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**PCRA**  
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# ISO 50001: Implementation Challenges & Intro to its Family



# The Flow

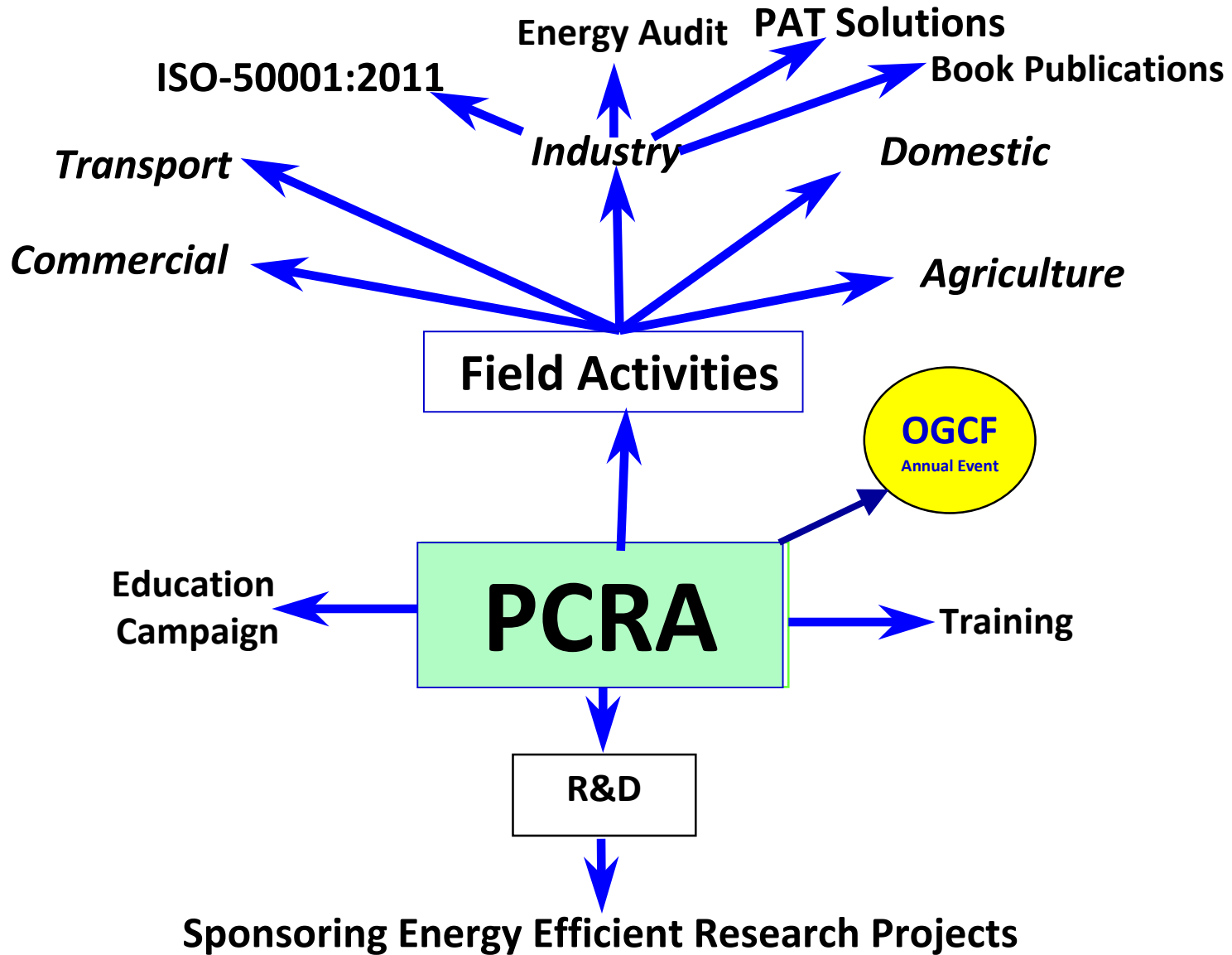
- ❑ Our Brief Intro
- ❑ Approach to EC
- ❑ Barriers to greater Energy Efficiency
- ❑ PDCA Approach to EnMS
- ❑ System Implementation Bottlenecks.
- ❑ Way Out
- ❑ Intro Other Family Members of ISO50001

