Finnish Energy on the Sustainable finance – EU classification system for green investments

Finnish Energy is a branch organisation for the industrial and labor market policy of the energy sector. We represent companies that produce, procure, distribute and sell electricity, gas, district heat and district cooling and related services. Finnish Energy strongly supports the European Commission's goal of climate neutral Europe by 2050. Finland has pledged to become carbon neutral already in 2035. The sustainable finance framework has great potential to facilitate investments towards activities that support these goals.

We believe that the EU Taxonomy's main purpose should be to support the transition to climate neutral Europe. Since it seems that Taxonomy will be widely used not only in private sector but also within e.g. public sector, EU's financial programs and state aid guidelines, it is crucial that taxonomy supports the transition to climate neutrality and takes into account all carbon-neutral technologies. This is also a prerequisite for a functioning energy market.

Therefore, we regret to see that the draft Delegated Act fails to meet technology neutrality and does not recognize that all carbon-neutral technologies are needed in the transition to climate neutrality. Unfortunately, the draft Delegated Act simply does not support Commission's long-term climate strategy and pathways towards achieving carbon neutrality by 2050.

Furthermore, the draft sustainability criteria create policy instruments through financial sector that are overlapping with existing sectorial legislation and do not consider system-level demands for transition to carbon-neutral society.

Nuclear power

We appreciate that the European Commission followed the TEG recommendations advising to set up a specific process assessing the role of nuclear energy under the Taxonomy. Nevertheless, we regret that the assessment of nuclear will not be finalised and completed in 2020, as it "is still ongoing and the Commission will report on its results in the context of the review of this Regulation".

Nuclear power is necessary in order to reach European climate targets and an essential part of climate neutral energy system. Lifecycle GHG emissions of nuclear power are very low as stated e.g. by IPCC[1], thus nuclear power is contributing substantially to climate change mitigation. Investments in sustainable nuclear power are needed today and in the future.

[1] https://www.ipcc.ch/sr15

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Existing national and Euratom legislation, as well as close supervision by national nuclear safety regulators, have ensured the safe and responsible operation of nuclear power plants and handling of nuclear waste. Geological disposal facilities for intermediate-level of radioactive waste and fully compliant with the highest safety standards are in place in Finland and Sweden for more than 30 years. Furthermore, the facilities for high-level radioactive waste are well-advanced or close to operation. Whilst this technology has been continuously upgraded to meet high levels of safety standards, nuclear is not covered under the climate mitigation delegated act. Taxonomy alignment is justified and sustainability criteria for nuclear should be created.

Excluding nuclear from taxonomy at this stage would create unfair playing field that hampers competition as some technologies have access to sustainable financing earlier than others. This also risks undermining the ability of the Member States to develop a pathway towards climate neutrality, taking advantage of all the carbon-neutral options available. Furthermore, if moved ahead with revising some EU polices in line with the taxonomy next year (e.g. Ecolabel, EIB Energy Lending Criteria) nuclear would be excluded from these until their next revision.

We see it essential to take the necessary time to review these delegated acts so that the evaluation of the whole energy block is completed. Delegated act should not be published until all technology assessments are complete.

Nuclear power should be included in the sustainable finance scheme by considering all energy sources according to equal principles and sustainability criteria for nuclear power should be created accordingly. The Commission should make sure that the decision on inclusion of nuclear is based on scientific assessment and technological neutrality rather than political views.

Hydropower

Hydropower has important role in the energy system also in the future, and is needed to balance growing amount of variable renewable energy (VRE) such as wind and solar power. Hydropower, a flexible and renewable energy source, provides flexibility for short-term adjustments as well as long-term storage possibilities. Hydropower has a long lifetime, and new investments are needed to increase the capacity of existing powerplants, to further improve flexibility and to adapt to new requirements of changing energy system.

Technical screening criteria

European hydropower lifecycle emissions are well below the threshold of 100 gCO2eq/kWh as is the case for other RES (such as wind, PV, ocean energy). According to global estimates the median of hydropower entire lifecycle CO2 emissions are 18–26 gCO2/kWh[2][3][4]. However, hydropower is the only activity that has to comply with general technical screening criteria to prove that lifecycle emissions are below the threshold, unless the power density of hydropower facility is above 5 W/m2. This does not make any sense as hydropower is among the electricity generation technologies with the lowest life cycle emissions.

The obligation on performing a lifecycle analysis would apply also to existing hydropower. In practice, the production of hydropower does not cause carbon dioxide emissions since hydropower's carbon dioxide emissions are mainly due to the inundation of land areas and construction of the powerplants. According to studies, the emissions of artificial lakes are greater than those of natural lakes at first, but they level off over time. Hence lifecycle analysis for existing hydropower is unnecessary. Moreover, regular refurbishment projects or power upgrades of existing plants do not have an impact on carbon dioxide emissions because they do not normally increase the inundated area.

