THE INTERNATIONAL ENERGY AGENCY TECHNOLOGY COLLABORATION PROGRAMME ON HYDROPOWER

IEA Hydropower

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

42nd MEETING OF THE EXECUTIVE COMMITTEE OF THE INTERNATIONAL ENERGY AGENCY TECHNOLOGY COLLABORATION PROGRAMME ON HYDROPOWER Washington, D.C., USA, May 2023

As part of the activities around Water Power Week and the ExCo meeting, representatives from authorities, companies, industry and research organisations of the international hydropower community met to discuss the unique value of hydropower to rapidly transitioning global electricity markets. The outcome of statements and discussions during a series of workshops and meetings is concluded as follows:

Hydropower makes many unique contributions to the power system, and while these contributions are often taken for granted, they are becoming even more central to high-renewable grids today. Hydropower is, first and foremost, a huge source of clean energy that must be sustained and increased. And, as noted by the IEA, its unique characteristics include storage and flexibility at time scales ranging from milliseconds to seasons, which is critical to enabling high penetrations of variable renewable energy in electricity systems worldwide.

In 2023 global circumstances are compelling policy makers to focus on energy security, supply chain diversification, domestic manufacturing and workforce development, and national priorities of electrification. Hydropower can help address these issues; however, the important role of hydropower is sometimes not evident to policy makers. And yet, to be able to sustain that role, maintaining and developing new hydropower plants, government intervention is needed to help de-risk investment.

As IEA assists national governments to face these challenges, we call on the Secretariat to ensure hydropower is specifically considered in each deliberation, publication and communication.

In discussions at the 42nd ExCo meeting, participants considered the slogan ‘how can hydro help’ and proposed to frame important issues within this context through our ongoing collaboration and general IEA-TCP communications. We invite the IEA to also use this framing and hope this helps to remind policy makers of the role that hydro can play in addressing today’s energy system challenges.

Examples: “How can hydro help” with (balancing, firming, essential system services, dispatchable energy, dispatchable capacity, key renewable source, backbone of electrification, …)

- Provides stable and reliable energy and capacity proportional of the share in the electricity mix and at largely stable energy costs over long time-spans. Hydropower is therefore a key asset for energy security.
- Can turn large amounts of variable wind and solar into 24/7 delivery of electricity, essential to our decarbonised energy systems and energy security.

- Can ensure additional renewable deployment by building new or retrofitting hydropower with increased capacity or by pumped storage.
- Can be established and maintained with large proportions of local content, with substantial civil engineering/construction dependencies/limitations on imported components, is an advantage over some alternatives.
- Can with best practices deliver positive social and environmental outcomes, and provide societal services like flood control, drought management, recreation, water navigation, fisheries and aquaculture.

In a workshop hosted by the International Energy Agency Technology Collaboration Program on Hydropower (IEA Hydro), the representatives noted that while there are different characteristics of each international region and energy market, they have several common opportunities and challenges when it comes to the future energy system.

Participants discussed the value of hydropower as a provider of long-duration energy storage. Hydropower can take a unique role in supporting the increased deployment of variable renewable energy sources such as wind and solar by providing clean, long and seasonal energy storage, to fill the gaps of variable renewable energy and shorter duration storage such as batteries. Hydropower can also provide nearly any type of grid services to help contribute to the stability and security of energy systems.

Delegates also examined the value of other non-energy services hydropower and its reservoirs provide such as flood control, drought management, water and irrigation supply, environmental and ecological services and climate change resilience and mitigation strategies.

The workshop explored the opportunity hydropower can play in hybrid power plants, combined with other renewables and storage technologies.

In order for hydropower's contributions to be fully utilized and valued, a greater understanding of several issues is needed and IEA Hydro will continue to help raising awareness and support innovation in policy and regulatory aspects including:

- Hydropower will be a key technology to enable the massive increase of electricity from wind and solar PV by providing storage and flexibility.
- The growth rate of hydropower is globally lagging behind what is needed (about 2-3 times).
- Hydropower is not high enough on the agenda of policy makers.
- Technical solutions are available, but markets are not always providing the incentives to trigger the necessary investments.
- Because of very long lead times and unknown outcome, the risk for private investors is too high to attract the necessary investments. Public entities must take over some of the early-stage risks.
- Developing nations with large untapped potentials but weaker financial capabilities must be supported more, including through private investors
- Long technical lifetime (80 to 100 years and more) and high initial investments must be considered in financing schemes, license arrangements and feed-in remuneration agreements.

Key recommendations identified in the Task 9 on "Valuing Hydropower" workshop for the ongoing work program to achieve climate goals include:

- Reiterating the recommendations of the International Forum on Pumped Storage and continue active collaboration with IHA to do so.
- Working to assess the long-term storage needs of their energy systems, so that the most efficient and cost-effective technology options (including those with long-lead times like hydropower) are not lost.
- Ongoing assessments of existing and prospective hydropower sites for their potential to provide long-duration energy storage and EESS.
- Developing of hydropower-specific policy and finance mechanisms to lower the risks and incentivise development of hydropower and pumped storage hydropower.
- Working to ensure all essential electricity grid, storage, environmental/social and flexibility services provided by hydropower are remunerated appropriately.
- Encouraging the introduction of measures to incentivize the modernization of existing hydropower assets to ensure their longevity in energy systems.
- Applying internationally recognized, robust sustainability standards and tools in licensing and environmental approval processes.

IEA Hydro has adopted and integrated the 7 recommendations from IEA's highly relevant 2021 Special Market Report on Hydropower and we compel IEA to find ways to ensure these are highly visible in current activities and programs and next phases of work.

IEA Hydro members committed again to working collaboratively with the IEA-Secretariat, national governments, and 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 thank the US Department of Energy and Argonne National Laboratory for hosting its meetings, and welcome the collaboration, partnerships and participation of IHA, the World Bank, IEA headquarter and the LDES Council.

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