

# THE ENERGY MANAGEMENT SYSTEMS ACCORDING TO THE GLOBAL STANDARD, En.M.S. ISO 50001\*

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**ABSTRACT**

In all countries, the electricity is considered the way to the progress and welfare of the society. Electricity plays the main role in the development of the country.

The easy use and consumption of electrical energy in its stages generation, transmission and distribution lead to a large challenge for achieving the needs of the country for this the international organized for standard (ISO) had issuer different systems for The Quality Environment and finally for the energy.

ISO 50001 Standard, for energy management system, it contains the procedures and the instructions for any organization want to have a system for the energy.

## ENERGY MANAGEMENT

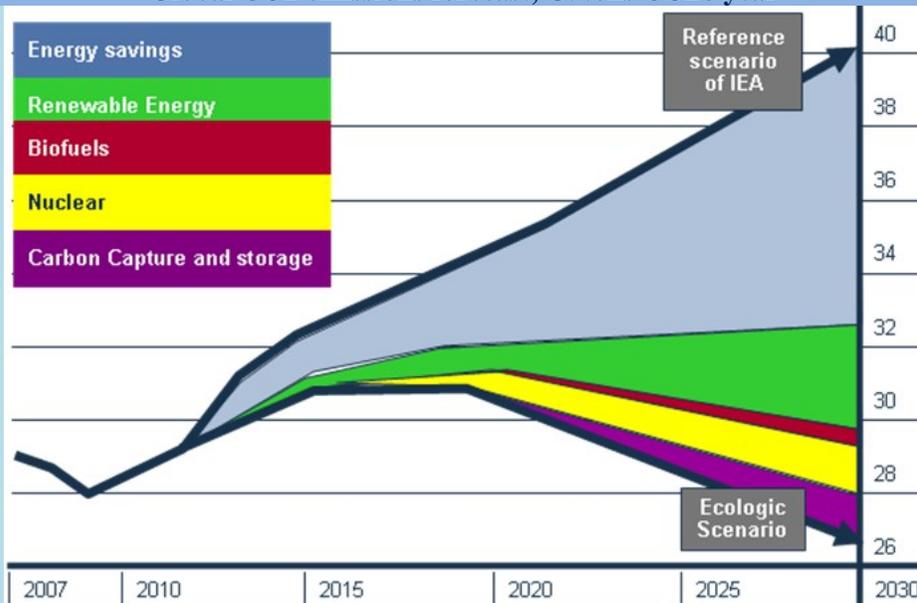
“The judicious and effective use of energy to maximize profits (minimize costs) and enhance competitive positions”

“The strategy of adjusting and optimizing energy, using systems and procedures so as to reduce energy requirements per unit of output while holding constant or reducing total costs of producing the output from these systems”

## OBJECTIVES OF ENERGY MANAGEMENT

- To achieve and maintain optimum energy procurement and utilization, throughout the organization
- To minimize energy costs / waste without affecting production & quality
- To reduce import dependency
- To enhance energy security, economic competitiveness, and environmental quality

**The weight of Energy savings compared to other technologies  
Global CO2 emissions forecast, G. tons CO2 / year**



Source International Energy Agency - 2009

\*PRESENTED IN THE CONFERENCE ENERGY MANAGEMENT DEMAND IN EGYPT AND ARAB COUNTRIES, CAIRO 13-14 NOV, 2016

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## ISO 50001: ENERGY MANAGEMENT SYSTEMS STANDARD-INTRODUCTION

### ISO 50001- The International Standard for Energy Management Systems (EnMS)

The Draft International Standard was released in April 2010 and was ready for publication by mid 2011.

Energy Management Systems offers a comprehensive and structured approach for energy efficiency improvement.

ISO/FDIS 50001: 2011(E) defines EnMS as “set of interrelated or interacting elements to establish an energy policy and energy objectives, and processes and procedures to achieve those objectives”.

Applicable to any organization, whatever the size, industry or geographical location

An organization embracing ISO 50001 is likely to further accelerate adoption of energy efficiency practices and to continuously improve its energy performance and cost.

