

# SAVE ENERGY! SAVE MONEY!

## Proposal for Energy *Management* & *Energy Auditing Service*

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## Brief Description of the Service

### *What is Energy Management?*

Energy Management can be defined as the judicious and effective use of energy within a facility to maximize profit and enhance competitive positions in the market. Energy management is devoted to minimization of energy wastage, disposal and presents **energy conservation opportunities** (ECO). A whole system view point to energy management is required to ensure that every system and equipment is examined and optimized. The systems and plants that the energy management can be implemented include;

- ✚ Steam generation and distribution
- ✚ Hot water generation, distribution and storage
- ✚ Chilled water generation, distribution and storage
- ✚ Air conditioning & ventilation system
- ✚ Cold rooms
- ✚ Compressed air generation, distribution and storage
- ✚ Electrical system, etc

It is common to hear that many businesses and industries are adopting and implementing a total quality management (TQM) strategy for improving their operation. Since, energy has the biggest share in the production cost, whether it is a product or a service; any TQM approach should be accompanied by energy management program to reduce energy cost.

Experience of other countries has shown that energy management **can substantially reduce energy costs** and energy consumption. The saved energy can be used elsewhere. Therefore, one energy source not known so far in this country is energy management. Energy available from energy management activities has almost proven to be the most economical source of energy. Furthermore, **energy management activities are more gentle to the environment** than large scale energy production and they certainly lead to less consumption of scarce and valuable resources. Although energy management cannot solve all the nations' problems, it can narrow the gap between the supply and demand of energy so that we can get time to develop new power plants.

In developed nations it is common to get a **reduction of 10-15% in energy consumption** through housekeeping (low or no investment) measures. And **the saving can reach to 35-40%, when capital intensive measures are taken**. The above indicated figures are in those countries where there is better handling and maintenance of equipment. In our country, most of the industries are old and have



*In many ways, an energy audit is similar to financial accounting and auditing.*

*Through the financial auditing one can tell how a financial resource is being used and it is possible to identify theft and abuses.*

*The same is true with energy auditing. We can identify machinery, equipment and systems that waste energy.*



*By identifying and implementing the means to achieve energy efficiency and conservation, not only can energy savings be achieved, but also equipment/system services life can be extended. All these mean savings in money.*



not been properly handled and maintained and in so many cases have not been inspected, in which case, we can expect better saving opportunities than the figures indicated above.

In most cases **10-15%** reduction in energy cost means, a similar rate of reduction in the production cost and similar rate of maximized profit.

When one thinks about energy management program, the first thing that comes to picture is **Energy Audit**. An energy audit is a process of evaluating where a building or plant uses energy, and identifying opportunities to reduce consumption.

## ***What is in it for you?***

Companies with mechanical and electrical system can be benefited whether they are old or new, specially, those which served for a long time. It is believed that, any ***thermal system which served for more than two years has a dropped efficiency and has a potential of conservation.***

Nowadays, a lot of products and different kind of services are being established in different parts of Ethiopia by local and foreign investors. These products and services face a huge challenge of competition with other companies that sell their product in Ethiopia. Those companies which are being established by foreigners are most of the time come with efficient plants and with well-trained personnel with huge experience in the area of that particular investment, which makes the competition even tougher. Energy management insures better competitiveness as the impacts of energy management results in reduction of energy cost hence, services and products can be available at competitive price.

## ***What can we do for you?***

- ❖ *Do you know your total facility efficiency?*
- ❖ *Have you ever considered energy auditing to your systems and equipment?*
- ❖ *Are your systems and equipment audited?*
- ❖ *Are they at their maximum efficiency?*
- ❖ *Is your energy bill increasing from year to year?*
- ❖ *Do you know how much energy you use per product and per service?*
- ❖ *Do you know how much energy should your product consume and how much more or less your products consume when it is compared to similar factories in*

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*Energy conservation opportunities can be categorized as:*

- 1. ECO with no investment**
- 2. ECO with little investment**
- 3. ECO with significant Investment**

Identified opportunities will be presented with cost benefit analysis.

