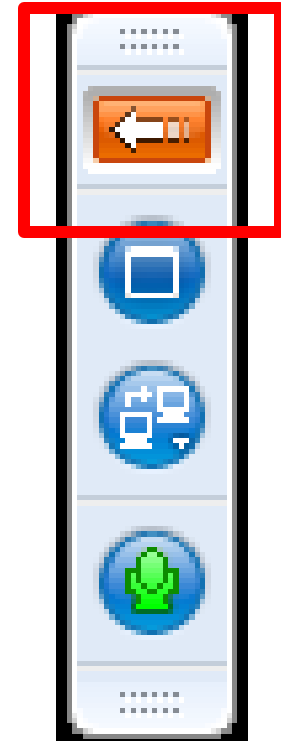
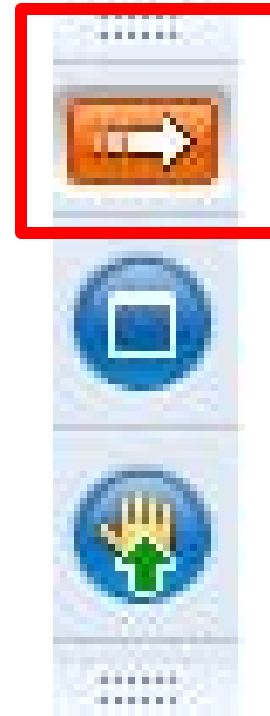
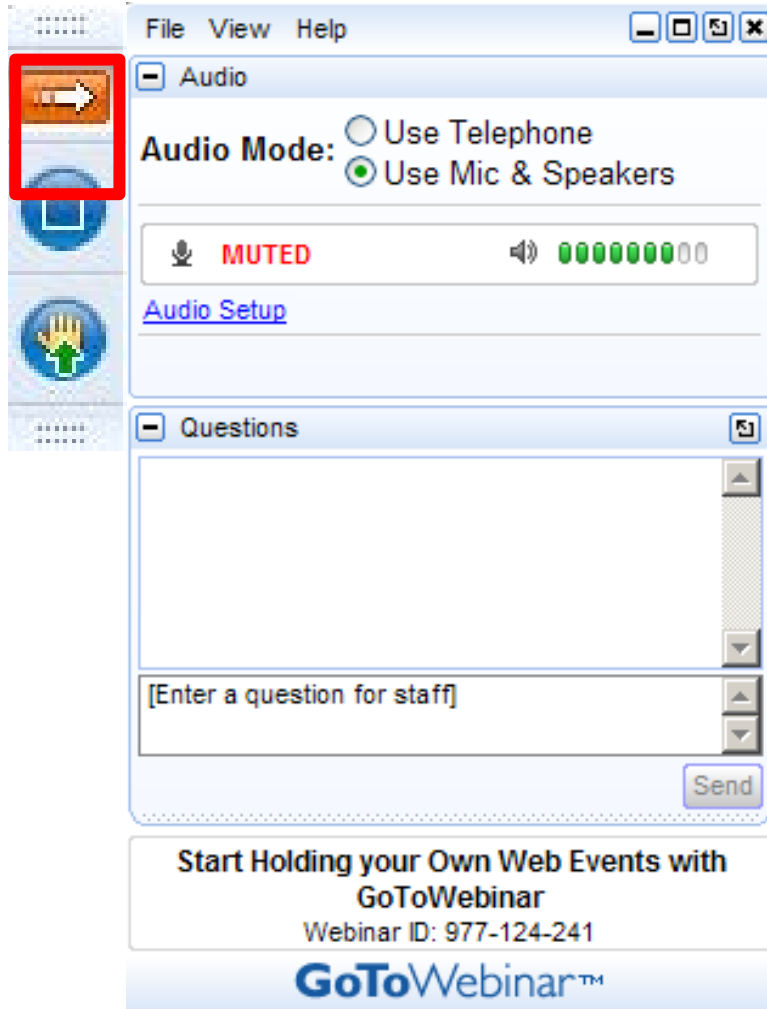




