

Existing Building Energy Performance: Challenges and Way Forward

Mr. Sanjay Seth initiated the session with a brief overview of the theme. He highlighted the importance of energy efficiency in buildings to ensure the wise utilization of our natural resources. After thanking all in the audience, he requested Mr. Saurabh Diddi to give the inaugural remarks.

Retrofitting existing buildings is a much more difficult task than making a new energy efficient building. High payback period, coupled with complicated cost economics, make it difficult to plan retrofits. It is essential in this case to create guidelines and road maps to enable facility managers to engage in these opportunities. Such guidelines can extend beyond the commercial building sector to residential and public works. The awareness and dissemination of such information, along with access to achievable Energy Conservation Measures (ECM) can help propel the advancement made in this sector. Through feasible financial models such as ESCOs and demonstration of savings, existing building stock in India can become energy efficient.

Mr. Sanjay Seth then requested Dr. Satish Kumar to deliver the Keynote Address.

Mr. Seth mentioned that before one can start with the process of retro-fitting, it is important to define the need, methodology and framework for the operation. The energy use and demand needs to be meticulously assessed and the load break up for the entire facility needs to be ascertained. In other words, it is important to look beyond the EPI (Energy Performance Index) of a building. Given the lack of data and uniform standards to compare peers, the biggest challenge at this stage is to provide benchmarks of performance. Hence, it is important to also establish the infrastructure required for data collection and analysis such as variable drives, cloud based control and automated data collection. Once the data has been collected, opportunities and threats can be identified. While standards like ISO 15001 define energy management standards, they do not mention reporting and recording activities. The collection of data should continue throughout the operation of the building and can help strengthen the system itself.

Mr. Sanjay Seth requested Mr. Aneesh Kadyan to speak next.

Mr. Aneesh Kadyan spoke about the two key reasons why buildings become inefficient over the course of their operation. Firstly, change in the building use can render the design and planning of it useless. Secondly, poor planning and maintenance can increase energy consumption considerably. It is important for developers and facility managers to shift the focus from conventional parameters such as 'Return On Investment' (ROI) to environmental impact. Climate change is indisputable and the corporate values need to be regenerated accordingly. Policy changes and incentives for energy efficient operation will be key to achieving this. Energy efficiency in existing buildings can be approached through incorporating technology like I.O.T., remote management; or through rating systems like ECBC and GRIHA EB. It is also important to train and hire appropriate staff. The growth of the real estate industry in the last year was 37 million square meters and is expected to grow to 70 million square meter by 2022. This provides an immense pool of facilities which such policies can be implemented on.

Mr. Seth's address was followed by Mr. Arun Bhatia. He started by sharing that in 2016, the Indian building stock was 1.4 billion square meters and in 2017 the stock consumed 71 billion units. While HVAC systems present the biggest opportunity of enhancing energy efficiency in a building, building sciences are more complicated than making HVAC equipment more efficient. While developed countries like the USA have used multiple approaches, like ESCOs and public disclosure, to create an ecosystem to enable energy efficient building operation, India's path would be more complicated. The key to enabling such ecosystems in the Indian context would be to articulate MRV frameworks, create guidelines and Standard Operating Procedures (SOP) for operation & audits, availability of Energy Conservation Measures (ECM) and ensure their proper implementation. Effort needs to be also made at corporate levels to bridge the capacity disparity between big and small developers.

Following Mr. Arun Bhatia, the UTC-TERI Center Of Excellence released "Retrofit Guidelines for Commercial Building". A brief outline of the project and publication was presented by Mr. Pardeep Chauhan, TERI.

The above remarks by Mr. Arun Bhatia were followed by him chairing a panel discussion, with Mr. Shiv Batra and Mr. Dhiraj Wadhwa as co-panelists.

The panel discussed threats and opportunities in energy efficiency for existing buildings. It was established that improper maintenance and ill-informed commissioning of building makes building inefficient. The challenge at the user's end is to spread awareness regarding the savings opportunities and disseminate authentic and credible information. Base-lining and benchmarking remains a challenge given the dearth of data in this sector. Data collection has not infiltrated the Indian market yet and training of staff is limited.

Dr. Ajay Mathur took the dais to conclude the thematic track. He spoke about the importance of understanding, as well as the importance of measuring, reporting and verification. While these systems do not provide direct returns, their functioning is integral. With the advent of new technology which can make these systems more affordable, and the capability to monitor progress in real time, energy efficiency can be achieved at a large scale in the next few years. Target setting, constantly challenging people to deliver, and strengthening partnerships should be prioritized and implemented.