Management Systems Overview

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Management System Overview

- What is an Energy Management System (EnMS)
- Benefits of an EnMS
- Tools and Resources
- Assessing where you are
- Building your energy team and support
- Crafting Energy Policy and Goals

Brain Teaser

With a partner you don't know, answer the following questions:

- What are a couple examples of energy improvement projects (done or ideas)?
- What are 2 to 3 Energy Goals you would like for your facility?
- In 1 – 3 sentences or phrases, what is an energy management system?

Why a management system?

Signs you may need a better management system….

- Have difficulty keeping momentum after one project
- Only a couple people involved
- Energy improvement is project-by-project – not integrated
- No follow-up checking to see if projects are still working
- Lots of good project ideas, but no way to prioritize the most important

Energy Management System
PDCA Cycle

PDCA – What does it mean?

Manage Projects

- **Plan** Projects
- **Do** Projects
- **Check** Project Progress
- Conduct strategic **review** of project

Manage Process

- Create **planning process** (SMS core team, etc.)
- Develop/Maintain **support programs** (e.g. training, communication, documentation)
- **Check** system (data collection/metrics, audits)
- Strategic **review** of system

Example Management Systems

- Budget process
- Quality (ISO 9000)
- Environmental improvement (ISO 14000)
- Energy efficiency (ISO 50001)
- Sustainability integration

ISO 50001 EnMS - Elements

ENERGY POLICY

PLAN

- Energy Assessment
- Legal and Other Requirements
- Baseline and EnPIs
- Objectives, Targets, and Action Plans

DO – Implementation

- Training & Awareness
- Communications
- Documentation and Control of Documents

DO - Implementation – cont

- Operational Controls
- Design and Procurement

CHECK - Monitor

- Monitoring and Measurement
- Evaluation of Compliance
- Corrective & Preventive Action
- Control of Records
- Internal Systems Audit

ACT - Review

- Management Review

Management System Levels

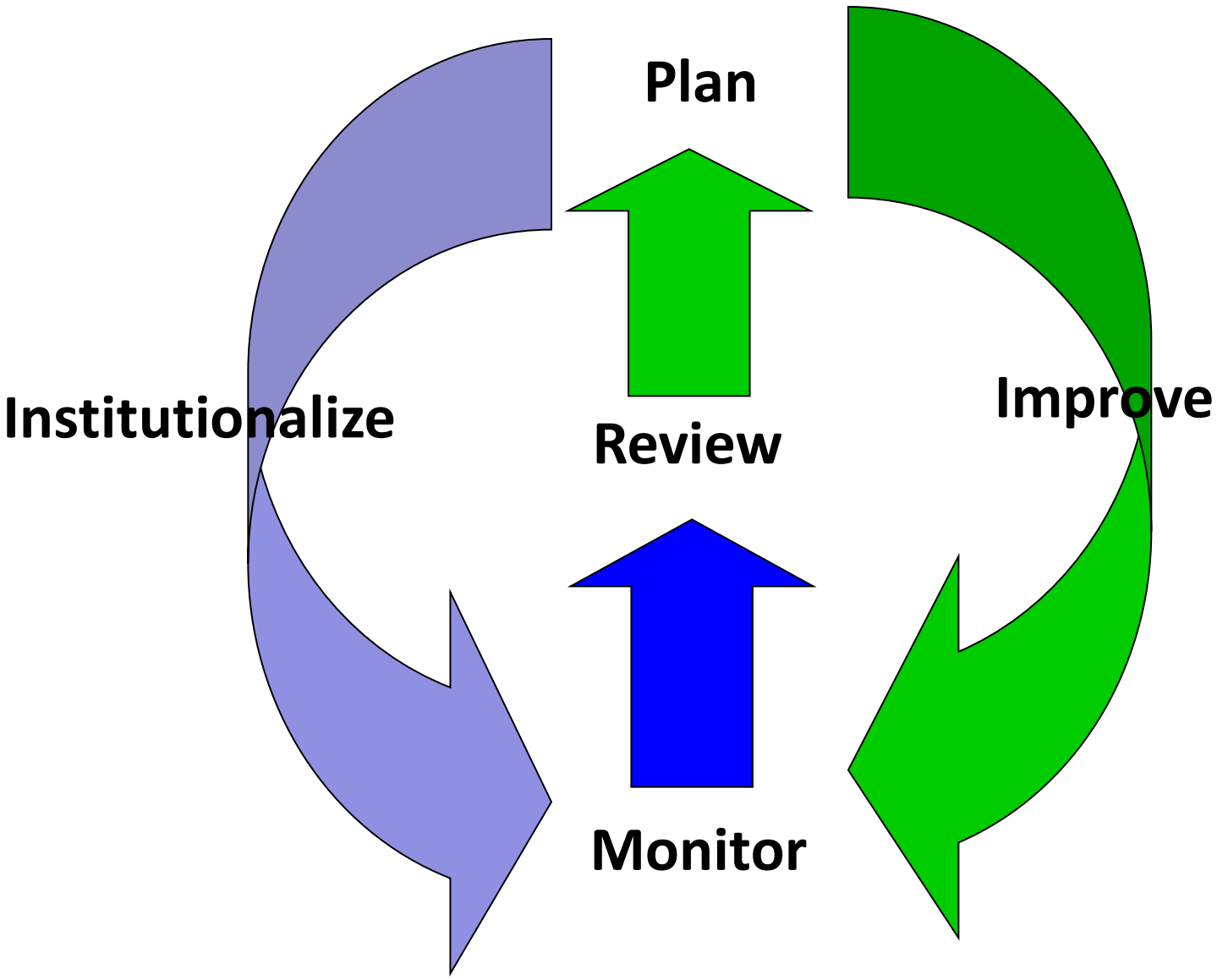
- **Pilot Level**
  - Use system parts to support individual projects (e.g.: plan project, do project, measure and monitor results, review for improvements for next project)
- **Initiative Level**
  - Start developing system elements to manage process (e.g.: develop planning process, create training to broaden understanding)
- **Integration Level**
  - Integrate process into core business systems (e.g.: planning with regular annual budget process, training part of regular employee training programs)

