FVEE Statement on EU Taxonomy – delegated regulation

December 2020

The German Renewable Energy Research Association (FVEE) welcomes that the taxonomy will help guide the sustainable transformation of the energy system. However, we are concerned about the envisaged role of bioenergy, which deviates from scientific and political consensus. Bioenergy will have a relevant long-term position in a sustainable energy system and should therefore be further researched and promoted in this context.

Key Messages

- According to most climate and energy scenarios, bioenergy will significantly contribute to a net-zero carbon emissions EU in 2050 and beyond. This is also in line with the EU goal of efficiently using biomass resources, which includes the continued energetic use of residues. While some bioenergy technologies may be relevant only in the short- or midterm – as long-term bioenergy potentials will partly include new applications –, the general classification of bioenergy as transitional neither reflects scientific nor political consensus.
- The subsequent exclusion of bioenergy from the definition of sustainable research activities undermines research necessary for creating more sustainable biomass value chains and the exploitation of their significant resource- and cost-saving potentials for a net-zero carbon emissions energy system. To secure these benefits in a sustainable way and to account for its long-term significance, the current classification of bioenergy should be revised. **The FVEE therefore recommends not to classify activities 4.8, 4.13, 4.20 and 4.24 as transitional and to include bioenergy in activity 7.6.**
- While the RED II sustainability requirements for bioenergy are controversial and may partially lack ambition, they provide a coherent und integrated policy framework and with it a clear guidance for private and public actors. By creating a second, more restrictive sustainability standard for bioenergy, the taxonomy will lead to a situation of contradicting and potentially confusing incentives for investors in cases where the RED II encourages the use of bioenergy while the taxonomy does not. **The FVEE therefore recommends a full adoption of RED II requirements regarding bioenergy-related activities (activities 4.8 and 4.13) and the reframing of emission standards as life-cycle emissions at least in those transport-related activities where no reference is made to existing EU standards (activities 6.8 and 6.10).**

1. Classification of bioenergy as transitional and subsequent exclusion from research and other areas

- Refers to: Annex I, activities 4,8, 4,13, 4.20, 4.24 in connection with 9.1 and 7.6
- The general classification of bioenergy-related activities as transitional does not reflect scientific consensus on net-zero carbon energy systems. While some uses of bioenergy such as the large-scale co-incineration of biomass in coal-fired power plants are rightly controversial and not all bioenergy technologies employed today will be needed in the long run, it is also widely accepted that an efficient cascade use of biomass in many cases will include the energetic use of residues.[1] Bioenergy thus constitutes an integral and permanent part of a future sustainable bioeconomy as stated in the EU bioeconomy strategy.[2]
- This integrated material-energy-use of biomass can significantly contribute to permanently reducing the consumption of resources and the costs of – and with that the political chances of reaching and maintaining – a net-zero carbon emissions energy system. While the optimal sectoral allocation of bioenergy in the long term is still not entirely clear due to uncertain technological and political developments in the future, long-term cost-savings from using biomass and bioenergy are expected especially from
  - the production of flexible electricity and heat/cool:[3] the possibility to store biomass or bioenergy carriers (solid, gaseous or liquid biomass fuels) and thus to provide on-demand energy can help in balancing fluctuating power generation from solar and wind and reducing the costs of (alternative) energy storage;
  - providing renewable carbon:[4] where a comprehensive substitution of carbon is technically infeasible, sustainable biomass as renewable carbon source for biobased products and fuels can align net-zero-carbon emissions goals with the continued use of carbon, preserving the respective value creation and jobs. Prominent examples are the chemical industry and renewable fuels in hard-to electrify transport sections (e.g., air and maritime traffic as well as heavy-duty road transport). Moreover, so called SynBioPTx approaches can create synergies of both, biomass use and power-based technologies in renewable hybrid refineries.
  - high-temperature process heat in the industry:[5] Certain industrial processes like primary steel, enamel or cement production rely on fossil inputs for which biomass is expected to constitute the renewable substitute. While an alternative use of hydrogen in industrial processes is also foreseeable, in some cases its expected high costs or incompatible chemical properties make the use of biomass likely or even necessary, which sometimes can deliver both, material and

[1] Prominent examples at EU level are the inclusion of the energetic use of residues in the EU waste hierarchy (Waste Framework Directive) and the EU Updated Bioeconomy Strategy.

