



WORLD SUSTAINABLE DEVELOPMENT SUMMIT

BEYOND 2015: PEOPLE, PLANET & PROGRESS



Scaling up of Energy Efficiency

October 8, 2016 | 10:00 to 12:00 noon

Gulmohar Hall, India Habitat Centre

Concept Note

Energy efficiency is a thrust area for the government and a comprehensive action plan is under implementation for scaling up implementation. The plan includes regulatory measures by the Bureau of Energy Efficiency (BEE) and market-based interventions by Energy Efficiency Services Ltd (EESL). The regulatory measures include mandating Minimum Energy Performance Standards (MEPS) for energy using equipment such as ACs, refrigerators, fans, etc., and providing informative labels, thus, notifying specific energy reduction targets for large industries under Perform, Achieve and Trade (PAT) mechanism. Market-based interventions have been taken up to transform the market towards super-efficient appliances such as the Unnat Jyoti by Affordable LEDs for All (UJALA) to promote LED bulbs, LED Tube Lights, energy-efficient fans, and super-efficient ACs. The programmes are designed and implemented by EESL on the following principles:

(a) **Selection of equipment:** The equipments selected by EESL are such that they are at least 30% efficient than the best in class equipments in the market. Examples are LED bulbs (which are 50% more efficient than CFLs), LED tube lights (40–50% more efficient than Fluorescent tubes), and BEE 5 STAR rated fans (30% more efficient than fans sold in market). EESL is designing a programme for super-efficient ACs which will be 30% more efficient than the BEE 5 STAR rated ACs.

(b) **Aggregation of demand:** EESL aggregates demand across states/ electricity distribution companies by making the upfront investment, creating mechanism to provide these equipments directly to consumers, designing a pay back model where the consumer pays part of his monthly savings as EMI through electricity bills and ensuring quality of performance. Therefore, there are incentives for all stakeholders - electricity distribution companies can reduce their peak demand without any investment, consumers pay from the reduction in electricity bills and industry gets sustained demand for these equipments from EESL.

(c) **Transparent Procurement:** EESL, after demand aggregation, initiates procurement to get the benefit economies of scale. The benefit of lower cost is passed on to the consumers which further increases the demand.

(d) Massive public participation: EESL initiates an awareness programme to engage with the consumers by intensive and localised awareness campaign, setting up distribution centres nearer to the access of common public and reducing transaction cost and time.

(e) Transparency in operations - Digital India: EESL has embraced norms of transparency in all its operations. The procurement of LEDs is done through an open e-bidding process, the information about the programme is disseminated through a website www.ujala.gov.in which monitors the real time progress of the UJALA scheme. The site also provides information about the places where these bulbs are made available, quality control measures and results of independent verification of savings done from time to time.

Summary of the programme is as follows:

UJALA: There were an estimated 77 crore incandescent bulbs sold in 2013/14, which, if replaced by LEDs, will result in reduction of 20,000 MW load and energy savings of 100 billion KWh every year. The total saving in electricity bills of consumers will be Rs. 40,000 crore every year, considering average tariff of Rs. 4 per kWh. EESL has evolved a service model that enables consumers to procure LED lights at an affordable price of Rs. 10 each and the balance on easy instalment from their electricity bill. More than 45 million consumers in 17 states/UTs have already availed of the scheme and more than 150 million LEDs have been distributed leading to reduction in peak demand of about 4000 MW. The bulk prices of LEDs have reduced from Rs. 310 (January 2014) for a 7 W LED bulb to Rs. 38 (August 2016) for a 9 W LED bulb. A total of 220 million LEDs have been procured by EESL till date.

Energy Efficient Fans Programme: The cooling needs of most of the households in India are met by fans, given that the penetration of ACs in households is still less than 10%. The average rating of the fans installed and sale in the market is between 75–80W whereas energy efficient fans provide the same level of comfort at about 45–50W. Considering that almost 30 million fans are sold every year, the potential to reduce demand is significant. The implementation will follow the UJALA model and high quality 5 star rating fans will be given to domestic consumers at a concessional rate discovered through a bidding process. Around 100% upfront investment will be made by EESL and no additional budget allocation from the Electricity Distribution Companies (DISCOMs). The cost recovery will be made from the consumer through their savings from electricity bills. Procurement of 1 million fans has resulted in a reduction of price to Rs. 780 which is about 60% lower than the retail price. The programme is under implementation in Vijayawada and West Godavari where about 80,000 fans have been distributed in the last 2 months. Procurement of 1 million fans have been completed. The programme will be rolled out in Maharashtra, Rajasthan, Uttar Pradesh, Delhi, Odisha, and Gujarat, in the next 3 months.

LED Tube Light programme: Under this scheme, EESL plans to distribute about 10 m energy efficient tube lights pan in this FY 2016/17. LED tube lights to be distributed at a rate of Rs. 250 on EMI and Rs. 230 on upfront cash option vis-a-vis market price of Rs. 600; cost differential of approximately 60%. The aggregation model has resulted in price of Rs. 138 per tube light which is 30% of the average retail price. Consumers will have the option to pay the cost as EMI recovery through electricity bills in 12 months. These tube lights come with free of cost replacement warranty of 3 years against technical defects and would replace 40W tube light (with 12W choke) by 20W LED tube light resulting in over 60% efficiency and reduction in consumer bills. The programme will be rolled out in Maharashtra, Rajasthan, Uttar Pradesh, Delhi, Odisha, Gujarat, and West Bengal, in the next 3 months.

Super-efficient AC programme: EESL, with support of PACE-D programme of USAID, is designing a programme to enable the Indian AC market to leapfrog to the next generation, super-efficient ACs that

will set new global standards at this scale. These ACs will have an ISEER of at least 5.5 as against the current BEE standards of ISEER 4 - 4.5. These ACs will deliver about 30% more efficiency than the current best in class ACs. As per the assessment of LBNL, cooling demand in India will be about 150 GW in 2030 on business-as-usual scenario. It can be reduced to 90 GW by leapfrogging AC technologies to the super-efficient levels.

Conclusion

Apart from the above, EESL has initiated a government building retrofit programme where the conventional lighting, fans, and ACs are being replaced by LED lights, BEE 5 STAR rated fans, and ACs. The entire capital in replacement is brought in by EESL and is repaid, over 5 years, by sharing the savings in energy consumption. Building Management System (BMS), with cloud-based controls and monitoring, is also installed in the buildings to help optimize energy consumption. Although there has been a lot of focus on the domestic and municipality sector in implementing large-scale energy efficiency projects, EESL is yet address the same in industrial and commercial sectors. Considering the energy saving potential in such sectors, it is pertinent to develop business models and implementation mechanisms as a scale up initiative in energy efficiency. EESL is now working on developing 'deemed saving' models for various retrofit options of industrial applications to scale up energy efficiency projects.