

FEATURED

Peter Greenberg: A chat with the guru of solar

Jim Day
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Peter Greenberg of Albany talked about his background and the current and future state of solar during a wide-ranging interview last week at the Democrat-Herald.

You receive a news tip about Peter Greenberg. It notes that the Albany resident, who runs Energy Lighting Inc. out of his home, has done some interesting volunteering on solar projects internationally.

So you request an interview. It turns into a two-hour treatise on solar power, wind power, energy efficiency and politics, with reams of information flying back and forth electronically both before and after the interview.

Ultimately, however, you must sit down and write the story. Here goes.

Biography

Greenberg, 64, grew up in New Jersey but came west to study parks administration at Oregon State University. He didn't finish, but he found time to start a whole bunch of things.

He worked as a volunteer paramedic and firefighter with the Corvallis Fire Department, studied to become a paramedic at Linn-Benton Community College, joined the Albany Fire Department. And learned a lot.

“If you are working for a fire department you figure out that you can do pretty much anything,” he said.

He started dabbling in energy infrastructure, developing and manufacturing a solar water heater and the first LED exit signs.

Then he went international, working as a lighting contractor for the United States Department, mainly upgrading light fixtures at American embassies. While in the former Soviet republic of Georgia he convinced authorities to use President Eduard Shevardnadze's private airplane to fly in new fixtures from the U.S. for Georgia's National Art Museum.

The next day was Sept. 11, 2001, so the plane never left Bolling Air Force Base in the D.C. area with the bulbs. So Greenberg did the best that he could.

“I spent a few months changing all their lights,” he said. “They put me on TV in Georgia, dubbed Georgian into me and gave me a medal that I have somewhere or another.”

Working overseas, however, had its perks. Tax credits, something Greenberg would learn a lot about in the future.

“Tax rules were such that if you stayed out of the country for 11 months out of the year you didn't have to pay taxes up to a certain limit,” he said.

Greenberg used the windfall “to start my lighting company, where we manufactured lights for warehouses and tall commercial spaces (school gyms, all types of warehouses) in Eugene. We built about 75,000 fixtures over the years, stopping in 2010.”

Well, he didn't really stop, he just moved on to other things.

Interlude

Wait a minute, we forgot about Amory Lovins. Somewhere along the way Greenberg became familiar with Lovins, who he calls “the guru of energy efficiency and renewable energy.” Greenberg first heard Lovins speak at the University of Oregon in 1978 or 79 and also volunteered to help build Lovins' Rocky Mountain Institute in Basalt, Colorado.

“Everyone should have a hero,” said Greenberg, who peppers his papers with sayings from Lovins, including “using nuclear power to heat water is like cutting butter with a chainsaw.”

Greenberg: “He exemplified and popularized the idea that it's cheaper to save energy than to build new power plants.”

End of interlude.

Solar realm

Around 2010 Greenberg moved into solar work. He must have been crazy. Such a volatile industry. Tax credits come. Tax credits go. Panels are too expensive. Hello, recession! Lots of people think renewables are just pipe dreams of wackos.

But Greenberg hangs in there. He wears out calculators figuring cost ratios. The prices start to come down. And he learns a couple of key truths: 1) big projects make far more sense than rooftop residential; and 2) working with nonprofits is a win-win for everyone.

“It’s cheaper to build big (solar) stuff than little systems,” Greenberg said. “It’s much more expensive to get a lot of customers and systems are more efficient on the ground on trackers that follow the sun.”

Ah, trackers. Most people think of solar panels as fixed objects. Not anymore. Now, they move, and as Greenberg put it, “follow the sun.” Huge gain in bang for your buck.

“Utility scale systems are using trackers more and more, which is driving down the price,” Greenberg said. “We were the first customer of one of the largest utility fixed-tilt solar racking companies in the country three years ago. They sold us 2 MW, they are now up to about 3,000 MW and will probably produce 4,000

to 6,000 MW this year. About 65% of large scale solar uses tracking. There is too much torque to do this on roofs, though some companies are starting to put trackers on solar carports.”

Greenberg owns solar systems on schools in Albany, Turner, Salem, Mt Angel, Silverton, at George Fox University and Newberg. He has worked with the Boys & Girls Clubs in Albany and Corvallis as well as the Habitat Restore.

“We sell power to the utilities and pay our hosts, who don’t pay anything. Memorial Middle School (in Albany) is saving 20% on electricity. The Boys & Girls Club of Albany is almost at net zero, producing about as much energy as they use over the year.”

