management

The Partnership is managed through a unique structure that involves workers at all levels of the organizations, from CEOs to line workers. A multitiered approach with management teams and task teams is the foundation for the successes of this Partnership. An Executive Team, Steering Team and three Task Teams have specific roles and responsibilities to guide and manage the Partnership.

The **Executive Team** leads the subordinate teams and provides direction for the Partnership. The Executive Team, made up of CEO-level management, meets approximately three times per year to review progress and determine next steps.

The **Steering Team** provides guidance to each of the Task Teams and is made up of partners' safety and health leads. The Steering Team meets quarterly, manages day-to-day partner operations and serves as the liaison between the Executive Team and the Task Teams.

Three **Task Teams** are comprised of employees from member companies who meet as needed to focus on specific Partnership goals. The Task Teams are: Data, Training, and Communications.

## Successful Impact

### Partnership-Developed Training Courses

In addition to offering numerous training classes and resources to line workers, the Partnership has developed and implemented an OSHA-approved ET&D 10-hour training program for electrical power employees and an ET&D 20-hour Supervisory Leadership Program. The 20-hour program emphasizes supervisor and management knowledge and skills development as well as the importance of management support as it relates to implementation. To stay current with changes in the industry, the Partnership offers quarterly refresher training programs.

The 10-hour Construction Training Program was developed through the Partnership with the focus of eliminating injuries and illnesses. Supervisors and workers who successfully complete the program receive an OSHA 10-Hour card.

The partners continue to conduct and participate in the 20-hour Safety Leadership In Action Program. This program is designed to help foremen and general foremen create a safe work culture on the job. The attendees receive an OSHA training card upon successfully completing the course.

### Students Trained (2014-2023)

FISCAL YEAR	10-HOUR	20-HOUR
2014	–	1,086
2015	–	1,499
2016	1,905	1,423
2017	5,706	1,316
2018	8,424	1,429
2019	12,250	1,706
2020	11,031	860
2021	11,300	807
2022	9,554	1328
2023*	9,835	646
<b>Totals</b>	<b>70,005</b>	<b>12,100</b>

