

# Utility External Disconnect Switch (UEDS)

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October 2008



# Background UEDS

- **Standards have changed since the “Gardner” PV systems 1980’s**
- **UEDS always an issue at State Rulemaking proceedings**
- **What is a UEDS?**
- **Current status of controversy**
- **NEC requirements**
- **Non-use UEDS during grid outages**



# Overview

- **Technical Issues**
- **Practical Considerations**
- **Legal Reasons**
- **NEC**
- **OSHA Safety**



# UEDS location



# Safety and UEDS

- **OSHA 1910.269 and lockout/tagout rules**
- **UL 1741**
- **NEC**
- **Non-use during grid outages**



# Other Issues

- **Legal and Jurisdictional issues**
- **Cost of the UEDS**
- **IEEE 1547 Isolation Device**
- **Technical Issues**



# Cost of UEDS

- **Florida testimony by Progress Energy cost at \$1,253.13**
- **Installers site cost of running cable to outside walls and repairing walls as significant cost adder**
- **2008 National Repair and Remodeling Estimator**



# IEEE 1547-2003

- **Section 4.1.7 states**  
**“when required by area EPS operating practices, a readily accessible lockable visible-break isolation device shall be located between the area EPS and the DR unit.”**

**Bottom line: Information only not required by 1547**





# UEDS not required

- **PG&E statement available at:**  
[http://www.pge.com/suppliers\\_purchasing/new\\_generator/solar\\_w\\_ind\\_generators/disconnect\\_switches](http://www.pge.com/suppliers_purchasing/new_generator/solar_w_ind_generators/disconnect_switches)
- **SMUD Press Release available at:**  
[http://www.smud.org/news/releases/07archive/02\\_21solar.pdf](http://www.smud.org/news/releases/07archive/02_21solar.pdf)
- **UEDS not a requirement in eight states**
- **In 2007 over half of install PV system did not have UEDS requirement**



# Best Practice

**“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”.**



# Questions ?

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