# Emergence of PCRA

- ▶ **1973** : **OIL CRISIS WORLD OVER**
- ▶ **STUDY TEAM** : **ENGINEERS FROM IOC, NPC, DGTD ESTIMATED HUGE OIL CONSERVATION POTENTIAL IN INDUSTRIES & STUs**
- ▶ **STUDY RESULTS** : **CONSERVATION POTENTIAL OF 20 - 30%**
- ▶ **6<sup>th</sup> JAN'76** : **PETROLEUM CONSERVATION ACTION GROUP (PCAG) FORMED**
- ▶ **10<sup>th</sup> AUG'78** : **PCAG RECONSTITUTED AS "PETROLEUM CONSERVATION RESEARCH ASSOCIATION" (PCRA) AND REGISTERED AS A SOCIETY UNDER MOP&NG**



# PCRA Activities



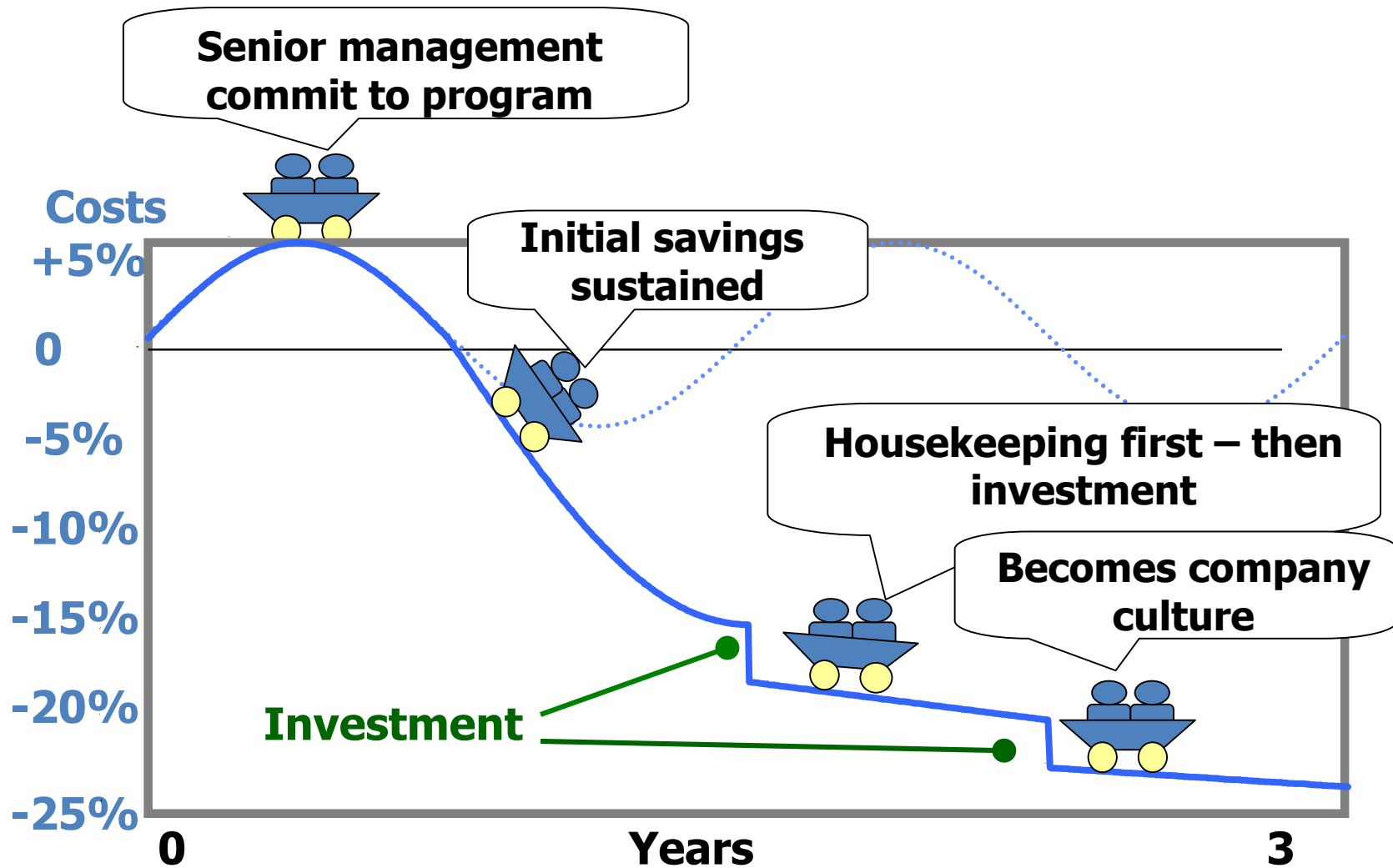
