

# Teaming Up for Solar Power

A Solar Distributor, System Integrator and Utility Work Together for a Good Cause

By: Ronald Fel Jones

It's been decades in the making but rising oil prices, concerns about global warming, and an uncertain future in the Middle East finally have America taking a shine to the solar energy revolution.

One essential underpinning of the recent solar boom is that solar systems on homes and businesses can now plug directly into the utility grid. Known as "grid-tie" solar – as opposed to off-grid or stand-alone solar – this utility-intertie technology has been available for a decade or more, but it's viability as a reliable, affordable energy source is now becoming a reality across the nation.

Electricians have a growing role to play – and an exciting business opportunity – in the new solar industry. In fact, one of the USA's oldest, largest and fastest-growing wholesale distributors of renewable energy equipment, California-based AEE Solar, is witnessing a surge in dealer

applications from electrical contractors looking to expand into solar power.

Most solar dealers and installers are from warm-weather states like California and Arizona. Rich in sunshine, these states also promote solar with robust tax incentives and rebate programs. But a solar boom is also underway in areas that, at first glance, might seem less likely candidates for taking advantage of the sun.

One cool-climate dweller, Wyoming-based Creative Energies, a renewable energy integrator and AEE Solar dealer, has recently completed a photovoltaic (PV) installation on one of the country's leading outdoor schools, the National Outdoor Leadership School (NOLS).

Both Creative Energies and NOLS are based in Lander, Wyoming. And, as if to show that states like California and Arizona would hold no monopoly on this up-and-coming technology, Creative Energies and NOLS teamed with regional





NOLS staff gets on-the-spot training from Creative Energies' Phil Schneider before pitching in to mount the solar panels.

utility Rocky Mountain Power to bring solar power to the NOLS facility, something very much in keeping with the environmental ethic of this wilderness skills and leadership school.

### **It's Not the Heat, it's the Sunlight**

It made for a peculiar sight last December as technicians for Creative Energies and NOLS staff members secured solar panels to the roof of school buildings in snow-covered Lander. But what counts in producing photovoltaic power is not warm temperatures but adequate sunlight. In fact, its the nature of the silicon-based solar panels to work more efficiently in lower temperatures.

And surprising though it may seem, Lander gets more solar radiation than most areas of the country. In fact, its 6.06 average sun-hours per day rates Lander higher than Miami (5.62), Los Angeles (5.62) or even Honolulu (6.02).

"Lander gets its fair share of snow, especially in the spring," said Phil Schneider, Creative Energies system engineer. And the prospect of snow presented the possibility of another complication to Schneider before the project began: how the build-up of snow drifts on the panels would affect system performance.

"We knew this would be an issue, particularly for the module string on the north-sloping roof," Schneider said. "But the NOLS maintenance supervisor is keen on this system and will be diligent about keeping it clear. We were forecasting 60 kWh/day as an annual daily average, and last weekend it produced about 50 kWh/day – even though the modules were half blocked by drifted snow! So that's encouraging."

### **A Multi-Party Effort Makes It Happen**

Creative Energies, with the help of an \$80,000 grant to NOLS from Rocky Mountain Power's Blue Sky program, installed the 14kW rooftop solar electric system this January. They project it will supply approximately 40 percent of the facility's energy needs. Once the full five-year program is complete, NOLS hopes to power 80-90 (Continued on page 22)

percent of its electricity with solar.

With comparatively low-cost electricity from Rocky Mountain Power and minimal state solar incentives, Wyoming is not yet a hotbed of solar activity. But that is beginning to change, and Rocky Mountain Power (RMP) is part of the reason.

In a statement on its website RMP places protecting and enhancing the environment at the forefront of its business strategy: "We believe in building an increasingly sustainable energy supply and delivery business." The company's new power generation plans include a target of adding 2,000 megawatts of renewable resources to its portfolio by 2013.

And while solar energy may be a new business frontier, Creative Energies knows that tried-and-true business practices are essential to succeed in this leading-edge industry.

"We choose to work with AEE Solar primarily because of great service," said Scott Kane, co-founder of Creative Energies. "We always look to AEE Solar first



System engineer Phil Schneider affixes UniRac SolarMount standoffs to the roof in preparation for the installation.

because, for starters, we know we will get a real person on the phone, or a prompt response to a message."