[2] COM(2020) 380 final, EU Biodiversity Strategy 2030, p.10
[3] COM(2020) 299 final, p.6
[4] Tsiropoulos et al. (2020) Towards net-zero emissions in the EU energy system by 205, p.24

Many lowland hydropower plants (with a small generation unit and a relatively big and shallow reservoir), might not reach a power density of 5 W/m2, even though lifecycle emissions will be well below the threshold of 100 gCO2eq/kWh. This is the case in Finland as well. This would result in unnecessary life-cycle assessments that increase administrative costs and are time-consuming.

All the technologies that are well below the threshold of 100 gCO2eq/kWh should be treated equally and hydropower should be exempted from the life-cycle assessment.

Do No Significant Harm -criteria

In contrast to wind and solar, in the delegated act proposal, hydropower is subject to prohibitive environmental requirements under the DNSH criteria (especially those for "Sustainable use and protection of water and marine resources") that are not aligned with the existing national and EU environmental legislation such as the EU Water Framework Directive. The criteria include protection of ecosystems including state-of-the-art and fully functional fish passes, turbines preventing fish kill, measures to ensure minimal ecological flow and sediment flow. The draft delegated act even imposes changes in national hydropower systems by limiting hydropeaking making it more difficult to increase the share of wind and solar in the power system. Even though the sustainability criteria presented in the Annexes state that only technically feasible and ecologically relevant mitigation measures need to be implemented, the detailed criteria can be interpreted as requiring significant investments to existing hydropower plants. Measures set out in the Annexes may not even be technically feasible and often do not provide any ecological benefit. Furthermore, these requirements would have an adverse effect on the operation of hydropower.

Water Framework Directive (WFD) has been in place for 20 years, and large efforts have been put for developing a common understanding, as well as guidance and clarification of various WFD requirements. The detailed objectives of each water body are described in the River Basin Management Plans, which are reviewed every six years. WFD aims to achieve good status for all waters in EU. Achieving good status should suffice without any additional criteria.

The Draft Delegated Act and its Annexes do not follow the technology neutrality principles laid out in the Taxonomy regulation as regards to the general assessment of hydropower as sustainable electricity generation technology and the lack of inclusion of hydropower into installation, maintenance and repair of renewable generation technologies. The same principles for assessment must apply for all renewable electricity generation technologies, whereas criteria should be set in accordance with existing EU law. Current wording bears the risk of creating a double-standard for hydropower generation.

The Do no significant harm ('DNSH') criteria for hydropower, especially those for "Sustainable use and protection of water and marine resources" should refer to existing European Union environmental legislation, such as Water Framework Directive.

Accordingly, hydropower should be added to Section 7.6. Installation, maintenance and repair of renewable energy technologies.

We appreciate that the TEG recommendation on avoiding the construction of small hydropower (<10MW) has been removed from the draft sustainability criteria. In Finland many of the hydro powerplants < 10 MW provide flexibility and storage services to the electricity system and this should not be forgotten. Also, possible positive as well as adverse effects of a plant are site and water body specific and cannot be related to the size of a project.

Bioenergy

Bioenergy is without any doubt renewable energy and in fact by far the largest current source of renewable energy in the European Union. Bioenergy should be seen as a long-term renewable energy source that can play a crucial role in a carbon neutral Europe by 2050. Therefore, we appreciate that the draft sustainability criteria for bioenergy have mainly been set in accordance with the existing EU legislation, such as RED II.

However, in the draft Act Annex I on climate change mitigation, bioenergy is mentioned as a transitional technology. **All renewables technologies should be placed on the same footing and bioenergy be classified as 'sustainable' in accordance with Article 10.1(a) of the Taxonomy Regulation clearly stating that renewables are regarded as a sustainable energy source pursuant to RED II.**

- Sustainable bioenergy also matches the requirement of Art. 10.1(h) "producing clean and efficient fuels from renewable or carbon-neutral sources". Conversely, a transitional activity as described in Art. 10.2 is one for which "there is no technologically or economically feasible low-carbon alternative". This definition not only differs from the definition of bioenergy as renewable solution (inherently a "low-carbon alternative") but would also lead to the wrong conclusion that bioenergy is a temporary solution, not a necessary tool for the decarbonisation of the EU economy.
- Recent European Commission strategies underline that sustainable bioenergy is "a win-win solution for energy generation"[5] and count on an increased mobilisation of waste and residues for bioenergy generation to achieve a smart sector integration[6]. The achievement of the 2050 carbon neutrality goal will also depend on bioenergy generation.
- Sustainable bioenergy will still be the largest renewable in 2030 in the EU, standing at the forecasts included in the Integrated National Energy and Climate Plans.
- In the recently published 2030 Climate Target Plans impact assessment, bioenergy remains the largest renewables across scenarios and growth is projected towards 2050.
- In its recent literature review "Towards net-zero emissions in the EU energy system by 2050"[7], the JRC underlines a growth of bioenergy from 15 to 60% compared to current use to achieve a 50% GHG emission saving. The main growth according to these scenarios will occur in the industrial sector, that is to date highly impacted by private investments.

