

AEE Solar's David Katz

Thirty Years in the Wholesale Supply Chain

Veteran solar pro David Katz, CEO of AEE Solar, has been in the industry since 1979 when he founded Alternative Energy Engineering to bring “power to the people” in northern California. He responded in 1981 to clamors from interested buyers with a “Lindberg ransom note” style cut-and-pasted catalog, becoming one of the first US solar distributors. The 2008 full color version of the wholesale catalogue is 208 pages and used by PV system designers and installers throughout the industry. An electrical engineer by training, David’s interest in solar began with a personal need for electricity in his owner-built Humboldt County home. Over the last three decades, David has built up one of the most respected and rapidly growing networks of dealers in the US.

—Joe Schwartz, SolarPro Publisher and Editor, caught up with David at ASES Solar 2008 in San Diego.

JS: What is the current split in your product sales between grid-tie and off-grid, and between commercial and residential installs?

DK: Probably 30% of our business is still off-grid. A lot of distributors have moved away from it. There is so much money in grid-tie, they are not interested. Commercial has got to be bigger now because, of course, the projects are so big. So I’m guessing it is close to 50-50 now, maybe even a little more commercial. And that is driven by the investment tax credit that’s maybe going away and thus everyone’s rush to install a PV system while they get 30% back from the federal government.

JS: What do you think the impact of that tax credit expiring might be?

DK: If it goes away, I think it will come



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Selling solar for 30 years AEE Solar CEO David Katz has been raising the bar on making money from the sun since 1979.

right back. I’m just looking at these European and Japanese companies that are buying businesses in the US, for way more than they are worth, because they are assuming the market is going to grow like crazy. They see what happened in Germany, and everyone is looking for the same thing to happen in the US. I think those guys can’t be wrong. The market is not going anywhere without the tax credit. So I think they will make it happen.

JS: Do you think there are dark days ahead for small design and installation outfits?

DK: I think that there will be increasing

rebates all over the country for residential systems. I am confident that the whole country is going to come along, and there will be lots of room for the small installers. People want to be green. People want to minimize their impact on the earth, but they’re still into running their air conditioning.

JS: What changes have you seen since ‘81 in the profile of your dealers? Has there been a significant shift toward more mainstream electricians?

DK: In the old days, it was kind of the back-to-the-land CONTINUED ON PAGE 84

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person who was innovative and working his neighborhood as an installer. Now we see a lot of building, electrical, heating/air conditioning and home improvement contractors who are professionals in dealing with homes coming into at least the grid-tie side of it. The off-grid side is still populated by the old-timers who have been doing it

for a long time. You can't find a nuclear engineer under 50. I think that it is the same with off-grid guys.

JS: Speaking of batteries, I hear you're running an ac-coupled system at your home in Arcata.

DK: We have an ac-coupled system where the PV array feeds the subpanel that has my critical loads in it: the refrigerator, the electric igniter in the fireplace and all the lights in the living room. I have an OutBack GVFX3524 inverter that has the inputs connected to a breaker in the main panel, and the output is connected to the subpanel. When the grid goes down, the subpanel sees the output of the OutBack. It looks like the grid is still there so the array keeps on working. I have a 4 kW array on the roof. I use two 1800-watt SunnyBoys, because they have 120 V output. I fed them into the 120 V subpanel to run my critical loads. I set it up fairly simply to have good grid-tie efficiency and standby power.

JS: What is the control approach?

DK: I just have a relay that is connected to the ac input to the SunnyBoy inverters and is also connected to the auxiliary output of the OutBack inverter. It measures

battery voltage. There is no other control for it. As long as the SunnyBoy sees ac on its input, it will charge the batteries via the OutBack inverter if I am not using the power in the house. If the sealed batteries get up to 28.4 volts, this opens the relay. The array on the roof sees this as a power failure and it turns off. When the battery voltage drops a volt, the array turns back on again. So I use the relay as the charge controller.

JS: What technology innovations are you paying attention to?

DK: I am not seeing a lot of technology innovations in solar modules. There is a gradual increase in efficiency. I have seen all the big module manufacturers growing their capacity with conventional crystalline technology. So I do not think that the nano solar idea is close. These big module manufacturers wouldn't put billions of dollars into plants to produce technology that is going to be obsolete.

Inverter technology is definitely changing. They are getting better, and they are getting more efficient. I am interested in the Enphase Energy micro-inverter, the individual module inverter. You could do a 500 kW installation with microinverters, and you'd get monitoring and maximum power point tracking right down to the module level. You do not have these conduits filled with 600 Vdc wire running all over the roof and down. For a large installation on a big box store you have to have a lot of room to put in a megawatt worth of inverters. If you do it with modular inverters, you've got the inverter mounted on the racking underneath the modules. It is conventional ac wiring. You turn off the breaker and everything goes off on the roof. The only power flow is between the module and the little inverter under it. So, source circuits are 18 inches long or something, and everything else is ac. I bet fire marshals love it. Pricing could be competitive. I think that if micro-inverters would come in under \$0.50/watt, they would be competitive with \$0.25/watt central

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A sharp mind for business and tech Katz has been expanding his dealer network into new vertical markets that include mainstream electrical and roofing professionals.

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inverters that require all the real estate and all the extra parts. It is doable if the right people design it.

JS: In terms of installers, what do you see as their biggest headaches at this time?

DK: There is a module shortage right now. Supply keeps going up and down based on artificial parameters and incentives. Mostly because of Spain's and Germany's tax credits, people are paying 30% to 40% more for modules there. So any module manufacturer who is going to sell modules in the US has to have decided to subsidize the US market. I think everyone realizes we can't charge people in the US the price they are charging in Germany for modules or it would look like the incentives all failed. (laughter) It's a crazy kind of system. You've got to have the price of the module drop gradually to match the rebates. And what the rebates do is

increase demand and grow the industry. Unfortunately what's happened is demand has increased so much, the price has gone up on the modules.

JS: Do you think silicon supplies have stabilized at this point?

DK: No, we're still relatively short. The silicon industry does not want to grow as fast as the solar industry is growing, because they are a bit afraid of it. In the late 1990's, they were growing really fast for the dot-com industry. And then the stock market crashed, and the dot-com industry crashed, and they had capacity they couldn't use. The silicon shortage has been a blessing for them. Silicon refineries are getting \$400/kg on the spot market now, and they were getting \$28/kg in 2000.

JS: So anyone without long-term contracts now is buying on the spot market and

that is going to keep prices high.

DK: Yes. For the Chinese companies selling modules, their silicon price is 30% higher than the US manufacturer. The Chinese are working on refining silicon now. I have heard that Chinese companies are hiring people from MEMC and REC—old guys who know how to refine silicon. The Chinese bring them over and pay them a lot of money to show them how. I see that as something that will drive a lower price.

The industry is in an interesting place. The US has sort of become the "China" of solar. Many companies manufacture here: Solar World, BP Solar, Sharp. We're cheap labor and cheap energy for the industry...and cheap silicon really. So, I see us as being the China of solar right now. This is where you get good quality module manufacturing at a low price. ⊕