Utility Partnership Webinar Series
Industrial Customer Perspectives on Utility Energy Efficiency Programs
February 1, 2011
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/](http://www1.eere.energy.gov/industry/utilities/)
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)

A premier aerospace and defense company

• A premier aerospace and defense company with approximately 18,000 employees and operations in 24 States and Puerto Rico
• Incorporated in 1990 when Honeywell Inc. spun off its defense businesses to its stockholders
• Entered the aerospace market in 1995 with the acquisition of Hercules Aerospace and, in April 2001, added Thiokol Propulsion
• Leading supplier of aerospace and defense products to the U.S. government, allied nations, and prime contractors
• Major supplier of ammunition and related accessories to law enforcement agencies and commercial customers
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 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%
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
Overview of Programs

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
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
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.
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
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
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
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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

- Residential Insulation
- Commercial & Industrial Insulation
- Manufactured Stone Veneer
- Residential Shingles
- Roofing Asphalts

Global Leader

- Composites
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
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
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
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
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
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

Jul 2007
Divestiture of portable compressor to Doosan

May 2009
Centac assembly transition from Davidson

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

Mox Energy Rate
($/earned hr)

-25% YOY!
2009 Energy Conservation Projects

Lighting Upgrades

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

Duke Energy Incentives
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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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.