Texas – Energy Collaborations Working for the Environment

Partnership among state environment and energy leaders finds innovative solutions

How did legislation on energy efficiency and utility restructuring help Texas meet air quality regulations? Motivated by both economic and environmental goals, Texas state officials, regional U.S. Environmental Protection Agency (EPA) officials—and, ultimately, the Texas Legislature—were convinced of the need to address air quality issues using renewable energy (RE) and energy efficiency (EE). The Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE) provided technical assistance on utilizing RE and EE technologies to meet legislated goals. This fact sheet outlines Texas' unique approach to improving air quality through both stringent policies and innovative analytic methods.

Courtesy Texas State Energy Conservation Office

To improve energy efficiency, Austin implemented a citywide light-emitting diode (LED) traffic light upgrade—including those in front of the state capitol building.

Approach

The Texas Commission on Environmental Quality (TCEQ), Texas State Energy Conservation Office (SECO), and other state officials recognized that accelerating use of energy helped put Texas cities at the top of lists for "dirtiest air." Two significant state laws enacted in 2002, Senate Bill 5 (SB5) and Senate Bill 7 (SB7), are reversing this trend by implementing significant RE and EE programs. One goal of the policies is to improve air quality and incorporate that improvement into the state implementation plan (SIP) for air quality—a process that requires reliable methods for quantifying air emissions changes from RE and EE.

In September 2002, SB5 established the Lone Star State's first energy code for buildings, along with other measures. SB5 established the Texas Emissions Reduction Plan, an incentive-based program that is designed to help the state comply with federal clean air standards. SB5 included vehicle incentives, new technology research and development, and grants to promote EE. But perhaps the biggest advance was a requirement for new buildings to meet the state's new energy performance standards, including better weather-stripping, more efficient air conditioners, and stricter insulation guidelines. In 2003, the EPA approved the state's use of EE from SB5 as part of its air quality SIP to address ozone.

Motivated by SB5, several Texas cities took actions toward the state goal. The greater San Antonio area developed a Metropolitan Partnership for Energy, Austin implemented a citywide light-emitting diode traffic light upgrade, and Ellis County/Waxahachie performed energy audits and offered purchasing guidance.

SB7 restructured the electric utility industry in Texas to provide retail competition and customer choice beginning January 1, 2002, for all customers served by investor-owned utilities. The SB7 program required utilities to offset 10% of load growth through EE, and required specific amounts of renewable generation. The Public Utilities Commission adopted rules and procedures necessary to achieve the goals.

The DOE and EPA had significant roles in supporting the state's goals. EPA regulatory approval was essential to include RE and EE measures in the SIP. DOE's Rebuild America program assigned a full-time employee to the Texas Energy Partnership to provide training on EE and the new energy code. The partnership, which was formed in 2002 in response to SB5, also assisted in the development and implementation of individual Community Partnership Action Plans.

With these laws in effect and programs in full swing, Texas is currently evaluating the economic and environmental benefits delivered through RE and EE provisions.

Results

Texas A&M's Energy Systems Laboratory (ESL) produces an annual report mandated by the Texas Legislature on the emissions effects of state RE and EE programs (available at ***esl.eslwin.tamu.edu/docs/documents/HARC-2006-Annual-Report-12-2006.pdf)***. To prepare these reports, ESL has developed a Web-based data-collection tool (eCALC) and a set of quantification methods to estimate the amount of RE and EE in use, and its effect on emissions.

NOx Reduction from Selected RE and EE Programs in Texas

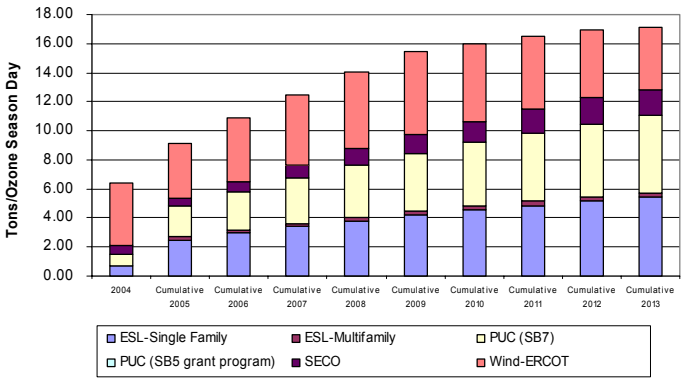

Figure 10 from the ESL report (right) shows estimated daily nitrogen oxide (NOx) emissions reductions from the cumulative effect of the programs during the ozone season, when air quality standards are most often violated. The programs for which emissions reductions are estimated include energy code-compliance in new residential single- and multifamily construction, SB7 and SB5 programs, and wind power generation. The report provides detailed estimates of emissions reductions by county, which facilitates use of these emissions reduction estimates in state air quality implementation planning.

Next Steps

- New legislation passed in 2007 amends the Education Code, requiring school districts to establish a goal for reducing their annual electric consumption by 5% each fiscal year for six years.
- New legislation also amends the Utilities Code to give a distributed RE generation owner the right to physically connect to an electricity distribution system. The bill establishes metering requirements, ownership of RE credits, and the value of surplus electricity produced—these provisions take effect January 1, 2009.
- The ESL at Texas A&M and the TCEQ are continuing to provide training to local government agencies regarding data entry in the Web-based tool eCALC. Texas' significant leadership in this area will continue to help others—procedures and methods used to determine these numbers will be directly transferable to other states considering using electric-sector RE and EE measures toward their SIPs.

Lessons Learned

Texas illustrates the power of statewide policies to provide incentives for large-scale RE and EE technology use; the value of such widespread technology implementation for integration with air quality planning; and the value of an innovative, Web-based data collection tool and quantification methods, both of which may be beneficial to other states.

During the initial phase of implementing SB5 and SB7, there were many concerns that the new policy would increase costs of new construction, but this did not occur. Why? The construction industry was positioned to improve efficiency anyway, and SB5 actually cleared several obstacles. SB5 also resulted in increased purchases of energy-efficient supplies and equipment, which ultimately reduced their cost.

The Texas experience proved that power can be found in partnerships. In this instance, federal efforts supported state efforts, which in turn supported local on-the-ground activity. These successful models and lessons learned can be transferred to other communities, resulting in strong air quality achievements through energy actions nationwide.

Additional Information

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