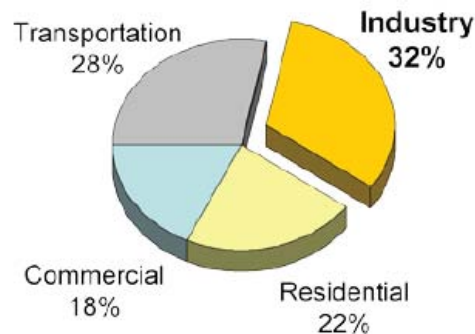


Industrial Technologies Program Overview

Introduction

U.S. manufacturing contributes more to the economy than any other sector. It provides 12% of U.S. GDP, directly employs 14 million people, supplies 60% of U.S. exports, and produces nearly 25% of the world's output. This exceptional productivity comes with a high energy requirement: approximately one-third of energy usage in the United States (about 32 quadrillion BTUs per year).

Although improvements in energy efficiency have contributed to a downward trend in industrial energy consumption, industrial energy use is projected to increase by 40% worldwide from 2006-2030¹. This dramatic increase in energy consumption could significantly impact the U.S. economy, energy security, and environment. Subsequently, the projected increase has sparked a renewed focus on development and deployment of energy-efficient industrial technologies.



As the lead agency responsible for reducing industrial energy intensity, the Industrial Technologies Program (ITP) is working in collaboration with U.S. industry to develop and deliver technologies and practices that improve industrial energy efficiency and environmental performance. The Program is targeting the most energy-consuming manufacturing processes by developing and promoting technologies common to many industries. ITP works with industrial partners to identify and undertake technology research opportunities that are too risky for industry to undertake alone, yet promise broad benefits across the manufacturing sector. This partnership approach has succeeded year after year in providing industry with the technologies, tools, and practices needed to save energy and stimulate growth.

¹[http://www.eia.doe.gov/oiaf/ieo/pdf/0484\(2009\).pdf](http://www.eia.doe.gov/oiaf/ieo/pdf/0484(2009).pdf)

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Program Mission, Goals & Objectives

ITP's mission is to lead the national effort to reduce energy intensity and carbon emissions in industry. The Program's goal is to drive a 25% reduction in U.S. industrial energy intensity by 2020 in support of the Energy Policy Act of 2005. Objectives in meeting that goal are to provide national leadership in industrial energy efficiency and carbon emissions reductions through collaborative technology R&D and development of best energy management practices; promote the use of proven energy management methods and advanced technologies throughout industry; and spur national investment in energy efficiency through strategic partnerships with states, utilities, businesses, the financial community, and others.

Approaches to Achieving Energy Efficiency Goals

The Program has taken a two-pronged approach to meeting its goals: It is focused on promoting widespread adoption of proven, cost-effective technologies and practices that are available today through its Save Energy Now initiative, and it is feeding the technology development pipeline to produce technologies for the future. Breakthrough technologies can significantly enhance energy efficiency, sustainably improve performance, and expand markets at home and abroad. Developments in nanotechnology and other next-generation manufacturing concepts hold great promise for revolutionary advances in energy efficiency.

ITP's Target Industries

ITP targets diverse industries with the potential for significant energy savings. The Program's efforts promote energy efficiency and carbon reduction throughout the supply chain – from the extraction of raw materials through the assembly of commercial products and their delivery to consumers. ITP customers include the following:

- Energy-intensive industries producing bulk materials such as chemicals, paper, and steel
- Major value-adding industries such as food processing, fabricated metals, and auto manufacturing
- High-growth industries such as computers, electronics, and supporting facilities such as data centers
- New energy supply industries such as biorefineries producing biofuels, power, and chemicals
- Merchandising industries with large supply chains such as wholesalers and retailers

Public-Private Partnerships

ITP partners with industry to develop energy-efficient industrial technologies and processes, and to accelerate technology deployment. The Program supports technology R&D by cost-sharing groundbreaking industrial research. Resulting technology innovations will help secure U.S. leadership in energy-efficient, low-carbon manufacturing. The Program's Save Energy Now initiative facilitates near-term adoption of energy-efficient technologies and energy management practices. Through this effort, ITP provides



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manufacturers with accurate, unbiased information and assessment tools that enable sound decision making.

ITP Partners include:

- As of 2008, nearly 600 partners from industry (private companies and trade/technical associations) engaged in technology R&D and Technology Delivery activities
- Partners within DOE, including the Office of Basic Energy Science (BES) and other Energy Efficiency and Renewable Energy (EERE) programs (Wind, Vehicles, Solar, etc.)
- Other government agencies, including the U.S. Department of Commerce, National Institute of Standards and Technology (NIST), and the Environmental Protection Agency (EPA)
- Interagency groups and non-governmental organizations such as Green Grid (data centers) and the National Nanotechnology Initiative on Nanomanufacturing
- Other industry groups such as the United States Council for Automotive Research, LLC
- State energy offices
- Utility companies

ITP leverages its partnerships with state energy offices, other federal agencies, utility companies, and industry associations to increase outreach and dramatically extend the Program's impacts. ITP is also elevating energy efficiency as a key corporate strategy by expanding the implementation of ITP's proven plant energy assessments to new partners and facilitating development of a certification process for plant energy management.

ITP Activities

Planned and ongoing Program activities include the following:

- Establishing voluntary partnerships for companies that pledge to reduce their energy intensity by 25% over 10 years – the Save Energy Now Leaders Program
- Signing a Memorandum of Understanding with the Northwest Food Processors Association that expresses the intent to develop a framework to identify and pursue a diverse range of energy efficiency opportunities within the food processing industry
- Expanding partnerships/building collaborations with other federal agencies such as the Environmental Protection Agency (EPA) and the Department of Commerce (DOC)
- Boosting state-level activities and engaging utility companies to leverage savings
- Providing international leadership and collaboration on industrial energy efficiency
- Leveraging IP and institutional knowledge of the National Laboratory system and their partners to accelerate development and deployment
- Establishing an ANSI/ISO standard for industrial energy efficiency, and third-party certification of a plant's energy management program

The Program is also working on the following global impact initiatives:

- The Plant Energy Certification Program to independently certify the energy efficiency performance of industrial facilities (ANSI/ISO standard)

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- The Bilateral Agreement with China on Energy Savings Assessments
- The International Energy Agency on District Heating and Cooling and Combined Heat and Power, and the Industrial Energy Related Technologies & Systems agreement
- Development of international versions of ITP software tools and assessment protocols for diverse plants and industries

ITP Performance

ITP's proven track record includes:

- Placing over 220 technologies into commercial markets
- Saving more than 5.7 quadrillion (10) Btu of energy (quads) since Program inception
- Reducing emissions by 103 million metric tons (in carbon equivalent)
- Earning 48 *R&D 100* awards between 1991 and 2008
- Receiving 156 patents between 1994 and 2005
- Helping over 16,000 plants through Technology Delivery efforts