Accordingly, bioenergy should be added to Section 7.6. Installation, maintenance and repair of renewable energy technologies. At present the EU Bioenergy value chain employs over 700.000 people in the EU and the manufacturing of Bioenergy technologies is soundly European. Unlocking private investments in this sector would contribute to the growth of the domestic economy.

Even though we welcome the further alignment of the sustainability criteria with Directive (EU) 2018/2001, RED II, it is important to ensure full consistency with existing legislation and metrics. Therefore, **further streamlining is needed when it comes to the greenhouse gas emission savings, electricity generation installations with a total rated thermal input below 20 MW using solid biomass and electricity-only-installations for multifuel boilers.** ((EU) 2018/2001, Articles 29.10, 29.1, 29.11)

The term "whole tree stem" in Annex II Section 1.4. is unclear since there is no definition of whole trees in European Union legislation. **The references to bioenergy under this section should be removed,** due to their non-pertinence and misguided nature. The bioenergy industry largely utilises residues, side streams and low-value timber assortments resulting from e.g. thinning and maintenance of forests in afforested areas while continues to ensure that the sustainability of the value chain is fully respected.

[5] COM(2020) 562 final; p.8
[6] COM(2020) 380 final, EU Biodiversity Strategy 2030, p.10
[7] COM(2020) 299 final, p.6

Manufacture of Hydrogen

Capping the life cycle emissions associated with the production of clean hydrogen to 2.256 tCO2/eqtH2 is roughly half of the value proposed by TEG, resulting in ruling out the production of hydrogen from the most decarbonised grid mix. This criterion largely pre-empts the regulatory debate to take place with respect to the EU hydrogen framework, whilst again in this case referring to not-yet-adopted legislation (methodology for the calculation of GHG emission savings in a forthcoming delegated act under Art 25 of RED II).

The sustainability criteria for manufacture of hydrogen should be set in accordance with the TEG final report thus resulting in limit of 5.8 tCO2/eqtH2.

Gaseous and liquid fuels

Gas-fired and CHP power plants producing electricity are not taxonomy-aligned unless the life cycle emissions are below a threshold of a 100 gCO2e/kWh. This could potentially threaten the gas sector's transition to climate neutrality by 2050. In energy sector, where investment cycles are long, transition is a process that requires time.

Gases will play an important part in the energy system of the future. Gases will support the transition to intermittent and weather-dependent energy production (solar and wind) by providing balance to the energy networks and by flattening the peak demand of heat. This technological development should be supported, not restricted, by the policy.

Threshold on life cycle GHG emissions for gaseous and liquid fuels should be based on roadmap that works as an incentive for the gas sector's decarbonisation.

Transmission and distribution of electricity

Electricity transmission and distribution networks have a crucial role in achieving the EU climate and energy objectives and in enabling a cost-efficient transition towards a fully decarbonised economy. Over 90% of all distributed RES generation is and will most likely continue to be connected at distribution grid level. Investments will also be required to enable electrification in transport and buildings. Failure to act in a timely manner could jeopardise this innovative and customer-driven development. Any deferral might also impact quality of supply and disproportionally drive up future costs for maintaining a secure grid service.

Criterion 2. on calculation of CO2 values shall not be mandatory to fulfil in order of being eligible. Electricity System Operators (DSOs and TSOs) have the obligation to connect to their grids all customers (consumption and production) that fulfil the technical requirements (e.g. European Network Codes). Electricity Market Directive (2019/944) requires that in any event, the system operators shall not discriminate between system users. As required by the Directive, each electricity system operator acts as a neutral market facilitator, fulfilling the need of the customers connecting to the grid in a non-discriminatory way. This means that the System Operators have no possibility to choose or affect what types of electricity productions units are connected or will be connected into their grids. The eligibility of a transmission or distribution system shall not be dependent on actions the system operators cannot affect. Current formulation of criterion 2. could lead to unwanted uncertainties on investments to the electricity systems, which could hamper the development of the System Operators grids as neutral market facilitators and risk the energy transition towards a fully decarbonised economy.

As a main principle we see that all electricity transmission and distribution infrastructure or equipment shall be eligible with except for infrastructure that is dedicated to creating a direct connection, or expanding an existing direct connection between transmission or distribution system and a power production plant that is not eligible. Criterion 2. on calculation of CO2 values shall not be mandatory to fulfil in order of being eligible.

Storage of electricity

Hydropower is the only large-scale renewable generating option to offer storage of energy which can be transformed into electricity instantaneously. This applies for river basins with natural inflow, pumped storage, and reservoir storage. All these are substantial contributions to climate change mitigation as described in Article 19.1(a) and 19.1(j) of the regulation, but it is not reflected in the draft delegated act.

