



# Assessing Facility Energy Management

**May 16, 2007**

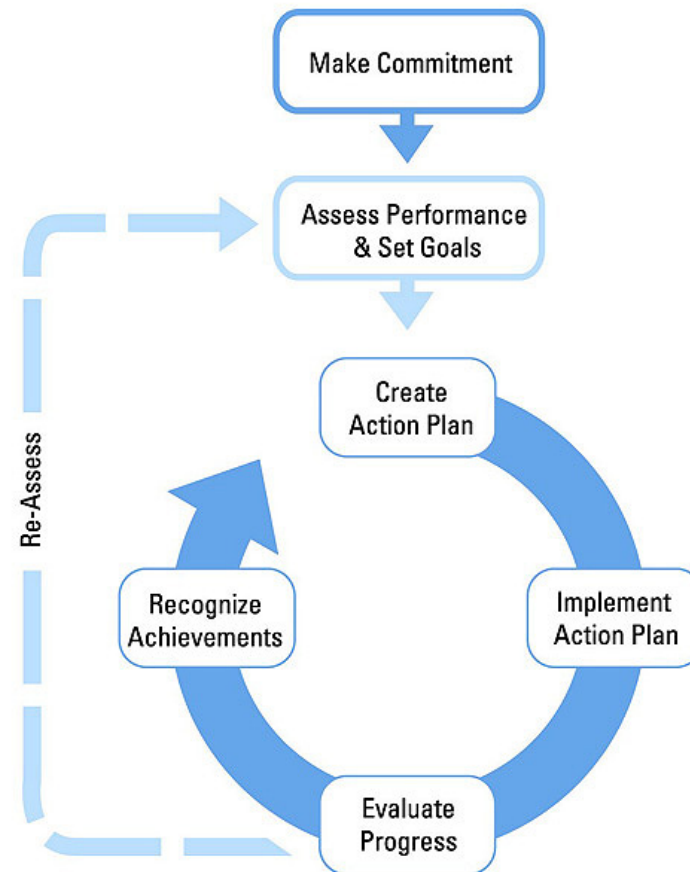
Call-in Number: 1-866-299-3188

Conference Code: 202 343 9965

# About The Web Conferences



- **Monthly**
- **Topics are structured on a strategic approach to energy management**
- **Opportunity to share ideas with others**
- **Slides are a starting point for discussion**
- **Open & Interactive**



# Web Conference Tips



- Mute phone when listening! Improves sound quality for everyone.  
Use \* 6 – to mute and # 6 to un-mute
- Hold & Music – If your phone system has music-on-hold, please don't put the web conference on hold!
- Presentation slides will be sent by email to all participants following the web conference.

# Today's Web Conference



- Welcome
- Andy Lippert – Ash Grove Cement
- Fred Schoeneborn – ENERGY STAR
- Walt Tunnessen – ENERGY STAR
- Announcements



