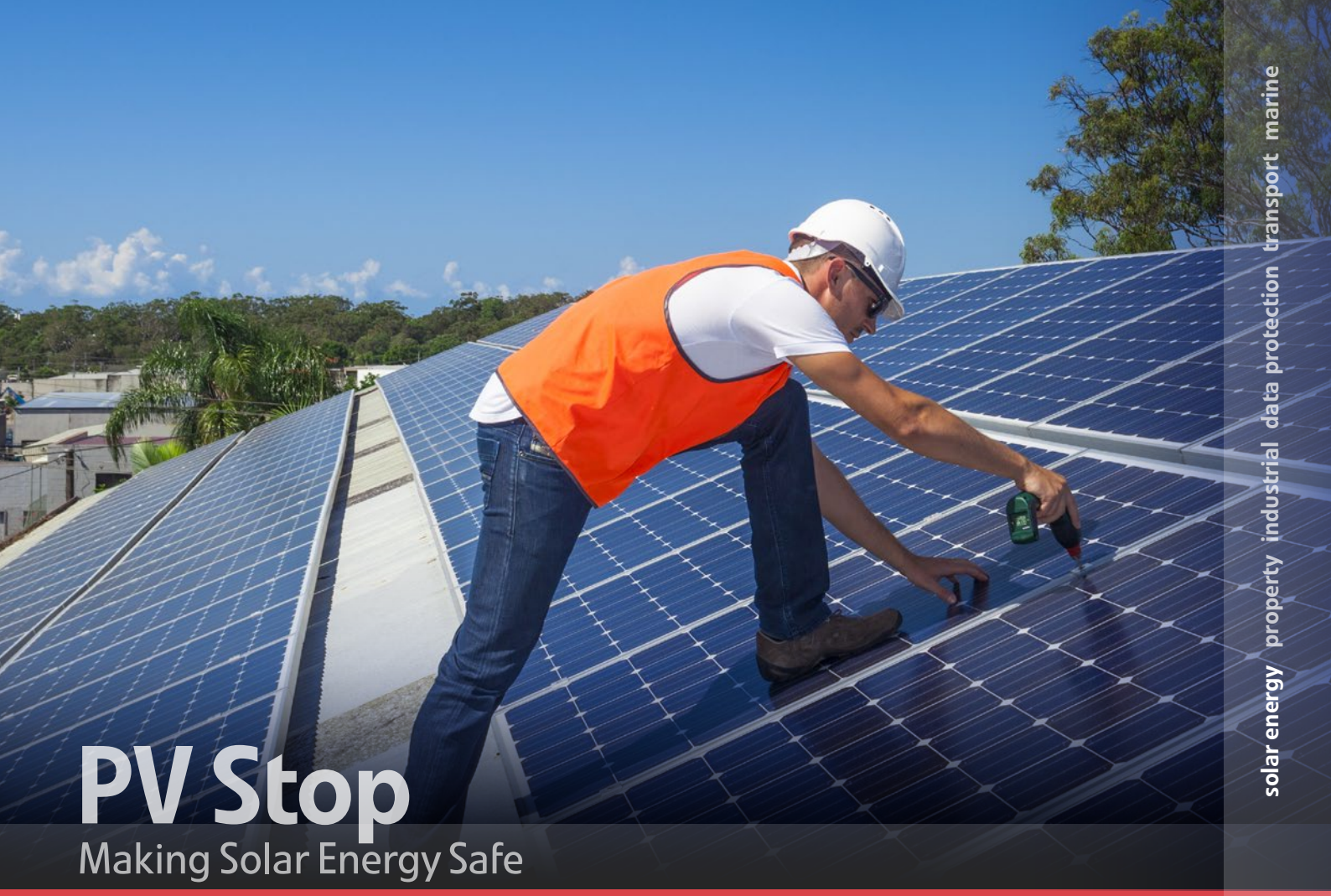

PV Stop

Making Solar Energy Safe

solar energy property industrial data protection transport marine

Nobel Fire Systems is known for cutting edge firefighting systems, but our interest is not exclusively focused on active fire suppression.

