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## Research & Innovation Implementation Program

Identifying Innovations for Statewide Implementation

Communicating Research Results & Innovations throughout PennDOT

Facilitating Practical Use of Innovative Tools and Methods

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BUREAU OF PLANNING AND RESEARCH

INNOVATION INFORMATION

# Electrical Safety

Electrical hazards pose a serious threat, particularly to workers who must work in the vicinity of electrical equipment, electrical installations, and power lines. The danger increases during emergency conditions such as storms and accidents. These conditions increase the likelihood that workers and the public will be exposed to hazards while making it difficult to detect them. Safety depends first and foremost on proper training and preparation. Electrical hazard warning devices provide back-up measures of safety.

This Innovation Information Sheet is provided to make you aware of an innovation for the safety of your employees.

### Electrical Hazards

Anyone may be exposed to electrical hazards while going about daily activities. However, certain occupations may pose greater risks due to the nature of the work or the circumstances under which it is performed. For example, emergency responders who are called to accident scenes may encounter downed wires. Similarly, highway construction workers frequently work in the vicinity of power lines.

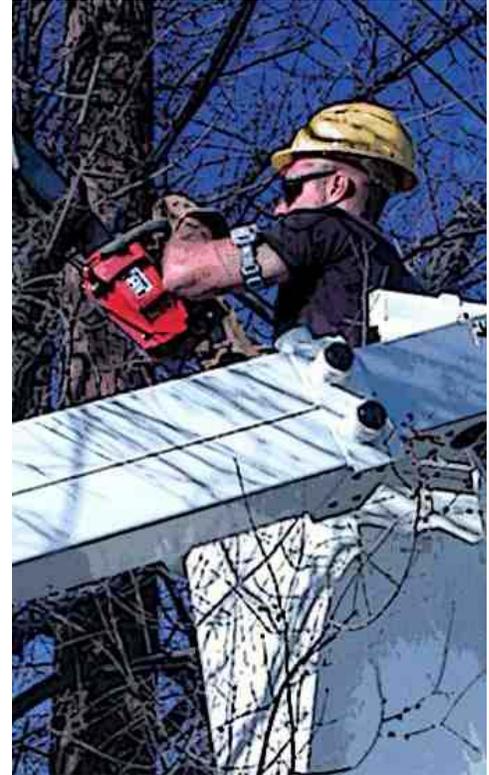
It is wise for all employees whose jobs place them at risk to have electrical hazard awareness training so that they can recognize and respond appropriately to potentially dangerous situations.

### Electrical Hazard Awareness Training

To do your job safely, and to safeguard others, you must:

- be aware of electrical hazards
- be able to recognize them in the field
- take proper actions

Your local power company provides electrical hazard training to emergency responders, construction workers, and others whose jobs place them in jeopardy. See box for specific contact information. If your power company is not listed, call them and ask to speak with someone in their Safety Division.



# INNOVATION INFORMATION

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## Electrical Safety (cont'd)

### Warning Devices

A variety of electrical hazard warning devices are commercially available, and PennDOT's District 3 has been using one such device. They report that it works well. In fact, it has warned of nearby live wires, potentially averting injury.

The devices are combination detectors and alarms and generally have similar basic features which should include the following:

- Durable, light weight, and compact
- Dust and water proof
- Designed to be securely clipped on clothing
- Include audible and visual alarms
- Field-replaceable standard type batteries
- Low battery indicators
- Self-test system
- Always-on operation

Manufacturers claim these devices emit a sound generally ranging from 65 dB to 100 dB as a worker approaches a live voltage source. Additionally, the alarms activate at a distance ranging from 6 to 30 feet and can operate in harsh environments from -20° to 120° F.

A variety of vendors supply these devices. District 3's success was with the High Voltage Live Line Alarm ([infor@hasegawa-elec.co.jp](mailto:infor@hasegawa-elec.co.jp) ; the company is in the process of selecting a new US distributor). Other similar products are available such as the V-Watch Personal Voltage Detector (HD Electric

### Some points addressed by Electric Hazard Awareness Training:

- Electricity can injure and kill
- Call the power company if you see a potential electrical hazard
- If you suspect an electrical hazard, carefully survey the entire scene
- A downed wire can energize anything and everything it touches
- Consider hidden dangers such as an electrified guiderail
- You can't tell by looking whether or not a wire is energized
- Keep away! Never touch a power line or a downed wire!
- If you contact a live wire, you can't react fast enough to avoid

Company - [www.hdelectriccompany.com/vwatch.htm](http://www.hdelectriccompany.com/vwatch.htm)), and the Osprey Live Alarm (Acksen - [www.acksen.com/livealarm.asp](http://www.acksen.com/livealarm.asp))

There are other products on the market such as hot sticks and meters that electricians and power company workers use on their jobs.

These alarms are designed solely as warning devices for people whose jobs do not involve working with electricity but may nevertheless expose them to electrical hazards.

**It is important to note that electrical hazard warning devices should be used only as an auxiliary means of high voltage detection. These alarms are not substitutes for other safety devices or safe practices. They cannot insure safety in hazardous conditions, and must not be used as primary voltage detectors.**



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