# Assessing Facility Energy Management Practices

Andy Lippert  
Corporate Energy Director  
Ash Grove Cement Company

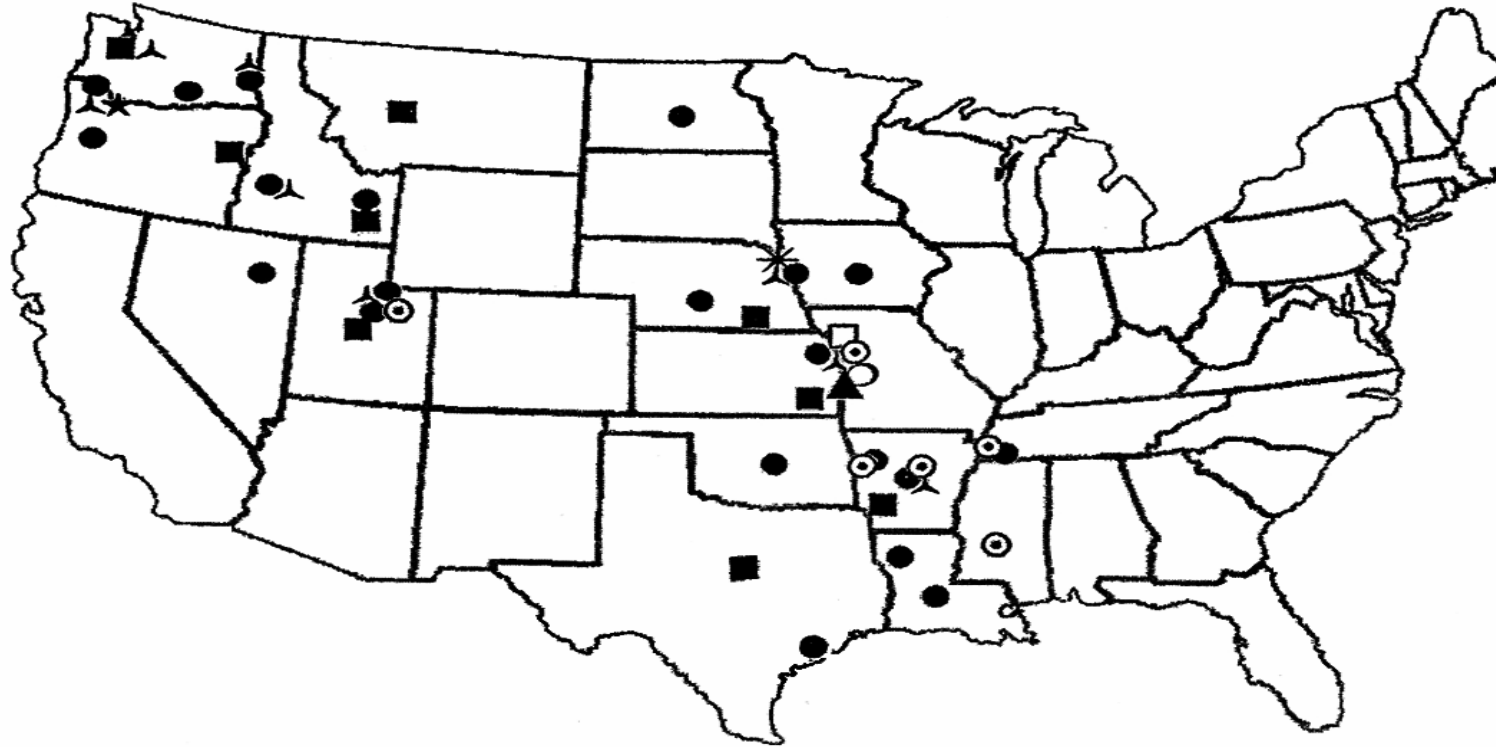


## *Summary of Ash Grove Cement Co*

- *Company was incorporated in Missouri in 1882 as the Ash Grove White Lime Association.*
- *125 years strong*
- *2,700 Employees*
- *Ash Grove is the largest American owned, fifth largest cement manufacturer in the United States.*
- *Approximately \$1.2 billion in sales 2006*



