

Taxonomy and the role of small hydropower as renewable energy source

Brussels, 20 April 2021

Dear Commissioners, dear Ms Simson and dear Mr Sinkevičius,

The Small Hydropower Chapter of the European Renewable Energies Federation (EREF) welcomes the improvement for hydropower plants in the latest draft document on the delegated acts on taxonomy. We have, however, noted that some detailed proposed screening criteria under the Taxonomy could still have negative future effects for small hydropower as a renewable energy source.

Small hydropower and its system services play a major role in allowing a European energy system truly based on renewable energy and energy efficiency. It is a reliable, local, storable and domestic energy source that favours a decentralised energy system, the integration of volatile renewable energy such as solar and wind, and greatly reduces the necessity to build new electricity grids. By taking an average of 0,5kg/kWh for a 250 kW hydro plant that produces 1,25 GWh/year the avoided emissions would be 625 t/year. Assuming a hydro plant life of 30 years 18.750 tonnes of CO₂ would have been avoided over the lifespan of the hydro plant (this may vary from country to country).

Special importance is given to regional electricity generation from hydropower. It secures medium-sized commercial enterprises and creates added value locally. The current corona crisis clearly shows how important a stable domestic energy supply is for the economy, e.g. on the very local level.

The future significance of small hydropower for the energy industry will be based less on the quantity than on the quality of the electricity. Electricity from hydroelectric power is CO₂ neutral and constantly available and base loadable. Thus, small-scale hydropower in particular will take on system-stabilising tasks at the low and medium-voltage level in a decentralised European energy supply system, besides simple electricity production.¹

In addition to the generation of domestic, climate-friendly and resource-saving energy, traditionally anchored small hydropower also provides other additional services, such as flood protection, waste collection and disposal of water waste, watercourse maintenance,

¹ Prof. Dr.-Ing. Markus Zdrallek, Grid-related contribution of small hydropower plants to a secure and cost-effective electricity supply in Germany, available in German at: https://www.wasserkraft-deutschland.de/fileadmin/PDF/Gutachten_Netztechnischer_Beitrag_Kleinwasserkraftwerke.pdf

etc. These additional services are in the public interest and are provided for free in the region and for the region.

Furthermore, many energy cooperatives and communities use small hydropower in their portfolio to provide a secure energy supply to their members. It allows them to build energy clusters that are balanced and can be self-sufficient.

The latest delegated act proposal would add unnecessary burdens and additional costs to owner of small hydropower plants who have and are already investing in continuous updates of their plants to become more fish-friendly and to follow the provisions of the Water Framework Directive.

The criteria should therefore be designed in such a way that they do not go beyond the requirements for individual small hydropower plants set out in the Water Framework Directive and relevant provisions in the Habitats Directive or equivalent measures. Otherwise this may hamper member states' possibilities to expand wind and solar power production, as the ability of small hydropower to balance these intermittent energy sources will grow in importance.

We therefore ask you to acknowledge the importance of the small hydropower sector for the European energy system and to remove these potential burdens in the final version of the delegated acts on Taxonomy. Please find detailed information in the annex to this letter.

We cordially thank you for your support in this important matter that will greatly determine the future of the European small hydropower sector which is currently regarded as world-leading with regard to innovative and fish-friendly small hydropower technology.

With best wishes,



Dr. Dörte Fouquet
EREF Director

Annex to letter

The following remarks concern the role of hydropower in Annex I of the revised Delegated Act. While overall there has been some notable improvement, there are still some concerning details that should be addressed. In particular, regarding the Technical Screening Criteria, the rules and measures proposed for existing plants and new construction and the requirements set out for the environmental impact assessment of a project.

Under chapter 4.5, electricity generation from hydropower, of Annex I, the Technical Screening Criteria for Substantial contribution to climate change mitigation and Do no significant harm ('DNSH') have been set out. With regards to the "substantial contribution to climate change" the inclusion of a) is appropriate as this confirms that small hydropower provides substantial contribution if it is a run-of-river plant. Nonetheless, criteria b) and c) remain, creating considerable obstacles for those plants with reservoirs as they have to prove power density or life-cycle emission above/below certain pre-defined limits. Hydropower should not have to bare any additional and unnecessary burdens, which other renewable energy sources do not face, such as proving life-cycle emission below 100 g CO_{2e}/kWh or by proving power density above 5 W/m². The necessary data to calculate the correct power density is difficult to obtain and may lead to misrepresented results.

