

Mike Splinter

Unlocking the Potential of Solar Energy:

America's Next Big Opportunity to Change the Way People Live

June 5, 2007

Thank you, Steve. Good afternoon. I want to thank Chairman Bingaman, Senator Domenici and other members of the Senate Energy Committee for hosting this session. I am very pleased to be here to share our vision about the future of Solar energy and actions America needs to take to regain leadership in this important field... and in doing so, create a bright future for the environment, for the economy, and for the nation.

In the time we are in this room today the sun will deliver enough energy to the earth to meet all of the world's power needs for a year... It is phenomenal to even consider, but what if we could harness this resource to do just that?... clean, plentiful, free energy that recognizes no national borders? This isn't a new idea...

Thomas Edison recognized this almost a hundred years ago... and he said **"I'd put money on the sun and solar energy. What a source of power!! I hope we don't wait until oil and coal run out before we tackle that."** What an amazing observation from the inventor of the light bulb himself...

That day when we can capture the power of the sun... at least a much bigger percentage of it... is certainly drawing closer with every new invention and idea in the alternative energy field. Does solar adoption sound ambitious?... will it be really hard to do?... is it going to take a lot of new thinking and problem solving?... of course. But where others see problems... we see opportunities for solutions, and that's why I am here in Washington today.

The time is right. Solar is ready to take off. Some of the world's top business leaders have called clean tech and solar the greatest opportunity ever. Silicon Valley engineers have done a lot of ambitious, difficult things that have given the world some amazing solutions. And, if there was ever a problem in search of a Silicon Valley solution, it is electricity generation. And the world needs your help to get this done. Because the world needs a lot of electricity and will need much more as the economies of the world continue to grow.

It is time for the citizens of our country to get serious about clean, renewable energy... and in particular solar power. Recent polls show that 77% of the American public thinks the nation should do more to promote environmental technologies, and 87% of people believe government incentives for solar are a smart idea.

Commercially viable, widely adopted solar is truly just a few ticks of the clock away.... but we have to devote our best and brightest minds, with the commitment to support the effort... and we have to get going now... today... right here... because the planet's clock is indeed ticking...

Despite conservation, the global demand for electrical power is rising. Today, the world uses 5000 gigawatts of electrical power generation each year. Sadly, solar provides significantly less than one-tenth of one percent of that power. But, about a trillion dollars will be spent on building new electrical generation capability around the world in 2007 — and we should direct a lot more of these investment dollars to clean, renewable energy.

If your neighborhood has a choice, if you could just take a vote...would you rather have, a coal-fired plant, enormous wind turbines, a nuclear power plant in your backyard... or some solar panels? As safe as nuclear may be today, and as easy as coal is, given the choice, I know I would vote for solar.

Solar can be affordable, it is clean and secure... doesn't carry political baggage... the fuel is free and pervasive... panels are relatively simple, with no moving parts... minimal maintenance, long life... solar doesn't require an extensive grid and takes advantage of unused space on rooftops to put power where it is needed.

There are a lot of good reasons to adopt solar... so what are we waiting for? If you walk away today with one thought, I hope you'll agree that we have to stop making excuses and that the time to take action is now. As an engineer, I was not trained to give excuses. I was taught to solve problems and create opportunities. It is time to put the sun to work.

The big issue with solar has been its cost. In the United States, which on average enjoys very low energy costs, solar power installed on a home costs about 25-to-45 cents per kilowatt-hour versus 8 cents for gas or oil and 2 cents for conventional coal or nuclear. But the costs of these other sources go up when you add the cost of transmission, such as putting lines underground and peak-power rates, and we all are paying for the environmental impact of conventional energy.

With innovation, we can provide an inflection point for the solar industry to unleash new growth by raising the efficiency of cells and lowering the cost-per-watt to make solar competitive with all other sources of electricity generation... but this will take time.