# Summary of Ash Grove Cement Co



- Cement Terminal
- Cement Plant
- ★ Lime Plant

- ▲ Sales Office
- ⊙ Materials Packaging
- ▲ Corporate Office/ Tech Center



## *Summary of Ash Grove Cement Co*

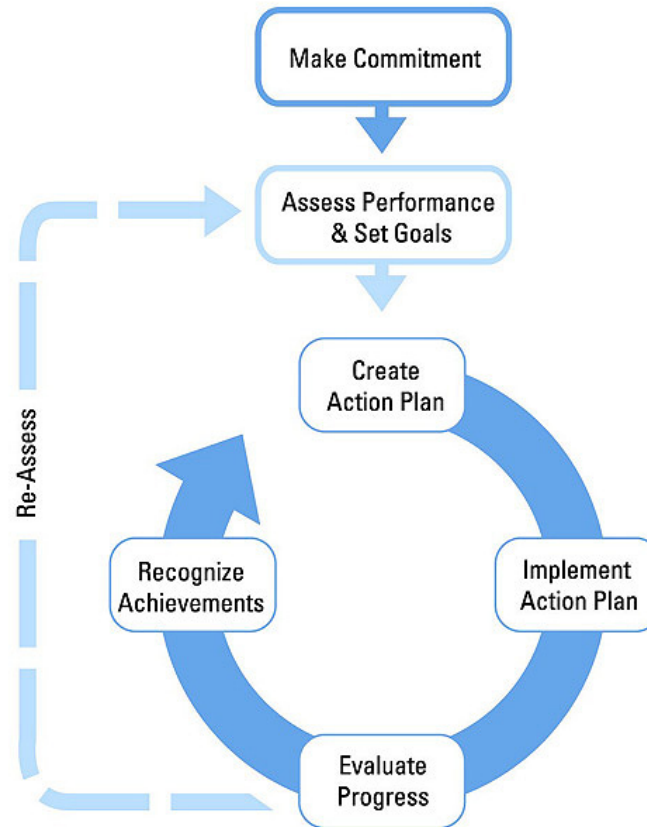
- *A strong Environmental policy*
- *Active members of PCA, WBC Sustainable Development, ISO 14001, and Energy Star programs.*
- *Over \$100 million in energy spend*
- *Over 35 million Btu's consumed*
- *Over 7 million used tires consumed each year displacing approximately 66,000 tons of coal*
- *3 cement plants are ENERGY STAR plants*





# Site Energy Management Practices

*ENERGY STAR Guidelines for Energy Management*



2007 ENERGY STAR Webcast



## *Site Energy Management Practices*

- *Established operational guidelines*
  - *Goals*
  - *Responsibility*
- *Measurement*
  - *Cost per ton of production*
  - *Cost for producing air and using it*
- *Environmental policy that includes:*
  - *Operating compliance*
  - *Process efficiency*
  - *Process Product Safety*
  - *Environmental Stewardship*



## *Site Energy Management Practices*

- *Comparison to peers and history (inside and outside)*
- *Conservation and efficiency*
- *Prioritized documented goals*
  - *And what can and can't be sacrificed*
- *Plan of action to get to goals*
  - *Who is responsible*
  - *Authority*



# *Site Energy Management Practices*

- *Maintenance Excellence Program*
  - *Standard job plans*
  - *Equipment monitoring*
  - *Failure analysis*
  - *ID the work, Plan the work, Schedule the work, Execute the work*
- *Process Excellence Program*
  - *Each process is separated out for analysis against others/whole*
  - *Conveyors*
  - *Compressed air*
  - *Clinker Coolers*
  - *Energy consumption and cost*
    - *% of total plant operating cost*



# *Site Energy Management Practices*

- *Purchasing programs*
  - *Standards for efficiencies*
  - *National accounts*
    - *Std PO's with plant level purchasing and Corp oversight*
  - *Storage and delivery of standard units*
  - *Competitive bidding practices*
  - *Publish terms and costs*
- *Cost review programs*
  - *Invoice review and verification*
  - *Contract review and verification*
  - *Contracting standards*
  - *Competitive bidding practices*
  - *Publish terms and costs*



# *Site Energy Management Practices*

- *Energy Incentive Programs*
  - *Utility rebate or co-funding programs*
  - *State grants*
  - *Technical college study programs*
  
- *Monitoring and Reporting of Usage*
  - *Competition between plants*
  - *Outside Competition*
  - *Performance to goals*
  - *Publication of performance*



