



WORLD SUSTAINABLE DEVELOPMENT SUMMIT 2022

**TOWARDS A RESILIENT PLANET:
ENSURING A SUSTAINABLE AND EQUITABLE FUTURE**

February 16-18, 2022 (Virtual)



**Bloomberg
Philanthropies**

CIFF CHILDREN'S
INVESTMENT FUND
FOUNDATION

Fostering Energy Transitions in India

THEMATIC TRACK SUMMARY

Venue: Sariska

Date: February 18, 2022

Time: 02:45 PM - 04:15 PM (IST)

Suggested Citation

World Sustainable Development Summit (2022), Fostering Energy Transitions in India, Thematic Track Summary (Rapporteurs: Tattaiya Bhattacharjee and Praveer Jha), New Delhi: The Energy and Resources Institute.

Actionable Messages

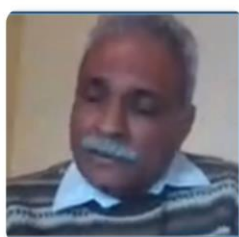
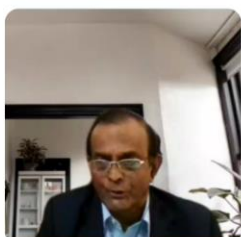
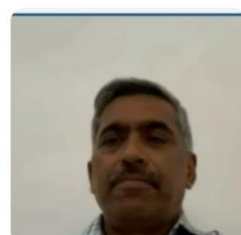
Message 1: Periodic review of the evolution of technologies, cost trajectories and consumer demand is a must.

Message 2: Security and reliability of the grid is equally important along with supply and demand planning.

Message 3: Generating sources like biomass or hydro-power are distributed throughout the nation in comparison to solar / wind. Hence due and additional importance on these sources need to be given as they can create green jobs.

Message 4: India is also working towards developing a carbon markets and is planning to launch by the end of this calendar year. Market mechanisms can be seen as a means to give the right market and policy signals in terms of internalizing externalities.

Message 5: Balance between energy storage and energy supply needs to be emphasized upon.



Narrative

India is tremendously progressing on energy transitions post Paris agreement in terms of capacity addition and investments in renewable energy (RE). Recently India has surpassed 100 GW of installed capacity in renewable energy and is escalating towards the target to achieve net-zero emissions by 2070. To achieve this ambitious target India should shift its focus of generating electricity from only solar and wind energy to other sources of renewable energy such as biomass and hydrogen.

India's energy transition will be significant to climate action as the majority chunk of the carbon dioxide emissions generated by the country are attained through fossil fuel electricity generation. Even though the investments in the coal-fired plant have been reduced but nearly 72% of energy generation mix is still being supplied from thermal power plants. With the increase in penetration of variable renewable energy (VRE) sources in the grid, it will increase the complexity in the grid integration. The RE sources such as solar and wind energy are intermittent in nature hence the forecasting & scheduling for a reliable grid operation becomes a challenge.

Apart from generation side challenges, the nation also needs to improvise on the demand side management (DSM). Manoeuvring the key challenges in both these sectors would help the Indian power sector for smooth energy transition. DSM would be one of the important aspects in achieving net zero targets as well as in the reduction of power costs. The other aspects such load forecasting & scheduling is also important for a reliable and secured grid operation. Load forecasting process should be increased among the state utilities with the coordination of the central authority bodies such as Central Electricity Authority (CEA). Usage of sophisticated modelling tools such as hourly supervisory control and data acquisition (SCADA) data and long term demand forecast is very much essential in the lower utility segments for load forecasting.

Apart from RE capacity addition, energy efficiency and retrofitting existing entities should also be considered. The increase in the number of Roof Top Solar (RTS) would help in load shifting as well contributing in the RE installation targets. With more integration of RE technology, ancillary services should also be focused upon like inertia, power factor etc. More involvement of bio mass, hydro power plants and pumped hydro storage (PSH) into the energy mix should also be focused upon. Unlike solar and wind, which is prevalent in some regions of the country (South and west) and not so prevalent in the other regions (North, East, North-East), the biomass energy could be equally harnessed from all the parts of the country. There is also a huge potential of hydro based generation from the eastern and north-eastern part of India. This will create more and more green jobs across the country.

