Energy Management with ENERGY STAR®– Valuable Resource for Metalcasters

ENERGY STAR Industrial Partnership, US EPA

SFSA Managers Meeting Chicago, Ill.
March 23, 2011

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Learn more at energystar.gov

Introduction

- Our Belief: The metalcasting industry can **reduce energy usage** & **save money** by partnering with ES.
- ENERGY STAR works with **Industrial** companies to promote a **strategic** energy management approach to improve energy efficiency
- 600 industrial partners and growing
- Provides resources and tools for large and small manufacturing companies

Foundry Organizations Working with ENERGY STAR

The Harrison Steel Castings Company

Eck Industries, Inc.
Specialists in Aluminum Castings

George Weed

Strategic Energy Advisor for EPA's ENERGY STAR Industrial Sector Partnership

Previous Experience – Eastman Kodak Company
- 32 years of engineering and project management
- 6 years as Kodak's Worldwide Energy Manager

As Kodak's Worldwide Energy Manager:
- Earned ENERGY STAR Partner of the Year Award
  - 2003
  - 2004
  - 2005

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What are you facing?

- Unpredictable energy markets
- Extreme competition for sales
- Rapid cost increases from suppliers
- Profit margins of 4-8%

Are you ready for the energy future?

- In 2008, metalcasters spent nearly $1.5 billion on electricity and fuels.
- Many manufacturers lack formal energy programs.
- Energy is managed through ad hoc projects.
- Energy is not on senior management's radar screen.
- Capital funding for energy projects is typically a low priority.

Sound familiar?

How does ENERGY STAR help your business ?

- ENERGY STAR helps businesses:
  - plan for the “energy future”
  - establish formal energy programs
  - motivate continuous improvement
  - make energy management an integral part of business strategy
  - identify best management practices and existing improvement opportunities
  - Improve your competitive advantage

ENERGY STAR—what is it?

- Voluntary government partnership introduced by EPA in 1992
  - Enables companies to achieve their best in energy efficiency
- The national symbol of energy efficiency and environmental protection
  - Awareness exceeds 70% of U.S. households
  - Energy efficiency – key strategy for the future
- Focused on improving energy efficiency of:
  - Products
  - Homes
  - **Facilities & operations**
- For industrial businesses, EPA helps manufacturers improve strategic energy management and gain a measure of control over the energy future.

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How you can improve your bottom line:

- Do NOT manage energy via ad hoc projects
- Most energy programs are less than 5 years old.
- Energy is not on senior management's radar screen.
- Energy management historically has not been viewed as "strategic".
- Capital funding for energy projects is typically a low priority.

How you can improve your bottom line:

- Think about energy management strategically
- Appoint a person to be responsible for your energy usage
- Give the person senior management support
- Think about energy cost differently- even if it is only 6-7% of sales. Energy savings go directly to **your bottom line.**
- Improving your energy by only 3% can be worth more than $1,000,000 in new sales.
- Energy saving are cumulative, year after year

The Harrison Steel success story:

- Harrison Steel Energy footprint:
  - Energy Cost is 5-8% of sales
  - Energy Spend is $9 M in electricity & gas
  - Electric Usage is 73.5 GWH (Equiv. to 4000 homes)
- Joined E* in 2009
- Saved $66,000/year on energy initiatives
- Assume 5% profit margins: This saving is equivalent to $1,000,000+ in new sales
- Which is easier: Reduce energy or fine new sales

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How did Harrison Steel do it ?

