

INDUSTRIAL ASSESSMENT CENTERS

IAC Update, Fall 2015



About the IAC Program

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. A typical IAC client will receive recommendations that save more than \$47,000 annually.

Currently located at 24 of the nation's top engineering schools, the IACs combine a traditional engineering curriculum with a unique blend of hands-on experience gained through conducting assessments. Upon graduation, approximately 53 percent of IAC students obtain employment for which energy efficiency or energy management is a significant responsibility.

To sign up for an IAC assessment, please visit <http://iac.university> or contact your nearest center directly.

IAC Program: Quarterly Results

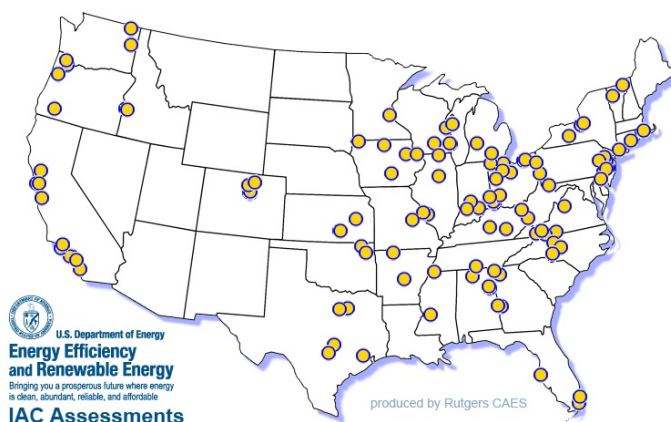
Between April and June of 2015, the IACs conducted 116 assessments (see Table 1). As a result, IACs made 994 recommendations that identified more than \$14M in potential cost savings.

Table 1. 2015 April – June Results

Total Assessments	116
Total Recommendations	994
Total Recommended Annual Savings	
Energy Savings	19.8 M Therms
Electricity Savings	106,896,077 kWh
Generation Reduction (approx)	12.20 MegaWatts
Natural Gas Savings	4.4 M Therms
CO₂ Reduction	0.14 Tons
TOTAL Cost Savings	\$14.23 Million
- Energy Related Savings	\$13.52 Million
- Productivity Savings	\$.51 Million
- Waste & Water Savings	\$0.20 Million

Plants assessed were located in 33 states (see Figure 1). The assessed plants represent a broad range of industries, with food, fabricated metals, machinery, and transportation equipment being the most common (see Table 2).

Figure 1. IAC Assessments Nationwide, 2015 Apr - Jun



During the quarter, a total of 255 engineering students participated in the IAC program across the 24 centers; more than 20 percent of the students were new to the program. IACs issued 39 certificates to students meeting all of the certification requirements. These requirements include mastering a number of core skills and participating in at least six assessments.

Table 2. 2015 April – June Assessments by NAICS Industrial Category

Industrial Category (NAICS #)	Assessments
Food Manufacturing (311)	19
Fabricated Metal Product Manufacturing (332)	17
Machinery Manufacturing (333)	10
Transportation Equipment Manufacturing (336)	10
Plastics and Rubber Products Manufacturing (326)	8
Wood Product Manufacturing (321)	7
Primary Metal Manufacturing (331)	6
Nonmetallic Mineral Product Manufacturing (327)	5
Furniture and Related Product Manufacturing (337)	4
Chemical Manufacturing (325)	3
Printing and Related Support Activities (323)	3
Computer and Electronics Manufacturing (334)	3
Electrical Equipment Manufacturing (335)	3
All Other Manufacturing	12

IAC Program Highlights

IACs Celebrate 40 Years of Operations

On September 15, 2015, Senator Jeanne Shaheen (D - NH) hosted a celebration honoring the 40th year of operations of the IAC program.

A tireless champion for the IACs mission to help small and medium-sized manufacturers save energy, reduce waste and water use, and improve productivity, Senator Shaheen praised the successes of IAC directors and students alike, stating “university teams under the IAC program have conducted more than 17,000 energy assessments at U.S. manufacturing plants nationwide, helping to save enough energy to power 1.4 million homes. Moreover, IACs have saved participating manufacturers more than \$1 billion in energy costs. An estimated 6 million metric tons of carbon dioxide emissions have been avoided due to IAC assessments, which is equivalent to the emissions from more than 1.2 million cars.”



