



POWERING EUROPE IN A
SUSTAINABLE WAY

Alpine Workshop

École Polytechnique Fédérale de Lausanne

Switzerland

11 - 12 September 2019



The HYDROPOWER EUROPE Forum is supported by a project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 826010

REGIONAL CONSULTATION WORKSHOPS

The **HYDROPOWER EUROPE** initiative is built on the ambition to achieve a Research and Innovation Agenda and a Strategic Industry Roadmap for the hydropower sector, based on the synthesis of technical fora and transparent public debates through a forum that gathers all relevant stakeholders of the hydropower sector.

The project is holding three Regional Workshops – Nordic, Alpine, Mediterranean – to facilitate the exchanges and the public debate within the initiative.



The **HYDROPOWER EUROPE** Alpine Workshop is supported by:



Agenda

11 September 2019

12:15 – 13:00 **Registrations**

Opening Remarks

13:00 – 13:05 **Pedro Manso**, Senior Researcher and Lecturer, Platform of Hydraulic Constructions PL-LCH, EPFL

HYDROPOWER EUROPE: Powering Europe in a Sustainable Way

13:05 – 13:20 *Presentation of the Project*

Anton Schleiss, Honorary President, International Commission on Large Dams and HYDROPOWER EUROPE Project Coordinator

How to Build the Research & Innovation Agenda and Strategic Industry Roadmap for the Hydropower Sector

13:20 – 13:30 *Presentation of the Consultation Process*

Patrick Clerens, Secretary General, EASE – The European Association for Storage of Energy

A Policy Framework that Fosters Research and Innovation for Hydropower in Europe

13:30 – 13:50 *Goals of Hydropower R&I Funding: the European Viewpoint*

Thomas Schleker, Project Officer, Directorate-General for Research and Innovation, European Commission (*video*)

Hydropower in a changing EU energy system

Matteo de Felice, Project Officer, Joint Research Centre, European Commission

Views of Swiss high-level officials

13:50 – 14:20 *Hydropower in Switzerland - Cornerstone for Electricity Supply*

Christian Dupraz, Head of Hydropower, Swiss Federal Office of Energy

Hydropower in Switzerland – Strengths and Challenges

Michel Piot, Expert, Swiss Water Association

14:20 – 14:40 **Q&A**

14:40 – 15:00 **Coffee Break**

Perspectives and Case Studies for Hydropower: Regional Outlook in Alpine Countries

Moderator: Pedro Manso, Senior Researcher and Lecturer, Platform of Hydraulic Constructions PL-LCH, EPFL
Manager of Hydro Demonstrator Projects, Swiss Competence Center in Energy Research – Supply of Electricity

Hydropower in Austria With Challenges and Potential in Terms of Implementation of the Water Framework Directive

Thomas Buchsbaum, Technical Expert, Kleinwasserkraft Österreich (KWÖ)

The Future of Hydropower Operation in a Multipurpose Use of Water Resource

Marco Pinelli, Head of Global Hydroelectric Centre, ENEL

Renewable Penetration on the Grid and Potential Issues Related

Alexander Schwery, Chief Engineer Electrical, GE Renewable Energy

Why Europe Still Needs Hydro: Key Challenges and Opportunities for Hydropower in Europe. EDF Perspective

Denis Aelbrecht, Head of Technology Group and Deputy Technical Director of the Hydro Engineering Centre, EDF Hydro

15:00 – 16:00

16:00 – 16:20 **Q&A**

16:20 – 16:40 **Coffee Break**

Perspectives and Case Studies for Hydropower: Regional Outlook in Alpine Countries

Moderator: Anton Schleiss, Honorary President, International Commission on Large Dams and HYDROPOWER EUROPE Project Coordinator

Maintenance 4.0: Predictive Maintenance for the Benefit of the Operator

Nicolas Rouge, Senior Asset Manager - Hydropower production, Alpiq

Hydropower and Transitioning Society: the Challenges of Social Acceptability and Value Creation

Carine Granier, Head of Social Assessment and Social Studies, EDF Hydro

Intelligent Hydropower and Storage: Developments and Benefits

Jürgen Schuol, Head of Sustainability - Group Division Hydro, Voith Hydro

Energy Storage in the Alpine Region in the Framework of the EUSALP (EU Strategy for the Alpine Region)

Marko Hočvar, Professor, University of Ljubljana - Faculty of Mechanical Engineering

16:40 – 17:40

17:40 – 18:00 **Q&A**

Closing Remarks

18:00 – 18:10 **Anton Schleiss**, Honorary President, International Commission on Large Dams and HYDROPOWER EUROPE Project Coordinator

