Industrial Technologies Program

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

Utility Partnership Webinar Series

Industrial Customer Perspectives on Utility Energy Efficiency Programs

February 1, 2011

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

Speakers and Topics:

- **ATK Aerospace Systems, Plant Engineer/Energy Manager, Roger Weir** will discuss ATK's energy efficiency projects and their relationship with Rocky Mountain Power.
- **Owens Corning, Plant Energy Leader, Jacob Lane** will discuss the Santa Clara, CA Owens Corning facility's energy efficiency projects and **Owens Corning, Newark Plant Sustainability Leader, Mark Arnold** will discuss the Newark, OH Owens Corning facility's energy efficiency projects.
- **Ingersoll Rand, Facilities Supervisor, Scotty Coe; Machine Maintenance Supervisor, Lewis Anderson; and Facilities and Maintenance Manager, Jerry Lakey** will discuss the results of the partnership between our Mocksville, NC manufacturing facility and Duke Energy.

Questions?

Email: jredick@bcs-hq.com
Presentations: http://www1.eere.energy.gov/industry/utilities/

A premier aerospace and defense company

An Industrial Customer Perspective on Utility Energy Efficiency Programs

Presented by:
Roger Weir
Energy Manager
ATK Aerospace Systems

ITP Utility Partnership Webinar
February 1, 2011

Alliant Techsystems Inc. (ATK)

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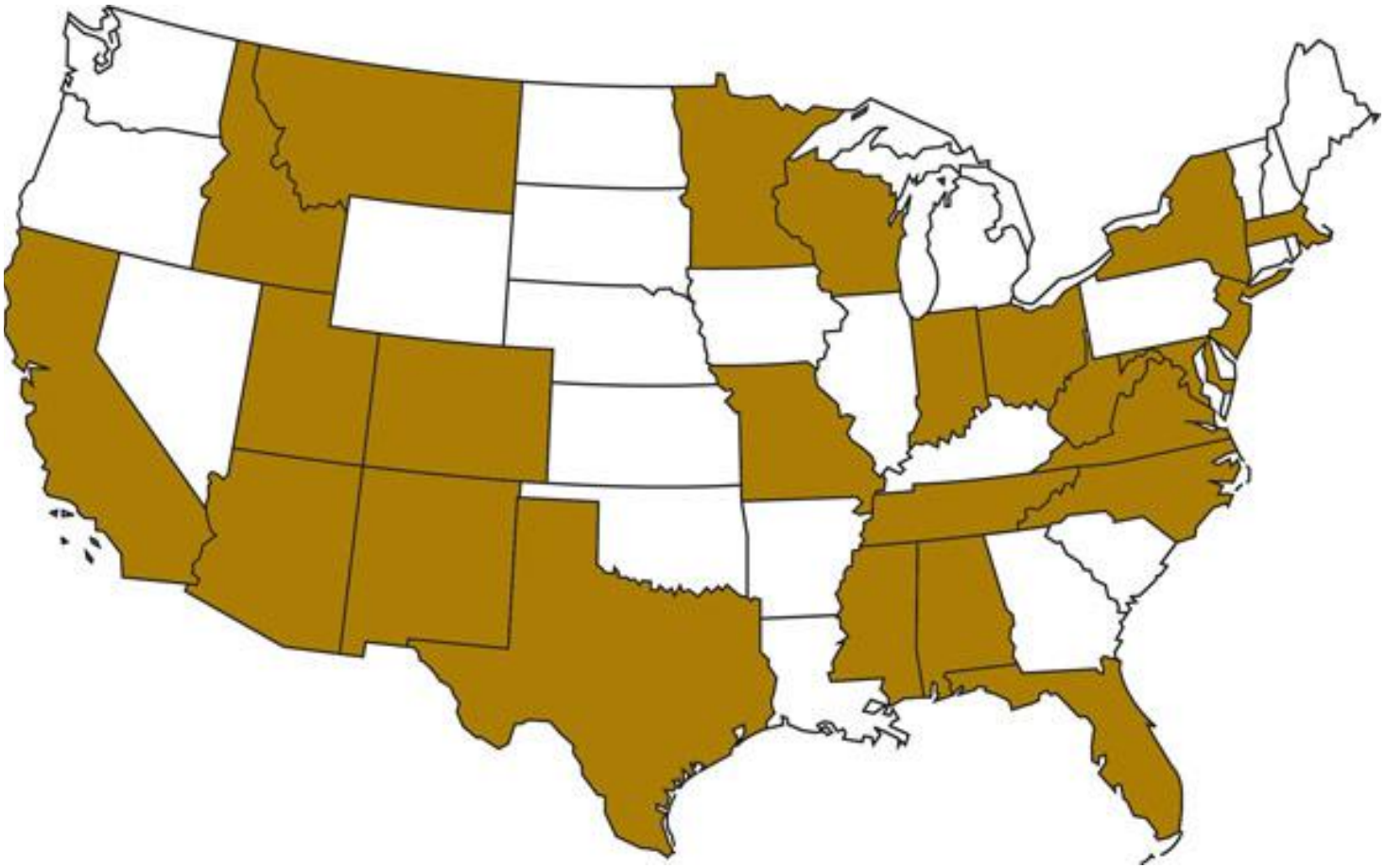