Now only closed-loop hydropower storage is seen as electricity storage technology, a niche market in Europe. Existing hydropower reservoirs can often provide multiannual storage capacity on a large scale, and mixed pumped hydropower storage, as the most common form of pumped storage, provides renewable generation, storage as well as flexibility. Unlike batteries and other electricity storage technologies, these plants would have to comply with a number of specific criteria set under the "hydropower section (4.5.)".

All electricity storage technologies, including reservoir storage and pumped hydropower, should also be categorised as economic activities making a substantial contribution based on their own performance, and not only as enabling activities. All dedicated electricity storage technologies should be listed in 4.10. including respective specifications in the DNSH criteria.

Please see Annex I for our amendments to the draft delegated act supplementing Regulation (EU) 2020/852.

Please see Annex II for our analysis on hydropower in taxonomy.

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Annex / Paragraph	Amendment	Justification	Research material
Recital 16	Primarily we ask the whole delegated Act to be published after the assessment of nuclear power is completed and nuclear power is included in this act. Should this not happen we ask this recital to be amended: For nuclear energy, that assessment is still ongoing. and the Commission will report on its results in the context of the review of this Regulation. **In the event that the JRC work on nuclear results in nuclear being considered as sustainable, the Delegated Act will be amended within 2 months to include nuclear. In addition, all Taxonomy compliant regulation should be updated accordingly.**	Nuclear power is necessary in order to reach European climate targets and an essential part of climate neutral energy system. Investments is sustainable nuclear power are needed today and in the future. The Commission should set up a timeframe for inclusion of nuclear in the Delegated Act and make sure that the decision on inclusion is based on scientific assessment and technological neutrality rather than political views. Existing national and Euratom legislation, as well as close supervision by national nuclear safety regulators, have ensured the safe and responsible operation of nuclear power plants and handling of nuclear waste. Geological disposal facilities for intermediate-level of radioactive waste and fully compliant with the highest safety standards are in place in Finland and Sweden for more than 30 years. Furthermore, the facilities for high-level radioactive waste are well-advanced or close to operation. Whilst this technology has been continuously upgraded to meet high levels of safety standards, nuclear is not covered under the	The scientific assessment is ongoing by JRC.

		climate mitigation delegated act. Taxonomy alignment is justified and sustainability criteria for nuclear should be created.	
Annex I &II / 3.4 Manufacture of energy efficiency equipment for buildings	To be added: **(o) district heating exchangers and substations compliant with the district heating/cooling distribution activity set out in Section 4.15 of this Annex;** **(p) products for smart monitoring and regulating of heating system, and sensoring equipment**	All manufacture of energy efficiency equipment should be eligible and treated equally when the technology (i.e. district heating) is eligible in general.	
Annex I &II / 3.4 Manufacture of energy efficiency equipment for buildings	To be modified/added (l) energy-efficient building automation and control systems for ~~commercial~~ **residential and non-residential** buildings; (m) zoned thermostats and devices for the smart monitoring of the main electricity **and heat** loads for ~~residential~~ buildings, and sensoring equipment; (n) products for heat metering and thermostatic controls for individual homes ~~connected to district heating systems~~ and individual flats connected to central heating systems serving a whole building, **and central heating.**	Building automation, regulation, control systems and monitoring should be eligible in all buildings as well as for all energy carriers. The manufacturer doesn't know where the product will be installed.	

Annex I / 3.9. Manufacture of hydrogen	The criteria of the final TEG report should be used: **<u>The following thresholds need to be met:</u>** **<u>• Direct CO2 emissions from manufacturing of hydrogen: 5.8 tCO2e/t Hydrogen in alignment with energy thresholds in the taxonomy.</u>** **<u>• Electricity use for hydrogen produced by electrolysis is at or lower than 58 MWh/t Hydrogen</u>** **<u>• Average carbon intensity of the electricity produced that is used for hydrogen manufacturing is at or below 100 gCO2e/kWh</u>**	Capping the life cycle emissions associated with the production of clean hydrogen to 2.256 tCO2/eqtH2 is roughly half of the value proposed by TEG, resulting in ruling out the production of hydrogen from the most decarbonised grid mix. This criterion largely pre-empts the regulatory debate to take place with respect to the EU hydrogen framework, whilst again in this case referring to not-yet-adopted legislation (methodology for the calculation of GHG emission savings in a forthcoming delegated act under Art 25 of REDII).	
Annex I & II / 4.5 Electricity generation from hydropower: *Description of the activity*	To be added: **<u>Where the activity is an integral element of the activity 'Installation, maintenance and repair of renewable energy technologies' as referred to in Section 7.6 of this Annex, the technical screening criteria specified in Section 7.6 apply.</u>**	Hydropower is included as any other renewable electricity generation technology in the references made to installation, maintenance and repair of assets.	
Annex I & II / 4.5 Electricity generation from hydropower:	~~The activity complies with either of the following criteria:~~ ~~(a) the life-cycle GHG emissions from the generation of electricity from hydropower, including mixed pumped hydropower storage~~	Energy generation technologies are treated unequally by applying criteria unevenly (no criteria versus multiple different criteria and conditions) even though they fall under the same economic activity. Same standard should be made for all renewable electricity	IPCC (2014): Worldwide median lifecycle emissions of 24 gCO2eq/kWh (*Annex III: Technology-specific cost and performance parameters. In: Climate Change 2014: Mitigation of Climate Change*)