Our ethos is one of safety first. Nobel has recognised the growing risk to the health and safety of personnel that may, during the course of their work or through association, be exposed to the potential of electrocution from lethal DC supplies used in Solar Panel systems.

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The risk has long been acknowledged in countries where the use of Photovoltaic Solar Panels is common place and as a result, Nobel has partnered with the manufacturer of **PVStop**. This ground-breaking safety product is aimed squarely at the specific and potentially deadly risk associated with PV systems and is the only globally recognised patented method of guaranteeing solar panels are made safe.

The risks and the adoption of **Safe Systems of Work**

The risk from electrocution should be assumed as 'Ever Present'; be that in direct initial firefighting attendance or through association with neighbouring properties. There is no way of assessing easily if the electric circuits are still live.

It must be assumed if PV Solar Panels do not have a secure method of isolating them from a light source that the wiring system could be live with lethal DC electrical current. Therefore, the only true and 'Safe Operating Procedure' in order to make the building safe, is to isolate the electricity from the grid and to coat the PV Panels with PVStop, which cuts off the light source completely.

Fire is not the only event that could render a PV Solar Panel system unsafe. Other reasons include:

- Physical damage
- Vermin attack
- Poor workmanship/installation
- Component failure/degradation
- Lightning and weather events, hails, water ingression etc.

In all these cases a solar panel will power at a reduced rate, even if damaged or in pieces.

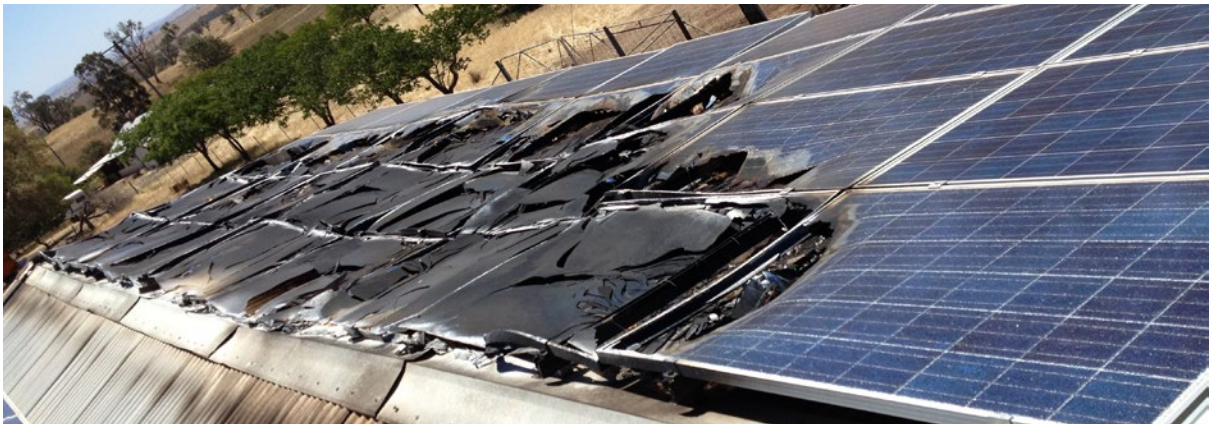
Fire and Rescue Services recognise the danger of PV systems. With a modification to the 'Safe Operating Procedures' undertaken at an incident, the inclusion of PVStop will provide the security and safety for emergency critical personnel, post incident attendances or anyone else required to access the incident perimeter.

Currently the tools available to try and isolate the PV Panels from light have been the use of canvas sheets, tarpaulin sheets or thick blankets. All of these methods expose personnel to the risk of electrocution and physical harm. None provide a secure form of coverage.

The only way of rendering a PV Solar Panel system totally safe is to completely eradicate the light source.