***Without measurement there can be no capacity for systematic improvement***

***If a firm, or a department within a firm, does not know how it is performing, then how can it improve?***



*another country?*

- ❖ *What measure should be taken if you are consuming more energy per product?*

*Yomener Energy Auditing and Engineering plc* is proposing to provide you an energy auditing service to your systems and equipment so that you can reduce your energy consumption to a great extent.

For the best energy consultancy and energy management needs our company will be your best partner for your energy related solutions by providing you with all kinds of energy management and energy consultancy services.

***Our service includes:***

- ✱ Carry out a detailed energy audit.
- ✱ Quantify energy consumption and establish base line energy information.
- ✱ Construct energy and material balance.
- ✱ Perform efficiency evaluation of energy & utility systems.
- ✱ Compare energy norms with existing energy consumption levels.
- ✱ Identify and prioritization of energy saving measures.
- ✱ Analysis of technical and financial feasibility of energy saving measures.
- ✱ Recommend energy efficient technologies and alternate energy sources, with an economic analysis
- ✱ Report writing, presentation and follow up for Implementation of an energy management action plan
- ✱ Organizing training on procurement, operation, maintenance and handling of energy consuming equipment

This paper may lack some components of a standard proposal. This is because we have to study your complete systems before writing a proposal. We can give you a detailed proposal for an energy auditing service with all necessary details and price offer if you are committed to reduce your energy consumption and to maximize your profit.

*A research paper done in Wongi Sugar Factory for M.Sc. degree in Mechanical Engineering in Addis Ababa Institute of Technology (AAiT) has shown that improving air fuel ratio of the boilers can save annually a fuel with an estimated cost of 3,000,000.*

*This saving opportunity can be categorized as no or little investment opportunity.*

*Similar thesis paper done in AAiT has also shown that the boiler installed in one of the state owned liquor factories is oversized boiler and replacing the oversized boiler would have a payback period of less than three years.*

*The energy consumption per litter of liquor is found to be almost double to other similar factories.*



*At only 6°C above the required minimum temperature a fuel oil tank with a diameter of 1.8m and length of 4.6m would waste approximately 6800kg of steam in a year.*

## How do we do it?

The process of energy management involves data collection and analysis. Data such as pressure, temperature flow rates chemical compositions, Voltage Ampere Kilowatts, Power factor etc. will be collected during the data collection process using latest and state of the art measuring instruments. The collected data would be analyzed so that the result can quantify the amount of energy actually being used and wasted. *Yomener Energy Auditing and Engineering PLC* is well equipped with the measuring instruments that are useful for taking readings of different data to be used in the energy accounting.

After proper data is collected the next phase is analysis of the data collected. For the analysis we have well trained mechanical and electrical engineers who are well experienced and educated with various levels.

After the data collected is analyzed and proper energy and mass balance is done, a list of energy conservation opportunities will be prepared with economic analysis of identified opportunities

## What are the deliverables?

Energy audit is done by collecting energy related data from the plant or system. In the audit report, energy systems will be identified, their condition will be evaluated, improvements will be identified and the impact of those improvements will be presented. The data collection is performed by using Energy Audit instruments; the collected data will be analyzed and presented in the form of a report. ***The report will include different parameters like cost, cost benefit analysis and payback period (for opportunities that require investment) time, resource & facility needed which are significant in making decisions over identified opportunities.*** Generally, the audit report will be prepared in such a manner that would be handy in making decisions.

In the report, other related and important information like plant layout diagrams, condition of equipment, etc. will be included.

## How to contact us?

You can contact us with the following address at your convenience and for further discussion you can also invite us to your office, it would be a pleasure to be of service to you. Please do contact us.

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### Energy Auditing for the National Good

- Reduces pollution
- It can ease the strain in electrical energy distribution
- Can improve competitiveness of local products
- Can reduce fuel oil consumption and can improve hard currency reserve

*"...when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind ...."*