Technical screening criteria	~~connected to a free-flowing water source are lower than 100gCO2e/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.~~ ~~(b) the power density of the electricity generation facility is above 5 W/m2~~ **The activity generates electricity from hydropower.**	generation technologies and either no or all technologies of the same economic activity (i.e. generation of electricity) are subject to the same technical screening criteria. Renewable energy technologies (defined by REDII) are treated unequally. In contrast to other RES (such as wind, PV, ocean energy), hydropower has to comply with general technical screening criteria to prove that lifecycle emissions are below threshold. This does not make any sense as hydropower is among the electricity generation technologies with the lowest life cycle emissions.	IHA (2018): global median GHG emission intensity (i.e. LCE) of hydropower reservoirs is equal to 18.5 gCO2eq/kWh (*https://www.hydropower.org/news/study-shows-hydropower%E2%80%99s-carbon-footprint*) WNA(2011): hydropower facilities have LCE mean value of 26 gCO2eq/kWh (*World Nuclear Association: Comparison of Lifecycle Greenhouse Gas Emissions of Various Electricity Generation Sources, 2011*) Life cycle emissions of European hydropower plants are well below of these indicated maximum values. This is also confirmed by scientific research, outlining that higher values were mainly found when the reservoirs were located in tropical areas (*Turconi, R. et al. (2013): Life cycle assessment (LCA) of electricity generation technologies: Overview, comparability and limitations.)*
Annex I & II / 4.5 Electricity generation from hydropower:	Delete all original wording, and replace with: **The activity complies with the provisions of Directive 2000/60/EC and in the Directive 2008/56/EC.**	The current Do no significant harm ('DNSH') criteria for hydropower, especially those for "Sustainable use and protection of water and marine resources" should be removed and reference shall be made only to the current EU water acquis, as it is already the	

DNSH (3) Sustainable use and protection of water and marine resources		case in other sections of the Annexes, such as for wind power offshore requirements. The same principles for assessment must apply for all technologies, whereas criteria should be set in accordance with already existing EU law. Water Framework Directive (WFD) has been in place for 20 years, and large efforts have been put for developing a common understanding, as well as guidance and clarification of various WFD requirements. The environmental objectives in WFD, Art 4.1 – 4.9, cover operation of existing hydropower plants, as well as construction of new plants (Art. 4.7), while further details are elaborated within other articles and annexes, in particular WFD Annex V. Also, the cumulative impact assessment envisaged in the Annex I/II of the new regulation for construction of new hydropower plants are fully covered by the reporting requirements in WFD. Current wording bears the risk of creating a double-standard for hydropower generation as no reference to the WFD is made. Additional and more specific criteria at EU level will contribute to contradiction in EU policy goals and will impede a coherent implementation of the Taxonomy regime throughout the EU. It may even lead to a loss	

		of flexible clean electricity so much needed in keeping the level of security of supply high and ensuring a safe energy transition. The current text of (3) Sustainable use and protection of water and marine resources under the hydropower section in both Annexes should be replaced by a text element that is in line with other electricity generation technologies and with references only to existing EU law.	
Annex I / 4.7. Electricity generation from gaseous and liquid fuels, 4.19. Cogeneration of heat/cool and power from gaseous and liquid fuels, 4.23. Production of heat/cool from gaseous and liquid fuels:	To be modified/added: 1. Life-cycle GHG emissions from the generation of electricity using gaseous and liquid fuels are lower than ~~100gCO2e/kWh~~ **270gCO2e/kWh in average over the lifespan of the plant.** **Electricity production from back-up or balancing power generators using natural gas to ensure grid stability in peak demand situations is eligible.**	Gas-fired and CHP power plants producing electricity are not taxonomy eligible unless LCA GHG emissions are below a threshold of 100gCO2e/kWh. This could potentially threaten the gas sector's transition to climate neutrality by 2050. In energy sector, where investment cycles are long, transition is a process that requires time. Gases will play an important part in the energy system of the future. Gases will support the transition to intermittent and weather-dependent energy production (solar and wind) by providing balance to the energy networks and by flattening the peak demand of heat. This technological development should be supported, not restricted, by the policy. Electricity production from back-up or balancing power generators using natural gas to ensure grid	