# PAN-India Presence



# Ad hoc approach



# Structured Approach with Energy Management System



Source: UNIDO 2010

## Why an Energy Management System

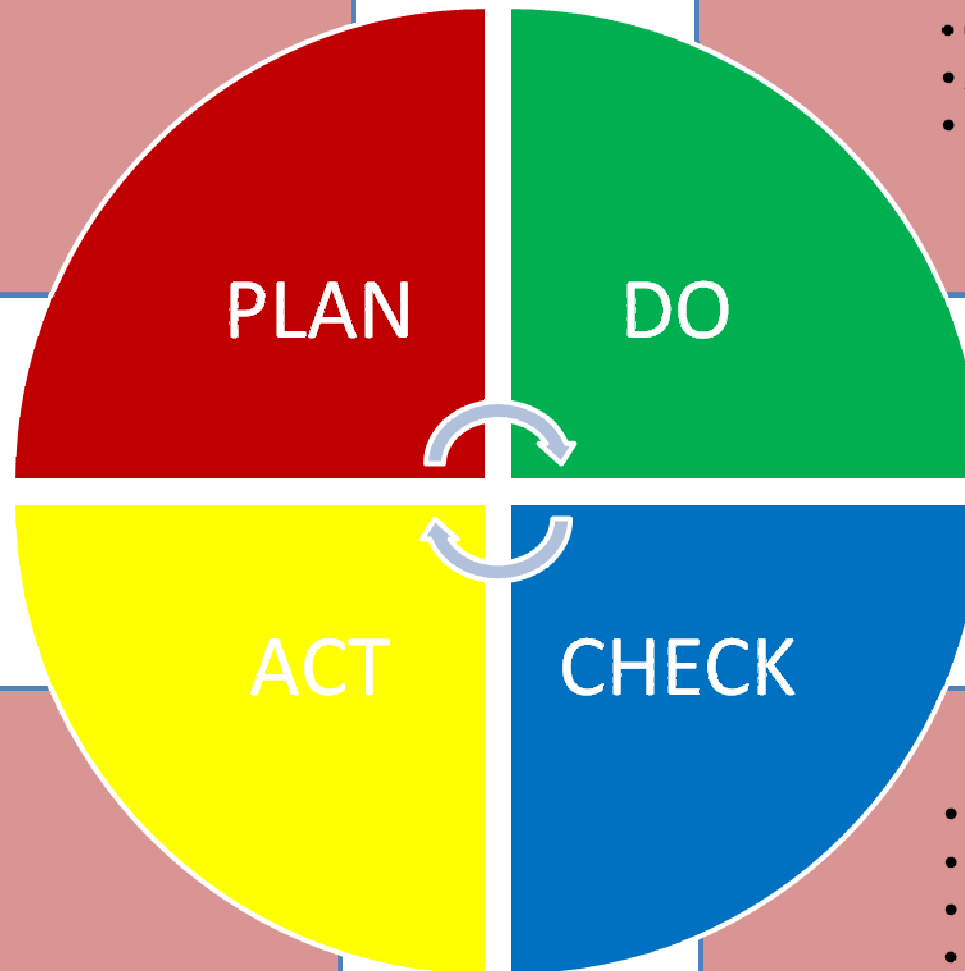
- ❑ Strengthens management focus on energy
- ❑ Creates awareness/encourages commitment across a company/organization
- ❑ Introduces and sustains a systematic approach to efficiency
- ❑ Requires management commitment of resources appropriate to the goals of the EnMS
- ❑ Is based on measurement
- ❑ Provides continuity through changes in personnel  
Attitude