And in the increasingly competitive world of solar installation, Kane stressed the importance of having a supplier he can count on. "AEE keeps great stock of all the equipment and parts we need," he said. "In particular for this job, our AEE sales reps quickly secured the panels we wanted from Evergreen Solar. We like working with Evergreen, a leading USA maker of solar modules, and AEE Solar always has great pricing. Their shipping is timely and accurate."

Kane added, "I'd guess we're smaller than a lot of AEE's clients, but we nonetheless get professional service and unfailing tech support. We consider AEE Solar a virtual partner in our business."

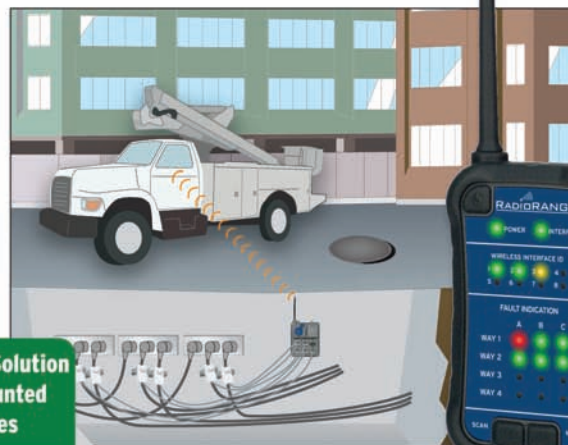
### Electricians Adapt Quickly to Solar Power

Solar power has been around for decades but the nuts and bolts of integrating solar

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electricity into the grid might be unfamiliar to electricians new to the technology.

Electrical contractors are ideal candidates for getting into the solar business, since dealing with high voltage electric currents is an essential part of the business. Every electrician knows and respects the dangers faced when circuits are not handled properly. Still, some aspects to solar will be initially unfamiliar to electricians, such as dealing with DC currents in addition to the standard AC.

Also, unlike with conventional house wiring, the electrician must now deal with two power sources, not just one from the utility. Even if the utility source is switched off, the solar array wiring will still be hot if the sun is shining.

Josh Wells, the electrician at Creative Energies who helped bring the NOLS project together, took it all in stride.

“Generally, coming from residential wiring to the PV world, an electrician has a few details to be aware of,” Wells said. “First, there’s more attention to series and



Creative Energies Electrician Josh Wells worked closely with local utility Rocky Mountain Power to ensure a smooth interconnection to the utility power line.

parallel circuits. Houses tend to be limited to lighting and power circuits which are paralleled. With PV installations, both series and parallel circuits are common and necessary. So there is more of a ‘de-

signing’ aspect to PV systems to ensure the desired voltage and amperage to work appropriately with the selected PV modules, inverters and charge controllers.”

In areas where (Continued on page 24)

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Though the school's maintenance crew must keep snow drifts from covering the modules, cold temperatures will not reduce output when the sun is shining.

the utility companies have little experience with renewable power sources, the electrician can play a vital role in helping lead the way.

"A challenge with the NOLS project was coordinating with the electric company," Josh said. "The Rocky Mountain Power folks were great to work with, but just the fact that the installation of solar on a grid-based system in Wyoming is new and different means extra time needed to be taken, for example, in getting an OK from the RMP folks to install single-phase SMA 7000 inverters on a three-phase service. After a few phone calls and some brief explanations, the RMP folks were very cooperative and happy to make it happen."

### Traditional Business Values for a New Solar World

Founded in 2001, Creative Energies has been an AEE Solar dealer since 2004, where it purchases 90 percent of the solar equipment it installs for commercial and residential customers. PV constitutes about 70 percent of Creative Energies' revenue.

Companies like Creative Energies are finding an ever-widening market for their services, and government and utility policies are following close behind the public's interest in renewable energy sources. Creative Energies notes, for example, that the local Lander building inspector is becoming educated and interested in solar.

"Despite the lack of incentives in our state, our business is booming," Kane said. "More and more people are interested in solar power in Wyoming, whether for reasons of personal energy independence, environmental concern or national security. And even though solar is not yet cost-competitive with conventional electricity sources in Wyoming, people have the sense that the day when solar is competitive is inevitably coming, whether sooner or later."

AEE Solar is committed to helping electrical contractors and system integrators like Creative Energies bring solar to a growing number of homes and businesses nationwide. By providing extensive dealer training, top-flight tech support and a wide selection of proven, tested solar products, AEE Solar employs the never-out-of-date business strategy of delivering superior service to its customers on the front lines of the renewable energy revolution. □

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