Furthermore, this does not correlate with Article 19 of the taxonomy regulation that requires screening criteria to be "respecting the principle of technological neutrality", which would mean that either no or all technologies of the same economic activity (i.e. generation of electricity) are subject to the same technical screening criteria. Therefore, the same technical screening criteria should apply for all renewable electricity generation technologies. We recommend criteria b) and c) be removed from the final text.

"The activity complies with either of the following criteria:

(a) the electricity generation facility is a run-of-river plant and does not have an artificial reservoir;

(b) the power density of the electricity generation facility is above 5 W/m²;

(c) the life cycle GHG emissions from the generation of electricity from hydropower, are lower than 100gCO_{2e}/kWh.

The life cycle GHG emissions are calculated using Commission Recommendation 2013/179/EU or, alternatively, using ISO 14067:2018, ISO 14064-1:2018 or the G-res tool. Quantified life cycle GHG emissions are verified by an independent third party."

With regards to the Technical Screening Criteria for the DNSH, criteria (3) regarding sustainable use and protection of water and marine resources still remains problematic. While there is now a direct reference to the Water Framework Directive in the text, there are still discrepancies, whereby some of the restrictions have not been covered in the Water Framework Directive. This is reflected both for the operation of existing plants, including refurbishment, and for new hydropower plants. Therefore, we would recommend removing under criteria (3) section 2 a), b) and c). Suggested amendments are also marked in red.

“(3) Sustainable use and protection of water and marine resources:

- 1. The activity complies with the provisions of Directive 2000/60/EC, in particular with all the requirements laid down in Article 4 of the Directive.*
- 2. Operation of existing hydropower plants, including refurbishment activities to enhance renewable energy or energy storage potential.*

In accordance with Directive 2000/60/EC and in particular Articles 4 and 11 of that Directive, all technically feasible and ecologically relevant mitigation measures have been implemented to reduce adverse impacts on water as well as on protected habitats and species directly dependent on water.

~~*Measures include, where relevant and depending on the ecosystems naturally present in the affected water bodies:*~~

~~*(a) measures to ensure downstream and upstream fish migration (such as fish friendly turbines, fish guidance structures, state-of-the-art fully functional fish passes, measures to stop or minimise operation and discharges during migration or spawning);*~~

~~*(b) measures to ensure minimum ecological flow (including mitigation of rapid, short term variations in flow or hydro peaking operations) and sediment flow;*~~

~~*(c) measures to protect or enhance habitats.*~~

~~*The effectiveness of those measures is monitored in the context of the authorisation or permit setting out the conditions aimed at achieving good status or potential of the affected water body.”*~~

Under the current draft, the rules of operation for existing plants may create considerable difficulties as not all criteria set out matches the criteria detailed in the Water Framework Directive. This could lead to issues with permits and licences, where relevant authorities may look for the WFD criteria to be satisfied, and consequentially the owner will be unable to

prove that the operation is in accordance with the criteria set out under the Taxonomy. Therefore, we recommend complete streamlining with the criteria under the WFD.

Similar issues arise concerning the rules of operation and mitigating measures for the construction of new hydropower plants. The measures under section a) “to ensure downstream and upstream fish migration (such as fish friendly turbines, fish guidance structures, state-of the-art fully functional fish passes, measures to stop or minimise operation and discharges during migration or spawning)” come at a considerably high cost and does not in fact take into account the value of the fish population itself. The relevant authorities will then need to monitor the effectiveness of measures, and as a result, these measures will then be considered and included under the licenses. This could lead to hydropower plants failing to meet these measures and being in accordance with the Taxonomy. Therefore, we would recommend removing the measures under a) but also b) concerning ecological and sedimentary flow and c) protecting or enhancing habitats.

“3. Construction of new hydropower plants

In accordance with Article 4 of Directive 2000/60/EC and in particular paragraph 7 of that Article, prior to construction, an impact assessment of the project is carried out to assess all its potential impacts on the status of water bodies within the same river basin and on protected habitats and species directly dependent on water, considering in particular migration corridors, free-flowing rivers or ecosystems close to undisturbed conditions.

