

The Importance of Energy Efficiency

NOT SINCE THE ENERGY CRISES OF THE 1970s-early 1980s have efficiency and conservation received so much attention. In today's technology-driven world, everything relies on electricity – computers, plasma televisions, DVR systems, cell phone chargers, laptops, video games. Consumers' demand for electricity continues to increase while the supply of electricity is becoming more and more scarce.

According to a February article in *The Washington Post*, utility and government officials warned that the metropolitan area surrounding our nation's capital must come to grip with a simple fact: "In a little more than three years, lights could flicker off in rolling blackouts." For its part, the Maryland Public Service Commission found that the Free State might face such outages as early as 2011 or 2012.

And it's not just large cities dealing with power supply concerns. It's a nationwide challenge that includes California, the Rocky Mountain states, New England, Texas, the Southwest and Midwest.

The Electric Power Research Institute, (EPRI), a nonprofit, utility-sponsored organization whose members include electric cooperatives, sees energy efficiency as the most cost-effective, near-term option for managing electricity use, which helps reduce the need to build new power plants, and lowering emissions of greenhouse gases, like carbon dioxide, blamed for contributing to climate change.

Electric cooperatives are recognized industry leaders in promoting energy efficiency to help consumer-members reduce electricity consumption and save money. Virtually all electric co-ops provide energy efficiency education to their members, while more than 40 percent offer services such as high-efficiency lighting systems, geothermal and air-source heat pumps, energy audits, insulation and Energy Star® appliances.

In addition, electric co-ops are tops in reducing power consumption – and keeping the lid on wholesale generation costs – by controlling when electricity gets used. Spearheading this effort are programs known by various names – load management, demand-side response, or peak load shifting/shaving – that interrupt electric service to water heaters, air conditioners, furnaces and other specialized equipment in the homes of volunteer co-op consumer-members for brief periods, typically just a few hours. The control generally takes place during times of peak demand – the electric utility industry's equivalent of rush-hour traffic – when power costs skyrocket.

"Roughly 37 percent of all co-op systems can direct-control appliances, chiefly water heaters and air conditioners, while another 40 percent offer contract incentives for large commercial and industrial consumers to turn off energy-intensive appliances or equipment," comments Ed Torrero, executive director of the Cooperative Research Network, part of the National Rural Electric Cooperative Association (NRECA) based in Arlington, Va.

"Load management essentially works like a 'power plant in reverse.' In fact, local electric co-ops working with their wholesale power suppliers shaved demand last year by 2,200 MW [comparable to a commercial nuclear power plant], saving \$50 million in fuel costs and offsetting more than 2,000 tons of carbon dioxide emissions.

Co-ops are also taking advantage of recent technology advancements to increase system ef-

By Jennifer Taylor

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efficiency too: 72 percent are upgrading power lines, 56 percent are replacing older transformers, 50 percent use advanced technology to control voltage fluctuations and 40 percent have deployed advanced metering devices.

But the biggest bang from energy efficiency involves easing pressure on constructing new power plants. Based on EPRI's framework for reducing carbon dioxide emissions, the overall impact of energy efficiency measures – even simple ones like replacing incandescent lightbulbs with compact fluorescent lights – directly reduces the amount of power needed and defers the need to build as much new generation.

“Energy efficiency measures can help electric co-ops head off the need for new generation and curb greenhouse gas emissions,” observes John Holt, NRECA senior principal for generation and fuel.

