Background to IEA-India Joint Workshop on Energy Efficiency Standards and Labelling

India's Growing Concern with Energy Efficiency

Energy conservation has emerged as one of the central issues in Indian in recent years. Per capita energy use in India is relatively low at 479 kg oil equivalent (kgoe) and non-commercial biomass is still the dominant source of primary energy. The country faces the enormous task to increase availability of commercial energy to a large part of its population; about 70 percent of rural households are not yet electrified. India's demand for commercial energy in 2020 is expected to increase by about 2.5 times from today's level. Coal accounts for about 50% of primary commercial energy today and is expected to further increase its share. At the same time, energy intensity in India, measured as TPES per unit of GDP, is substantially higher than in countries at a similar development stage.

The Government is therefore interested to gain a systematic understanding of energy consumption patterns in each sector, with a view to develop a strategy to supply energy more efficiently and limited uneconomic use of energy. Conservation has to go hand in hand with energy supply side efficiency. The Indian Government is also more and more concerned about the social and environmental costs resulting from energy generation and consumption, such as emissions of Carbon Dioxide (CO2) and other pollutants and depletion of scarce resources. With its size, fast growth in energy demand and the significance of coal in its fuel mix, India has become an important contributor to global GHG emissions. Despite its low per capita CO2 emissions of less than 1 ton, India contributed over 4% of world total CO2 emissions in 2000.

It is within this framework that the Ministry of Power drafted the "Energy Conservation Act" (the Act) that was approved by the National Parliament in 2001 and came into force with effect from March 2002. The Act provides the necessary legal and institutional framework to enable the Government to rapidly promote efficient use of energy and its conservation in different sectors of the economy. Under the Act a central coordinating body called Bureau of Energy Efficiency (BEE) was created and charged with the responsibility to implement the Act.

IEA's support to India's Energy Efficiency Program

During the IEA-India conference on "Coal and Electricity in India", held in September 2003 in New Delhi, the Indian Ministry of Power and the BEE requested the Secretariat for assistance in the implementation of its Energy Efficiency Program. The Ministry and BEE are keen to learn from the IEA member countries' considerable experiences with standards and labels as summarized in the IEA study on "Energy Labels and Standards, published in 2000, and the 2003 publication on "Cool Appliances – Policy Strategies for Energy Efficient Homes".

The proposed joint workshop on "Standards and Labels" would focus on consumer appliances, especially on air conditioners and refrigerators, that have been prioritized within a group of eight types of equipment. The Ministry sees this workshop as an initial step in IEA-India collaboration on energy efficiency and conservation. Subsequent cooperation may focus on Energy Efficiency in Buildings; Energy Conservation Building Codes and Industry Program for Energy Conservation, areas that are all identified as priority in BEE's ten thrust action plan.

The Bureau of Energy Efficiency

The BEE is created as a corporate body and general direction and management of the affairs of the Bureau is vested in its Governing Council. The Chairperson of the Governing Council is the Minister of Power and the Executive Director of the BEE has so far always been a senior career bureaucrat of the Ministry of Power.

The mission of the BEE is to institutionalize energy efficiency services, enable delivery mechanisms in the country and provide leadership to energy efficiency in all sectors of the country. The primary objective of the BEE would be to reduce energy intensity in the economy.

The broad objectives of the BEE are to:

(i) exert leadership and provide a policy framework and direction to national energy conservation activities and efficiency programs;

(ii) co-ordinate policies and programs on efficient use of energy with stakeholders;

(iii) establish systems and procedures to measure, monitor and verify energy efficiency results in individual sectors as well as at a macro level;

(iv) leverage multi-lateral, bi-lateral and private sector support in implementation of the Act;

(v) demonstrate delivery of energy efficiency services as mandated in Act through private-public partnerships; and

(vi) interpret, plan and manage energy conservation programs as envisaged in the Act.

In carrying out its work, the BEE is expected to cooperate with national and international private sector experts, non-governmental organizations, research institutions and technical agencies. For the efficient discharge of its functions, the BEE is also empowered to constitute Advisory Committees. On the basis of its objectives the BEE has developed an action plan consisting of ten thrust areas. Among those ten thrusts areas are an Industry Program for Energy Conservation, Demand Site Management, Energy Efficiency in Buildings and Establishments; Energy Conservation Building Codes and a Standards and Labelling Program.

BEE's Standard and Labelling Program

BEE's powers and functions regarding Standards and Labelling are specified in the Act as follows:

(i) Notifying specified equipment and appliances;

(ii) Directing mandatory display of label on notified equipment and appliances;

(iii) Specifying energy consumption standards for notified equipment and appliances not confirming to standards;

(iv) Prohibiting manufacture, sale, purchase and import of notified equipment and appliances; and

(v) Developing testing and certification procedures and promote testing facilities for certification and testing of energy consumption of equipment and appliances.

Enforcement of rules and regulations for energy efficiency framed by the BEE, including those related to standards and labeling, would rest with the Central Government through issuance of notifications and other means. However, BEE is empowered to make regulations on matters specified in the Act, including the particulars required to be displayed on label and the manner of their display.

The BEE has adopted a phased approach towards development and implementation of its standard and label program. As an initial step, BEE identified equipment and appliances to be covered by the standard and labeling program based on the set of criteria. Those criteria include energy intensity, contribution of electricity usage in the specified category and the potential for savings, in terms of energy consumption and against total peak energy demand. On this basis BEE prepared a list of eight types of equipment and appliances, ranging from pure consumer appliances like refrigerators, single unit room air conditioners, electrical water heaters to agricultural pumps set up to 15 kw, industrial fans and blowers and air compressors up to 100 kw, and electric light sources, control gears and luminaries.

For the selected equipment and appliances, energy labelling will be introduced first followed by the setting of minimum energy performance standards. The labelling programme, when in place, is expected to provide a much needed market pull for transition from the current low level of energy efficiency to a higher level. Minimum energy performance standards will ensure that after the kick-off date, no manufacturer can sell a specified product if it does not conform to the minimum standards. This will assure increase in efficiency level of domestic appliances and engineering products.

The potential for savings in India, in terms of both energy consumption as well as peak demand is high. The BEE states that initial estimates for India show a cumulative reduction in green house gas emissions of 4.03 MMT of CO2 for air conditioners and 3.71 MMT of CO2 for refrigerators over a timeframe of 10 years. These figures correspond to a cumulative reduction in energy use by 3450 GWh and 3180 Gwh for air conditioners and refrigerators respectively over this period.

The expected monetary savings over five years from the implementation of Standards and Labelling program with respect to the specified equipment are 11,689 million kWh/year equivalent to 1,962 MW avoided capacity.