COMMISSIONER OF SUGAR, PUNE

Request for Expression of Interest (EoI) for Cost Audit and Energy Audit of all Co-operative Sugar Factories in Maharashtra.

Cost Audit & Energy Audit of all Co operative Sugar Factories have been made mandatory vide Government of Maharashtra Order No. SGY2011/C.R.359/14-S dated 8th December 2011. Expression of Interest (EoI) is invited from the intrested Firm /Partners/ Cost Accountant for Cost Audit and Firm/ Partners/ Energy Auditors for Energy Audit for empanelment.

Firm /Partners/ Cost Accountant or Energy Auditor fulfilling conditions should submit their EoI along with copy of the certificate of practice and other supporting documents **(cut of date is 31/12/2011)** as per the "Application Format" on or before 17.00 hrs of March 12, 2012**.**

Details of Scope of work, Application Form and Eligibility Criteria are available on website www.maharashtra.gov.in (in tender section) as well in the Office of Commissioner of Sugar, M.S. Pune.

EoI should be submitted to the Commissioner of Sugar, Maharashtra State, Sakhar Sankul, Shivaji Nagar, Pune – 411 005 by hand / courier / speed post / registered post along with a Demand Draft of Rs. 1000/- of any Nationalised Bank in favour of **Commissioner of Sugar, Maharashtra State, Pune**. Applications should be submitted in sealed cover superscribed with "Expression of Interest for Cost Audit / Energy Audit" (as applicable). Commissioner of Sugar will not be responsible for delayed submission for whatsoever reason.

Commissioner of Sugar
Maharashtra State, Pune

EXPRESSION OF INTEREST FOR ENERGY AUDIT

Ref. No. : Date :

To,
Commissioner of Sugar
Sugar Commissionerate,Sakhar Sankul,
Shivaji Nagar, Pune – 411005 (Maharashtra)

Subject : Submission of Expression of Interest for Empanelment with Commissioner of Sugar for Conduct of Energy Audits, reg

Dear Sir,

This has reference to your Request for Expression of Interest, regarding above. We are pleased to submit herewith our EoI.

1	Name of the firm	
2	Registered office address	
3	Tel. Nos. / Fax Nos.	
4	Name of the contact person	
5	Tel No. / Mobile No. of contact person	
6	Email ID of contact person	
7	Name of Consortium partner, if any	
8	Date of registration of the firm / company (attached valid registration / incorporation certificate)	
9	Years of experience in energy audit field (attached documentary evidence)	
10	Office address where energy audit team & energy audit instruments are located	
11	Names & BEE Energy Auditor No. of the BEE certified energy auditor working with the firm (attach BEE certificate & documentary proof mentioning that above auditor is permanent employee of the firm)	
12	Names of Sugar Mills; Associated Distilleries & Sugar Mill based Cogeneration Plants where energy audits were conducted by the firm (attached documentary evidence to prove that these audits were allotted to the firm by minimum 5 sugar mills)	
13	Whether firm is empanelled with	

	Bureau of Energy Efficiency (BEE) and Maharashtra Energy Development Agency (MEDA) as Energy Auditor (if yes, please furnish valid empanelment certificate from BEE & MEDA)	
14	Turnover & profits for • FY 2010-11 • FY 2009-10 • FY 2008-09 (attached audited balance sheets for above three financial years)	

VERIFICATION –

I ————————————,whole time practicing Energy Auditor/Proprietor of M/S. ---------- Energy Auditor/Partner of M/S. ---------- Energy Auditors, do hereby declare that the above mentioned information is true and correct to the best of my knowledge and belief.

I also agree to the terms and conditions as mentioned in the Notice for EOI including the audit fees prescribed by The Commissioner of Sugar, M. S. Pune

Signature & Seal :-

ELIGIBILITY CRITERIA FOR THE EMPANELMENT AS ENERGY AUDITOR

1. Firm / Partner / Energy Auditor should be registered in India

2. Firm / Partner / Energy Auditor should have minimum One BEE certified energy auditor

3. Firm / Partner / Energy Auditor should have undertaken minimum 5 energy audits of processing industries. Experience in energy audit of sugar industries is preferable.

4 Firm / Partner / Energy Auditor should have energy auditing instruments.

5 Indicative scope of work is attached as Annexure A.

Annexure A

Indicative Scope of Work for Conduct of Energy Audits

➢ Sugar and Alcohol Processes and Manufacture

- To study the sugar & alcohol manufacturing processes and major equipment employed in the sugar mill and distillery, along with section-wise operating performance for last 2 / 3 years.
- To identify energy saving areas in the sugar mill sections like cane preparation, milling, boiler house, syrup sulphitation, evaporator, pans, crystallisers, centrifugal machines, bagging & packing, etc. requiring moderate to high investments but yielding substantial savings.
- To identify energy saving areas in the distillery sections, requiring moderate to high investments but yielding substantial savings.
- To study and evaluate possibility of adaptation of pinch technology for optimising energy inputs to the process.

