

Workshop on “Economic Principles for Electricity Markets”

Date: July 25 to July 30, 2018

Venue: Radisson Blu Atria, Bangalore

The Indian power sector is facing new and emerging challenges in its effort to provide efficient, reliable, and affordable power. The policymakers, regulators, operators, and other stakeholders in this sector are looking for innovative market structures and designs to smoothly and successfully meet the increasing demand of the consumers.

In this context, the Center for Study of Science, Technology and Policy (CSTEP), in partnership with Regulatory Assistance Project (RAP) organised a training workshop on “Economic Principles for Electricity Markets” from July 25 to July 30, 2018. The officials from entities in Karnataka’s power sector (Bangalore Electricity Supply Company Limited (BESCOM), Power Company of Karnataka Limited (PCKL), Karnataka Power Transmission Corporation Limited (KPTCL), Southern Regional Load Despatch Centre (SRLDC), and Southern Load Despatch Centre (SLDC)), attended the first session of the workshop from July 25 to July 27, 2018.

The second session from July 28 to July 30, 2018 was attended by officials from various civil society organisations (Prayas Energy Group, Council On Energy, Environment and Water (CEEW), Greenpeace, Brookings India, Shakti Foundation, Centre for Policy Research (CPR), Centre for Science and Environment (CSE), ASAR Social Impact Advisors Private Limited (ASAR), World Resources Institute, India) and academic institutions (Harvard University, Indian Institute of Science, Institute of Management Technology, Hyderabad and National Institute of Advanced Studies).

The workshop provided an introduction to the economics of electricity sector resources and to the suite of options available for providing reliable and affordable electricity services. It involved lecture presentations, discussions, and hands-on operation of an electricity system simulation model.

Day 1

Lessons on Day 1 focused on developing a deeper understanding of key techno-economic principles and their applications in utilising the existing power sector assets to provide electricity at the least cost possible to consumers. Participants got an opportunity to explore the following questions:

- What are variable and fixed costs?
- What are the various alternatives for creating merit orders?
- How can we think about power exchanges relative to the already contracted capacity?

Day 2

The discussions on Day 2 continued to focus on developing a deeper understanding of key techno-economic principles. The sessions enabled the participants to discuss the following:

- What are the various ways of procuring energy to meet demand, and what are the pros/cons associated with them?
- How do we evaluate the various ways of procuring energy?

- What are the ways to minimise the risks, in case incorrect decisions are made or circumstances change?

Day 3

Discussions on Day 3 synthesised and applied the concepts discussed during the first two days. The discussions were complemented by games in which participants made decisions in a simulated environment—for example, a continuous double auction exercise was tried where buyers and sellers post their bids and offers online. The objective was to understand the best strategy of making bids and offers so as to earn maximum profit.

Key Takeaways

The workshop helped power sector professionals understand the economic-engineering concepts underlying competitive electricity markets, in terms of both theory and applications. Topics specifically covering different types of power purchase mechanisms, benefits of centralised auctions as compared to bilateral transactions and benefits of having flexible resources in the energy mix vis-à-vis baseload-only portfolio prompted discussions amongst participants. The lectures will help participants from state agencies in identifying strategies in power procurement and overall system operation and planning. The simulation exercise, in particular, provided hands-on experience in understanding the risks and uncertainties associated with wholesale power markets. It was suggested that going forward, such training programmes could be conducted for a larger audience within participating institutions, at the state level.