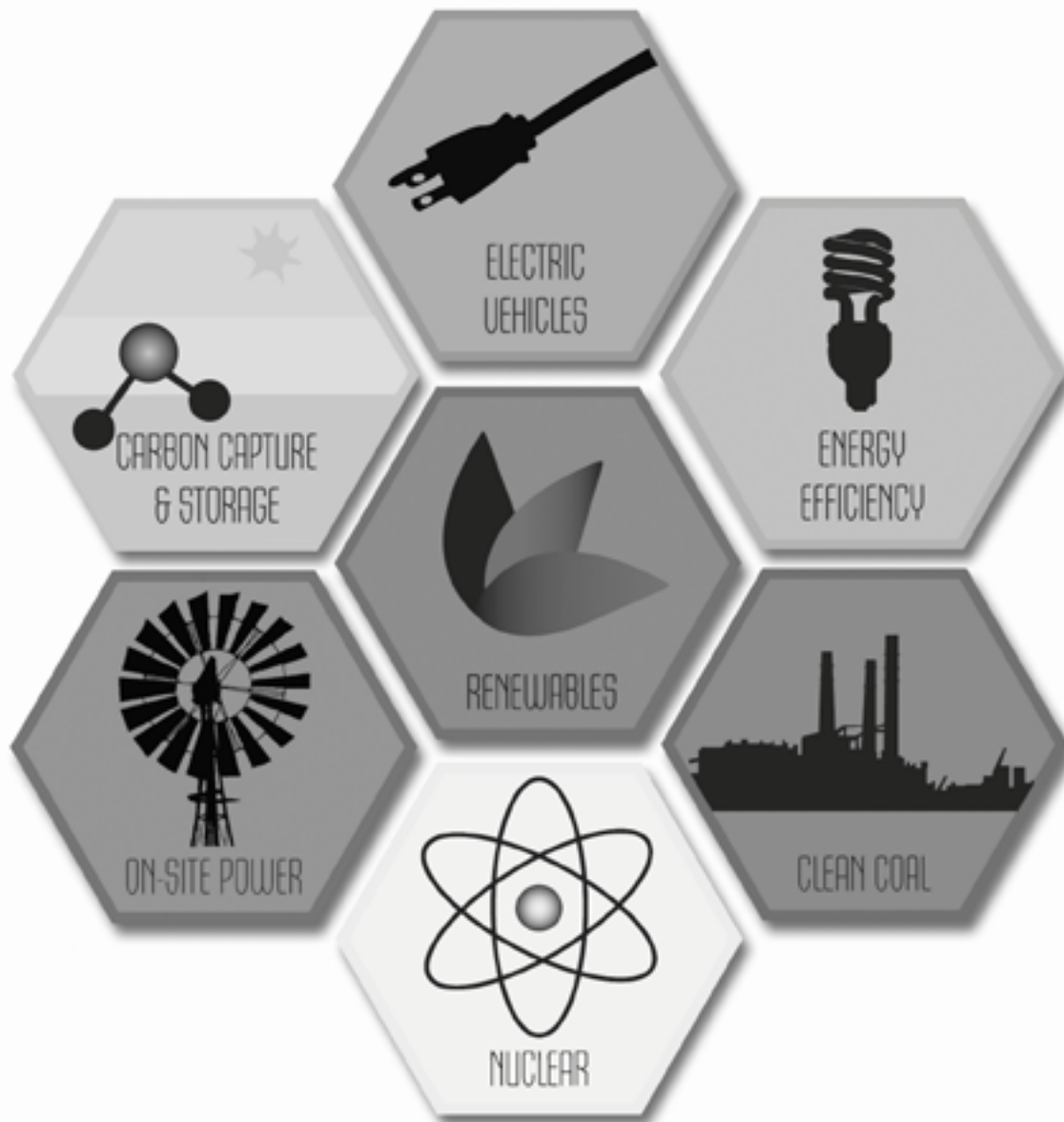
Since the early 1970s, U.S. energy consumption has climbed more than 30 percent, but thanks to efficiency measures taken and technological advancements made during that period, the nation now uses half as much energy per dollar of economic activity.

“To run today's economy without the energy efficiency improvements that have taken place since 1973, we would

need 43 percent more energy supplies than we currently use – more energy than we currently generate from any single fuel source like nuclear, gas, coal or renewables,” explains Jim Kerr, president of the National Association of Regulatory Utility Commissioners and a member of the North Carolina Utilities Commission.

“Energy efficiency remains key to how electric co-ops will keep electricity affordable in the face of rising energy prices,” concludes NRECA CEO Glenn English. “Whether it's fostering the construction of more energy-efficient buildings, promoting the development and use of more energy-efficient appliances or accelerating the development and use of advanced electric infrastructure, co-ops will put their energy and business knowledge to work in developing innovative member programs that help get the most out of every kilowatt.”

*Source – The Washington Post, National Rural Electric Cooperative Association, Electric Power Research Institute and National Association of Regulatory Utility Commissioners
Jennifer Taylor writes on consumer and cooperative affairs for the National Rural Electric Cooperative Association, the Arlington, Va.-based service arm of the nation's 900-plus consumer-owned, not-for-profit electric cooperatives.*



This illustration depicts the seven steps to lowering carbon emissions based on the framework proposed by the Electric Power Research Institute (EPRI), a nonprofit, utility-sponsored consortium whose members include electric co-ops. Source: NRECA