[2] "*The finite biological resources and ecosystems of our planet are essential to feed people, provide clean water and affordable and clean energy*" (EU Updated Bioeconomy Strategy, p. 15).

[3] E.g., Purkus et al. (2018) DOI: 10.1186/s13705-018-0157-0; Hakkarainen et al. (2019) DOI 10.1002/bbb.2019; Hauser & Wern (2016) DOI: 10.1186/s13705-016-0101-0.

[4] From biomass itself or renewable CO_2 from bioenergy plants or refineries. E.g., Iost et al (2020) DOI: 10.3220/WP1593762669000.

[5] Lenz et al. (2020) DOI: 10.1002/ceat.202000077.

energetic inputs. The application in industrial value chains also creates opportunities for cost-efficient carbon capture and storage (BECCS) and thus negative emissions, as well as,

- more generally, the substitution of other renewable energy options, in contexts where they cause high costs, by the efficient energetic use of residues from biomass-based products (at the end of a cascading approach) in cases where qualities do not meet the requirements for a further material use.[6]

- Empirically, according to IPCC, "*most mitigation scenarios include substantial deployment of bioenergy technologies* [... and] *all 1.5 °C pathways include bioenergy*" (IPCC 2019: Climate Change and Land, Chapter 6, p. 581). For the EU similar results are obtained.[7] Typically, in these scenarios the reliance on bioenergy is not limited to the period before 2050, which can be seen from the often substantial contributions of bioenergy in the year 2050, indicating a continued use beyond that date. The review of 12 scenario studies by Tsiropoulos et al. (2020, see footnote 7) finds that in 2050 in the EU 28 on average 20 % of the gross inland energy consumption are predicted to base on bioenergy (Figure 1). The review study by Mendley et al. (2020, see footnote 7) confirms that the demand for the energetic use of biomass in the EU is not expected to fall after 2030 but rather to rise significantly.

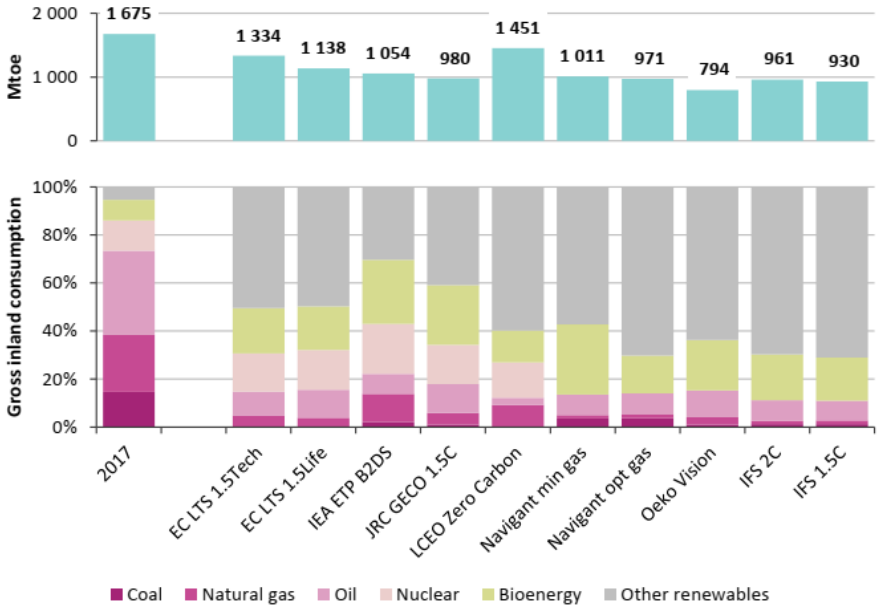

Figure 1: Gross inland energy consumption scenario results for EU 28 in 2050 (Tsiropoulos et al. 2020).