The Facts

- Solar PV systems cannot be switched off when exposed to light
- Even with isolation switches installed, solar PV systems continue to produce potentially lethal amounts of DC electricity
- Isolation switches, and the associated wiring can remain live
- DC electricity is different to AC electricity, it has no frequency and its presence or magnitude cannot be detected so it is potentially more dangerous than typical AC sources
- Up until now Fire & Rescue personnel and electrical contractors have had no fast, effective and safe way to isolate PV generated electricity
- 5 years ago there was less than 1 megawatt of solar PV power installed in the UK. Today, there is over 10.8 megawatts and by 2020 this is forecast to double



The Solution is **PVStop**

PVStop is the only solution on the global market that safely isolates the power produced by solar panels in all weather conditions. It eliminates the risk of high voltage DC electrocution by acting as a liquid tarpaulin, shutting down the solar PV system in seconds.

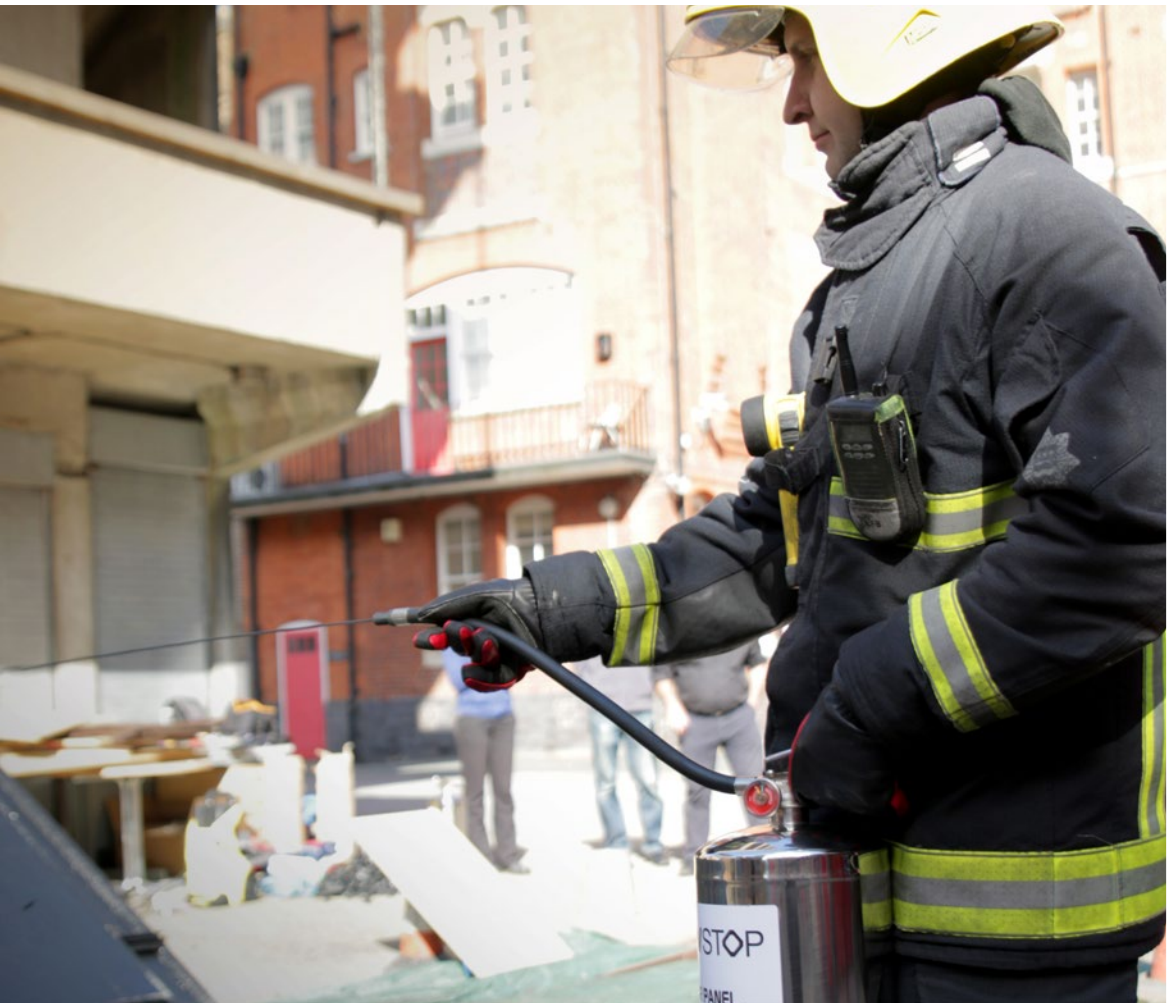
PVStop adheres to the surface of the panel and cannot be dislodged by wind, rain, hail or snow and once a threat has been eliminated can simply be peeled off without causing any damage to the system for up to 12 months after application.