Energy Management System Implementation – First Webinar- Overview

Deann Desai and Ed Hardison

Hide and Show the GoToWebinar Panel



W1-2

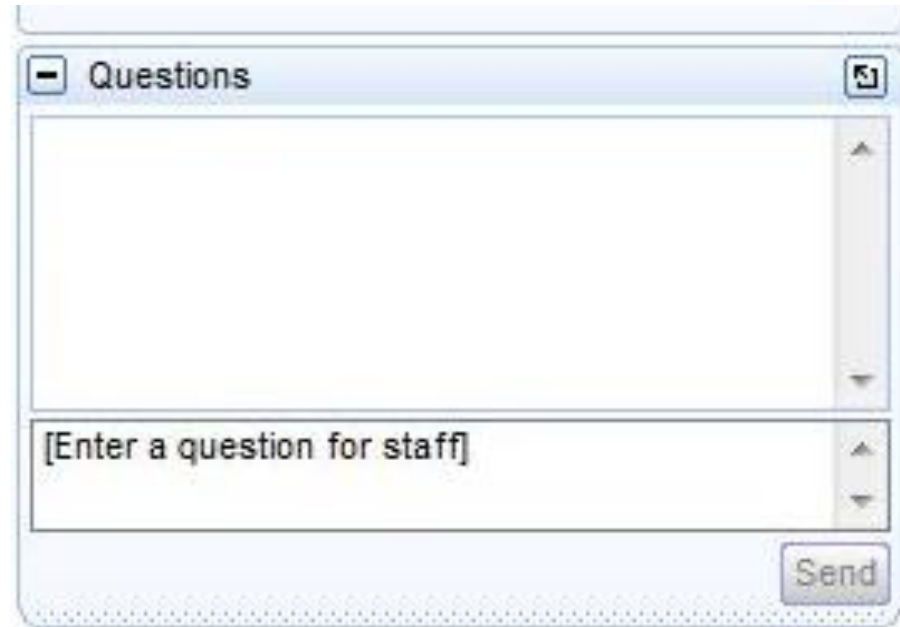
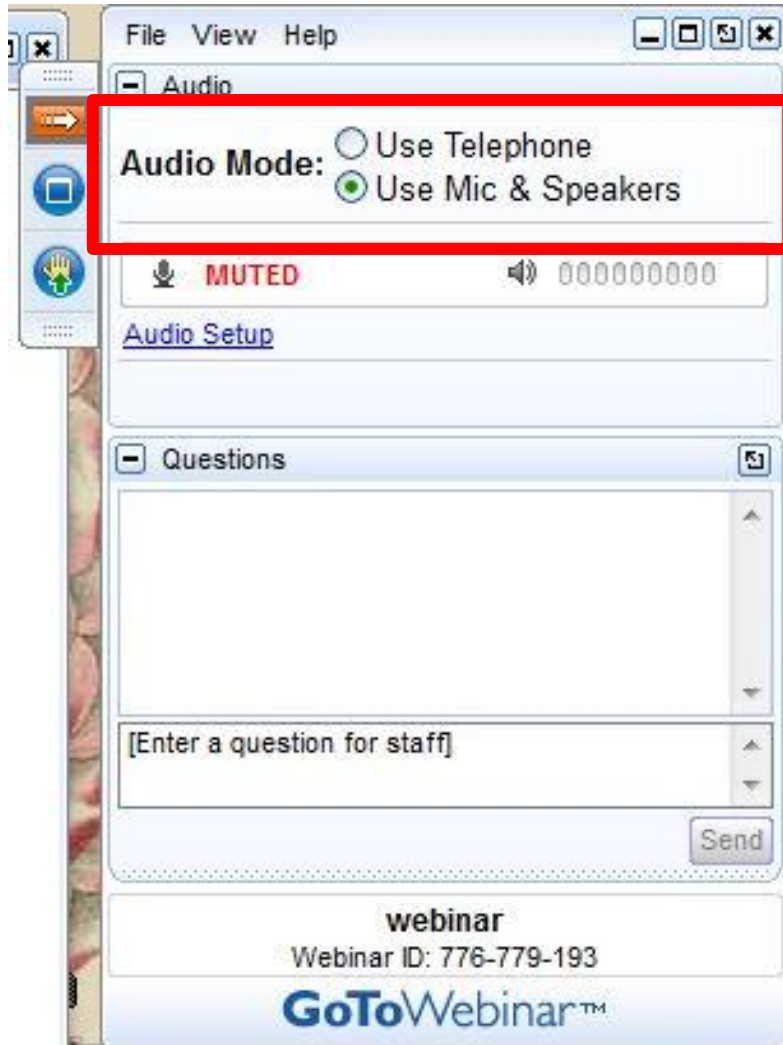
The screenshot shows a GoToWebinar window with a menu bar (File, View, Help) and a sidebar with navigation icons. The main content area is divided into two sections. The top section, titled "Audio", contains "Audio Mode" options: "Use Telephone" (unselected) and "Use Mic & Speakers" (selected). Below this is a "MUTED" status indicator with a speaker icon and a volume level bar. A blue "Audio Setup" link is present. The bottom section, titled "Questions", is highlighted with a red rectangular box. It features a text input field with the placeholder text "[Enter a question for staff]" and a "Send" button. At the bottom of the window, there is a promotional banner for "Start Holding your Own Web Events with GoToWebinar" and the Webinar ID: 977-124-241.

This is a close-up view of the "Audio" section from the screenshot above. It shows the "Audio Mode" options: "Use Telephone" (unselected) and "Use Mic & Speakers" (selected). Below the options is a "MUTED" status indicator with a speaker icon and a volume level bar. A blue "Audio Setup" link is located at the bottom of this section.

W1-3

WC 4-18-12

Audio Selection



W1-4

WC 4-18-12

- Active participation on ISO 50001 and other international standard committees
- Trained and coached manufacturers through their implementation of management systems
 - Texas (2) Pilot
 - Northwest Pilot
 - Midwest Pilot
 - Southeast Pilot
 - Mid-Atlantic Pilot
 - Northeast Pilot
 - California Pilot
- Developed MSE 2000, precursor to ISO 50001
- Qualified specialists on DOE energy software
- Leadership role in developing the DOE eGuide content

Ed Hardison

- Food, textile, carpet, wood, furniture, housing, paper, chemical, plastics, paint, automotive, glass, brick, foundries, building materials, mineral, glass, machining
- 12 years experience as QMS and EMS Lead Auditor including 60 audits
- 17 Industrial Assessment Center energy assessments
- 30 PHAST* Energy Savings Assessments
- Co-Managed DOE Midwest Demonstration Program for implementing ISO 50001 and Superior Energy Performance



*PHAST = Process Heating Assessment Tool
developed by Dept. of Energy

Deann Desai

- Paper, chemicals, glass, military, financial organizations, electronics, automotive, ports, fleets, communities, consumer commodities, hospitals, laboratories, air sampling, transportation, munitions, metal foundries, food, pharmaceuticals, baby products
- US TAG administrator TC 242, TC 257, WG 1 Convener JPC 2, WG 1 Convener TC 242, TAG member TC 207 and TC 176
- 18 years experience in management systems
- ISO 9001, ISO 14001, ISO 50001 Lead auditor, implementation and integration
- DOE pilots in Texas and North West



- **Web 1**

- Introduction to DOE eGuide
- Building the Business Case
- Case Studies
- Project Planning

- **Web 2**

- Establishing your Energy Picture
- Scope and Boundary
- Energy Baseline
- Action Plans

- **Web 3**

- Communication
- Monitoring and Measurement
- Checking the System
- Internal Audit