Most IPCC scenarios show a constant or even rising contribution of bioenergy until the end of the century at the global level as well (Figure 2).[8]

[6] E.g., Jarre et al. (2019) DOI: 10.1016/j.forpol.2019.01.017.

[7] E.g., Mendley et al. (2020) DOI; 10.1016/j.rser.2020.109858; Tsiropoulos et al. (2020): Towards net-zero emissions in the EU energy system by 2050. Insights from scenarios in line with the 2030 and 2050 ambitions of the European Green Deal; CAN Europe / EEB (2020): Building a Paris Agreement Compatible (PAC) energy scenario. Technical summary of key elements; Duscha et al. (2019): GHG-neutral EU2050 – a scenario of an EU with net-zero greenhouse gas emissions and its implications; ECF et al. (2019): Roadmap 2050. A practical guide to a prosperous, low-carbon Europe.

[8] IPCC (2019): Special Report on Climate Change and Land, Chapter 6, p. 582.

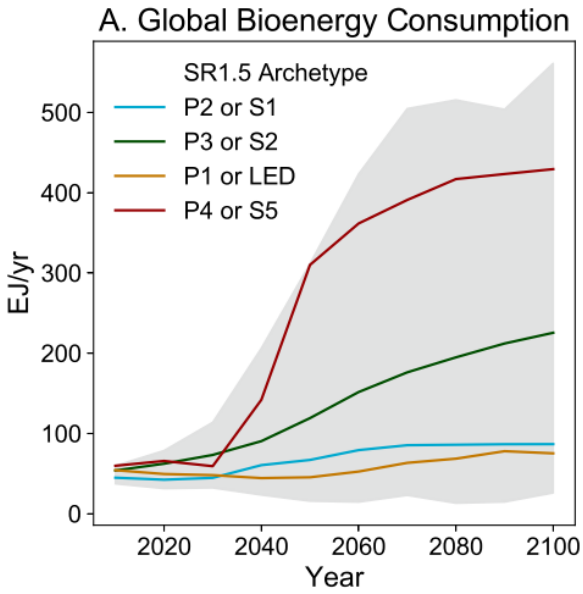

Figure 2: Global Bioenergy Consumption according to over 400 IPCC Integrated Assessment Models (include 1.5 and 2 degree scenarios) (IPCC 2019)

- A general classification of bioenergy as transitional may undermine EU's efforts to establish a permanent sustainable and circular economy as expressed in the EU Bioeconomy Strategy. In such an economy with increased reliance on biomass and the ambition to maximize resource use efficiency through cascade use, bioenergy from biomass residues constitutes an important additional potential source of sustainable value creation.
- If the EU is to rely on negative emission technologies for its 2050 net-zero carbon emissions target, biomass-based CCS and CCU (BECCS/BECCU) could also maintain relevance in 2050 and afterwards. If the gap between the projected EU emissions and EU- as well as global climate protection targets[9,10] is taken into account, the likelihood of applying BECCS in the EU increases and with it the use of biomass for biobased products and energy.
- In order to fulfill that role in a sustainable and cost-efficient way, additional research on bioenergy is urgently needed. The classification of bioenergy as transitional, however, threatens to weaken bioenergy research considerably, as activity 9.1 excludes this category from the definition of sustainable research activities. Regarding (i) the very high projected future costs in certain parts of a net-zero carbon emissions energy system (flexible energy solutions, air- and maritime traffic etc.), (ii) the significant potential of bioenergy to reduce these costs – as indicated by the scenario studies mentioned above –, and (iii) the extensive need for research on sustainable bioenergy solutions, e.g. based on certain residues, the exclusion of bioenergy from the definition of sustainable research could be detrimental for reaching EU climate goals. If research in sustainable bioenergy solutions is slowed down by a lack of investment while simultaneously the demand for bioenergy continues or even rises, current uses of unsustainable bioenergy (e.g., use of biomass with high carbon payback time) could persist.

[9] https://www.eea.europa.eu/data-and-maps/indicators/greenhouse-gas-emission-trends-7/assessment.

[10] UNEP (2019): Emissions Gap Report 2020..

