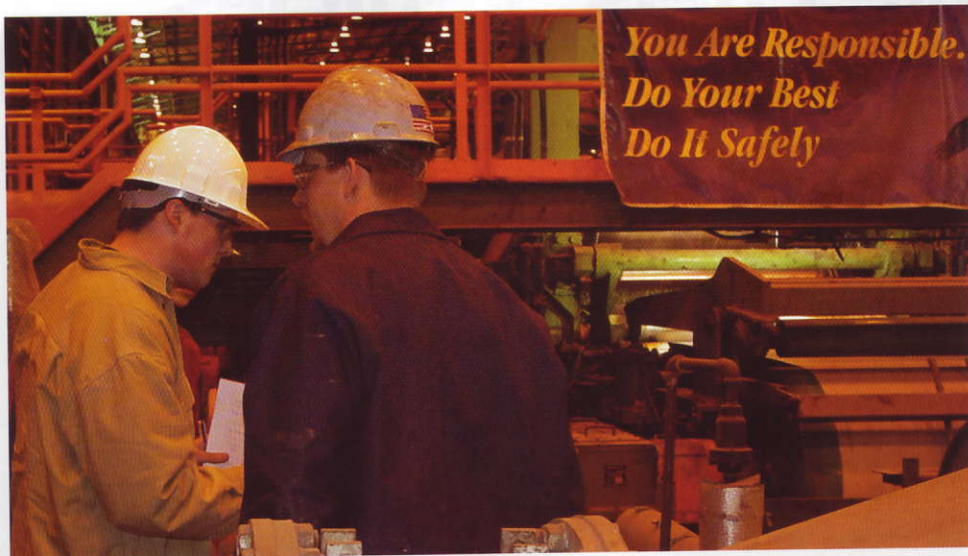


# Faculty, Students Helping Industries Save Energy



*We're talking energy – Jacob Winterstine (left), a recent mechanical engineering graduate, talked with Wheeling-Nisshin plant engineer Scott Beresh about the design of a condensate return system for the steam boiler at the company's plant in Follansbee, West Virginia, as part of an effort to reduce the consumption of natural gas at the plant.*

A typical day for mechanical and aerospace engineering professor Larry Banta might involve meeting with a student, teaching a class, and working in a lab. Or, a little more unexpectedly, he might be measuring the combustion efficiency of a furnace in a West Virginia glass company.

Banta is one of several College faculty members who are helping West Virginia businesses through Industries of the Future-West Virginia (IOF-WV), a cooperative effort between WVU's National Research Center for Coal and Energy and the West Virginia Development Office. Sponsored by the U.S. Department of Energy's Industrial Technologies Program, the program focuses on saving energy – and thereby improving the bottom line – for West Virginia industries.

“Our mission is to foster innovation aimed at enhancing the energy efficiency, environmental performance, and productivity of our state's traditional industries,” said Carl Irwin, IOF-WV director.

The program achieves these goals by forming partnerships between West Virginia companies, WVU researchers, and national laboratories to address energy and waste problems of the industries.

Other College faculty members involved in IOF-WV include Ever Barbero, Bruce Kang, Ken Means, and Xingbo Liu of Mechanical and Aerospace Engineering; Rakesh Gupta, Al Stiller, and Richard Turton of Chemical Engineering; and Robert Creese and Bhaskaran Gopalakrishnan of Industrial and Management Systems Engineering.

Gopalakrishnan also directs the WVU Industrial Assessment Center, which provides small and mid-size manufacturers with energy assessments. Teams of WVU faculty and students perform energy assessments, helping hundreds of West Virginia businesses find ways to cut energy consumption. Other WVU schools and colleges are involved in IOF-WV as well; in all, 26 WVU faculty members and 70 industry partners are part of the effort.

Historically, West Virginia's abundant natural resources attracted energy-intensive industries, such as aluminum, steel, glass, chemicals, polymers, wood products, and metal casting, to locate here. Globalization has driven some offshore and caused others to close their doors.

IOF-WV started in 1997 with five industries: aluminum, chemicals/polymers, forest products, glass, and steel. Metal casting and mining were added later. The program has three “cross-cutting” areas it follows as well: advanced materials for energy and industrial systems; energy and chemical feedstocks for energy-intensive industry clusters; and wood-polymer composites.

Typically, WVU teams can identify measures to save approximately 10 percent of a plant's energy – often more. For many companies, this amounts to savings of more than \$1 million per year, with returns on investment of more than 50 percent. The results are greater efficiency, less greenhouse gas production, and more prosperous businesses. ●