Application of the standard can be tailored to fit the requirements of the organization, including degree of documentation, resources and complexity of the system.

This International Standard can be used for certification/registration and/or self-declaration of an organization's energy management system.

The fact that it's based on measurement and verification will help organization stay on track to meet their declared energy policies.

#### Adoption of ISO 50001 by any organization will:

- Reduce energy bills.
- Make manufacturing more sustainable.
- Promotes energy efficiency throughout the supply chain
- Helps in meeting National GHG reduction targets

### Need for ISO 50001

#### Need to minimize fossil fuel use and mitigate GHG

Fossil fuels such as coal, petroleum, and natural gas make up the bulk of the India's primary energy sources and, their consumption is a major source of greenhouse gas emissions, leading to concerns about global warming if not used efficiently .

#### Need to adopt Energy Management

With India's demand for energy growing, the need to adopt alternative approaches (like increased energy efficiency, renewable energy, etc.) to meet energy demand is also growing. Just in this respect,

Energy Management' comes on the scene

### ISO 50001-EnMS Requirement

ISO 50001 specifies requirements for an organization to establish, implement, maintain and improve an energy management system.

Specifies energy management system (EnMS) to:

*Develop and implement an energy policy,*

Establish objectives, targets, and action plans which take into account legal requirements

**This International Standard specifies requirements for all factors affecting:**

Energy supply, uses and consumption

Measurement, documentation and reporting,

Design and procurement practices for energy using equipment, processes, systems, and personnel.

**ISO 50001 does not prescribe specific performance criteria with respect to energy**

### Plan - Do - Check – Act (PDCA)

ISO 50001 is based on the Plan - Do - Check - Act (PDCA) continual improvement framework and incorporates energy management practices into everyday organizational activities.

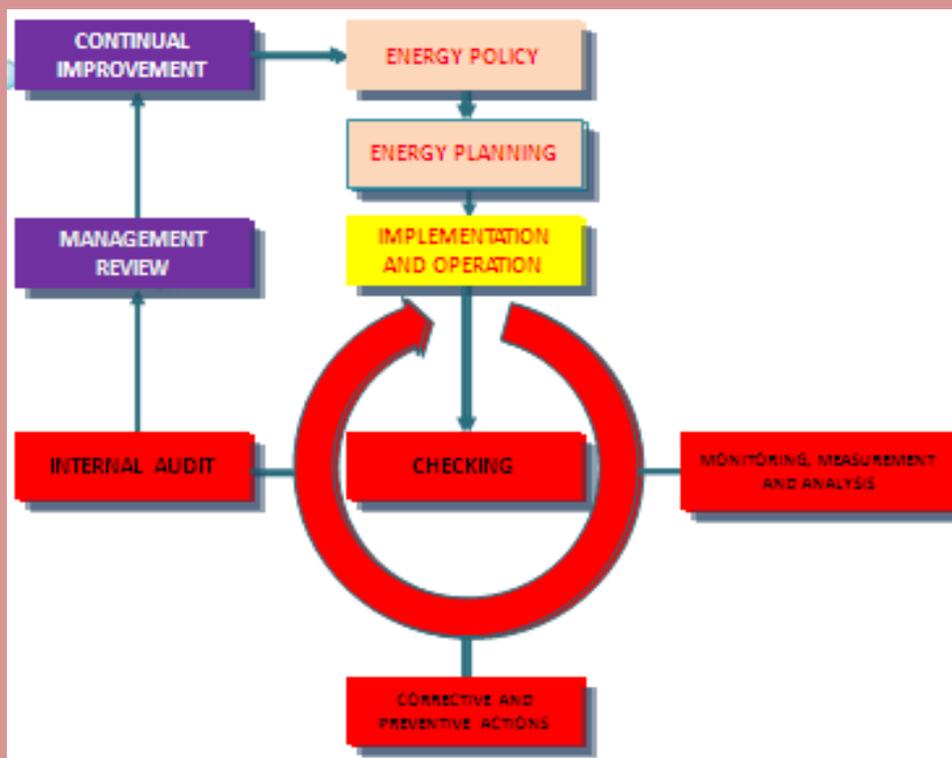
– Plan: conduct the energy use assessment, establish the baseline, energy performance indicators (EnPIs), objectives, targets and action plans necessary to deliver results that will improve energy performance .

