ener'G
CONS ULTING
Savingthenature

SCOPE OF ENERGY AUDIT

To carryout Energy Audit of the Facility and other industrial operations as per **Order No. GHU/99/31/GUE/1196/9018/K1:**whereas and in exercise of the powers conferred by **clause (a) of sub section (1) read with sub section (2) of section 6 A of the Bombay Electricity (Special Power) Act, 1946,** the government of Gujarat makes a order namely, "Gujarat Use of Electrical Energy (Regulation) order, 1999 "**and"**

As per clause-5 of Govt. Order No. GHU/99/31/GUE/1196/9018/K1, Dated 5th Oct, 1999.

Points listed below are included in electrical energy audit scope.

A. GENERAL

(01) Introduction: Background of the plant manufacturing activities and major electricity consuming areas.

(02) Electricity consumption & Electricity Billing: Summary for the past year's monthly electricity consumption and production data. Calculation of specific energy consumption, KWH/TON of material produced etc. and comments on the same.

(03) Calculation of load factor and method to reduce maximum Demand.

(04) Comments on average power factor and methods to improve power factor Exploring possibility of better use of time of use tariff.

B. Performance Evaluation of Major Utilities and Process Equipment:

(01) Electrical Distribution Networks:

a) Transformers: Performance evaluation through simultaneous measurements of major electrical parameters on HT & LT side and rationalization of transformers, if needed.

b) Power Factor: Measurements of distortion & displacement power factor at various points viz., PCC, MCC, load centers etc., and analysis of the same for optimizing the network losses.

c) Metering & Monitoring Status: Review of existing meters for adequate monitoring requirements.

(02) Electrical Equipment: Electrical measurements of all major electrical parameters viz., voltage, current, power factor, KW, frequency etc., of important equipment (motors, furnaces,

8, AMBICA CHAMBERS, NEAR STATE BANK OF SAURASHTRA, BEGAMPURA, SURAT 395003
PHONE: 98980 29032, Email:saveenerG@gmail.com

electrolysis, lighting, etc.), with significant energy consumption. Loads susceptible to generation of harmonics shall be checked for present harmonic level. System unbalance with respect to voltage and current shall be checked.

(03) CPP & DG sets: Review of performance including major auxiliaries and suggestions for optimization.

(04) Pumps & Blowers: Measurement of Head/pressure, flow, power and determination of pump/blower efficiencies based on measured parameters and critical study of piping/ducting/valves/dampers pressure losses, system layout etc.

(05) Compressors: Determination of compressor capacities, specific power consumption, KW/CFM, leakage detection and quantification, pressure losses in auxiliary equipment/ piping, identify point suing unnecessary high pressure and identify application with wasteful use.

(06) Refrigeration and air conditioning system: Determination of refrigeration system cooling capacity through measured operating parameters, viz., flow, inlet/ outlet temperatures of cooling media, specific power consumption, KW/TR,, review temperatures maintained, explore possibilities of thermal storage to take advantage of Time of use tariff, critical examination of coils, filters, AHU, ducts etc.

(07) Cooling towers: Evaluations of cooling tower performance by measurements of cooling water flow, inlet/outlet temperatures and ambient air DBT/WBT, air flow, fan power, etc. correlation of cooling tower performance with due consideration of cooling water system as a whole.

(08) Lighting: Measurements of light intensity and all major electrical parameters viz., voltage, current, PF, KW. Study of type of lamps and chokes used; day and night time lighting etc.

(09) Furnaces, Electrolysis.