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INTERNATIONAL ENERGY AGENCY

**IMPLEMENTING AGREEMENT ON TECHNOLOGIES
AND PROGRAMMES FOR DEMAND SIDE MANAGEMENT**
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Task XXII

Energy Efficiency Portfolio Standards

Task Definition Paper
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1 Background

Increased Energy Efficiency is globally recognized as a very cost-effective strategy to reduce energy requirement and the related environmental impacts by reduction in GHG emissions. As a result, worldwide Energy Efficiency is continually being acknowledged through innovative market mechanisms and policies to address the issue of climate change. The fourth assessment report of IPCC Working Group III on Mitigation of Climate Change identified lowering the energy intensity of economic activity through increases in the efficiency of vehicles, buildings, appliances, and industrial processes as one of the three pillars of mitigation strategies. The report assesses global potential to reduce approximately 29% of the projected baseline emissions by 2020. This can be cost-effectively achieved in the residential and commercial sectors through improving energy efficiency in new and existing buildings.

Consequently, many countries have set policy targets for reducing emissions and have identified energy efficiency as one of the measures along with coordinated efforts to secure funding arrangement for these programmes. In 2008, the European Commission set a policy target of "20 20 by 2020". The policy sets the target reduction of at least 20% in greenhouse gases (GHG) by 2020. Energy efficiency is identified as one of the key pillar in achieving a 20% reduction in GHG emissions. The European Commission is aiming for a reduction of at least 20% of the EU's energy consumption by 2020. These reductions in energy consumption correspond to overall savings estimated at 390 million tonnes of oil equivalent (Mtoe) each year or €100 billion per year up to 2020 and reduction in CO_2 emissions by 780 million tonnes per year. However with current legislation in place, the European Commission has recently acknowledged that the EU is set to fall short of its 2020 target to reduce energy consumption by 20% and is likely to achieve only 11% by the deadline. Hence, European Commission, in its revised draft energy efficiency action plan has proposed mandatory energy-saving obligations on member states "in line" with the EU's aspirational goal of using 20% less energy in 2020. In addition, most recently (8th Dec 2009) EU national representatives voted to phase out energy-guzzling incandescent light bulbs and inefficient halogen bulbs between 2009 and 2012 in an effort to switch to more energy-efficient lighting to cut greenhouse gas emissions.

In the past few years, Australian Ministerial Council on Energy has announced a comprehensive set of energy efficiency measures comprising the National Framework for Energy Efficiency (NFEE). NFEE aims to unlock the significant but un-tapped economic potential associated with the increased uptake of energy efficient technologies and processes across the Australian economy. NFEE covers a range of policy measures,

designed to overcome the barriers and challenges that prevent the market delivering the actual economic potential of energy efficiency.

Similarly in United States, President Barack Obama, in his Economic Stimulus Package to boost the US economy has announced the major investment plan centred on works creating new energy infrastructure and more energy efficient buildings. He urged Congress to support a raft of measures that include a commitment to improve the energy efficiency of 75% of federal buildings and two million homes. The proposed investment plan would increase funds for implementing energy efficiency measures, tax incentives to boost energy efficiency development and improvement of energy performance of public housing among others. In the US, it is estimated that up to 20% of the nation's energy demand, or about half of the expected demand growth could be met through energy efficiency measures.

2   Motivation

To achieve these ambitious targets for energy efficiency, the countries have introduced various policies and programmes targeting different sectors such as appliances, buildings, industries, etc.   These policies include wide range of instruments such as regulatory directives, voluntary agreements, incentives or subsidies, financing options, education and outreach, etc. For instance, in India, various efforts like Comprehensive Standards and Labelling Program for Appliances, National level Agricultural & Municipal Demand Side Management Programmes, National level Certification program for Energy Auditors and Energy Managers through Examination, Energy Conservation Awards, Energy Saving Certificates Scheme, Energy Conservation Building Code and National Action Plan on Climate Change have been initiated by the Government. Several States have also expressed their commitment to the cause of energy efficiency & demand side management and have undertaken measures to encourage consumers to reduce their demand during certain periods through its tariff measures such as load management charge, power factor rebate and time of day tariff. However, these are being implemented through varied channels and collective impact of these measures is not known.

