



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

IAC Student Meeting Field Management Review

Don Kasten

Manager of Technical Operations

February, 4-5, 2010

Washington, DC





AS IAC goes into its 34th year...





What Do We Do?



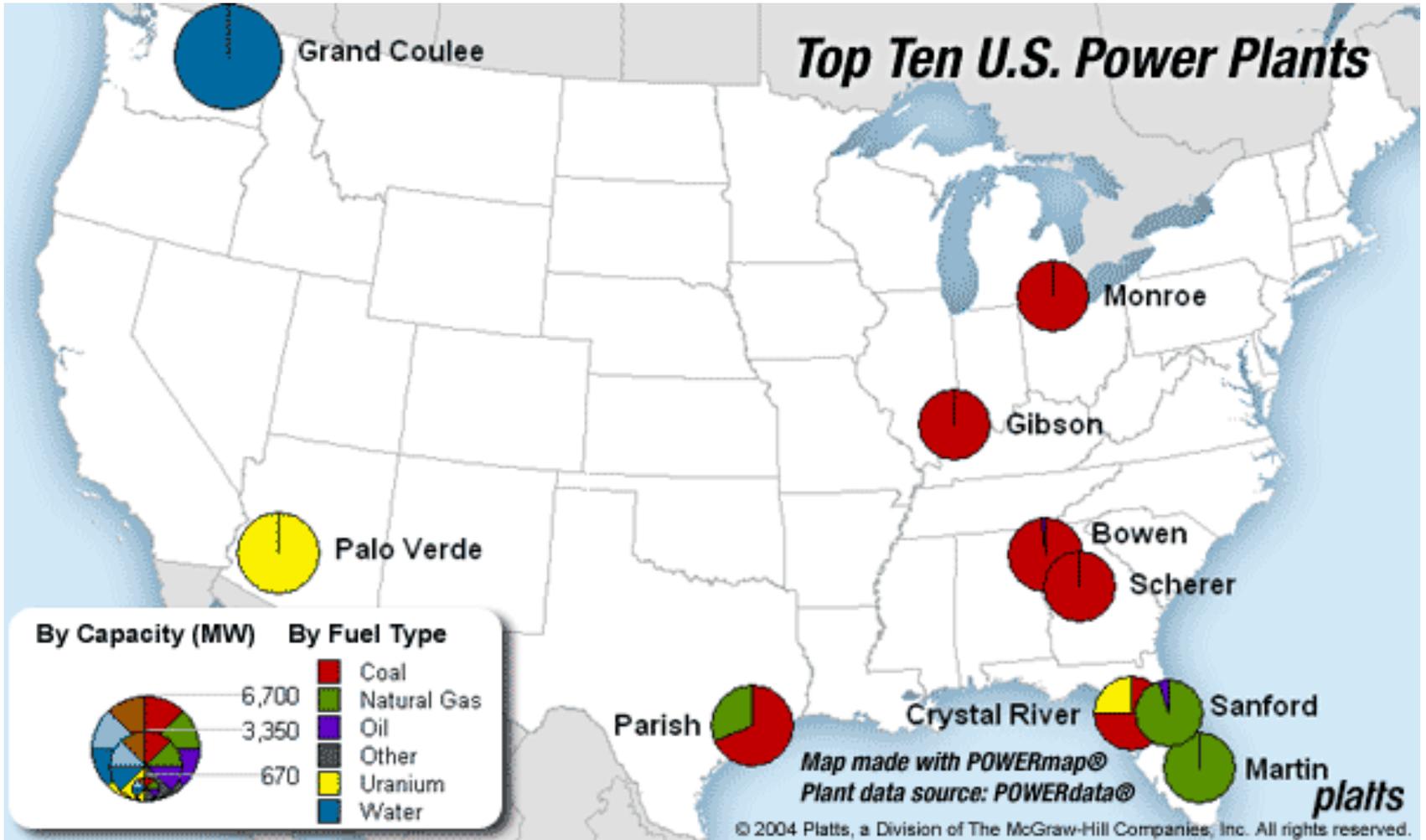
❖ Manage

❖ Technical support

❖ Database



➤ What do you do?

