



Emerging Technologies to Fuel Energy Efficiency Programs

NATURAL GAS UTILITIES should make deployment of emerging end-use technologies an important component of their energy efficiency programs, says the Gas Technology Institute (GTI), a research, development and demonstration organization. By expediting the adoption of these technologies, GTI reports, utilities will be better able to meet tomorrow's increasingly aggressive energy efficiency goals and the future needs of customers.

With the growing level of importance placed on energy efficiency in the United States, natural gas utilities are seeing unprecedented growth in investments in energy efficiency programs. Until now, most of those investments have been used to fund customer rebate and incentive programs for established and proven technologies.

Today, more utilities are recognizing the significant challenges associated with market acceptance of new energy-efficient technologies. As a result, they are dedicating a portion of their energy efficiency budgets to formal programs designed to validate the performance, efficiency and cost effectiveness of promising emerging technologies and to ensure that these technologies become commercially viable.

GTI is partnering with utilities and manufacturers to move new energy technologies toward commercialization. For example, GTI is working with Southern California Gas (SoCalGas), the nation's largest natural gas distribution utility, to demonstrate, test and validate a wide range of cutting-edge energy efficiency technologies.

Each year, SoCalGas invests more than \$7 million in new and emerging clean, energy-efficient technologies. Today, its portfolio of emerging technology investments spans residential, commercial and industrial applications, as well as renewables.

GTI and SoCalGas have worked with Stellar to develop a new high-efficiency, gas-fired countertop steamer for commercial food service that can offer cooking production capacity equal to or better than the

best available electric steamers. The compact steamer also provides users with added savings in energy and water consumption. The unit was the first gas-fired boilerless steamer with an ENERGY STAR rating.



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One field test of a GTI-patented burner technology demonstrated real-world benefits at California Steel Industries in Fontana, Calif. The advanced RASERT (reverse-annulus single-ended radiant tube) product increases thermal efficiency and reduces NO_x emissions while boosting productivity rates in gas-fired heat-treating furnaces. The field test validated efficiency gains, yielding a 25 percent improvement in combustion efficiency and NO_x emissions reductions of up to approximately 55 percent.

The SoCalGas-GTI team also demonstrated an Advanced Heat Recovery System (AHRS) on a boiler at Baxter BioScience in Thousand Oaks, Calif. The AHRS demonstrated a 13 percent reduction in fuel costs for the boiler. It also cut carbon emissions by more than 13 percent and reduced Baxter's need for fresh water. The AHRS will be commercially available in late 2010.

According to Jeff Reed, director of



Jeff Reed, SoCalGas director of emerging technologies, prepares to steam vegetables using a Stellar steamer at SoCalGas' Food Service Equipment Center.

emerging technologies at SoCalGas, "We need to start investing now in new and emerging technologies, products and services that may provide mid- to long-term energy efficiency benefits. At SoCalGas, we're taking steps to expedite the time frame for adoption of these new technologies through field testing and validation."

At GTI, emerging technology demonstration teams also are working with commercial businesses to integrate renewable energy solutions in a cost-effective way. An early adopter test of a highly efficient hot water

delivery system combining solar thermal and natural gas is currently being planned for a Santa Barbara winery. The goal is to demonstrate up to 40 percent energy savings potential and the overall economics of solar thermal/natural gas hybrid technology.

These are just a few examples of emerging energy-efficient technologies that are being tested and demonstrated across the country. "It's important to create a pipeline of new products to advance efficiency improvements and reduce emissions," says Ron Snedic, vice president of corporate development at GTI. "If we're going to create a streamlined path to commercial market acceptance of these new technologies, we need to address the implementation barriers and associated risks. That means making an emerging technologies program—including field testing, validation and demonstration of market viability—an important part of every energy efficiency program."



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