– Do: implement the energy management action plans;

– Check: monitor and measure processes and the key characteristics of operations that determine energy performance against the energy policy and objectives, and report the results;

– Act: take actions to continually improve energy performance and the EnMS

### ENERGY MANAGEMENT SYSTEM MODEL FOR ISO 50001



## PLAN

### ENERGY POLICY

ISO 50001 defines Energy Policy as “Statement by the organization of its overall intentions, and direction of an organization related to its energy performance, as formally expressed by top management.”

The energy policy provides a framework for action and for the setting of energy objectives and energy targets and is documented, communicated, and understood well within the organization.

Appropriate to the scale and nature of the organization energy use.

Availability of necessary resources and support

Commitment to comply with applicable regulations and other requirements

Supports the purchase of energy efficient technology and services

Jindal Steel & Power Ltd. Raigarh is committed to work for effective utilization of all types of energy. This is achieved by:

- ❖ Taking specific objective of energy conservation through process / equipment modification.
- ❖ Monitoring of energy consumption.
- ❖ Creating innovativeness in employees through awareness.
- ❖ Converting waste as resource.
- ❖ Benchmarking the energy consumption norms.
- ❖ Adherence to statutory requirements.

**16.09.2002**

**Naveen Jindal  
EVC & MD**

**Energy Policy for LB International Co.**

## Energy Policy

**LG Electronics India Pvt Ltd. Greater Noida, manufacturing consumer durables is committed to excellence and continual improvement in Energy performance. This will be achieved by:**

- *Periodic review of the Energy aspects and finding new opportunities for Energy Efficiency.*
- *Adopting programmes for Energy Efficient operation of our activities.*
- *Promoting Renewable Energy usage and reduction in GHG emissions.*
- *Ensuring availability of information and all necessary resources to achieve objectives and targets.*
- *Creating awareness among employees and vendors about Energy Efficiency.*
- *Adopting participatory approach to motivate employees towards Energy Efficiency.*
- *Complying Energy management related Legal obligations and other requirements.*

Date 01.08.2009  
Greater Noida

 LG Electronics India Pvt Ltd

  
M. B. Shin  
Managing Director

### ENERGY PLANNING

Consistent with energy policy and has the following activities:

**Energy review-** determination of Energy performance for identification of energy saving opportunities.

**Energy baseline -** establishing basis for energy performance comparison.

**Energy performance indicators (EnPIs)-** setting EnPIs, measure of energy performance.

**Objectives-** establishing, implementing and maintaining documented energy objectives.

**Targets-** setting targets consistent with the objectives.

**Action plans-** formulating action plans to achieve objectives and targets, legal/ regulations and other requirements and shall include:

– Designation of responsibility;

– A statement of the method by which an improvement in energy performance shall be verified;

**DO****IMPLEMENTATION AND OPERATION**

Organization to use the action plans and other outputs resulting from the planning process for implementation and operations and would require:

Competence, training and awareness of work force on their role, responsibilities and duties

Communicate internally with workforce on energy performance, EnMS and establish a process through which suggestions can be invited to improve EnMS

Records and document of the implementation and operation of the EnMS- scope and boundaries, energy policy, objectives, targets, action plan and other documents as required

**CHECK****MONITORING, MEASUREMENT AND ANALYSIS**

Key characteristics of operations that determine energy performance are monitored, measured and analysed at planned intervals.

Corrective and preventive actions.

Significant energy uses and other outputs.

Energy Performance Indicators (EnPIs).

Effectiveness of Action plans.

Energy measurement plan.

Evaluation and correction of deviations of the energy performance.

Control of records.

**INTERNAL AUDIT**

Conduct internal audits to ensure that Energy Management System (EnMS) confirms to:

Planned arrangements for energy management

Energy objectives and targets established;

Effective implementation.