

## Role of the Federal Government for Renewable Energy & Energy Efficiency Lack of Support for Renewables



By SCOTT SKLAR



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On May 11th, in response to Energy Secretary Perry's request for a study on how renewables may effect the electric grid, five trade associations signed on to a letter which in part read, "We read with interest your recent directive to Department of Energy staff calling for analysis on the state of U.S. baseload power sources, including their availability and benefits to the electric grid. As representatives of domestic, renewable baseload power sources, we are very encouraged by and support this action, and we offer our assistance. Hydropower, biomass, waste-to-energy, biogas and geothermal are critical, domestic, clean technologies that provide 24/7 power to the grid. Together, our industries represent nearly 10 percent of total U.S. generation and more than half of renewable generation - with substantial new growth opportunities possible. However, the build-out of wind, solar and natural gas over the past decade has far outpaced that of hydropower, biomass, geothermal, biogas and waste-to-energy. Due to low market prices for natural gas and wind, and a history of federal and state support that has favored these technologies, baseload renewables have been struggling to compete and, in some cases, are facing closures. As an example, tax credits for our industries have expired, while other renewables have long term certainty with a multi-year extension. In addition, our technologies are not consistently recognized in state renewable portfolio programs".

Concentrated solar (with molten salt

storage), and variable solar and wind tied to energy storage (battery banks and solid state storage, pumped hydro, flywheels, compressed air and liquids, and hydrogen) also provide 24 hour electricity.

The concern is that some in the Administration want a system to prop up coal and old nuclear plants on the guise of electric grid security. As I have mentioned before, that's akin to fighting cellular technology because it may undercut the dial phone and landline industries.

### Energy Star Proposed Cuts

On March 23rd, *The Washington Post* reported that the President's FY18 budget significantly cuts EPA's Energy Star program. The voluntary program, launched in 1992, sets energy efficiency standards for appliances, electronics, and buildings. But it's not exactly a regulation. Businesses decide on their own whether to design products that comply with these standards. EPA claims that Energy Star has lowered consumers' electricity bills by \$430 billion (contrast this with the annual administrative cost of the program of about \$57 million). This lower energy consumption also has prevented 2.7 billion metric tons of greenhouse gas emissions.

The American Council for an Energy Efficient Economy (ACEEE), states "The fact is, these programs produce a huge windfall for all Americans---saving us billions of dollars in energy bills, making businesses more competitive, reducing air pollution, and

creating millions of US jobs. The average American family saves at least \$500 each year because of the Department of Energy's (DOE) work on efficiency. ENERGY STAR helps Americans save more than \$30 billion annually by providing information to choose energy-saving products. At least 2.2 million Americans work in ENERGY STAR-related jobs. DOE research in energy efficiency technologies is the foundation for small businesses across the country. And DOE has helped more than 7 million low-income families with energy upgrades to their homes. All of these gains could be lost under the president's proposal."

## Role of National laboratories

The United States is one of the few countries that have national laboratories. Almost every US government agency has them, but I will focus on some of the seventeen national laboratories run by the US Department of Energy. These research facilities are national treasures, bringing together a wide array of scientific brainpower and concentrating it on national issues. Within renewable energy and energy efficiency several stand out. Oak Ridge National Laboratory (TN) is the US materials science laboratory working on advanced PV, solar reflective materials, and wind turbine blade materials, turbines facility, geothermal heat pump and biomass thermal issues, small hydropower, etc. Lawrence Berkley Labs (CA) has been the leading analysis lab on renewable energy and energy efficiency, and is also known for its advanced window research. Sandia National Labs (NM) has been the system engineering lab and also has specialized on interconnection issues with the US electric grid. Argonne Labs (IL) addresses land and energy balance issues for biomass. And, of course, there is the National Renewable Energy Lab (CO), which is entirely dedicated to energy efficiency and renewable energy. Many of the other DOE, EPA, DOD, and USDA labs have had important critical research programs on various aspects on the entire portfolio of renewable energy, energy efficiency, and energy storage.

Advances in photovoltaics, concentrated solar and wind emanated from a strong US research, development and demonstration (RD&D) set of programs that came to fruition out of the 1977 creation of the US Department of Energy, as a result of the 1974 and later oil embargoes.

Advances in materials, highly energy efficient motors and turbines, and even LED light bulbs also are the fruit of federal RD&D. As one history recounts, "When the Department announced the L Prize competition in 2008 (a competition designed to spur the development of ultra-efficient solid-state lighting products to replace common lighting technologies), there were just a few LED bulbs on the market that could serve as a replacement for incandescents, and most were 25-40 watt equivalents. Since 2008, the cost of LED bulbs has fallen more than 85 percent, and most recently, a number of retailers announced that they will sell LEDs at \$10 or less. Today's LED bulbs are also six to seven times more energy efficient than conventional incandescent lights, cut energy use by more than 80 percent and can last more than 25 times longer. Taken together, these advancements have led to rapid deployment in the past of couple years in both commercial and residential applications. In 2012 alone, more than 49 million LEDs were installed in the U.S. -- saving about \$675 million in annual energy costs." The nation's total electricity bill for residential and commercial customers is now more than \$320 billion. Of that about 15 percent is lighting — nearly \$50 billion a year. According to 2016 Global LED Lighting Market Trends Report by LEDinside a division of TrendForce LEDinside estimates that the scale of the LED lighting market will reach US\$25.7 billion in 2015 and expand to US\$30.5 billion in 2016. The penetration rate of LED lighting is also projected to climb from 31% in 2015 to 36% in 2016.

Make no mistake about it. Advances in renewable energy technologies, and for that matter communications and computing technologies, came out of vigorous and multifaceted US RD&D working hand-in-hand with US industry.

Efforts by some to undercut US RD&D programs throughout the US agencies and national laboratories will hurt future US jobs and manufacturing. Private sector investment in global energy efficiency markets and renewable energy have topped \$1.35 trillion dollars. Time to demand "no going backwards" to those pesky government officials. (<http://on.nrdc.org/2ld3cHr>). The year 2017 is the time to accelerate, not throttle back on a clean, sustainable energy future, which is viable, cost-effective, and more resilient than what we have now.