



Field Management Review

IAC Annual Student Meeting

Atlanta, GA
November 1-2, 2012

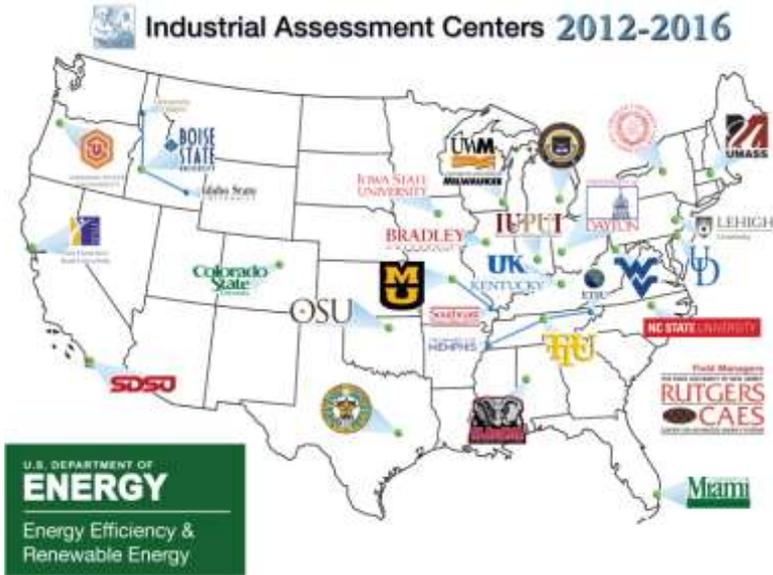


Don Kasten

Manager, Technical Operations
Center for Advanced Energy Systems

- **IAC program was formed in 1976, as the Energy Analysis and Diagnostic Program**
- Department of Commerce
 - Result of Oil Embargo
 - Originally 4 Universities
- Goal was to fill gap in education
- Energy Conservation was not taught in Engineering
- Database was added in 1981
- In 1995, waste minimization and productivity capabilities were added and the program became the IAC

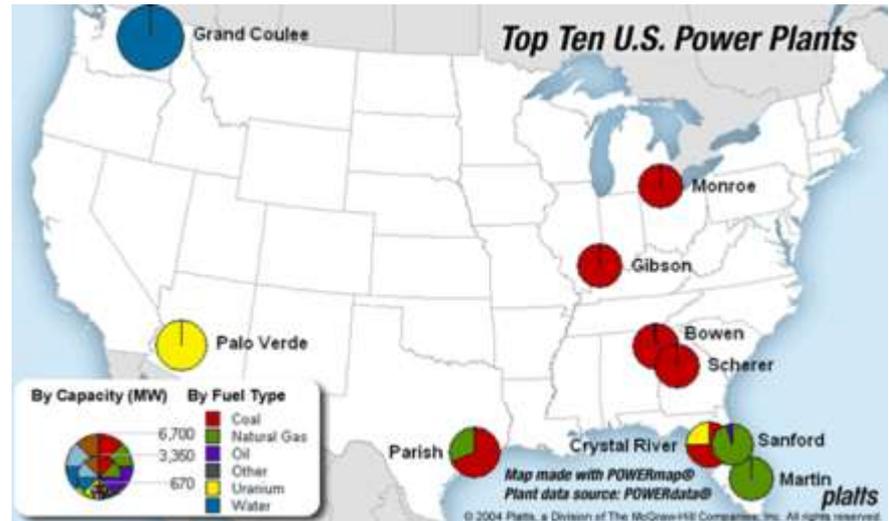




IACs Produce *Power*

Merriam-Webster defines power as:
“ability to act or produce an effect”

Nega-Watts



- ❖ How many assessments?
- ❖ How much energy saved?
- ❖ How many \$\$ saved?
- ❖ How many \$\$ invested?