# Energy Management System Approach:PDCA

- Responsibility of top management
- Energy Policy
- MR
- Energy Review
- Objectives & Action Plan

- Implementation & Realization
- Communication & Training
- Awareness
- Operational Control



- Management Review
- New Strategic goals
- Optimization
- Continual Improvement

- Monitoring & Analysis
- Corrective Action
- Preventive Action
- Internal Audit

## What we offer as implementation consultant

- **Gap Analysis** – Identification of Energy aspects and its evaluation to determine the severity of impact.
- **System Development & Documentation**– Providing templates and necessary guidance to core team in documentation as required by the standard for maintaining an effective EnMS.
- **Implementation of documented EnMS**– Providing guidance for the implementation (infrequent visits during implementation)

## What we offer as implementation consultant

- **Conducting one cycle of EnMS Internal Audit** and provide guidance for initiating corrective action for the reported audit findings in form of NCs
- **Provide guidance for conducting Management Review** in accordance with the requirements of the standard.
- **Provide guidance for initiating corrective action** for the external audit findings reported by the certifying body.
- **Trainings:**
  - (a). Awareness Training: 3 tier.
  - (b). Internal Auditors Training
  - (c). Training for MRM

## Why PCRA

- **PCRA is a Non Profit organization working under the aegis of MoP&NG.**
- **We are into EES for more than 35 years for which EnMS is made.**
- **PCRA provides EES thru PAN INDIA presence.**
- **PCRA has a Team of 25 certified Energy Auditors with 4 Accredited EAs and 8 nos ISO-50001:2011 EnMS Lead Auditors, who have been associated in Energy Efficiency Studies across industrial sectors of varying capacity.**
- **A large number of industries have realized huge savings in energy consumption through studies done by PCRA.**

## Why PCRA

- **Strong Training Capabilities:** completed energy conservation training for ONGC mgmt and non-mgmt staff for approx. 12000 nos during last three years which was well appreciated by ONGC management.
- **Successfully completed ISO-50001** Assignments-BPCL Refinery, Uran LPG Plant, NR&SR Pipeline Div of IOCL. Cipla(3 units),BORL. **In hand-** Cochi Refinery, 9 LPG/Lube Locations of BPCL & HP, GAIL
- **Auditing IOCL Gujarat Refinery** third time in a span of 5 years.

# Certified Organizations thru PCRA



# Energy Conservation & System challenges

# Barriers to Energy Efficiency

- ❑ Management focus is on production and not on energy efficiency
- ❑ Lack of information and understanding of financial and qualitative benefits
- ❑ First costs are more important than recurring costs → disconnection between capital and operating budgets
- ❑ Lack of technical training on systems of energy efficiency (energy and management)
- ❑ Technical knowledge exists but resides with individuals rather than with the organization → sustainability risk
- ❑ Poor monitoring system and data for overall operations