- **Web 4**

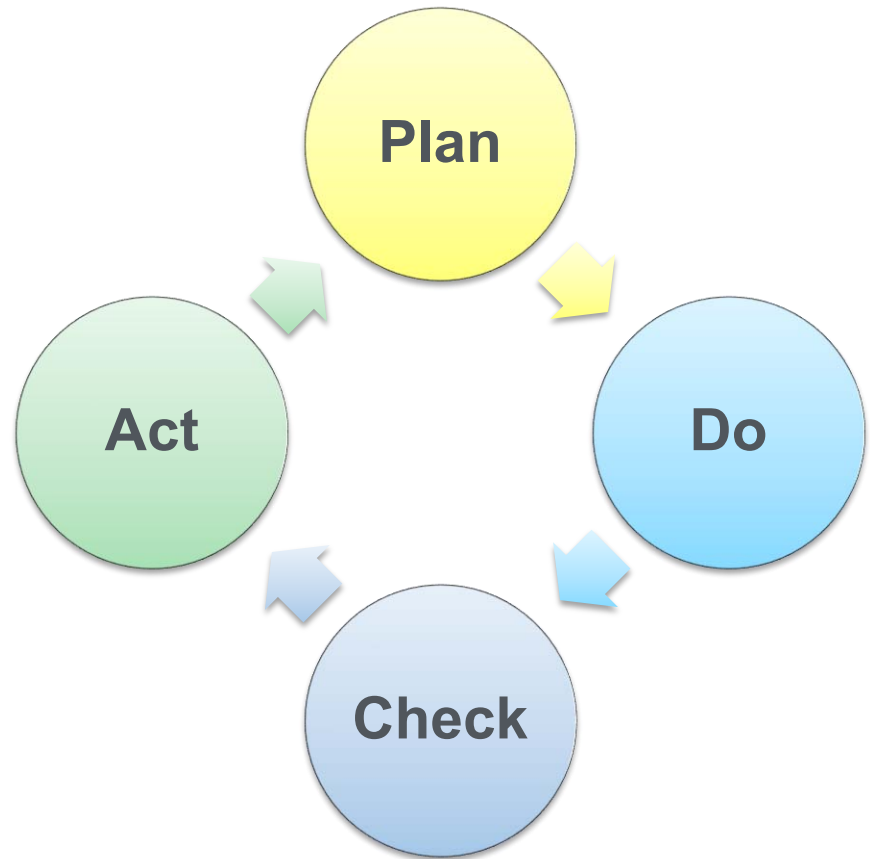
- Act
- Management Review
- Lessons Learned

- Overview of Energy Management Systems
- Topics Covered Include
 - What is an Energy Management System?
 - Benefits of Energy Management System
 - Business Case
 - Plan, Do , Check , Act (PDCA)
 - Case Studies on Energy Management System
 - A Tour of the U.S. Department of Energy- Energy Portal eGuide
 - Project Planning and Management

W1-9

Provides a framework to:

- Develop a policy
- Establish objectives and targets
- Use data to make decisions
- Measure results
- Continually Improve
- Energy Performance



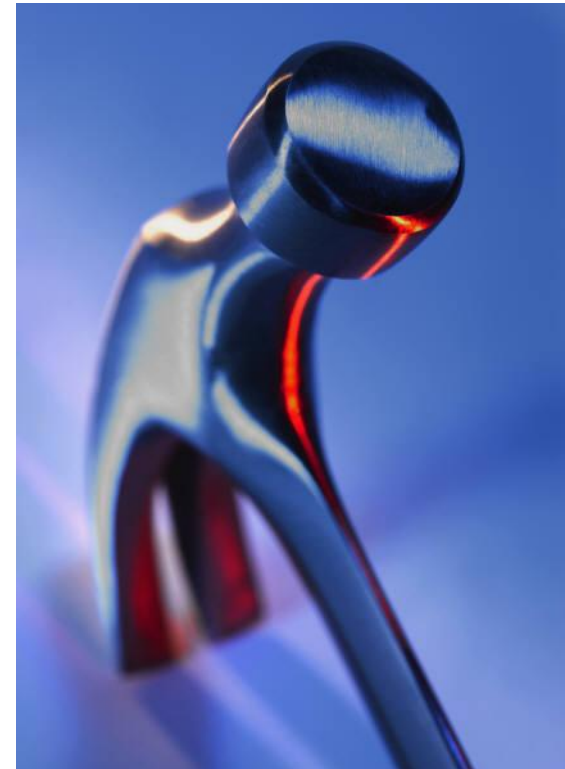
Why have an Energy Management System?



- Improve Energy Management
- Reduce Cost and Consumption
- Reduce Depletion of Energy Resources
- Systematic
- Supports Long term Strategy

W1-11

- Framework for implementing a comprehensive energy management system
- Step-by-step implementation guidance with tools
- Web-based and self-paced



The DOE eGuide is located at:

<https://save-energy-now.org/Pages/default.aspx>

W1-12

- **Make the Business Case:**

- Identify key internal influences
- Understand your business drivers
- Prepare a sales pitch
- Brief top management

https://save-energy-now.org/EM/SPM/Pages/Step_1_1.aspx

3 Tools

W1-13

Time to implement

- Most organizations take 18 to 24 months
- Most organizations use a TEAM to achieve the intended results