➢ Electrical

- To correlate monthly data of production with electricity, fuel and water consumption, overall and individually plant-wise for a period of 12-18 months of normal operation
- To study electrical energy metering, monitoring and control system existing at the mill and to recommend a suitable system for future monitoring.
- To study monthly power factor, maximum demand, working hours, load factor etc. for the reference period along with monthly electricity consumption and establish scope for optimization of load factor and through detailed load management study. To recommend a specific rationalization / optimization programme based on measurement of DB power factors, existing capacitor system and its maintenance, automatic / manual controls required etc.
- To undertake a detailed motor load study on all motors equal to and above 10 HP size with the help of a clamp on multimeter to identify instantaneous motor parameters like kW, KVA, P.F., A, V, frequency etc. and establish their variations over a load cycle (for variable load drives, if any). This study will help establish / recommend motor specific rationalization plan including star conversion, downsizing, use of motor energy savers, variable frequency and high efficiency drives etc.
- To undertake pumping technical audit on all pumps having capacity above 10 HP. Pumping audit will mainly cover measurement of water flow, power input, head etc. This exercise will establish the operating duty point of each pump and possibility of energy conservation through pump capacity rationalisation, impeller trimming etc.
- To study compressed air system in the mill, in terms of compressor type, make, capacity, loading, motor type/size/loading etc. and to undertake output efficiency test for the operating compressors. This will identify opportunities for compressed air generation optimisation and energy savings.
- To undertake compressed air leakage tests & recommends the locations of air leakages.
- To study cooling water system including cooling tower (capacity, make, loading, efficiency), cooling water circulation pumps (flow, motor rating, loading etc.) & cooling tower fans (material of blades, motor size & loading etc.). This will identify opportunities for energy saving in cooling water system.
- To undertake lux survey for the entire mill and individual departments with the help of a lux meter both during day and night time and recommend a specific plan for rationalisation of lighting load through possible use of north light and switching off use of energy efficient lighting equipment like tri-phosphor fluorescent tube light etc.
- To study power generation system in sugar mill and identify potential areas for energy savings such as employment of topping cycle / straight back pressure / automatic extraction

cum back pressure / automatic extraction cum condenser, TG set high pressure / high temperature boilers with high purity steam, additional co-generation potential etc.

- **Steam**

- To study the steam generation in the operating boiler in terms of boiler size, type, application, rating and fuel selection and consumption etc.
- To undertake boiler efficiency tests as per BIS / DIN standards so as to identify direct / indirect combustion efficiencies, flue gas temperatures, evaporation ratios etc. This exercise will help identify ways and means to optimise steam generation and boiler house operations through waste heat recovery, etc. Study regarding usage of alternate available fuel like sugar cane trash, filter cake, biogas from sugar mill and distillery effluents etc. will also be undertaken.
- Study will also be undertaken for possible reduction in moisture content of bagasse through adaptation of low mill roller speeds, use of two roller pressure feeders and pressure chutes, use of lotus rollers, use of high hydraulic pressure on top rollers. Usage of hot imbibitions water, installation of improved bagasse return carrier, installation of bagasse dryers and use of chemical methods etc.
- To study steam distribution system including tracing of steam lines, pipe sizes, number of steam traps and checking adequacy of insulation and identification of redundant lines, distribution losses, etc.
- To undertake condensate collection exercise, if necessary, from major indirect steam consuming vessels/plants.
- To work out steam balance including steam generation, consumption (in terms of fixed loads, blow down loss, loss due to leakage's / faulty traps / poor insulation and consumption in mill) and to evaluate the loss.
- The above exercise will help to identify saving opportunities in steam consumption condensate recovery system through employment of improved design of heat exchangers for juice heaters, employment of rising or falling fill type tubular evaporators, multiple effect evaporators, employment of heat pumps, adaptation of membrane technology, possibility of installation of continuous vacuum pans and centrifugal machines etc.

- **Water**

- To study water receipt, storage, distribution and utilisation in the mill so as to identity scope of water usage and pumping efficiencies.
- To study pump specifications and monthly outputs logged, hours of pump operation per month, data on break down maintenance and operating problems and emergencies envisaged, existing and future demand projections etc. for all the pump houses.

- **Evaluation, Monitoring & Report**

- To identify, evaluate and prioritise energy saving opportunities through above into short, mid and long-term time spans depending upon investments, quantum of savings, skills and time required for implementation, etc.
- To recommend a time-bound action plan for implementation of accepted measures.
- To prepare & present energy audit report