- The categorization of bioenergy as transitional may have also been the rationale for not including bioenergy in activity 7.6 on the installation, maintenance and repair of renewable energy technologies. As sustainable bioenergy constitutes a permanent component of a future energy system as argued above, it should also be included in this activity.
- **The FVEE therefore recommends <u>not</u> to classify activities 4.8, 4.13, 4.20 and 4.24 as transitional and to include bioenergy in activity 7.6.**

2. Sustainability requirements for bioenergy and relation to EU directive 2018/2001 (RED II)

- Refers to: Annex I, especially activities 4.8 and 4.13, but effectively also 6.8 and 6.10.
- Partially following recommendations from the Technical Expert Group on Sustainable Finance, the Taxonomy in certain parts exceeds the sustainability criteria of directive 2018/2001 (RED II) for bioenergy (e.g., activity 4.8, prescribing a minimum GHG saving threshold of 80 % for electricity from biomass which in the RED II applies only from 2026) or completely excludes certain bioenergy options (e.g., activity 4.13, excluding food- and feed crops for manufacture of biofuels for use in transport) or bioenergy as a whole (e.g., in activities 6.5, 6.6, 6.8, 6.10, by setting zero-tailpipe-emission standards in certain parts of the transport sector.
- While the RED II sustainability requirements for bioenergy are controversial and may partially lack ambition, they provide a coherent und integrated policy framework and with it a clear guidance for private and public actors. By creating a second, more restrictive sustainability standard for bioenergy, the taxonomy will lead to a situation of contradicting and potentially confusing incentives for investors in cases where the RED II encourages the use of bioenergy while the taxonomy does not. This contradiction is not only economically but also politically questionable, as the RED II has been approved by the full legislative process of the EU, including the parliament and the council with direct and indirect democratic legitimization. In contrast, the delegated act and its annexes are not based on such a comprehensive democratic process, despite containing provisions with potentially very far reaching consequences.
- It should be further noted, that biomass sustainability issues are very complex, with risks and benefits for climate and compatibility with environmental standards depend on a large set of factors that are difficult to be comprehensively considered in regulations such as the RED II or the taxonomy alone. The RED II therefore follows a co-regulation approach by shifting responsibilities for the verification of compliance with its sustainability criteria to the private sector (companies, NGOs). Over the recent years, a wide range of certification schemes, labels and initiatives have been developed, including partly very ambitious sustainability criteria[11] and allowing depicting the complexity of various bioenergy supply chains and systems. In addition to these certification schemes, the RED II leaves room for member states to employ additional context-specific environmental regulations that in the same way balance sustainability risks and chances of bioenergy. The general exclusion of food- and

[11] E.g., Majer et al. (2019) DOI 10.3390/su10072455.

feed crops based bioenergy (de jure) or biofuels in certain areas of the transport sector (de facto) by the draft taxonomy threatens to resolve this complexity issue one-sidedly against the use of bioenergy. Rather than excluding sustainability potentials of bioenergy with such an approach, efforts should be directed at advancing the RED II including its co-regulation approach.[12] As a review of the RED II is already underway,[13] the taxonomy should not preempt the result of this extensive democratic decision process by deviating from the existing sustainability framework.

- **The FVEE therefore recommends a full adoption of RED II requirements regarding bioenergy-related activities (activities 4.8 and 4.13) and the reframing of emission standards as life-cycle emissions at least in those transport-related activities where no reference is made to existing EU standards (activities 6.8 and 6.10).**

About FVEE:

The German Renewable Energy Research Association (FVEE - ForschungsVerbund Erneuerbare Energien) forms a nationwide cooperation of institutes researching and developing technologies for renewables, energy efficiency, energy storage and optimized technical and socio-economic interaction of all system components. The FVEE aims to transform the energy supply to a sustainable energy system. Today, the FVEE constitutes the largest network of experts in the field of renewables in Europe.

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[12] One option could be to employ the Japanese forerunner-approach for certification-procedures, where the most strict certification requirements by one private actor are used to define subsequent certification standards for all comparable certification procedures.

[13] https://ec.europa.eu/info/news/review-renewables-and-energy-efficiency-directives-commission-launches-first-steps-process-2020-aug-04_en.