



Energy Management at Dow

Texas Technology Showcase

6th Dec. 06

About Dow



A diversified chemical company, harnessing the power of science and technology to improve living daily

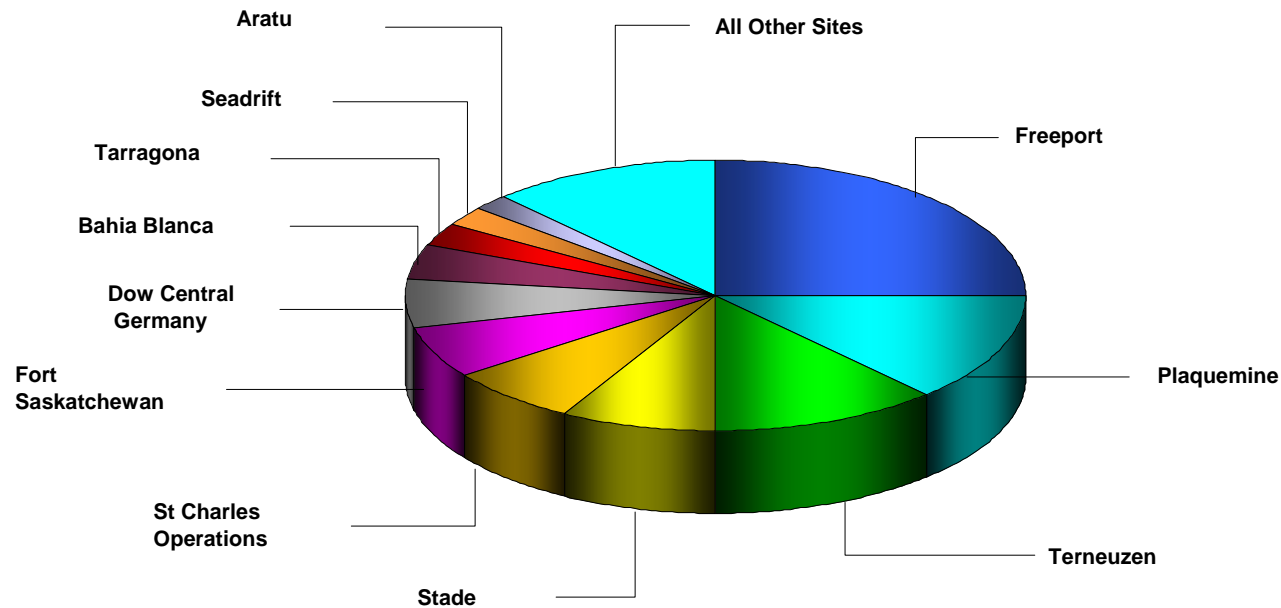
- **founded in Midland, Michigan in 1897**
- **annual sales of \$46 billion**
- **supplies more than 3300 products**
- **serve customers in 175 countries**
- **43,000 employees**
- **a company committed to sustainability**



