Facilitating Energy Efficiency to Reduce Energy Costs, Enhance Energy Security, and Minimize Environmental Impact

Summary of Recommendations on Energy Efficiency for the National Energy Policy
(Compiled by LBL, AEEE and FICCI with inputs from stakeholders)[1]

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Background

Energy efficiency offers significant potential in meeting the increasing energy demand in a sustainable, affordable, and secure manner. While energy efficiency is universally acknowledged as the cheapest, fastest and cleanest way to address sustainable growth through policy formulation, its full potential is often not realized because of a lack of awareness of its positive impact on economy and environment leading to inadequate importance in policy making and subsequent resource allocation. This document summarizes the policy recommendations for enhancing the current EE policy and implementation framework to realize such potential. The recommendations are based on the inputs from key stakeholders and experts during a workshop organized by FICCI and AEEE in October 2015; they should serve as an initial draft for further inputs from a wider set of stakeholders and experts.

The current EE policy framework, which is primarily defined by the Energy Conservation Act of 2001, has provided a robust initial framework for facilitating energy conservation and adoption of efficient technologies and practices. While significant progress has been made so far on improving energy efficiency in certain sectors, large additional potential still exists. For example, additional cost effective efficiency improvements to the ten most electricity intensive appliances and equipment (such as air conditioners, agricultural pumps etc.) could save ~500 TWh/year by 2030, which is equivalent to the power produced by 250 GW of solar and wind plants; this additional saving would cost ~Rs 2/kWh, which is less than half the average cost of power supply. Similarly, large cost-effective potential exists in the industrial, buildings, and transport sectors.

1. **Set goals commensurate with the cost-effective potential & develop framework to track progress**

   The EE policy framework should set specific goals or enable the formulation of sector-specific goals commensurate with the cost-effective energy saving potential. Economy wide goals (such as reduction in carbon or energy intensity) can act as useful motivators; however, they do not have adequate specificity to spur focused actions on policies, programs, and implementation capability. Such goals can be revised every certain number of years depending on the state of technology and costs. In addition to the cost-effectiveness, equity and environmental benefits should also be considered while setting the goals.

   The national policy framework should provide guidance on the goal-setting criteria. Example of such a criterion is making the globally most efficient technology today a norm in India in the next five to seven years; this approach is similar to Japan's Top Runner Program for setting the appliance MEPS or India's DLEP program which aims for lighting market transformation to LEDs in the next few years. Similarly, the goal criteria should include key co-benefits (e.g. 75% improvement in the outdoor air quality that is posing a significant health hazard to the urban population) that could be achieved as a result of the

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energy efficiency policies. For example, in case of the transport sector, the goal could be avoiding oil imports by 50% in the next 5-7 years by enhancing the vehicle efficiency or shifting to more efficient modes of transportation such as rail.

Following are some examples of sector-specific goals and the underlying criteria.

	Appliance and equipment	Industry	Oil – locomotion	Buildings
Example Goal criteria	Today's most efficient technology to be a norm in five to seven years	Today's most efficient industry globally to be the norm in ten years for most energy intensive industries.	Reduce oil import and local air pollution significantly. Move as much locomotion to more efficient modes such as rail.	Current best practice for building design & operation becomes the norm for new construction in five to seven years.
Example Goals	100 GW, 250 TWh by 2022 All lights to be LED by 2018. All ACs, fans, pumps, water heaters etc. bought in 2022 should be twice as efficient as today	Reduce the industrial energy intensity by 20% by 2020. (Can create sub-sector specific goals.) All Designated Consumers to adopt ISO 50001.	Reduce oil import by 10%, 20%, and 50% by 2020, 2030, and 2050 respectively	Reduce overall buildings energy consumption by 15% by 2022 & 25% by 2030. ECBC compliance must reach 90% by 2022; Energy-efficient guidelines/codes made mandatory for certain residential buildings in a year

Given such goals, policy should direct identification of a select national programs with the highest impact. For example, (a) DLEP program for AC, pump, and fans to save 40GW by 2022, (b) Revision of AC standards to save 20GW by 2022, (c) National buildings program to save 25GW from residential and commercial buildings by 2022, (d) Expansion of the PAT program to reduce the industrial energy consumption by 10% in the 2nd phase, and (d) Standards for HDVs and revision of LDV standards to save 20% of oil consumption by 2022 etc.

