

Plenary

Electricity Systems of the Future in the Economies of the Future

18 July 2019 | 1600 - 1745 hrs

Hyatt Regency, New Delhi

Electricity generation and transmission systems have remained largely unchanged since their invention in the 19th century. The grid was originally designed for one-way flow of electricity from conventional power plants to consumption sites. The broad contours have not changed over time, but in the recent past, major disruptions in technologies and business models are changing the landscape of options for how we generate, transmit, distribute, and consume electricity.

These disruptions in the system are creating (often existential) challenges for the transmission and distribution sectors. Generation of electricity from variable sources (solar and wind) has made the grid operator's role even more critical. Real-time scheduling and forecasting of supply and demand of power is now a norm. Increasing shares of grid-connected distributed renewable energy is adding to the complexity of the system. Additionally, technological and commercial improvements in energy storage and electrical vehicles are expected to usher in an era of further modifications to the grid-based electricity system. And these technological changes will also disrupt overall governance of the power sector.

Fortunately, emerging economies have an opportunity to learn from more advanced economies, while determining their own advances to a smarter hybrid of the grid and a more distributed electricity system, with a greater share of renewable energy. While the prospect of the above may seem imminent and desirable, many inherent challenges need to be addressed to achieve these outcomes. Analysis by the CEEW Centre of Energy Finance suggests that the lack of conducive policies and absence of bespoke financial solutions are the biggest impediments to developing energy infrastructure in emerging economies. Countries may need to make many structural changes in their economy and governance levels to encourage innovation, nudge systems design, and facilitate finance necessary to leapfrog to a smarter, hybrid system.

The first plenary session of Energy Horizons 2019, CEEW's annual flagship event, will discuss the future of the power system and over-the-horizon solutions to create a cleaner and smarter grid in emerging economies. The deliberation will address the three drivers: policy, technology and finance with the following aims:

1. Identify structural changes in emerging economies to attract the necessary investment to develop electricity systems of the future
2. Discuss how to shift away from *one size fits all* approaches for emerging economies
3. Imagine and build public acceptance for novel solutions
4. Outline the role of public money in facilitating the leapfrog to a different system
5. Define the regulatory changes and nimbleness required to design an electricity system of tomorrow and beyond.