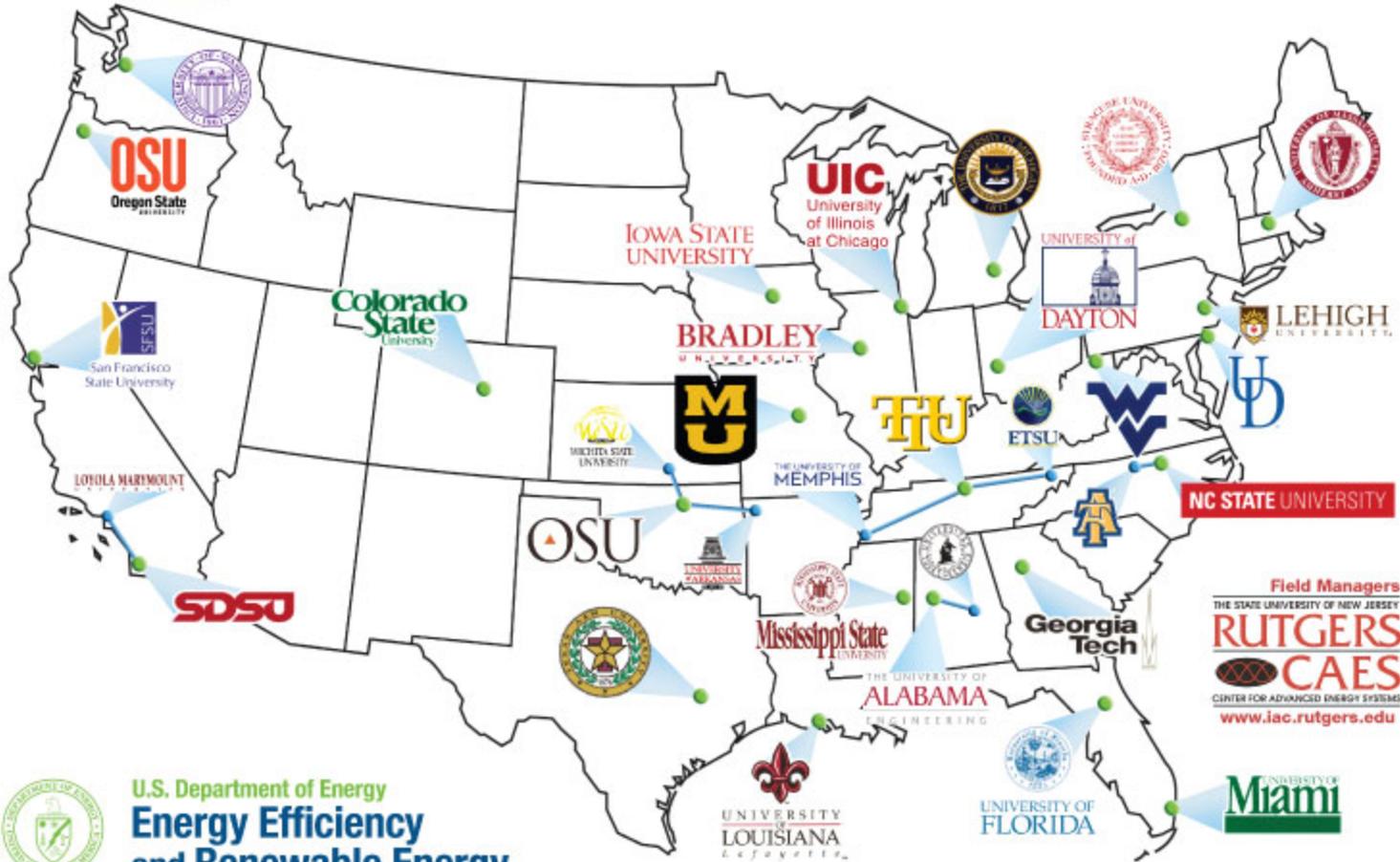




➤ What do you do?



Industrial Assessment Centers 2006-2011



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

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable



IACs Produce **Power**

Merriam-Webster defines power as:

“ability to act or produce an effect”

➤ We Produce Energy Engineers

➤ We Produce Nega-watts

How?

One day assessments – With Numbers!

This is a dramatic concept



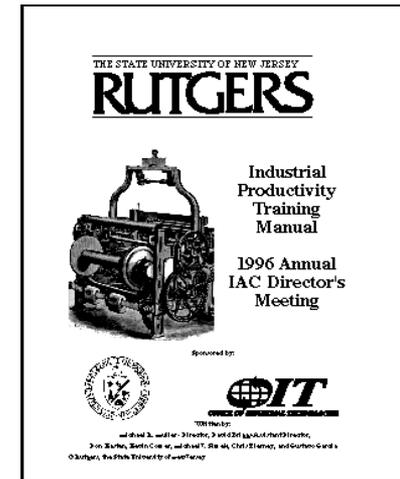
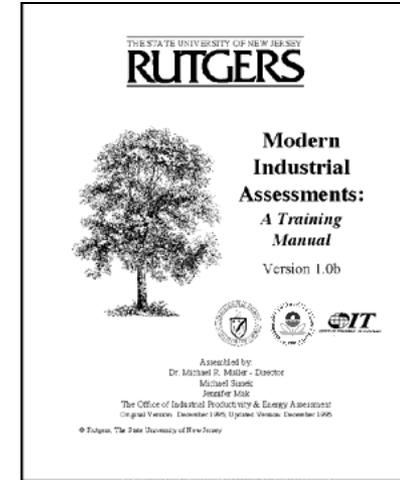
Manage