\* Through September 30th, 2023

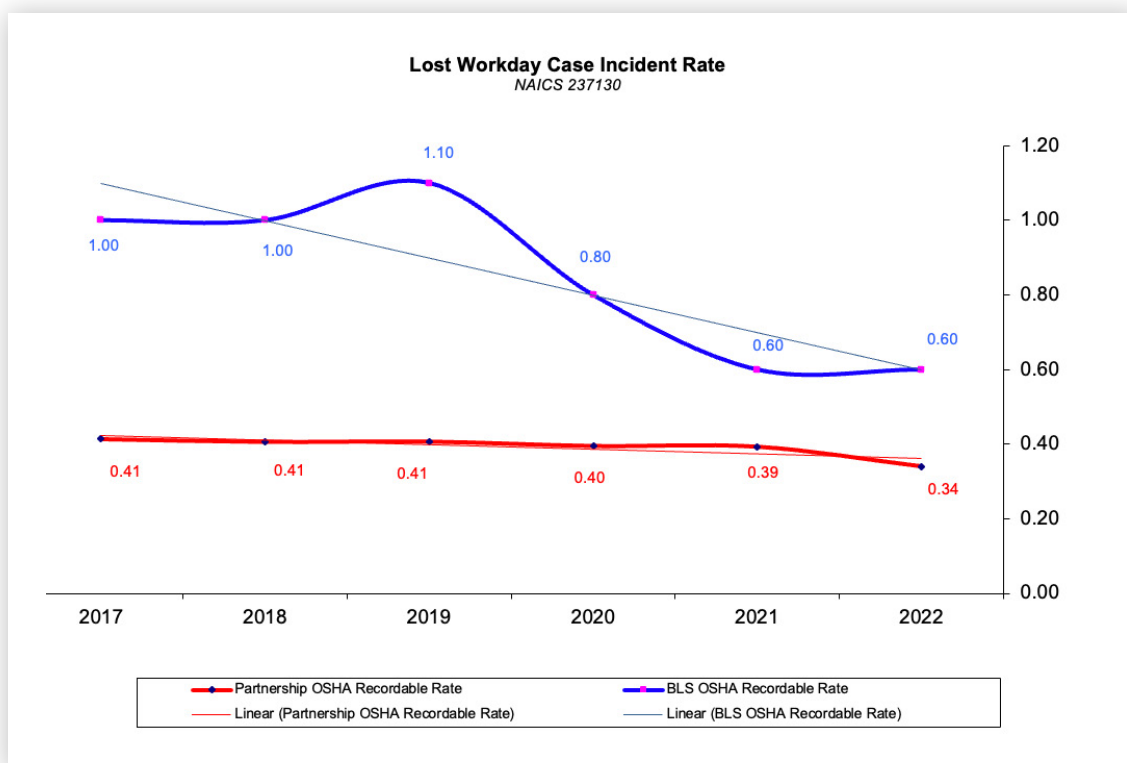
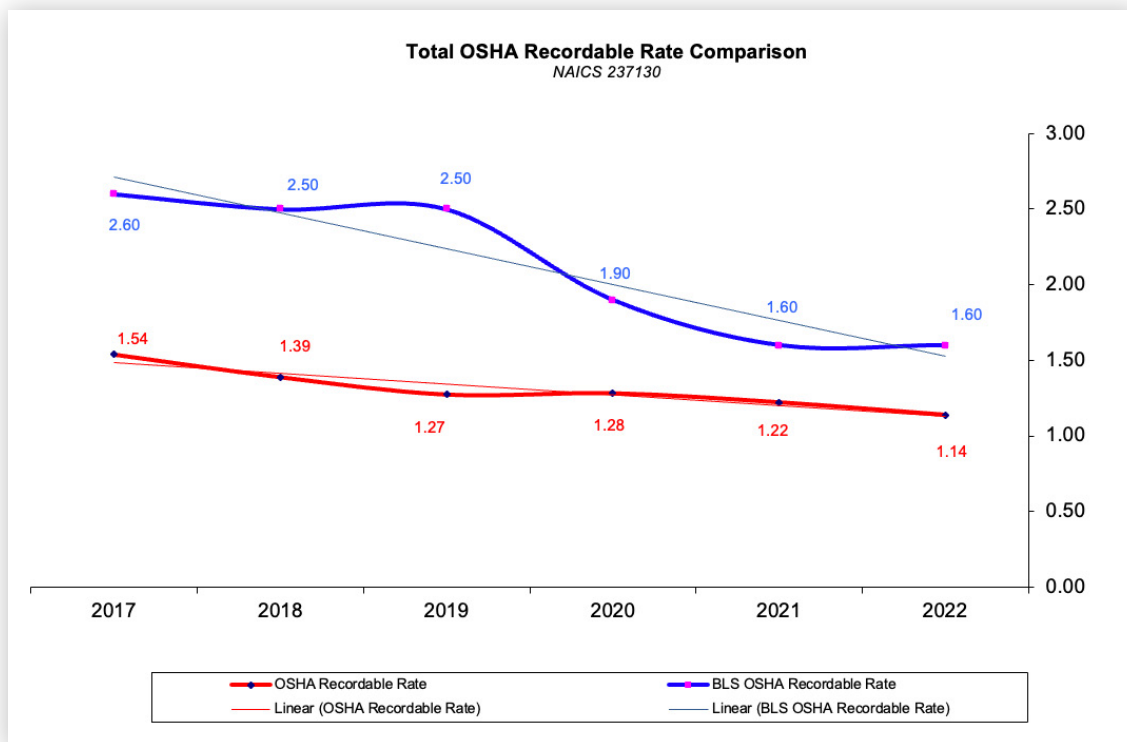


