

Solar America Board for Codes and Standards



UTILITY EXTERNAL DISCONNECT SWITCH: Practical, Legal, and Technical Reasons to Eliminate the Requirement

Michael T. Sheehan, P.E.
Interstate Renewable Energy Council

Utility External Disconnect Switch: Practical, Legal, and Technical Reasons to Eliminate the Requirement

Study Report Overview

This overview summarizes a study report from the Solar America Board for Codes and Standards (Solar ABCs). The full report documents the safe operation of photovoltaic (PV) systems without a utility external disconnect switch (UEDS) in several large jurisdictions. It explains the rationale for eliminating UEDS:

- Functionality is redundant
- Fails to provide the protection that is its justification
- Adds unnecessary cost to a PV system.

Why the Report is Important

Regulators are deciding the question of UEDS requirements as they develop or revise interconnection rules for small renewable energy generators. The report includes important information on this topic and a recommendation for regulators.

Issue

Some states and utilities require installation of a UEDS between PV power systems and the utility grid as a device to ensure lineman safety. However, eight states and many major utility companies have recognized that safety devices and features already part of all Code-compliant PV systems make the UEDS redundant and have eliminated its requirement.

Solar America Board for Codes and Standards Recommendation

The recommendation of the report is to eliminate the requirement for UEDS for all small, inverter-based systems in all jurisdictions. With the inherent safety features built into all UL-listed PV inverters, the UEDS is functionally unnecessary and provides little, if any, additional safety.

For customers with self-contained meters (including almost all residential and small commercial customers), the meter itself is already fully capable of providing the functions required of the switch (i.e. a visible, physical, lockable separation of the system from the utility). At the very minimum, these customers should be excluded from any UEDS requirement.

Key Findings of the Report

- Eight states have already waived the UEDS requirement in their interconnection agreement for small (less than 10 kW) PV systems.
- Several major utilities no longer require UEDS, including:
 - Pacific Gas and Electric (PG&E), California
 - Sacramento Municipal Utility District (SMUD), California
 - National Grid USA, Northeast U.S.
- More than half of all photovoltaic installations in the US in 2007 were installed without a UEDS.



- Operational histories of these systems demonstrate that UEDS provides little, if any, additional safety, when:
 - PV hardware meets UL and IEEE standards
 - PV is installed in compliance with the requirements of the *National Electrical Code*[®] (NEC)
- Small PVs installed without UEDS have had a clean safety record.

For More Information Contact:

Larry Sherwood, Solar ABCs Project Administrator
Larry@sherwoodassociates.com, 303-413-8028

Download the Full Report:

www.solarabcs.org/utilitydisconnect

For more information, visit the Solar ABCs

Web site: www.solarabcs.org

A Report from the Solar America Board for Codes and Standards

The Solar America Board for Codes and Standards (Solar ABCs) is a collaborative effort among experts to formally gather and prioritize input from the broad spectrum of solar photovoltaic stakeholders including policy makers, manufacturers, installers, and consumers resulting in coordinated recommendations to codes and standards making bodies for existing and new solar technologies. The U.S. Department of Energy funds Solar ABCs as part of its commitment to facilitate wide-spread adoption of safe, reliable, and cost-effective solar technologies.

**Solar America Board
for Codes and Standards**

www.solarabcs.org