ADVIKA

Automation and Engineering Solutions

Energy Management Team in association with SES

Presents

ENERGY AUDIT METHODOLOGY

Presentation updated on : 24th Oct, 2024 Version -01

Energy Audit / Water Audit

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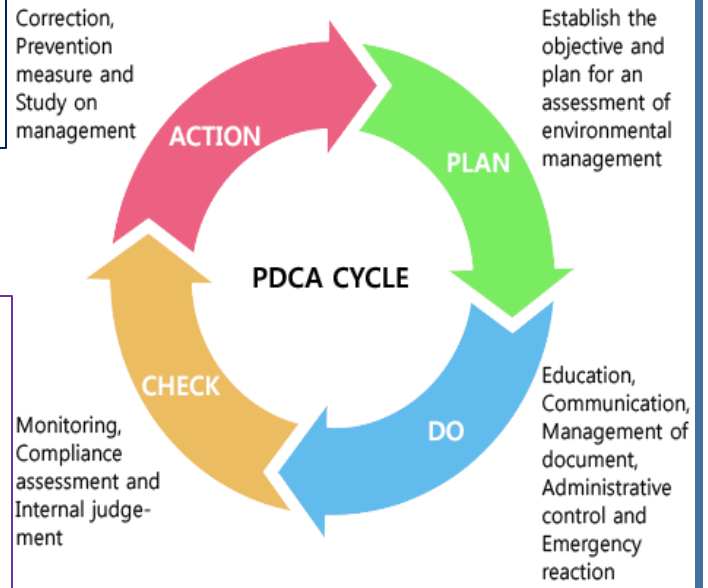
Our methodology for energy cost reduction initiative would be as below -

- ***Pre Audit***
- ***Audit***
- ***Post Audit***



Benefits to Customer

- ✓ Reduction in energy consumption and cost up to 30 %
- ✓ Reduction in water consumption and cost up to 50 %
- ✓ Design of Solution as per latest energy /water efficient technologies and customer requirement
- ✓ Helps in achieving objective of organization of reduction of carbon foot print by efficient utilization of resources.
- ✓ Reduction in per unit production cost and improve company bottom line
- ✓ Audits as per industry standards and requirements

Energy / Water audit and services:

All type of services in the field of energy. It includes,

- Implementation, Training, Documentation of ISO 50001- Energy Management system
- Energy audit / Water Audit
- Implementation of Energy Saving measures
- Design and develop energy efficient system during project stage.

Role of Energy Management:

In any industry, the three top operating costs are often found to be,

- ❑ Energy (both electrical and thermal),
- ❑ Labour
- ❑ Materials.

Among the three, ***Energy has the highest potential for cost reduction.***

How it can be made possible :

Energy Audit : It will help to understand -

- ✓ Energy usage pattern,
- ✓ Identifying the areas where energy is wasted
- ✓ Scope for improvement exists.

In general, energy audit is the translation of conservation ideas into realities, by evolving technically feasible solutions with economic and other organizational considerations within a specified time.

Following are the objectives of Investment Grade Energy Audit study at Plant, to identify the energy wastages in various utility equipment's and find out the ways to reduce the same.

- ❑ Identify the ways to procure various energy resources at the lowest cost.
- ❑ Establish the benchmarks for specific energy consumption.
- ❑ Identify the possibilities for reusing and recycling energy by cascading.
- ❑ Manage energy use resources at the highest energy efficiency.
- ❑ Use of renewable energy resources.
- ❑ Minimize environmental effects by optimizing the energy usage.

Detailed Scope of the work for energy audit study is as follows.

- Process & other Energy consuming equipment's
- Water & Water pumps
- Electrical Systems
- Electric Drives & motors
- Harmonic Study
- D.G. Sets
- Refrigeration & Air Conditioning and Chilling Plants
- Lighting
- Thermal and Insulation of Building, and other related parameters
- Blowers and Exhaust Fans
- Other Equipment's
- Compressed Air
- Water and other Energy Sources
- Air-conditioning System & Air Handling Plants, Cooling Towers
- Boilers and heat transfer pipelines

PREPARATION OF REPORT BASED ON ANALYSIS OF ABOVE DATA

- The report shall provide existing energy profile of the Building with percentage share of major equipment/processes, utilities etc., so that it becomes a basic document for future monitoring.
- Detail of measures to be taken to improve energy efficiency and to reduce losses for all the above areas.
- The report shall provide estimation of energy, monitoring savings, investment requirements and simple payback periods.
- The measures shall also be categorized into operational changes, minor modification and retrofits (negligible & moderate investment) and use of more efficient equipment / process (major investment).
- The investment proposals shall be backed up with quotations received from vendors or vendor's addresses.
- The substitution of electricity use by other techno commercially viable alternative form of energy
- Attempt shall also be made to carry out the measurement of various parameters to extent possible.
- In the event of inability of measurements due to some constraints, reasonable estimation will be made.

Sample Time Frame

Sr No	Activity	Days Required
1	Preliminary walk through.	02
2	Mobilization period for manpower & equipment's for measurements	02
3	Measurements & other system study	06
4	Analysis of the field measurements.	05
5	Final detailed analysis, incorporation of suggestions/corrections from client	03
6	Presentation of Executive summary report	01
7	Submission of Final Energy Audit Report	03
	Total Days (Approx.)	22

LIST OF MAJOR EQUIPMENTS USED DURING ENERGY AUDIT

Sr. Nr.	Equipment Description	Make
1.	Power Analyzer with set of Accessories	Krykard
2.	Power Analyzer with set of Accessories	Yokogawa
3.	Thermal Imaginer Camera	Fluke
4.	Flue Gas Analyzer With Printer and Accessories	Summit
5.	IR Meter	Kusam-Meco
6.	Lux Meter	Kusam-Meco
7.	Thermo Anemometer	Kusam-Meco
8.	Contact Type Digital Tachometer	Kusam-Meco
9.	Digital Thermometer	CIE
10.	Three Phase Power Clamp	Kusam-Meco
11.	Digital Clamp meter	Kusam-Meco
12.	Earth Tester	Nippen
13.	Insulation Tester	Megger / Waco
14.	Tachometer	Kusam-Meco
15.	Flow Meter	FlowTech
16.	Thermal Imaginer	Flair
17.	Digital Multimeter	Fluke / Rishabh
18.	LCR Meter	Kusam-Meco

SECRECY CLAUSE

- AAES & SES is bound by the secrecy clause to keep all the data and information provided as strictly confidential
- AAES & SES will not divulge any of the data and information given for the purpose of audit to anyone. All the documents, drawings and the details will be returned after the completion of the assignment. .

SUMMARISATION

- AAES & SES will document all the findings after discussing with the Building Facility personnel and together work out an implementation schedule for all the energy saving proposals.
- One hard copy and one soft copy on Email of the final report shall be submitted along with the executive summary, detailed report annexure, appendix and also list of reputed suppliers of the systems proposed for energy saving.

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Thank you.