

## **Increasing PV Funding Through Education and Awareness** by Clayton Handleman

*As seen in Solar Access RE Insider...*

In spite of our recent strides, the solar and renewable industry is still in its infancy. Poised to grow by orders of magnitude in less than a generation, it is important that, as an industry, we take a long term approach to how we build our markets. Production costs drop as production volume increases. However, most of the demand is in Japan and Germany. United States programs, even in aggregate, are comparatively small and therefore play little significant role in driving prices down.

Unlike in Japan and Germany, which have high energy prices and little domestic supply, the urgent need for renewables is not built in to the everyday experience of US citizens and policy makers. Therefore, there is comparatively little active support for renewables in this country. Photovoltaics (PV) will happen with or without substantial US participation. The question is whether we will choose to nurture this industry domestically and enjoy the substantial economic benefits of doing so.

A progressive program of public education and awareness is crucial to developing widespread public support for a vibrant renewables manufacturing industry in this country. Polls show that the public likes the concept of renewable energy. I live in a typical upper middle class suburb full of SUV's and energy hungry McMansions. Just where you would think that nobody cared about energy. However, as my children have entered the school and we have entered the social life of the town, I am finding that people are very excited to learn of my profession and that renewable energy is moving forward. Many understand and share concerns about our current energy policy. However, I also find that if the information isn't brought to them, they don't go out looking. Our industry cannot afford a lot of super bowl ads so how can we convey the message of our vision to an open minded but very busy public?

Public education and awareness is the key to success. Venue and message are critical to a successful public education and awareness program. Energy is somewhat like healthcare, in that it is a complicated issue. It is difficult to convey the need for, and benefits of, solar energy in a 60 second sound bite. It is necessary to find ways to engage the general public in a conversation about the importance of renewable energy and PV in particular. Finding a time and place when people's minds are receptive to this more involved message and delivering it in an interesting and inspiring way are the key elements to a successful public education and awareness program.

Excellent venues to motivate the conversation include schools, universities, museums, nature centers, libraries, commercial buildings and web sites. One

highly effective approach is to place PV systems at these sites with monitoring equipment. For the approach to be effective it is vital to provide a data display that is dynamic, interesting, easy to use and easy to understand. The general public is blissfully ignorant of the ready for primetime status of PV technology. A monitored, fully operational array is an excellent tool for surmounting this fundamental barrier to widespread support. With a real time display showing sunlight and the system's response to it, a user immediately gets the message that solar is here now and it works. That alone can be enough to stimulate further independent inquiry. If the software or web ware is well designed, it supports further inquiry on the spot. Display systems of this type are commercially available now.

In schools, these systems can, with good curriculum, catalyze and reinforce learning across a broad range of subject areas. The system is real and working to provide power for the school and provide an experiential learning platform. This is a refreshing change for students who, much of the time, are forced into the arms-length educational model of textbook learning. While some relevant curriculum is available for utilization with these systems, more is needed and it needs to teach to the standards. Relevant curriculum development is proceeding with little coordination. This has led to a lot of overlap and redundant efforts. Desperately needed is a powerful, easy to use, curriculum clearinghouse database. This will facilitate access and involvement of a far larger number of teachers and make it easy for would be curriculum developers to quickly survey the body of existing work in order to build on it rather than replicate it. A curriculum clearing house would leverage resources at the current level. Better still would be a substantial funding increase to support development of k-12 multidisciplinary curriculum incorporating real data and teaching to the standards. Getting renewable energy questions on standardized tests would be the ultimate coup and is not an unreasonable objective.

Another emerging, effective venue is the corporate lobby. Corporations and the financial community are finding that being green can be good business. Large companies are starting to place trophy PV arrays on their headquarters and then feeding data into fun kiosk displays in their lobbies. A new buzzword in the investment community is decarbonization, reducing use of carbon-based energy for production and operations. Recent research has shown that forward looking companies are better performing investments, and that an active de-carbonization program is a strong indicator of a progressive, forward-looking corporate culture. An instrumented trophy array provides a way to call attention the corporation's de-carbonization efforts, potentially adding to shareholder value.

The effectiveness of monitoring as a promotional tool can be aided in a variety of ways. It is critical that public education and awareness displays be designed for the purpose of teaching. Operations and maintenance displays that are designed by engineers for engineers and then halfheartedly adapted to education make

about as much sense as using a crescent wrench to rebuild your car's engine. It is cheap, but it is the wrong tool for the job. As an industry we need to realize that education, operations and maintenance are different functions and require different tools. There is a small market for good educational displays and little government support for their development. As such they cost a little more. However the impact of doing-it-right should not be underestimated and the damage done by cutting corners cannot be overestimated.

If the United States wishes to partake in the enormous economic gains that PV has to offer, we must have substantially more government support. Getting this support likely will require inviting the general public into the energy conversation. Many of the tools needed to prepare them for this conversation are available now and need to be distributed more widely. Tools such as sophisticated, graphically rich, educational displays are available now. These tools work with touch screen kiosks, computers over local area networks and over the Internet. In order to mobilize public support quickly and effectively, the industry must work together to make public education and awareness programs available and easily accessed. They must be in venues where people are in the proper frame of mind to absorb the story. New standards-based curricula using these systems is vitally important to weave a nationwide web of understanding about emerging distributed generation technologies. Finally, a web based curriculum clearinghouse database needs to be constructed to enable teachers and curriculum developers easy access to the existing body of curriculum so that they can effectively build on work done to date further catalyzing demand for and effectiveness of these tools.

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