18:30 – 20:00 **EPFL Visit Hydraulic Laboratory**

The modern experimental hall of the Platform of Hydraulic Constructions (PL-LCH) at the Ecole Polytechnique Fédérale de Lausanne (EPFL) enables a vast range of scale model studies. The Platform of Hydraulic Constructions (PL-LCH) maintains a permanent synergy between teaching, research and services. Hydraulic engineering of civil structures and systems constitutes the main field of activity of PL-LCH. In particular, PL-LCH focuses by the help of not only physical but also numerical modelling on hydropower plants and dams and related appurtenant structures, water supply systems in rural and urban areas, river draining works as well as extreme flood determination and safety of hydraulic structures. (For more information please see: <https://www.epfl.ch/labs/lch/>)

12 September 2019

8:30 – 9:00 **Registrations**

Opening Remarks

9:00 – 9:05 **Patrick Clerens**, Secretary General, EASE – The European Association for Storage of Energy

Structure and Elements of the Research and Innovation Agenda

9:05 – 9:15 **Mark Morris**, Director, Samui France

Debating the Research and Innovation Agenda

Participants, divided into focus groups, will have the possibility to discuss strengths, weaknesses, opportunities and threats around specific issues that the Hydropower sector has to face in Europe.

The discussion will be focused on several statements covering the following topics:

- Increase of hydro storage (volume, new reservoirs) to enable security and flexibility of the energy system
- Projects of new pumped storage plants to enable security and flexibility of the energy system
- Uprating and optimisation of existing hydropower plants
- Small hydropower potential
- Climate change impact on hydropower infrastructures and generation
- Hydro marine energy solutions
- Environmentally friendly solutions and social acceptance
- Hydropower role in mitigating global warming effects

10:40 – 11:00 **Coffee Break**

Presentation of Focus Group Results

Moderator: **Patrick Clerens**, Secretary General, EASE – The European Association for Storage of Energy

11:00 – 12:00 One representative for each focus group will present the outcome of the discussion and the key needs for the development of a Research and Innovation Agenda for Hydropower.

The presentations will be followed by Q&A.

12:00 – 13:00 **Lunch**

Opening Statement

13.00 – 13.05

Hendrik Multhaupt, Hydropower Advisor, VGB PowerTech E.V

Structure and Elements of the Strategic Industry Roadmap

13:05 – 13:15

Anton Schleiss, Honorary President, International Commission on Large Dams and HYDROPOWER EUROPE Project Coordinator

Debating the Strategic Industry Roadmap

Participants, divided into focus groups, will have the possibility to discuss strengths, weaknesses, opportunities and threats that the Hydropower sector has to face in Europe.

The discussion will be focused on several statements covering the following topics:

13:15 – 14:30

- Potential development and research needs
 - Challenge of hydropower large scale deployment
 - Sustainability and auxiliary services: flood protection, navigation, water supply, irrigation...
 - Environmentally friendly solutions: a future business case for hydro?
 - Hydropower: a safe long-term investment with high economic return under liberalized and undistorted market conditions
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14:30 – 14:50

Coffee Break

Presentation of Focus Group Results

Moderator: **Hendrik Multhaupt**, Hydropower Advisor, VGB PowerTech E.V

14:50 – 15:30

One representative for each focus group will present the outcome of the discussion and the key needs for the development of a Strategic Industry Roadmap for Hydropower.

The presentations will be followed by Q&A.

Closing Remarks

15:30 – 15:40

Anton Schleiss, Honorary President, International Commission on Large Dams and HYDROPOWER EUROPE Project Coordinator

SPEAKERS



Christian Dupraz
Swiss Federal Office of
Energy SFOE

Head of the hydropower section at the Swiss Federal Office of Energy SFOE. **Christian Dupraz** is holding a doctor's degree in physics from the LMU Munich and a master's degree in business & economics from the University of Bern. He started his career as asset manager and energy economist in the hydropower division of BKW, a Swiss utility, where he did project evaluation for extensions, new projects and rehabilitations and acted as owner representative. After five years, he changed to the hydropower section of SFOE, which he has been heading for four years. The section is responsible for preparing the fundamentals (statistics, legal projects, analysis) in the field of hydropower and for the execution of encouragement measures for hydropower projects according to the energy law.



Jürgen Schuol
Voith Hydro

Manager Head of Sustainability at Voith Hydro. He has worked with various business associations like the International Hydropower Association as well as VGB PowerTech Hydro and served as Secretary General of the Hydro Equipment Association. He was a member of the IHA Protocol Reference Group in the Hydropower Sustainability Assessment Forum and joined the Council chamber "Hydropower consultants, contractors or equipment suppliers" from the beginning. As Alternate Chair of this chamber he is a member of the Hydropower Sustainability Governance Committee. **Jürgen Schuol** graduated in Environmental Engineering as well as in Water Resources Engineering and Management from the Stuttgart University in 2003 and received his PhD in Environmental Sciences from ETH Zürich in 2007.