ATK Current Business Overview

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ATK is organized into four operating groups

Aerospace Systems
President: Blake Larson

- Solid propulsion systems
- Advanced composites
- Satellites, subsystems, and components
- Advanced antennae and radomes
- Energetic materials
- Military flares and decoys

Armament Systems
President: Karen Davies

- Small-caliber ammunition
- Medium-caliber ammunition
- Medium-caliber gun systems
- Precision munitions
- Propellants for ammunition and tactical rockets
- Large-caliber ammunition

Missile Products
President: Mike Kahn

- Missile systems
- Solid propulsion and control systems
- Solid rocket motors and warheads
- STAR motors
- Aircraft survivability
- Advanced structures and components

Security & Sporting
President: Ron Johnson

- Small-caliber ammunition
- Gun care and shooting accessories
- Sport shooting accessories and reloading supplies
- Law enforcement accessories and equipment

Rocky Mountain Power

Energy Efficiency Programs

ROCKY MOUNTAIN POWER
A MIDAMERICAN ENERGY HOLDINGS COMPANY

RMP DSM Overview

Rocky Mountain Power wants to help its customers save energy and money

To Rocky Mountain Power, energy efficiency is a resource

- Rocky Mountain Power has goals/targets for acquiring energy efficiency – part of a ten-year least-cost resource plan

In addition, energy efficiency programs

- Benefit customers bottom line
- Are part of a sustainable energy portfolio
- Help the local businesses served by Rocky Mountain Power to remain competitive

Funded from Customer Surcharge: 2% - 5%

Demand Side Management Initiatives

Rocky Mountain Power has four main programs to help customers save money and contribute to demand-side savings.

- FinAnswer Express
- Energy FinAnswer
- Self-Direction Credit Program
- Recommissioning

Available resources include

- Technical expertise
- Financial incentives or billing credits
- The Energy Efficiency Alliance – a network of industry professionals

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FinAnswer Express

Retrofit or new construction projects – any size facility

- Customers considering equipment upgrades only
- Prescriptive incentive based upon $/ton, $/fixture
- Streamlined customer participation procedures
  - access the program via Energy Efficiency Alliance vendors or Rocky Mountain Power
  - Post Purchase incentives available for:
    - New construction lighting
    - HVAC (RTUs), and qualifying Chillers

ROCKY MOUNTAIN POWER
A MIDAMERICAN ENERGY HOLDINGS COMPANY

Overview of Programs – cont'd

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Energy FinAnswer

For comprehensive projects – new construction and retrofit

- Custom Calculations of energy savings from baseline

Energy Analysis

- Energy engineering and commissioning guidelines provided by Rocky Mountain Power
- Identification of highest priority for improved efficiency
- Second opinion on vendor proposals
- Investment grade independent study, vendor neutral

Incentive

- $0.12/kWh projected annual savings + $50/kW for average on peak kW reduction (up to 50% of measure costs)
- One year minimum project payback w/incentive
- Includes commissioning requirement
- Pre-approval required

ROCKY MOUNTAIN POWER
A MIDAMERICAN ENERGY HOLDINGS COMPANY

Self-Direction Credit

- For large customers only
  - 1000 kW or 5,000,000 kWh in prior 12 months
  - Can aggregate meters under common ownership to meet usage requirements
- Customer funds energy study and project with simple payback ~ 5 years
  - Other requirements if > 5 years
- Approved projects receive credit on utility bill for 80% of project cost

Recommissioning

- For business and industrial customers
  - Peak demand of 300 kW or greater
  - Operational/maintenance improvements
  - Non-capital upgrades with a Payback < 1 year
- Rocky Mountain Power funds energy studies, Customer funds implementation, Minimum investment of $10,000
- Incentives provided if project payback is between 1–3 years.

