

Workshop
on
**Turbine Model Testing,
Silt and Abrasive Erosion Measurements**
26th November, 2018

Jointly Organized By



Alternate Hydro Energy Centre (AHEC)
Indian Institute of Technology Roorkee

and



Forum of the Hydro Power Producers (HPPF)
In Satluj, Beas, Ravi, Chenab and Yamuna Basins of Himachal Pradesh

In co-operation With



Himachal Pradesh Power Corporation Ltd. (HPPCL)
Himachal Pradesh Government Undertaking

VENUE

**Conference Hall of HPPCL
Himfed Building, Below BCS, New Shimla
Shimla-171009 (HP)**

Workshop

on

Turbine Model Testing, Silt and Abrasive Erosion Measurements

INTRODUCTION

With the support of Ministry of New and Renewable Energy (MNRE), Govt. of India, an **International-level hydro turbine R&D laboratory has been established at Alternate Hydro Energy Centre, Indian Institute of Technology Roorkee** as design and validation facility in addition to conducting research in hydro turbines and other hydro mechanical equipment conforming to national and international standards. **The Laboratory was inaugurated by Hon'ble Union Minister of State for Power and New and Renewable Energy, Govt. of India, Mr. R.K. Singh on April 10, 2018.**

The laboratory shall be able to conduct tests on scaled models of hydraulic turbines, reversible turbines and pumps for weighted average efficiency and turbine output, cavitation performance, pressure pulsation, run away speed, characteristic curves for the turbine quadrant, hydraulic thrust and torque. The laboratory is equipped with state-of-the-art SCADA based automatic control system with first principal-based flow measurement, precision pressure transducers and sensors. The guiding framework for this laboratory is meeting international standards (IEC 60193 and ISO/IEC 17025) requirements. The laboratory has been accredited by National Accreditation Board for Testing and Calibration (NABL) as per ISO/IEC 17025 for fluid flow testing as well as Flow calibration.

The laboratory is for verification/validation of designs and generation of design data, third party guarantee test as an independent laboratory, witness tests on turbines as a independent agency and testing of all types of reaction turbines except tubular turbine, bulb turbine & pump turbine. Laboratory also carries out validation of designs through CFD.

The information about the sediment properties are required for mitigation or proper handling of hydro-abrasive erosion issues due to growing focus of hydropower in Himalayan region. Hydro-abrasive erosion depends on sediment concentration, size, shape and mineral composition. The consideration of hydro-abrasive erosion issue is required in both planning stage of a hydropower project as well as the maintenance and renovation of existing hydropower projects. To study and mitigate the hydro-abrasive issues in Himalayan region, a laboratory with state-of-the-art instrumentation is established at AHEC, IIT Roorkee.

AHEC, IIT Roorkee and HPPF, Shimla are jointly organizing one day Workshop for the benefit of hydro power developers.

FOCUS ON WORKSHOP

- Spearheading research and development activity in the country for hydro turbine.
- Developing human resources for hydropower in respect of entrepreneurs, engineers, plant operators and researchers.
- Generating data and building expertise for solving site specific problems.
- Providing affordable facility to hydro manufactures for design verification.
- Validating designs of hydro turbine and layouts using CFD technique.
- Developing and validating flow-measuring techniques leading to optimum utilization and generation.
- Providing calibration facility for measuring instruments used for both, field-testing and power-plant operation.
- Providing facilities for testing and certifications of turbines.
- Research and analysis of suspended sediment flow and its impact on hydropower components.
- Sediment depository for Himalayan region where hydropower plants are prone to hydro-abrasive erosion.
- Research data base of hydro-abrasive erosion and its effect on components of hydropower plants-turbines, penstock etc.
- Development of a knowledge centre to educate and train personnel to handle erosion issues effectively.

SHARING OF EXPERIENCE

The participants will be introduced to the subject through lectures and presentations and would be encouraged to share their experience/problems with regard to Turbine Model Testing, Silt and Abrasive Erosion Measurements. The Workshop will be interactive in nature.

VENUE, DATE AND TIME

The Workshop will be held at **Conference Hall of HPPCL, New Shimla** on **November 26, 2018 (Monday)** from **10:30 AM** to **05:00 PM** and will be inaugurated at **11:00 AM**.

WORKSHOP FEE

From members utilities of HPPF and AHEC

No Fee payable

Non-member

Rs. 1000/- per delegate + 18% GST as applicable

The fee shall be paid through Crossed **Cheque/Bank Draft** in favour of **'Forum of the Hydro Power Producers in Satluj Basin'** payable at Shimla. The number of participants is limited to **35** on first arrival basis. The name(s) address, mobile number and e-mail ID of the nominated participants may be sent for enrollment to the Organizing Secretary at Shimla or Roorkee.

ORGANIZING COMMITTEE

PATRONS:

- **Sh. Devesh Kumar, IAS**, Managing Director, HPPCL & Chairperson, HPPF, Himfed Building, Below BCS, New Shimla-171009.
- **Prof. (Dr.) Arun Kumar**, MNRE Chair Professor, Alternate Hydro Energy Centre, Indian Institute of Technology, Roorkee.

ORGANIZING SECRETARIES:

- **Er. C.M. Walia, FIE**, Secretary General, HPPF & Former Member (Tech.), HPSEB & Director (Elect.), HPPCL.
- **Sh. Mukesh Mangla**, Chief of Hydraulic Turbine R&D Lab, Alternate Hydro Energy Centre, Indian Institute of Technology, Roorkee.

ACCOMMODATION

Participants will have to make their own arrangements for stay during the Workshop

NOMINATIONS

The Workshop is targeted towards the engineering officials , concerning, E&M Hydro Power Group responsible for operation and maintenance of Turbines and other underwater parts from various organizations and members of HPPF. The Workshop will provide a platform for listening to lectures and exchanging ideas and experiences.

The nominations of the participant's alongwith their address, Mobile Number and e-mail ID may be sent for enrollment to organizing Secretaries.

POST OR FAX OR E-MAIL to:-

ORGANISING SECRETARY

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