Denis Aelbrecht
EDF Hydro

Denis Aelbrecht works with Electricité de France (EDF) as Head of Technology Group and Deputy Technical Director in the Hydro Engineering Center (CIH). His management activity consists in supervising the technical performance of EDF-CIH activity in all of its components. Denis is also a member of the Executive board of the French National Committee on Large Dams (CFBR), and is also currently chairing the Technical Committee on "Climate Change, Dams and Reservoirs" of the International Commission on Large Dams (ICOLD). He graduated from Grenoble-INP / ENSHMG Engineering School (France) in 1991, and got a PhD in Hydraulics & Coastal Engineering at the University of Grenoble in 1995.



Patrick Clerens
EASE – European Association for
Storage of Energy

Patrick Clerens studied Law at the University of Saarbrücken and at the University of Mainz. Since 1996, he has worked as a consultant for a private company specialising in European Affairs in Brussels. In his capacity as Brussels Representative of different European associations, he has been involved in the climate and energy field since 2003. He has managed the European Association for Storage of Energy (EASE) office in Brussels as Secretary General since its establishment in September 2011. Since then, EASE has grown from the initial 13 founding members to more than 40.



Anton Schleiss

International Commission on
Large Dams and HYDROPOWER
EUROPE Project Coordinator

He graduated in Civil Engineering and obtained a PhD on pressure tunnel design from ETH in Zurich, Switzerland. After having worked for 11 years with Elektrowatt (now Pöyry) in Zurich, he was nominated 1997 full professor and director of the Laboratory of Hydraulic Constructions of EPFL in Lausanne. He supervised more than 50 PhD and Postdoc research projects. Prof **Anton Schleiss** obtained the ASCE Karl Emil Hilgard Hydraulic Prize as well as the J. C. Stevens Award, the ASCE-EWRI Hydraulic Structures Medal and the Grand Prix of the The French Hydro Society (SHF) 2018. He was listed among the 20 international personalities that “made the biggest difference to the sector Water Power & Dam Construction over the last 10 years”. After having been VP he was president of the International Commission on Large Dams from 2015 to 2018. He is now one of the coordinators of “Hydropower Europe”.



Carine Granier
EDF Hydro

She works with Electricité de France (EDF) as Head of social assessment and social studies in the Hydro Engineering Center. At the moment, she’s co-steering INTERCONNECT research program, in partnership with EIFER – Karlsruhe Institute of Technology and ENGESS Strasbourg, a comparative comprehension study about transboundary run of river powerplants and their influence upon spatial, economic and ecologic connections and flows. She also teaches Social Studies and Analytics applied to Environmental Resources Management at the University of Savoie Mont Blanc. **Carine Granier** joined EDF in 2012, after a Master’s Degree in Territorial Engineering specialized in sustainable planning at Science Po Grenoble and a Master’s Degree in Environmental Management at the University of Ottawa.



Thomas Buchsbaum-Regner
Small Hydropower Austria

Senior Expert in Kleinwasserkraft Österreich – Small Hydropower Austria, where he represents the interests of Austrian small hydropower at national and European level as well as supporting the members in the implementation of the Water Framework Directive in the country. **Thomas Buchsbaum-Regner** has been advising more than 1,000 members regarding technical, legal and economic conditions. Thomas also provided support on specific projects for new and existing small hydropower plants as well as on scientific work and pilot experiments. He has been the representative of Small Hydropower Austria in various committees and he contributed to the development of studies and reports. He obtained a Master in Civil Engineering & Water Management.



Hendrik Mulhaupt
VGB Power Tech E.V.

As part of the department “Renewables and Distributed Generation” at VGB PowerTech e.V. (VGB), **Hendrik Mulhaupt** supervises the VGB Hydropower Technical Groups as Advisor for Hydropower. He has obtained a doctoral degree in the field of technical chemistry (Photocatalysis & sustainable feedstock utilization) with emphasis on biochar production by hydrothermal carbonisation.



Marko Hočevär
University of Ljubljana

Marko Hočevär was born in Ljubljana in 1972. He finished his studies in Physics in 1997 and defended his PhD in 2003. In the past he worked in the Institute for Turbine Machinery in Ljubljana. He currently works as a full professor for several subjects and researcher in Energy Engineering. He is head of Laboratory for Hydraulic Machinery at the Faculty of Mechanical Engineering, University of Ljubljana. He has published more than 80 papers in scientific journals and participated in several industry, EU and national research projects. He received several awards for his research and teaching, among them the Martin Hirschorn IAC Prize – Best Paper.