There are two primary approaches to making solar cells today. The majority are manufactured on 6 to 8 inch silicon wafers — similar to those used in chip making. They are then cut into squares and pieced together to make panels.

Another way to make panels is to coat big sheets of glass or plastic with thin-films of silicon, or other solar-sensitive materials. Here we can utilize the innovation and expertise used in making flat panel displays.

Both approaches are tied to the core capabilities of companies like Applied Materials that makes the equipment that helps to make virtually every chip and flat panel LCD TV in the world.

The latest generation of our tools can pattern more than six 50-inch televisions on a very large glass substrate — almost the size of a garage door — and that expertise can directly be applied to scale-up solar cell production and drive down costs.

To achieve pricing parity with conventional power generation will require the solar industry to make performance and manufacturing improvements by a factor of 2-5 times.

Over the past 40 years Applied Materials has worked to lower the cost of chip making several thousand times. Our flat panel manufacturing systems have helped the industry decrease the cost of flat panel displays by 20 times over the last 10 years. These accomplishments give me confidence that the same can be done in the solar energy field.

Solar is a real business. The solar cell market is about \$15 billion globally today and growing to an expected \$50 billion by 2010. Solar shipments have grown at a compounded annual rate of more than 40% since 2001 and the potential is really large.

Today in the U.S., all forms of renewable energy supply only 2% of the total, with roughly 20 gigawatts of additional capacity needed every year in just our country. The world needs about 2,000 new gigawatts or 2 terawatts of electrical power to meet its needs over the next 10 years. If 5 percent of the new generating capacity needed in the coming decade was solar-based, that would mean about \$150 billion of investment in new solar manufacturing facilities.

With such a large opportunity, new companies and investors are stepping forward to grow the solar industry. Last year, the solar industry added about 2 gigawatts of panel production to bring the installed base of solar to 8 gigawatts. If solar expands at today's growth rates, we can bring on new panel production to raise the total installed base to about 25 gigawatts of electricity in 2010. This will equate to more than \$3 billion in capital spending.

Solar seems like a great opportunity... so where's the risk? I believe that risk and danger is in not moving forward quickly and decisively enough.

Applied has been strategically developing solar capability for several years and we are moving fast. Consider that our Company only started signing contracts less than a year ago for solar and today we have exceeded our first year forecast by 50% and are raising our projection to \$400 million this year. We're adding jobs in our solar group and racing to meet demand. We are in the right place, at the right time, with the right products and technology.

Applied has begun working with customers in Germany, China, India, and Spain on a number of new solar production lines that we expect will add nearly 20% more generation capacity to the world's total solar capability. 20% in one year, that is pretty remarkable. Sadly, none of these new plants are in the United States. That needs to change.

Our leaders need to step up, in a non-partisan way. A good example can be seen with what our governor is doing back in California. The United States should be the leader in this technology. There is a huge environmental consciousness here. We have tremendous industrial capability, vast geography favorable to solar and a history of innovation. We need a national energy policy that capitalizes on these strengths and looks to the future.

So how can we all get behind solar and make it a more meaningful component of the global energy supply? I believe there are four critical elements...

First, we need to build demand by lowering costs. This is a tried and true formula for American innovation. Through technology transformation we've opened up huge markets and put futuristic technology in the hands of ordinary citizens around the world.

This is what we must do with solar. We must lower the capital cost-per-watt of solar power to competitive levels and let market demand scale. At Applied Materials, this is the focus of our solar efforts and I'm confident we and other companies like us will make tremendous progress.

Second, we must align public policy to kick-start solar and help it reach critical mass as an energy alternative.

Congress should expand the Federal tax credit for solar power as soon as possible, and extend it for 8 years to deliver greater certainty and spur investment. This is a chance to create jobs in the U.S. that otherwise will go to other countries if we let them... good paying jobs across the entire spectrum: from engineers, scientists and architects to installation and manufacturing jobs with export potential. For example, Applied has begun working with customers in Germany, China, India, and Spain on a number of new solar production lines. Sadly, none of these new plants are in the United States. That needs to change. According to the Solar Energy Industry Association, extending the solar tax credit could bring 55,000 new American jobs and more than \$45 billion in economic investment. It will also mean billions of dollars in new tax revenues.

