

Hazard Prevention & Mitigation Recommendations for Solar Energy Systems



Delmarva Emergency Training Concepts LLC

Instructor & Company Introduction

- ▶ Delmarva Emergency Training Concepts LLC was created in January of 2016 to provide training not offered in the area.
- ▶ Developed Solar Emergency Course in conjunction with solar installer, to train Fire Service members to better be prepared.
- ▶ Created the 1st and only “Solar Emergency Response Kit” for the Fire Service to use in responding to Solar Emergencies.



Owner/Lead Instructor Background

- ▶ Fire Service 12 years
- ▶ Volunteer Fire Lieutenant and EMT- Basic with Church Hill VFD (Queen Anne's County)
- ▶ Nationally Certified in the following;
 - ▶ Firefighter II
 - ▶ Fire Officer II
 - ▶ Emergency Services Instructor III
 - ▶ Vehicle & Machinery Rescue Technician
- ▶ MD Certified Emergency Services Instructor with MD Fire & Rescue Institute
 - ▶ Hazardous Material - Awareness, Operations & Technician
 - ▶ Rescue Technician - Site Operations & Vehicle and Machinery Extrication



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Hazard - Access to Ground Mount Solar Facility

1. Fire Service needs quick access to Emergencies that may happen inside the fence line.
 - ▶ Taking the time to locate a hide-a-key or decode a combination lock is not acceptable in an emergency scenario.
2. Fire Department needs small vehicle access for major incidents where large or mass equipment or water is needed.



Hazard Mitigation- Access to Ground Mount Solar Facility

1. Fire Service Quick Access - Knock Padlock or KnockBox style locking mechanism.
 - ▶ Secure universal key already utilized by the Fire Service to access other facilities.
2. Fire Department Small Vehicle Access - Access gate at least 9 foot in length to allow access into the facility.
 - ▶ Able to provide access for small apparatus (Brush unit(s), ATV/UTV(s), Utility(s). etc.)



Hazard - Locating Proper Shutdowns

1. Fire Service needs to quickly locate the Emergency Shutdowns.
 - ▶ Taking the time to locate the proper shutdown in the facility is not acceptable in an emergency scenario.
2. Fire Service needs to identify the proper Emergency shutdown for the area, if more than one group of panels!
 - ▶ Taking time to trace and check to ensure the proper shutdown has been deactivated is not acceptable in an emergency scenario.



Hazard Mitigation- Locating Proper Shutdowns

1. Fire Service needs to quickly locate the Emergency Shutdowns.
 - ▶ Emergency Shutdowns should be located by the access gate to reduce shutdown time and ease of location.
2. Fire Service needs to identify the proper Emergency shutdown for the area, if more than one group of panels!
 - ▶ Should be one emergency shutdown for entire system or at the least Shutdowns as the beginning of each group on the same side for rapid locating.



Hazard - Specialized Equipment & Training Needed

1. Fire Service needs to quick access to Solar tools and equipment.
 - ▶ Fire Departments do NOT currently carry tools needed to interact with solar arrays (Disconnect Tools, Electrical Safety Gloves, etc.).
2. Fire Service needs training on Solar Arrays and how to handle emergencies involving them.
 - ▶ Fire Departments currently do not have the training or knowledge to handle emergencies involving solar arrays!



Hazard Mitigation- Specialized Equipment & Training Needed

1. Fire Service needs to quick access to Solar tools and equipment.

- ▶ Solar Array Owners need to provide access to solar tools (Solar Disconnect Tools, Electrical Safety Gloves, etc.) Onsite at the time of the emergency.

2. Fire Service needs training on Solar Arrays and how to handle emergencies involving them.

- ▶ Solar Array Owners need to provide means of adequate training to Fire Departments responding to the facility on how to handle emergencies involving solar arrays.



Hazard - Outside issues affecting Solar Arrays

1. Solar Arrays close to roadways are susceptible to vehicle collisions from either driver error, mechanical failure or weather conditions.
 - ▶ Vehicles colliding with Solar Arrays is not only dangerous to vehicle occupants and surrounding by-standers, but also Emergency Services personnel - due to Electrical Shock hazard!
2. Solar arrays with vegetation under them pose a risk of an outside vegetation/debris fire traveling through the fence line.
 - ▶ Outside fire feeding on vegetation outside the fence line will travel through the fence and then possible involving the Solar Array, this poses a greater risk to firefighters!



Hazard Mitigation- Outside issues affecting Solar Arrays

1. Solar Arrays close to roadways are susceptible to vehicle collisions from either driver error, mechanical failure or weather conditions.
 - ▶ Barrier devices (Bollards, Guardrails, etc.) need to be placed on danger areas with in proximity to roadways to prevent vehicles traveling into the solar arrays, reducing the danger of the incident for Emergency Services!
2. Solar arrays with vegetation under them pose a risk of an outside vegetation/debris fire traveling through the fence line.
 - ▶ Fire breaks (non-combustible materials) should be installed along the fence line extending a reasonable distance to prevent a vegetation fire from traveling into the solar array, reducing the danger of the incident for Firefighters!