Management System - defined

~ Intention ~

- A **powerful** tool that allows an organization to ***intentionally*** **integrate**
  - diverse environmental issues,
  - community commitment and
  - sustainability goals into regular business.
- A framework for prioritizing and implementing goals, polices and procedures
- The success is due to:
  - the engagement of **all employees**,
  - effective **planning**,
  - supporting **metrics** and
  - **clearly defined roles** from top management to staff.

Another picture of an EnMS



Energy Policy

We Care About Energy

Decrease Energy by 25% in 10 yrs

Use Less Energy Every Year

Zero Net Energy in 5 yrs

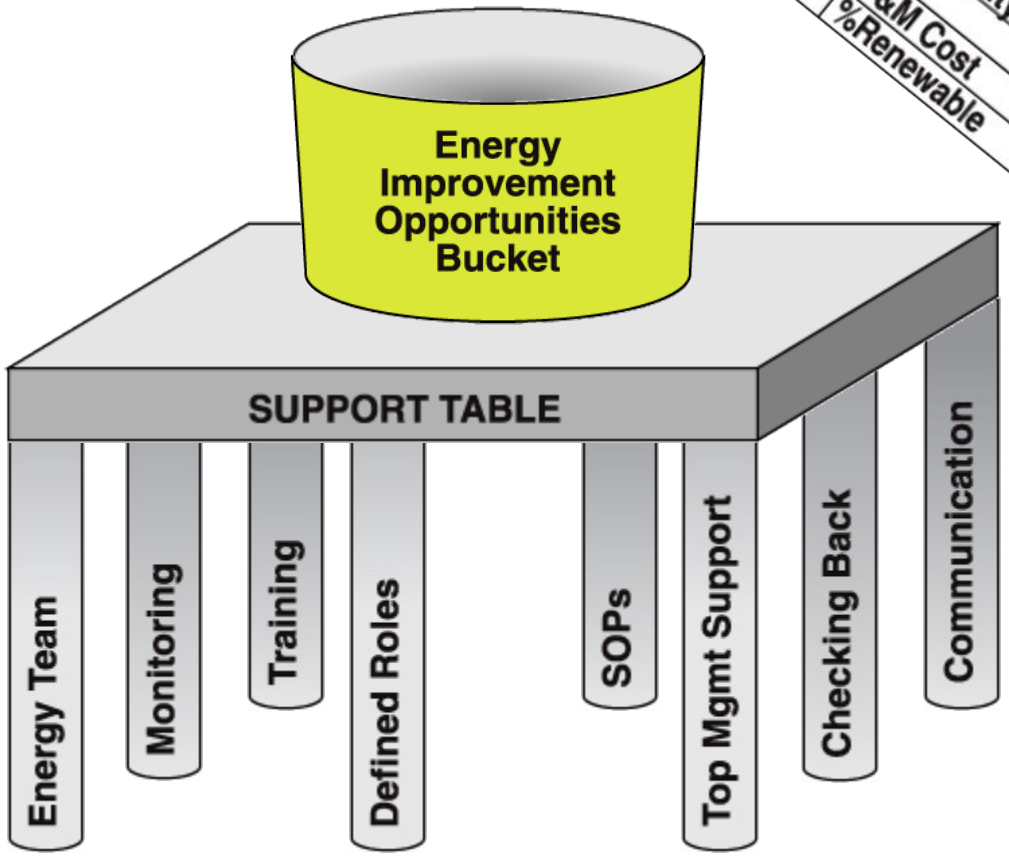
Suggestions

EMS Audits

Contractor & Vendor Ideas

Energy Audits

Incentives



Potential Energy Savings	Reliability	ROI	O&M Cost	%Renewable

Work session: in small groups

(From EPA's Energy Management System Guidebook p. 16)

Energy Use *[type]*	**Completed Projects or Programs**	**Results** *($$, gallons, kWh, normalized if possible)*	**Who did you communicate results to?**	**Were there associated SOPs, training records?**

Communicate results

- Set up regular monthly communications
  - For top management
  - All employees
- Make Communication 2-way

Benefits of a System

- Moves from single ad hoc energy projects to an integrated approach
- Provides a framework for moving towards energy independence
- Is proactive rather than reactive
- Involves everyone with energy improvements
- Uncovers cost saving ideas
- Transfers learning from project to project

Benefit: Flexible Framework

- Utility-specific energy management system (EnMS)
  - *Plan, Do, Check, Act* system
- Unique to each utility
  - Energy goals
  - Necessary procedures
  - Tracking and reporting
  - Training
  - Review

Tools and Resources

EPA Energy Management Guidebook

- PLAN
  - Session 1 through 4
- DO
  - Session 5
- CHECK & ACT
  - Sessions 6 and 7

