Testimony of Mr. Mark Culpepper
SunEdison, LLC

Before the U.S. Senate Committee on Environment and Public Works

"Green Jobs Created by Global Warming Initiatives"

Tuesday, September 25, 2007

Mr. Chairman, members of the Committee, thank you for the opportunity to testify.

My name is Mark Culpepper, and I am the Vice President for Strategic Marketing at SunEdison, LLC. SunEdison, based out of Beltsville, Maryland, is the nation's largest solar energy service provider.

We offer a unique perspective on solar energy; we sell our customers electricity, as a service. Renewable electricity, generated through photovoltaic power plants installed and maintained at their facility. This gives them the benefit of clean power at predictable price, without the upfront cost and hassle historically associated with going solar.

We're proud to count among our many clients Kohl's, Staples, the California State University System, the City of San Diego, Wal-Mart, Sacramento Municipal Utility District, and Xcel Energy. They're driven by a desire to make their energy costs predictable, and to address what many of them perceive as a growing climate concern.

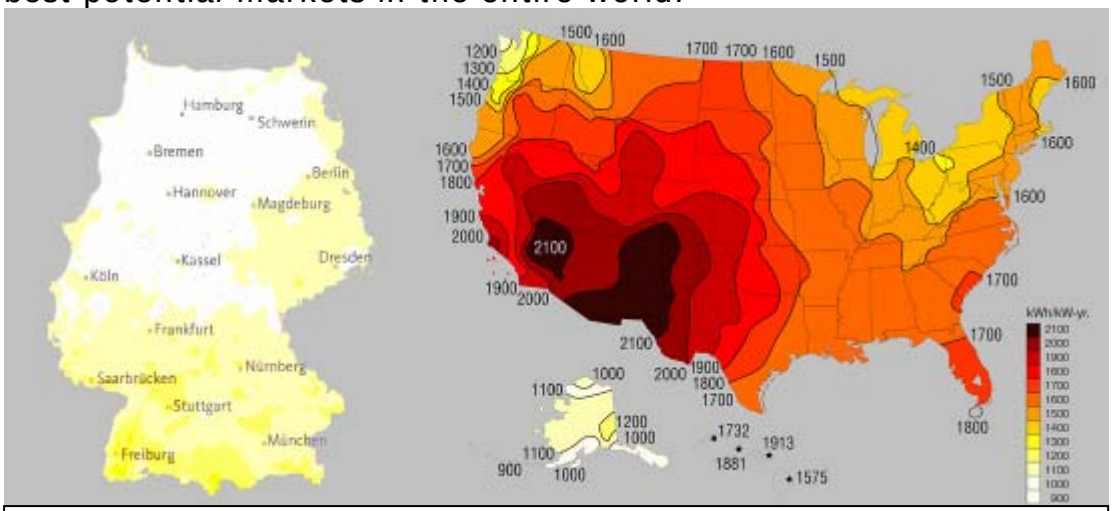
SunEdison created the model for the solar energy service provider industry, and the results speak for themselves. SunEdison has gone from roughly 15 employees in early 2006 to just under 400 today. That does not count, of course, the manufacturing jobs upstream from our industry.

However, we feel that increased attention to the climate issue is necessary to continue to send the market signal that the domestic solar industry needs to continue this strong growth and regain US leadership.

If you look at these jobs, how many of them there are, and how they're distributed, you see two interesting trends:

1. Solar represents job opportunities in literally every county and city in America.

Every day the United States receives a great and predictable abundance of solar energy, enough to power the entire country many times over. Even upstate New York receives more solar energy than leading solar markets like Japan and Germany. In fact, the Southeastern and Southwestern United States represent some of the best potential markets in the entire world.



Germany (at left – not to scale) is the world's largest solar market, despite solar resources significantly poorer than the United States (at right.) A solar panel in Ohio will produce 20 – 25% more energy than the exact same panel in Germany. (solar maps – National Renewable Energy Laboratory, European Commission)

Satellite modeling confirms this, and we install wherever state policies are right. Yes, we put solar panels in California and Hawaii. But we also have installations planned or underway in Wisconsin, New Jersey, Connecticut, Oregon, Maryland, North Carolina and even up in Ontario, Canada.

When we put in these power plants, we hire local workers, train them to our standards of excellence and safety, and put them to work on a continuous flow of new projects.

