

COMMENTS

**Thomas L. Baugh, Energy and Climate Change Program Coordinator
U.S. Environmental Protection Agency, Region 4**

**TVA Board Public Listening Session on
Energy Efficiency/Demand Response and Renewable Energy
March 4, 2008
Knoxville, Tennessee**

Good afternoon. I am Tom Baugh, Energy and Climate Change Program Coordinator and Regional Science Advisor at the U.S. Environmental Protection Agency, Region 4 office in Atlanta. I greatly appreciate the opportunity to appear today to speak with you on these very important issues. I also commend the Tennessee Valley Authority (TVA) for realizing the importance of reducing the growth in power demand and increasing its emphasis on energy efficiency. In addition to economic benefits that may accrue from reduced demand, the use of fewer energy inputs per unit of gross domestic product has a positive impact on the quality of our air, water, and land resources and on the ability of our ecosystems to provide their service functions. Generation of electricity through today's large-scale, commercially available sources of energy can produce pollutants that adversely impact environmental quality and human health. These pollutants can also alter the ability of ecosystems to provide services necessary for the survival and well being of humans, terrestrial wildlife, or aquatic species. Electricity generation is a significant source of air emissions in the United States today. EPA reports indicate that fossil fuel-fired power plants are responsible for 67 percent of the nation's sulfur dioxide emissions, 23 percent of nitrogen oxide emissions, and 40 percent of man-made carbon dioxide emissions (epa.gov/cleanenergy).

While the impacts of power generation on air quality may be more evident, other environmental impacts are less well known. Production of fuels (*e.g.*, coal, natural gas, uranium and others) can impact water availability and quality and may result in the generation of solid and/or hazardous waste. Power plants use large quantities of water

from lakes and rivers for producing steam and for process cooling. These withdrawals and subsequent discharges may adversely impact the health of aquatic organisms. Similarly, the power generation can also result in the generation of solid and sometimes hazardous waste. Clearly, improving efficiencies in energy generation is good for the environment from a variety of perspectives.

Today, I will focus my remarks in two areas: (1) EPA programs and tools that can help TVA achieve its goals for implementing more efficient processes and reducing demand, more specifically the Environmental Technology Verification (ETV) Program; and (2) the National Action Plan for Energy Efficiency recommendation regarding the need for broad communication of the benefits and opportunities for energy efficiency. This recommendation involves customer demand, an area of interest you identified.

EPA's ETV Program, managed by EPA's Office of Research and Development (ORD), seeks to provide credible performance data for commercial-ready environmental technologies. Understanding performance attributes can speed the acceptance of technologies into the marketplace, which benefits purchasers, permitting authorities, vendors, and the public. The ETV Program develops testing protocols and verifies the performance of innovative technologies that appear promising for improving protection of human health and the environment.

The ETV Program is carried out through six centers that have a media or industry focus. Of particular interest to TVA should be the Greenhouse Gas Technology Center and the Air Pollution Control Technology Center. Nearly 400 technologies have been evaluated by ETV since the program began in 1995. As TVA considers how to make its production and delivery systems more efficient, it will likely survey the current state of relevant technology and the current state of research in this area. Any promising commercial-ready technologies identified or developed by TVA that are not well known in the marketplace might receive a boost toward commercialization by participating in an ETV Program evaluation. Detailed information is available at epa.gov/etv.

In late 2005, EPA and the Department of Energy began to facilitate a public-private initiative to create a sustainable aggressive national commitment to energy efficiency through the collaborative efforts of gas and electric utilities, utility regulators, and other partner organizations. TVA is one of approximately fifty stakeholder organizations that participate in the Leadership Group for this initiative. This group's collective thinking has resulted in the production of the National Action Plan for Energy Efficiency. The Plan contains several recommendations and tools, specifically designed to assist utilities in implementing and communicating the importance of energy efficiency measures. The five major recommendations are as follows:

- recognize energy efficiency as a high priority energy resource;
- make a strong, long-term commitment to implement cost-effective energy efficiency as a resource;
- broadly communicate the benefits of and opportunities for energy efficiency'
- provide sufficient, timely, and stable program funding to deliver energy efficiency where cost-effective; and
- modify policies to align utility incentives with the delivery of cost-effective energy efficiency and modify ratemaking practices to promote energy efficiency investments (National Action Plan for Energy Efficiency, 2006).