Mark Morris
Samui France

Mark Morris worked at HR Wallingford for 23 years before relocating to France, where he works independently on research and specialist engineering studies. He has a degree in Engineering Science (Civil) and specialised in environmental hydraulics and flood risk analysis and management. He has a PhD in modelling breach formation through dams and levees. Since mid 1990s he has focused on European and wider International research collaboration. Whilst in the UK he was a member of the UK COLD for 10 years, and remains an active member of the Environment Agency Reservoir Research Advisory Group, prioritising and overseeing reservoir safety research in the UK. Recent initiatives in France include managing and supporting European Horizon 2020 research projects and implementing soil surface erosion research and internal erosion modelling performance evaluation projects - as well as supporting implementation of the HYDROPOWER Europe project.



Matteo de Felice
JRC – European Commission

Scientific Officer at the Joint Research Centre (JRC) of the European Commission. He is part of the “Knowledge for the Energy Union” unit in the Energy, Transport and Climate Directorate (Directorate C). **Matteo De Felice’s** research activity is focused on the analysis between weather/climate and European power systems, with a focus on the interaction between water and energy systems.



Alexander Schwery
Ge Renewable Energy

Dr **Alexander Schwery** holds a PhD degree in Electrical Engineering from the Swiss Federal Institute of Technology (EPFL 1999) in Lausanne. He joined ABB - ALSTOM (Switzerland) Ltd. in 1999 where his main field of activity was the use and development of different simulation and calculation tools for salient pole generators. Between 2002 and 2011 Alexander was leading the Electrical and Ventilation group in the Technology Center in Birr, Switzerland. In 2011 he has been appointed Director of R&D - Electrical; in this function he had the overall responsibility for the Electrical R&D in Alstom Hydro. In 2016 he has been appointed Chief Engineer - Electrical within GE Renewable Hydro. Since 2018 he is head of the Chief Engineers’ office.



Nicolas Rouge
Alpiq

ETHZ Graduate, mechanical engineer, MBA. In EOS/ALPIQ since 1992, currently Head of Asset Management Support Department and Asset manager of FMHL (including the pumping storage project FMHL+ 240 MW/330 MCHF). **Nicolas Rouge** is board member of 8 hydropower companies (Grande Dixence SA, HYDRO Exploitation SA, Nant de Drance SA, Salanfe SA...) and Head of ISO 55'001 and 9'001 certifications by Alpiq. He is also Project Director of Risk Based Maintenance by integrating the digital world of predictive maintenance for hydroelectric facilities.



Thomas Schleker
Directorate-General for
Research and Innovation –
European Commission

Thomas A. Schleker PhD works as Policy Officer at the European Commission Directorate-General for Research and Innovation in the fields of Hydropower, Off-grid Energy, Bioenergy and Renewable Fuels, where he contributes to the development and implementation of relevant R&I policies, programmes, and/or actions in Renewable Energy Sources (RES) and Clean Energy Transition. Before joining the European Commission, Thomas followed dual studies in Biology (Dipl.-Biol., DEA en Biologie Moléculaire) as well as Business Management (Dipl.-Kfm.), followed by PhD studies in Biochemistry (University of Basel) and an academic career in Molecular Biology, Biochemistry and Genetics in public as well as private research sectors. Before joining the European Institutions in 2014, Thomas was Authorized Signatory of a Regional Business Development Company and held a position as Cluster Manager at a regional Renewables business cluster.



Michel Piot
Swiss Water Association

Michel Piot is working as an expert at the Swiss Water Association. He obtained a PhD in mathematical statistics at the University of Bern and a Master of advanced studies in energy at the Ecole Polytechnique Fédérale de Lausanne. He worked as Head of energy security department at the Swiss Federal Office of Energy and he holds a teaching position since 2007 on “Statistics in Climate Sciences” in Oeschger Centre, University of Bern.



Marco Pinelli
ENEL

Marco Pinelli obtained a PhD in Hydraulic Civil Engineering at the University of Bologna, where he stayed until 2010 as researcher. In 2010, he joined Enel, participating to the start-up of O&M Central function in Enel Green Power. In 2013, he transferred to Turin to become Head of Technical Support of Piedmont, managing maintenance activities for all Hydro and Solar assets (75 plants, 500 MW installed). Back to Rome in 2015, he took the responsibility of Hydro Business Development Coordination for the whole hydro perimeter in Enel. In 2016, he moved back to O&M, as Responsible of Global O&M Hydro Operational Efficiency Unit (coordinating 800 hydro plants, 28 GW of installed capacity). Marco is married to Stefania and they have two children. In his spare time, he loves reading, listening to music, outdoor sports and traveling.

PARTNERS



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