Dow's Energy Use

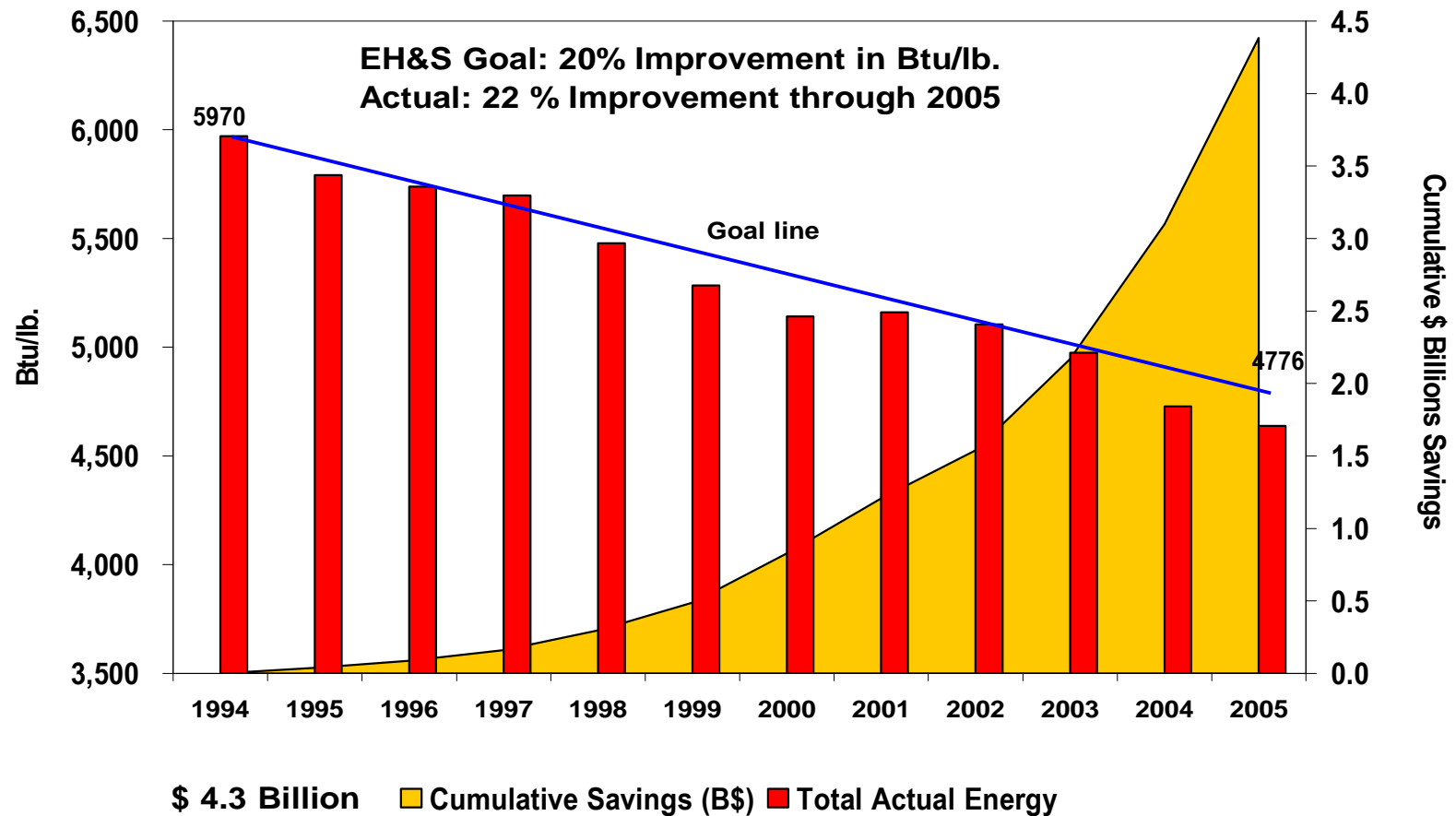


- Dow is among the largest Industrial Energy Consumers
 - Annual Energy Consumption Globally \approx 600 Trillion Btu's
 - US Operations Consumption is \approx 340 Trillion Btu's/Yr





