

Efficient Energy Management

By

Engr. Md. Mustafizur Rahman

**Energy Auditor, Energy Audit Cell,
Power Division, GoB**

Presented At

Second Application Workshop On

Efficient Energy Management And Renewable Energy

Nov 17-18, 2008

Organised By

South Asian Women In Energy (SAWIE)

Dhaka Sheraton Hotel, Dhaka, Bangladesh

Brief Energy Situation of Bangladesh

- **Energy Infrastructure of Bangladesh is Characterised by low level of development relative to most of the neighbouring countries.**
- **Per capita commercial energy consumption is among the lowest in the world.**
- **Non-commercial energy resources still more than 50% of the country's total energy consumption.**
- **Natural gas is main source of commercial energy. Oil, coal, hydropower, solar etc. constitute a small share.**
- **Among biomass rice husk occupies the lion share.**
- **Indications show that energy use of biomass has already exceeded regenerative limit.**

- Only about 6% of the total population has access to natural gas and only 40% has access to electricity (again 80% in urban & only 20% in rural area).
- A wide Supply and Demand gap for both primary & secondary energy prevails.
- Moreover, power supply is unreliable. Power failure & load shading is frequent leading to retardate economic growth.

Energy Efficiency Situation

- In general energy efficiency is very poor both in domestic & commercial usage.**
- Regular energy audit by Energy Audit Cell Shows average potential of 30% use efficiency improvement.**
- So, to address energy need, integrated approach is needed for harnessing of new energy sources (conventional & renewables) as well as use efficiency improvement.**

- **Experience of regular energy audit in industries show that simple house-keeping measures like combustion & excess air control, Insulation loss & steam leakage reduction, voltage & PF improvement etc. has a potential of 10-15% efficiency increase.**
- **These can be achieved by using very low cost testing instruments like Flue Gas Analyser, temperature meters, leak testers etc.**
- **Condensate return, waste heat recovery etc. can enable further improvement through retrofitting at a moderate invest.**

Advantage of Energy Efficiency

- **Exploration and development of new energy resources is long term process as well as capital intensive.**
- **Hence, it is imperative now to resort to short term measures like energy efficiency & conservation.**
- **Energy Efficiency help keep production cost low and thus make the product competitive.**
- **Most of the petroleum products are now import based. Thus, Energy Efficiency measures will help keep balance of payment Situation improved.**
- **It also addresses related environmental issues like Green House Gas emission reduction.**

Energy Efficiency Strategy

- Adoption of proper Energy Efficiency Policy and promulgation of related regulatory measures is imperative for achieving EE in a sustained way.
- Standardization and incentive through appropriate duty structure of energy consuming equipment & appliances can help promote EE.
- Demonstration through implementation of certain EE flagship projects is very effective for quick dissimilation and promotion.
- Manpower development and regular testing & monitoring can maintain improved EE.

Energy Efficiency Situation with Renewables

- Most biomass fired equipment are found very inefficient (only 10-30% overall thermal efficiency).**
- Proper combustion control through regular testing and monitoring can increase this efficiency by two fold and more.**

Case Studies

- **Performance of Improved Cook Stove (Efficiency could be improved successfully from 10-15% to 25-30%)**
 - and**
 - **Newly Improved Rice Parboiling System (improved from average 20% to more than 45%)**
- are two best examples.**

Past and Present EE Improvement Initiatives

- **During Early 80s, through WB assistance, Refinery Rehabilitation & Industrial Energy Efficiency Project was launched to identify the EE Improvement potential of the country. It was a study programme. Energy Monitoring Unit was created as a focal point of such activities in the country.**
Later on, an implementation programme was undertaken. But due to complicacy in the on lending procedure, it was abandoned.

- Subsequently, few more Energy Conservation projects were launched. But all those were mere study programmes.
- Later, some small related projects were adopted at various nodal points without any coordination among each other and the project out come could not be preserved in a sustained way. The capacity of Energy monitoring Unit/ Energy Conservation Centre/ Energy Audit Cell was reduced gradually.

- At present, with the technical assistance of gtz, Energy Audit Cell is launching an integrated (industrial energy efficiency and promotion of renewable energy) implementation programme. Project cost is Tk. 66 crore (TC Euro 6 million) which is at the final stage of approval.

Thank You All