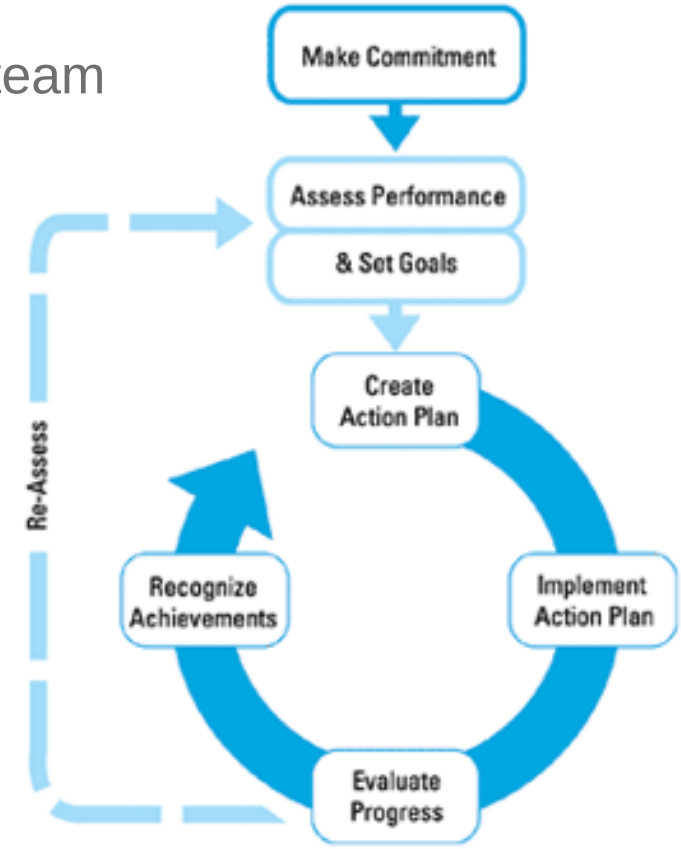
- Used the ENERGY STAR tools:
  - Guidelines for Energy Management
  - Self Assessment Matrix tool
- Identified over 100 air leaks and fixed them.
  - A 1/16 “ air leak can cost over $600/year
- Installed VFD’s on well pumps (saved $16,800/yr)
- Change standard belts to more efficient v-belts on fans and other drive equipment (2-3% higher efficiency)
- Improve combustion efficiency on heat treat furnaces
- Most improvements with low cost investments with 3-18 month payback

What E tools did Harrison Steel Use?*

- Guidelines for Energy Management
- Self Assessment Matrix tool
- ENERGY STAR Partner Logo
- Challenge for Industry
- Networking with other industrials