*The assessment is based on recent, comprehensive and accurate data, including monitoring data on biological quality elements that are specifically sensitive to hydromorphological alterations, and on the expected status of the water body as a result of the new activities, as compared to its current one. **The scope of the assessment must be customized to the size of the project, and harmonized with the national legislation within the countries.***

It assesses in particular the cumulated impacts of this new project with other existing or planned infrastructure in the river basin.

*On the basis of **the** impact assessment, it has been established that the plant is conceived, by design and location and by mitigation measures, so that it complies with one of the following requirements:*

(a) the plant does not entail any deterioration ~~nor compromises the achievement of good~~ of the status or potential of the specific water body it relates to,

*(b) where the plant risks to deteriorate ~~or compromise the achievement of good~~ the status/potential of the specific water body it relates to, such deterioration is not significant, and is justified **when** by a detailed cost-benefit assessment demonstrating both of the following:*

(i) the reasons overriding of the public interest or the fact that benefits expected from the planned hydropower plant outweigh the costs from deteriorating the status of water that are accruing to the environment and to society;

(ii) the fact that the overriding public interest or the benefits expected from the plant cannot, for reasons of technical feasibility or disproportionate cost, be achieved by alternative means that would lead to a better environmental outcome (~~such as refurbishing of existing hydropower plants or use of technologies not disrupting river continuity~~).

All technically feasible and ecologically relevant mitigation measures are implemented to reduce adverse impacts on water as well as on protected habitats and species directly dependent on water.

Mitigation measures include, where relevant and depending on the ecosystems naturally present in the affected water bodies:

(a) measures to ensure downstream and upstream fish migration (such as fish friendly turbines, fish guidance structures, state-of-the-art fully functional fish passes, measures to stop or minimise operation and discharges during migration or spawning);

(b) measures to ensure minimum ecological flow (including mitigation of rapid, short-term variations in flow or hydro-peaking operations) and sediment flow;

(c) measures to protect or enhance habitats.

The effectiveness of those measures is monitored in the context of the authorisation or permit setting out the conditions aimed at achieving good status or potential of the affected water body.

The plant does not permanently compromise the achievement of good status/potential in any of the water bodies in the same river basin district.

In addition to the mitigation measures referred to above, and where relevant, compensatory measures are implemented to ensure that the project does not increase the fragmentation of water bodies in the same river basin district. This is achieved by restoring continuity within the

same river basin district to an extent that compensates the disruption of continuity, which the planned hydropower plant may cause. Compensation starts prior to the execution of the project.

The Annex I also refers to the Practical guidance is contained in Commission notice C/2018/2619 'Guidance document on the requirements for hydropower in relation to EU nature legislation' (OJ C 213, 18.6.2018, p. 1)."

The requirements set out for the environmental impact assessment (EIA) of a project are very restrictive and burdensome. For example, if a plant is at risk of deterioration or there is a compromise to the achievement of good status/potential, a detailed cost-benefit assessment shall be carried out. This will impose severe costs for small hydropower, with no certainty that this will lead to a license being granted. As a result, fewer plants will be put into operation due to these oppressive requirements. This does not support the Commission's finding that hydropower is a sustainable renewable source.

Appendix H specifies that where an EIA has been carried out, the required mitigation and compensation measures for protecting the environment are implemented. We believe this gives too much power to the company that has been appointed to carry out the EIA, as they could suggest several arbitrary measures to reduce the environmental impact of the project. These measures may ultimately be unnecessary and will add extra costs to the project. It should be the relevant and competent authority, which grants the licence that decides mitigating measures to be included in the licence

This new draft reveals that there is still considerable discrimination against the hydropower sector, which must be addressed in order for there to be coherency with other EU legislation and with the findings of the Commission- hydropower as a sustainable renewable source. The Technical Screening Criteria set out in the Delegated Act, which is much more specific, does not match the criteria under the Taxonomy Regulation. The criteria also lacks coherency with the Water Framework Directive. This must be amended before the final draft is prepared. Harmonisation of these texts is required. Furthermore, the measures and requirements set out must be proportionate and equal to those faced by other renewable energy sectors.