Storage is another key factor for energy transition and grid integration. India is growing in the integration of battery energy storage systems (BESS) but it should also look beyond BESS in the storage sector. Pumped hydro storage (PSH) would also play an important asset in storage when comes to long run compared to battery storage which has a comparatively shorter life span. The storage would also take care of deviation settlement mechanism (DSM) charges. With the high investment cost of storage systems government should bring viability gap funding (VGF) schemes to support the companies/developers.

Local manufacturing of renewable energy equipment is the need of the hour. In order to reduce the overall cost of energy production local manufacturing should be majorly encouraged. Recently, the Government of India has introduced a massive production linked incentive (PLI) schemes with a primary focus on domestic manufacturing of RE equipments and energy efficiency which would help in RE capacity addition along with reducing the cost of energy. Moreover, the Government has also started a research and development (R&D) scheme where 50% of the funding would be provided by central government for the production of the system. Further to reduce the higher investment cost in RE sector, de-risking of the sector needs to be done by timely paying the electricity bills and providing affordable power to the consumers. Central and states government needs to work together for resource adequacy planning and forming policies. India is also working towards developing a carbon market and is planning to launch by the end of this calendar year.

Long term planning prospective is necessary to intervene policy measures that would lead to a smooth energy transition as well as provide sustainable & cost effective way to reliable and affordable power. In order to meet the 500 GW target by 2030, India would need to increase its RE capacity from 10 GW to 50 GW annually. Developing a close coordination between the states and central for resource planning, assessment and demand-supply management is also necessary. The future is uncertain in the energy sector as there is a constant development in the newer technologies, game changing innovations, changing demand, grid reliability and power quality. The most important requirement in the energy transition is the proper formulation of the energy policies and the ability to follow through.

Making Words Count @WSDS 2022

“

India has a good track record towards tackling climate change. Emphasis on demand side management should be the starting point for energy transition

Mr. Alok Kumar
Secretary, Ministry of Power, Government of India

“

Resource Adequacy Planning at the state levels should be based on a bottom up approach. Distributed RE generation is very important in rural areas as it would help in reducing the cost of electricity supply.

Mr. Rakesh Nath,
Former Member, APTEL & Former Chairperson, Central Electricity Authority

“

The URJA or Energy literacy Programme has been able to reach out to every individual to teach them about energy conservation without compromising on their daily activities. The Biomass production sector is unorganised and we need aggregator based models for further growth.

Mr. Sanjay Dubey
Principal Secretary (Energy), Government of Madhya Pradesh

“

A least cost approach is necessary to bring down the cost of energy. One approach could be to de-risk the RE sector by timely payments and enforcing contractual sanctity.

Mr. S.R. Narasimhan
Chairman and Managing Director, POSOCO

“

Energy transition is an ultramarathon. 2030 & beyond is going to be a very different scenario altogether for the Transmission sector.

Dr. Winfried Damm
Head of Indo-German Energy programme, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

“

Emphasis should be given on load forecasting and sophisticated simulation tools at state levels. Clarity is necessary on the dedicated agencies for state level planning in order to pace forward in this sector.

Mr. Ajay Talegaonkar
Chief Engineer, Financial & Commercial Appraisal, Central Electricity Authority

“

The INR 4500 Crore Production Linked Incentive (PLI) scheme of RE equipment beneficial for localization of equipment related to RE generation. The 20% ethanol blending is going to provide a boost to the biomass industry.

Dr. A.K. Tripathi,
Former Director General, National Institute of Solar Energy, Advisor, MNRE

“

Grid reliability is an issue in the North Eastern region of India with 5-8 hours of power interruptions in power supply. Energy transition should be planned with the target of providing affordable, reliable power supply to the farthest rural areas of India.

Col. Vijay Bhaskar
Managing Director, Hamara Grid Pvt. Ltd.