ENERGY STAR Guidelines for Energy Management

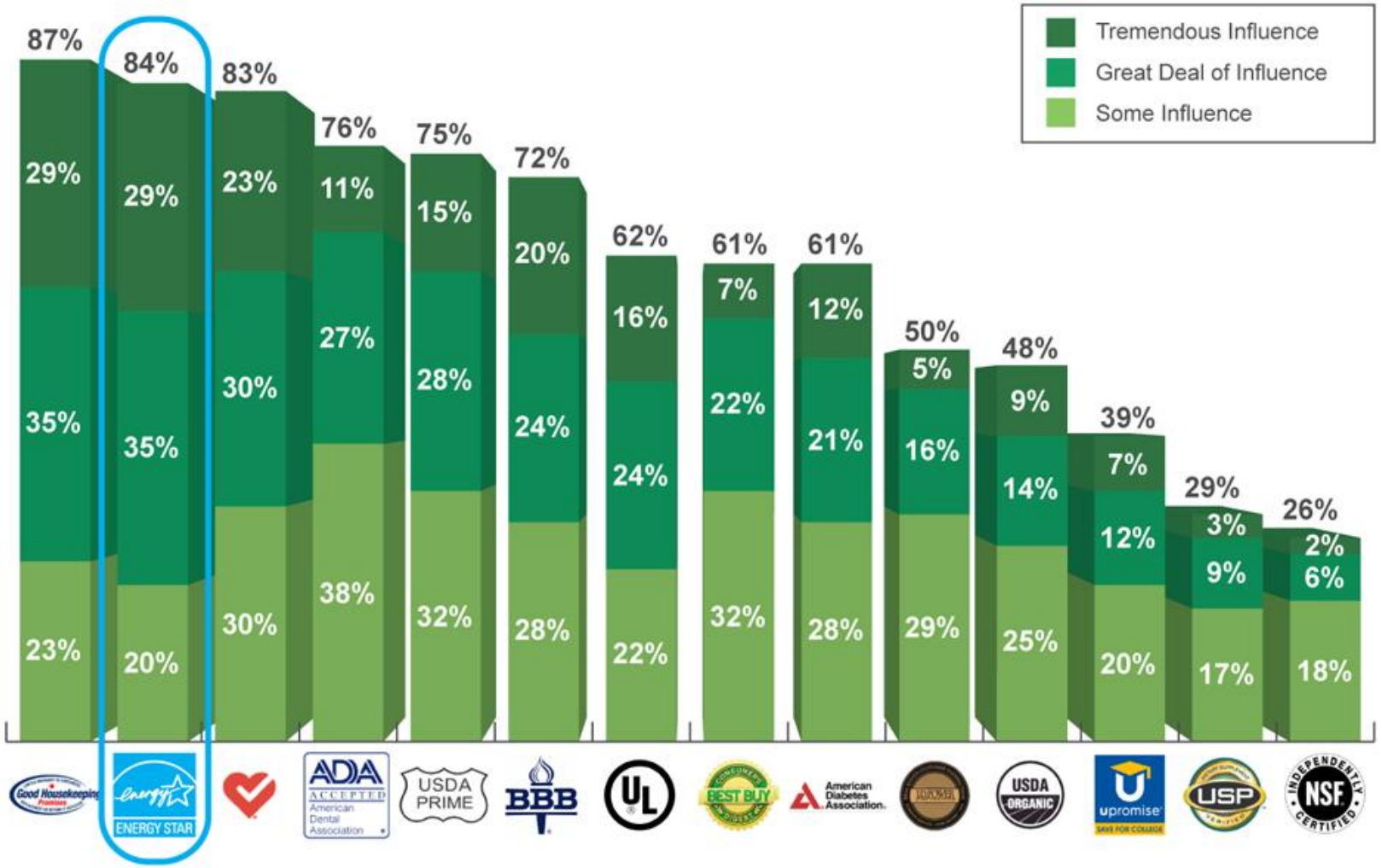
- STEP 1: Make Commitment
  - Appoint an energy champion, energy team
- STEP 2: Assess Performance
  - Determine your energy spend
  - Measure and track your usage
- STEP 3: Set Goals
  - Take the ENERGY STAR Challenge
- STEP 4: Create Action Plan
  - Look for opportunities
- STEP 5: Implement Action Plan
- STEP 6: Evaluate Progress
- STEP 7: Recognize Achievements



Assess your plant program

ENERGY STAR® Facility Energy Management Assessment Matrix				
	Little or no evidence	**Some elements/degree**	**Fully implemented**	**Next Steps**
Commit to Continuous Improvement				
Site Energy Leader	None assigned.	Assigned responsibilities but not empowered. 20-40% of time is devoted to energy.	Recognized and empowered leader having site manager and corporate energy manager support.	
Site Energy Champion	None identified.	Senior manager implicitly supports the energy program.	Senior manager actively supports the energy program and promotes energy efficiency in all aspects of site operations.	
Site Energy Team	No site energy team.	Informal organization with sporadic activity.	Active cross-functional team guiding site energy program.	
Corporate Energy Policy	No corporate policy.	Corporate policy in place. Little awareness by site energy team and limited application of policy.	Corporate policy supported at site-level. All employees aware of goals and responsibilities.	
Site Energy Plan	No written plan.	Informal plan not widely known.	Written formal plan endorsed, distributed, and verified.	
Accountability	No energy budgeting and accountability.	Estimates used for allocating energy budgets.	Key users are metered separately. Each entity has total accountability for their energy use.	
External Focus	No reporting of energy performance data or involvement in external organizations.	Some participation, sharing, mentoring, and professional memberships. Annual reporting of performance.	Participates in energy network/ organizations. Shares best practices/mentors other sites. Reports usage quarterly.	
Assess Performance and Opportunities				
Analyzing Data	Limited metering or tracking. No demand analysis or billing evaluation.	Some metering, tracking, analyzing, and reporting. Energy bills verified for accuracy.	Key loads metered, tracked, analyzed, and reported. Facility peak demand analyzed. Adjusts for real-time demand.	
Documentation	No manuals, plans, designs, drawings, specs, etc. for building and equipment available.	Some documentation and records available. Some review of equipment commissioning specs conducted.	Critical building and equipment documentation available and used for load surveys/recommissioning/efficiency goals.	
Benchmarking	Energy performance of systems and facilities not benchmarked.	Limited comparisons of specific functions, or only same-site historical comparisons.	Key systems/sites benchmarked using comparison tools like Portfolio Manager/Energy Performance Indicators.	
Technical Assessments	No formal or external reviews.	Limited review by vendors, location, or corporate energy managers.	Extensive regular reviews by multi-functional team of internal and external professionals. Full assessment every 5 years.	
Best Practices	None identified.	Ad hoc or infrequent monitoring of trade journals, internal databases, and other facilities' best practices.	Regular monitoring of trade journals, internal databases, and other facilities. Best practices shared and implemented.	
Set Performance Goals				
Goals/Potential	Energy reduction goals not established	Loosely defined. Little awareness of energy goals by	Potential defined by experience or assessments. Goals roll	