Technical screening criteria		stability in peak demand situations, should be classified as a transitional activity according to article 10(2) and thus taxonomy eligible. Power generation from gaseous and liquid fuels should be qualified as a transitional activity in the sense of article 10 (2) of the Regulation (EU) 2020/852 if LCA GHG emissions are lower than 270gCO2e/kWh in average over the lifespan of the plant. Such threshold should be distinct from the DNSH criteria under the climate change adaptation category. Furthermore, when LCA GHG emissions have dropped below 100gCO2e/kWh, the activity should no longer be considered as a transitional activity but as an activity contributing substantially to climate change mitigation.	
Annex I / 4.8. Electricity generation from bioenergy, 4.20. Cogeneration of heat/cool and power from bioenergy,	To be added: **<u>Where the activity is an integral element of the activity 'Installation, maintenance and repair of renewable energy technologies' as referred to in Section 7.6 of this Annex, the technical screening criteria specified in Section 7.6 apply.</u>**	Bioenergy should be included as any other renewable electricity generation technology in the references made to installation, maintenance and repair of assets.	

4.24. Production of heat/cool from bioenergy: *Description of the activity*			
Annex I / 4.8. Electricity generation from bioenergy, 4.13. Manufacture of biogas and biofuels for use in transport, 4.20. Cogeneration of heat/cool and power from bioenergy, 4.24. Production of heat/cool from bioenergy:	To be deleted: ~~The activity is a transitional activity as referred to in Article 10(2) of Regulation (EU) 2020/852 where it complies with the technical screening criteria specified in this Section.~~	Taxonomy Regulation Article 10(1) clearly states that renewable energy production in line with RED II is classified as sustainable: *An economic activity shall qualify as contributing substantially to climate change mitigation where that activity contributes substantially to the stabilisation of greenhouse gas concentrations in the atmosphere at a level which prevents dangerous anthropogenic interference with the climate system consistent with the long-term temperature goal of the Paris Agreement through the avoidance or reduction of greenhouse gas emissions or the increase of greenhouse gas removals, including through process innovations or product innovations, by: (a) generating, transmitting, storing, distributing or using renewable energy in line with Directive (EU) 2018/2001*	

Description of the activity			
Annex I / 4.8. Electricity generation from bioenergy 4.20. Cogeneration of heat/cool and power from bioenergy, 4.24. Production of heat/cool from bioenergy: *Technical screening criteria*	To be modified/added: 2. The greenhouse gas emission savings from the use of biomass in cogeneration installations are at least ~~80 %~~ **70 % and 80 % for plants starting operations from 1 January 2026** in relation to the GHG emission saving methodology and fossil fuel comparator set out in Annex VI to Directive (EU) 2018/2001. 4. Points 1 and 2 do not apply to electricity generation installations with a total rated thermal input below 2 MW and using gaseous biomass fuels and **below 20 MW using solid biomass.**	Full consistency with existing legislation and metrics is important and thus further streamlining with Sustainability Criteria of RED II (Art 29.10 and Art 29.1) is needed.	
Annex I / 4.8. Electricity generation from bioenergy	To be added: **7. Electricity-only-installations for multifuel boilers are eligible if they do not use fossil fuels as a main fuel**	Full consistency with existing legislation and metrics is important and thus further streamlining with Sustainability Criteria of RED II (Art 29.11) is needed.	

Technical screening criteria			
Annex II / 4.9. Transmission and distribution of electricity: *Technical screening criteria*	~~Construction and operation of transmission systems that transport electricity on the extra high-voltage and high-voltage interconnected system and construction and operation of distribution systems that transport electricity on high-voltage, medium-voltage and low-voltage distribution systems where:~~ **The activity complies with one of the following criteria:**	Same principle as in Annex I should be applied. As a main principle we see that all electricity transmission and distribution infrastructure or equipment shall be eligible with except for infrastructure that is dedicated to creating a direct connection, or expanding an existing direct connection between transmission or distribution system and a power production plant that is not eligible. Electricity transmission and distribution networks have a crucial role in achieving the EU climate and energy objectives and in enabling a cost-efficient transition towards a fully decarbonised economy. Over 90% of all distributed RES generation is and will most likely continue to be connected at distribution grid level. Investments will also be required to enable electrification in transport and buildings. Failure to act in a timely manner could jeopardise this innovative and customer-driven development. Any deferral might also impact quality of supply and disproportionally drive	Finnish Sectoral low carbon roadmaps for carbon neutral Finland in 2035: https://tem.fi/en/low-carbon-roadmaps-2035 show the need for electrification and role of electricity networks in reaching climate targets.

