



Removal and Disposal of Solar Panels

A Guidance Note

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The removal Solar panels is becoming an increasingly common part of the demolition process ranging from small arrays on domestic properties to large arrays on commercial units.

The panels are constantly live generating a DC current that is gathered in series from the panels reaching approximately 4-10kW from a domestic array with commercial arrays of multiple panels producing 50kW to 500kW on large array. This power is cabled to an inverter unit which converts the power into AC for use within the building or feeding into the National Grid.

The location of the panels, cabling and inverter unit must be identified on the demolition plan of works. Isolation of the inverter unit should be carried out by a qualified solar engineer identifying the potentially live DC feed cable from the panels to the inverter.

There may also be a battery bank adjoining the inverter unit to store energy produced, this must be isolated separately and treated as a live unit seek expert advice before removing the battery.

The process of removing the panels will be dependent upon the demolition process top down may well see the removal of individual panels using hand tools whilst machine demolition will see them removed by rotation grab, which ever process the panels will be live under sun light conditions and must be handled with care. It is recommended to start removal with the panel furthest away from the inverter unit working progressively across the panel bank.

Hand removal: refer to manufacturers guidelines wherever possible using insulated tools, avoid cutting cables which could be live unplug the joining cables where possible.

Machine removal: refer to manufacturers guidelines wherever possible. Where possible remove panels individually to reduce the residual current risk.

Disposal for reuse: if removed as whole panels care must be taken when handling the panels to ensure the residual current is managed safely. The panels may have a reusable value in the secondary market and have found homes on allotments plots and even some canal boats.

Disposal for recycling: redundant panels are deemed to be WEEE waste and must disposed of in accordance with current regulations.

- **Electrical components:** Solar panels, or photovoltaic (PV) panels, are designed to generate electricity. Once they reach the end of their operational life, they become electrical waste, which falls under WEEE regulations.
- **Hazardous materials:** Solar panels contain potentially harmful substances, such as lead and cadmium, which can contaminate soil and water if disposed of improperly in a landfill. The WEEE Directive ensures that these materials are handled and recycled safely to protect human health and the environment.

- **Perovskite Solar Panels:** Although they are not yet widely available for residential rooftops because of their limited lifespan, they are becoming more popular on commercial and utility structures. Perovskite Panels contain caesium, a highly reactive chemical that can ignite spontaneously when exposed to air and reacts explosively on contact with water. This could cause a significant issue if the panels are damaged during removal. More information will be needed from the manufacturer on handling these specific panel types.
- **UK regulations:** Although the WEEE Directive is an EU regulation, the UK has adopted and continues to enforce these rules. UK regulations mandate that producers (manufacturers, importers, and sellers) are financially responsible for the collection and recycling of solar panels.
- **Labelling:** Products covered by WEEE regulations are marked with a crossed-out wheellie bin symbol, indicating that they should not be discarded with general waste.

Recycling and disposal requirements

- **Producers' obligations:** Under the WEEE Regulations, the producers of solar panels are legally required to fund a Producer Compliance Scheme (PCS) to manage the recycling of their products.
- **Consumer responsibility:** If you have redundant solar panels, you should contact the original installer or a registered recycling company to arrange for their proper disposal. Many installers have arrangements in place with compliance schemes to handle end-of-life products.
- **Recycling process:** The recycling process involves separating valuable materials such as glass, aluminium, copper, and silicon. Specialized facilities use advanced techniques to recover these materials for reuse in new products, helping to create a circular economy.