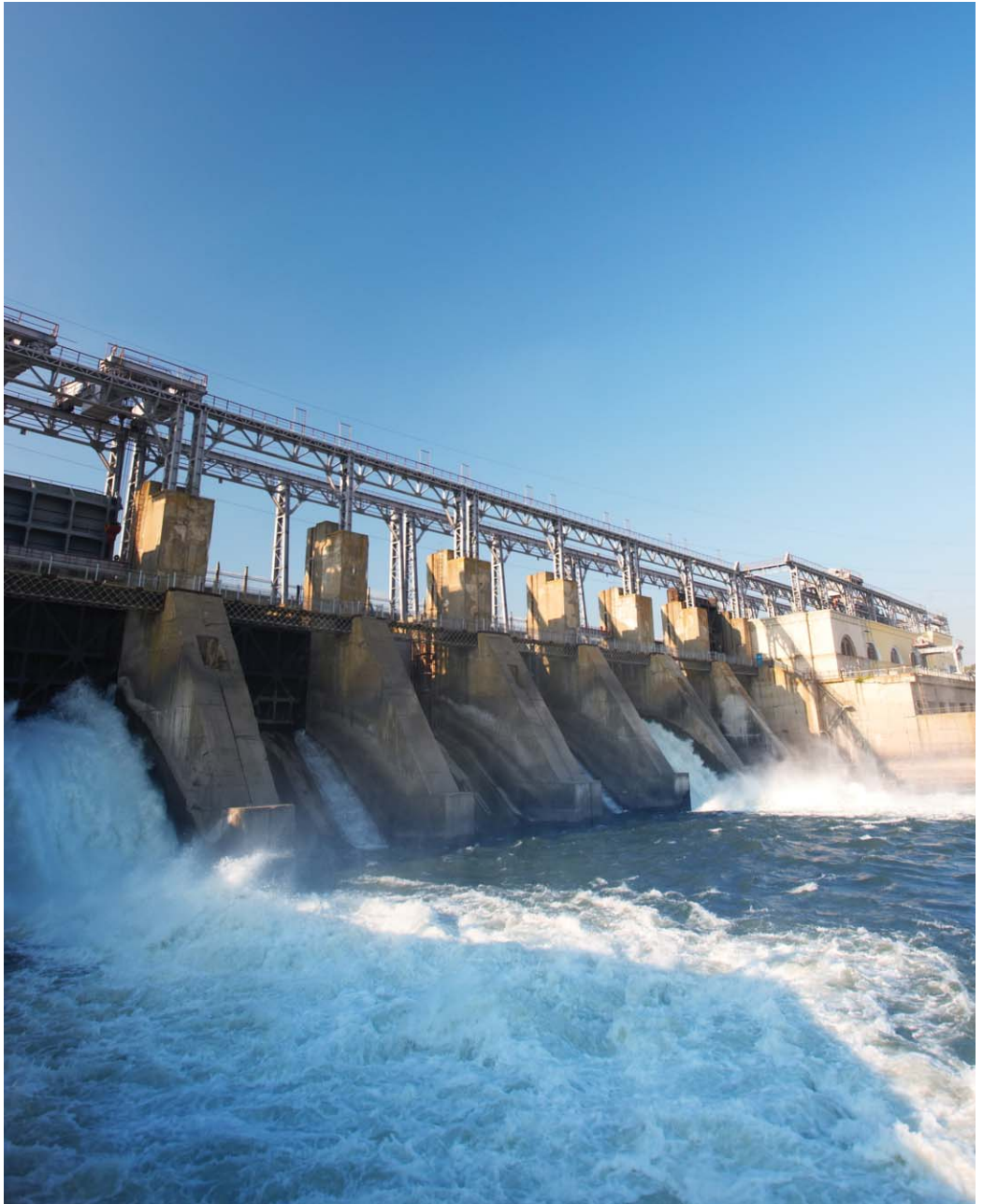


19<sup>th</sup> Annual Conference on

# HYDRO POWER IN INDIA

Experience, Opportunities and Challenges

January 20-21, 2022



Organisers:



Supported by:



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# Hydro Power in India

## Mission

- Hydro power is an important resource in the energy-mix that helps meet the flexibilisation and load balancing requirements. However, it is witnessing a slowdown in capacity addition for a while now, and its share in the generation mix is declining. In 2020-21, the country added 510 MW of hydro power capacity. The current hydro capacity is over 46.5 GW (above 25 MW), 12 per cent of total installed capacity. In 2020-21, 150 BUs of hydro power was generated, accounting for 11 per cent of the total power generation.
- Recently, at the COP26 summit in Glasgow, India pledged to achieve 500 GW of non-fossil fuel capacity by 2030 and meet 50 per cent of its energy requirement from renewable energy sources by then. Hydro power is being looked at as an important source to achieving these targets, and balancing the intermittent renewable generation.
- Following up to the key measures announced by the government in 2019 to promote the hydropower segment, the power ministry has notified the hydropower purchase obligation trajectory up to 2029-30, to ensure greater offtake from HEPs. Further, the ministry has issued guidelines for budgetary support for flood moderation and to creation of enabling infrastructure like road and bridges associated with HEPs.
- In view of the growing renewable energy additions, pumped hydro storage is the most cost-effective and a proven technology solution for energy storage on a large scale. The development of PSPs has been slow owing to the high capex requirement and the absence of a suitable pricing mechanism. India has an estimated PSP potential of 96 GW, of which 4.7 GW (above 25 MW) has been commissioned and another 1,500 MW is under construction. Another option gaining interest is hybrid technologies (such as floating PV) for enabling different renewable technologies to work together and complement each other.
- Hydro power also provides benefits and opportunities for regional energy cooperation and cross-border power trade in South Asia, especially among the BBIN countries (Bangladesh-Bhutan-India-Nepal). Hydro imports and exports constitute a major share of cross-border trade in the region, and its share is expected to go up in the coming years with the commissioning of under-construction HEPs.
- On the technology front, the digitalisation of HEPs is gaining traction. It will help enhance operational efficiency, reduce O&M costs and optimise asset management. The operators are increasingly transitioning to condition-based monitoring, and predictive and preventive asset management strategies. They are exploring solutions for remote monitoring and operations of HEPs.
- In terms of the future pipeline, by 2029-30, the CEA has projected the installed hydro capacity to reach 72 GW. There are nearly 13 GW of hydropower projects, which are currently under various stages of execution. However, the development of hydro power is marred by a host of challenges including the unavailability of low-cost finance, geological surprises, R&S issues, and delays in obtaining clearances. A number of steps have been announced to address these challenges. However, the progress on the ground remains slow.
- **The mission of the conference is to highlight the upcoming opportunities, identify the unresolved issues and challenges, and discuss the future outlook for the hydropower segment in India. The conference will also provide a platform to showcase new and promising technologies, best practices in construction methods, and noteworthy projects.**

## Target Audience

The event is expected to draw participation from executives, managers and decision-makers from:

- Central Public Units
- Technology Providers
- Private Power Producers
- Consultants
- Regulatory Boards
- State Electricity Boards
- Civil Work Contractors
- State/Central Government Agencies
- Interstate Hydro Projects
- Equipment Manufacturers
- Cross Border Hydro Projects
- Legal Firms
- Financial Institutions
- Etc.

## AGENDA/STRUCTURE

### KEY TRENDS AND OUTLOOK

- ❖ What are the key trends in the hydro- power segment?
- ❖ What are the biggest issues and challenges?
- ❖ What are the opportunities and future outlook?

### GOVERNMENT PERSPECTIVE

- ❖ What is the government's perspective on hydro- power development?
- ❖ What have been the recent initiatives?
- ❖ What are the issues and challenges? What is the future outlook?

### CPSU PERSPECTIVE

- ❖ What is the perspective of CPSUs on the hydro power segment?
- ❖ What are the issues and challenges?
- ❖ What are the future plans and targets?

### PRIVATE DEVELOPERS' PERSPECTIVE

- ❖ What is the perspective of private players on the hydro power segment?
- ❖ What are the issues and challenges?
- ❖ What is the future outlook?

### STATE INITIATIVES

- ❖ What has been the trend in hydro power development by hydro-rich states?
- ❖ What initiatives have been taken to promote hydro power?
- ❖ What are the issues and challenges? What are the future plans and targets?

### FINANCIERS' PERSPECTIVE

- ❖ What is the financier and lender perspective on hydro power?
- ❖ What are the biggest issues and concerns?
- ❖ What is the outlook? What are the investment opportunities?

### DIGITALISATION AND AUTOMATION OF HEPs

- ❖ What are the most promising digital tools and solutions for HEPs?
- ❖ What has been the trend in the uptake of digital solutions?
- ❖ What are the issues and challenges? What is the future outlook?

### ROLE OF HYDRO POWER TOWARDS NET ZERO

- ❖ What is the expected role of hydro power towards meeting the net zero target?
- ❖ What are the incentives needed to promote hydro for balancing growing renewable generation?
- ❖ What is the outlook? What are the key areas of concern?