# 2005 MEP Audit Team



1 per audit



1 per audit



3 per audit

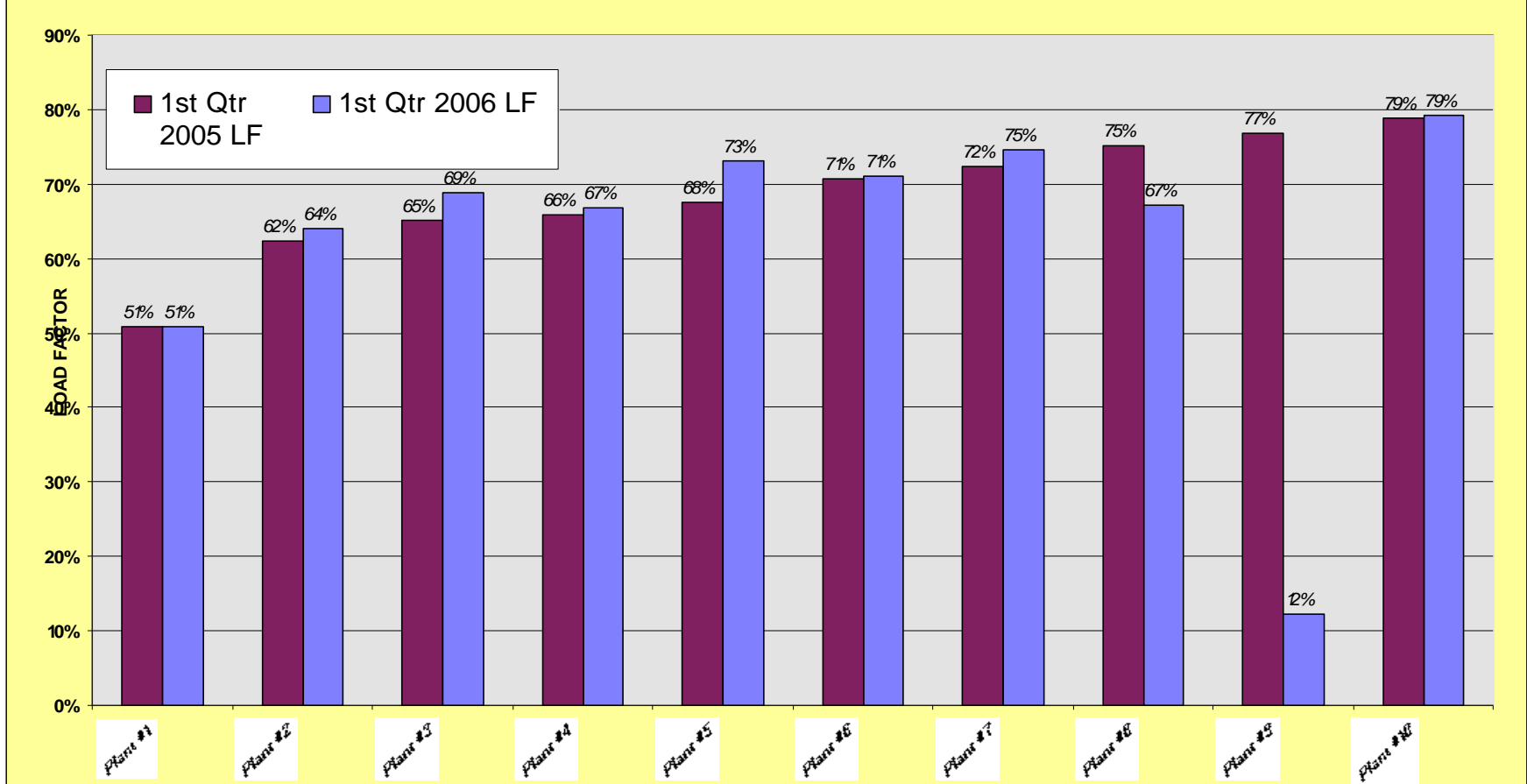
<b>Executive Rep.</b>	<b>Plant Manager Rep.</b>	<b>Equipment Experts</b>	<b>Process Experts</b>
Mike Hrizuk	Terry Kerby	Carey Austell	Michael Colbert
Stephen Joyce	Tom Neary	Alan Finch	Andy Dornbusch
Ed Pierce	Craig Puljan	Frank Plummer	Mike Ralls
Ken Rone		Dave Schultz	Lori Swiler

