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EBA Feedback on the draft revised Annex VI: Improving GHG emissions calculation for the biogas and biomethane sector

Introduction

The revision of RED Annex VI is critically important for our sector, as it directly determines the eligibility of biomass fuels as renewable energy sources and their final carbon intensity (CI). This is particularly relevant considering:

a) The **increasingly stringent emission savings levels** required for RED compliance, which **necessitate a full valorisation of all GHG reduction potential** and an accurate calculation methodology;
b) The emissions reduction targets transposed at national level under RED III, where fuels with **lower CI scores will directly contribute to national decarbonisation objectives**[1] **and are expected to have higher market prices**, impacting the sector's economic viability.

EBA's position

Following the publication of the draft revised Annex VI, EBA welcomes the update of this important piece of legislation and commends the work carried out by the Commission so far.

EBA also highlights some key aspects where further consideration may be needed and, in light of this, puts forward the following recommendations:

1	**Consider revising the scope of application of the proposed default values**
2	**Enhance the default values to ensure a more accurate coverage of biogas and biomethane production pathways**
3	**Clarify the application of the Emei factor and ensure proper methane emissions accounting by engaging with the industry in voluntary LDAR Initiatives**
4	**Allow for a flexible allocation of GHG emissions to biogas produced from mixed feedstock (co-digestion)**
5	**Remove barriers and improve the accounting of emission savings from carbon capture**

[1] This refers to the future impact of the GHG intensity reduction target of RED Article 25 when transposed at national level.

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6	**Provide a simplified and auditable methodology for emission savings from soil carbon accumulation**
7	**Ensure proper emissions accounting for biogas co-products**

1) Consider revising the scope of application of the proposed default values

The new Annex VI introduces significant changes compared to the previous version, by revising the overall structure of default values, redefining production pathways, feedstock categories and the general scope of application. EBA welcomes the work undertaken, in particular the removal of rigid references to end uses and the introduction of a dedicated feedstock category for sewage sludge. However, EBA also wishes to highlight important risks associated with the current draft:

- **Severe limitation in the applicability of default values, with unintended effects on costs and harmonisation -** The primary purpose of default values is to simplify GHG calculations, which are otherwise complex, particularly in a sector like ours that is largely composed of small operators. Under the current draft of Annex VI, the use of default values is limited to cases where process energy is supplied through the operator's own biogas or biomethane production. In addition, the underlying assumptions (75% conversion efficiency to heat and cold, and 30% conversion efficiency to electricity) further restrict the applicability of these values. Based on our estimates, this new approach would prevent approximately 70% of operators from using the default values. In some cases, in fact, Member States have regulations that prevent the use of self-produced gas when a plant is connected to the grid, meaning that such plants would be entirely excluded from using default values. In the absence of EU-standardised default values applicable to most operational configurations, operators and certification schemes would be required to carry out individual calculations. This would substantially **increase overall compliance costs** for the sector but also **undermine harmonisation across Member States**.

In light of the above, **EBA strongly recommends that the Commission provides default values for cases where electricity is <u>not</u> self-produced from biogas or biomethane,** including when electricity is procured from the grid or is self-produced from other renewable sources (e.g. on-site PV installations).

Additionally, given the extensive restructuring introduced, **EBA also calls for an adequate transition period before the new provisions become applicable**, considering that operators will require sufficient time to adapt to the new rules, understand the revised methodology and implement the new calculations. This is especially necessary for methane leakage measures that involve construction adaptations, which may require specific permits and approvals and therefore lead to longer implementation processes.

2) Enhance the default values to ensure a more accurate coverage of biogas and biomethane production pathways

EBA welcomes the inclusion of a new feedstock category for sewage sludge and the expansion of the maize category into the broader crop silage category. However, EBA believes that further improvements are needed.

Currently, only a **limited set of default values for feedstock categories is provided**, despite biogas and biomethane are produced from a wide variety of substrates. As a result, many commonly used feedstocks are not represented in the default values.

This gap creates significant challenges for operators. Without EU-standardised default values, operators and certification schemes must rely on different and potentially inconsistent sources or carry out individual calculations, which **increases overall compliance costs but also undermines harmonisation across Member States**, posing a risk of divergent calculation results.

Expanding the scope of standardised default values is crucial for the industry. **The greater the availability of such values, the simpler and less bureaucratic it becomes to demonstrate GHG reductions along the value chain**. This, in turn, supports a rapid and cost-effective energy transition.