- Make sure the work gets done each year (boring!)
Not uncommon in fed programs not to be on time
We have a great on time record!
- Provide education about the program to the public
Save Energy Now Leaders Program
SEN Webcast
- Act as interpreter
Top down - Focus of DoE – **Stimulus! ARRA**
Bottom up - Voice of your concerns to DC



Technical Support

- Training – IAC , Manuals, Webcast
- Directors meeting
- Review of reports (Critiques)
- Research new technologies
- Advise new programs, BP tools





Database – don't touch that dial!



- Mike will tell you more than you want to know



What we look for in a critique

- Misplaced Precision

Buzzard's Breath Chili

2 lb. Chuck Beef
1 oz. Chopped Onion
16 oz. Tomato Sauce
½ Cup Chopped Onions
1 Jalapeño Pepper
1 Cup Water
2 tsp. Chili Powder
Pinch of Cumin



What We don't Need to See

- Misplaced Precision
 - *The 20,000,006 year old dinosaur*





IAC Report Critique Points – FY 2010

- **Please put a footer with report number on every page**
We often copy a particular assessment recommendation
- **Present the Recommendations in some order in Executive Summary**
ARs presented in a random order do not inspire confidence by executive.
- **Present a short description of ARs immediately after this list.**
Assume execs won't read past page 5...



IAC Report Critique Points – FY 2010

- **Use variables consistently throughout report – especially Operating Hours (OH)**

This is a tool to help ensure that students that write parts of reports are working together.

Use Utilization Factor (UF) to adjust for different run times.

- **Use consistent energy cost throughout the report**

Similar to the above statement

Better, determine the cost of the “last” Kwh or mmbtu

- **Show device or system use before calculating savings**

This is one of the main strategies we use to check the “reasonableness” of your energy savings.



IAC Report Critique Points – FY 2010

- **Report demand savings only when there are connected load savings**

If you replace an air compressor with one that has a lower amp draw, then demand savings are ensured and claimed. Not so when you lower the set point.

- **There ain't no free.**

Place a value on everything - plant personnel time.
What happens when you divide the cost by zero?

If an item costs anything; there is a payback



IAC Report Critique Points – FY 2010

- **Include references with citations of claims**

Make reports similar to a document that could be published.

- **Application to THIS plant.**

Best practice manuals tell plant managers what a “typical” plant can save.

You are on the plant floor to tell him/her how THIS plant is affected.



Quik Quiz

1) A 125 hp compressor is used at ABC Manufacturing and the company has no preventative leak program. Roughly 20% of the total amount of compressed air is lost due to leaks in the compressed air lines. The annual energy saved by fixing these leaks is 12,500 kWh and the cost of electricity is 10¢. Annual cost savings are calculated as follows:

$$TS = \$0.10/\text{kWh} \times 12,500 \text{ kWh/yr} = \text{????}$$

- A. \$125/yr
- B. \$1,250/yr
- C. \$1,250kWh/yr
- D. \$12,500/yr



Quik Quiz

2) Company Yoyoyo Industries needs help estimating new boiler efficiency when using an economizer. Original boiler efficiency was 81% but the new feed water temperature has increased by 80 degrees Fahrenheit. New estimated boiler efficiency is;

- A) 60%
- B) 83%
- C) 96%



Quik Quiz

3) Does the term “MM” in MMbtu refer to

Mickey Mouse

Michaela Martin

Michael Muller



Quik Quiz

- 4) 450 ton water cooled chiller is going to be installed at Widget Manufacturing Incorporated (WMI). The current chiller is of the same size, but air cooled. It consumes 3,300,000 kWh of electricity per year. The water cooled chiller uses 1,800,000 kWh of electricity per year. What is the annual cost savings from the reduced energy consumption by switching to a new chiller if WMI pays \$.10 per kWh consumed?
- A. \$1,500
 - B. \$3,000
 - C. \$150,000
 - D. \$1.5 billion