### O&M AND ASSET MANAGEMENT STRATEGIES

- ❖ What are new and emerging asset management strategies being deployed?
- ❖ What are the O&M needs and requirements of HEPs?
- ❖ What are the issues and challenges? What is the future outlook?

### PUMPED STORAGE HEPs

- ❖ What has been the experience in harnessing pumped storage hydro power?
- ❖ What are its advantages for load balancing and energy storage?
- ❖ What are the key issues and challenges? What is the outlook for this segment?

### HYBRID TECHNOLOGIES (FLOATING SOLAR, ETC.)

- ❖ What are the potential advantages of PV-solar hybrid plants?
- ❖ What has been the experience so far?
- ❖ What are the issues and concerns?

### CROSS-BORDER INITIATIVES

- ❖ What has been the experience so far?
- ❖ What are the upcoming hydro projects in the neighbouring countries?
- ❖ What are the key issues and concerns? What is the future outlook?

### R&M OF HEPs

- ❖ What are the R&M requirements of aging HEPs?
- ❖ What are the issues and challenges faced in the R&M of HEPs?
- ❖ What is the future outlook?

### COSTS AND TARIFFS

- ❖ What has been the trend in costs, tariffs and power procurement of new and old HEPs?
- ❖ What has been the recent trend in hydro power tariffs?
- ❖ What is the outlook?

### ADVANCES IN TURBINES AND GENERATORS

- ❖ What are the new and emerging technologies and solutions for turbines and generators?
- ❖ What are the O&M- related best practices?
- ❖ What are the key issues and challenges?

### TUNELLING AND UNDERGROUND WORKS

- ❖ What are the key challenges involved in tunnelling and underground works?
- ❖ What have been the recent technological advancements to tackle these?
- ❖ What are some of the noteworthy projects?



# Hydro Power in India

## Previous Participants

Our 18th annual conference on **Hydro Power in India** had **150 plus participants** from **70 plus organisations** which included: ABB, Afcons Infrastructure, AFRY, Allied Hydro Engineers, Andritz Hydro, Angelique International, ARH Technologies, Arniko Nirman Company, Asian Development Bank, ATB Riva, Autodesk, Bajaj Reinforcements LLP, Bauer Kompressoren, Bhutan Hydropower Services, Bhutwal Power Company, Carpi India Waterproofing Specialists, Dr. Hutarew & Partner, Druk Green Power Corporation, Eaton, Entura Consultants, Forum of the Hydro Power Producers in various river basins of Himachal Pradesh, Envecon Global Solutions, EXIM Bank, GALL ZEIDLER Consultants, GE Renewable Energy, GSECL, GILKES, GMR Energy, Greenko Budhil Hydro Power, Haryana Power Gen Corporation, HBPLC JSW Energy, ICICI Bank, Industrial Processors & Metallizers, J&K State Power Development Corporation, JSW Energy, JSW Power Trading, Karnataka Renewable Energy Development, KEI Industries, Kholongchhu Hydro Energy Limited (A Joint Venture of SJVN (India) & DGPC (Bhutan), Khutani Company, Electricity Regulatory Commission, Maharashtra State Power Generation, Malana Power, MPGENCO, MPPGCL, Ministry of Energy, Water Resources and Irrigation, Nepal, Municipal Corporation of Greater Mumbai, NEEPCO, Neora Hydro, Nepal Electricity Authority, NHPC, NTPC, Odisha Hydro Power Corporation, Paschim Hydro, PFC, PHPA-I, Bhutan, PHPA-II, Bhutan, Premier Electric Marketing LLP, PSPCL, PTC, PTCUL, Remit Hydro, RotoTech Engineering Services, Sangamam Power, Scatec Solar, Shyama Power, SBI Capital Markets, SIKA, SJVN, SMEC, Statkraft, STP, Tanahu Hydropower, Tangsibji Hydro Energy, Tata Power, Teest Urja, Telangana State Power Generation Corporation (TSGENCO), Tranter, Tuffboom India Products LLP, UJVNL, Uttarakhand Electricity Regulatory Commission, VAG-Valves, Voith Hydro, Volvo, WEG Industries, Wapcos, etc.