		up future costs for maintaining a secure grid service. Criterion 2. on calculation of CO2 values shall not be mandatory to fulfil in order of being eligible. Electricity System Operators (DSOs and TSOs) have the obligation to connect to their grids all customers (consumption and production) that fulfil the technical requirements (e.g. European Network Codes). Electricity Market Directive (2019/944) requires that in any event, the system operators shall not discriminate between system users. As required by the Directive, each electricity system operator acts as a neutral market facilitator, fulfilling the need of the customers connecting to the grid in a non-discriminatory way. This means that the System Operators have no possibility to choose or affect what types of electricity productions units are connected or will be connected into their grids. The eligibility of a transmission or distribution system shall not be dependent on actions the system operators cannot affect. Current formulation of criterion 2. could lead to unwanted uncertainties on investments to the electricity systems, which could hamper the development of the System Operators grids as neutral market facilitators and risk the energy transition towards a fully decarbonised economy.	

Annex I & II / 4.25. Production of heat/cool using waste heat: *Description of the activity*	Description of the activity Construction, **refurbishment** and operation of facilities that produce heat/cool using waste heat.		
Annex I / 7.6. Installation, maintenance and repair of renewable energy technologies: *Technical screening criteria*	To be added: **(i) installation, maintenance, repair and upgrade of hydropower turbines and the ancillary technical equipment** **(j) installation, maintenance, repair and upgrade of bioenergy heaters; boilers and plants and the ancillary technical equipment**	All renewable technologies should be treated equally.	
Annex II / 7.6. Installation, maintenance and repair of renewable energy technologies:	To be added: **(i) installation, maintenance, repair and upgrade of hydropower turbines and the ancillary technical equipment**	All renewable technologies should be treated equally.	

Description of the activity	**(j) installation, maintenance, repair and upgrade of bioenergy heaters; boilers and plants and the ancillary technical equipment**		
Annex I / 9.1. Research, development and innovation: *Technical screening criteria*	To be modified: 1. The activity researches, develops or provides innovation for technologies, products or other solutions that are dedicated to enable one or more economic activities for which the technical screening criteria have been set out in this Annex, ~~with the exception of activities considered as transitional and enabling activities in accordance with Articles 10(1), point (i), and 10(2) of Regulation EU 2020/852~~, to meet those respective criteria for substantial contribution to climate change mitigation, while respecting the relevant criteria for doing no significant harm to other environmental objectives.	Transitional and enabling activities should also be included in Section 9.1. Otherwise, several RD&I measures promoting new innovative technologies within energy sector that contribute to climate change mitigation, are jeopardized.	
Annex II / 1.4. Afforestation: *DNSH (6) Protection and restoration of biodiversity*	To be removed: ~~The use of whole tree stems for bio-energy is avoided, especially where viable, unsubsidised markets exist for their use in carbon-retaining materials or products, except where it has been authorised at the national or regional levels in exceptional circumstances, including for phytosanitary reasons or to reduce fire risks, in accordance with applicable law.~~	In practice this definition is impossible to agree with. The bioenergy industry largely utilizes residues and side streams and low-value timber assortments while continuing to ensure that the sustainability of the value chain is fully respected. The forests in the afforested areas will at some point need thinnings and maintenance to take care of the forest (incl. preventing	

and ecosystems		fire risks) and to able better growth. The (usually small diameter) wood harvested when doing the thinning most often has no better use than as bioenergy. The term “whole tree stem” is unclear and the use of such should be avoided and instead refer to valid legislation (RED II) or use the specifications used in those.	

Hydropower and the Taxonomy

- Hydropower is Finland's largest production form of renewable energy, producing about 40 per cent of Finland's renewable electricity.
- No emissions are created in hydropower production.
- In Finland, there are more than 220 hydropower plants in different parts of the country, which improves the security of electricity supply.
- The production of electricity must be equal to consumption at every moment, and hydropower plays an important role in balancing the electricity system. With hydropower it is easy, quick and economical to react to production and consumption fluctuations (regulating power). In Finland, hydropower corresponds to more than 70 per cent of daily regulation.
- Hydropower has been defined as renewable energy in the RED II directive (EU) 2018/2001.

Existing hydropower, the situation in Finland

- The draft proposes that existing hydropower will also need to undergo a verifiable life cycle analysis to demonstrate carbon dioxide emissions or a power density of more than 5 W/m^2.
    - According to global estimates, the median carbon dioxide emissions of hydropower for the entire life cycle is about 18–26 gCO_2/kWh[1].
    - In practice, the production of hydropower does not cause carbon dioxide emissions, but the greatest sources of carbon dioxide emissions are the construction of the plants and the inundation of land areas (example in Figure 1).

