

# Characteristics of Excellent Energy Efficient Companies and Energy Audit Methodology

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## ABSTRACT

*The Characteristics of energy efficient companies and the approach they have adopted has been analysed. These are essentially characterised by committed top management and a strong energy manager.*

*The energy manager, who is the vital link for energy savings establishes a strong database, makes the best use of the in-house technical team and utilises the services of external agencies wherever required.*

*Energy efficient companies also follow a three-pronged approach of High Capacity Utilisation, Fine-tuning of equipment and continuous up-gradation of technology.*

*The energy audit involves conducting an energy balance to identify avoidable losses and implement measures to reduce these losses. A few illustrative studies are included.*

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## INTRODUCTION

The CII - Energy Management Cell has analysed the performance of more than 400 companies from the energy point of view and identified about 20 companies, which are energy efficient plants. The characteristics of these companies are projected.

## CHARACTERISTICS OF ENERGY EFFICIENT COMPANIES

The energy efficient units are characterized by:

1. Committed top management
2. Strong Energy managers
3. Excellent database
4. Strong In-house team

5. Utilisation of external agencies

6. Three pronged approach

These are described in further detail below

## CHARACTERISTICS # 1: TOP MANAGEMENT COMMITMENT

The first characteristic is the top management commitment, which is reflected in the form of goals & standards followed by frequent reviewing. The top

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management commitment is a fundamental and foremost requirement as actions follow only with this.

**CHARACTERISTIC # 2: STRONG ENERGY MANAGER**

The second characteristic is the presence of a strong energy manager. The energy manager typically is from the Electrical/Maintenance department, while the major consumption is in the process. Hence a strong Energy manager with excellent managerial ability rather than technical skills is vital for the company to become energy efficient.

The energy manager should rather function as a facilitator and an internal catalyst rather than an actual implementor.

**CHARACTERISTIC # 3: CREATION AND AVAILABILITY OF A DATA BASE**

The creation and availability of a data base on energy and related parameters is also important. This helps in monitoring of the energy conservation activities and sustaining the benefits achieved.

**CHARACTERISTIC # 4: STRONG IN-HOUSE TEAM**

The maximum utilisation of in-house talent in another "sure shot" method for achieving energy efficiency.

The advantages in tapping in-house talent are easy and continuous availability of personnel and 'ownership of ideas" amongst the personnel which leads to easier implementation. Hence, every plant should try to tap as much in-house potential as possible. The possible methods of tapping in-house talent are suggestion schemes, Energy cell formation with all department representatives, regular brain storming sessions among departments and Quality circles.

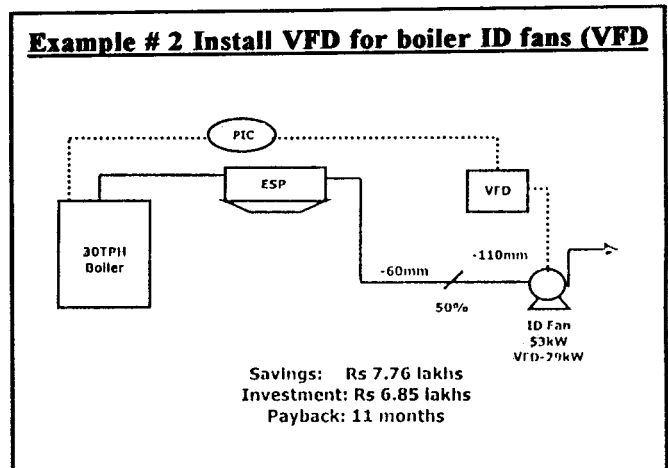
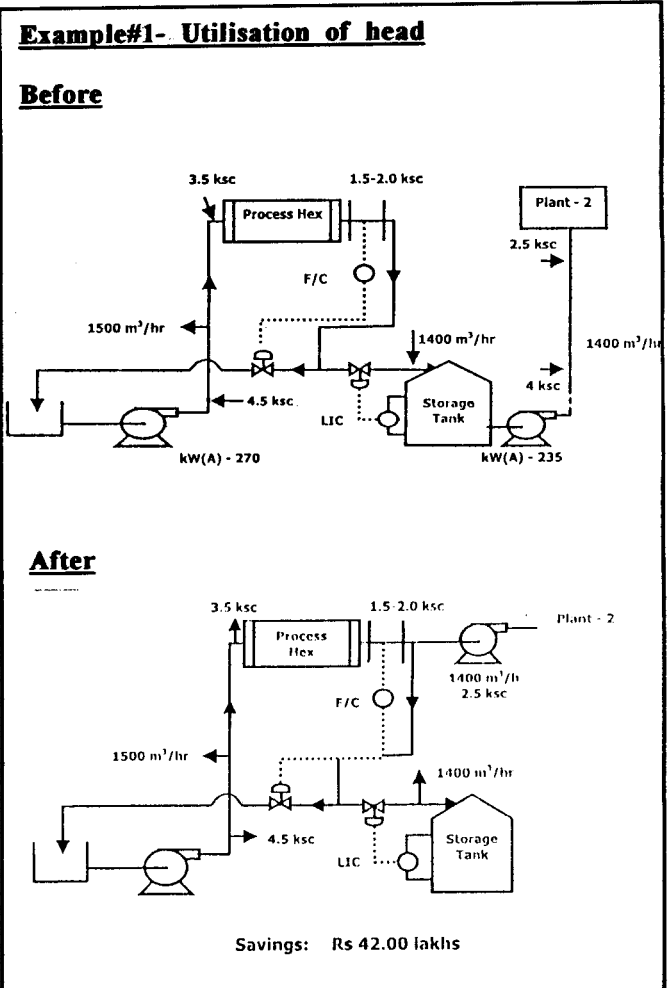
**CHARACTERISTIC # 5: UTILISATION OF EXTERNAL AGENCIES**

