

ADDRESSING BARRIERS TO GREENER ENERGY USE



I consider myself an optimist. But I must admit to frustrations on the personal and national levels in efforts toward a lower carbon and more efficient energy economy. I think back to February 2009 near the start of the Obama administration. The administration convinced Congress to pass massive stimulus spending including tens of billions of dollars to promote greener energy technologies.

One measure was to lift the cap on the federal tax credit for installation of solar photovoltaic (PV) and solar thermal systems. Thousands of Americans, myself included, seized on this opportunity. By early March, I had a company under contract to install a 3-kilowatt PV system on the roof of my house. So far so good, but then the work bogged down. In some respects this slowdown was a positive sign. It meant that these companies had a lot of work. The workers were fully employed. This seemed good for the economy. But Congress had a time limit to this offer. It would expire in a couple of years. The idea was to stimulate a larger market demand for solar and wind power. Through greater economy of scales, the price of these technologies would drop.

While prices have recently fallen to just under \$6 per watt for residential PV, they are still far from the goal of the Department of Energy's Sun Shot initiative of achieving \$1 per watt. This initiative is aiming to reach that goal by the end of this decade. Doing so will require innovations in the efficiency of the solar energy systems and the installation and financing costs. The latter challenge should not be underestimated because if these technologies are going to take off, consumers will need effective and easily deployable ways to ease the economic hurdle.

Although tax credits from the federal government and grants from local governments can stimulate further installation of solar PV and other renewable systems, many economists have argued convincingly that these stimuli are not the best economic policy for mature industries. But solar PV, for example, is too much of a niche industry. And it is not receiving much of a boost because the major federal tax credits expired at the end of last year, and local governments' grants have come to a halt or been significantly scaled back because of the financial crisis across the country.

Even with tax credits and grants, most consumers will need other means of financial support to cover the remaining costs. While net metering of PV systems will reduce consumer's electricity bills, this will still not be enough to convince many people to consider these systems. Fortunately, some electric utility companies have programs that allow homeowners to rent out their roofs and other programs such as renewable energy credits can further reduce the costs to consumers.

Even if all these financing methods were available across the United States, renewable and efficient energy for the home use will not reach its full potential until Americans receive much better education about these technologies. I have to admit that I've been somewhat confused about the choices among LED lighting. This type of lighting offers the advantages of very low energy use (typically one fourth of a comparable incandescent bulb), no use of mercury (a toxic element used in compact fluorescent light bulbs), and very long lived (typically 25 years in contrast to less than two years for incandescent bulbs or about 12 years for CFLs). But if one does not know to check the lumens rating or the Kelvin temperature listing, one might be disappointed in the quality of the light from an LED as compared to incandescent lighting. I know of at least one colleague who works for an environmental non-governmental organization and was disappointed in his LED purchases. And the major barrier is the much higher cost (20 times or greater). Of course, factoring in the longer life and electricity savings, one will more than earn back the additional cost. But convincing consumers of that fact presents a huge educational challenge for companies, the government, and science organizations such as FAS.

As Editor-in-Chief, I want to apologize for the delay in publishing the Summer 2011 issue of the *PIR*. It is my hope that you value our new format and expanded coverage. This issue is our largest to date and the new features took more time to edit and design than anticipated. Readers will find in this issue of the *PIR* several thoughtful articles addressing the challenges confronting energy use and the environment.

On behalf of FAS and the editorial staff, I welcome your thoughts about the new *PIR* design, as well as how all of us can reduce and remove the barriers to a lower carbon and much more energy efficient future.

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