**Audit Coordinator: Ryan Farr**



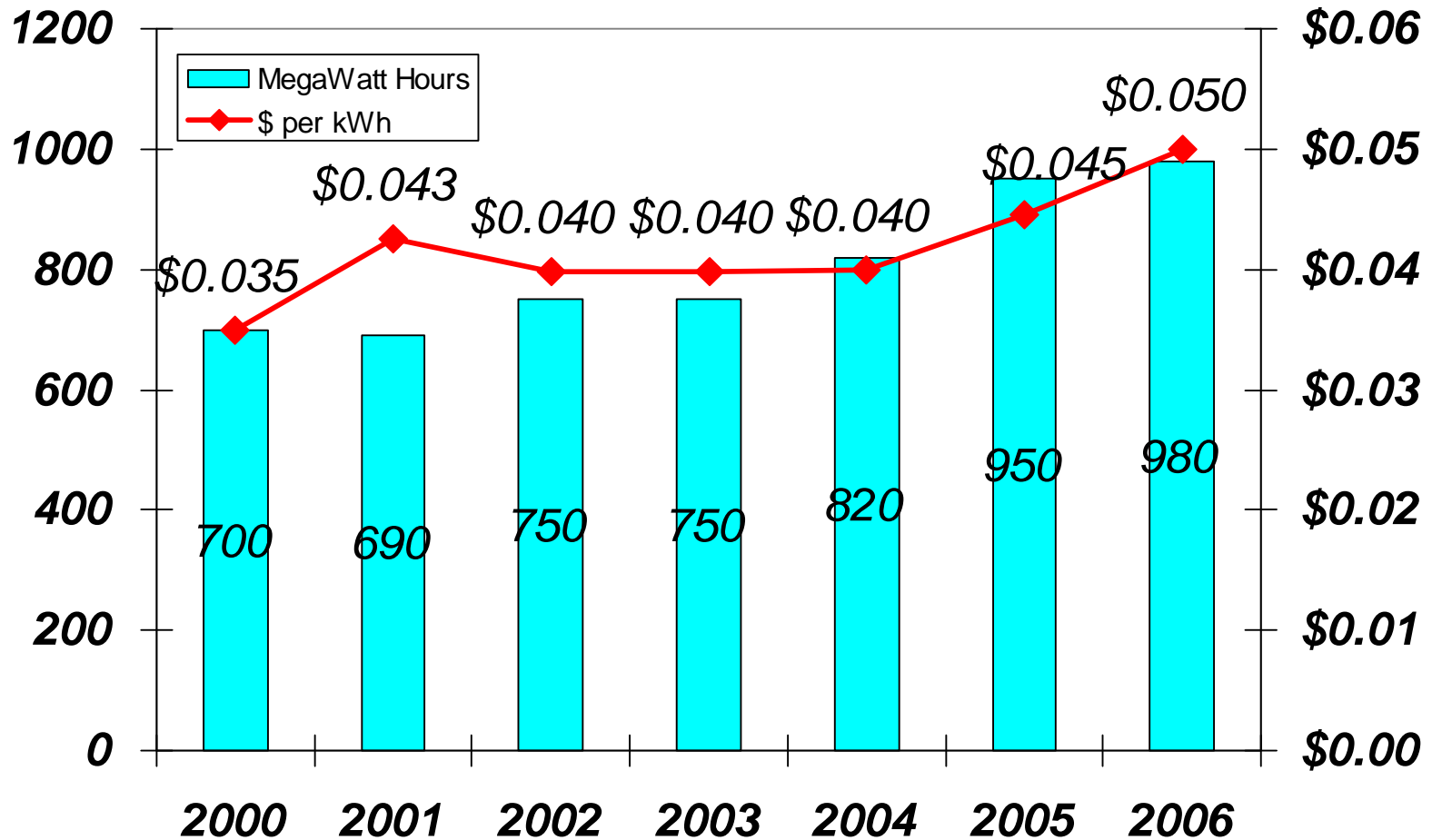


## ELECTRIC LOAD FACTORS--SIMPLE AVERAGE 2005 ASH GROVE PLANTS



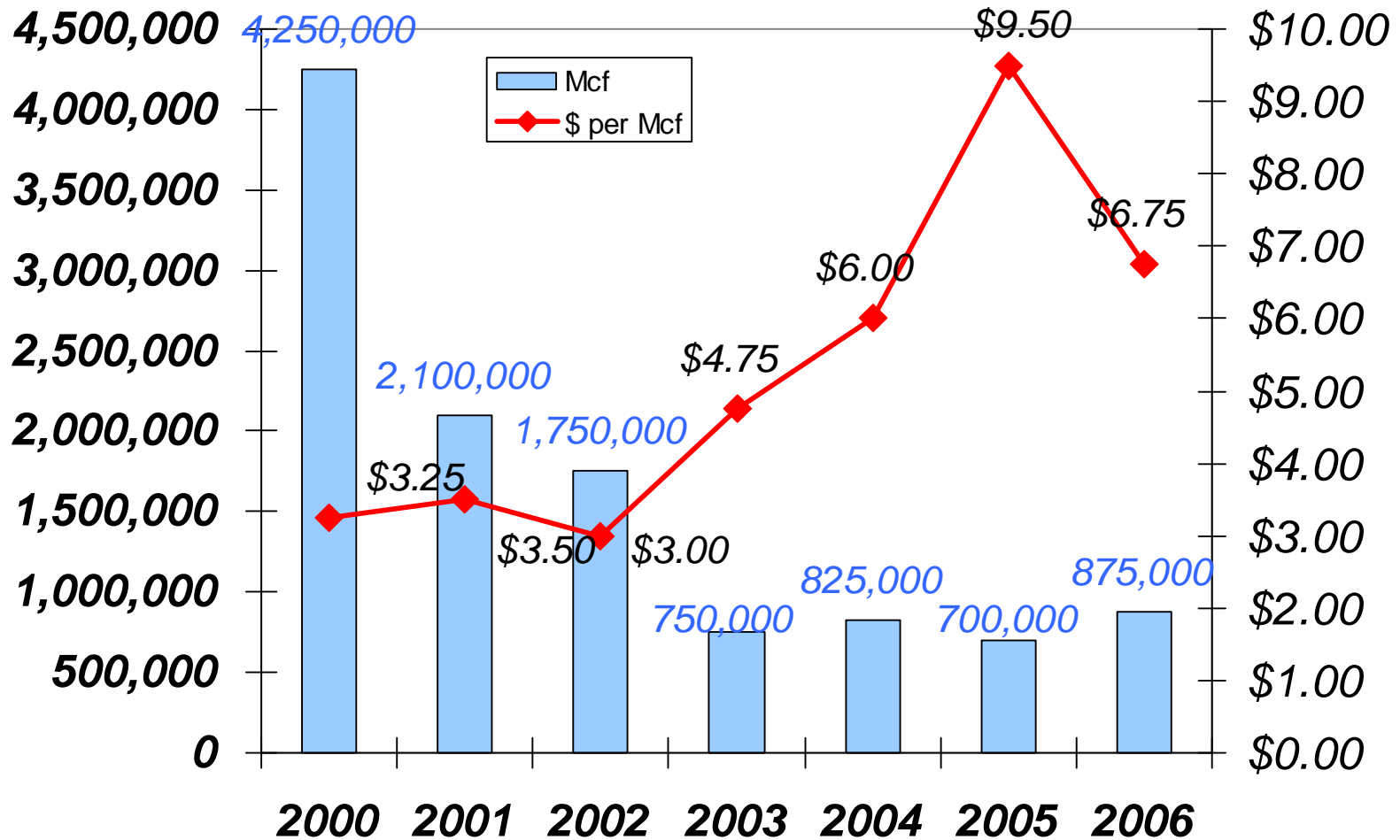


# Cement Plant Electrical Use and Cost





# Cement Plant Natural Gas Use





## *Site Energy Management Practices*

- *Document each step. Keep a note book because your notes can eventually become the plan.*
- *Don't be afraid to modify the process to make it fit your company culture and goals.*
- *Taylor the graphs and reports to each group.*
- *Start with a big picture plan and work your way into the details.*
- *Start planning capitalized projects at least a year ahead of the budgeting process.*
- *You must have Champions at the site level.*
- *This process takes time, it must be budgeted.*



# Tips & Tools for Successful Site Assessments

Fred Schoeneborn

Walt Tunnessen

# What's in it for Plant Management



- External experts enhance internal expertise.
- Operating cost reductions.
- Training of staff.
- Corporate may “seize” savings.
- PR benefit.
- Company model plant.
- Expose Best Practices.

