IAC INDUSTRIAL ASSESSMENT CENTERS

A Program of the U.S. Department of Energy

Beginning in 1976, the Industrial Assessment Centers (IACs) have provided small and medium-sized manufacturers with site-specific recommendations for improving energy efficiency, reducing waste, and increasing productivity through changes in processes and equipment.

SPRING NEWSLETTER **2017**

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or contact your nearest center.

IAC PROGRAM HIGHLIGHTS

WELCOMING THE 2017-2021 INDUSTRIAL ASSESSMENT CENTERS

In December 2016, the Advanced Manufacturing Office (AMO) announced the selection of 28 engineering programs located at universities across the U.S. to operate the latest iteration of Industrial Assessment Centers (IACs). For more than 40 years, IACs have provided site-specific recommendations to small and medium-sized manufacturers with opportunities to improve productivity, secure information, reduce waste, and lower energy costs while providing training for undergraduate and graduate engineering students in manufacturing processes, energy assessment procedures, and energy management.

Of the 28 newly selected IACs, 19 served as IACs over the past five years. The nine new IACs include: Arizona State University, Clemson University, Georgia Tech University, Louisiana State University, University of Florida, University of Illinois Chicago, University of Nebraska, University of Texas Rio Grande, and University of Utah. In addition to the 28 selected IACs, the program also includes 6 affiliated satellite IACs located at Clarkson University, Florida A&M University, University of Idaho, University of Memphis, University of Turabo, and Wichita State University. While the program supports IACs in 26 states and Puerto Rico, the program mission is to support manufacturers in all 50 states by contacting a nearby IAC and taking advantage of online IAC resources designed for manufacturers.

PROGRAM HIGHLIGHTS

According to John Smegal, IAC Program Lead for the Advanced Manufacturing Office, "We receive dozens of applications from schools across the country each time we issue a funding opportunity announcement. Carefully evaluating all the submissions is a tremendous amount of work for both the federal and independent merit reviewers, but it's well worth the effort. Selecting the best universities to execute the program not only ensures that only the most qualified and motivated schools are part of the program, it also enables DOE to incorporate new program priorities and emerging technologies into our technical assistance activities."

As part of the rebid, the IAC program scope was expanded to offer resources to support cybersecurity, water, and smart manufacturing. This effort will expand the number of critical stakeholder partnerships and the program's value in supporting the competitiveness of American manufacturers.

Led by engineering faculty, students at the selected IACs perform on-site assessments at small- and medium-sized manufacturing business partners, currently defined as having gross annual sales below $100 million, fewer than 500 employees, and annual energy bills between $100,000 and $2.5 million. In exchange for hosting the hands-on assessment training opportunities, these small- and medium-sized manufacturers receive an assessment that the company can use to improve their operations. ■

CLIENT SPOTLIGHT

Central States Business Forms

Diana Adams
Owner, Central States Business Forms

In November 2015, Central States Business Forms, a women-owned company, received an assessment from the Oklahoma State University (OSU) IAC. In honor of Women's History Month in March, we followed up with owner Diana Adams to see how things had changed since the assessment and how OSU's recommendations had been implemented.

Q: Can you tell us a little bit about yourself and your company?

A: Our company has been in business since 1964 and provides custom business forms. We manufacture things like invoices, checks, medical forms, tax forms, and booklets. We are a full manufacturing operation and we ship products out across the U.S., Canada, Mexico, and Puerto Rico. We have a wonderful diverse team. We have production facilities in northeastern Oklahoma and near Atlanta. Our sales and customer service team is in Oklahoma. I joined the business in 2003 and became a partner in 2011, and at that time, we became a woman owned business. We're also members of the state Women in Business program (WBE) which is a great organization. It's a really exceptional network and support structure for women who are engaged in business.

Q: Why did you decide to reach out to the Oklahoma State IAC?

A: We were talking with our Public Service Company of Oklahoma representative who mentioned that OSU had a talented team that made assessments available to companies. We are always trying to become more efficient and have best practices regarding operations, so we reached out to OSU that same day. We were so delighted when we got news that we were going to have an assessment. I can't say enough about Dr. Kolarik who is a great mentor, a very good communicator, and a very nice professional.

Q: How was your interaction with the team?

A: They were extremely well organized and they knew what they wanted to work on and who would be performing various functions based on the advanced materials they asked us to provide. We met again for lunch during the assessment and had a brief question and answer period. It was a long, wonderful day filled with very substantive work.