Incentive Programs

Why are incentive programs important?

- Competition for funding
  - Fixed amount of capital funding each year
  - Other needs may have higher priority
- Payback improvement
  - Current simple payback criteria – 24 months
- Improved ability to “sell” projects
  - Reduced implementation costs
  - Recurring savings
  - Reduced operating costs, GHG emissions

Examples of ATK Projects

- Compressed air – Bacchus West Compressed Air Upgrade
  - Replace two fixed speed 200 hp compressors with two VSD 200 hp compressors
  - Savings - 474,945 kWHrs/yr, 39 kW/mo, $20,855 /yr
  - Project cost - $140,337,
  - FinAnswer incentive payment - $58,940
  - Without incentives would likely have just replaced failed compressor with same unit
    - » Additional measures implemented
      - » Tied two systems together – reduced number of operating compressors
      - » Reduced system pressure.

Projects – cont'd

Examples of ATK Projects

- Lighting – T12 retrofits with T5/T8 with motion controls
  - Replaced approx. 320 fixtures - T8 technology
  - Savings - 261,692 kWHrs/yr, $11,564 /yr
  - Project cost - $114,148
  - Self Direction credit - $91,318 (credit on utility bill – over approx. 7 months)

- Re-commissioning 8100
  - Must agree to spend $10,000 minimum to fixed measures with less than 1 year payback.
  - Ended up doing much more
  - Utility pays for the assessment and recommendation reports

Communication and Cooperation

ATK is a member of UAE – Utah Association of Energy Users

- Improved communication within the business community
- More influence on regulatory and legislative issues
- Ability to help shape and improve programs
  - Self direction
  - Opt out provision
- Program enhancements
  - Avoid surcharge by setting aside equivalent funds
  - Use funds for energy projects or enhancements
  - Avoid need to compete for funds
  - Cover multiple disciplines – electric, fuel, steam, etc.
  - More and new participants

Summary – Customer Perspective

Incentives

- Help to get projects done that likely would not be done otherwise
- May lead to additional opportunities that may have never come up
- Need to get people that do the projects educated and participating
- Nature of the incentive does make a difference
  - Tax vs. check vs. credits
- Program will build on successes
- Management support is vital
  - Successful program can help bridge management changes

Contact Information

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DOE Utility Partnership Webinar

Industrial Customer Perspectives on Utility Energy Efficiency Programs

OWENS CORNING

Mark Arnold, Energy/Environmental Leader – Newark, OH

Jacob Lane, Energy Leader – Santa Clara, CA

February 1, 2011

Owens Corning At A Glance









- **Founded in 1938, an industry leader in glass fiber insulation, roofing, asphalt, and glass fiber reinforcements**
- **2009 sales: $4.8 billion**
- **16,000 employees in 28 countries**
- **Senior debt ratings: BBB-, BBB- and Ba1**
- **FORTUNE 500 company for 56 consecutive years**
- **NYSE: OC**
- **Weighted averaged diluted shares were 127.9 million for the three months ended 6/30/2010**

Leading North American Market Positions	Global Leader
• Residential Insulation • Commercial & Industrial Insulation • Manufactured Stone Veneer • Residential Shingles • Roofing Asphalts	• Composites

Owens Corning – Santa Clara, CA
Jacob Lane

- **The OC Santa Clara facility has an energy efficiency incentive based program from 2 different utilities. PG&E and Silicon Valley power**
  - **SVP- Electric provider. Rebates are type of project**
    - Lighting- lamps, fixtures, photo cells,. Rebate is $/unit replaced
    - VFD' $100/hp if you install a VFD
    - New equipment-rebate based on $/kw-hr saved up to a % of total project cost. Varies with different projects
  - **PG&E- . Rebates are type of project**
    - Project dependent on rebates either quantity of energy savings or rebate per unit of equipment bought.
  - **Incentive based programs help both industrial and residential customers save energy and money. It is a win-win situation.**
  - **Forces capital projects that will sustain energy savings**