In light of this, the revision should be used as an **opportunity to introduce a more comprehensive, standardised and robust set of default values**, by covering the following feedstock categories:

- **Additional crops (**e.g., such silphium and rye), which could be explicitly included under the new category of crop silage.
- **Industrial sludges**, which could be explicitly included under the new category of sewage sludge.
- **Agricultural residues** (e.g., maize straw and cereal straw).
- **Intermediate crops** (e.g. catch crops, cover crops etc.) which not only serve biomass demand but - particularly catch crops - help prevent soil erosion and nutrient leaching into groundwater.
- **Arable grass and permanent grassland**, which provide significant environmental benefits, notably the protection of aquatic ecosystems through nitrate removal from vulnerable land.
- **Industrial residues**
- **Biomass from severely degraded lands**

3) Clarify the application of the Emei factor and ensure proper methane emissions accounting by engaging with the industry in voluntary LDAR Initiatives

Following the recommendations of the 2024 JRC report[2], the draft revised Annex VI provides two sets of default values for standard and best practice in biogas and biomethane production and introduces a new Emei factor.

EBA welcomes the Commission's proposal and calls for further clarification regarding the application of the best practice values and the Emei factor. In particular, the current draft does not clearly define what constitutes "*best practice*," the minimum requirements for applying the corresponding default values, or the criteria for using the improvement factors in the table on page 28. This lack of clarity poses a significant risk of legal uncertainty for the sector, leaving operators unable to prove compliance and therefore qualify for the lower emission values.

In order to streamline the recognition of the best practice scenario and promote the implementation of methane mitigation measures, **EBA recommends referencing sector-**

[2] https://publications.jrc.ec.europa.eu/repository/handle/JRC139485

specific guidelines for voluntary LDAR implementation as a means to demonstrate compliance with the best practice scenario.

Over the past months, EBA has developed the first **EU voluntary LDAR guidelines for the biogas and biomethane sector, which could serve as a formal framework to demonstrate compliance with the revised Annex** (alongside other methods deemed valid by the Commission).

EBA is fully committed to working closely with the Commission to ensure the widespread adoption of these guidelines across the sector. Accordingly, **EBA recommends that the Commission actively engage with the sector on this important initiative.**

On a more technical note, regarding the table at page 28, we note the following:

- The improvement factor for "***any technologies***" (of 16,8g CO2eq/MJ) appears inconsistent with the other two factors (15.7 and 11.2 g CO_2eq/MJ) associated with more advanced or lower-emission technology options. We therefore suggest verifying the correctness of these values.

- Under "***digestate management***", the table refers to the remaining methane potential (RMP) value *"below the **proposed default emission factor** for open digestate storage",* however, it is not clear what this default emission factor refers to, therefore we suggest clarifying the entire section's wording.

- At the **CHP level**, it is essential to **include an emission mitigation value** for cases where operators implement effective abatement measures. CHP emissions reduction technologies do exist and are already applied in practice. In some countries, CHP emission abatement systems benefit from economic incentives, therefore a more widespread adoption is expected in the future. Moreover, for some plants, an improvement value for CHP emissions would be essential to achieve the required GHG savings in cases where other measures, such as covering digestate storage with biogas recovery, are technically unfeasible.

4) Allow for a flexible allocation of GHG emissions to biogas produced from mixed feedstock (co-digestion)

Under the current Annex VI's emission calculation methodology, in case of co-digestion, the overall emissions for biogas and biomethane production are calculated as the sum of all feedstock-related emissions.

In parallel to this methodology, a market-driven practice has emerged in recent years (shaped by national regulatory requirements) which disaggregates feedstock-related emissions by allocating portions of the biomethane volume to each substrate according to its energy content, in compliance with mass-balancing rules. This approach enabled sellers to market biomethane products with very low carbon intensity (CI) to specific clients, typically in markets under GHG emissions reduction obligation. **This gives higher economic value to low-CI feedstock while enabling buyers to maximise their carbon-intensity reduction when procuring biomethane**.

As a result**, low CI feedstocks became more attractive and were increasingly used**, leading to new production projects.

This outcome is now at risk due to the recent, stricter interpretation of the Annex VI co-digestion accounting methodology, which permits only to claim the aggregation of all GHG emissions from different feedstocks and does not allow use of the *feedstock-specific* allocation method. This interpretation does not reflect the reality of biogas and biomethane production, where co-digestion is the norm while mono-fermentation plants are relatively rare. Moreover, by mandating strict summing, emissions from less sustainable feedstocks (e.g., monocrops) must always be diluted with those of more sustainable ones (e.g., manure), reducing the economic and ecological incentive to prefer the latter.

EBA strongly recommends that the revision of Annex VI explicitly allow flexibility in GHG emission allocation for biogas and biomethane from co-digestion, enabling producers to freely choose - based on the concrete market conditions and for every mass-balance period - among:

a) **Aggregating emissions across all feedstocks** into a single emission factor, or;
b) **Disaggregating emissions** based on the actual biogas/biomethane produced from each substrate, according to its respective energy content, provided that mass-balance rules are respected.