We had over **180 plus participants** from **85 plus organizations** at our successfully concluded second edition of “**Hydro Power in Asia**” conference held on **August 17-18, 2021**. The organisations included: Accelerating Investment and Infrastructure in Nepal – (AIIN), AECOM, Alamport, Alternergy, ANDRITZ Hydro, Asian Infrastructure Investment Bank, AIIB, ATB Riva Calzoni, Bajaj Reinforcement LLP, Bhutan Automation & Engineering, Bhutan Electricity Authority, Capital Region Development Authority, Carpi India Waterproofing Specialists, CARPI TECH BV AMSTERDAM, BALERNA BRANCH, CEPAD hydro Consultants, Coastal Projects, Deloitte Consulting, Electricity Generation Authority of Thailand, Fluid Logic Systems Pvt. Ltd. (JV company of VOITH TURBO Germany), FMG Laos, GE Power, GE Renewable Energy, Gilbert Gilkes & Gordon, Global Business Power Corp, GMR Energy, Greenko Budhil Hydro Power, Hydro Tasmania, Hydropower Investment and Development, Company – Nepal, Hyundai Engineering, IFC, INDAR ELECTRIC, S.L., Industrial Processors & Metallizers (P) Ltd, International Energy, Agency (IEA) Hydropower group, J.kumar-CRTG infraprojects, Jacobs Engineering Group Malaysia Sdn Bhd, Jade Consult, Klohn Crippen, Berger, KPMG, LEA Associates South Asia, Lombardi Engineering Makarigad Hydro Power, Mekong River Commission, Ministry of Energy Water Resources and Irrigation- Nepal, MYK Arment, NEEPCO (Kameng hydro project), Nelumbo Icona Controls, Nepal Engineering Council, Nepal Power Exchange Limited, Newjec, Nexwave Technologies, NHPC, North Hydro and Engineering, Nupche Likhu Hydropower Project, Paschim Hydro, Premier Electric Marketing LLP, PT LAPI ITB Joint Project Freeport Indonesia Company, PT POSO ENERGY, PT. Adimitra Hidro Nusantara, PT. Sumberdaya Sewatama (part of Tiara Marga Trakindo Group), PwC, RADD Engineering Analytics, San Miguel Global Power Corporation, Sanima Hydro And Engineering, Sarawak Energy Berhad, Siemens, Sipradi Trading, SMEC India, Snow Fountain, Consultants, Soilex Consultants, Solar Energy Research Institute of Singapore (SERIS), Statkraft, Summit Bibiyana Power Company, Super Dordi Hydro Electric Project Kha, Syarikat SESCO Berhad, Symantec Technology, Terregra Asia energy Tbk Group, Tehri Hydro Development Corporation, Tenaga Nasional Berhad, TRACTEBEL, UJVNL, UNIDO, Vidullanka Energy, Vilas Patil & Associate, Voith Hydro, Wells Engineering, LLC, World Bank Group, Worthington Products, Inc, WWS Wasserkraft GmbH, etc.

## Organisers

The conference is being organised by **India Infrastructure Publishing**, the leading provider of information on the infrastructure sectors. The company publishes **Power Line**, **Indian Infrastructure** and **Renewable Watch** magazines. It also publishes a series of reports on the energy sector including **Hydropower in India**, **Power Transmission in India**, and **Power Distribution in India**. The company also publishes the **Power Line Directory and Yearbook**.

# 19th Annual Conference on HYDRO POWER IN INDIA

## Experience, Opportunities and Challenges

January 20-21, 2022

### Registration Form

I would like to register for the conference. I am enclosing Rs \_\_\_\_\_ vide cheque/demand draft no. \_\_\_\_\_ drawn on \_\_\_\_\_ dated \_\_\_\_\_ Company GST No. \_\_\_\_\_ in favour of **India Infrastructure Publishing Pvt. Ltd.** payable at New Delhi.

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### Registration Fee

Delegates	Fee			
	INR	GST@18%	Total INR	Total USD
1 login	15,000	2,700	17,700	255
2 logins	25,000	4,500	29,500	380
3 logins	35,000	6,300	41,300	505
4 logins	45,000	8,100	53,100	630
5 logins	55,000	9,900	64,900	755

- There is a special low fee of Rs 3,000 per participant for state utilities, regulatory authorities, academic institutions and government agencies (not public sector corporates).
- GST of 18% is applicable on registration fee.
- Registration will be confirmed on the receipt of payment.
- To register online, please log on to <http://indiainfrastructure.com/conf.html>

#### Payment Policy:

- Full payment must be received prior to the conference.
- Conference fee includes lunch, tea/coffee and conference materials.
- Conference fees cannot be substituted for any other product or service being extended by India Infrastructure Publishing Pvt. Ltd.

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