

# Energy Efficiency Audit Scheme for the Manufacturing Sector

## Technical Specifications for Level One Energy Audit

*(Applicable for enterprises with an Annual Turnover between Rs 10 million to Rs 30 million)*

### 1.0 Classification of enterprises

1.1 For the purpose of the implementation of the **Energy Efficiency Audit Scheme for the Manufacturing sector** (EEASMS) by the Ministry of Industrial Development, SMEs and Cooperatives (Industrial Development Division), manufacturing enterprises have been categorized as follows:

- i) *an enterprise with an Annual Turnover between Rs 10 million to Rs 30 million to conduct Level One Energy Audit; and*
- ii) *an enterprise with an Annual Turnover above Rs 30 million to conduct Level Two Energy Audit.*

### 2.0 Standard for Level One Energy Audits

2.1 Under the EEASMS, a Level One Energy Audit should be conducted in compliance with the “ISO 50002:2014 Energy Audits - Requirements and guidance for use” standard or latest version, if any, for all objects of the building(s)/site.

2.2 On the other hand, a Level Two Energy Audit, should be conducted in compliance with the “Technical Specifications for Energy Audits” published by the Energy Efficiency Management Office (EEMO), which can be accessed at:  
<https://eemo.govmu.org/Pages/Energy%20Audit/energyaudit.aspx>

2.3 Generally, an energy audit shall cover the usage of electricity and all types of fossil fuels (e.g. HFO, diesel, coal, etc.) in manufacturing processes, transportation vehicles, buildings/sites (e.g. lightings, heating, cooling, etc.). It shall also consider the usage of renewable sources of energy (e.g. solar water heater, etc.).

2.4 The objectives of the Level One Energy Audit shall be to:

- (i) provide an understanding of energy consumption at a manufacturing site;
- (ii) improve awareness of contribution from the site’s energy source (s), energy costs / average unit costs for each energy source and the potential benefits of managing energy;
- (iii) identify and carry out basic evaluation of low-cost opportunities that can be easily implemented; and
- (iv) identify focus areas to improve energy management.

### 3.0 Scope of Services

3.1 The scope of services for the Level One Energy Audit shall include the following:

- (i) Collect and collate data from existing meters in the building/on site that support the audit.
- (ii) Prepare equipment lists, which shall include energy data and equipment description, operating schedules, duty factors and estimates for load factors.
- (iii) Collect appropriate data on relevant variables such as production data to establish overall Energy Performance Indicators.
- (iv) Use energy consumption and equipment data to organize equipment systems and/or processes.
- (v) Prepare preliminary energy balance and identify significant energy uses.
- (vi) Identify high-energy consuming equipment and inefficiencies.
- (vii) Walk through the building/site to visually inspect energy uses.
- (viii) Identify low-cost and easily quantifiable energy performance improvement opportunities.
- (ix) Identify more capital-intensive energy performance improvement opportunities.
- (x) Provide indicative savings calculated using common rules reconciled to the energy baseline.
- (xi) Nomination of typical payback periods.
- (xii) Outline of steps required to generate specific energy performance improvement action that can be implemented.

3.2 All data and information gathered while conducting the energy audit under the EEASMS shall be treated as *strictly confidential* and shall not be released at any point in time without the written consent of the enterprise.

### 4.0 Qualifications and Experience of the Energy Auditor

4.1 The energy audit shall be conducted by an Energy Auditor or an Energy Audit Firm registered with the EEMO.

### 5.0 Facilities to be provided by the enterprise

5.1 The enterprise shall facilitate access to the site and shall provide relevant information (e.g., CEB data, water consumption data or drawings and plans for the sites, etc.) to the Energy Auditor to conduct the energy audit.

### 6.0 Duration of Energy Audit

6.1 The energy audit for an enterprise shall be completed within a period of **2 months** from the date of approval of the Ministry of Industrial Development, SMEs and Cooperatives (Industrial Development Division) to start the energy audit.

6.2 The two months period shall include the submission of the Energy Audit Report.

## 7.0 Reporting Requirements

- 7.1 The Energy Auditor shall submit an Energy Audit Report to the enterprise for the above-mentioned scope of services.
- 7.2 Each Energy Audit Report shall necessarily include –
- (i) identification and prioritising energy saving and energy efficiency measures on the basis of costs and return of investment, with appropriate recommendations; and
  - (ii) plans, with realistic cost estimates and timeframes for implementing the recommendations of the energy audits.
- 7.3 The Energy Audit Reports shall be in English language and shall follow the “ISO 50002:2014 Energy Audits - Requirements and guidance for use” format or latest version, if any.
- 7.4 Energy Audit Reports shall be submitted by the Energy Auditor to the enterprise in two (2) hard copy in colour print, including a soft copy on a CD ROM/pendrive. *(Thereafter, the enterprise shall submit one of the hard copies and the soft copy on a CD ROM/pendrive to the Ministry of Industrial Development, SMEs and Cooperatives (Industrial Development Division)).*
- 7.5 The enterprise may be required to submit the status of the conduct of the energy audit to the Ministry of Industrial Development, SMEs and Cooperatives (Industrial Development Division).

## 8.0 Payment Schedule

- 8.1 The enterprise shall effect payment directly to the Energy Auditor for his/her services.
- 8.2 The enterprise shall claim disbursement of grant *(75% of the cost incurred for energy audit or maximum of Rs 300,000)*, to the Ministry of Industrial Development, SMEs and Cooperatives (Industrial Development Division) upon submission of supporting documents, as per set Modalities & Procedures.

**List of electrical/energy equipment to be audited in enterprises could include the following:**

- a. Air conditioning and cold storage;
- b. Boiler;
- c. Water supply and distribution systems (e.g. water pumps are used in the systems);
- d. Electrical systems (e.g. lighting, appliances, computers, servers, etc.);
- e. Building automation and control system;
- f. Transportation systems in the building, (e.g. conveyor belts, lifts, escalators and moving walkways);
- g. All production processes;
- h. Generators;
- i. Compressed air systems;
- j. Fans and blowers;
- k. Pumps;
- l. Motors;
- m. Renewable energy systems (e.g. solar PV, wind energy, amongst others); and
- n. Etc.