This should be followed by an alignment of auditing rules across voluntary schemes (ISCC, REDcert, etc.) in the revision of the Implementing Regulation 2022/996, to avoid diverging interpretations.

This flexibility is essential to ensure accurate and consistent accounting while fully recognising the economic value of the most sustainable feedstocks and incentivising their associated emission reductions.

On a more technical note, the revision could clarify certain ambiguities:

- On the calculation of the **Sn factor** (p 23), we suggest clarifying the definition by adding the word "energy", so it reads: "*share of feedstock n, in fraction of **energetic** input to the digester* "(see figure below for reference).

S_n	=	share of feedstock n, in fraction of input to the digester;

- There seems to be a typo in limit of summation (∑) in several instances (p.20 twice, p.21 thrice), where instead of "1" letter "l" is used (see figure below for reference).

$$W_n = \frac{I_n}{\sum_I^n I_n} \times \frac{C_{stor}}{\sum_I^n C_{stor}}$$

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5) Remove barriers and improve the accounting of emission savings from carbon capture (E_{CCR} and E_{CCS} factors)

EBA strongly supports the possibility to valorise the emission-saving potential resulting from the capture of biogenic CO_2[3] and **encourages further improvements to the current Annex VI methodology to remove existing barriers** preventing the full and effective use of these factors.

The importance of addressing these barriers is underscored by the growing role that biogenic CO_2 is expected to play as CO_2 markets develop (as reflected by the sector's technical potential[4] and in the increasing number of EU initiatives in this area) and by the EU's 2050 climate-neutrality objective, which requires robust and supportive frameworks to incentivise biogenic CO_2 capture as a means of achieving carbon removals.

- **On the E_{CCR} factor:**

Annex VI, Part B, Paragraph 15 sets an unjustified time-limit on the possibility of claiming the E_{CCR} factor by the biogas and biomethane sectors after 31 December 2035.

This represents a regulatory obstacle that negatively affects the profitability of biogenic carbon. Therefore, **EBA strongly recommends the removal of the time limitation for claiming the "E_{CCR}" emission saving factor, as it unjustifiably restricts the sector's profitability and creates investment uncertainty**. Given the current higher biogenic CO_2 production costs compared to fossil CO_2, a long-term perspective is necessary. The market should therefore have the flexibility to determine where and how to claim this factor.

Additionally, to ensure a harmonised implementation, Annex VI should explicitly state that the verification of E_{CCR} factor can be carried out by simply demonstrating that the bioCO_2 has been sold to a relevant economic operator using CO_2 as a feedstock, for example through a simple proof of sale or a written declaration from the buyer.

- **On the E_{CCS} factor:**

The draft revised Annex VI provides a new methodology on how to account for E_{CCS} -related emission savings. **A technical appendix with detailed analysis of some issues identified in the current methodology is provided at the end of this paper.**

In general, as a comprehensive methodology for carbon removals is being developed under the CRCF framework, EBA recommends that the Commission ensures the following:

a) That the resulting **methodology remains proportional and practical for operators to implement**, not to discourage the emergence of a CO_2 market. In particular, **the specific characteristics of the biogas and biomethane sector must be taken into account** to incentivise the carbon capture.

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[3] Under the current Annex VI, it is possible to valorise the emission-saving potential resulting from the capture of biogenic CO_2 generated during the biomethane production process. Where biogenic CO_2 that would otherwise be emitted is captured for storage or direct reuse, the greenhouse gas emissions of biomethane can be reduced through the application of two dedicated emission-saving factors under the RED calculation methodology, namely the E_{CCR} and E_{CCS} factors.

[4] For more details, read EBA feedback to the Public Consultation on CO_2 market and infrastructure here.

b) **Alignment between these two legal frameworks (RED and CRCF) to ensure that consistent rules and principles are applied** for emissions accounting across CO_2 capture, transport, and storage, avoiding duplication of methodologies and administrative requirements.

From a verification perspective, Annex VI should explicitly acknowledge the possibility of using CRCF certificates to demonstrate emissions savings from both geological storage and storage in products (provided the CRCF certificate is cancelled from the CRCF registry once it is used for claiming the E_{CCS} factor).

At the same time, alternative documentation stating the emission savings from the transport and storage of CO_2 (in compliance with the harmonised methodology under RED and CRCF) should also be accepted to substantiate the E_{CCS} factor.

6) Provide a simplified and auditable methodology for emission savings from soil carbon accumulation (E_{SCA} factor)

The current methodology to account for the E_{SCA} factor - resulting from Annex VI and IR 996/2022 - should be simplified to increase usage by economic operators.