Align Your Communications Program with a Trusted Brand



Source: Fairfield Research, Summer 2007

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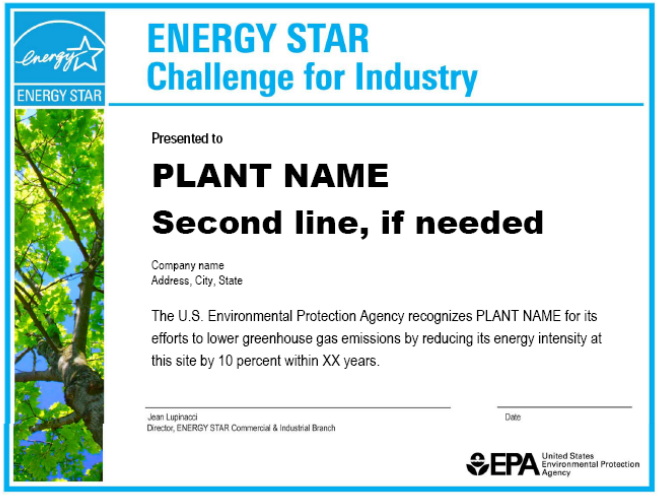
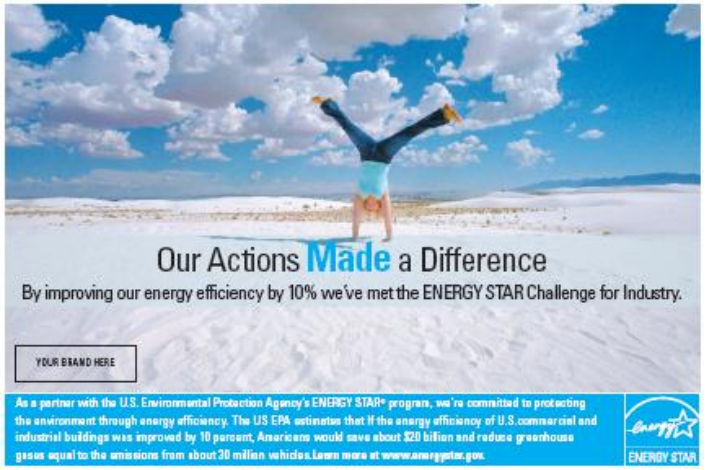
ENERGY STAR Challenge for Industry:

- Reduce energy usage by 10% at your plant (within 5 years)
- Establish a plant baseline
- Minimal paperwork involved
  - Short 1 page registration form
  - When -10% Achieved, submit Statement of Energy Performance (SEP). Verify with internal PE
- Receive ENERGY STAR recognition

Recognition

- Framed Certificate
- Communications materials
- Profiled on energystar.gov
- Letter to CEO from EPA





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Network with E Focus Group*

Collaborative process with an industry to develop:

- ✓ Energy Performance Indicator (EPI) to benchmark plant energy performance
- ✓ Energy Guide, if needed

