

**COMMITTEE ON SCIENCE AND TECHNOLOGY  
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT  
U.S. HOUSE OF REPRESENTATIVES**

**HEARING CHARTER**

**Industrial Efficiency Research and Development : Legislation to Enhance Activities at the  
Department of Energy**

Tuesday, September 25, 2007  
2:00 p.m. to 4:00 p.m.  
2318 Rayburn House Office Building

**Purpose**

On September 25, 2007, the Subcommittee on Energy and Environment will hold a hearing on the Department of Energy (DOE) Industrial Technologies Program (ITP), and prospects for improving the energy efficiency and environmental performance of the country's most energy-intensive manufacturing processes through technological advancement and industrial process assessments. The hearing shall provide background for legislation in this area. A copy of the discussion draft and section by section is attached.

The hearing will examine the successes and limitations of the Industrial Technologies Program, and how can the program be improved to increase industrial energy efficiency and environmental performance in the U.S. industrial sector. It will also look at which areas of research and development should be enhanced and explored by the ITP and the Industrial Assessment Centers, and what cost-effective opportunities does a further enhancement of industrial efficiency program offer.

The subcommittee will hear testimony from four witnesses offering perspectives from the U.S. industrial sector, industry trade associations, and university-based energy auditing centers. The witnesses will also comment on the need and timeliness of this legislation, and make recommendations for improving the legislative language.

**Witnesses**

- **Mr. Malcolm Verdict, C.E.M.**, is an Associate Director of the Energy Systems Laboratory within the Texas Engineering Experiment Station (TEES), the engineering research arm of the Texas A&M University System in College Station, Texas. TEES has operated one of the Department of Energy's twenty-six Industrial Assessment Centers since 1986. Previously he held positions at the Alliance to Save Energy, the Texas Public Utility Commission, and the Texas Governor's Energy Management Office.
- **Mr. Fred Moore** is the Global Director of Manufacturing and Technology for Dow Chemical's Energy Business. He is responsible for the production of power, steam, and other utilities for Dow, and for development, support and application of Energy technology globally and with Dow's major joint ventures. Mr. Moore will be testifying in his position as the Chairman of the Energy Efficiency Task Force of the National Association of Manufacturers.

- **Mr. Lawrence Kavanagh** is the Vice President of Manufacturing and Technology for the American Iron and Steel Institute (AISI). Prior to joining AISI in 1991, Mr. Kavanagh was general manager of engineering for Davy International's Automation Services Division where he was responsible for engineering, project management, installation and testing for Davy's steel plant equipment installations around the world.
- **Mr. Paul Cicio** is the President at Industrial Energy Consumers of America. Mr. Cicio's background includes over 20 years of public affairs and commercial experience in the energy and environment sector, primarily with The Dow Chemical Company where he was responsible for Dow's energy policy and legislative initiatives.

### **Background**

An expanding economy, growing population, and rising standard of living create rapidly growing demands for energy, making energy conservation a key national goal. In the U.S. industry is responsible for more than one-third of all energy consumed, the large majority of which is consumed by certain heavy industries such as chemical, glass and metals production, mining, petroleum refining, and forest and paper products. These industries require very large amounts of energy per unit of production, making them particularly susceptible to high energy prices. These and other energy-intensive industries are ideal candidates on which to focus energy efficiency efforts and apply new technologies that not only increase efficiency, but also raise productivity, reduce wastes, and trim costs.

While the U.S. industrial sector has become much more efficient over the past 30 years, there are still ample opportunities to achieve efficiency gains. However, energy-intensive industries face enormous competitive pressures that make it difficult to make the necessary R&D investments in technology development. Energy-intensive industries tend to exhibit relatively low levels of R&D spending, and are often unwilling to accept the risks associated with undertaking complex capital-intensive technology development and implementation. Without a sustained commitment by the private and public sectors to invest in technology R&D and adopt new technologies, the ability to close the gap between U.S. energy supply and demand will be greatly limited.

The Industrial Technologies Program (ITP) works to improve the energy intensity of U.S. industry through coordinated research and development and dissemination of innovative energy efficiency technologies and practices. The ITP invests in high-risk, high-value cost-shared R&D projects to reduce industrial energy use and process waste streams, while stimulating productivity and growth. Competitive solicitations are the principal mechanism used by ITP to contract for cost-shared R&D. Solicitations reflect the priorities of the Program and selection of projects follows merit-based criteria that emphasize projected energy, environmental, and economic benefits. In addition, ITP makes available information and resources on other financial assistance and research opportunities and case studies from past ITP projects. The ITP portfolio details over 1,000 technology development projects in which ITP has been involved.