US DOE Website Tools

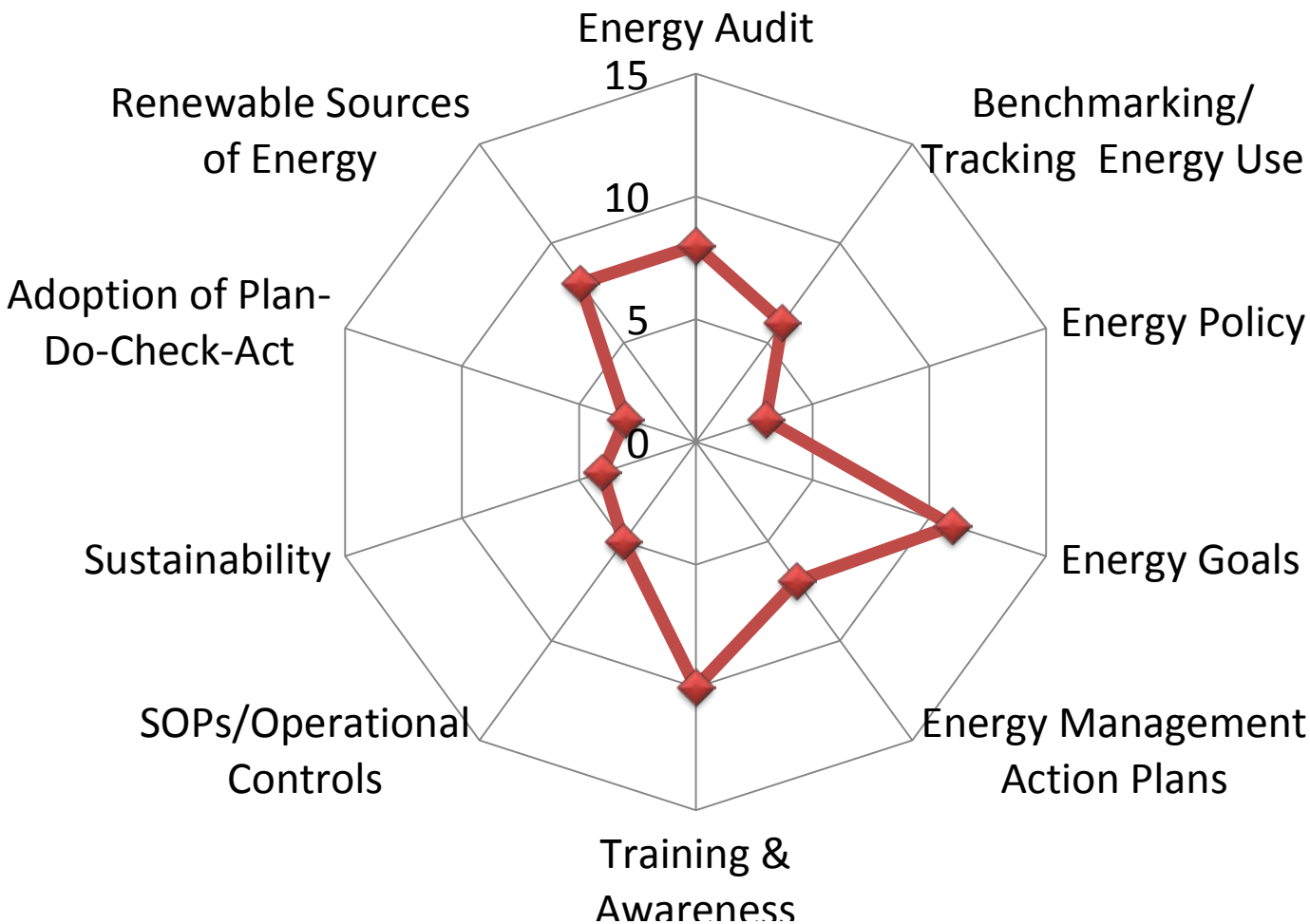
- https://save-energy-now.org/EM/tools/Pages/HomeTools.aspx
- US DOE eGuide Lite: https://save-energy-now.org/EM/SSPM/Pages/SSPM_UserHome.aspx
- US DOE eGuide: https://save-energy-now.org/EM/SPM/Pages/Home.aspx
- Others: motors, pumps, Plant energy profiler (PEP)

Assessing Where You Are

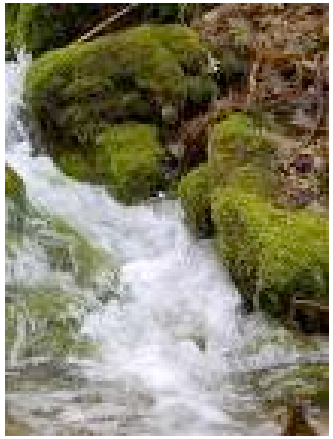
Assessment Tool - Radial (Spider) Diagram

- 10 energy **management system** topics
  - E.g. Energy goals, training, audits
- Three questions per topic
  - Answers gradational from 1 to 5
- Transfers results to Radial Graph
- Perform assessment at beginning and end of program

Assessment Tool - Radial Plot



Building your energy team and support



Energy Program Leadership

Who is the Energy Team Leader?

- The clearly identified team leader who has responsibility for the EnMS implementation from start to finish

- and -

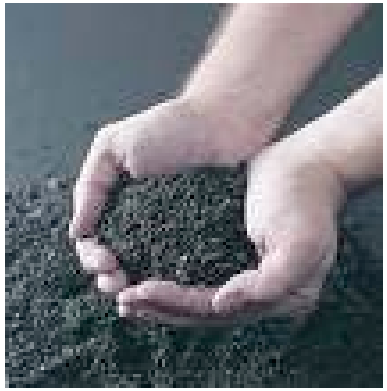
- has the designated **authority and support** from top management to get the job done.

