India Hydropower Virtual Webinar

October 12th, 2021

15:00-17:15 IST/ 11:30-13:45 CET

Virtual webinar

Partners:

International Energy Agency

Program for the Hydropwer virtual webinar

Note on proposed IEA-CSTEP virtual webinar on hydropower in India

Background

Hydropower is the backbone of low-carbon electricity generation, providing almost half of it worldwide today. Hydropower's contribution is 55% higher than nuclear's and larger than that of all other renewables combined. Hydropower plants also make a major contribution to the flexibility and security of electricity systems. In June 2021, the IEA published the first ever market report dedicated to hydropower. Hydropower Special Market Report highlighted the economic and policy environment for hydropower development, addresses the challenges it faces, and offers policy recommendations to accelerate growth and maintain the existing infrastructure. The report presented ten-year capacity and generation forecasts for reservoir, run-of-river and pumped storage projects across the globe. Accordingly, global hydropower capacity is set to increase by 17%, or 230 GW, between 2021 and 2030. Despite hydropower's untapped economically viable potential, net capacity additions over this period are forecast to decrease by 23% compared with the previous decade without major policy changes.

India is the second largest growth market after China providing 11% of global hydropower expansion through 2030. Fast-growing power demand, large untapped potential and growing flexibility needs are main drivers behind India's hydropower growth. However, challenges persist in terms of mobilising affordable financing for sustainable hydropower, valuing and recognizing multi-purpose benefits of plants and supporting the rapid expansion of pumped storage hydro (PSH). The rising shares of variable renewable energy as well as variable load patterns from electric vehicles and higher cooling demand are all expected to increase India's flexibility needs. Despite recent cost reductions in batteries, PSH remains the most cost-effective long-term storage option. PSH plants can provide almost all system services whilst ensuring electricity security and grid stability. The Central Electricity Authority (CEA) estimated a PSH potential of 96 GW in 63 identified sites, but only 3.3 GW is operational in India to date. Relatively high initial investment cost PSH plants and relatively poor business case due to the existing pricing mechanism are main reasons behind slow expansion. CSTEP has also developed differential pricing mechanisms that could help increase PSH uptake in India.

Date proposed: 12th October 2021

Approach

- Length: 2-hour 15 mins
- Participation: Government, NGOs and the private sector stakeholders relevant for hydropower.
- Flow: Presentations followed by moderated panel discussion (no presentations)

Program for the Hydropower Virtual Webinar 2021

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15h00 – 15h20 IST	**Opening and High-level Context** **Keisuke Sadamori** – Director Energy Markets and Security IEA, Hydropower's role in Net Zero by 2050 (5 min) **Shri S.K.G. Rahate, Additional Secretary- Ministry of Power (keynote address)** Overview of India's hydropower targets and federal policy environment (7mins) **Dr Jai Asundi** – Executive Director, CSTEP The Role of Hydro & Pumped-hydro for grid flexibility in India - (5 min)

15h20 – 16h05 IST	**Session 1: Hydro power development: Globally and India (45 mins)** **Presentation**: IEA Hydro Market report focusing on global deployment trends, drivers and challenges and India's role in APAC and global growth – IEA, Mr. Heymi Bahar, Senior Energy Analyst (10 mins) **Panel Discussion:** Drivers and challenges for sustainable development of hydro projects in India, policy and regulatory environment- Moderated by Mr. Heymi Bahar (35 mins) **Integrated Research and Action for Development (IRADe)** Mr. Pankaj Batra, Project Director, Former Chairperson Central electricity authority • What is the regulatory process for permitting hydropower projects in India and what are the main challenges for developers in completing the process? • How is the sustainable development of hydropower reflected in the permitting process in India? • What are the developments in regulatory to accelerate permitting? • What is role of hydropower in the long-term energy strategy of India? • What are the main technical and sustainability standards to be considered for developing hydropower projects in India? • What framework and planning strategy have been key in promoting and assisting timely completion of hydropower schemes and projects? What have been the major challenges in developing a standard framework? • What have been the challenges for developing hydro power projects between inter-state government and generation companies? **NHPC–** Mr. Abhay Kumar Singh, CMD, NHPC • What are the main challenges to developing hydropower projects in India and abroad? • How does the access to financing affect the development of a hydropower project?

	• What should a developer consider when investing in cross-border projects? **National Institute of Hydrology (NIH)** – Mr. R.P. Pandey, Scientist G • How can state governments support hydropower development? • What is the role of federal and state level incentives of hydropower development in the region? • What types of regulations are currently present that optimize the untapped potential effectively and efficiently? • What policies and regulatory frameworks have been successful in development of small-hydro projects in Uttarakhand? • What are the major sustainability and environmental challenges faced by the state for the development of Hydropower projects? **World Bank** – Pyush Dogra, Senior Environmental & Hydro Specialist • What are the risks involved in financing a hydropower project in the region? • What are the key characteristics of a successful financing environment for hydropower in this region? • How can MDBs play a role in de-risking the investment? • What type of financial instruments are available and have been proven successful in developing Hydropower projects in India?

16h05 – 17h00 IST	**Session 2 – Potential of hydro for system integration, flexibility and storage (55 mins)** **Presentation 1**: Role of hydropower in providing flexibility to the power system: IEA, Mr. Heymi Bahar, Senior Energy Analyst (10 mins) **Presentation 2**: Pumped hydro storage analysis- CSTEP, Dr. Ammu Susanna Jacob, Senior Research Engineer (10 mins) **Panel discussion**- Opportunities and challenges for hydro/PHS as source of flexibility, balancing and storage- Moderated by CSTEP, Mr.Abhishek Nath Sector Head – Energy & Power (35 mins) **Power system operation corporation (POSOCO)** - Mr. Sushil Soonee, Advisor • What role does hydropower play in providing system flexibility in India? • Is India using the existing hydropower plants efficiently and to their full potential? • How does hydropower help to integrate different types of technologies, especially the rising share of variable renewable energy in India?

	Solar energy corporation of India (SECI) – Col. A.K.Sinha, AGM (C&P) • What are the learnings from developing one of the world's first PSH-winning tenders? • How important is auction design in attracting investment in storage projects? **Private sector Owner of PSH plant** - Mr. Balaram G. V. Former Executive Director, Greenko group • What are the prospects for hybrid projects and PSH? • How can state governments assess the feasibility of developing pumped storage? Best practices? • How do the market conditions incentives or challenge the business case for pumped storage plants? • Will a differential pricing attract more investors into this sector?

17h00 – 17h15 IST	**Wrap up and take aways:** **CSTEP - Mr. Abhishek Nath, Sector Head – Energy & Power** **IEA – Dr. Paolo Frankl, Head Renewable Energy Division**

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