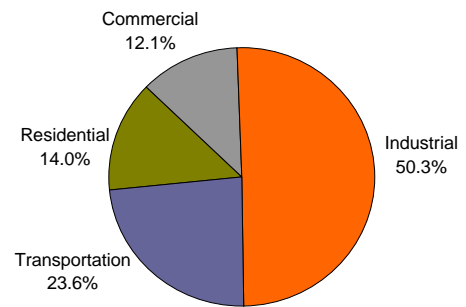


# Manufacturers Enhance Energy Management in Partnership with Award-Winning Texas Industries of the Future

Since 2001, the Texas Industries of the Future (IOF) has been helping the state's manufacturers save energy and boost their environmental performance. At the May 2008 Industrial Energy Technology Conference in New Orleans, Texas IOF was recognized for its national leadership in energy conservation and environmental stewardship.

Energy efficiency is important in Texas because its industrial sector consumes half of the state's total energy use (Figure 1) and about 18% of all energy used by industry in the United States. The program used its initial funding from the U.S. Department of Energy (DOE) to offer Texas manufacturers energy training on industrial systems, a conference on NO<sub>x</sub> reduction and energy efficiency, and a Technology Showcase. The program's early successes spurred several follow-on activities, including more than 45 workshops, forums, roundtables, and conferences on energy efficiency. In all, these events attracted over 2,300 attendees with representation from 30% of the largest industrial sites in Texas (59 of the top 159 facilities). This participation level exceeds the program's original goal of 25%.

**Figure 1 – Energy Use in Texas by End Use**



#### Texas at a Glance:

- Boasts the second largest state GDP – or \$1,065 billion
- Industrial sector represents 161,000 jobs and \$323 billion in shipments
- Top industrial energy consumer in the nation with 5.8 quadrillion Btu
- Largest energy-consuming industries: chemicals and refining

## Texas IOF Program Accomplishments

- Saving manufacturing sites an estimated 1.79 trillion Btu per year through training workshops on steam, process heating, and pumping systems. This amount is equivalent to the energy consumed by 9,531 typical American households each year.
- Piloting proposed energy management standards for a national plant certification effort (ongoing).
- Recruited 30 large manufacturing plants to participate in U.S. DOE plant assessments, including facilities from The Dow Chemical Company, Rohm and Haas, MeadWestvaco, Sunoco, and more. After only six months, these plants implemented projects expected to cut energy costs by a total of \$7.5 million per year.
- Reached 30% of the state's largest industrial plants through training workshops, conferences, etc., exceeding original expectations to reach 25%
- Developed an energy project screening manual and calculator that identified a cumulative \$660,000 per year in potential energy savings at nine small and medium-sized facilities; one company may replicate the process at 13 more sites



**Texas Industries of the Future**

## **Texas Pilot Program guides national effort to develop energy efficiency certification**

Texas IOF and major manufacturers are assisting in the development of a national plant certification program for energy efficiency. Companies on the Texas IOF steering committee proposed the development of a plant certification program to the Texas State Energy Conservation Office and received funding in 2007. The U.S. DOE also expressed strong support for the Texas IOF concept, which was subsequently elevated into a national effort to develop a certification program for industrial energy efficiency. This effort is being developed under the "Superior Energy Performance" (SEP) banner and will influence the development of an international energy management standard.

The focus of the SEP effort is to develop a third party certification program, based on ANSI energy management, system assessment standards and use of a monitoring and verification protocol to demonstrate performance. Under the Texas Pilot Program, five Texas manufacturers are testing the draft assessment standards, implementing an energy management system, and providing feedback directly to the SEP Steering Committee. The Texas IOF role in this testing will help ensure that the interests of Texas manufacturers continue to be reflected in the national certification program.

## **Training saves manufacturing plants an estimated 1.79 trillion Btu**

Texas IOF has sponsored 33 workshops to familiarize Texas manufacturing companies with the energy saving tips and software tools available from the DOE Industrial Technologies Program (ITP). From 2002 to August 2007, nearly 750 plant engineers, operators, and consultants attended the workshops to learn about ways to optimize specific energy systems, such as steam, process heating, or pumps. As a result of these training sessions, the

manufacturing plants that implemented projects are estimated to be saving 1.79 trillion Btu annually – an amount equivalent to the energy consumed by 9,531 typical American households each year.

## **Texas IOF stimulates strong Texas involvement in DOE assessments for large plants**

In 2006, 30 Texas manufacturing facilities received plant assessments through DOE/ITP's Save Energy Now initiative. Thanks to Texas IOF recruiting, Texas had the highest participation of any state, accounting for 15% of the 200 assessments offered nationwide that year.

DOE's assessment program sent Energy Experts to industrial facilities to train personnel in using DOE software tools to find energy savings opportunities within their plants. Many of the recommendations involved making simple operating adjustments, rather than replacing expensive equipment. In Texas, these assessments identified potential savings opportunities worth more than \$100.5 million per year. After only six months, the Texas plants implemented projects that are realizing nearly \$7.5 million of annual savings. These sites continue to pursue projects that are expected to save an additional \$25 million per year.

## **Assessment module and calculator foster energy management in small- and medium- sized plants**

Texas IOF also works with smaller plants. Texas IOF developed an energy savings calculator that enables small- and medium-sized manufacturers to calculate their projected (or likely) energy cost savings and avoided emissions from 16 typical energy projects. Users report that the tool is helping them make energy decisions at their companies. Two technical assistance providers with the Texas Manufacturing Assistance Center used the tool at nine facilities to identify a total of \$660,000 in energy savings opportunities. One facility has the potential to replicate results at 13 additional sites belonging to the parent company. The tool can be downloaded without charge at <http://TexasIOF.ces.utexas.edu>.

## **Union Carbide Texas City Operations (TCO) identifies immediate energy savings opportunities**

The DOW Chemical Company has played a leadership role with Texas Industries of the Future since its inception. When Energy Saving Assessments became available from DOE, DOW's Union Carbide Texas City Operations (TCO) facility participated in a DOE assessment of its pump systems, focusing mainly on water cooling. In September 2007, a DOE Energy Expert trained TCO plant personnel to use the DOE's Pump System Assessment Tool (PSAT), and they identified energy savings opportunities worth approximately \$500,000/yr in electrical savings. One of the opportunities, implemented before the assessor left the site, was a near-term, "high pay-off, no-cost" improvement expected to save \$200,000 per year. The success of the assessment reinforced Union Carbide's commitment to energy efficiency and environmental performance at the local and corporate levels. The company plans to replicate the results to achieve energy and cost savings at additional sites.



***Texas Industries of the Future***