“With nonprofits that’s the way to go,” said Greenberg, who also owns large, utility-scale solar trackers in Canby, Boring, Bonanza and Chiloquin,

And the solar panels and other infrastructure have gotten ridiculously cheap.

“Polysilicon, the key panel ingredient went from \$450 per kilo to \$8 per kilo today,” Greenberg said. “Efficiencies with the scale of manufacturing produced lower and lower cost solar and they continue to get more efficient. Then China turned on the tap to buy

solar to help soak up some of the excess manufacturing as they didn't want to lay off workers. The rest of the industry followed with lower cost racking and inverters.

“The more solar that gets built, the cheaper it gets to manufacture and the cheaper it gets to manufacture the more that is sold. This is a good circle.”

Going global

“I always have liked to travel,” said Greenberg, who adds “I might as well travel with a purpose.”

In recent years Greenberg has boldly taken his energy expertise where no one has gone before. To simpler places that skipped all of the earlier phases of the Industrial Revolution. People in remote villages of Peru, Nicaragua and Haiti have never had to wean themselves off of coal or oil. They never had it to begin with.

Working with nongovernmental agencies such as Twende Solar and Grid Alternatives, Greenberg and his pals figured out that the key was learning what the villagers wanted. They wanted one light bulb and a way to charge a cell phone. How simple is that?

Think about it. The weather doesn't make air conditioning or heating necessary. And the infrastructure would cost too much anyway. But think how much power, information power, a cell

phone can give someone in a remote village. They can't afford books or a library but you can give them Kindle.

“All of the materials had to be hauled up this mountain,” Greenberg said of his Peru project “What an amazing achievement. We put in a 7.5KW system. That's like the size of household system here. About 80 people live in the village and every home now has at least one LED light bulb and a way to charge their phone.

“We take electricity for granted. It's amazing to see how it transformed this village. Developing countries went from no phones to cell phones. They are doing the same with solar – from no power at all to solar power.”

Greenberg also notes the example of Cuba.

“I went there on a sustainable development tour,” he said. “Cuba is one of the most sustainable countries in the world.”

They farm organically because they can't afford fertilizers, Greenberg said. And they sell locally because the transportation network isn't advanced enough to distribute more widely.

“They have transformed their country.”

Politics and wind

Speaking of island nations such as Cuba and Haiti, Greenberg also thinks wind power could make a difference there as well.

“Island nations have the most sun and the most wind,” he said.

“Oregon has lots of wind,” Greenberg, noting the Shepard Flats facility in Eastern Oregon.

Again, this is an area in which the technology is leaping. Some of the newer facilities use blades that are 600 feet long. They are similar to oil platforms: Some are anchored, some are floating.

“It’s not catching on yet in Oregon,” Greenberg said. “Mainly the northeast and other coastal states (back east).”

There also is bit of blowback on wind. Some oceanfront/bayfront property owners object to their views changing and President Donald Drumpf famously said “they are ugly, kill tourism, lower property values and cause cancer.”

Greenberg ... generally ... stays away from politics during the interview, although he notes that “solar is not just a liberal/environmental thing. Utah is really big on solar. Mormons are far better (than other communities) at long-term planning. Solar is pretty evenly distributed between red and blue states. Solar is one of the few areas where conservatives and enviros agree.”

He holds strong, negative views on nuclear energy while also praising Corvallis-based NuScale, which is developing small-scale nuclear reactor modules.

“NuScale has some great ideas,” Greenberg said, “but people still don’t know what to do with nuclear waste. It will still be there in 20 generations.”

And as a practical matter Greenberg notes that NuScale power is projected to cost 6 cents per kilowatt-hour in 2025.

“Large solar is 1/3 of that today and getting even cheaper” and more efficient, he said.

Greenberg drives a Chevy Bolt, which he said averages 240 miles on a charge.

“That covers 95% of my driving. I have a charger at home, and it costs me 3 cents a mile to drive. Batteries aren’t cheap, but they are getting cheaper.”

Greenberg also has a Kia Niro plug-in.

“It gets 50 miles per gallon and 26 miles on a charge. If anyone out there wants to buy it, it was one of the first in the county.”

Politics also is affecting solar. The state Land and Conservation Development Commission voted in January 2019 to ban solar farms on Class 1 and Class 2 farmland.

“That takes out 80% of the Willamette Valley for ground mount systems,” Greenberg said. “Solar makes more sense where land is less valuable and there is more sun.”

Such as Eastern Oregon.