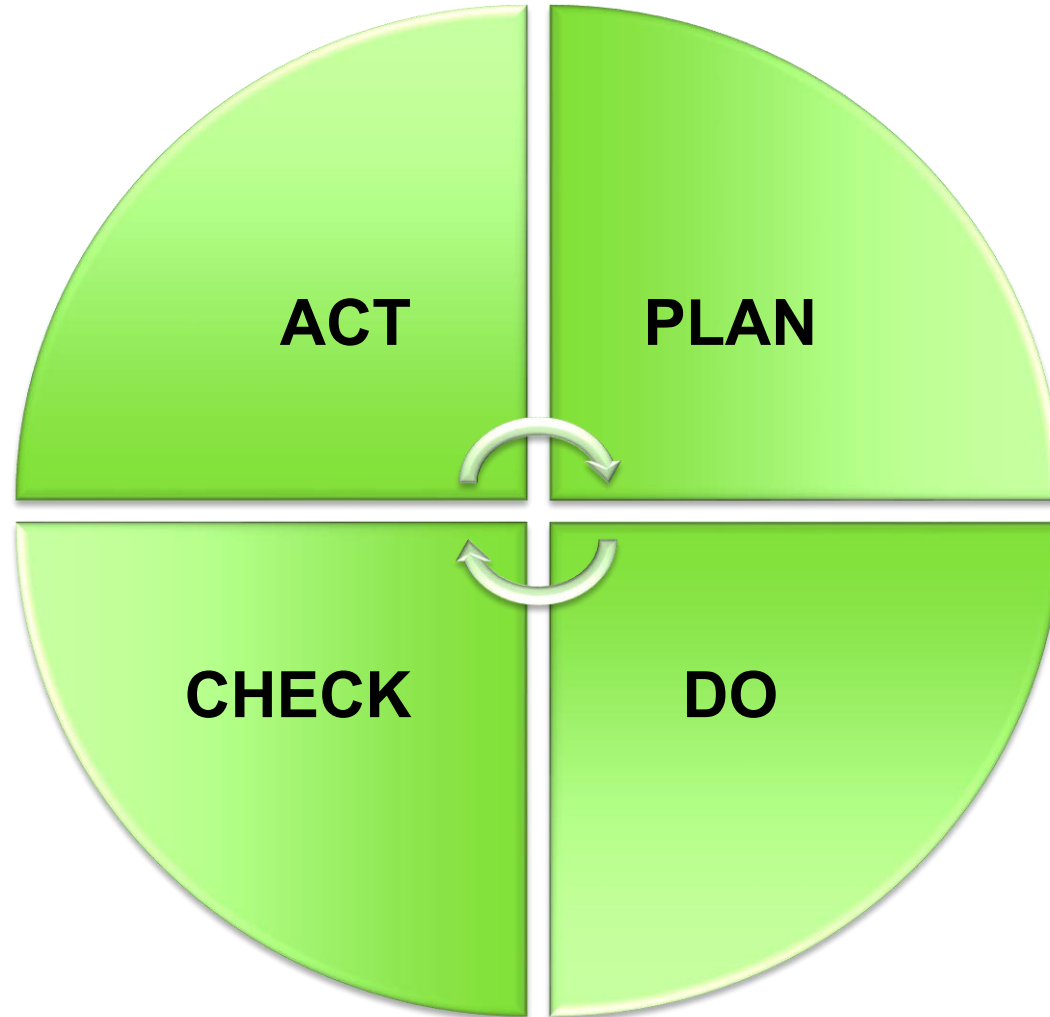
Cost to Implement

- Ranged from \$2,000 to \$25,000
- Cost varies by organization

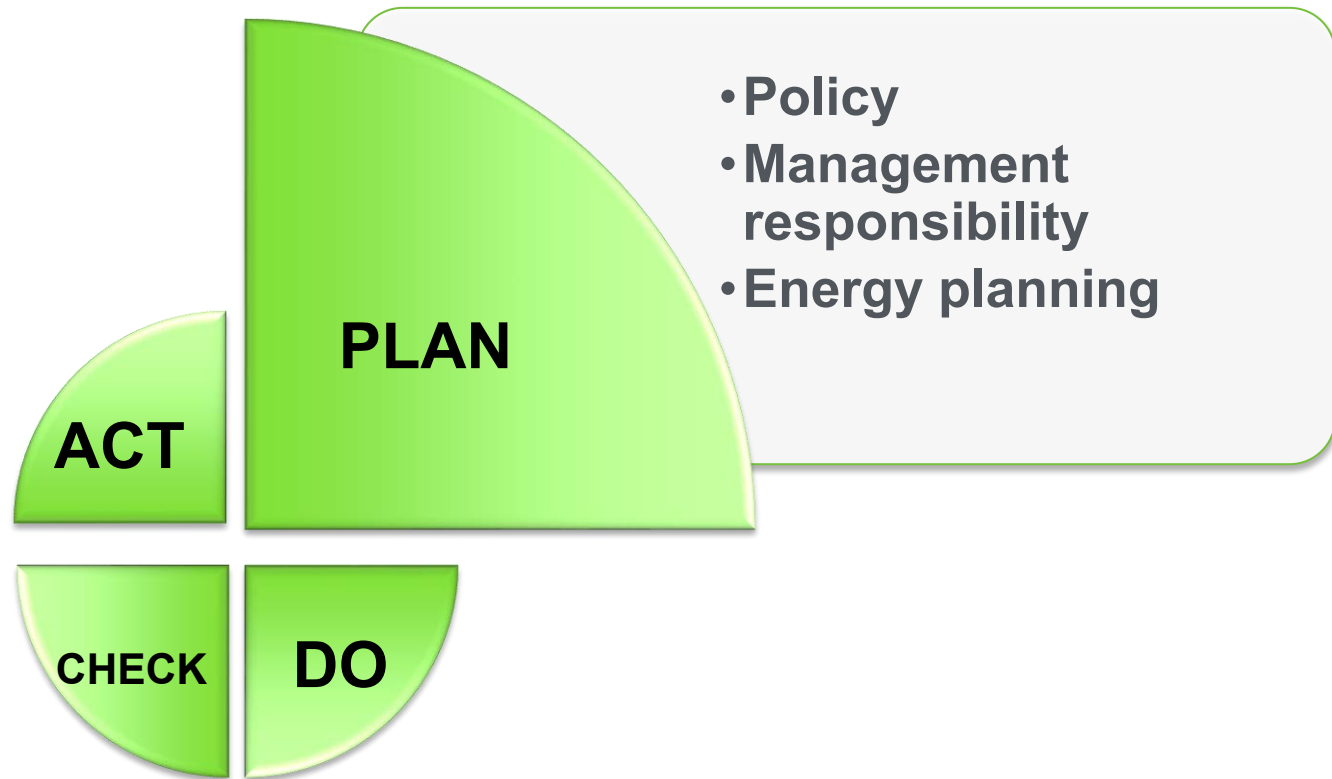
W1-14