Typical Team Leader Responsibilities

- Build and lead the EnMS Team
- Delegate tasks and establish deadlines
- Report to top management
- Facilitate top management involvement

Difficult Situations

- Lack of upper management support
- Unclear or insufficient authority
- EnMS team leader decides to do it alone
- Lack of time and/or resources
- Employees brought in at the last minute



Lessons Learned

The Team Leader….

- Needs authority that matches responsibility
- Communicates “good news” regularly
- Builds a business case
- Asks for assistance
- DELEGATES

Create your Energy Team

With a partner answer the following questions:

- What are 2 to 3 important features of your energy team?
- How many people?
- What type of job functions?
- What type of personalities?
- How often would you meet? For how long? (Combine with other meeting(s) or be separate?

What is an Energy Team?

- Appropriate facility staff and management personnel
  - from up, down, and across the organizational structure
  - representing virtually every function in the “fenceline”
  - chosen for their skills and aptitudes related to developing an EnMS
- The EnMS **experts** and champions in each functional area
- The organization’s ***change agents***

Core Team - Roles & Responsibilities

- Coordinate involvement and participation by others
- Be advocates for energy performance improvement
- Gather, organize, and disseminate information
- Facilitate change in the organization

Roles and Responsibilities

EnMS Implementation

- Executive Sponsor
- Top Management
- Team Leader
- Implementation Team
- Everyone else

EnMS On-going Operations

- Top Mgmt Involvement
- EnMS Mgmt Rep.
- Energy Team
- Everyone else

Key support: Top Management

- Communicates energy commitment and vision consistently across the organization - <u>regularly (not once)</u>
- Commits necessary resources
- Let the staff see Top Management engaged in Energy Management System (EnMS) work
- Conducts frequent reviews
- Publishes and rewards good work

Top Management Commitment

- **Involvement = Commitment = Results**
- Executive Sponsor
  - Visibly represents top management
  - Demonstrates on-going commitment
  - Enables energy team to be successful - breaks road blocks

Lessons Learned

- Top management often thinks this can be done ***for them*** without **their involvement**
- Top managers need training
- Whatever management decides is a **priority** for the organization **gets done**
- **Regular** “good news” **communication** promotes interest and involvement

Crafting Your Energy Policy and Goals

Energy Policy

- Commitment to energy improvement
- Aligned with your other utility goals

- Involve employees in process
- Keep it simple
- Identify your scope
- Communicate

Energy Policy Review

In small groups look at the example policies :

- Choose favorite – why
- Least favorite - why

Energy Fenceline or Scope

- What is “in” and what is “out?”
- Where will your goals be applied
- Focus on entire operations or just one major operation
  - Collection?
  - Treatment?
  - Bio-solids?
  - Major contracted operations
- Considerations
  - Energy use
  - Cost
  - Degree of control
  - Planned upgrades

Employee Buy-in

- Communicate communicate
- Involve involve involve
- Early…in the middle….ongoing…
- Examples:
  - Kick off meetings
  - Monthly updates and Signage
  - Awareness on importance to all staff
  - Solicit input – energy savings ideas
  - Communicate early successes

Establish energy goals

- BHAGs - Big Hairy Audacious Goals
  - “Achieve energy independence by 2018”
  - Improve energy intensity by 25% in 10 years
  - Demonstrate leadership & set example to others
- SMART Goals
  - Specific
  - Measureable
  - Achieveable
  - Realistic
  - Timely

EnMS Deliverables

- Identify and report on Energy Champion and Energy team (who and meeting schedule)
- Executive Sponsor engagement (presentation about this session and program – sample provided)
- Finalize and have approved the Energy Policy
- Review Spider assessment diagram with Energy Team and finalize

Wrap up

- Management systems – not rocket science
- You already have many parts of the system
- Develop appropriate level of sophistication for your facility
- Keep your low hanging fruit from growing back