

TECHNICAL PROGRAMME

Monday 22 April - Morning

Opening addresses

- **Welcome and preview** - Alison Bartle, Aqua-Media International Ltd, UK
- **Opening remarks** - Luc Deroo, Conference Partner and Head of the Steering Committee, President, ICOLD Committee T, and ISL, France
- **The World Bank report: 'Power with Flexibility: Facilitating the Energy Transition with Hybrid Hydropower Solutions'** – Bente Brunes and Elin Hallgrímsdóttir, World Bank/ESMAP

Session 1 - Integrating solar and hydropower: Global potential, benefits, environmental aspects

Chairperson: Luc Deroo, ISL Ingénierie, France

- **Challenges, opportunities and benefits of hydro-solar hybrids** – A. Harby, IEA Hydro and SINTEF Norway; Alex Beckitt, IEA Hydro and Hydro Tasmania
- **The European Union ETIP initiative and its opportunities for collaborative projects** – J-J. Fry, ETIP Hydropower, France
- **Unlocking India's potential for floating PV** – S. Goyal, World Bank, India
- **The floating solar potential of the Akosombo reservoir for achieving the net zero agenda in Ghana** – P.T. Padi, Volta River Authority, Ghana
- **Key social and environmental aspects of floating PV panels on dam reservoirs** – C. Lapeyre, A. Alvarado Vives and M. Pinatel, Oréade-Brèche, France; M-L. Petitpain, ISL Ingénierie, France
- **Modelling environmental impacts of floating PV on the Magat hydropower reservoir, Philippines** – F. Clayer and I. Nessheim, Norwegian Institute for Water Research (NIVA), Norway; A. Harby, SINTEF Energy Research, Norway

--- Refreshment break in the Exhibition hall ---

Session 2: Recent, on-going and planned schemes (FPV and hybrid)

Chairperson: Dr Aries Firman, Dam Safety Commission, Indonesia

- **The 20 MWp Lazer FPV in France: Feedback from design and construction** – E. Hougron and N. Gerard, EDF-CIH, France; and EDF Renouvelables, France
- **Lessons from building and operating FPVs at hydroelectric dams: Cases in Portugal and Colombia** – A. Franco and M. Redón, Isigenere, Spain
- **Opportunities and challenges for floating PV on dam reservoirs in Indonesia: Cases on three reservoirs on the island of Java** – A. Firman, Indonesian Dam Safety Commission, Indonesia;

Hendriyawan, Dr A.M. Firdaus and F.P. Bakti, Institut Teknologi Bandung, Indonesia

- **Large FPV project on dam lakes: The case study of Cirata, Indonesia** – B. Danglade, Innosea, France
- **Optimal operation for integrating an FPV-pumped-storage system at Chulabhorn dam, Thailand** – Thanaphon Mathuravech, EGAT, Thailand
- **Floating solar project on the River Nile, Uganda** – M-L. Petitpain and L. Deroo, ISL Ingénierie, France; M. Mukulu, UEGCL, Uganda
- **Hydrological risk mitigation in Cameroon by floating PV plant installation** – N.R. Fjoesne, J. Lalouette and S. Martin, AFRY, Switzerland; L. Podie, MINEE, Cameroon
- **Design, engineering and execution challenges of floating solar powerplants: Case of the 600 MW FPV plant at the Omkareswar dam reservoir, India** – P. Arora, Floatex Solar Pvt Ltd, India; S. Ahmad and B.P. Patel, IIT, Delhi, India

--- Lunch break in the Exhibition hall ---

Monday 22 April - Afternoon

Session 3 - Design issues, safety, risk and maintenance

Chairperson: Félix Gorintin, Innosea, France

- **Towards a best practice guide for the realization of floating PV plants on dam reservoirs** – M. Bernicot, ISL Ingénierie, France; N. Gérard, EDF, France; L. Peyras, INRAE, France
- **How to design floating PV, and choose components for safety, reliability and performance** – C. Kutter, BayWa r.e., Germany
- **The main technical challenges of FPV on hydro reservoirs** – S. Prouvost, Ciel et Terre, France
- **FPV on Alpine hydro reservoirs: Balancing dam safety, risks and potential** – A. Kaufmann, Romande Energie; N. Adam, Alpiq, Switzerland; and co-authors to be confirmed
- **Reducing mooring design risks for challenging site conditions** – J. Schlaak, Zimmermann PV-Stahlbau, Germany; and Prof Dr A. Hildebrand, Blue C, Germany
- **Combining FPV arrays on a hydro reservoir: Ensuring safe mooring for a significant water level variation** – Kang Lyu, Fuxin Chen and Xin He, Power China Huadong Engineering Co, China
- **Be careful where you float: Safety and threat concerns at a solar-hydro site** – Cpt J. McCully, P. Meeks, and S. Frattini, Worthington Productions Inc, USA

--- Refreshment break in the Exhibition hall ---

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Session 4 - What's new in floating solar PV?