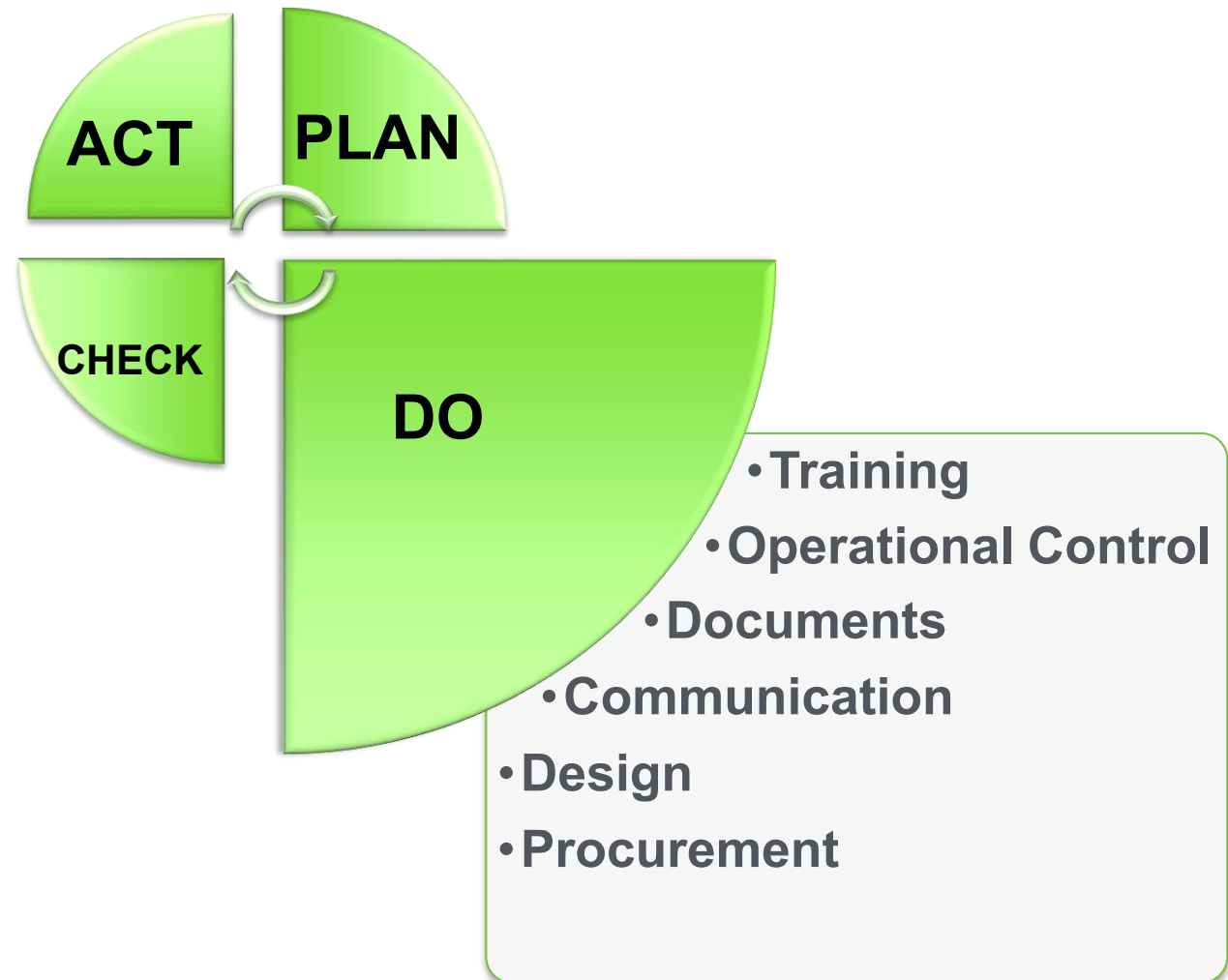
Continual Improvement Process

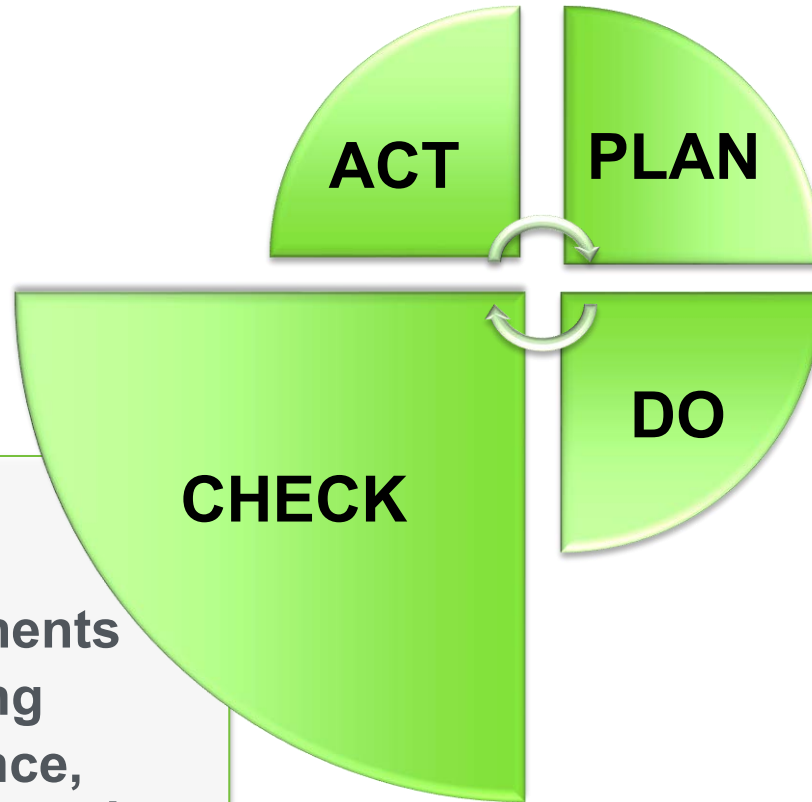
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W1-15