Owens Corning – Santa Clara, CA
Jacob Lane

- **Advantages to utility based incentive programs**
  - **PG&E and SVP have hired energy consultants to visit customer facilities to find potential projects**
    - Consultants complete an energy audit of plant
    - This has brought projects to the forefront that were not known to be viable
  - **Projects at OC that have been benefited by utility incentive based programs over past 2 years**
    - VFD installations on fans and pumps~500 mW-hrs/year
      - Lead to a project saving 175,000 therms/year
    - Higher efficiency compressed air system ~1752 mW-hrs/year
    - Waste heat recovery system~200,000 therms/year

Owens Corning – Santa Clara, CA
Jacob Lane

- **Improvements to utility incentive based programs**
  - **Knowledge of consulting firms proposing projects**
    - After project is completed projected savings were not met
    - We need to hit the payback that was projected
  - **Knowledge of firms double checking savings after project is complete**
    - After project is completed a third party verifies that savings were actually utilized
    - Did not have good understanding of project and how to measure
- **Conclusion**
  - **Utility Energy Efficiency programs help industrial facilities sustainably minimize energy used in process**
    - Brings known energy reduction projects within payback requirements
  - **A good energy consulting firm can help bring new technology and ideas that were not previously known**

Owens Corning – Newark, OH
Mark Arnold

POSITIVES!

- **Group meetings across the state(s) are very beneficial:**
  - **Do as early as possible, but be sure to meet commitments**
  - **Well attended, in an auditorium environment**
  - **Great time to ask questions/clarify issues**
- **Use of prescriptive rebates is excellent:**
  - **Done in a limited basis at present (lighting/motors/HVAC)**
- **Having a direct Utility contact is critical:**
  - **When possible use the present Acct. Representative**
- **Level of rebates is adequate, and can make projects viable**
- **“Custom Program” option required to all for “unusual” projects**

Owens Corning – Newark, OH
Mark Arnold

IMPROVEMENT AREAS!

- **Initial payment process needs to be established early on:**
  - **Waiting 3-4 months for initial rebates is not acceptable**
- **The caliber of project reviewers varies widely**
- **If you need to use internal labor, these costs are not recognized:**
  - **There may be an issue getting personnel with adequate knowledge**
- **Can get additional requests after project approved & completed:**
  - **Example: trending monitors required after project done**
- **No local programs exist for natural gas reductions, purely electrical**

Ingersoll Rand
Mocksville, NC Operations

Presented by: **Jerry Lakey**

Maintenance & Facilities Manager

Lewis Anderson

Maintenance Supervisor, Precision Machining

Scotty Coe

Facility Maintenance Supervisor

DOE Utility Partnership Webinar
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Attaining Energy-Efficiency

Reduced Energy Usage & Efficient Operations

- Leveraging Experience
- Planning and Preparation
- Partnerships with Local Utilities
- Achieving Measurable Success
- Focus Areas
- Continuing the Evolution

