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REPORT

Energy

Solar Power Generators Could Enhance Income, Energy Supply, National Security

Power generated from rooftop solar units and sold to power plants may someday produce as much as 25 to 30 percent of America's total electric power needs, according to industry experts.

Such systems are not yet profitable, but the federal government is offering incentive programs to ''help jump-start the solar industry,'' according to Gary Kassem, president and chief executive officer of SingleSource, which designs solar and traditional roofing surfaces.

Kassem told BNA March 30 that although there are obvious ecological and potential financial advantages inherent in these units, one of the most important is national security. A rooftop-mounted energy system can localize every building's energy supply, he said, rather than rely on a central power plant. ''When you have power distributed through all of the buildings in the country,'' he said, ''there is a security advantage.'' Power clustered in major plants, he said, ''can be an issue.''

The practice of distributed generation, which factors in the time of use, can be helpful on several levels, he said. Solar energy is created during daylight hours, producing power just when the area's power plants are working toward full capacity, usually somewhere between 10:00 a.m. and 4:00 p.m. ''Every power company has peak load demands,'' Kassem said, when air conditioning requirements are at their highest and power is most expensive. ''Most power companies have enormous time-of-day charges . . . sometimes two, three, or four times as much. So that's when we have solar working to take the top off the load,'' he said.

Another advantage, Kassem said, is the fact that the owner has a localized energy source during brownouts or even hurricanes. ''You have a power plant on your building,'' he said.

For cities in the developing world, where brownouts are more frequent, solar power and generators are ''ideal,'' Kassem said, adding that India could benefit because it is in the early stages of developing its manufacturing base. Also, India and China have among the lowest-cost supply chains—meaning the least expensive combination of labor and materials expenses—in the solar industry, he said.

Solar Generation, Income Generation. Kassem said the potential for income generation can be very attractive. ''We have demonstrated cumulative economic benefits for rooftop owners in the tens of millions of dollars over the life of the system,'' he said. Kassem advised one client who had a single building to install ''the right kind of solar-ready roof five years ago. And now they have an opportunity, over the next 20 years, to make $1.5 million from energy sold from that same building.''

Any dangers in installation, Kassem said, have much more to do with the roof itself. ''Solar power generation is a simple old theory that has been around for a long time,'' he said. ''Most of the rooftops in [the United States] are in disrepair.''

The country is emerging from a serious recession, and even before that companies were cutting their capital expenditures, Kassem said, ''so a lot of roofing projects that should have been done three or four years ago are [just] now being contemplated. We've got old roofs, and when you put a solar array on an old roof you have to realize that you are going to have to take that array apart to put a new roof on at some point.''

Although solar generators become more profitable as they get bigger, small residential units are viable and in fact functioning, Kassem said. ''In some markets, very small roofs are the only thing that pencils,'' he said. ''In others, only big roofs pencil. So you run the gamut there. There is no technical limit.''

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Federal Tax Incentives. Solar generators produce power that is ''very expensive,'' so the financing mechanisms are critical to their success, he said. The federal government offers a tax credit, the Business Solar Investment Tax Credit, IRS code 48, which allows a 30 percent deduction for using a solar system, but Kassem said that the tax credit alone is not enough to make it work. At the end of the day, customers with solar systems still pay more for power than they would pay to a local utility, ''so that's why you need local incentives.''

The United States, almost alone in the world, has several models for financing installation of a solar power system, he said. Most of the local incentives, for example, are paid out by the power company that buys the energy.

''In some parts of the country we have Renewable Energy Credits (RECs),'' Kassem said. ''The RECs have a moving market value that often changes, by the week, by the month.'' This can be financially advantageous, he said, because it allows users to sell renewable power into the system at a favorable price.

Other parts of the country use a Production-Based Incentive, or PBI. In a PBI scenario, the power company pays a given amount per kilowatt hour, but it is a set number and hence more predictable. Kassem compared it to a tradable certificate. ''The PBI is fixed at a certain level for certain tiered levels of capacity, and then the incentive, which is money coming from the power company and going to the system owner, drops down to a lower level as the capacity is filled.''

Another model combines PBIs and RECs; it is usually found where PBI systems are already in places. Generally speaking, the West Coast is more PBI-oriented and the East Coast favors REC, he said.

The incentives, Kassem said, eventually will be phased out. The 30 percent investment tax credit ends at the end of 2016, and he said that it could fall to as low as 10 percent. But solar power generation itself is getting cheaper all the time.

''Solar panels used to sell for double what they sell for today,'' Kassem said. ''The price has gone down 50 percent, and that will happen another one or two times and they will be very commercially available and very simple to do. The whole concept of all these renewable energy credits is to give solar a good head start.''

FIT. The program Kassem is most enthusiastic about is called the feed-in tariff (FIT). The FIT, long popular in Europe, is the price per unit of electricity that a utility has to pay for renewable electricity from private generators. Under this system, the user installs power-generating photovoltaic arrays with the intention of selling power to the utility. ''You take the rooftop, you build it, the power company pays so much for each watt of electricity,'' he said. ''That's a simple model. That's what the world is basically using, except for the United States.''

Considering that it generally requires 70,000 to 80,000 square feet of rooftop space to generate 500 kilowatts, the best candidates for profitability are commercial buildings, according to Kassem, who added that ''there is really no minimum size.''

Asked if struggling shopping centers might want to use this as an additional income generator, he replied that they already are, in an unexpected way. When it comes time to sell the shopping center, the rooftop rental is factored into net operating income.

''You're adding another floor of rental opportunity to your building,'' Kassem said. ''It's happening every day on shopping centers and on industrial buildings. It's a thriving industry, but everybody doesn't know about it.''

By Kevin Lambert

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