# Energy Conservation challenges

- Energy at subsidized prices
- Theft
- Culture of extravagance and waste
- Lack of energy competency
- Lack of market support to energy technology
- Fears of compromising the production
- Legislation to impose or promote energy efficiency
- Shortage of energy metering and control systems
- Decision Taking on cost not on value

# MR

- **Junior Cadre Reporting to Middle Mgmt Cadre**
- **Poor Leadership/Co-ordinating Capability**
- **Overloaded with line job**
- **No Adequate Support**

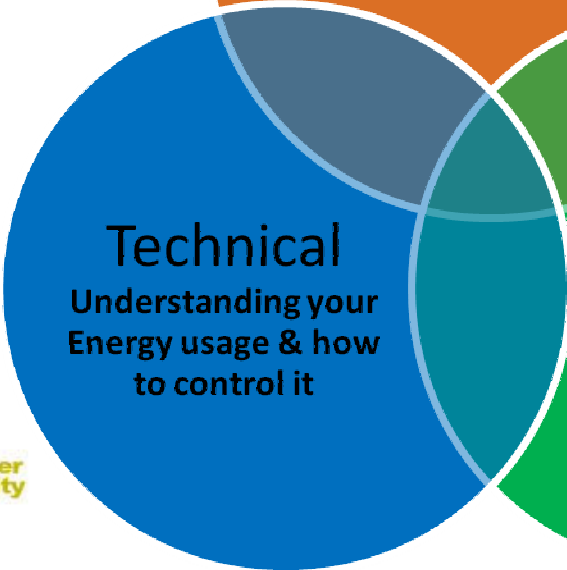
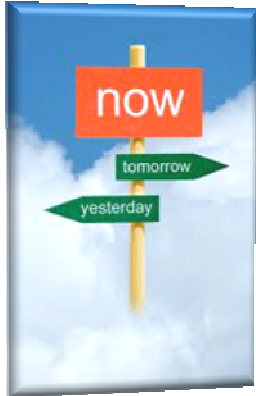
# Man power Availability

- Major emphasis on training for ISO 50001
  - Installations are running 24\*7 – Availability of Manpower is main constrain
  - Turnover of Trainees
  - Co-ordination issues
  - Comfort Zone Encroachment

# Top Management Support

- Many times its poor.
- Provide Inadequate time to MRM
- Poor support in integrating System 3-Pillars

# System Failure



# Many Management Systems

- Numbers of systems are in place
  - Resistance to one more new system
  - No faith in the system.
  - Adds additional job Measurements & Targets
  - Resistance to Change

Oh! One More System.



# Purchase

- ISO 50001 suggests for Energy efficient Equipment
  - Existing Govt. L1 Policy
  - Resistance from Purchase and Finance Department.
  - Necessary to change Purchase policy based on LCC.
  - Availability of Limited Vendor. Require purchase from Single Party.



# Way Ahead

## *Optimum Requirements*

optimize comfort zone; design to capacity;  
avoid oversizing; bigger is not always better

## *Flexible Design*

single machine cannot do everything; provide  
flexibility to accommodate variability; VFD is a  
feasible option

## *Efficient Equipments*

consider LLC; energy efficient equipment may  
have higher initial cost but lower operating  
cost

