

Putting a Trace on Solar PV Panels (Arthur O'Donnell, executive director, Center for Resource Solutions)

In the dead of night and over extended weekend holidays, solar panel thieves are at work, removing PV modules and equipment from unsecured, remote installations at farms, wineries and school rooftops. According to the California State Sheriff's Association, the Napa Valley winery industry has been especially hard hit by PV thieves; CSSA reports that more than 400 solar panels worth over \$400,000 were stolen from wineries between June 2008 and September 2009. As recently as April 2010, a San Francisco-area high school reported a holiday week theft of 108 newly installed panels, with the loss calculated at over \$40,000. Schools and institutions represent about 10 percent of theft losses, according to emerging statistics.

Insurers are feeling the problem. SolarInsure, a broker specializing in theft insurance for renewable energy systems has reported a steady rise in reported claims, as much as a 26 percent increase in 2009 over 2008 levels. The firm says it will not write new policies for systems that do have some kind of anti-theft measures in place.

Acting on requests from police and industry, federal and state-level lawmakers are beginning to take note and offer bills that could require a national registry or mapping system for solar panels. California Assembly Bill 1932, currently working its way through the state Senate after passage in the Assembly, would direct state energy regulators to provide funding for anti-theft technologies, including a serial-number-based registry. "Solar panels that are stolen are nearly impossible to recover because many panels have no serial number or other method of identification," stated a legislative analysis of the bill, authored by Assemblymember Nora Evans of Napa.

Similarly, U.S. Representative Mike Thompson, who also represents the Napa/Sonoma district in Congress, last year introduced HR 3585, a Solar PV Roadmap measure that would direct the U.S. Department of Energy to offer grants to create a national serial number registry for PV equipment.

California appears to be ground-zero for this problem, but as PV installations spread across the continent -- and indeed, around the world -- more people are looking at improving the traceability of PV systems to thwart a growing black market.

While several PV manufacturers inscribe a serial number on their panels, there are no consistent standards for indelible marking or identification protocols that would lend themselves to a formalized registry for PV theft deterrence. A registry might also be useful in light of a growing secondary market for PV systems, as early installations are upgraded to more efficient units and older equipment sold to new buyers -- who might not even realize they are buying used panels or know where they came from. A tracing number could also provide a way to uncover information about the expected performance of those PV panels, based on technical certifications.

Besides encouraging such anti-theft measures as more secure bolting, the solar industry is looking into the logistics of panel identification. The non-profit Center for Resource Solutions administers the respected Green-e Energy certification program for renewable power and established the Environmental Tracking Network of North America (ETNNA). Executive director Arthur O'Donnell said CRS is investigating how a standardized serial-based tracing system could provide both a theft deterrent and a way to bring more credibility to renewable energy markets.

At the July 15 SEMI International Standards workshop hosted by the Anti-Counterfeiting Task Force, as part of the SEMICON West/InterSolar conference in San Francisco, the agenda included PV Traceability Issues -- particularly a discussion of the relevance of SEMI standards T-19 (for marking) and T-20 (for unique serial number identification) to this problem.

"While there are technical hurdles to standardized IDs, given the plethora of PV module technologies, I was heartened by the Task Force's interest in exploring this potential application of the standards," O'Donnell said. "The next task is to get more information about how this can work and to enlist more members of the PV industry who will see the benefits of standardization. Acting together manufacturers, installers, system owners and insurers can help drive the process to make a registry a reality."