

Incentives Energize Solar Industry

Two initiatives aim to reduce costs

Solar energy was first harnessed as a significant source of electricity in the 1950s, when Bell Labs created silicon-based photovoltaic cells to provide reliable power for telephone service. These PV cells were able to convert 6 percent of the sun's rays to electricity and required about one square yard to generate 50 watts — a quantum leap from the 0.5 percent efficiency of the available selenium-cell technology.

Fast-forward 50 years, and the average PV cell is now 15 percent efficient. Solar power has become an economical choice for off-grid applications (such as off-shore oil platforms, satellites, and other remote locations), but grid-connected solar-generated electricity still hasn't achieved the "break-even" point — when systems can pay for themselves without subsidies. However, two significant programs announced in January aim to make PV systems cost-effective: the state-level California Solar Initiative (CSI) and the federal Solar America Initiative.

Overseen by the California Public Utilities Commission and the California Energy Commission, the CSI is the largest solar incentive program ever launched in the U.S. The \$2.9 billion of rebates promised in the 10-year plan — in addition to \$300 million already allocated for 2006 — makes PV systems more affordable for California homeowners. Also, the generous time frame of the commitment gives the industry a long-term guarantee of consumer demand.

The existence of a ready market will encourage solar companies to invest in increased production; the greater volume, predicts the Public Utilities Commission, will eventually lower unit costs. Indeed, this has

Former lead-paint makers are liable for creating a public nuisance, a Rhode Island superior court jury decided in February. Three companies — Sherwin-Williams, NL Industries, and Millennium Holdings — lost their cases; of the others named in the original lawsuit, Atlantic Richfield Co. was found not liable and DuPont Co. settled last year (*In the News*, 9/05). However, Judge Michael Silverstein ruled that punitive damages would not be added to the as yet undetermined cost of abatement, reports the *Associated Press*. The three-month trial was closely watched by other states; in March, a state appeals court reinstated a similar lawsuit brought by California cities and counties against eight former lead-paint manufacturers.

Runaway remodeler Craig J. Oliver is being sought by the F.B.I. and the U.S. Marshals Service for scamming more than \$2 million from 68 homeowners for unfinished and shoddy remodeling projects. The 52-year-old man was already missing when he was sentenced *in absentia* in January by the U.S. District Court to serve 20 years in prison and pay \$2,546,357.32 in restitution.



The lower profile of a thin-film PV roofing system like this one appeals to customers who object to the bulky appearance of conventional PV panels.

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proved to be the case for solar companies in Japan, one of the world's two major consumers of solar technology (Germany is the other). After some 10 years of massive subsidies, "the average system cost has fallen by about 75 percent," reports the Environment California Research and Policy Center, and Japan "is approaching the point at which government rebates will no longer be needed."

The goal of the California plan is to increase solar capacity by 3,000 megawatts (one megawatt equals 1,000 kilowatts) in the state by 2017. The initiative provides a rebate of \$2.80 per watt — approximately one-third the cost of an average 3-kilowatt residential system — for newly installed capacity. The rebates will initially apply just to PV; solar hot water (often neglected in solar incentive programs) and solar heating and cooling systems will be added later this year. Funding is drawn from surcharges on utility bills, and 10 percent will be set aside for solar projects for low-income customers and affordable housing.

To keep pace with anticipated reductions in the costs of solar equipment and installation, the rebate is scheduled to decrease 10 percent a year.

The federal Solar America Initiative, first announced in President Bush's 2006 State of the Union Address, is financially less ambitious than the California plan, but nonetheless is being hailed as an important step by industry experts, especially when considered along with the new federal tax credits for PV and solar water heating systems (see *In the News*, 10/05).

"Within 10 years, we estimate that this program will result in 10 gigawatts of grid-connected solar electric capacity," says Rhone Resch, president of the Solar Energy Industries Association. "That would be 20 times today's levels." Toward that end, President Bush has included \$148 million in his 2007 budget for research into solar technology, a 78 percent increase over 2006 funding.

The future of solar looks bright but for one immediate logjam: Due to increasing demand, PV manufacturers are facing a shortage of processed silicon, and until silicon production catches up, this will translate into higher PV-module prices. Hemlock Semiconductor Corp., a major supplier of polycrystalline silicon for PV systems, plans to double capacity at its Michigan plant within two years. This and other manufacturing expansions have industry analysts predicting that the shortage will be resolved by 2008.