We can't pull our client's energy from thousands of miles away. Our electricians can't be put on the telephone network and outsourced to the far corners of the world. We put real technology on our customer's rooftops, and that takes local jobs and local talent.

In fact, when I told you about that increase in jobs – from 15 to almost 400 – the majority of those are in the field, out where our key markets live. We like to build solar roofs at a steady, accelerating

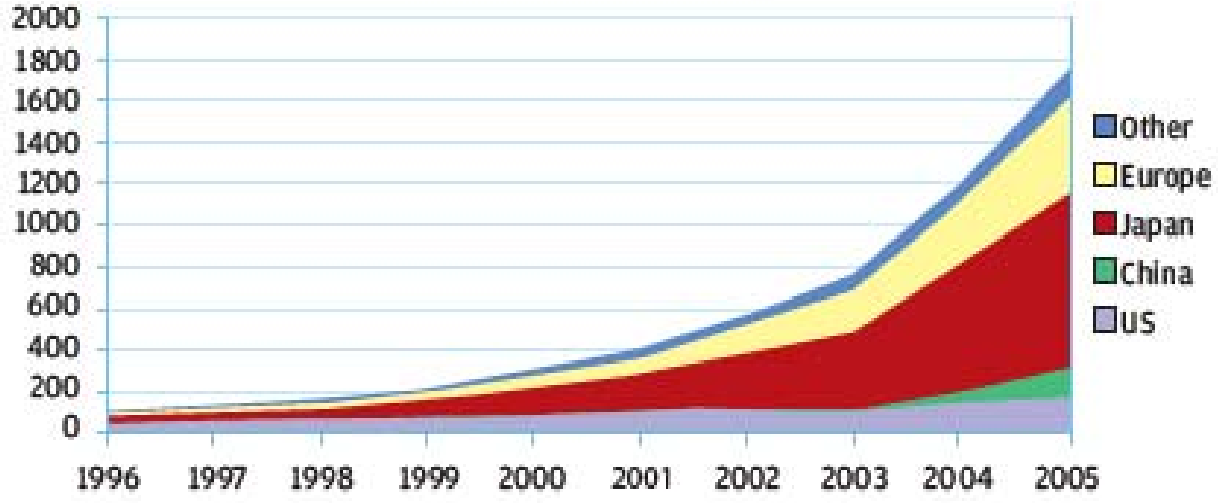
pace in those markets, and that means hiring local foremen, warehouse managers, logistics managers, inspectors, electricians, and installers. We now have three offices in California, two in Colorado, one in Hawaii and one in New Jersey, in addition to our Maryland headquarters. Our recent job fair in Alamosa, Colorado brought in over 200 applicants for roughly 70 new jobs.

That's a powerful thing to think about. You may not have a coal seam or a gas pocket in your state. You may not have a ready location for a nuclear power plant. But I guarantee you have enough solar energy to run a commercial solar system, and where that system goes, so do many of the jobs that go with it.

We also get much of our equipment from inside the US. There are major solar panel factories in Perrysburg, Ohio, Frederick, Maryland, Marlboro, Massachusetts, Wilmington, Delaware, and Memphis, Tennessee. They take wire tape from Torpedo Specialty Wire in North Carolina, and Tedlar film from DuPont in Buffalo, New York.

Solar strengthens America by creating domestic jobs for US citizens, independent of foreign energy. We take this as a matter of great pride.

Unfortunately, if you look to global manufacturing of these panels, you can see that markets with a nationwide commitment to reduced climate emissions and renewable energy are pulling away from us.



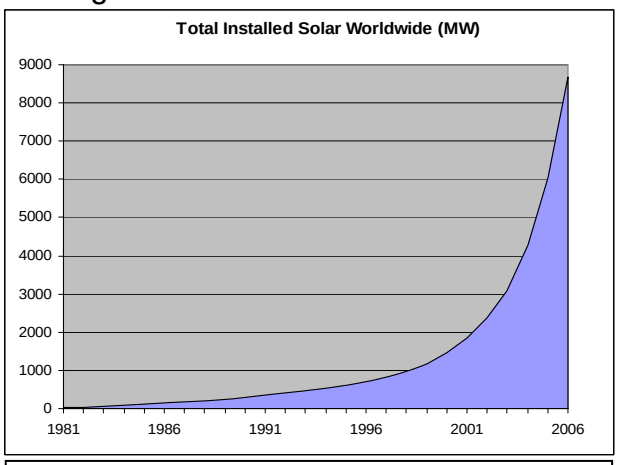
Global annual solar manufacturing shows the US falling well behind s Japan, Germany and now China (PHOTON International, "Market Survey on Cell and Module Production 2005," march 2006; PV News, Volume 24, No. 3 March 2005.