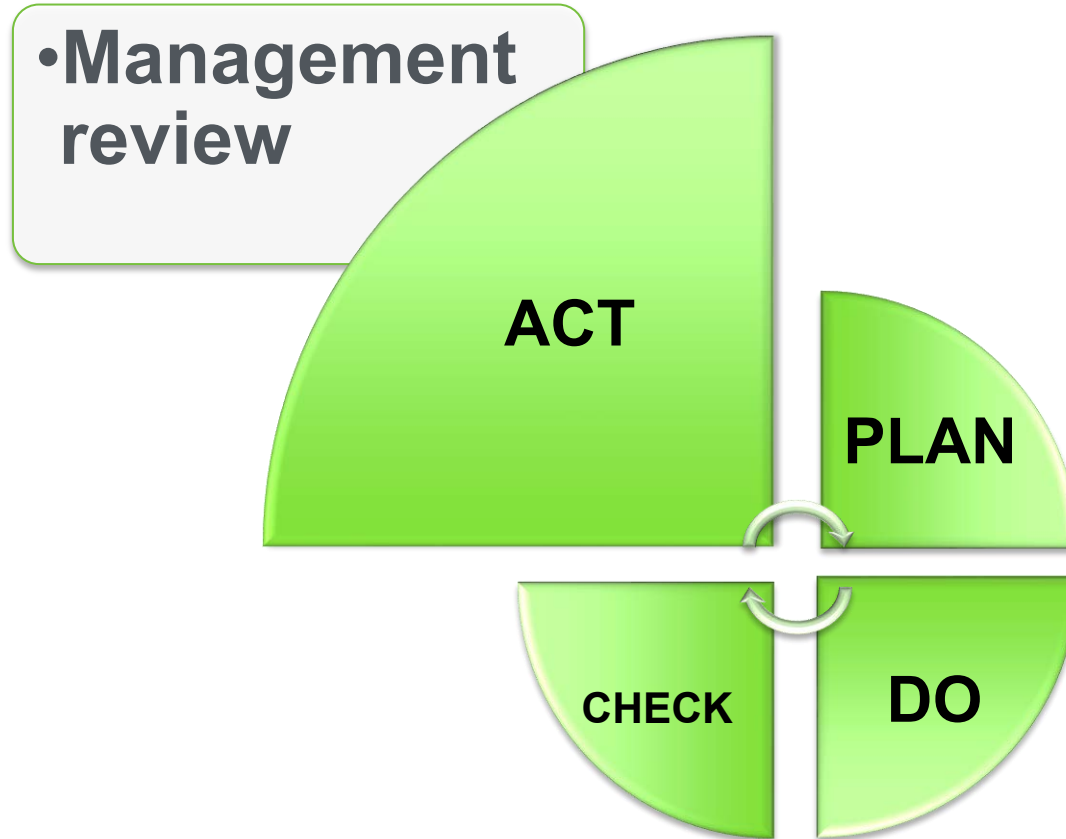






- Measuring, monitoring
- Legal requirements
- Internal auditing
- Nonconformance, corrective, preventive
- Records

W1-18



<https://save-energy-now.org/EM/SPM/Pages/Downloads.aspx>

W1-19

Case Studies- CCP



W1-20

- Assessments identified opportunities totaling 30% of system natural gas use.
- Short term actions and low cost investments have been implemented resulting in savings of \$40,000.
- The energy efficiency measures taken by CCP resulted in 31,700 MMBTUs of energy saved and allowed the company to capture \$250,000 in cost savings per year.

W1-21

Energy Reduction Goals.

- Freescale energy reduction goals for 2010 for the Oak Hill, TX Fab facility:
 - 2.5 M KWH in sustained project savings
 - 412 M KWH total energy consumption

The corporate goal is to reduce carbon footprint by 50% by 2015



W1-22

- Identified savings opportunities of
 - 1.1 million KWH/yr for pumping/chilled water
 - 0.4 million KWH/yr for compressed air
- Identified opportunities for improvement
- Shutdown unneeded chiller and pumps calculated annual savings is 754,000KWH.
- Baseline process led to identification of problem in heat transfer. Now applying to other systems.

W1-23

"The pilot program provided an opportunity to integrate our energy conservation efforts into a comprehensive energy management system. It led us to review the plant operating procedures, which we modified to emphasize energy efficiency. We have developed key performance indicators and control charts at the system level to understand how various factors impact our energy use. These tools are now used to drive continuous improvement in energy efficiency by evaluating the effectiveness of energy conservation projects and monitoring to ensure that improvements are sustainable."