In the meantime, makers of solar thin-film products — which require little or no silicon — are hoping to capitalize on the shortage. Companies like United Solar Ovonic (the Auburn Hills, Mich., firm that hosted President Bush as he promoted his renewable energy plan) are ramping up production to take advantage of limited supplies of PV panels and increase thin-film market share from its current 7 percent. In an action read by some as a vote of confidence in the future of thin-film, Royal Dutch Shell agreed in February to sell its solar crystalline production capacity to SolarWorld, and will focus instead on thin-film technology that uses copper, indium, and selenium rather than silicon.

The downside to the average thin-film module is that it is less efficient than a



Solar cells made with amorphous silicon (a-Si) are deposited on mile-and-a-half-long rolls of stainless steel to create Ovonic's Uni-Solar thin-film PV material. Less silicon is required for thin films than for conventional PV modules, which use a crystalline form of silicon.

conventional PV module and also loses efficiency over time at a faster rate than panels. But it's cheaper to manufacture, is less dependent on the supply of silicon, and is making gains in both efficiency and durability.

The global PV market grew 62 percent in 2004 over 2003, with 927 megawatts installed. Analysts at Solarbuzz, an international solar-energy research and consulting company, predict growth will continue, and by 2010, the annual worldwide installation rate will be 3.2 gigawatts. — *Laurie Elden*

Bay-State Employers Face Strict Sub vs. Employee Test

Is that worker an employee or an independent contractor? The difference matters when it comes to comp coverage, tax withholding, eligibility for unemployment benefits, and more.

Nationwide, a longstanding 20-item IRS test spells out flexible criteria for determining worker status. But states can also weigh in on the question, and Massachusetts employers now have a tough set of hurdles to overcome when taking on a casual hire.

Passed in the summer of 2004, "An Act Further Regulating Public Construction" contains amendments to the Massachusetts Independent Contractor Law and creates a presumption that every worker is an employee.

To treat any worker as independently self-employed, explains the attorney general's office, the party receiving the services must establish that three factors are present: "First, the worker must be free from the presumed employer's control and direction in performing the service, both under a contract and in fact. Second, the service provided by the worker must be outside the employer's usual course of business. And third, the worker must be customarily engaged in an independent trade, occupation, profession, or business of the same type."

Labor lawyers say the second prong — work "outside

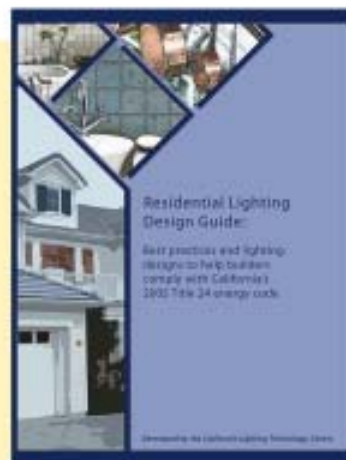
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RESOURCES

Two Guides to Energy-Saving Lighting Design

You don't have to live in California to appreciate the practical suggestions contained in "Residential Lighting Design Guide: Best Practices and Lighting Designs to Help Builders Comply with California's Title 24 Energy Code." This 25-page guide written by the California Lighting Technology Center, an organization created by the California Energy Commission and the University of California, Davis, emphasizes the use of high-efficiency lighting, occupancy sensors, and dimmers to lower energy consumption. Sections on kitchens, baths, interior living spaces, and outdoor areas detail specific lighting recommendations with accompanying wattage. The guide can be downloaded for no charge from www.cltc.ucdavis.edu.

While you're online, check out the "High Performance Lighting (HPL) Guide" at www.ibacos.com/hpl1.html. Not a download, the guide is actually the Web site itself, which was developed by Pittsburgh-based Integrated Building and Construction Solutions and funded through the U.S. Department of Energy's Building America program. The goal of HPL is to reduce energy consumption without sacrificing quality of light; the site claims that using an HPL strategy can lower energy usage for lighting by 66 percent to 75 percent. Floor plans and lighting designs for eight rooms are supplemented by specifications for bulbs and lamps, and a list of representative fixtures for direct, indirect, and recessed lighting — with a declared preference for those with an Energy Star rating.