# No Surprises

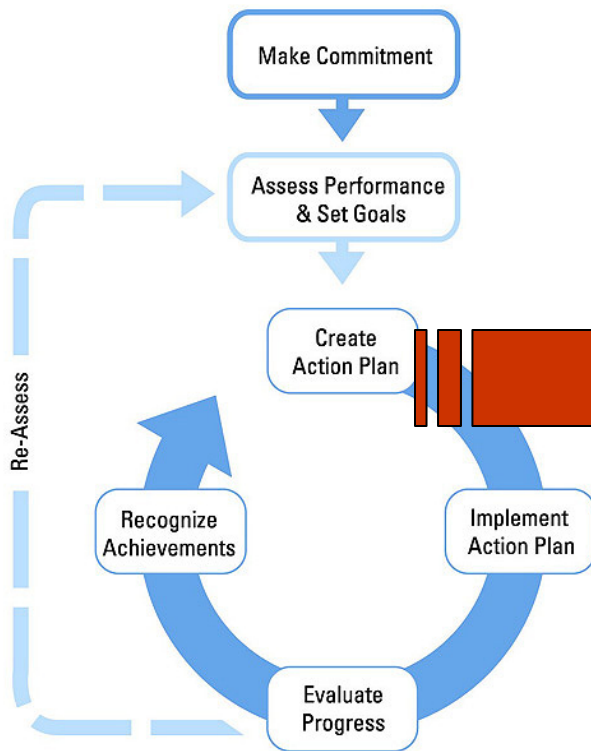


- Manage expectations.
- Budget realities.
- Understand expected outcome.
- Highlight YOUR bio.
- Understand feedstock of plant.
- Control data distribution.
- Know the language of the plant.

# Compare Your Facility



## Guidelines for Energy Management



ENERGY STAR® Facility Energy Management Assessment Matrix				
	Little or no evidence	Some elements/degree	Fully implemented	Next Steps
<b>Commit to Continuous Improvement</b>				
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.	
Energy Budgeting	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.	
Reporting	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.	
<b>Assess Performance and Opportunities</b>				
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.	
<b>Set Performance Goals</b>				
Goals/Potential	Energy reduction goals not established.	Loosely defined. Little awareness of energy goals by	Potential defined by experience or assessments. Goals roll	

## Facility Energy Assessment Matrix



# Facility Energy Assessment Matrix



- Based on tools developed by other companies
- Identifies best practices for facility energy management
- Provides an objective way to evaluate current practices and/or being a dialogue
- Road tested by ENERGY STAR Partners
- Download tool from [www.energystar.gov/](http://www.energystar.gov/) Guidelines for Energy Management section.



**Everything depends on  
EXECUTION,  
having just a vision is  
no solution**

# Discussion



- What are your biggest challenges at the site level?
- What works with getting sites more involve or active?
- What works with keeping sites engaged?

# Up Coming Web Conference



- June 20 – Our Top 3 Energy Projects
- July 18 – Water & Energy Efficiency
- August 8\* – Energy Assessments
- September 19 – Retro-commissioning
- October 17 – Energy and GHG Management

Download past web conference presentations at:

[http://www.energystar.gov/index.cfm?c=networking.bus\\_networking\\_web\\_past](http://www.energystar.gov/index.cfm?c=networking.bus_networking_web_past)

Questions or comments? Contact: [tunnessen.walt@epa.gov](mailto:tunnessen.walt@epa.gov)

\* = Second Wednesday of the month



Thank You!