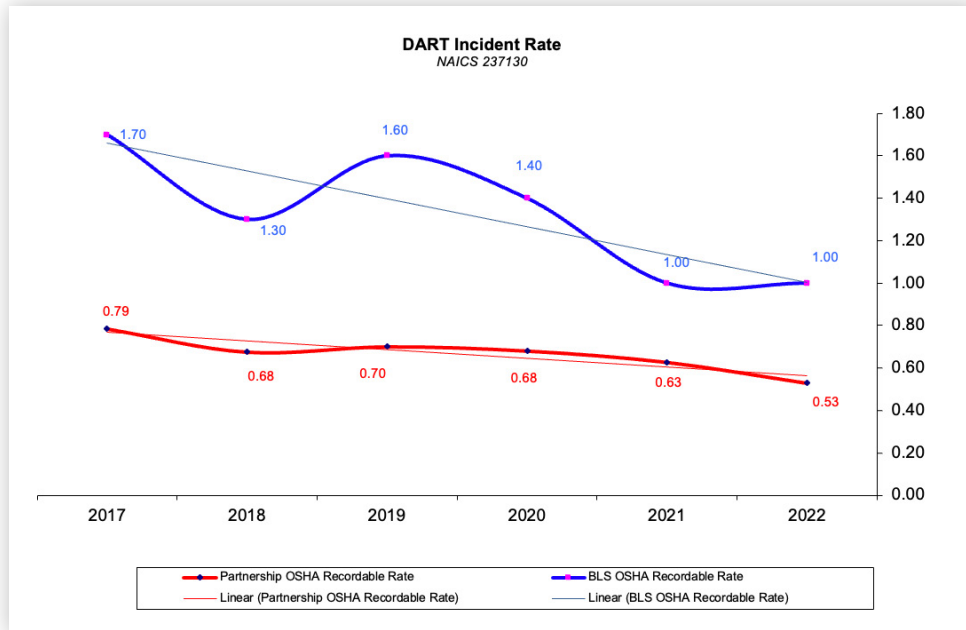
## Reduced Injuries & Illnesses

By working on common goals, analyzing incident and injury data for causal factors and implementing Best Practices, the partners' injury and illness rates have decreased significantly. The partners' Days Away, Restricted and Transferred (DART) rate decreased dramatically from 3.21 in 2005, the first full year of the Partnership, to 0.68 in 2020. In addition, the partners' Total Case Incidence Rate (TCIR) also decreased from 5.18 in 2005 to 1.28 in 2020.

The chart below provides cumulative Partnership data from 2013 to 2020. The chart reflects the partners' average TCIR and DART in comparison to the Bureau of Labor Statistics (BLS) rates for the electrical transmission and distribution industry (NAICS 237130) (SIC 1623):

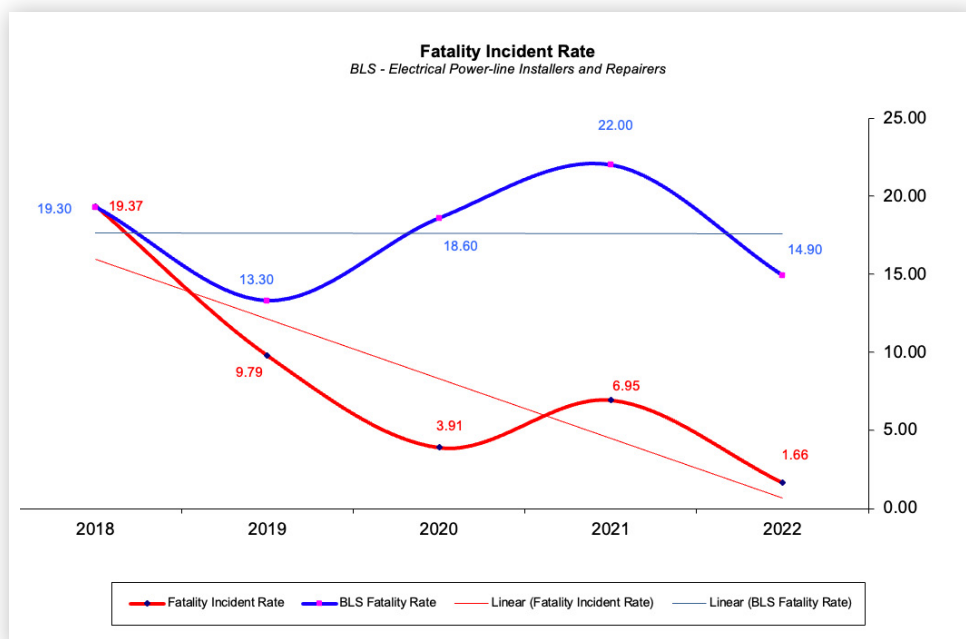
Year	Hours	Total Cases	TCIR	# of Days Away from Work Restricted and Transferred Activity Cases	DART
2015	69,395,665	657	1.89	344	0.99
2016	83,179,680	650	1.56	456	1.10
2017	84,030,858	646	1.54	330	0.79
2018	92,938,987	645	1.39	314	0.68
2019	102,115,211	650	1.27	358	0.70
2020	102,178,417	655	1.28	348	0.68
2021	102,115,211	650	1.27	358	0.70
2022	102,178,417	655	1.28	348	0.68
<b>5 Year Total (2018-2022)</b>	<b>501,526,243</b>	<b>3,255</b>	<b>1.30</b>	<b>1,726</b>	<b>0.69</b>
<b>BLS Average for YR: 2021</b> NAICS: 2371XX**			2.5		