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the usual course” of the employer’s business — will be the toughest to meet. Web-site commentary from the Boston law firm of Murphy, Hesse, Toomey & Lehane notes, “Unlike the former independent contractor law, it now appears ... that a company may not hire a worker to perform service that it delivers as part of its business and classify that worker as an independent contractor.”

If you’re a builder, for example, that essentially means all carpenters on site are employees — regardless of whether you and the workers want it that way.

The main backers of the new rules are union contractors bidding on large government contracts. “They want to create a level playing field,” says Tom Messier, vice president of Mason & Mason Insurance Agency in Whitman, Mass. “In Massachusetts if you bid public work, you have to pay your workers union wage whether you are a union shop or not. Nonunion shops get around that by calling the guys independent contractors and paying them piece rate. That’s what the unions want to stop.”

Even for small residential contractors, though, there’s a big potential downside to flouting the law. Hire a solo framer as a sub on a remodel for nine or 10 weeks, and he could file for unemployment benefits when the job’s over — on your ticket. If he gets hurt, he could file for comp benefits — again, on your nickel. He could even be entitled to charge time-and-a-half for any hours he works beyond 40 a week.

So far, however, Massachusetts tax authorities say they’ll use the less rigid IRS 20-item test for deciding whether the general contractor must withhold income taxes from a worker’s check.

But there’s more: In Massachusetts,

misclassifying employees carries criminal and civil penalties. A first offense can earn a six-month jail sentence and a \$10,000 fine; for repeated offenses, jail time could be two years and the fine \$50,000. Civil fines of \$7,500 to \$25,000 are possible on top of that.

And if things really get ugly, the worker can sue for treble damages plus attorney’s fees.

Messier predicts the law will be modified as the ramifications become clearer. “There has already been a lot of backwash,” he says. And with Massachusetts Attorney General Tom Reilly entering the governor’s race, Messier doesn’t expect to see broad enforcement efforts. “He can’t afford to be seen as antibusiness,” says Messier.

Nevertheless, the strict new rules are changing the business climate somewhat, Messier observes. “More and more, we are seeing general contractors force the smaller independent subs to buy their own liability insurance,” he says. “And some of the bigger builders won’t even deal with a sole proprietor anymore — you have to be incorporated, have a million dollars’ liability, and you have to cover all your employees with workers’ comp.”

The new independent contractor definitions haven’t really affected the workers’ comp landscape, says Messier: “The workers’ comp law in Massachusetts defines an employee as anyone under any contract of hire to anyone else, and that hasn’t changed. I don’t care who pays for the insurance, but if your subs don’t pay it, you’re going to.”

Messier’s firm has never been loose about that, he says. “If guys come in here and want to play games, I’ll tell them to go down the street.” — *Ted Cushman*

As a rule, you don’t want to know what Roto-Rooter technicians find in a day’s work, but the company’s top five drainpipe recoveries of 2005 aren’t your usual stoppages. The first item on the list is a live Civil War cannon shell, found when a crew excavated a residential sewer main (it was safely removed by an Army Ordnance team). Coming in at No. 3 is a platoon of GI Joes that, along with a fleet of matchbox cars, had been sent to Davy Jones’ locker by a 3-year-old admiral with an apparent flair for flushing the toilet. The remaining top recoveries were a live cat rescued from a storm drain, a stash of drugs and cash retrieved as evidence for a drug bust, and a collection of (empty) miniature liquor bottles pulled out of the sewer main at a business property. So, what’s in your drain?

Giving new meaning to the phrase “take the stairs,” thieves swiped a banister from a Gilroy, Calif., home that was in the process of being remodeled. Clearly, the burglars had some appreciation for architectural elements, as the wrought-iron balustrade was worth \$120,000. Also taken in the January theft, according to the *San Francisco Chronicle*, were wood doors, tile, power tools, and sinks.

Some 14 percent of illegal immigrants were employed in construction last year, says a Pew Hispanic Center report released March 7. The study also found high percentages of illegal immigrants in certain occupations: More than 20 percent of all insulation workers, roofers, drywall and ceiling-tile installers, trades helpers, laborers, brick masons, painters, and concrete finishers were “unauthorized migrants.”