## *Effective Monitoring*

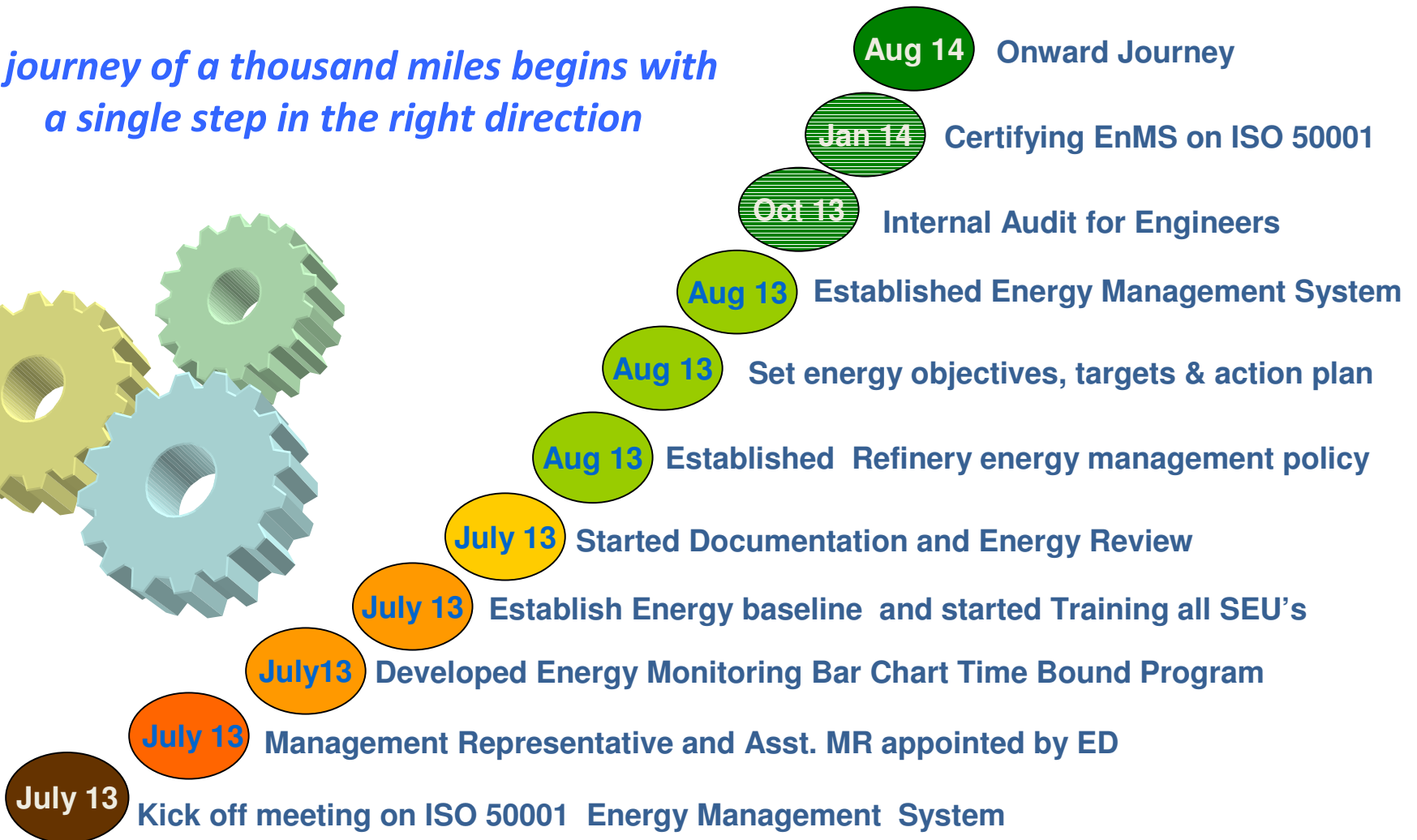
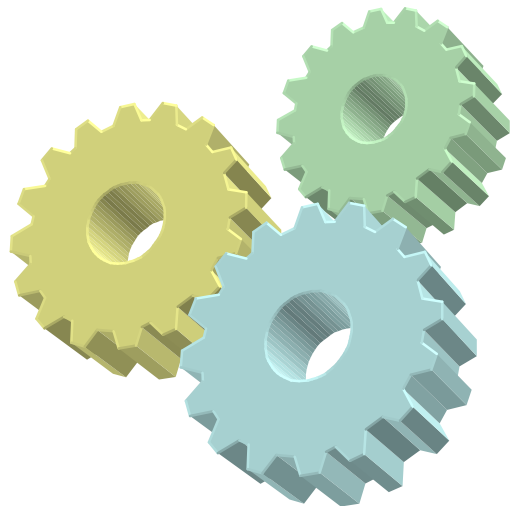
run systems at best efficiency; stop when not  
required; nothing consumes less than a turned  
off device

