

Minutes of the India Energy Transformation Platform Launch Event

Date: 7th February 2020

Claridges Hotel, Delhi

Inaugural Session

Dr. Anshu Bharadwaj, ED, CSTEP stated that the aim of this project was to find out if India could carve out an alternative development paradigm (without compromising on development or NDCs). He also emphasized the need to look at non-linear pathways for development that could influence multiple sectors. Ms. Marylaure Crettaz, Head, SDC, highlighted the importance of going from the study phase to the implementation phase in the IETP research projects. Mr. Chinmaya Acharya, Interim CEO, SSEF, stressed that higher energy did not equate to higher emissions, as well as the importance of examining the ways in which technological advancements could be used for this.

Ms. Seema Arora, DDG, Confederation of Indian Industry gave perspectives from the industry. She discussed the achievements of the cement industry in setting global benchmarks for efficiency, GHG reduction. Large industries, she said, are thinking about futureproofing their investments from climate change. A salient point during her speech was the uniqueness of the MSME sector, and how it **really needs transformation** to account its GHG emissions and lock out large amounts of carbon. She also emphasized the importance of examining the interconnectedness of sectors and their issues.

Dr. Ashok Kumar, Director, BEE stated that he hoped for the IETP to become a repository of ideas for whenever the BEE wants advice in areas beyond their expertise. How we can create a lifestyle or quality of life with our own benchmarks was a focus of his speech. He

Dr. JR Bhatt, Advisor, MoEFCC gave an overview of how our energy system has been transforming. He stressed on the difference between survival emissions and luxury emissions. He also mentioned how some inefficient coal plants are being shut down and how coal plants are moving towards the ultra-supercritical technology. Dr Bhatt then spoke of how adaption is a critical need of farmers. In his view, it is important to adopt climate-friendly lifestyles.

Embracing Green Technologies

Project presentation: Cost effective and low carbon options to meet India's cooling demand through 2050

Key recommendations from the presentation included:

- Implementing a 'housing for all' policy that has an energy efficient envelope for buildings, recognizes importance of thermal comfort.
- Market transformation of building materials and making them more attractive for developers. 4 items were identified: High performance windows, movable shading, bricks with low conductivity, roof tiles with low conductivity and high solar reflectivity
- R&D focus on
 - Radiative cooling
 - Aerogel based renders
 - Smart windows

If these measures are taken, an estimated 1000 TWh/yr reduction in space cooling electricity demand (in the year 2050) is possible.

Project presentation: Efficient practices and cleaner fuels to meet industrial process heat demand

Key recommendations from the presentation included:

- Encourage energy efficiency in industrial boilers. This could be brought about through:
 - Creation of cluster level network
 - Competitive tendering in EE services/products
 - Development of software's for energy audit
- Estimated GHG reduction of 15-20% by 2050
- Adopt low cost delivered biomass as a fuel - The big challenges in this are Logistics. Currently there are high duty costs for importing biomass and its densification machinery. Reducing import duty on these certain products could go a long way in solving the problem
- R&D in hydrogen - There are pilots targeted to be launched by 2022 but currently the focus of Hydrogen projects remains in the transportation sector. However, it is estimated that this can have a 40-45% reduction in GHG emissions

Apart from recommendations, the challenges involved were also mentioned. The main challenges are in aligning stakeholders and quantifying the benefits.

Panel Discussion:

Important points mentioned were:

- Dr. Satish Kumar, ED, AEEE spoke of setting procurement guidelines to limit the weight of steel, cement used in the building construction. It would help in sending a clear signal to the industry that there's a market available if they invest more in R&D.
- The challenges faced by the biomass industry in India. Two key issues were the lack of information available and a lack of an institution for the harvesting of the crops.

Empowering India the Clean Way

Project presentation: India's transition towards decentralized energy systems

There was a review of the different technologies applicable in decentralized energy systems and 13 technologies were narrowed down as the most promising. These included:

- Rooftop solar
- Solar pump
- Li-ion batteries
- Electrolyzers
- HFC's
- Airborne wind energy

Furthermore, these technologies were looked at in 2 future scenarios: the first with a global carbon pricing, the second a scenario where the nation has set a carbon budget. The second scenario was estimated to be more effective in pushing the technologies

Project presentation: Envisioning the role of various technologies in a RE – dominant electricity system

The presentation highlighted the need for greater flexibility options in the grid to accommodate RE – dominant energy systems. This included pushing for technologies like batteries, pumped hydro and power-to-gas.

There was also a mention of flow-batteries to be applicable at grid scale, given how abundant vanadium was in India

There was also a focus on Hydrogen and the need to popularize it as a fuel. Implementation ideas included:

- Blending Hydrogen with CNG mixtures
- First implementing Hydrogen fuels in Transportation systems

Lastly, there was a recommendation for mandating profitable CPSU's to invest certain percentage of their profits in R&D

Panel Discussion:

Key points mentioned during the panel were:

- There was a strong emphasis on the importance of flexibility in future systems
- The focus from the government remains first on providing energy access to everyone.
- A strong demand for regional power markets

Wish to conduct a comprehensive study on how mini-grids develop and perform