Q: How have the recommendations they made changed your business?

A: Out of their work there were 15 core recommendations. We have implemented about half of the recommendations – about seven of them. We are working on an eighth: within the last four weeks we actually refreshed a bid on one of the recommendations and that will probably be done very shortly.

Q: Have you seen savings?

A: Yes! Savings have been substantial. The energy assessment worked in two important ways: one, it gave us the information and specific recommendations to implement structural savings. Two, it created awareness and supported more energy efficient behavior on the part of all employees in the company.

Q: Is there anything else you would like to add?

A: I can't say enough about the team from OSU and I want to recognize that the leadership of that team is key. We just experienced how good oversight can infuse every member of the team with professional excellence, communication skills, and the ability to come into the workplace and do their part

in a way that was appropriate and very helpful. I also want to say how fortunate we are in Oklahoma to have an Industrial Assessment Center and how much I appreciate how the Department of Energy supports manufacturers. We are in a business that is extremely competitive, and utilities are a big component of our costs. The opportunity to have this review was really helpful from a financial standpoint and in terms of efficiency in operations. It also was inspiring to have the young people come in and see how they managed it, and it gave me great faith in our system and prioritizing this kind of support for business.

CENTER SPOTLIGHT

Recognizing Women in STEM

Dr. Amy Landis
Director of the Clemson University IAC

The IAC program is committed to providing equal opportunities for underrepresented groups in science, technology, engineering, and mathematics (STEM). This ranges from student participants up to the faculty leading each center.

One example is Dr. Amy Landis, who is the director of the Clemson University IAC. Dr. Landis has shown that her commitment to women in STEM extends to how she has built her entire IAC team. Three of the seven faculty members she has recruited to work with the IAC program are women, and three-fourths of the undergraduate interns she has hired within the program are women.

Dr. Landis is also dedicated to educating the next generation of STEM leaders, which she has shown through her work volunteering with local high schools, after school programs, local nonprofit organizations and the Carnegie Science Center in Pittsburgh where she was awarded the 2011 Post-Secondary Educator Award Honorable Mention.

Dr. Landis is also working on a project supported by the National Science Foundation to develop a framework to better engage students in STEM via game design. She intends to offer K-12 STEM instructors an easy way to implement active learning in the classroom by giving students hands-on opportunities to demonstrate their mastery of design knowledge. This approach to learning is very similar to the way IAC students demonstrate their knowledge of their STEM coursework.

STUDENT & ALUMNI SPOTLIGHT

Oregon State, Boise State Students Head North

Tyler Giddings, Monica Heng, and Megan O'Leary from Oregon State University and Travis Pruitt from Boise State University

In addition to the technical and engineering knowledge, hands on collaboration is an important skill that IAC students learn through the program. Working in teams to collect and analyze data, the engineers make real world and actionable recommendations to manufacturers. Recently, four students from Oregon State University and Boise State University took that collaboration to a new level—they teamed up to support Alaskan manufacturers by conducting a joint series of assessments. Since Alaska has some of the highest utilities costs in the country, manufacturers there can benefit greatly from effectively managing their energy use.

While in Alaska, Tyler Giddings, Monica Heng, and Megan O'Leary from Oregon State University joined Travis Pruitt from Boise State University to conduct four assessments for a variety of industrial facilities including an asphalt plant, a wastewater treatment facility, an industrial piping manufacturer, and a local brewery. Tyler, Monica, Megan, and Travis faced a number of new challenges such as how to coordinate travel, transport tools and equipment, and streamline data collection during their limited time in Alaska. They found the experience to be a valuable knowledge transfer opportunity to learn from another center's "tricks of the trade", which they took back to their respective centers.

Across the four facilities, they were able to make 17 recommendations that totaled approximately $340,000 in potential annual savings. They also shared best practices with local students from the University of Alaska and the University of Fairbanks to ensure that the technical know-how was passed on to other engineering students within the region.

The students were able to take what they learned from the assessments and actively teach other students at their centers to do calculations and make recommendations after the trip. It is an excellent example of teamwork and problem solving skills IAC students gain through their unique, hands-on experience as a participant of the program. They also presented their experiences and lessons learned as part of the IAC program's ongoing webinar series.

CLIENT TESTIMONIALS

University of Missouri-Columbia

"I found the observations very insightful and relevant to our manufacturing operation. It was extremely helpful to learn how to quantify the savings. It is easy to overlook and avoid making the investments until you place a value on what it costs you in energy costs. Though we are unable to implement some of the items we've taken the first steps with trading out the light fixtures throughout the facility as suggested by your audit team."