Energy Intensity Performance



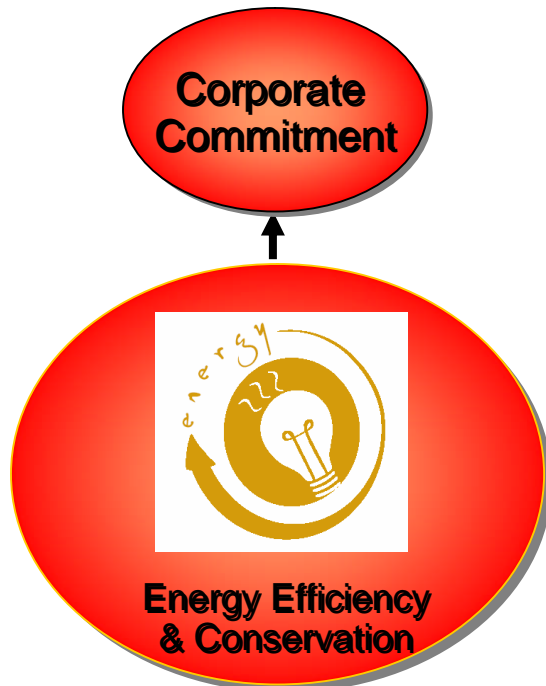
Driving Energy Efficiency at Dow



Key Elements for an Effective EE&C Management Program



Driving Energy Efficiency at Dow



Corporate Commitment:

- Provides the Overall Commitment to EE&C
- Establishes EE&C as a Corporate Objective
- Defines Company Values to Stakeholders
- Establishes Expectations for Leaders

Enhanced Public Reporting



The Dow Global Public Report 2003



Sustainability

Public Commitment:

- In 1995 Dow Committed:
 - To Reduce Energy Intensity
 - By 20% by the year 2005
 - From Base Year 1994

The Dow Public Report

www.dowpublicreport.com



Corporate Commitment to 2015 Goals

- We will further reduce our global energy intensity by 25% from 2005- 2015
- We will reduce our GHG emissions intensity by 2.5 % per year thru 2015
- By 2025, we aspire to reduce absolute emissions within the company

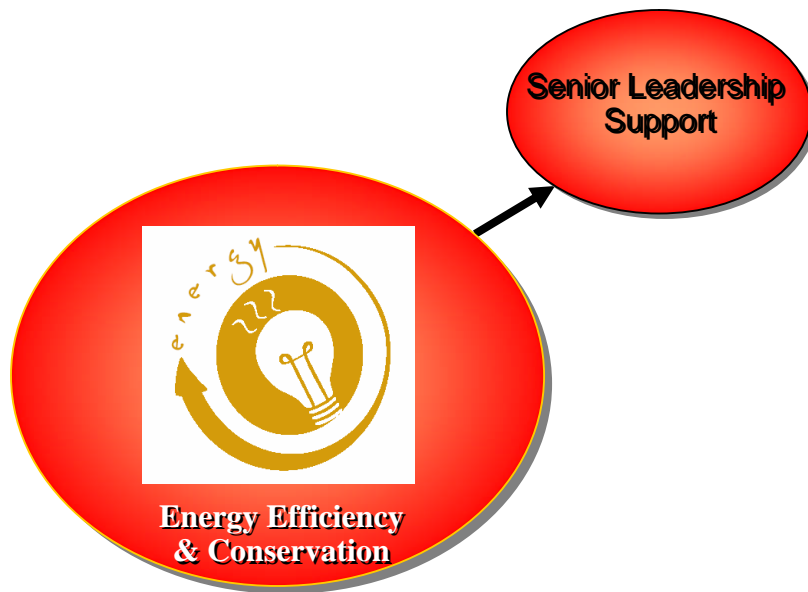
“No one in the world is more intensely aware of the need, ultimately, to reinvent our dependency on oil and natural gas than we are... We will lead the way on energy transformation because we have to. And we have taken important steps already.”

**-- Andrew Liveris
Chairman, CEO & President
The Dow Chemical Company**



Liveris Launches 2015 Sustainability Goals

Driving Energy Efficiency at Dow



Senior Leadership Support :

- Sets Overall Long Range Goals
- Establishes Priority
- Provides Resourcing and Funding
- Establishes Performance Accountabilities
- Visibly Models Action
- Leads Advocacy and Champions EE&C