2. A Watt of solar electricity makes more domestic jobs than a Watt of conventional electricity resources.

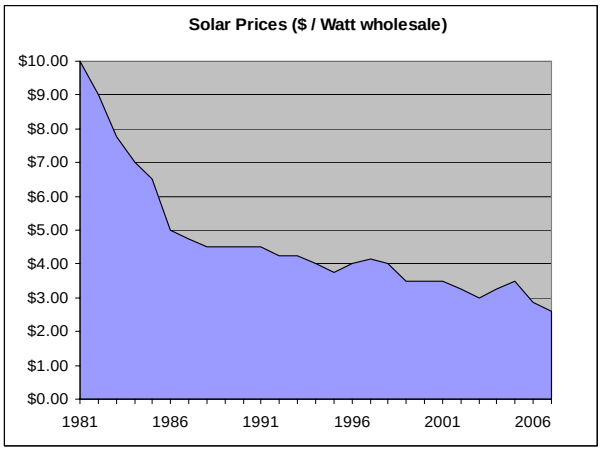
This makes sense if you think about it. You create more domestic jobs from *making*, *installing and servicing* a solar power plant than you do from burning fossil fuels.

Simply put, more labor is involved in creating and maintaining a high-tech product than there is in extracting a natural resource. Watt for Watt, the number of workers required to refine our silicon, manufacture our panels, design these systems, and bolt them to the roof, is higher than the number required to run a conventional power plant. In fact, studies show that a megawatt of solar creates between 7 and 10 times as many man hours of employment as would be obtained from a megawatt of conventional fuel sources, all else being equal.[1]

This is true even as we continue to make our renewable resources more efficient and less expensive. In the case of solar energy, we have seen over the last 25 years an extremely reliable trend – each time we double the total amount of solar energy out in the world, the price of solar energy drops 18%. For the first time, solar is within striking distance of retail prices for conventional energy. Market signals like those provided by climate legislation would further reduce the remaining gap and drive the "virtuous cycle" of increasing sales driving reduced costs.



Prometheus Institute (prometheus.org,) International Energy Agency (www.iea-pvps.org)



Prometheus Institute (prometheus.org)

[1] Daniel M. Kammen, Kamal Kapadia, and Matthias Fripp (2004) Putting Renewables to Work: How Many Jobs Can the Clean Energy Industry Generate? RAEL Report, University of California, Berkeley. http://rael.berkeley.edu/files/2004/Kammen-Renewable-Jobs-2004.pdf

In fact, the Solar Energy Industries Association estimates that the solar industry has the potential to create 55,000 new US jobs through 2015.

3. Renewable Resources build on US Strengths

Solar energy is a uniquely native resource. There's the obvious reason that you get it at home; once you've put a solar panel on a building, you know where that building's getting its power for at least the next twenty years.

But there's something less concrete, as well. We have a great deal of natural resources in this nation. So do many others. But I think most would agree that nowhere else can compare with the quality of our engineers, scientists, financiers, and manufacturers.

When you think about it that way, anything that moves us towards the world getting its energy from these new technologies instead of pulling it out of the ground, will, I believe, tend to drive more of the world's energy money towards us, and to our strengths as a nation, rather than to those who have the most conventional fuels in hand today.

Energy sources that address our climate concerns favor the United States economy above all others. I think that's an advantage we should seize, and the time is now. We have to determine whether the country that *invented* solar power is going to be reduced to importing it, bringing in "solar tankers" full of panels from countries that moved quicker than we did. Because the world is changing around us.

When I think about this, I think about meeting Cris Cisneros out at the groundbreaking of our Alamosa plant.



The SunEdison Alamosa crew.

Cris spent 37 years at the local perlite mine before it shut down. He had an offer to operate heavy equipment at natural gas wells. Instead he came to our job fair, and we ended up hiring him and about 6 others from the mine. At the groundbreaking, the local paper asked him why he was working on our plant instead.

“It’s nice,” he said, “being part of history.”