– Drew Dubray,

Plant Manager at Takara Belmont (St. Louis, Missouri)

Lehigh University

"We cannot thank the Lehigh team enough for their thorough and kind support. The assessment will not only reduce our environmental footprint but also help our company achieve sustainable growth through implementation of new technologies and cost saving practices such as these recommendations."

– Ryan McCullough,

Mechanical Engineer at Chelsea Building Products (Oakmont, Pennsylvania)

San Francisco State University

"I still find myself reading your report and learning something new every single time. There is so much knowledge in that report. I hope other companies take their productions to that next **level** *of conservation."*

–Jose Gonzales,

Maintenance Manager

Syracuse University

"This is a great service for small business owners in our community! Having this analysis is not something we would have been easily able to afford and I'm sure the payout will be significant. Very impressed with the professionalism and the genuine interest in learning about our facility. I am really looking forward to what recommendations the team makes!"

– John F. Sharkey IV,

Vice President of Universal Metal Works (Fulton, NY)

IAC Program Quarterly Results October - December 2016

IDENTIFIED SAVINGS

	This Quarter	To Date
Energy Savings	12.8 M Therms	12.8 M Therms
Electricity Savings	130,695,552 kWh	130,695,552 kWh
Generation Reduction (approx)	14.92 MegaWatts	14.92 MegaWatts
Natural Gas Savings	-0.7 M Therms	-0.7 M Therms
CO2 Reduction	0.08 Tons	0.08 Tons
Energy Related Savings	$10.60 Million	$10.60 Million
Productivity Savings	$2.27 Million	$2.27 Million
Waste & Water Savings	$0.16 Million	$0.16 Million
TOTAL Cost Savings	$13.02 Million	$13.02 Million

Table 1. October - December 2016 Assessments (note: Metrics are delayed by one quarter)

LOCATIONS

Plants assessed were located in 29 states (Figure 1). The assessed plants represent a broad range of industries, with fabricated metals, food, transportation, and plastics and rubber being the most common (Table 2).

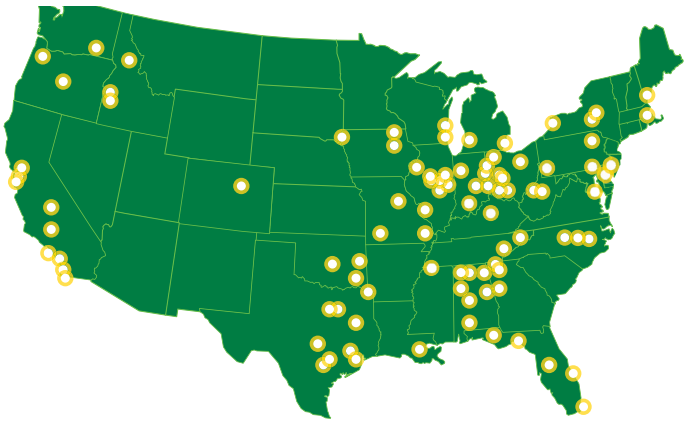

Figure 1. October - December 2016 Assessments

PARTICIPATION

A total of 323 engineering students were active in the IAC program across the 28 newly selected centers; and nearly one third were new to the program this year. IACs issued 22 certificates to students so far this year. To earn a certificate, students must master a set of core skills and participate in at least six assessments.

INDUSTRIES

Industrial Category (NAICS #)	Assessments
Fabricated Metal Product Manufacturing (332)	13
Transportation Equipment Manufacturing (336)	11
Plastics and Rubber Products Manufacturing (326)	10
Food Manufacturing (311)	10
Chemical Manufacturing (325)	9
Primary Metal Manufacturing (331)	8
Machinery Manufacturing (333)	5
Furniture and Related Product Manufacturing (337)	5
Computer and Electronics Manufacturing (334)	3
Textile Mills (313)	3
Printing and Related Support Activities (323)	3
Beverage and Tobacco Product Manufacturing (312)	2
Paper Manufacturing (322)	2
All Other Manufacturing	3

Table 2. October - December 2016 Assessments

More information on the services and results of assessments performed since 1981 can be found in the IAC database located at https://iac.university/#database.

U.S. DEPARTMENT OF ENERGY
Energy Efficiency & Renewable Energy

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DOE/EE-1604 • May 2017