Driving Energy Efficiency at Dow

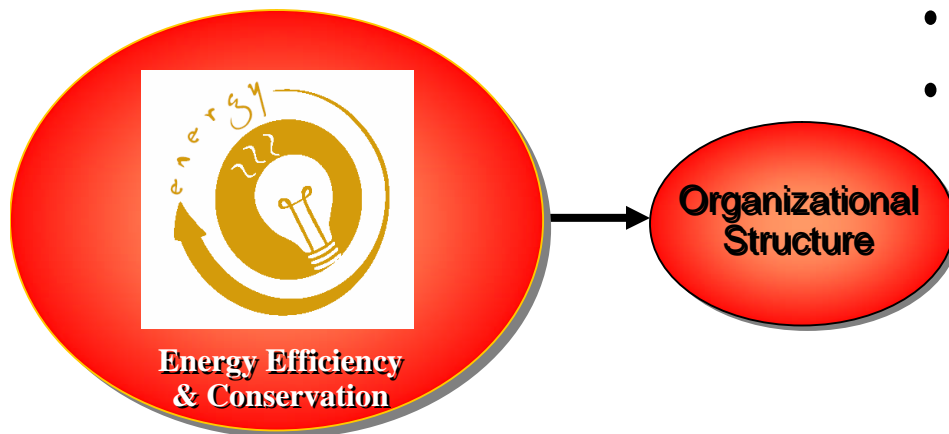


Organizational Structure:

- Implementation Leader(s)
- Implementation Teams
- Energy Teams Networks
- Roles & Responsibilities

Implementation:

- Develops Management Systems
- Establishes Implementation Model
- Develops Specific Plans to Achieve Goals
- Identify Energy Saving Opportunities
- Implement EE&C Projects
- Monitor and Report Progress
- Promotes EE&C Culture Locally
- Leverages Success



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Organizational Structure:

Business Teams

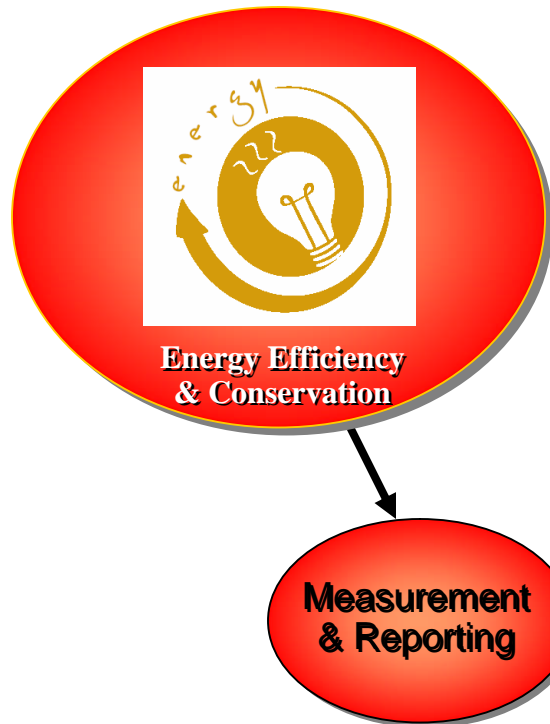
Site Teams



- Charter
- Leadership
- Membership
- Plans
- Roles

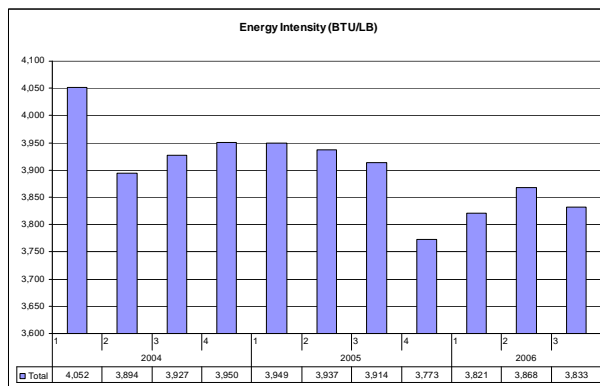
EE&C Global Leader	Business A EE Leader	Business B EE Leader	Business C EE Leader	Business D EE Leader	Business E EE Leader
Site 1 EE Leader	Plant A 1	Plant B 1	Plant C 1	Plant D 1	Plant E 1
Site 2 EE Leader	Plant A 2	Plant B 2	Plant C 2	Plant D 2	Plant E 2
Site 3 EE Leader	Plant A 3	Plant B 3	Plant C 3	Plant D 3	Plant E 3
Site 4 EE Leader	Plant A 4	Plant B 4	Plant C 4	Plant D 4	Plant E 4
Site 5 EE Leader	Plant A 5	Plant B 5	Plant C 5	Plant D 5	Plant E 5