And facilitates:

- ✓ Sharing of best practices
- ✓ Networking of companies in the industry
- ✓ Development of stronger corporate energy programs

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Specialized industry focuses

Focus Industry	Year in Progress	Peer Exchange Forum	Energy Guide	Energy Performance Indicator	Plant recognition?
Cement	6	Annual	Complete	Complete	yes
Corn Refining	7	Annual	Complete	Complete	yes
Food Processing	5	Annual	Complete	Complete	yes
Glass	5	Annual	Complete	Complete	yes
Motor Vehicle	8	Annual	Complete	Complete	yes
Petrochemicals	3	Annual	Final draft	Under testing	
Petroleum Refining	5	Annual	Complete	Complete	yes
Pharmaceuticals	5	Annual	Complete	Complete	yes
Pulp & Paper	3	Annual	Complete	Exploring options	
Steel	2	Annual	In development	Under testing	
Metalcasting	**2**	**Yes**	**In development**	**Exploring options**	

Energy efficiency & energy management

- Energy efficiency is a resource any company can take advantage of because:
  - They can do it themselves – the resources needed are already available.
  - It saves money that can be used to bolster other parts of the business.
  - It doesn't require layoffs. Cutting BTUs doesn't hurt and may even save the equivalent of workers' pay.
- ENERGY STAR can help you make the most of your resources.

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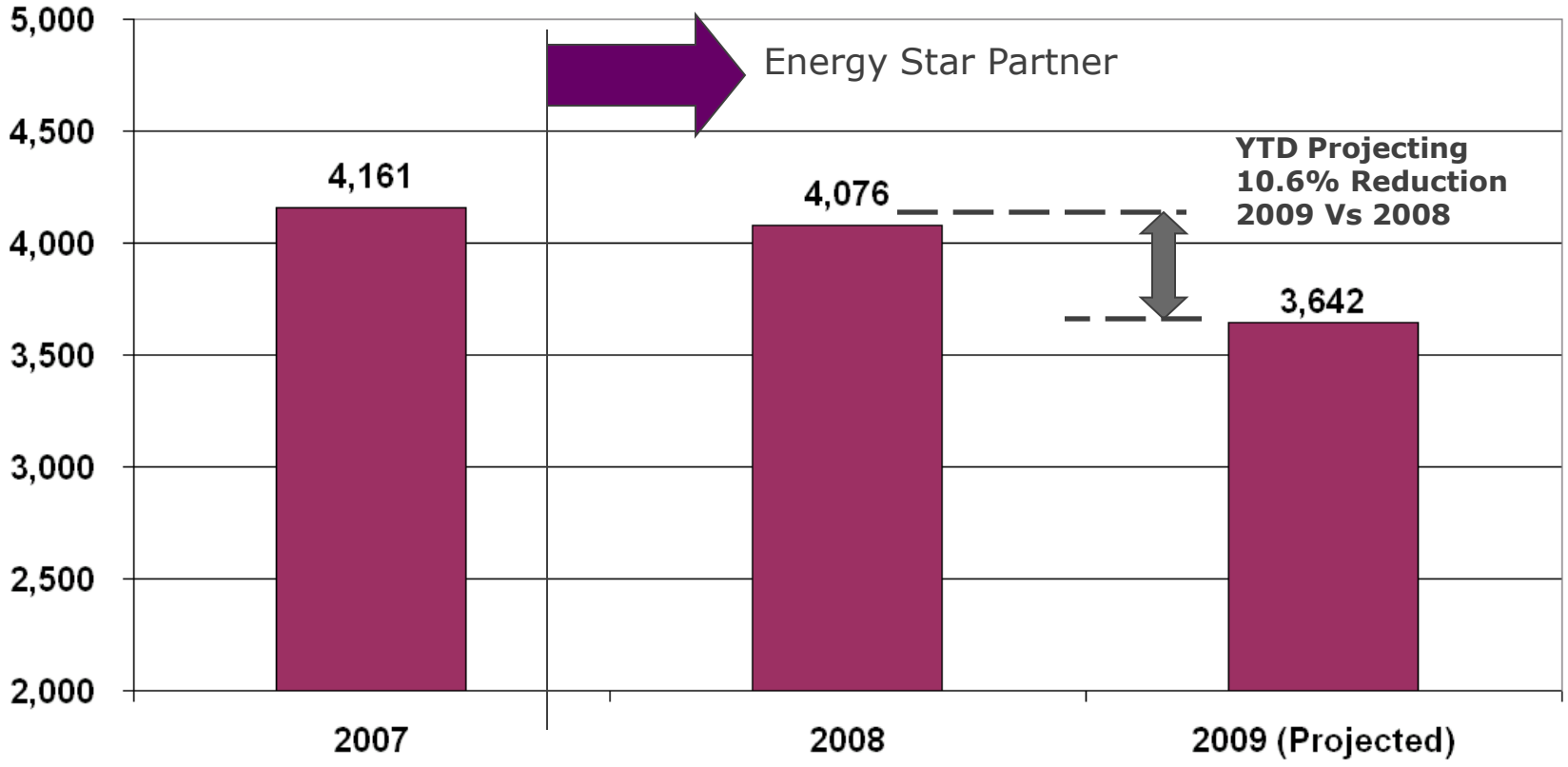
Recent reductions achieved by ENERGY STAR partners