As a large supplier of power, TVA has a unique opportunity to communicate information to its customers about more efficient power usage. It also has the ability to help reshape how customers approach their demand for power.

As I am sure you are aware, experience shows that energy efficiency programs help utility customers save money and contribute to lower-cost energy systems while reducing environmental impact. These benefits, however, are not fully documented nor recognized by customers, utilities, regulators, or policymakers. More effort is needed to communicate the business case for energy efficiency benefits for all decision-makers and to show how a well-designed approach to energy efficiency can benefit customers, utilities, and society. These benefits include reducing customer bills over time, fostering

financially healthy utilities, and contributing to positive societal net benefits overall (National Action Plan for Energy Efficiency, 2006).

Key stakeholders must also be taught to recognize that although energy efficiency can be an important low-cost resource to integrate into the energy mix, it does require funding just as construction of new generation capacity requires funding. Further, education is necessary on the impact that energy efficiency programs can have in concert with other energy efficiency policies such as building codes, appliance standards, and tax incentives (National Action Plan for Energy Efficiency, 2006).

A key element of the Nation Action Plan for Energy Efficiency involves communicating the benefits of energy efficiency and the mechanisms and policies that might need to be modified so that each important stakeholder (*i.e.*, the utility, the customer, and society at large) can benefit from energy efficiency investments. While the implementation of energy efficiency policies and use of energy-efficient equipment saves resources and lowers utility costs, it also reduces utility sales. Therefore, the effect on utility financial health must be carefully evaluated. Toward that purpose, the Energy Efficiency Benefits Calculator has been developed to help educate stakeholders on the broad benefits of energy efficiency. The Calculator, a simplified tool, demonstrates the case for energy efficiency from the perspective of the consumer, the utility, and society (National Action Plan for Energy Efficiency, 2006).

While the Calculator allows the perspective of each major stakeholder to be evaluated, the guidance it offers customers is particularly useful as a communication and education tool. The calculator concludes that the costs of energy efficiency should allow customer bills to decline over time as a result of investment in cost-effective energy efficiency programs. This decline, however, may be preceded by an initial rise in customer bills that reflects the cost of implementing those energy efficiency programs that will ultimately lead to lower bills society (National Action Plan for Energy Efficiency, 2006). To build customer support for utility efficiency programs and to support the credibility of utility companies, it is extremely important that customers

understand that there may be an initial, short-term, temporary increase in utility bills before the economic benefit is fully reflected in the bill.

Conclusion

At EPA, we believe that environmental responsibility is everyone's responsibility. Thankfully, America is shifting to a "green culture," with consumers embracing energy-efficient products and making energy-efficient choices. It's more important today, than ever before, to emphasize energy efficiency. The potential environmental and economic costs of energy generation are increasing. The Report of Working Group 1 of the Intergovernmental Panel on Climate Change indicates there is increasing consensus that global warming is taking place and that human activity has very likely caused most of the warming over the past 50 years. EPA U.S. Greenhouse Gas Inventory Reports show that energy-related activities account for three-quarters of human-generated greenhouse gas emissions in the U.S., mostly in the form of carbon dioxide emissions from burning fossil fuels. We must seize the opportunity to create a new energy production and consumption paradigm for the 21st century that will protect human health and the environment, as well as advance the American economy.

The goal of reducing the amounts of energy input per unit of gross domestic product is highly desirable. For a utility to achieve the goal to the fullest extent possible requires looking for opportunities internally, at the operational aspects of power generation, and externally, at the demand for power from the utility's customer base. EPA believes innovative solutions will be critical to meeting the long-term challenge of reducing energy inputs, including application of new, cleaner technologies. As you pursue the development of a strategy to incorporate energy efficiency and renewable energy into your operations, I encourage you to consider opportunities to leverage existing EPA programs and products that can support TVA's movement toward greater energy efficiency. I also encourage you to use your position as a major power supplier to improve communications with power distributors, manufacturers, businesses and residential consumers in your service area regarding the benefits of and opportunities for energy efficiency.