## *Competent People*

people make or brake systems; people are the  
brains behind system success

# BPCL EnMS journey

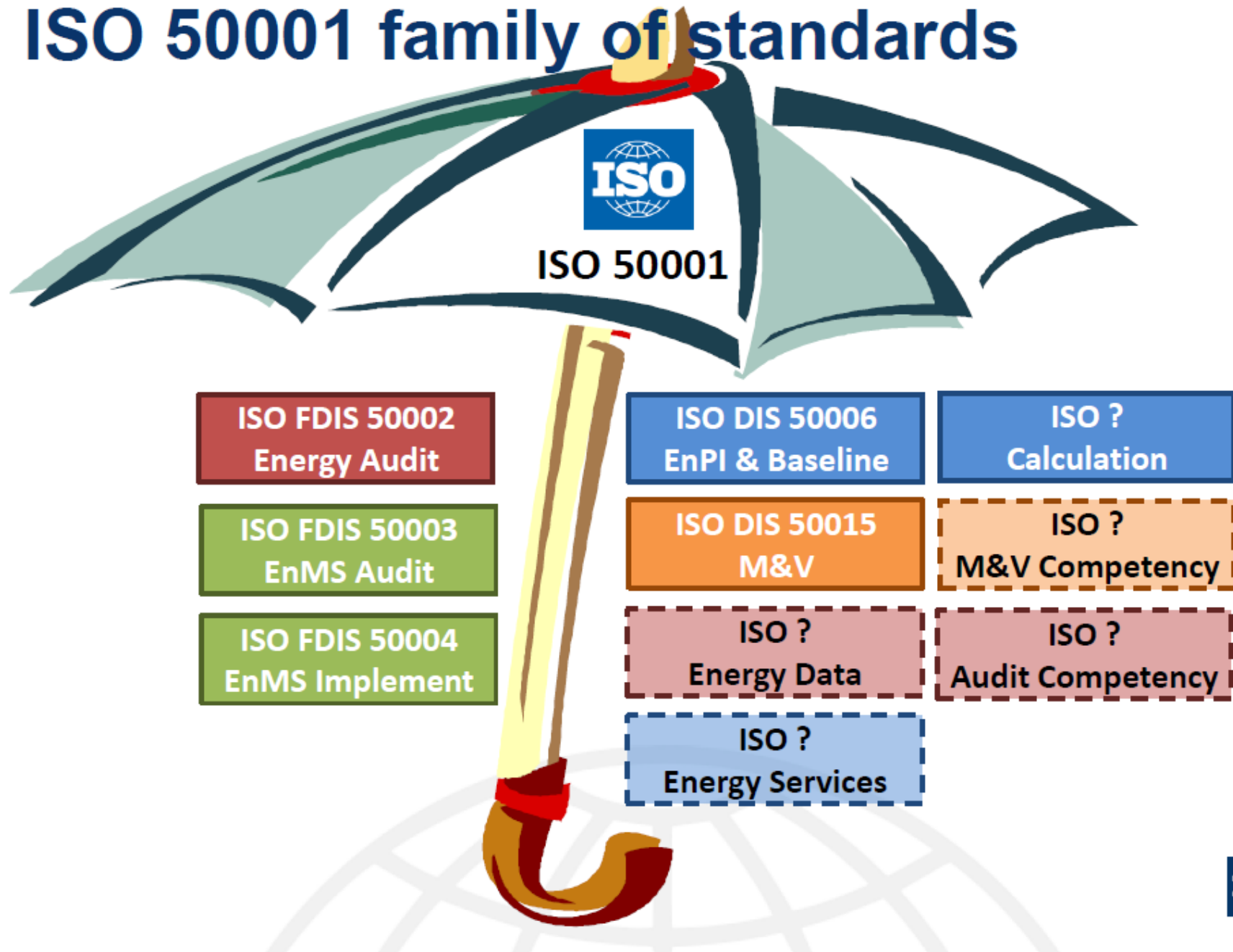
*A journey of a thousand miles begins with a single step in the right direction*



