

Call for experts for an analysis in hydropower plant restoration potential with regards to power generation and environmental impact

Terms of Reference

WWF, in cooperation with RiverWatch, Euronatur, and Geota, recently published [the first ever inventory of hydropower plants in Europe](#). The study shows rivers to be saturated with hydropower dams and thousands more planned, greatly harming freshwater ecosystems, leaving riverbeds, deltas and river banks dry, and depriving entire communities with sources of revenues, recreation and well-being. This is despite EU rules which should restrict the number of new hydropower plants.

As a result, WWF is looking to assess the hidden potential of hydropower plant refurbishment. To support Europe's move towards net-zero emissions, in accordance with the ambitions of the European Green Deal, without even further harming Europe's freshwater biodiversity.

Objectives and methodology

According to the nature legislations in the EU and neighbouring countries, the development of hydropower plants need to fulfil a minimum of environmental criteria in order to comply with the do no harm principle. However because many HPP were built prior to the existence of these legislations many are outdated both in technology and environmental standards.

As a result, WWF is looking to assess the added value of bringing hydropower plants up to date both in energy efficiency and electricity production, and in environmental mitigation measures, by refurbishing them. This should help identify the added value already existing plants could bring to the energy mix before new plants are built. The analysis aims at evaluating the potential for hydropower plant renovation to increase the energy production of existing hydropower plants in Europe and neighbouring countries. Delivery on the above described work will largely require desktop research work, synthesizing information available from institutions, think-tank and research institutes' websites, online publications, and as needed interviews with key experts and other materials. All data needs to be clearly sourced. Ideally the product would present a per country overview of the added value, in terms of energy production and environmental protection, as well the costs associated with wide scale refurbishment of hydropower plants.

Additional elements to address

- An estimate of the hydropower plants that are planned to be refurbished in the coming 5-10-20 years (depending on data available) according to legal requirements or current plans. This overview should where possible differentiate between the types of refurbishment measures that are planned to be undertaken (mitigation of environmental impacts vs other types of refurbishment).
- An analysis of the legal requirements that hydropower plants need to follow according to the Water Framework Directive and the Birds and Habitats Directive.
- The potential economic costs and benefits of investing in refurbishment of existing hydropower plants.
- Increase in power generation that would be gained both at the scale of a single plant (also differentiating between traditional plants, run-of-river plants, and pumped storage) and from a

European wide restoration action and how that would contribute to the European energy need and mix.

- The environmental benefits of upgrading hydropower plants, specifically looking at the types of mitigation measures (restoring connectivity, sediment transport etc.). Also, looking at the effectiveness, feasibility, and replicability of these solutions (are they reproducible on a large scale, or is a case by case solution needed for every hydropower plant i.e. fish passes).
- Identification of criteria that help identify which plants would most benefit from refurbishment. This could be done by size classes presented in the hydropower inventory and should look at level of environmental priority. For example which river stretches have a high migration potential for endangered fish species.

The analysis should present both aggregated data at European level (distinguishing between EU and Europe including the Balkans, Ukraine, EEA countries, Switzerland, Turkey), and data by country.

Deliverables & proposed timeline

- By end February 2020 – Appointment of consultant/signature of contract
- By March 2020 – Preliminary draft outline and data gathering
- By April 2020 - Delivery of preliminary analysis and discussion, allowing for at least one round of comments and feedback from WWF.
- By May 2020 – Delivery of final analysis.

Budget: 10000 euros VAT inclusive to be paid in two instalments, 50% each

To apply

Interested applicants may submit their proposals stating their fit, and availability for this position together with all-inclusive-fee and CV to recruitments@wwf.eu, no later than 28 February 2020.