Similarly, in many other countries, such programmes have evolved over a period of time to cater needs as and when these arise. As a result, these programmes tend to have their own objectives and implementation mechanisms. While a number of these programmes have been successful in realising their objectives, in the absence of unified approach, their full potential is often not realised. Further, as these programmes respond to their own incentive mechanisms and subsequently adhere to their own measurement and verification protocols, it is difficult to quantify total energy efficiency savings which is crucial from the Government's perspective. In order to overcome the existing barriers for energy efficiency

programmes and realise their true potential, it is important that a coherent approach that encompasses all the efforts to implement these measures is developed.

Similar problems were faced by the renewable energy sector in 1980's when plethora of instruments were used to promote various renewable energy technologies. At times, these incentives created unintended and undesirable consequences. However, over the last two decades, several of these measures have been dropped. Today, 'Feed-in Tariff' and 'Renewable Portfolio Standard' are the two most widely used instruments for promotion of renewable energy across the world. While 'Feed-in Tariff' provides fixed tariff for electricity generation from a particular renewable energy technology, 'Renewable Portfolio Standard' (RPS) is a market based instrument which promotes renewable energy generation from the most economical sources of generation.

Taking lead from the concept of RPS, several states in the United States and European countries have adopted Energy Efficiency Portfolio Standards (EEPS) like programmes as part of their efforts to mobilise energy efficiency improvements. These programmes provide market based instrument to utilities to achieve defined target for energy savings.

Within the EU, UK and Italy have so far implemented Tradable White Certificate Schemes as a policy instrument to improve energy efficiency. While these types of programmes have gained momentum globally in the recent past, wide differences exist in their design and implementation. As a result, these programmes have also met with varying degrees of success. Further, there exists tremendous potential for implementation of such programmes in many other countries.

Most recently, the European Commission has proposed to set binding energy efficiency targets for Member States. In its draft, entitled "7 Measures for 2 Million New EU Jobs", it is acknowledged that the member States won't be able to achieve the goal of 20% cut in energy usage by 2020. The Commission has expressed its intention to propose a directive providing for a binding obligation on Member States in line with the agreed 20% energy savings objective, subject to further assessment of its impacts and in particular the need to ensure that such obligations are designed in a manner that are compatible with the effective operation of the EU's ETS scheme and the Effort Sharing Decision for the non-ETS sector. The focus of Commission's impact assessment is on the following aspects:

- Such a legally binding target might be sector specific or be general in scope, covering all aspects of the economy
- Nature of a possible general energy efficiency target i.e. physical limit on the energy that each Member State could consume by 2020, or a target based on savings compared to projected energy consumption

- The need for burden sharing measures adapting the target to each Member State

Taking into account these recent developments in EU and other parts of the world, the proposed task has been designed. The proposed task is expected to develop important policy instrument, which will enable all participating countries to monitor various energy efficiency policies and their impact on energy usage.

3 Objective

The primary objective of this task is 'Development of Best Practices Guide for Design, Development, Implementation and Evaluation of Energy Efficiency Portfolio Standards'

4 Work Plan

The work plan will comprise of three sub-tasks as defined below:

Sub Task I: **Analysis of various approaches to promote EE and their relative efficacy**
Sub Task II: **Development of best practices in design of EEPS**
Sub Task III: **Communication and Outreach**
The subsequent paragraphs detail out the activities proposed under each sub-task.

Sub Task I: Analysis of various approaches to promote EE and their relative efficacy
Subtask Objective
The objective of this task is to analyze various approaches including EEPS like approaches adopted to promote EE and assess their relative efficacy in achieving the desired objectives.

Work to be carried out
It is widely known that many countries have adopted various approaches for implementation of energy efficiency measures. The European Commission has given a series of directives on energy efficiency standards & labels on processes and appliances, performance of buildings, taxation of energy products and electricity, promotion of CHP, energy end use efficiency and energy services and others. The Commission has also put in place a number of policies to achieve their goal of reducing energy consumption. Members of EU, following these directives have formulated various approaches in residential, industrial & tertiary sectors. Some of the countries have placed mandatory commitments to achieve specific energy savings targets on part of suppliers. Further, a number of states in USA have adopted Energy Efficiency Resource Standards (EERS) wherein energy providers are required to meet quantitative targets for energy saving. Each of these approaches has evolved over a period of time. While some have achieved the desired objective, others need to be revisited. In this sub-task, an analysis of these approaches to promote EE will be carried out to establish relative efficacy of these approaches.

Deliverable

A report on various approaches for promotion of energy efficiency measures.

Sub Task II: Development of best practices in design of EEPS

Subtask Objective

The objective of this sub-task is to analyse design parameters and to develop best practices in design of EEPS.

