



A Clean, Secure Energy Future via Industrial Energy Efficiency

Industry: Critical to Our Energy Future

The Industrial Technologies Program (ITP) leads the national effort to save energy and reduce greenhouse gas emissions in the largest energy-using sector of the U.S. economy. ITP drives energy efficiency improvements and carbon dioxide reductions throughout the manufacturing supply chain, helping develop and deploy innovative technologies that transform the way industry uses energy. The program's activities help U.S. industries increase their global competitiveness, keeping jobs in America and reducing reliance on foreign oil and other imports.

Strategic Approach

ITP uses a three-part strategy to stimulate innovative technology research and accelerate market uptake of highly energy-efficient industrial technologies and practices:

- Sponsor collaborative research, development, and demonstration (RD&D) of next-generation manufacturing technologies that radically reduce the energy intensity and carbon emissions of U.S. industry

DOE's Industrial Technologies Program (ITP) is helping the nation's most energy-intensive manufacturing industries transform the way they use energy through a strategy of technology innovation, workforce development, and energy and carbon management

- Train and engage engineering students in conducting technology delivery activities that help plants access and apply today's most efficient technologies and energy management practices, thus building a green workforce for the future
- Promote a corporate culture of energy efficiency and carbon management throughout industry.

Partnerships Accelerate Advances

ITP conducts research, development, and demonstration (RD&D) activities to translate scientific discoveries into innovative technologies for efficient manufacturing. These efforts tap the expertise and intellectual property of the National Laboratories and leverage the scientific findings of DOE's Basic

Energy Sciences program, typically in such disciplines as nanotechnology, chemistry, and materials science. Our collaborative research partnerships with industry and academia effectively integrate the top resources of the public and private sectors to solve some of industry's toughest energy challenges:

- Conduct RD&D on transformational technologies to revolutionize manufacturing processes in specific energy-intensive industries
- Develop innovative, crosscutting technologies that deliver significant energy and carbon savings across diverse industries
- Pursue applied RD&D in nanomanufacturing to bridge the gap between scientific discovery and market-ready processes for economically manufacturing innovative products to enhance energy supply, storage, and use
- Deliver a robust portfolio of combined heat and power (CHP) and other distributed energy RD&D and market transformation activities to accelerate widespread use of these clean energy technologies throughout industry.

Program Goals

- Reduce industrial energy intensity (energy per unit of output) by 25% in 10 years
- Reduce the projected growth of U.S. carbon emissions between 2006 and 2030 by 70%
- Establish U.S. industry as the global leader in efficient energy management



Industrial Technologies Program



ITP works with major industries, such as steel and metal casting, to reduce energy intensity

- These activities continuously feed the technology development pipeline to ensure significant improvements in industrial energy efficiency now and for the future.

Successful Track Record

The Program's RD&D portfolio has produced more than 220 commercialized technologies since 1991. Since the Program's inception, these technologies have saved more than 5 quadrillion Btu and yielded production cost savings of nearly \$30 billion. Other accomplishments include:

- Reduced greenhouse gas emissions by 93 million metric tons (in carbon equivalent) through industry adoption of ITP-supported technologies
- Earned 42 "R&D 100" awards between 1991 and 2007
- Received 156 patents between 1994 and 2005

Save Energy Now™

To accelerate U.S. industry's adoption of energy-efficient technologies and practices, the program provides a variety of resources for energy management, including

- System assessment software tools and training

- Case studies and other technical publications
- Expert plant assessments to identify savings opportunities in large facilities
- No-cost assessments provided to eligible small and mid-size facilities by teams from 26 university-based Industrial Assessment Centers
- Recognition of plants that pursue assessment recommendations

Program partners—including states, utilities, associations, and other organizations—help deliver the tools, training, and information to industrial customers all along the supply chain. "Memorandums of Understanding" with the National Association of Manufacturers and Green Grid have extended our ability to assist diverse businesses, including the rapidly growing data center sector.

Identifying Opportunities Today

As part of DOE's Save Energy Now initiative, ITP sends industrial energy experts to help manufacturing plants assess their top opportunities to save energy today. Since 2006, more than 2,000 industrial facilities, including some of the largest energy users in the nation, have voluntarily invited these experts into their plants. During the assessments, the experts train plant staff in using specialized software tools to analyze their plant systems and identify opportunities for energy savings.

With 1,925 plants reporting results, these assessments have identified opportunities to save more than 134 trillion Btu of natural gas—roughly equal to that used by 2.6 million U.S. homes annually. If implemented, the identified improvements could save more than \$1.2 billion and reduce carbon dioxide emissions by 10.5 million metric tons annually—equivalent to taking about 2 million cars off the road. ITP is



Advances in measurement and control systems help industry improve the bottom line

building on this success by expanding outreach and partnerships with major corporations and entire supply chains to drive a 25% reduction in industrial energy intensity through 2020.

For More Information

Contact the EERE Information Center 1-877-EERE-INF or 1-877-337-3463 or visit www.industry.energy.gov



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