

PHOTOVOLTAIC (SOLAR PANEL) ELECTRICAL SAFETY FOR FIRST RESPONDERS

UNDERSTAND THE **UNIQUE RISKS** WHEN A PV (SOLAR) SYSTEM IS INVOLVED

Pre-Incident Planning



Contact **building officials** to see where PV systems are installed. **Request to be notified** when new PV is installed

PV Panels and Arrays

- **Locate** which portion of the roof has the PV system
- **Follow conduit** to locate where PV may be installed and location of disconnects / inverters



PV Disconnect Types



WARNING: PV SYSTEMS MAY STILL **PRODUCE ELECTRICITY** AND WIRING FROM PV TO INVERTER MAY BE **ENERGIZED** DEPENDING ON INSTALLATION TYPES



- Main Breaker: **Shuts off AC power to the entire structure**, including inverters



- May reduce to **<30 volts DC within 30 seconds**. PV array may also have voltage reduced



- PV System Disconnects: **Shuts off power to inverter**. Does not disconnect any other panel
- Energy storage systems will have a **separate disconnect**. Energy storage systems still contain hazardous energy **even if they're shut down** and disconnected
- **Disconnects** are often found in basements, electrical rooms, or on exterior pad mounts

Emergency Response

Identify, Shutdown, Watch Out

Identify the Issue



- Identify **locations** and **types** of PV installation
- Look for **PV arrays**, **inverters**, and **labels & markers**

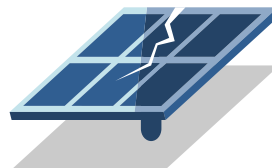
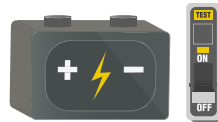
Shutdown



- Power to inverter must be **shut down to secure power**. **POWER WILL STILL BE IN WIRING BETWEEN PV AND INVERTER**



- Disconnects may be found on **inverter**, distributed along **array**, and at the **main electrical panel**



- If energy storage systems are installed, **additional disconnects must be shut off**
- If PV is damaged, **shut off any disconnects found**

Watch out for Hazards

- Older string inverters **may not reduce DC** from array to inverter
- All metal parts are connected and connected to ground. If damaged, they **can become energized**. **DO NOT TOUCH SYSTEMS WITH VISIBLE DAMAGE**
- Whole roof PV may introduce additional risks such as **hidden wires** and **slippery roofs**



ONCE INCIDENT OF FIRES HAS BEEN SECURED, HAVE A **QUALIFIED PERSON** INSPECT THE PV SYSTEM TO ENSURE IT IS NO LONGER A HAZARD

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