Scale of Program

- ❖ How many assessments? **15,000+**
- ❖ How much energy saved? **70 tBtu**
- ❖ How many \$\$ saved? **\$675M**
- ❖ How many \$\$ invested? **\$545M**

Scale of the Program



- Enough energy reduction right now to take 10 average utility sized gas turbines off the grid





- Mike will tell you more than you want to know

- Production of Lower Efficiency Lighting Banned This Year
- This means lots of opportunity
- But we must be cautious



- **Most common is 400w MH to T5**
- We have seen too many errors – this is very dangerous
- Calculation can very complicated – but not necessary.
- Clients are going to use lighting expert (usually)

- We have seen calculations using Coefficient of Utilization, for example
- If you don't understand what that is – don't use it

- ***“Must Haves”***
 - Existing Lighting Levels
 - Recommended Lighting Levels
 - (Illuminating Engineering Society)
 - Suggested Lighting Levels
 - We have seen 50% reduction in lighting levels recommended
 - This unacceptable to any plant manager
 - References
 - Where did you data come from?
 - Where did the calculation come from?
 - Hint: U. of Dayton is not a reference



- **The IAC Assessment is the “Gold Standard”**
- What is unique is the one-day assessment
 - We have tried other formats
- In reality, its an exercise in efficient and effective use of time
 - Much prep work
 - A good plan on site
- Assign one person to be the “timer”
 - Learned this from U. of Kentucky



- Introduce Case Studies at introduction
- Have a case study to leave behind
- Very Important
- Allows us to continue to offer confidential assessments

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy | **ADVANCED MANUFACTURING OFFICE: INDUSTRIAL ASSESSMENT CENTERS**

Assessment Overview: Thermoplastics Manufacturer

A team of students & faculty from IAC at the University of Delaware performed an industrial assessment for Free Process Fibre, Inc. The assessment was sponsored by the Department of Energy and was led by Center Director Dr. Rami Soudki, a faculty member in the Department of Electrical and Computer Engineering. In April 2011 the IAC team employed a comprehensive assessment methodology that considered energy, safety, & process related improvements. The team examined all large energy-consuming equipment & systems for potential savings. They completed a needs inventory & investigated the potential for waste reduction or improvement of material & factoring methods. The team also identified machine being assessed for potential improvements, & emerging technologies were assessed for potential contributions to efficiency improvements.

Application:
The assessment personnel of the program identified and evaluated opportunities to conserve energy, minimize waste and improve productivity. In this case implementation opportunities for energy savings were found in compressed air, lighting, lighting and motor systems.

Company Background:
Free Process Fibre is a major supplier of non-wettable recycled components to many of the largest OEM companies in the world. They produce custom non-wettable components for almost every form of energy, ranging from electronics, printing, robotics, defense, firearms and construction to auto & fire. At the time of the assessment, the plant consumed about 1,200,000 kWh/year and 220 MMBTU of heating oil. Existing plant from Energy Practices included updated lighting and added outside insulation.

Summary:
Through the Department of Energy's Industrial Assessment Center (IAC) located at University of Delaware, an extruded thermoplastics manufacturer was able to realize a 18.7% reduction in electricity, resulting in a 14.8% overall utility cost reduction.

Implementation Recommendations:
The table on the following page summarizes specific recommendations that were made during the assessment and were implemented or will be implemented in the near future. Some projects are of a large \$K capital cost but identified during the assessment have been established through engineering analysis and research. As a result,

Implementation At A Glance:
Implemented 7,731 recommendations for save an estimated \$22,314,146/year
Implemented recommendations to reduce air conditioning, reduce cooling tower and compressed air efficiency and updated HVAC equipment and lighting
On each period of implemented recommendations range from 0 to 48 months averaging 25 months

- **“This is a free program –
There are no obligations”**
 - This is a program offered at no cost to the clients
 - Client is obligated to answer the implementation call
 - Question. Sign a contract?



- **Discussion: What Works?**
- Who Makes them?
- When?
- Any tricks?





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