The Industrial Technologies Program claims numerous successes. ITP-sponsored technologies have won 31 "*R&D 100 Awards*" between 1991 and 2005, and ITP-sponsored R&D has yielded 156 patents since 1994. While DOE R&D has yielded many energy efficient technologies ready for market entry, the ITP in particular is considered one of the most effective DOE programs at transferring

technologies, with over 170 technologies reaching the commercial market. An estimated 13,000 U.S. manufacturing plants have been improved through the ITP technology delivery effort. Nearly 5 quadrillion Btu of energy (equal to approximately \$23 billion) of energy savings are attributed to the program since its inception, with 366 trillion Btu saved in 2004 alone.

The ITP also sponsors 26 University-Based Industrial Assessment Centers (IACs) that provide no-cost energy assessments primarily to small- and medium-sized manufacturers. Assessments are conducted by teams of faculty and students, and involve examinations of potential savings from energy efficiency improvements, waste minimization and pollution prevention, and productivity improvement. The average expected savings per assessment are fifty to seventy thousand, with much larger savings possible with large operations. Companies are in turn encouraged to replicate accomplishments and share results.

By operating through university engineering programs the IACs serve as a training ground for the next-generation of energy and industrial engineers. Roughly 240 students receiving training through the program each year. When budgets for the program were higher 38 IACs operated around the country, compared to the 26 in operation today. The approximately \$4 million funding for IACs is relatively small, especially given the significant economic benefits of reducing industrial energy consumption.

***Brief Budget Overview***

Constantly changing market conditions, energy prices, and business concerns affect the ability and willingness of industry to pursue energy efficiency opportunities. As the role of energy in industry changes, the ITP should have the resources to sustain and expand operations, adapt, and reshape its strategy where needed. However, the budget in recent years has decreased dramatically. The Fiscal Year 2007 budget request for Industrial Technologies was \$45.6 million, an \$11.3 million reduction from the Fiscal Year 2006 Appropriation. By comparison, appropriated levels as recently as Fiscal Year 2000 were as high as \$175 million. These funding levels reflect a dramatic shift in priorities away from industrial efficiency R&D.

<b>Funding for Industrial Efficiency R&amp;D at DOE (\$ in thousands)</b>					
	<b>FY2005 Appropriation</b>	<b>FY2006 Appropriation</b>	<b>FY2007 Request</b>	<b>FY2007 Continuing Resolution</b>	<b>FY2008 Request</b>
<b>Industrial Technologies</b>	<b>73,371</b>	<b>56,855</b>	<b>45,563</b>	<b>57,172</b>	<b>45,998</b>

**FY2007 Budget Request Industrial Technologies**

Activity	Funding (\$ in thousands)		
	FY2005 Appropriation	FY2006 Appropriation	FY2007 Request
Industries of the Future (Specific)- Cost Shared R&D	37,369	24,245	17,001
Industries of the Future (Crosscutting) - Cost Shared R&D	32,262	28,855	28,562
Technical/Program Management Support	3,740	3,755	0
<b>TOTAL (IACs ~\$4M)</b>	<b>73,371</b>	<b>56,855</b>	<b>45,563</b>

*The following represent a small portion of organizations that support, or have benefited from working with, the program:*

AMMEX – The Alliance Materials Manufacturing Excellence  
 NAM – National Association of Manufacturers  
 ACEEE - American Council for an Energy Efficient Economy  
 ACC – American Chemistry Council  
 3M Company  
 Abbott Laboratory  
 Bayer Healthcare  
 Boeing  
 Caterpillar  
 Dow Chemical Company  
 DuPont  
 Texas Instruments  
 Solutia  
 Georgia Pacific  
 GlaxoSmithKline  
 Kaiser Aluminum

Industrial Assessment Centers are located at Colleges and Universities around the country such as:  
 Texas A&M University, University of Washington, Iowa State, University of Michigan, West Virginia University, Georgia Institute of Technology, University of Florida, and University of Miami.