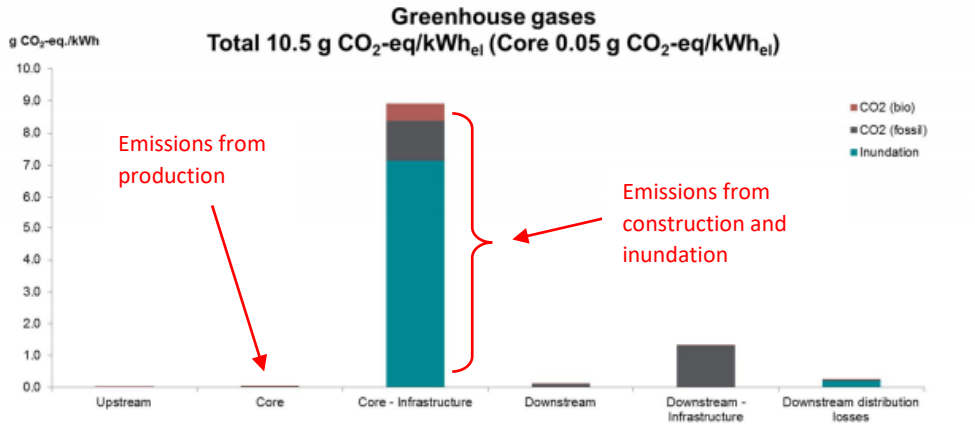

Figure 1. Greenhouse gas emissions of Vattenfall's hydropower in accordance with the environmental product declaration

    - Natural lakes also produce carbon dioxide emissions. According to studies, the emissions of artificial lakes are greater than those of natural lakes at first, but they level off over time.
    - Normal refurbishment projects or power upgrades of existing plants do not have an impact on carbon dioxide emissions because they do not increase the water area.

➔ **Demand for a life cycle analysis is unnecessary in terms of hydropower.**

- A very detailed set of sustainability criteria has been proposed for hydropower, also with respect to existing hydropower. These criteria are, in part, even stricter than the existing legislation.
    - There are no corresponding criteria for other renewable energy production forms, which means that hydropower is put in an unequal position in relation to other production forms

[1] IHA 2018: 18,5 gCO_2/kWh; IPCC 2014: 24 gCO_2/kWh; WNA 2011: 26 gCO_2/kWh

- Existing operations are controlled by permits and legislation (e.g. the Water Act and the Act on the Organisation of River Basin Management). The impacts and requirements of operation have been assessed in the permits. If the operations change, the impacts are assessed in the way required by the permits and legislation.

➔ **Overlapping regulation for existing operations must not be proposed through sustainable finance.**

- The requirements now proposed may partly even be impossible to implement and they result in a situation where hydropower will not meet all the proposed criteria.
  - Fully functioning fishway solutions that comply with the latest technology require big investments. Every fishway is unique, and the recent fishway construction costs have been in the region of EUR 1.5–2.5 million / fishway.
  - Changing the type of turbine in an existing plant is expensive and not necessarily even technically possible. The technical lifetime of a turbine may be as high as 50 years, and investments are easily > EUR 1 million. I.e. the replacement of a turbine is not carried out lightly.
  - Environmental flows and the restriction of flow variations, on the other hand, have impacts on, e.g. the regulation operation of hydropower.

<u>Building of new hydropower, the situation in Finland</u>

- According to current understanding, the amount of new hydropower to be built in Finland is low.
- Studies have shown that, as a rule, the carbon dioxide emissions of hydropower remain below 100 gCO_2/kWh[1], and hydropower as a renewable energy form must be on the same footing as wind and solar power.
- The calculation of power density must be defined if it remains a requirement for exemption from a life cycle analysis. The calculation is significantly affected by whether the entire water area or only the inundated area is taken into account in the calculation (Figure 2).

	Teho [W]
Pamilo	84 000 000

	Järven pinta-ala [m2]	Veden alle jäänyt pinta-ala [m2]	
Koitere	163 667 000	0,00	
Heinäselkä/ Tekojärvi	5 715 300	5 715 300	
Palojärvi	8 238 700	0,00	
	177 621 000	**5 715 300**	
Tehotiheys:	**0,47**	**14,70**	**W/m2**

Figure 2. A rough example of the impact of the calculated area on power density. Smaller area = higher power density.

  - In Finland, many hydropower plants have been established along an existing watercourse, in which case a relatively small land area has been inundated.
  - Moreover, it has not been specified how a system of several power plants along the same watercourse is taken into account.
- The Taxonomy criteria do not, e.g. refer to the Water Framework Directive directly, but measures that are along similar lines, however, not identical, are proposed as the criteria for hydropower. This may lead to the formation of a double standard.
  - The impacts of new hydropower are already assessed in the EIA procedure.
  - The river basin management planning aims for a good status of waterways, and it directs towards measures that are required in order to achieve a good status.

- The operating preconditions for new hydropower are assessed during permit processing, which takes into account, e.g. the requirements of the Water Act and the water basin management plans.

➔ **The DNSH criteria must be consistent with various technologies, and the sustainability criteria must refer to existing EU legislation.**