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Energy Measurement & Reporting Systems:

- Robust Energy Accounting System
 - Metering Program
 - Sub-metering
 - Energy Conversion to Common Btu's; Btu's/lb
- Drill Down Capabilities:
 - Business / Site / Plant / Facility / Equipment
- Converts Data to Useful Information
- Available to all Leaders and Employees
- Basis for Monitoring and Reporting Progress

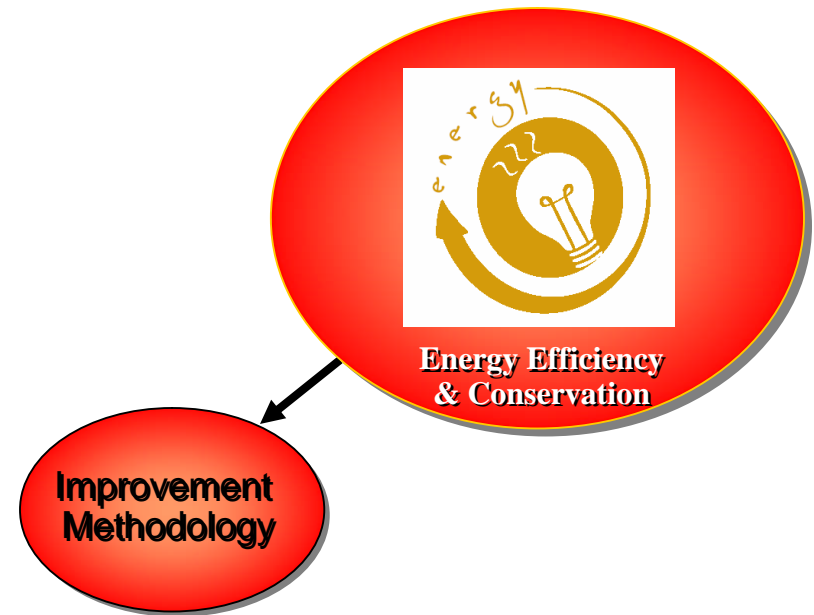


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Improvement Methodology:

- To Identify Defects –
 - Energy Waste
 - Inefficiency
 - Sub-Optimized Systems
- Enables Finding Optimum Solutions
- Corrects the Defect
- Establish a Control Plan to Sustain the Gains
- Integrated into Capital Program
- Internal and/or Externally Assisted Energy Assessments
- Long Range Listing of Opportunities / Projects
- Continuous Improvement Mindset
- Consider Six Sigma Approach



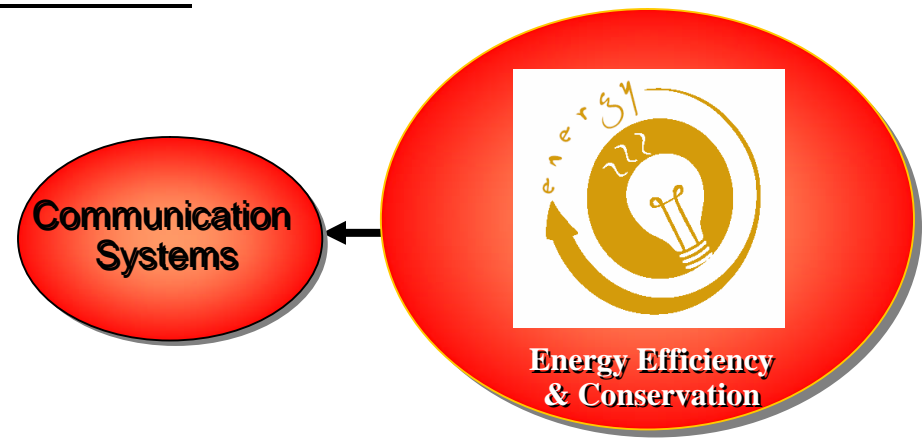
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Employee Communication Systems:

System(s) That Facilitate Sharing or Communication of :

- Energy Efficiency and Conservation Goals
- Performance Reporting
- Challenges & Success Stories
- EE&C Tools and Best Practices
- Benchmark Information
- Promotes Involvement & Recognizes Successes
- Messages from Leadership Team
- System that is easy to access – Consider Web based



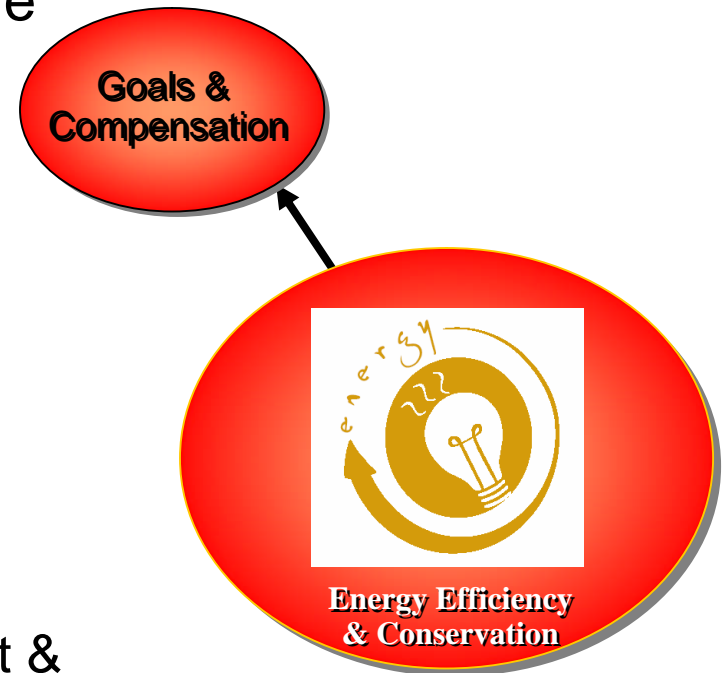
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Goals and Compensation:

To Help Drive Accountability Throughout the Organization

- Set Challenging Annual Goals
 - Corporate Goals
 - Business Goals
 - Site Goals
 - Plant Goals
 - Team Goals
 - Individual Goals
- Link to Compensation :
 - Compensation Linked to Goal Attainment & Performance



Driving Energy Efficiency at Dow



Reaching Beyond the Fence:

- Dept of Energy – “Save Energy Now”
- Energy Star’s – Industrial Energy Star Program
- Texas Industries of the Future – Programs, Texas Show Case
- Alliance to Save Energy
- ACEEE
- American Chemistry Council
- Others

Our Results



Impact to Dow:

- **Sustained Drive to Energy Intensity Reduction of 22%**
- **Cumulative Energy Savings = Approx 900 Trillion Btu's**
- **Cumulative avoided GHG (CO2 equi) emissions of ~ 51 Million MT**
- **Cost Savings (avoided fuel) = Over \$ 4 Billion**
- **Demonstrated Long-Term Effectiveness of our Program**
- **Added Value to Corporate Reputation**
- **Positions us for even further, more ambitious Goals**



Efficiency and The Triple Bottom Line

Good for Business:

Saves Money, Enhances Global Competitiveness, Preserves Jobs, Creates Prosperity for Shareholders



Good for the Environment:

Fewer GHG Emissions, Part of the Solution to Global Climate Change



Good for Society: Reduces Demand, Lowers Energy Bills, Promotes Energy Security





Thank You