Greenberg doesn't miss a trick. During the interview he looks through the window of the Democrat-Herald conference room and explains why the new LED lights the body shop across the street installed in the ceiling of its service bay are so much more efficient than the Metal Halide models that the shop left attached to the ceiling.

And the exit sign as he leaves the newspaper building reminds him of his early work designing and building such signs.

“I want to show that there is some hope,” he said. “The technology is there. Whether someone believes in climate change or not ... it doesn't matter (well it does somewhat). As a society we should be using energy more efficiently, using as little as we can and not trashing our planet. Or we can keep paying for more and more

‘natural disasters’ which cost about \$45 billion last year from flooding, fires. Doing the right thing is much cheaper and better over the long run.

“I could retire anytime, but as long as Drumpf seems to hate renewables and is doing his best at ruining the environment, I better keep doing a little bit more.”

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THE GREENBERG FILE

Who: Peter Greenberg

Age: 64

Hometown: Englewood, New Jersey

Residence: Albany

Education: Oregon State University (did not graduate)

Career highlights:

1974-85: Volunteer, paramedic and firefighter, Corvallis and Albany

1984-86: Developed and manufactured solar water heaters in Albany

1986-90: Carpenter

1991-93: Developed and sold LED exit signs

1993-2001: Worked on energy-efficient lighting in upstate New York and Washington, D.C.

1998=2001: U.S. State Department lighting contractor for overseas embassies in 12 nations.

2001-2010: Manufactured energy-efficient commercial lighting in Eugene that was sold in Oregon, Washington and California in schools and commercial spaces.

2010-present: Installed about 30,000 solar panels in 120 locations in Oregon.

2017-19: Installed solar infrastructure in Nicaragua, Peru and Haiti.

2019: Received grants to put up 164KW system at Boys & Girls Club of Albany. Owns and maintains 150 solar systems on schools, churches, farms, including Greater Albany Public Schools, the Benton Habitat Restore and the Boys & Girls Club of Corvallis.

Hobbies: Attending OSU women's basketball games and plays at Albany Civic Theatre

THINGS YOU CAN DO

- Get an energy audit of your house and remediate as necessary: insulation, weather-stripping, etc.
- Upgrade to LED lights.
- Drive less, carpool more, ride a bike more.
- Don't waste food (40% ends up wasted; it takes a lot of energy to grow, ship, cool, cook...). Food in dumps creates methane.
- Eat less meat (cows produce bad methane).

- Wash laundry in cold water.
- Hang up clothes to dry.
- Help Habitat for Humanity build affordable efficient houses.
- Use smart-plug strips that turn off loads.
- Adjust thermostat to more efficient setting; use a smart thermostat, such as Nest.
- During summer, open windows at night to cool house down and save on AC.
- Get better shower and sink faucets; they use less hot water.
- Switch to a heat pump water heater if you have electric and a way to ventilate it with unheated outside air.
- Go solar or join community solar when it is available, or work with Seeds for the Sol and the Solar Co-op.
- Upgrade heating system, ideally to very efficient ductless heat pump.
- Add insulating window quilts.
- When replacing your car, consider a hybrid, plug-in hybrid, and ideally a fully electric.
- Get your friends to do the same.

Source: Peter Greenberg's Academy of Lifelong Learning talk

WHAT THEY SAID

"In the face of today's climate challenge, both despair and complacency are equally unwarranted,"

--Amory Lovins

"Americans will always do the right thing — after exhausting all of the alternatives."

--Winston Churchill

"NuScale hopes to be at 6 cents per KWH by 2025. I hope for it to rain only at night."

--Peter Greenberg

"It is easier, safer and more comfortable to insulate your house than import oil from the Middle East."

--Amory Lovins

"Solar water heaters relied heavily on tax credits. Reagan killed the solar tax credit in 1986. Most of the industry shut down. I saw the problem of relying on tax credits for a living. I guess the fossil fuel industry has better lobbyists."

--Peter Greenberg

"I always have liked to travel. I might as well travel with a purpose. If I'm going to go I might as well do something good."

--Peter Greenberg

"Residential solar needs subsidies. If this was a fair world, there would be no subsidies for the natural gas, coal and nuclear that have been subsidized for decades. If we took off all of the subsidies renewables would quickly rise to the top (in terms of affordability)."

Sources: Jan. 27, 2020 Gazette-Times interview with Peter Greenberg; Nov. 21. 2019 Academy of Lifelong Learning talk in Corvallis by Greenberg

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