## Reduced Fatalities

The provided graphs offer a comprehensive overview of key performance metrics within the realm of occupational safety. These graphs present a visual representation of significant indicators, including the OSHA recordable rate, lost workday case incident rate, restricted workday case incident rate, other recordable incident rate, DART (Days Away, Restricted, or Transferred) rate, and fatality incident rates, all specifically pertaining to the involved Partnership companies. Spanning a substantial time frame from 2001 to 2022, these graphical depictions not only illuminate the individual safety attributes but also enable a comparative analysis between the Partnership's performance and the broader industry standards. The graphs serve as powerful tools for assessing the Partnership's journey towards enhanced safety practices and its positioning within the industry's safety landscape over the years.

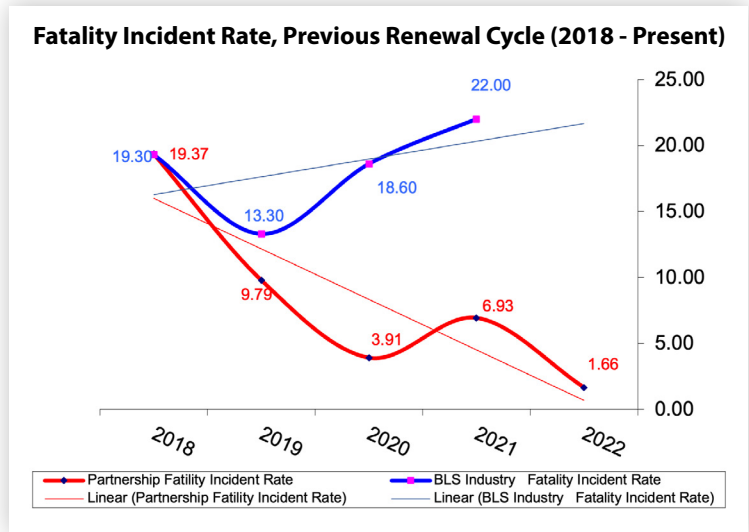


## Successful Impact CONTINUED

When comparing Partner fatality rate averages from the first agreement period (2004-2009) to the previous agreement period (2018-2023), a significant decrease in fatalities can be observed. During the first five-year period, Partners experienced an average fatality rate of 44.38, 252% higher than Construction and Extraction Occupations overall. During the latest five-year period, Partners experienced a fatality rate of 7.88, an 82% decrease since the first period and 36% less than Construction and Demolition Occupations overall. These figures demonstrate the improvements that can be realized when industry and OSHA come together to reduce the prevalence of workplace fatalities.

### Reduced Fatalities – A Closer Look

Over the past 5 years, the Partnership achieved an impressive 91% reduction in fatality rates, while the industry fatality rate improved by 23%. This highlights the Partnership's resolute commitment to preventing life-threatening incidents and fostering a safer work environment.



### Serious Injury and/or Fatality (SIF)

What is a serious injury and/or fatality (SIF)? A work-related event in which the injury that occurred falls into one of the following categories.