Quik Quiz

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No

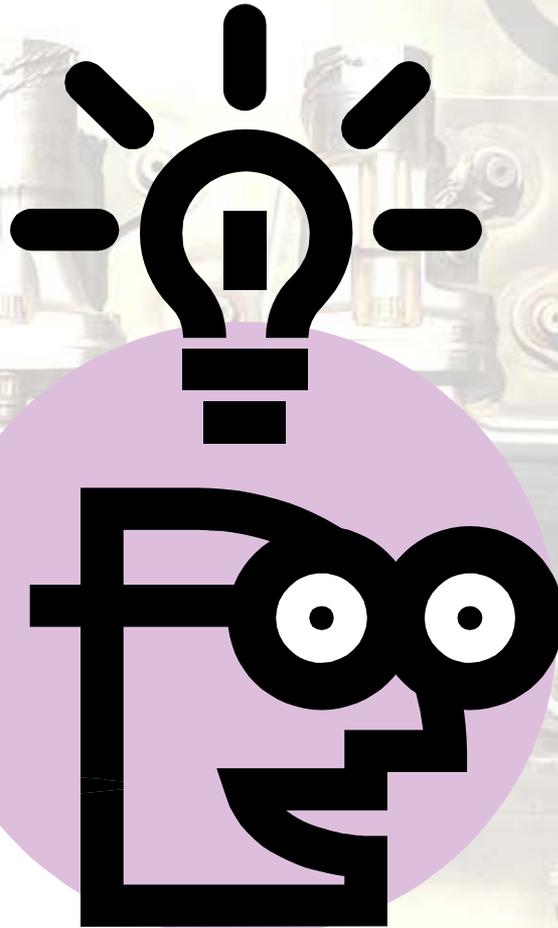


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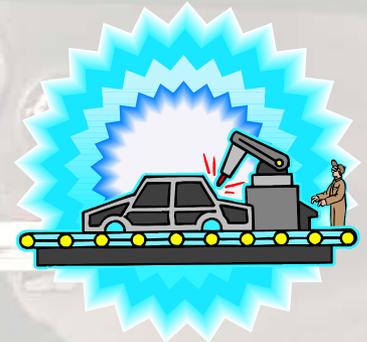
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What We would like to see



- **Good Ideas**
- **Consistency**





Student Experience

- Opportunity, not a job
- Attend meetings, write papers
- Looking for diverse experience – not specialization
- Lead student
- Report lead, safety lead
- Our visit to center is crucial



Student Experience

- Certification
- Talk the Talk
- Make Connections!
- It's not all about payback. Sell, Sell, Sell



Oil Field Equipment

Industrial Assessment



Industrial Technologies Program

ASSESSMENT DATE: SEPTEMBER 7, 2001

BENEFITS:

- Identified potential annual energy cost savings of \$717K
- Recommendations saved approximately 46% of total energy costs
- Recommendations covered energy and waste for total savings of \$795,000
- 100% of Recommendations Implemented

APPLICATIONS:

"We performed this assessment when I was an undergraduate student. I was very impressed with the management and operation of this plant, and because of the IAC, I was able to complete my masters degree in Engineering and Technology Management. As I was finishing my degree, this was one of several companies I interviewed. I am very pleased that I received and accepted an offer with them."
- Carlos Castro, lead student on assessment, now employed by Cooper Cameron.

Cooper Cameron: An Oilfield Equipment Maker Implements All Recommendations

Summary

Through the Department of Energy's Industrial Assessment Center located at the University of Louisiana-Lafayette, Cooper Cameron, an oilfield equipment maker, was able to save a significant amount of money from reductions in energy and waste costs. Through recommended actions in scheduling changes, compressed air systems, lighting, and waste, Cooper Cameron was able to save approximately \$795K. All recommendations made by the assessment team were implemented at the facility.

Company Background

Cooper Cameron is a custom manufacturer of oil field machinery and equipment. The plant featured in this case study produces valves for oil fields. In the valve manufacturing process, raw materials are forged, freeze plugged, and honed. The valve is then assembled and welded together. Testing is performed on the valves, and then sent to painting and finishing. Upon completion, the valves are put on pallets and shipped. Annual utility bills for the 180,000 square foot facility totaled \$1.5 Million (1.6 % of total sales).

Assessment Approach

A team of faculty, staff and students from the University of Louisiana at Lafayette's Industrial Assessment Center performed an Industrial Assessment in the fall of 2001. The assessment was led by Center Director, Dr. Ted Kozman and Assistant Director, Dr. Thomas Davies, both Professors in the Department of Mechanical Engineering at University of Louisiana at Lafayette.

Notable Observations

The assessment team observed that the plant was spending a great deal of money on electricity since the production line is attached to computers. Therefore, the plant was unable to shut down without turning off the computers. The following recommendation resulted in savings of 35% of the company's utility bills:

Install a 480 to 120- volt transformer and run the new 120-volt lines throughout the production area to power only the computer portion of the machine. This will enable the 480- volt lines throughout the plant to be taken off line during off periods.

Management implemented this assessment recommendation within 2 months.



➤ 2008 Case Studies Due

➤ Must have results

➤ Must have permission



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