The national policy should also provide guidance on creating a framework to track the progress of these national programs as well as the goals. For this, the long run goals should be split into a series of short term (3-18 months), medium term (18-36 months) and long term targets (36 months and beyond). Every six months, there should be a progress report and a review of each of the targets to be available in the public domain. EESL, for example, has created an online tracking portal for its DELP and SLNP programs.

2. **Add more specificity, flexibility, predictability to the use of policy instruments**

One of the key issues in the current EE policy framework is that The Energy Conservation Act and any related policy documents do not provide any guidance on the criteria to be used for the stringency and frequency of revision of any EE program. As a result, in certain instances, it does not provide a clear and predictable direction to the industry to plan their future supply chains and manufacturing. Further, in some instances especially in the appliances sector, the energy consumption norms used in the labeling program are not stringent enough to capture even the most cost-effective energy saving opportunities.

In order to achieve the aggressive sector-specific EE goals, the national policy should provide specific guidance on the key policy instruments such as standards and labeling, building codes, trading, bulk procurement, national awards, and incentives etc. This policy guidance should primarily cover the

stringency of the EE norms as well frequency of revision of such norms. Examples of the additional policy guidance include:

a) **Standards and labeling**: All key appliances, equipment, and vehicles should be covered by mandatory standards and labeling programs by 2020. The Minimum Energy Performance Standards (MEPS or 1-star label in case of appliances and fuel economy in case of vehicles) levels should be set in such a way to capture all the cost-effective EE potential. The standard / label levels should be revised every three years with a long term goal of today's most efficient technology becoming the minimum standard after two revisions. Corporate average standards (similar to the Corporate Average Fuel Economy standard in the US) can encourage the companies to push more efficient products in the market aggressively and also provide significant flexibility; moreover, companies may trade savings with each other in order to maintain their fleet level MEPS.

b) **Incentives with bulk procurement:** Over the next five years, DLEP type program should be implemented for 10 most electricity intensive appliances and equipment with a target of super-efficient technology to be 50% of all new purchases. Given the benefits of EE programs to cut utilities' power purchase expenses and in turn their financial deficit, appliance incentive programs may be financed directly using utility revenue. Moreover, incentives could be given considering the overall power sector benefits for example, benefits of DR type programs in RE integration etc.

c) **Building codes**: Simplify and strengthen code compliance responsibilities across central, state and ULB departments, and provide incentive through central sector fund allocation for improved code compliance. In addition to the design related mandates, actual measured performance should also be considered for rating buildings or as part of the building code. Going forward, residential buildings energy code/guidelines should be developed in the next three years; given the implementation challenges, one can begin with multi-family high rises in certain high density urban areas like Delhi. Standardized M&V protocols/guidelines need to be adapted from the globally available and widely used M&V protocols that are crucial to assess the energy savings.

d) **Industrial energy efficiency**: Clear targets are needed for deepening and widening of the PAT program; PAT must cover 80% of all industrial consumption by 2020. Target reduction levels should capture all cost effective energy saving potential. A robust technical framework is essential for developing industry and process benchmarks. Moreover, a trading and pricing framework for Energy Saving Certificates being awarded under the PAT program should be developed within the next one year. For revision of the PAT targets, comprehensive M&V is essential; Adaptation of standardized protocol should be completed within the next 2 years.

e) **Awards for facility and enterprise energy efficiency:** National awards (substantial cash awards or tax-breaks etc.) to recognize: (a) the most energy efficient enterprise in major industrial and building sectors (power generation, cement, steel, aluminum, hotels, hospitals, office, and residential), and (b) companies that have sold significant energy efficient products relative to their total sales (above a certain threshold to ensure minimum scale). For example, if the most efficient technology constitutes 10% of a company's annual sales (minimum gross revenue of Rs 5,000 Cr/year in India operations), it gets a tax-break.