Chairperson: Atle Harby, SINTEF Energy Research, Norway

- Innovative mooring design for flexible membrane FPV floaters – *Petter Grøn, Ocean Sun, Norway*
- A jumbo-size glass-free floatable solar concept – *Dmitrii Iakovlev, Sombravoltaica, Spain*
- Innovative solutions developed by Watopower, Bulgaria – *Mario Kaufmann, Planttech, Austria*
- Revolutionizing renewables with turnkey FPV solutions – *Prince Arora, Floatex, India*
- Solutions to meet challenging conditions for floating solar – *Julia Wang, Sungrow, China*
- Innovative solutions for FPV at hydropower dams: Expanding horizons – *Ralph van Dijk, Floating Solar, Netherlands*

Evening:

**19.00 - 21.30 hrs: Welcome reception with dinner
Exhibition Hall**

Tuesday 23 April - Morning

Session 5 - Hybridization: Potential, planning and challenges

Chairperson: B. Hakin, Liberia Electricity Corporation PIU

- Solar and hydro: when and why hybridize, rather than operate separately (which is often far simpler)? – *L. Deroo, ISL Ingénierie, France*
- CEMIG's hybrid hydropower and photovoltaic projects in Brazil – *V. Ferreira Zwetkoff, CEMIG, Brazil*
- The impact of the correlation of hydro inflow and solar availability on production schedules of hybrid plants in Western Africa, Eastern Asia, and Northern Europe – *Jiehong Kong (and co-authors), SINTEF Energy Research, Norway*
- Grid-scale solar-hydro hybrid optimization in Liberia – *B. Hakin and M. Captan, Liberia Electricity Corporation Project Implementation Unit, S. Lacroix, Artelia Group; M. Lacey, WestGlen Consult Ltd, UK*
- Coupling PV, EV and residual hydropower to reduce the environmental impact of earth dam construction: A model and case study – *L. Serra, Waterways, Italy; L. Papetti, A. Alberti and G. Ferrari, Frosio Next, Italy*
- Managing turbine fatigue while maximizing solar energy use: Adding a battery to the system – *Dr H. Mesnage, F. Grand-Perret, R. Guillaume and G. Amodeo, Supergrid Institute, France; B. Peltié, ISL Ingénierie, France*

--- Refreshment break in the Exhibition hall ---

Session 6 - Economic aspects and financial support for FPV and hybrid schemes

Chairperson: Yann Le Bot, Energy + Group, Société Générale, France

- How is development finance unlocking floating solar PV on Sub-Saharan Africa's hydropower reservoirs? – *S. Hack and S. Merlet, Multiconsult Norge AS, Norway*
- Sweden's contribution to unlocking Uganda's sustainable energy supply – *D. Ayiekoh, Embassy of Sweden, Uganda*
- Economic assessment of a new floating or ground mounted solar PV plant hybridized with an existing hydro plant – *M. Buchsensschutz, Nodalis, France*
- Issues raised by the development of solar-hydro projects in Cameroon – *J. Kenfack and B. Bignom, Solar HydroWatt, Cameroon; A. Bouba Oumarou, Arsel, Cameroon*
- Exploring the potential and economic feasibility of FPV on hydro reservoirs in Tajikistan – *D. Qubodbekov, Asian Development Bank, Resident Mission, Tajikistan*
- Hybridization projects of floating solar and hydro have reached commercial tech status, and are ready to 'go' – *L. Brandt, Seaflex, Sweden*

--- Lunch break in the Exhibition Hall ---

Tuesday 23 April - Afternoon

Session 7 - Roundtable discussion: 'The way forward - Research and development'

Chairperson: Bente Brunes, World Bank/ESMAP

- Topics will include research needs and plans, challenges, training and capacity building, safety issues, funding, etc.
- Panellists will take part from the Boards of UEGCL and the Ministry of Energy, Uganda; Baywa r.e., Société Générale, DNV (to be confirmed) and the Swiss Federal Office of Energy.
- *Interaction with international delegates will be encouraged*

--- Refreshment break in the Exhibition hall ---

Session 8: Summary and outcomes

- Final discussion and key points emerging from the Roundtable
- Message from ICOLD Secretary-General, Michel de Vivo
- Conclusions from the conference sessions from chairpersons
- Concluding remarks: Luc Deroo and Alison Bartle

Evening:

**19.30 hrs: Conference dinner by the sea
at Le Ruban Bleu Restaurant**