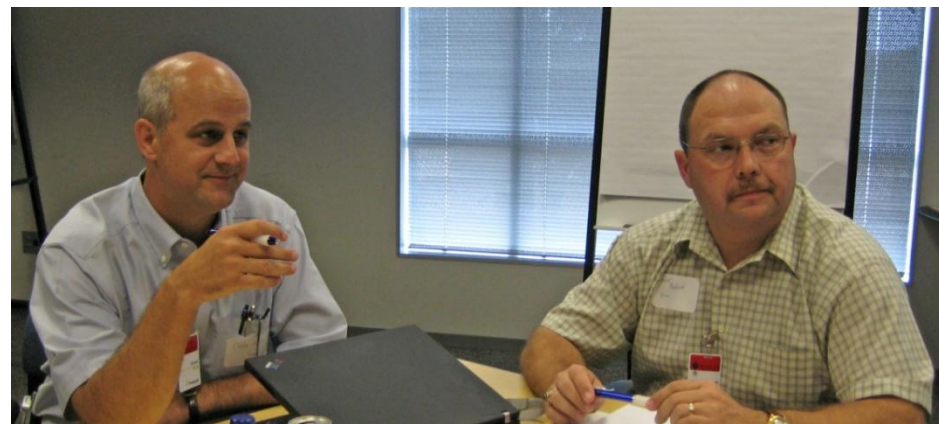
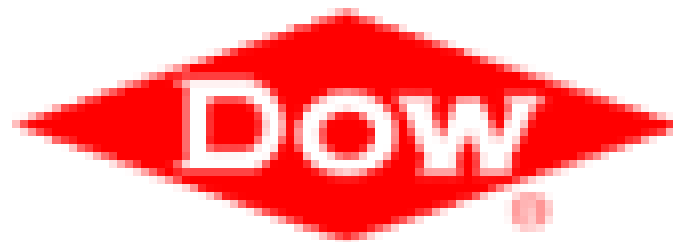
W1-24 Mark Krawczyk, Plant Services Engineer

From 1994 to 2010, Dow has saved 1,800 trillion BTU, equivalent to powering all residential buildings throughout California for more than one and a half years.

Dow's energy efficiency efforts have prevented more than 95 million metric tons of carbon dioxide from entering the atmosphere.

W1-25

The Company has also committed \$100 million to fund additional acceleration in energy efficiency projects at its sites around the world.



W1-26

<http://www1.eere.energy.gov/energymanagement/testimonials.html>

W1-27

- **Management Commitment**
- **Provide Resources**
- **Appoint Management Representative**
- **Establish an Energy Implementation Team**
- **Prepare an Implementation Plan**



- Management must:
 - understand the benefits of the system
 - be aware of the resources needed to implement and maintain the system
 - be prepared to provide those resources.
 - be visible and support EnMS development and maintenance

DOE eGuide References:

- Step 1.2 - Secure Top Management Commitment

Appoint a Management Representative

- Appointed by Management
- Responsible for ensuring the system is:
 - established
 - implemented
 - maintained
 - continually improved
- Communicated across the organization

DOE eGuide Reference:

- Step 1.2.2 Appoint a management representative



W1-30

- Identify and communicate resources needed
- Keep top management informed on the EnMS's performance
- Plan and direct energy management activities through the energy management team
- Ensure continual improvement processes are in place

Management Representative Desired Qualifications and Skills

- Leadership and interpersonal skills
- Project management
- Good communicator - both written and verbal
- Energy/technical background
- Problem solving
- Time management
- Organization



W1-32

Management Representative Positive Attributes

- Goal oriented
- Team builder
- Well-respected at all levels of the organization
- Either has authority or takes it
- Can handle setbacks
- Patient



W1-33



- Consists of members from a broad cross section of the organization.
- Members are approved by management
- Familiar with many aspects of business
- Lead by the Management Representative
- Responsibilities and authorities of team members are understood by team members and throughout the company

DOE eGuide Reference

- Step 1.2.3 Assign the members of the energy team

Desirable Traits and Skills of Team Members

- Possess technical expertise to perform or manage the activities for which he/she will be responsible
- Committed to active participation in the effort
- Not afraid of individual accountability
- Understand importance of meeting due dates

W1-35

- The management representative works with management to determine the timeframe to implement the system.
- The timeframe needs to:
 - Dovetail with other priorities of organization
 - Be consistent with business drivers
(Financial, Legal, Social, External, Internal)
 - Be in-line with strategic goals
 - Meet any customer required timeframe
 - Be realistic.



W1-36

- Provides the information needed by management to approve the required resources and schedule
- Provides the structure needed to enable the management representative to monitor the progress of the implementation
- Defines deliverables and milestones along the way
- Assigns roles, responsibilities and resources

W1-37

The implementation plan defines:

What - Who - When

DOE eGuide Step 1.3.2

4 Tools

https://save-energy-now.org/EM/SPM/Pages/Step1_3_2.aspx

W1-38

- Level of detail within the plan may vary
 - appropriate for the organization
 - size and complexity of the project
- Identifies the following as a minimum:
 - tasks and associated deliverable(s),
 - position responsible for ensuring each task is completed
 - other resource needs such as outside consultants, software or hardware
 - date each task and deliverable is to be finished.
- Format that organization uses for project management
 - Table, Microsoft Excel, Microsoft Word, Microsoft Project

W1-39

<u>What</u>	<u>Deliverable</u>	<u>Who</u>	<u>When</u>	
			Start	Finish
Establish Energy Policy	Approved Energy Policy	Management	May 1	May 15
Establish Energy Objectives	Approved Energy Objectives	Objectives Team	May 15	June 15
Conduct Internal Audits	Documented Audit Results	Internal Auditors	Sept 1	Oct 15

W1-40

- Developed with a clear understanding of the available resources;
- Involve employees throughout the organization;
- Make assignments that are appropriate to the person and to the time they have available;
- Provide realistic and achievable timeframes.