Senator Shaheen and AMO Director Mark Johnson with a group of current and former IAC students at the 40th anniversary celebration

University of Dayton Receives IAC Center of the Year Award

The year’s IAC Center of Excellence award -- coinciding with our 40th year celebration -- was presented to the University of Dayton and Dr. John Kelly Kissock, professor and chair of the department of mechanical and aerospace engineering, renewable and clean energy.



Dr. Kelly Kissock

One of the original four centers, the Dayton IAC has been operating as a highly performing center its entire tenure. It is not surprising it is the first center ever to be recognized twice as the center of the year.

Dr. Kissock, who has been leading the department for almost 25 years, has received many honors including the 2011 American Council for an Energy-Efficient Economy (ACEEE) Champions of Energy Efficiency award. With more than 900 assessments conducted, the University of Dayton IAC has produced numerous IAC alumni that have gone on to do great things in the energy efficiency field. Dr. Kissock and the University of Dayton IAC represent the spirit of the IAC program and what it is trying to do both for manufacturers and students.

IACs Bring eGuide – an Energy Management System Software Tool – to Manufacturers

One of the most effective and low cost ways for manufacturers to realize energy savings is by instituting an Energy Management System (EnMS) that delivers continual improvement in energy performance. This translates into increased competitiveness and reduced waste by changing culture and reducing energy year after year. DOE has developed a new tool (eGuide) that helps companies implement an EnMS on a number of levels – ranging from foundational to advanced.

DOE is engaging five of its IACs to help introduce eGuide to small and medium-sized manufacturers, including:

- Indiana University - Purdue University Indianapolis
- North Carolina State University
- Oklahoma State University
- University of Massachusetts - Amherst
- University of Wisconsin - Milwaukee

Having been trained on eGuide, the IACs will walk selected clients through all aspects of the tool, from foundational energy management to ISO 50001. In addition to the long-term energy savings achieved, DOE intends to formally recognize participating facilities completing the eGuide experience.

SME Spotlights

Graham Partners – An Energy Management Leader

Graham Partners, a private equity firm headquartered in Newton Square, PA, with 15 companies and nearly 100 facilities nationwide, is actively working with its manufacturers to promote energy management across its portfolio.



Lizzie Grobbel

Under the leadership of Lizzie Grobbel, Director of Sustainability (and a former University of Michigan IAC student), Graham Partners has already collaborated with the

IACs to identify and implement energy savings opportunities at a number of its manufacturing facilities. Now the firm is taking its sustainability efforts to a new level.

Specifically, Graham is working with several partner companies to utilize the DOE eGuide resource for energy management. The goal is to help many small to medium-sized manufacturers that do not have the time or staff to create an energy management system. The eGuide tool is designed to simplify, identify and highlight the areas of maximum savings.

Volunteer companies will complete a hands-on review of eGuide; after which they will provide feedback regarding the tool's usability and implementation. These volunteers will be provided with no-cost technical support through the IACs and will also have the opportunity to explore other supported DOE programs including Better Plants and Superior Energy Performance, depending on their success with eGuide.

IAC Spotlights

Oregon State IAC Partners Utilities to Bring Incentives to Clients

The Oregon State University Industrial Assessment Center (OSU IAC) puts special effort into collaboration with regional energy utilities and energy agencies. Not only do these organizations identify and refer industrial clients to the Center, they also facilitate the implementation of energy efficiency projects recommended by OSU IAC students.

Building and maintaining these relationships takes time. During assessment preparation, the OSU IAC baseline team asks clients for permission to invite their utility representative to join the assessment. The primary incentive being that utilities can provide assistance in accessing financial support and engineering expertise to implement capital projects.

During the assessment kick off meeting most clients are willing to sign a release permitting a numbered copy of the assessment report to be shared with the utility. The detailed engineering analyses, cost estimates and payback calculations in the completed report go a long way towards obtaining the necessary utility support to get some of the longer term projects completed.