Successful energy efficient companies, inspite of achieving excellence in energy, always seek external expert assistance, wherever available and necessary.

Some of the possible methods of tapping external assistance could be energy audits by energy consultants, utilizing services of equipment manufacturers and utilizing services of R&D organizations.

**ENERGY AUDIT METHODOLOGY**

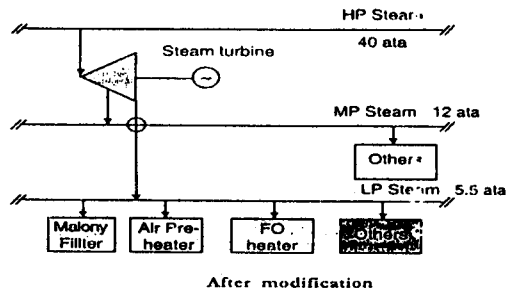
At a macro level, the energy audit methodology involves conducting a detailed energy balance to identify avoidable losses, develop and implement possible methods to reduce the losses. A few illustrative examples are included below:



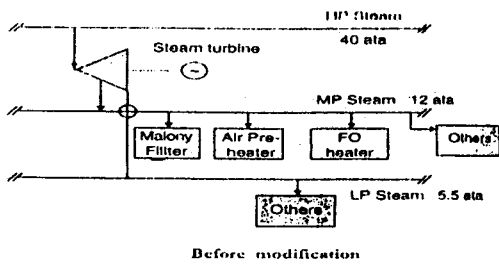
**Example # 3 Conversion of MP steam to LP steam**

**Before**

**Modification**



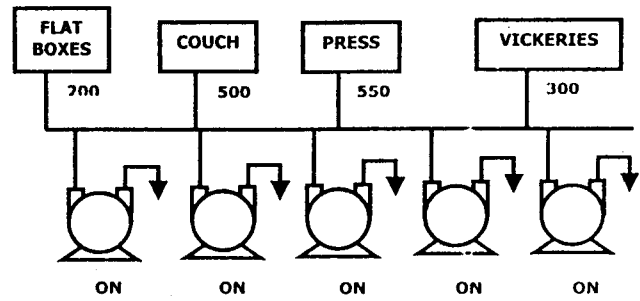
**After Modification**



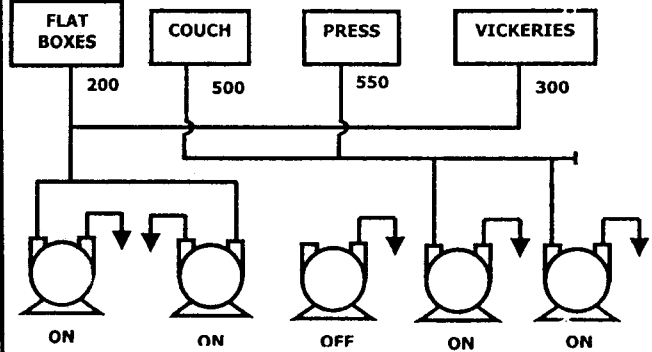
**Savings: Rs 4.50 lakhs**  
**Investment: Rs 3.00 lakhs**  
**Payback: 8 months**

**Example # 4 Vacuum Pump interconnection**

**Existing system**



**Modified system**



**Savings: Rs 10.00 lakhs**  
**Investment: Rs 2.00 lakhs**  
**Payback: 3 months**

**TO SUM UP**

Energy efficient companies are characterized by committed top management, strong energy managers, data base on energy consumption, strong in-house

team and utilisation of external agencies and adoption of three pronged approach. The adoption of this approach will facilitate in becoming an excellent energy efficient unit.