We should also give all Americans equal rights to access solar. A bill here in Congress would establish national interconnection and net metering standards, guarantee solar siting rights, cap installation permitting fees, and enable Federal agencies to enter into long-term renewable energy contracts. This is a strong step in the right direction.

In California, Governor Schwarzenegger plans to put 3 kilowatts of capability on each of 1 million roof tops. His plan would save the need to build 3 fossil fuel energy plants and should be replicated around the country... after all what are we waiting for?

Local government — indeed all levels of government — can support large-scale projects that take advantage of lower installation costs and shorter payback times... and they don't need to look beyond their own roofs.

Our country is the biggest user of energy in the world and the biggest electricity consumer in our country is government. Only a small percentage of that electricity comes from renewable sources. Every level of government can demand electricity from renewable sources from their power company. Even better, every large rooftop in the U.S. should be a candidate for solar, and as taxpayers we own a lot of government rooftops, certainly there are plenty here in Washington.

Local, state, and national government should — at a minimum — derive 25% of their energy from renewable sources within the next 10 years.

Third, education plays a critical role and it's up to industry and academia — to let people know that we can make solar power possible... and soon. Now is the time for professors and students to get excited about solar and alternative energy. The government should support education initiatives through funding and research. And direct a portion of STEM funding to clean, renewable tech and make it a priority.

Fourth, we must all lead by example. Applied Materials is... and we are challenging others to do the same. We are adding nearly 2 megawatts of solar generating capability to our campus in Silicon Valley and turning unused rooftop space into a good sized power plant. We're adopting solar in Austin, Texas and wherever it makes sense. We also buy a large amount of Green Power; in fact we are in the top 20 corporate buyers of green power in the United States.

And companies like Wal-Mart, Google and a growing list of other corporations are getting on board. Wal-Mart's recent announcement is fantastic news and the demand these installations will spur will help the industry move forward. Every rooftop in the United States that receives good sunlight is an opportunity to create a clean, quiet, pollution-free power plant. As the cost drops, homeowners and small businesses can follow suit.

And, finally, we all can play a part by advocating for solar and renewable energy. America has waited too long and now we find ourselves in an urgent situation. I tell anyone who will listen that we all need to get more vocal. We need to tell our government representatives that we want them to pay attention to solar and do something to help. America is behind the rest of the world in solar adoption, and that's just not acceptable.

We must implement comprehensive renewable energy plans at local, state and Federal levels and learn from countries like Germany and Japan and states like California who have used policy successfully to make progress in solar.

As a business man, citizen, father and grandfather, I believe solar is key to our nation's future and is an enormous opportunity for the United States to once again show global leadership on the environment, reassert our innovative spirit and create a strong growth industry with billions in revenue and thousands of jobs. We are starting from behind with other nations around the world a substantial distance ahead of us. We can't let this discourage us or slow us down. Quite the opposite... we should see it as a challenge... it should kindle a sense of urgency to drive us forward and propel new ideas and technology to solve technical and commercial issues still facing this industry.

As America moves into a presidential election year, there is a lot of pressure to just talk... talk and wait. This would be a mistake. With every great innovative advance, those who wait... lose. America can't afford to lose. We have the technology, we have momentum... the time is now to act.

It's one of those times... an inflection point if you will, when we are going to ask a generation of engineers to tackle a challenge as big as going to the moon with a huge payback... this time for the planet and for our future. The Environment and Energy are the problems of our time...and they must be a priority for public policy.

America can take the lead and show our leadership once again. I know we can do it... we need our best on this challenge and I invite you to join in and make a difference.

Thank you.