- 1 **Fatalities**
- 2 **Amputation involving bone**
- 3 **Concussions and/or cerebral hemorrhages**
- 4 **Trauma or injury to internal organs**
- 5 **Fractures**
- 6 **Complete tendon, ligament and cartilage tears of the major joints**
- 7 **Herniated disks (neck or back)**
- 8 **Lacerations resulting in severed tendons and/or a deep wound requiring internal stitches**
- 9 **2nd (10% of body surface) or 3rd degree burns**
- 10 **Eye injuries resulting in eye damage or loss of vision**
- 11 **Injection of foreign materials (e.g., hydraulic fluid)**
- 12 **Severe heat exhaustion and all heat stroke cases**
- 13 **Dislocation of major joint**

## Successful Impact CONTINUED

The Partnership began collecting serious injury and fatality (SIF) data in 2018 using the SIF definitions developed by EEI. This launched an ongoing review of SIF incidents to gain better insight of causal factors and trends. The Partnership is looking to reduce the number of SIF incidents overall to achieve the same success as observed in the reduction of fatalities.

The chart below shows the number recordable incidents classified as SIFs from 2019 to 2022.

2019 – 2022 Serious Injury and/or Fatality Data				
CLASSIFICATION	2019	2020	2021	2022
<b>Fatality</b>	5	2	4	1
<b>Amputations</b>	18	12	10	6
<b>Concussions</b>	2	2	5	0
<b>Trauma to internal organs</b>	1	2	1	0
<b>Fractured Bones</b>	81	32	49	78
<b>Tendon tear</b>	10	12	8	9
<b>Herniated disc</b>	1	0	0	1
<b>Internal stitches required</b>	16	3	0	5
<b>Burns</b>	22	13	23	23
<b>Injection of foreign material</b>	1	0	0	3
<b>Severe heat</b>	4	2	2	2
<b>Dislocation of major joint</b>	4	0	4	4
<b>Other</b>	2	0	0	1
<b>Total</b>	<b>167</b>	<b>80</b>	<b>106</b>	<b>133</b>

Serious injury and/or fatality cases declined from 167 in 2019 to 80 in 2020. Numbers have risen since 2020, but Fatalities, amputations and concussions have continued to trend downward. As we continue to collect incident data, analysis will continue to improve. The partners will continue to collect and analyze SIF incidents with the goal to assist partners in identifying and mitigating existing hazardous conditions that could cause a potential SIF incident. Timely and accurate data submission facilitated by the Steering Team remains critical.

### National Safety Stand Down

In 2012, the partners established a national Electrical Safety Stand Down, a time when electrical transmission and distribution industry employees participated in safety education activities at locations across the nation. In promotion of the event, the Partnership placed advertisements in and submitted articles to industry publications, and distributed 40,000 wallet cards displaying the Best Practices to stand down attendees. Member companies continue to hold safety stand down events annually.

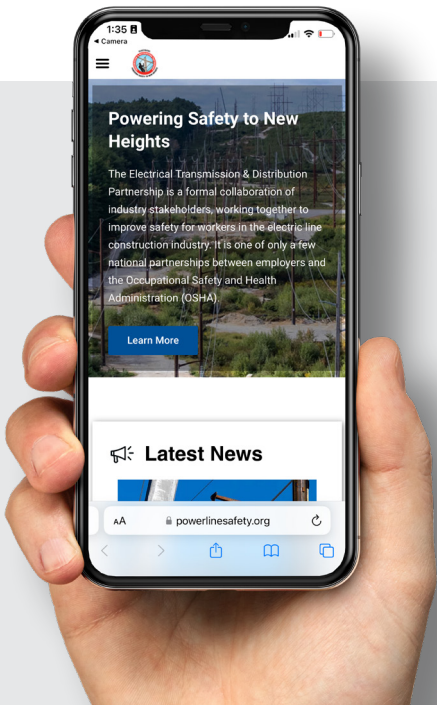




## Communication Tools

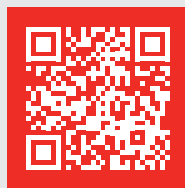
### Partnership Safety Video

The communications team published a safety video on electrical transmission and distribution industry safety. The video provides a strong message on the value of safe and healthful workplaces. It also promotes the Partnership and demonstrates the partners' commitment to worker safety and health for the entire ET&D industry. The video has been archived and a proposal to develop a new safety video is under review.