The Mocksville Story

1965

Plant begins machining rotary components

2000

Integration of Centac product line to Mocksville & Davidson

DOOSAN

Jul 2007

Divestiture of portable compressor to Doosan

May 2009

Centac assembly transition from Davidson

TRANE

Aug 2009

Trane rotor transition from Pueblo, CO

1970s

Portable compressor assembly started

2004-2007

70% Volume growth

Feb 2009

Discontinue of Mocksville sheet metal operations & volume reductions

Jul 2009

Rotary assembly transition from Davidson

Q4 2010

7 New Centac machines, 4 machine centers from Trane

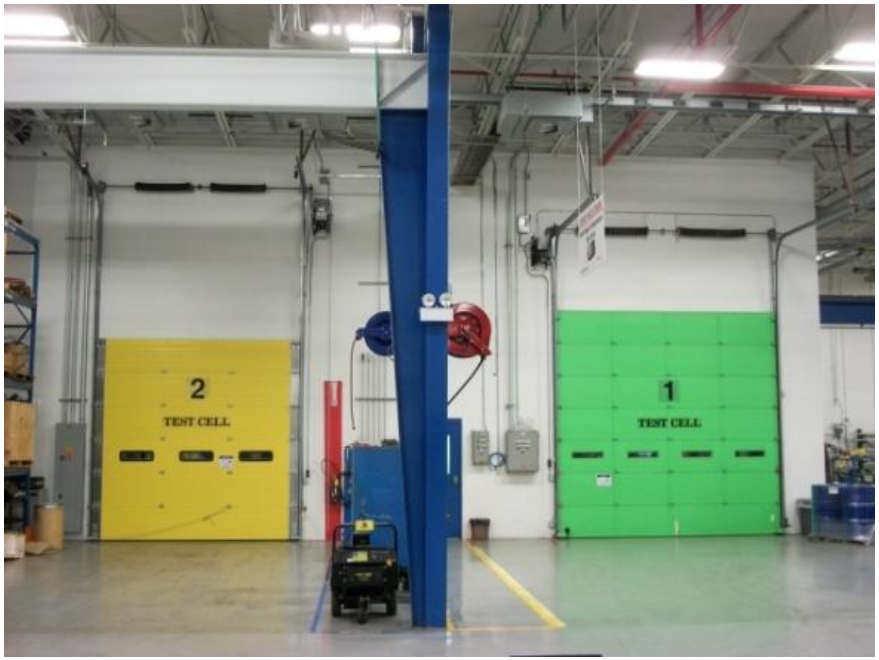
Successful Transition from Davidson to Mocksville

- Invisible to Customers
- On Time & Budget
- No Injuries
- $4.9MM in Savings
- Key Milestones
  - 3/09 Mox sheet metal shop restructuring/outsourcing
  - 4/09 Centac compressor assembly/test to Mox
  - 7/09 Rotary compressor assembly/test to Mox

Trane Rotor Transformation

- Invisible to Customers
- On Time & Budget
- No Injuries
- $3.6MM in Savings
- Key Milestones
  - 7/2/09 Project announcement
  - 7/13/09 Plant preparation complete
  - 7/24/09 Start machinery move
  - 10/5/09 Complete machinery move