Work to be carried out

EEPS is expected to ensure that cost effective energy efficiency opportunities are pursued to help manage electricity demand growth, lower overall and peak electricity prices, reduce emissions and address reliability concerns. Many states in the United States and a few countries such as UK, Italy, France, etc have implemented energy efficiency standards like programmes. In France, under its White Certificates Trading program, suppliers of energy must meet government-mandated targets for energy savings achieved through their residential and tertiary customers.

Design parameters of EEPS in each of them vary depending on the specific goal the programme intends to achieve. To be able to design EEPS, decision is required to be taken on a number of key design issues and its associated parameters such as identification of various stakeholders, their roles and responsibilities, target settings, its coverage, timing, duration, potential funding arrangements, measurement and verification, implementation mechanism etc. Some of these parameters are tabulated below.

Table 1: Suggested list of design parameters for EEPS

Approach Adopted for EEPS (Top down or Bottom Up)	Participants
Enactment, regulation or voluntary basis	Coverage
Separate EEPS or part of existing programmes	Timing and Duration
Target Setting; Sector specific or general in scope	Enforcement mechanism
Trading and Buying	Funding
Sunset date	Measurement and Verification
Implementation Mechanism	

Measurement and verification is an important part of EEPS program as it helps ensure that saving targets are met and also provide feedback to oversight agencies, program administrators and other participants to adjust energy savings goals, as needed. The two most commonly used approaches for measuring and verifying energy efficiency are the "deemed savings" approach and the project-specific approach. For example, Europe and

some States such as Pennsylvania & Texas in US have adopted deemed savings approach which basically uses pre calculated savings amount for commonly used energy efficiency measures. These values are periodically reviewed and revised based on the results of measurement and verification. Project specific M&V approach is widely used for larger and more complex energy efficiency investments. The approach adopted for M&V is an important design parameter for EEPS like programmes.

Further, it would be important to identify and analyse inter-linkages of EEPS schemes with the other energy efficiency schemes, renewable energy schemes or emission trading schemes e.g. EU's ETS scheme and the Effort Sharing Decision for the non-ETS sector to ensure effective operation of the schemes. In this subtask, these parameters would be analysed and best practices for design of EEPS will be developed.

Deliverable
A report on 'Best Practices in Design of EEPS'

Sub Task III: Communication and Outreach
Subtask Objective
The objective of this sub task is to identify and engage various stakeholders to communicate and disseminate information on setting and development of EEPS.

Deliverable
Information dissemination would be carried out by preparing two newsletters and by conducting one regional workshop to discuss various aspects of EEPS.

5   Timeframe
The Task will begin on February 01, 2010 and will remain in force until January 31, 2011.

Subtasks	Starting date	Ending date
Sub Task I: Analysis of various approaches to promote EE and their relative efficacy	2010-03-01	2010-08-01
Sub Task II: Development of best practices in design of EEPS	2010-08-01	2011-02-31
Sub Task III: Communication and Outreach	2010-03-01	2011-02-31

6   Operating Agent

The proposed Operating Agent for the task is Balawant Joshi, Director ABPS Infrastructure Private Limited. Balawant has more than 16 years experience in energy and utilities sector in India. This experience spans from operations management to financial modeling and valuation, from utility to consulting, from technology to regulatory etc. Further, he has worked in entire value chain in power sector i.e. generation, transmission, distribution and supply.

He has been member of several committees set up by Government and/or Industry Organisations to review and recommend on critical issues associated with the energy & utilities sector. Balawant is a member of the advisory committee for Solar Power Development set up to recommend strategy for development of solar power in India. He has also been involved in the drafting of 'Renewable Energy Law' for India, proposed to ensure sustainable development of energy resources in the country. Currently, he is working as the Operation Agent for Task XX (Branding of Energy Efficiency) and Indian Country Expert for Task XVIII (DSM & Climate Change). Prior to this, he has worked as Indian Country Expert for Task XV (Network Driven DSM) of the IEA – DSM IA.

7   Task Information Plan

The task will produce two major reports, one each at the end of two sub-tasks. Further, two six monthly Task News Letters will be produced and circulated to all participating countries. It is also proposed to conduct one regional workshop. It will be the responsibility of the Operating Agent to produce these reports. These Reports will be available to each of the participating country free of cost. Twelve months after the completion of the Task, the reports will be made publicly available.

8   Further Information

Countries and organizations interested in participating in the 'Energy Efficiency Portfolio Standards' Task may register their interest by contacting:

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