### ET&D Partnership Website

The ET&D Partnership maintains a helpful website that includes the 9 Partnership-developed Best Practices, ET&D Partnership news updates, safety topics and other resources available to everyone.



Scan the QR code with your mobile device or visit:  
**powerlinesafety.org**



## Best Practices

To achieve the Partnership's goals of reducing injuries and fatalities and to raise safety awareness throughout the ET&D industry, the partners developed nine Best Practices. A Best Practice is a process or method that can be applied throughout the electrical industry that will assist the Partnership companies in reducing the frequency of incidents. The Best Practices include:

### Safety at Heights

"Safety at Heights" addresses fall hazards associated with, but not limited to: aerial tasks performed while working on wood/steel poles and metal/lattice structures. The Best Practices will utilize fall protection hierarchy of fall hazard elimination or control of the fall hazard. The following shall be considered in designing a fall protection solution: elimination or substitution, passive fall protection, fall restraint, fall arrest, and administrative controls.

First consideration shall be given to the elimination of fall hazards. Where elimination of the fall hazard is not practical, effective control of the fall hazard shall be used at all times.

### Qualified Observer

A Qualified Observer shall be designated to provide timely warning while working on or within the minimum approach (including extended reach) of energized conductors or equipment (systems at and above 600V).

A member of the crew shall be identified to act as a Qualified Observer to ensure clearances are maintained, and that PPE and effective cover-up are installed.

### Pre-Use Inspection of Insulating Protective Equipment & Insulating Personal Protective Equipment

All IPE (rubber/plastic) and IPPE shall be inspected by a qualified employee prior to each use and immediately following any incident that can reasonably be suspected of causing damage. Pre-use inspection must, at minimum, meet the definitions outlined in this Best Practice.

This will ensure insulating protective equipment can be used to protect at the rated voltage and provide for uniform inspection guidelines for in-service inspection of insulating protective equipment.

### Lock-to-Lock Use of Insulating Rubber Gloves & Sleeves

When employees are working on energized circuits or equipment, rubber protective-insulating gloves and sleeves rated for the exposure of the highest nominal voltage shall be worn "lock-to-lock" when employees are working on underground electrical equipment.

This includes when the employee manipulates the enclosure's door. If no physical, sensory, or environmental condition is present during the hazard assessment that would necessitate the use of gloves and sleeves to unlock the lock, gloves and sleeves may be omitted for unlocking. Gloves and sleeves are required for lock removal without exception.

### Job Briefing

This Best Practice was created to provide a uniform method to conduct and document a task oriented job briefing and the review of critical mitigation information. The employee in charge shall discuss the tasks to be performed.

The briefing shall be documented and include an explanation of how the tasks shall be achieved, hazards expected to be encountered, and steps to be taken to eliminate or control the hazards.

### Insulate & Isolate for the Rubber Glove Method

The effective use of Isolate and Insulate equipment and procedures will provide the necessary level of safety when qualified line workers are working on energized line and equipment.

The employer must ensure that any employee who performs energized line work is qualified through training and experience to perform the work assigned.

### Insulate & Isolate Techniques for the Live Line Tool Method on Distribution Lines

Following I&I techniques used in conjunction with the necessary insulating live line tools allows qualified personnel to safely work on and around energized equipment and conductors.

Only workers who are qualified shall be permitted to work within the minimum approach distance and must follow identified steps within the full best practice.

### Cradle-to-Cradle Use of Insulating Rubber Gloves & Sleeves

When employees are working on energized circuits or equipment using the rubber glove method, insulating rubber gloves and sleeves rated for the exposure of the highest nominal voltage shall be worn cradle-to-cradle when working from an aerial platform.

Exception: Insulating rubber sleeves are not required when employees are working circuits with a potential of 600 volts or less if there is no upper arm exposure and the worker will not encroach the 5-foot primary zone. Electrical class rating of the insulating rubber sleeves shall meet or exceed the electrical class rating of the insulating rubber gloves when working on primary conductors.

