

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 coordinated, multi-prong approach 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 and materials that radically reduce the energy intensity and carbon emissions across U.S. industry
- Drive ambitious reductions in industrial energy intensity through the national *Save Energy Now* initiative and its related LEADER and ALLY strategies
- Promote energy-efficient improvements throughout the supply chain
- Train and engage engineering students in conducting technology delivery activities that help plants



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.

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 through strategic partnerships and constructive engagement with industry
- Help drive the development of energy management standards and an energy management certification program to provide a clear roadmap for continual improvement in energy efficiency.

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 now, and
 - Continuously feed the technology development pipeline to ensure significant improvements in industrial energy efficiency for the future.

Program Goals

- Drive commitments by industrial companies to reduce their energy intensity (energy per unit of output) by 25% in 10 years
- Cut industrial CO₂ emissions in half by 2030 from 2009 levels through energy reductions
- Establish U.S. industry as the global leader in efficient energy management.



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

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 8 quadrillion Btu of cumulative energy and yielded production cost savings of over \$67 billion. Other accomplishments include:

- Reduced greenhouse gas emissions by 189 million metric tons (in carbon equivalent) through industry adoption of ITP-supported technologies
- Earned 48 "R&D 100" awards between 1992 and 2009
- Received 156 patents between 1994 and 2005.

Save Energy Now

Through the *Save Energy Now* initiative, companies nationwide have partnered with DOE to participate in no-cost energy assessments and use ITP tools and training to reduce their energy use and lower their operating costs. 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
- Awards for plants that achieve impressive levels of energy savings.

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, the Northwest Food Processors Association, and The Green Grid have extended our ability to assist diverse businesses, including the rapidly growing data center sector.

Save Energy Now LEADER

ITP also provides an opportunity for forward-thinking companies to make a voluntary commitment to achieve an aggressive 25 percent reduction in energy intensity over 10 years in exchange for priority access to a range of DOE services, including tailored technical assistance and training, identification of financial incentives, and the provision of high-level public recognition. Those manufacturers that pledge to meet this *25 in 10* goal and serve as role models for others in industry are recognized as *Save Energy Now* LEADER Companies.

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 2,300 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 2,145 plants reporting results, these assessments have identified opportunities to save more than 180 trillion Btu of energy savings. If implemented, the identified improvements could save more than \$1.3 billion and reduce carbon dioxide emissions by 11.2 million metric tons annually—equivalent to taking about 3 million cars off the road. ITP is building on this success by expanding outreach and partnerships with major corporations and entire supply chains to drive a reduction in industrial energy consumption of more than 2 quad Btu by 2030.

For More Information

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



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