# Lets Meet Other Family Members



# ISO 50001 family of standards



## **Scope:ISO 50002**

- This International Standard applies to an EA carried out in relation to energy performance and specifies the requirements, common methodology and deliverables for energy audits. It applies to all forms of establishments and organizations, all forms of energy and uses of energy.
- Covers the general requirements common to all EA.
- Does not address the requirements for auditing an organization's EnMS: these are described in ISO 50003.

# **Scope:ISO 50002**

## **Applicability of an ISO 50002 energy audit to an ISO 50001;**

- ISO 50002 helps in developing energy review and energy performance.**
- The use of an energy audit is not a requirement for ISO 50001, other procedures may be utilized to complete the energy review or demonstrate energy performance improvement.**
- ISO 50001 do not require audit to be in accordance with ISO50002 unless specifically designated by the organization.**
- Additionally, an energy audit may be conducted without the intention of providing information for an ISO 50001 energy review and energy performance.**
- Using consistent Method can facilitate Apple-to-Apple benchmarking across similar sites.**

## **Scope:ISO 50003**

### **EnMS-Requirements for bodies providing audit and certification of EnMS**

This International Standard specifies requirements for competence, consistency and impartiality in the auditing and certification of ISO 50001EnMS for bodies providing these services. In order to ensure the effectiveness of EnMS auditing, this International Standard addresses the auditing process, competence requirements for personnel involved in the certification process for energy management systems, the duration of audits and multi-site sampling. The requirements of ISO/IEC 17021 also apply to this International Standard.

## **Scope: ISO 50004**

### **Guidance for the implementation, maintenance and improvement of an EnMS**

- This International Standard provides practical guidance and examples for establishing, implementing, maintaining and improving an EnMS in accordance with the systematic approach of ISO 50001.
- The guidance in this International Standard is applicable to any organization, regardless of its size, type, location or level of maturity.
- This International Standard does not provide guidance on how to develop an IMS.
- While the guidance in this International Standard is consistent with the ISO50001EnMS model, it is not intended to provide interpretations of the requirements of ISO 50001.



## Scope: ISO 50004

This International Standard provides guidance to users with varying levels of energy management and EnMS experience, including those:

- with little or no experience of energy management or management system standards;
- undertaking energy efficiency projects but with little or no EnMS experience;
- having an EnMS in place, not necessarily based on ISO 50001;
- having experience with ISO 50001 and looking for additional ideas or suggestions for improvement.

# Scope: ISO 50006

## EnMS-Measuring energy performance using energy baselines (EnB) and energy performance indicators (EnPI)-General principles and guidance

- This International Standard provides guidance to organizations on how to establish, use and maintain EnPIs and EnBs as part of the process of measuring **Energy Performance**.
- The guidance in this International Standard is applicable to any organization, regardless of its size, type, location or level of maturity in the field of energy management.

# Scope: ISO 50015

## Measurement and Verification of Organizational Energy Performance - General Principles and Guidance

The purpose of this International Standard is to establish a common set of principles and guidelines to be used for M&V of organizational energy performance. M&V adds value by;

- Increasing the credibility of energy performance results. Credible results facilitate continued pursuit of energy performance improvement.
- This International Standard can be used irrespective of the energy sources used.
- This International Standard can be used by organizations with or without EnMS, for the M&V of energy performance, or for the M&V of changes in energy performance.
- Used for all or part of an organization or to specific actions within an organization.



**Wait for More**



# Questions

YOU ARE WELCOME