f) **Demand response:** Grid interactive demand response by smart appliances, buildings/industrial consumers, or EV chargers can provide critical services to the grid especially for RE grid integration or during peak demand periods. Given the large potential, by 2022, India should have ~20GW of

automated demand response capacity. Such programs can capture significant co-benefits of efficiency policies and technology upgradation.

g) **Energy efficiency for energy access**: Super-efficient appliances can lower the distributed energy access cost by nearly 50%. Power for All and other initiatives such as solar pumps should mandate using only the most efficient appliances; given the potential reduction in the supply side investments (e.g. solar panels), a part of the total subsidy for energy access should be diverted to purchasing super-efficient appliances.

3. Complement the existing policy framework for accelerated implementation

A complementary framework for creating a robust EE supply chain can accelerate the implementation of the existing policies significantly. The following list gives a few examples of such complementary initiatives.

a) **EE financing**: A robust financing framework is the key to accelerated policy implementation. A focused financing initiative such as offering line of credit to EESL or other agencies, loan guarantees, grants, making EE as a priority lending sector, partial risk sharing of EE programs etc. is important. Additionally, education of the financial institutions for facilitating lending to cost-effective EE programs is needed.

b) **ESCO led programs**: Energy Services Companies (ESCO) are crucial in creating the EE value chain. However, for the ESCO business model to take off, enforcement of the existing codes is crucial; this is especially important since energy costs is a weak driver for EE actions by consumers. EESL or other agencies should provide partial loan guarantees to ESCOs for de-risking their performance based contracts.

c) **End of life policies**: Clear policies need to be made regarding end of life with respect to major energy consuming equipment in industrial, automobiles and buildings sector since very old and extremely inefficient equipment and appliances and vehicles can undo the efficiency gains of the aggressive energy efficiency policies.

d) **Building awareness:** BEE or other agencies should make more analysis (e.g. life cycle cost analysis) available in the public domain in order to build consumer as well as lender confidence in EE technologies and material especially in the buildings and industrial sector.

e) **Energy use disclosures:** Mandatory energy use disclosure programs, such as energy use reporting by commercial and large residential buildings at the time of real estate transactions and/or property filing could be helpful in making energy consumption as one of the decision variables in such transactions.

4. Provide additional guidance for transparency, accountability, and public participation in standard formulation and regulation process

Encourage "evidence based" policy making that will require additional data collection, market assessment, and rigorous analyses through monitoring and measurement. For example, decisions about the "cost-effective" levels for determining the stringency levels (such as MEPS) should be made only after significant technology, market, and cost-benefit assessments. Introduce transparency in the energy efficiency policy making process by encouraging civil society groups and academia to participate in the process and by making all the data and analyses available in the public domain. Electricity regulatory process is a good example to follow in this regard.

5. Add institutional and implementation capability

a) **Resource allocation**: The resource allocations for the key EE agencies both at the central (such as BEE, EESL) as well as state (SDAs) level should be commensurate with the saving potential and should be increased significantly – both in terms of staff as well as program funds.

b) **Institutional capacity building**: Sustained capacity (administrative and technical) development and enhanced technical support to help start policy implementation is crucial; focused and target-oriented bi-lateral and multi-lateral technical assistance programs should be explored for this purpose. There are multiple agencies in charge for overseeing/implementing energy efficiency programs especially in the buildings sector, for example, BEE, PWD, SDA and ULB; greater inter-agency coordination is needed in such cases. Creating Data acquisition, monitoring, and load/consumer surveys are critical for goal setting as well as effective implementation. Additionally, a technical institute /research body focused on energy efficiency (similar to the National Institute for Wind Energy) should be created for providing the technical and analytical expertise for policy and regulation making.