Company policies shall apply when the above conditions cannot be met. Alternative work methods ensuring worker safety shall be identified, communicated to all affected workers, implemented, and documented as part of the job briefing process.

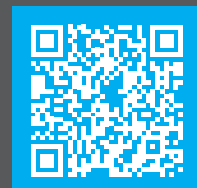
### Administrative Controls & Information Transfer

This best practice was developed to identify protection methods and risk mitigation techniques based on information obtained through information transfer and jobsite analysis. The information obtained through this process shall be provided to the employee in charge to supplement the field crew's job briefing.

Benefits of implementing this includes eliminating injuries resulting from improper planning by ensuring key job hazards are identified and controlled.

**The information on this page is only a brief summary of ET&D OSHA Partnership Best Practices.**

For a complete description and technical information, go to [powerlinesafety.org/best-practices](https://powerlinesafety.org/best-practices) or scan the QR code to the right.







# Into the Future

## SIF & PSIF Reduction

The rate of recordable injuries in the electric power sector has declined steadily over the past decade; however, the rate of serious injuries and fatalities (SIFs) has plateaued. In an effort to reduce SIFs, the Partnership is exploring the use of EEI’s Safety Classification and Learning (SCL) Model – a method for consistently classifying safety incidents and observations that enables shared learning. The SCL model leverages the latest scientific knowledge and the best features of existing methods. The model was tested and refined by the EEI team using 40 actual safety cases.

Unfortunately, studying SIFs is a paradox. On one hand, SIFs are incredibly important and deserve significant resources for investigation. On the other, learning from these events and detecting causal patterns are challenging because SIFs are relatively rare. By using the SCL model the Partnership expects to vastly increase the number of learning opportunities and better characterize safety performance by investigating incidents with the potential to cause serious injuries or fatalities (PSIF). PSIFs also offer an opportunity for shared learning, which is necessary to advance toward SIF elimination. Prior to the existence of the SCL Model, existing methods of identifying and tracking PSIFs were unscientific, heavily biased, and yielded an inconsistent understanding of whether an incident was a PSIF or not.

Tracking and learning from PSIFs could redirect attention from lower-severity incidents to conditions that have the potential to be life-threatening or life-altering, which would be an important step toward the elimination of SIFs. In the future, the SCL model and the associated definitions could be used to form new, more impactful safety metrics that complement traditional indicators like total recordable injury rates (TRIR). This would allow organizations to monitor progress toward the most important goal: saving lives.

### In Conclusion

The Partnership has achieved more than a decade of progress improving ET&D work safety and health. The injury and illness rates of the partners continue to trend downward. As a result, the goals in the current renewal agreement were refocused to improve on the successes. Best Practices were updated to align with superior industry work methods. Nine Best Practices were the result of the updates: Safety at Heights, Qualified Observer, Pre-use Inspection of Insulating Protective Equipment and Insulating Personal Protective Equipment, Lock-to-lock Use of Insulating Rubber Gloves & Sleeves, Job Briefing, Insulate & Isolate for the Rubber Glove Method, Insulate & Isolate Techniques for the Live Line Tool Method on Distribution Lines, Cradle-to-cradle Use of Insulating Rubber Gloves & Sleeves, and Administrative Controls & Information Transfer. Six titles were archived due to combining with other best practices, or material being outdated.

The OSHA ET&D 20 hour course was redesigned and has been a great success. The Safety Leadership in Action course is a top of the line leadership training experience. Training content is broken down into 5 modules with content and materials reaching 24 hours.

In addition, the partners may explore creating a reporting system to capture near misses in the field, expand the scope of worker training to include languages other than English and provide information and safety training for OSHA field personnel in the ET&D industry with topics including power restoration and storm work.

The successes of the Partnership are being highlighted in industry publications and in social media. The partners will continue to use social media, the website and multimedia as valuable tools to achieve the Partnership's goals.

The partners will find new ways to expand and track their training and use of Best Practices and continue moving toward the identification and use of leading indicators as an improvement to their safety culture and awareness. These efforts will take the partners and the ET&D industry into the next decade of improving the working conditions and safety of their workers.



