

steel



Steel

— Industry of the Future

Industrial
Partnerships:
Advancing
Energy and
Environmental
Goals



Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy

Office of Industrial Technologies





Industry collaboration

As the global economy becomes increasingly more competitive, the U.S. steel industry continually seeks new ways to stay at the forefront of manufacturing technology. By partnering with the U.S. Department of Energy's Office of Industrial Technologies (OIT), steel industry leaders are better able to facilitate technology research focused on the specific needs of the steel industry.

The American Iron and Steel Institute (AISI) and the Steel Manufacturers Association (SMA), which represent nearly all steel-manufacturing companies in the U.S. and North America, joined in a voluntary partnership with OIT in 1995. The partners agreed to work together to identify critical areas and targets of opportunity where technological advances would ensure the steel industry's future success. This unique partnership between OIT and the steel industry has already resulted in reduced energy use, increased productivity, and significant competitive advantages for the industry.

Our business plan targets a certain cost per ton of steel, and energy and process efficiency improvements like these help reduce those costs, improve our steel quality, and increase our profit margin.

**—Howard Snyder, Weirton Steel
Technical Director of Operations**

Successful alliances


Led by AISI and SMA, the steel industry is able to take advantage of the opportunities that arise from strong partnerships with OIT, manufacturers, laboratories, and universities. From specific projects to large-scale activities, partnering means success for each steel industry partner.

One successful alliance has allowed the steel industry to develop Showcase Demonstrations, where emerging technology and system improvements are introduced into existing facilities. The participation of numerous steel partners—U.S. Steel, Weirton Steel, SMA, AISI, OIT, and the State of Pennsylvania—recently led to the Pittsburgh Regional Technology showcase. The showcase demonstrated new DOE-sponsored technologies in installations at U.S. Steel and Weirton Steel mills. Successful implementation, including upgrades to existing natural gas pilots, steam lines, steam

What's working

Partnering activities between OIT and the steel industry are helping the industry achieve its goals for steel-specific technological advances. Several elements contribute to the effectiveness of this partnership.

- OIT works closely with AISI and the steel industry to simplify the solicitation process for research and development, allowing AISI to initiate and implement the process quickly and smoothly, which saves steel partners and researchers valuable time.
- Partnering leads to close collaboration between private industry, universities, and researchers. This has led to the accurate identification of long- and short-term industry needs and a high level of dedicated and successful research and development.
- The steel industry boasts a wide variety of partners, from large associations to small companies. Partners offer different resources and expertise that, in combination, produce a more successful outcome. Describing one such collaborative effort, Thomas Danjczek, SMA President, says, “Neither partner—SMA nor OIT—could have done it alone.”



traps, and other key components, will strengthen profits and save the companies millions of dollars annually. The participation of a variety of dedicated partners ensures the ongoing success of Showcase Demonstrations.

The 1993 AISI-DOE Advanced Process Control Program involved the work of more than 18 partners, including Bethlehem Steel, the Timken Company, AISI, OIT, the Jet Propulsion Laboratory, NIST, and numerous government laboratories. The Advanced Process Control Program initiated six sensor and control system research projects to develop monitoring technology for key steps in the production of steel. Of the six initial research projects, three are now commercial. OIT Steel Lead Peter Salmon-Cox says, "AISI worked with the industry to define areas where there was a real need. They saw that it was possible to develop technology even when none currently existed." Close collaboration was the key to the program's outstanding success.

Partnering benefits

Partnering with OIT gives the steel industry important competitive advantages. Participating steel companies benefit from the reduced cost and risk of collaborative research and development by leveraging limited resources. Networking leads to streamlined access to Federal scientific resources, increased replication of technological advances, and leading involvement in cutting-edge technological development.

For example, the implementation of more than 40 energy- and resource-saving technologies has meant an estimated annual savings of \$2 million for the U.S. Steel Group. Bethlehem Steel, Weirton Steel, and numerous other industry partners have similarly benefited from collaboration with OIT. Such impressive savings would not have been possible without the research and development participation of numerous partners working together.

As a result of collaborative research and development, the steel industry saves both money and energy, and the industry's wide range of partners means greater flexibility, more resources, and a greater level of success for the Steel Industry of the Future.

How to participate

For those in the steel industry, rapidly changing technology and rising energy costs increase the challenges in an already competitive world. Partnering between OIT, AISI, SMA, and others with a vital interest in the industry ensures that the U.S. steel industry will continue to compete effectively in the global market.

One way to participate is through three unique levels of cost-shared research and development projects. Specific steel project solicitations support incremental research based on existing technology, leapfrog technology that may have a dramatic impact on the industry, and advanced technology for the 21st Century. A close partnership between OIT and AISI streamlines the solicitation and acceptance process.

There are many additional ways to participate in OIT and steel industry partnerships. If you would like to learn about how to become a partner, please contact Peter Salmon-Cox, OIT Steel Team Leader (peter.salmon-cox@ee.doe.gov, 202-586-2380), or get involved by:

- Monitoring our Web pages for news and announcements of research and development solicitations (www.oit.doe.gov/steel/).
- Teaming with other organizations and responding to solicitations for cost-shared research issued by OIT's Steel Industry of the Future team and other OIT programs.
- Participating in OIT's BestPractices to begin saving energy, reducing costs, and cutting pollution in your plant today.
- Calling the OIT Clearinghouse at (800) 862-2086 to learn more about OIT publications and services.





For more information on the Steel Industry of the Future, contact the OIT Clearinghouse at (800) 862-2086 or visit www.oit.doe.gov/steel/

Please send any comments, questions, or suggestions to webmaster.oit@ee.doe.gov

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