

May 3, 2024

**IEA Hydro – Communiqué to National Governments & Multi-Lateral Agencies**

**44th MEETING OF THE EXECUTIVE COMMITTEE OF THE**

**INTERNATIONAL ENERGY AGENCY TECHNOLOGY COLLABORATION PROGRAMME ON HYDROPOWER**

**Sion, Switzerland**

As part of the IEA Hydro 44<sup>th</sup> ExCo meeting in Sion, member countries, representatives from authorities, companies, industry and research organisations of the international hydropower community came together. We met to discuss current challenges and opportunities for hydropower and in particular its intrinsic value in providing dispatchable ‘firm’ capacity. Long Duration Energy Storage (LDES) such as reservoir and pumped storage hydropower is needed to support the rapid and necessary transition to electricity systems relying on greater levels of Variable Renewable Energy (VRE) generation with less flexible characteristics.

We thank and acknowledge the World Bank for their presentation to Task 9 on the recently published report on Hybrid Hydropower: *Power of Flexibility - Facilitating the Energy Transition with Hybrid Hydropower Solutions: Technical Report (ESMAP Technical Report)*. We commend the development of such a global reference which raises awareness and is assisting develop common language and recognition of the true value of hydropower. This valuable reference will be important for policy makers, regulators, financiers and market operators that are all facing challenges in the transition to VRE dominated electricity systems.

The outcome of statements and discussions during a series of workshops and meetings associated with the 44<sup>th</sup> ExCo noted the following:

- Hydropower’s unique storage and flexibility capabilities that can be dispatched at time scales ranging from milliseconds to seasons must be appropriately recognised and valued both in **market settings** and in **commercial business cases** to enable suitable revenues/financial models to secure additional hydropower capacity.
- Effective consideration of energy system needs and future scenarios (including climate change driven weather scenarios) in unique regional contexts is critical to inform and support comprehensive business models to underpin additional hydropower capacity (modernisation, upgrades and new pumped storage). Long lead hydropower projects need to be de-risked and made bankable by fully recognising the **total energy services value** – it is rare to find this happening effectively anywhere in the world. It is noted that different jurisdictions are variously considering ‘beyond traditional levelized cost of energy’ (LCOE) valuation methodologies, as well as specific new market and regulatory approaches.
- The 44<sup>th</sup> ExCo meeting participants reflected on last years’ slogan ‘**how can hydro help**’ and how to improve communications strategies on hydropower and Long Duration Energy Storage (LDES) with the IEA and others such as the World Bank. We acknowledge and welcome the collaboration with the **World Bank** who have combined **IEA’s 7 phases of VRE integration** with an ‘**energy services matrix**’. This simple but insightful categorisation of services can be readily adopted around the world to help describe flexibility challenges and opportunities. This can assist decision makers to apply a consistent framework to recognise the true value of hydropower in regional specific contexts.
- An important and **soon to be released IEA Hydro publication** was discussed during the week of activities - analysing historic wind and solar droughts ‘Dunkelflaute’ in different regions of the world. We thank the leadership of the Pacific Northwest National Laboratory (USA) for facilitating and delivering this collaborative report which quantifies the need for LDES, developing metrics and estimates of the **frequency of VRE droughts** in annual cycles in different regional market contexts. This provides insights into how often, and how severe “Dunkelflaute” events might be and what sorts of deficits might be predicted and for how long they might last. This gives particular insight in and quantification of the **need and value of LDES such as pumped storage** in different jurisdictions.
- Tasks on Hydropower and Fish, Valuing Hydropower Services and Hidden Hydro (Tasks 19, 9 and 16 respectively) met to discuss current work programs and forward priorities. In relation to flood and drought control, managing both extremes is necessary while delivering power system needs - best practice in weather

forecasting and scenario development is key research priority. In discussing Dunkelflaute with the wind TCP, a key consideration is how to ensure effective communication with system planners on key metrics that effectively identify LDES needs (deficits and surpluses). Estimation of hidden storage capacity & loss at non-powered dams non-power dams as well as hidden energy potential in rural water supply networks were also discussed.

- Associated with the 44<sup>th</sup> ExCo an industry conference in Sion was facilitated by the Hydro Alps Lab to share international experiences on future hydropower challenges.

In 2024 global circumstances are compelling policy makers to focus on energy security, supply chain diversification, domestic manufacturing and workforce development, and pursuing national priorities of electrification. As we have observed previously, hydropower can help address many of these issues, but it is often not evident to policy makers and regulators how and where to intervene. To this end we continue to **seek collaborative and proactive dialogue with the Paris Secretariat** to ensure that IEA assists national governments with these challenges, ensuring hydropower and its unique role(s) are specifically considered in all dialogue, deliberation, publication and communication of energy policy advice.

It is a timely reminder of the now two-year-old but still key IEA special market report on hydropower and **Fatih Briol's** comments regarding '... **the forgotten giant of low-carbon electricity... that.. needs to move up the energy and climate agenda**'. We strive to work with IEA to help remind policy makers that with the rapid transformation to VRE dominated systems, today's challenges are different to those when the majority of today's existing global hydropower has been developed. We now need system flexibility through upgrading and modernizing existing hydropower and modification of hydropower reservoirs, new pumped storage and different remuneration approaches to ensure capacity is available for secure low carbon energy systems.

IEA Hydro has adopted and integrated the 7 recommendations from IEA's highly relevant 2021 Special Market Report on Hydropower. These recommendations have informed our strategic communications plan and proposal for extension of IEA Hydro's work program, to be delivered to the IEA Renewable Energy Working Party for approval later this year. We seek new and innovative ways to work with the IEA to ensure hydropower is highly visible in all of our interrelated activities. We compel IEA to find ways to ensure these are highly visible in current activities and programs and in the next phases of work.

At the 44<sup>th</sup> ExCo meeting Alex Beckitt of Hydro Tasmania was elected interim Chair of the ExCo and in addition to existing Deputy Chair Fredrik Arnesen of NVE Norway, both Cecile Münch-Alligné of HES-SO Valais-Wallis Switzerland and Dana McCoskey of US DoE were elected as Deputy Chairs. IEA Hydro members are committed to working collaboratively with the IEA-Secretariat, national governments, industry associations to advance the importance and value of conventional and pumped storage hydropower assets in the rapidly evolving global energy system.

IEA Hydro members welcome the collaboration and partnership with the World Bank, and extend our special thanks to the Swiss Department of Energy and the Hydro Alps Lab of HES-SO Valais-Wallis for hosting our meetings, initiating parallel events and coordinating technical site visits to Veytaux & Nant de Drance pumped storage power plants while in Sion.

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