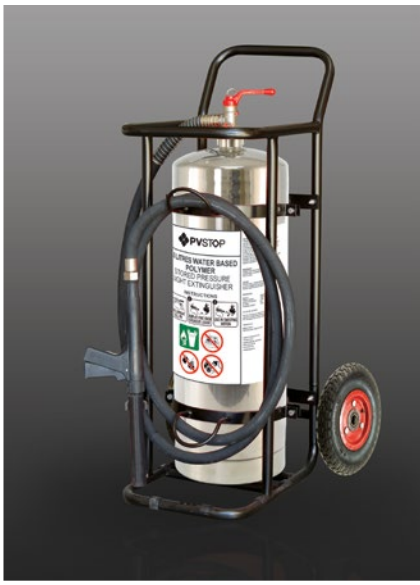
PVStop is the only solution that makes solar energy safe.

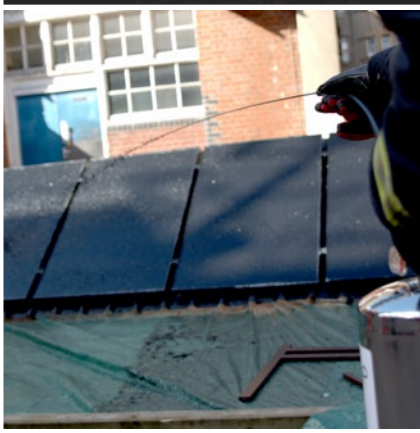
- **PVStop** is a water based polymer that forms a block out coating on impact with the solar panel
- The application method currently employed is a 9 ltr stainless steel container and resembles a fire extinguisher. This allows familiarity with its application and makes it a user friendly method of deployment
- The unit's operating range has 10-15 metres throw to enable an application away from the panels and the DC risk zone
- To render the PV system safe the application only requires partial coverage across the PV array
- Once applied, the coating can be peeled off with no damage to the PV system whatsoever

Key Features & Benefits

- Eliminates the risk of DC electrocution
- Non-flammable & fire retardant
- Non-conductive & anti-arcing
- Effective in all weather conditions
- Quick drying
- Delivery range of over 10m, eliminating the need to climb on the roof
- Encases nano-particles (during fire or salvage operations)
- No damage to the PV System
- Simply peels off after use
- Environmentally friendly and can be disposed of with normal household waste
- Independently tested and verified by BRE Global and the ETV Program







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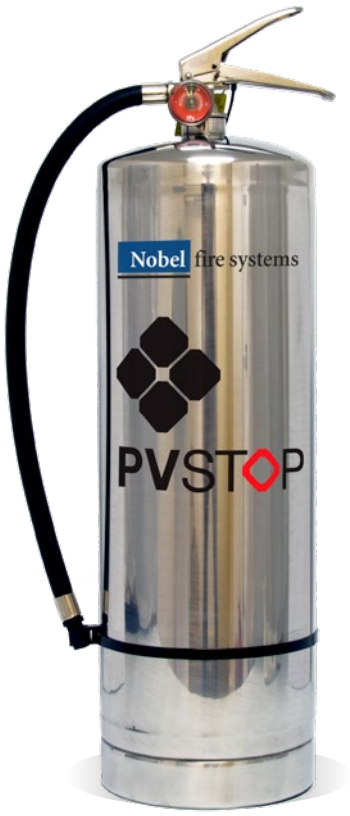

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