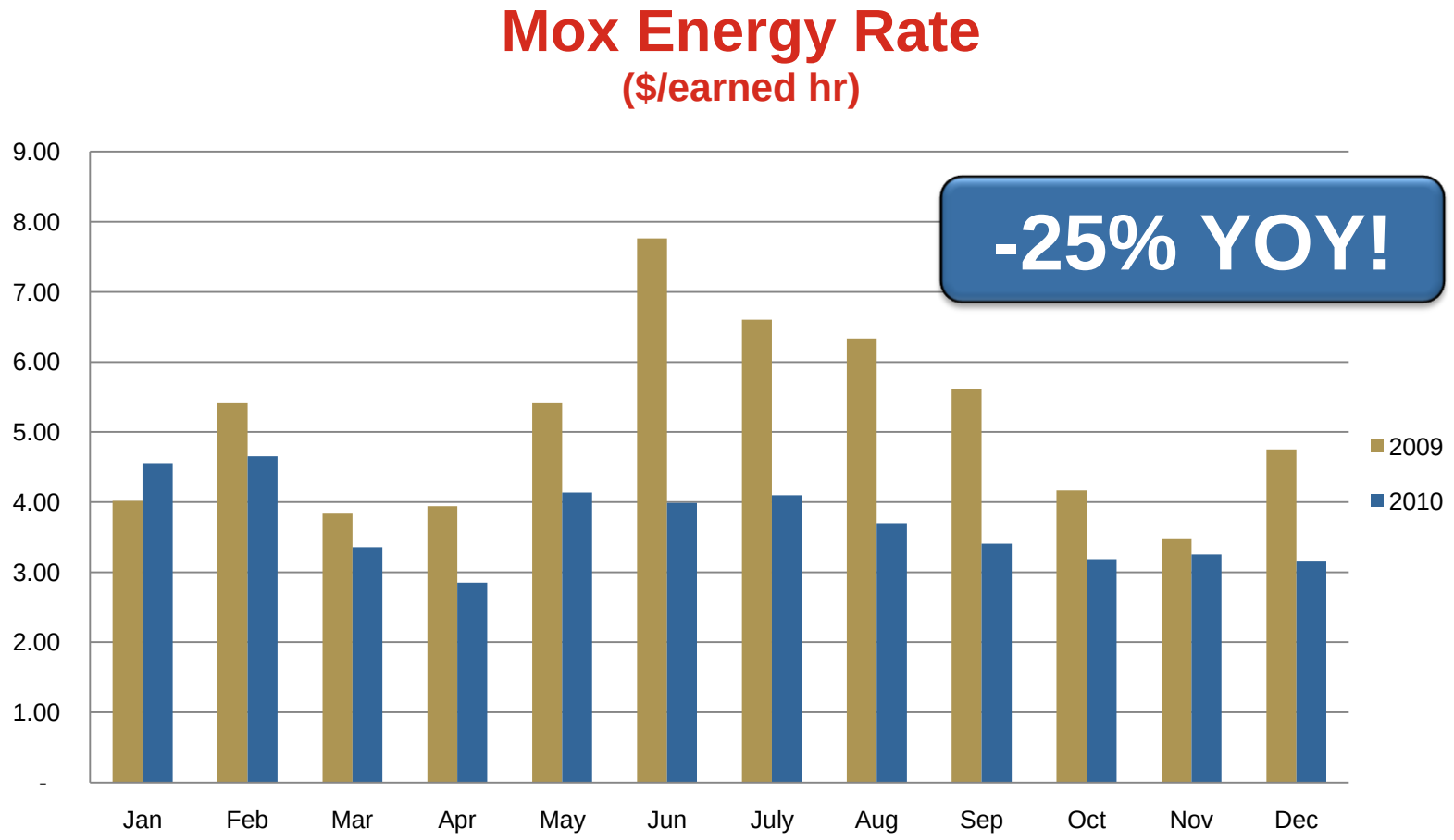
Duke Power Partnership



Duke Power Partner Award

Presented to Mocksville Operations Team 2009

2010 Energy Rate Reduction



2009 Energy Conservation Projects

Lighting Upgrades

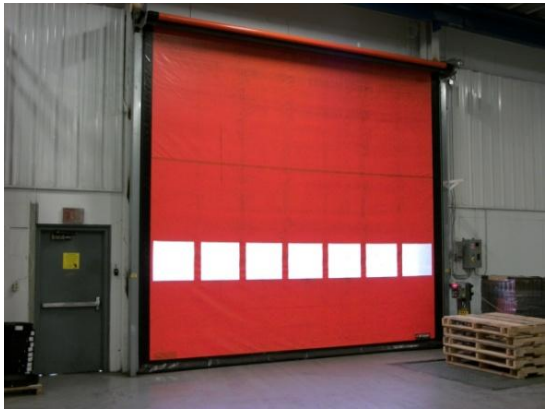
Duke Energy Incentives

- 500 High pressure and mercury vapor fixtures replaced with **high bay fluorescent fixtures**
- 250 With **on-board motion sensors**

2010 Energy Conservation Projects

Installed Variable Speed Air Compressors

X-Series Controller



Updated High Speed Roll-up Doors

More 2010 Energy Conservation Projects

Replaced Five Oldest HVAC Package Units (12-15 Years)

Installed Energy Management System in 50% of Campus

2011 Energy Conservation Projects

- **Energy management system on second half of campus**
- **Shipping dock extension**
- **Shop temperature optimization**

Questions

For More Information:

DOE Industrial Technologies Program (ITP) Utility Partnerships
www.eere.energy.gov/industry/utilities

DOE ITP Utility Partnerships and Resources, including past webinar presentations:
http://www1.eere.energy.gov/industry/utilities/tools_and_resources.html

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For answers to additional questions, please email Jaime Redick at jredick@bcs-hq.com.

Utility Partnerships Webinar Presentations are posted on the ITP Utility Partnerships Resources and Tools webpage:

http://www1.eere.energy.gov/industry/utilities/

Follow the above link to register for upcoming webinars.

The next webinar is on
State Mandates for Utility Energy Efficiency Programs,
March 1, 2011 from 12-2pm EDT.