

**Testimony of KR Sridhar**  
**Principal Co-Founder and CEO, Bloom Energy**  
**to the**  
**Subcommittee on Technology, Innovation and Competitiveness**  
**Committee on Commerce, Science and Transportation**  
**United States Senate**  
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Thank you Chairman Kerry, Ranking Member Ensign, and members of the subcommittee for the honor and opportunity to speak with you today and share my views on energy innovations... a topic that I am passionate about.

My name is KR Sridhar and I am the principal co-founder and CEO of Bloom Energy, a California-based fuel cell company intent on making a revolutionary change in America's energy future.

You have asked me to come before you today and share my thoughts on how technological innovations in the energy industry can help address our global energy crisis and also to provide you an update on the progress Bloom Energy has made since my last testimony before this committee in June of 2006.

I am here to state my view that the global energy crisis is also the biggest market opportunity of this century and that disruptive technological innovations will allow us to achieve energy security, reliability, and abundance without compromising the environment or the pocketbook. I am also here to tell you that it is absolutely essential that we find ways to generate more energy not less, as we move forward.

Why? Because there is a direct correlation between energy consumption, economic growth, and quality of life.

This country was founded upon the principle that each generation can have a better life than the generation before it. We built this nation into a superpower by exporting technologies that offered a better life to all citizens of the world.

Will we now deny the next generation their energy consumption and all of the benefits it brings? Can we deny developing nations like China or India their chance for economic growth and improved quality of life?

Imagine if we had told the Internet pioneers that they had to live with low speed dial-up modems and that they couldn't have more bandwidth. Do you think we would have had the revolutionary changes we've witnessed over the last decade?

We must find a way to consume all of the energy we need to fuel economic growth without environmental, or geopolitical consequences and this can only be achieved with disruptive technological innovations.

But the key is for innovation to find and attack the biggest problems and not to mask or shy away from them.

For example...most of the media attention surrounding our energy crisis focuses on transportation. Much of the public is convinced that our gas guzzling SUVs are the biggest culprits and that hybrid vehicles and ethanol fuel are all that's required to solve our problems. In fact the reality is that almost two-thirds of our energy consumption and two-thirds of our harmful CO<sub>2</sub> emissions come from stationary applications.

Even within the stationary power space, the emphasis tends to be on conservation and consumption, while much of the risk, cost, and waste comes from the aging transmission and distribution infrastructure and the inefficiencies associated with large centralized power plants. According to the Edison Electric Institute, approximately \$200B dollars will need to be spent in the next ten years to expand, upgrade, and modernize the antiquated grid transmission and distribution infrastructure just to keep up with demand and prevent significant outages like the northeast blackout of 2003.

All of this makes it clear that one of the greatest areas of opportunity for energy innovation is in distributed generation.

Distributed generation refers to energy generation at the point of consumption. As a clean alternative to central power plants and their transmission lines, on-site generation capabilities improve reliability and quality, conserve capital, and reduce operating costs by eliminating transmission infrastructure.

We've seen distributed technologies revolutionize other industries. Computing evolved from centralized mainframe computers to distributed servers, laptops and PDAs. Telephony evolved from centralized wired-line infrastructure to wireless mobile. It is inevitable for the same thing to happen to energy, but before widespread adoption will occur, distributed generation technologies must first evolve to a point where they are clean, affordable, and dependable.

Which brings me to my company, Bloom Energy.

At Bloom Energy our mission is to make clean reliable energy affordable. Our on-site power generation systems utilize an innovative fuel cell technology with roots in NASA's Mars program. By leveraging breakthrough innovations in materials science, Bloom Energy systems are among the most efficient energy generators; providing for significantly reduced operating costs and dramatically lower greenhouse gas emissions. By generating power where it is consumed, Bloom Energy offers increased electrical reliability and improved energy security.

Our company has been around for just under 5 years and in that time we've made tremendous strides by combining top-notch fuel cell expertise with Silicon Valley volume manufacturing know-how and rapid business-building experience.

Since I last testified before this subcommittee;

- We've had our first deployed systems pass their one year anniversary in the field at the University of Tennessee Chattanooga. Those first systems have demonstrated grid-caliber reliability.
- We've demonstrated an ability to run our systems on multiple fuels including storable fuels for military applications and renewable fuels like ethanol.

- We've more than doubled our staff.
- We've ramped our system production by almost 10X.
- We've seen our product costs decline by almost 10X. And, perhaps most excitingly,
- We've seen customer interest skyrocket. Not just environmentalists, but also mainstream corporate America, utilities, and independent system operators are all very interested in our technology.

While these are exciting milestones for our young company and extremely positive for the fuel cell industry, there are still challenges remaining to mature our product, and to compete with legacy technologies.

This is where the federal government can help. Specifically, let me focus on four key areas.

First, consume. --As the single largest consumer of energy in the country, the federal government needs to be an early adopter and leading consumer for viable new energy technologies. Congress should establish a merit-based procurement law for federal agencies to deploy new technologies that meet a minimum set of performance criteria.

Second, create and continue long-term policy incentives. --Thanks to a combination of government programs, consumer interest in new energy technologies is growing, but stable, long term and predictable incentives are critical to translate this interest into action.

Third, level the playing field with old incumbent technologies. --According to the Governmental Accountability Office, between 1968 and 2000 the US petroleum industry alone received between \$134.9 and \$149.6 Billion in incentives. If just a fraction of that were applied to clean new energy technologies today, imagine what we could do.

And finally, adopt a position of technology neutrality. --Many federal incentives specify eligible technologies and exclude others. The rationale for these inclusions or exclusions is not always merit-based. For example the current federal investment tax credit applies to commercial installations of both solar and fuel cells, but the fuel cell credit is capped while there is no cap for solar. This discriminatory fuel cell cap has the unintended consequence of hindering commercialization of promising new technologies.

I believe that the marketplace, not federal policy, should pick technology winners and losers. To the greatest extent possible, federal policy should establish a level playing field that enables all promising energy technologies to compete on their merits.

If we can accomplish this we will have successfully converted one of the greatest crisis facing our nation and world into one of the greatest opportunities. One that fuels economic and job growth, encourages students to pursue math and sciences, fosters innovation, and ensures competitiveness.

I am optimistic. Together the federal government and entrepreneurial innovators can reshape our energy landscape. We can make energy affordable, accessible, abundant, sustainable, and secure. The dream is poised to become a reality.

Thank you!