3M Worldwide	13.5% absolute energy use reduction in 2009 Projects saved amount equal to 5.6% of energy expenditures
CALPORTLAND	27% total energy consumption reduction in 2009 2.1% energy intensity reduction in same period
DOW	2.5% energy intensity reduction per year since 2004 25% energy consumption reduction goal by 2015
Ford	4.6% energy efficiency improvement in 2009 38% energy reduction since 2000
HANESbrandsINC	9.6% energy intensity, 9.4% water reduction in 2009
Raytheon	15% energy intensity reduction in 2009 40% energy intensity, 16% total energy reduction since 2002
SUNOCO	5% energy intensity reduction in 2009 in refineries

Hanesbrands Energy Intensity

(Btu / Manufactured Unit)



Status Report - Exceeding Expectations

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Get started now!

- Join ENERGY STAR
  - Download the partnership letter at http://www.energystar.gov/index.cfm?c=business.bus_commit
  - Have your CEO sign the letter and mail it in
- Benefits of partnership
  - Expert guidance on managing energy, greenhouse gas emissions, and related costs
  - Network and exchange knowledge with over 600 ENERGY STAR industrial partners
  - Energy benchmarking and tracking tools
  - Recognition for achieving milestones

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ENERGY STAR Partners commit to:

- **Continually improve** your energy performance through **measurement and tracking**
- Develop and implement a **plan** consistent with our Energy Management Guidelines to achieve savings
- Help **spread the word** about energy efficiency to staff and community
- Support the ENERGY STAR **Challenge** of improving energy efficiency in industrial buildings by 10% or more (Call to action)
- Highlight your achievements with **recognition** offered through ENERGY STAR

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Selected ENERGY STAR resources

- Guidelines for Energy Management as a strategic approach to managing energy
- Energy Assessment Matrix – gap analysis for assessing your energy management program
- Teaming Up to Save Energy Guide for structuring, launching, and maintaining an energy team
- Energy Tracking Tool to organize your energy data and monitor progress
- Financial Calculator Tool for analyzing energy project paybacks
- Communications Toolkit to raise awareness for employees and customers (example – *Bring Your GREEN To Work*)
- Publications for order, free of charge, to assist in outreach and education
- Networking opportunities such as the monthly web conferences and connections to 600+ industrial companies. (Energy Managers)

Summary: Benefits of partnering

- Improve energy management for your company; save money and energy!
- Network with over 600 industrial ENERGY STAR Partners – learn from others
- Free tools and resources to help manage energy
- ENERGY STAR recognition for achievements

