DSDS 2015 Special event on
Ushering Net Zero/Positive Energy Buildings in India
3rd February 2015,
India Habitat Centre, New Delhi

Background note

India's National Statistical Organization mentions the electricity accounted for more than 57 per cent of the total energy consumption during 2011-12 in India. The building sector is already consuming close to 40 per cent of the electricity and this is expected to rise tremendously to 76 per cent by 2040. With the surging energy demand for commercial and residential buildings in India, the focus needs to shift towards improving the energy systems of the already existing buildings through efficient energy management system and to incorporate renewable energy and other measures towards an energy positive building architecture.

Net zero-energy or energy positive buildings demonstrate the new possibility towards producing and conserving energy in the country. According to Global Buildings Performance Network (GBPN)'s definition, positive energy buildings produces more energy from renewable sources than it consumes (excluding plug loads) to achieve appropriate levels of energy consumption. By integrating energy efficiency, bioclimatic architecture and renewable energy in a systematic manner, a neutral annual energy balance can be achieved. These new breeds of buildings are freeing themselves from the fossil energy sources and rising energy prices.

Several international agencies have come up with programmes and campaigns to promote changes in the building sector. In 2013, Global Buildings Performance Network (GBPN) and Renewable Energy and Energy Efficiency Partnership (REEEP) launched the "1 Billion square meters" of Positive Energy Buildings Campaign. It is one of the global efforts that aim to support the up-scale of buildings that produce more energy than they consume to ensure the supply of affordable energy for all. Other such effort was made by the International Partnership for Energy Efficiency Cooperation (IPEEC) which carried out a survey on building rating tools in order to identify how they can help reduce energy consumption and associated greenhouse gas emissions. According to the REN 21's Global Status Report on Renewables, 2014, it is estimated that primary energy demand in 2035 could be 7% lower than under a business-as usual scenario and the majority of the savings would come from efficiency gains in end-uses. Industry would account for 37% of these efficiency-related savings, with buildings contributing to 26% of these savings. Around the world, more government bodies are now targeting the building sector as a potential for saving energy.

A determined attempt can be seen taking place around the world. Various national green building councils continued to promote the adoption of voluntary green building rating systems. Integrating energy efficiency and renewable energy technologies is relevant for

emerging economies like India where rates of building construction and urbanization are high. About 70% of the building stock expected by 2030 is yet to be constructed. Similar efforts can be seen in India as two additional Indian states (Karnataka and Andhra Pradesh) recently adopted the Energy Conservation Building Code (ECBC), which integrates renewable energy and energy efficiency and mandates the use of solar water heating in specific building types. Many other Indian states are currently in the process of adopting the ECBC into state laws. The code, drafted under the Energy Conservation Act, 2001, seeks to reduce energy consumption of commercial buildings by 30 to 40 per cent through adopting various designs. Despite these early ECBC accomplishments, much more remains to be done to achieve the code's full potential. In India, initiatives like GRIHA are a step forward in the energy positive buildings scenario, the implementation needs to be expedited at the same pace.

With this pretext, REEEP in association with TERI is organizing an event to understand the current happenings in the building sector with respect to energy positive buildings in the country and to discuss the future prospects. The event will throw light on the regulatory, fiscal and technological aspects of energy positive buildings thereby discussing the gaps and challenges in the further expansion of these buildings in the immediate future.

Expected learning from the event:

- An overview of energy consumption in building sector.
- Technology interventions for net-zero/positive buildings
- Global and Indian Case studies
- Policy initiatives and implementation strategy
- Barriers to the up-scaling of energy positive buildings at a large scale in the country
- Experiences and challenges in building sector: energy efficiency, renewable energy and financier's perspective