The connections made when utility representatives join the team on assessments and the credibility established through the quality of reports shared, helps underline the value the OSU IAC brings. As a result, regional utilities are very willing to help the center identify new clients. This is helpful year-round and critical when setting up multi-day, multi-client, audit trips for

summer and break. (These trips leverage travel time and cost at more remote locations in the large OSU IAC service area.)



OSU IAC Assistant Director, Joe Junker, leads a joint IAC/utility assessment of a local brewery.

OSU IAC collaboration with utilities has historically been informal. An effort is now underway to formalize these relationships through Memoranda of Understanding (MOUs).

The Oregon Department of Energy and the National Association of State Energy Offices is collaborating with the center to draft these MOUs and put them in place not only with regional utilities, but also with Northwest state energy offices; entities overseeing industrial incentives such as the Energy Trust of Oregon and the BPA Energy Smart Industrial program; and other appropriate organizations such as the Northwest Food Processing Association.

According to Joe Junker, Director of the OSU IAC, “we expect these MOUs to contribute to the strength of our regional collaboration but understand that they will not replace the effort that must be maintained to keep relationships active.”

Student/Alumni Spotlights

Navy Veteran Moves from Submarines to Small Manufacturers

Keith Striby, a first-year Oregon State University engineering student, is accustomed to working with advanced electrical systems. A recently retired electrician – EM1(SS) – serving primarily aboard U.S. Navy nuclear submarines, Keith is now helping small and medium sized manufacturers, ranging from forest products to metal fabrication facilities, save energy and increase productivity.

“I was thrilled to find out that I would be applying a lot of my past experience with the Navy while attending classes at Oregon State University. The Navy Nuclear Power and Propulsion program provided me with a lot of useful knowledge on engineering principles that are applied here daily. Coming from a submarine and learning various systems and their components, it's always awesome to see similar systems and have a background knowledge on it.”

Keith immediately hit the ground running, taking a full load of courses during both the summer and regular sessions, as well as serving as the OSU IAC equipment manager. “It has been a challenge to come from being an operator and technician on a submarine to breaking down systems from a design aspect. I've enjoyed the learning experience so far, and look forward to fine tuning and expanding my engineering background. The Center has been a great place to work, and I'm excited about the opportunities that may come from my time here.”



Keith Striby confirms proper placement of monitoring equipment and data loggers during a recent OSU IAC assessment.

Recent IAC Client Feedback

As part of the assessment process, IACs routinely solicit feedback from their manufacturing clients, both on the assessment and the final report. A selection of recent feedback is provided below:

- The benefits we felt by working together with the IAC have been substantial. The team brought an opportunistic attitude to our energy assessment, worked in a highly professional manner and delivered a thorough analysis of our current condition, how we could improve and the potential cost savings from implementing their recommendations. We strongly encourage any eligible manufacturing site to take advantage of this program. *(Tennessee Tech)*

-- Kyle Corbin, EHS Manager, ABC Inoac

- Thank you so very much - this is an eye opener in many areas and I'm sure we will be able to use many of the recommendations. We appreciate your willingness to do this for our company. *(University of Missouri)*
-- Annette Sachs, Cohen Architectural Woodworking
- This comprehensive program to reduce waste and reduce energy was extremely helpful to us. We understand the importance of this very well prepared and detailed report. We are in the process of implementing the recommendations, and prioritizing them as projects for the future. As we check off our list the projects we set forth to complete this year. We will add some of the recommendations you made spilling over to next year. *(University of Michigan)*
-- Juan Roque, Vice President, Vista Color Corp
- The energy assessment done by the IAC has been very successful and we have derived many benefits from it. The students and the faculty leader were knowledgeable and thorough in their effort. *(West Virginia University)*
-- Mark Pannell, Environmental Manager, Volvo Inc,
- The guys did a great job, and it was a good report. It dove down and showed us what we needed to do. *(Texas A&M University)*
-- Charles Chaney, Corning Cable Systems

IAC Database

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>.

For Additional Information

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