For more information: contact

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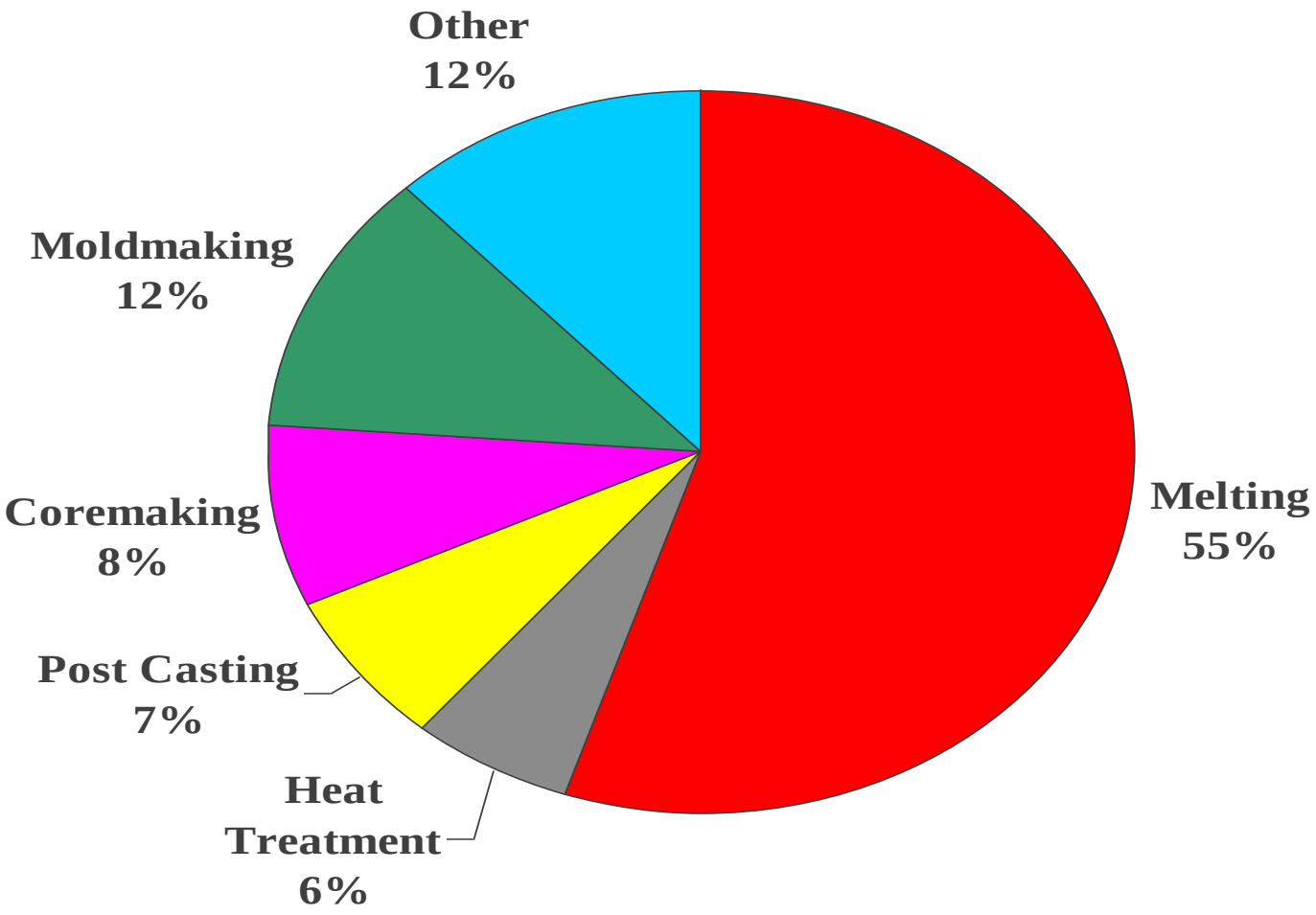
All resources found at:
www.energystar.gov/industry

THANK YOU!

EXTRA SLIDES

Where energy is used in metalcasting



Energy consumption in metalcasting

Utility System	Trillion BTUs
Process melter	147
Steam	22
Compressed Air	15
Pumps	2
Fans	2
Other	