W1-41

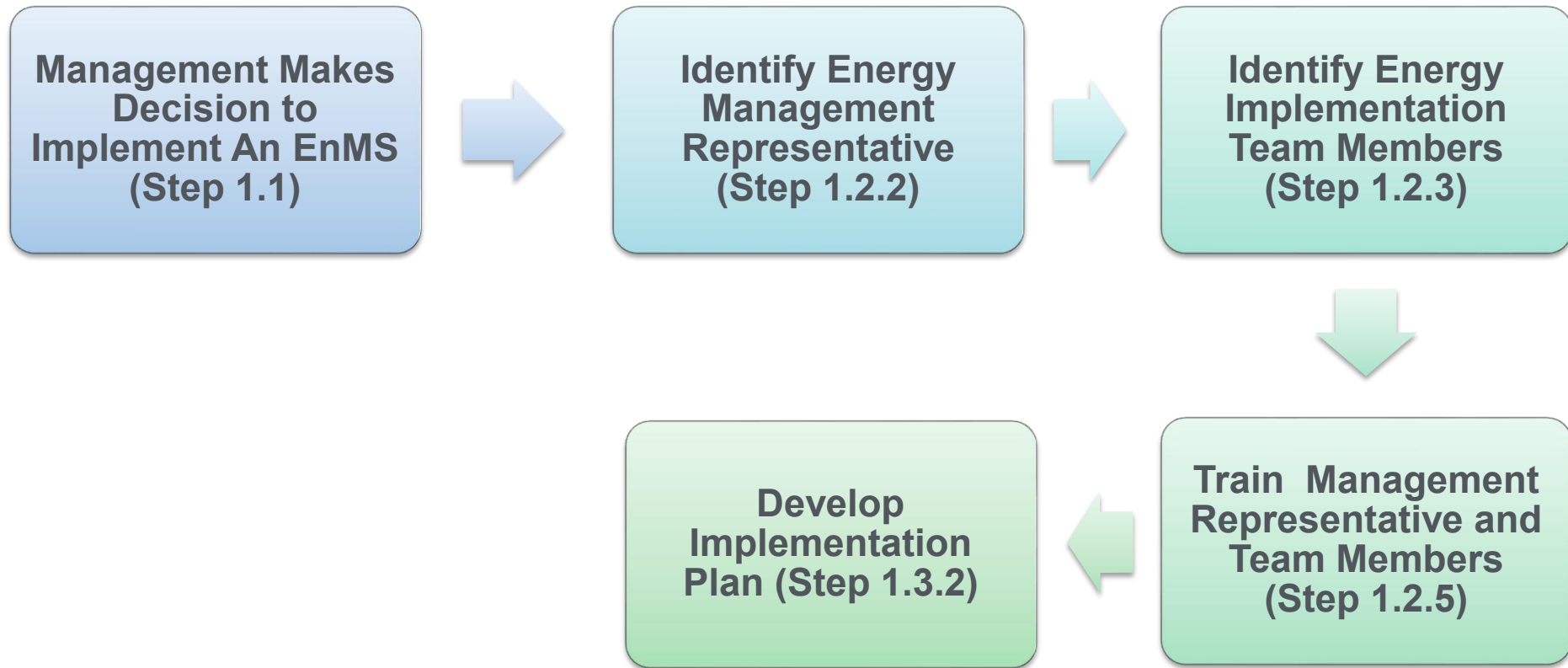
- Establishes expectations
- Ensures appropriate individuals are performing the tasks
- Decreases work duplication
- Improves efficiency of the organization and teams
- Decreases employee frustration

The implementation plan provides a roadmap for success.

W1-42

Implementation Plan Content

Plan = Get Ready



W1-43

- The implementation plan is of no value if it is out of date.
- Update it often to reflect the current situation
- Communicate changes to management, the energy team, and others who have responsibilities in the plan.
- Changes to the plan that affect schedule or resources need to be approved by management.

W1-44

Some obstacles typically encountered include:

- Insufficient resources or time
- Unclear or insufficient authority
- Supervisors or managers who have not bought into the process
- Doing it alone
- Conflicting priorities
- “Not my job” mentality



W1-45

The implementation plan helps prevent these obstacles by:

- Defining resource needs
- Setting schedules and priorities
- Assigning personnel responsibilities



W1-46

- Use the implementation plan
- The fact that a person has been given a task does not always mean they must **do** the task, but they must ensure the task is completed by the due date in the plan.
- It is imperative that the team members be held accountable for their roles and responsibilities.
 - Employee objectives
 - Employee bonus program
 - Annual evaluation of employee's work

W1-47

Monitor Progress Often

- Monitoring includes verifying the activities are on schedule and that the needed resources are available.
- Be proactive in your monitoring and focus on the future, not the past.
- Identify problems early and solve them as quickly as possible.

W1-48

- Some ways you can monitor progress are:
 - Review deliverables as they are completed
 - Receive status reports from team members
 - Hold periodic team meetings
 - Meet with individual team members
 - Send out reports

W1-49

Team Members and Responsible Personnel:

- Do not wait for meetings to report issues
- Notify management representative as soon as issue arises

Management Representative:

- Reports on status to management
- Identifies resource needs and priority issues to management
- Revises the implementation plan as needed
- Communicates decisions and revisions to Team and Responsible Personnel

W1-50

- Below are some questions you may want to consider when a deliverable will not be completed by the due date.
 - Is it possible to get back on track for due date?
 - Is the cause of the delay valid?
 - Is the proposed solution acceptable?
 - Does project plan need to be updated?
 - Does this affect the overall timeframe of the implementation?
 - What other tasks might this impact or delay?

W1-51

- Now that you know the status of the tasks, it is your job as management representative together with the energy team to assess the situation. Some questions to be considered at this point are:
 - Is the work progressing according to schedule?
 - Are the assignments appropriate?
 - Are the resources adequate?
 - Has there been a change in resources or priorities?
 - Is communication happening?
 - Are people getting trained?

W1-52

Suggested Activities

- ❖ Download the structure of the DOE eGuide
- ❖ Determine benefits from an EnMS that would be useful to your organization
- ❖ Plan to attend the next three (3) webinars



W1-53

- Web 1
 - Introduction to DOE eGuide
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 - Project Planning
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 - Action Plans
- Web 3
 - Communication
 - Monitoring and Measurement
 - Checking the System
 - Internal Audit
- Web 4
 - Act
 - Management Review
 - Lessons Learned

W1-54



W1-55

Advanced Manufacturing Office

WC 4-18-12

eere.energy.gov

Thank You

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



W1-56

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