

# RISK OF SOLAR PANELS – Challenges for First Responders

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Roof-mounted photovoltaic solar panels have been on roofs generating electricity in New Jersey for many years and are becoming more common. There are big pushes from multiple entities (Federal & State Government, Utilities, and installers) to encourage property owners, including condominium and homeowners' associations, to install more solar panels on their roofs.

In addition, energy storage systems, such as Tesla's Powerwall, are being coupled with solar panel systems to store energy in large battery arrays in or on a building. The energy stored in the batteries can supply electricity to the building if the utility grid fails.

While solar panels and battery storage can be useful and exciting technologies, they create some new risks and challenges for first responders, particularly firefighters, if they have to respond to an emergency at a building with this equipment installed. Some of these risks are:

- **If a building is on fire, often the firefighters will work on the roof to cut ventilation openings to let the smoke out. Risks posed by solar panels include:**
  - Solar panels can be energized, even at night.
  - Solar panels and associated wires/conduits reduce the roof area available for firefighters to operate and can create trip hazards.
  - If a firefighter comes in contact with a solar panel or wiring, there is a risk of electric shock.
  - If the roof is on fire underneath solar panels, it makes it difficult to get water on the fire; solar panels themselves will also burn.
  - Solar panels add weight to a roof making the structure more likely to collapse during a fire.
- **The wiring connecting solar panels or battery storage systems to other equipment can remain energized even after main breakers or utility power has been turned off to the building.**
  - If a firefighter must cut or break through a wall, they could contact an energized wire and receive an electric shock.
- **If power remains on, when responders think it is turned off, equipment in the building may operate unexpectedly, such as garage door openers or fans. This can create an unexpected hazard.**
- **If a tree falls on a roof or wall during a storm, risks similar to the above are encountered by responding firefighters or contractors.**

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**What can you do to help your first responders if you have solar panels or energy storage systems in your community?**

- Make sure any solar or battery storage project receives a permit from the Municipal Construction Office and ensure that the permit is closed out.
- Install signage to identify any building that has solar panels on the roof or that is supplied by ground-mounted solar panels. The New Jersey Fire Code requires specific signage mounted near the main entrance door to a building which will tell firefighters that the building has solar panels. If your building already has placards identifying roof trusses, the solar panel placard can be installed in the same location.
- Notify your local fire official that you have a solar or battery storage system at your building(s).
- Provide the following information to your local fire department to assist them in responding to emergencies at your property:
  - A drawing of the building(s) showing where solar panels, batteries, controls, and connecting circuits are installed.
  - Manufacturer’s information about the system installed
  - Details about how to disconnect power from the system
  - Contact information for the person that installed or maintains the system so that a knowledgeable person can be contacted quickly in an emergency
- Invite your local fire department to visit the site to develop a “Pre-Plan” for response. This will help them become familiar with your building, respond quickly to an emergency and reduce risks to first responders.

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