To improve usability, EBA recommends that **simplified methods involving combined soil measurements and modelling be introduced**, while maintaining the current option to perform actual soil carbon accumulation calculations based on direct soil measurements without modelling**.** Alternatively, **specific E_{SCA} default values** could be developed at national or regional level. **This would significantly reduce complexity, which would allow more widespread use of the ESCA factor**. Moreover, it would encourage the adoption of improved agricultural practices for regenerative agriculture and ensure that GHG mitigation benefits are appropriately recognised.

Supporting more widespread usage is critical because, as RED emissions thresholds become increasingly stringent, it is urgent to enable operators to account for all GHG savings related to biomethane, and notably the proper utilisation of the E_{SCA} factor.

7) Ensure proper emissions accounting for biogas co-products

Annex VI already specifies that when the biogas production process generates one or more co-products in addition to the fuel, GHG emissions should be allocated according to their respective energy content[5]. This approach ensures that emissions are attributed correctly and avoids overstating the carbon footprint of the renewable fuel.

In line with this principle, EBA recommends that all emissions related to the processing and transport of the sectors co-products, namely digestate and bioCO_2, be consistently kept separate from the fuel and assigned to the co-product itself.

This is particularly relevant for **digestate when it is used as an organic fertiliser**. As a product with distinct economic value and market function, all emissions associated with its storage,

[5] See Part B paragraphs 17-18.

further processing, and commercialization (including unintended methane emissions) should be fully accounted for under the digestate's emissions and excluded from the biogas/biomethane emission balance. This logic should apply not only in actual calculations (as it is now) but also when using default values, which currently assume that digestate is always a waste.

The **same approach should be applied to bioCO_2 sold on the market** (when it is not deducted from the GHG balance of biomethane through emission saving factors). Emissions from its further processing and transport should be attributed to the bioCO_2 and not included in the emissions of the biogas or biomethane produced.

In connection with this important topic, EBA strongly recommends the establishment of a harmonised certification framework for biogenic CO_2. In particular, EBA advocates for an approach to bioCO_2 certification that is voluntary, minimizes administrative burden and promotes harmonization by building on existing legislation to ensure a level playing field for all market actors.

Certified biogenic CO_2 should comply with the **same minimum sustainability criteria outlined in the RED for biomass** (i.e. article 29, paragraph 1 to 7). This is essential to differentiate it from fossil-based CO_2 and to ensure it qualifies as sustainable. The RED already provides clear and robust biomass sustainability safeguards, which can and should be extended to biogenic CO_2. Furthermore, EBA calls for the **integration of biogenic CO_2 certification into the existing sustainability certification frameworks** for biofuels, bioliquids and biomass fuels, given that the same safeguards would apply.

In practical terms, **we recommend that any volume of biogas or biomethane certified as sustainable should result in the automatic certification of the corresponding biogenic CO_2 volumes as sustainable, without the need to comply with any additional administrative procedures.** This certification should be voluntary and recognized across all EU legislation that governs the use of biogenic carbon, including CRCF, RFNBOs, sustainable products legislation (ESPR, CPR, EPBD etc.), Green claims regulation etc.

Conclusion

EBA appreciates the opportunity to provide its feedback and remains fully committed to continuing the dialogue, offering clarifications and supporting the development of a clear and robust emissions accounting framework for the biogas and biomethane sector.

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About the European Biogas Association (EBA)
EBA fully believes in the future potential of renewable gas in Europe. Founded in 2009, the association is committed to the deployment of sustainable biogas and biomethane production and use throughout the continent. EBA counts today on a well-established network of over 300 national associations and other organisations covering the whole biogas and biomethane value chain across Europe and beyond.

Technical appendix on the E_{CCS} methodology

EBA calls for Point 14, Section (b) of the revised Annex VI, not to include emissions from "*all material replacements (due to losses or degradation)*". Interpreting "*material replacements*" to encompass the substitution of machinery or equipment would in fact contradict Section B, point 1(a), of Annex VI, which explicitly excludes emissions from the manufacture of machinery and equipment from the system boundaries.

With regard to the calculation of the term eCO_{2-t} in the *e*CCS equation, the draft refers to the methodology set out in Section 22 of Implementing Regulation (EU) 2018/2066. This approach should be adapted to reflect the share of $bioCO_2$ transported through the network, so that emissions from own activity ($E_{own\ activity}$), as stipulated in Section 22.B.1, are allocated in proportion to:

- the pipeline segments actually used for the transport of $bioCO_2$, and
- the share of biogenic CO_2 within the transported stream on those segments.

This ensures that only a fair share of the fuel-related emissions associated with $bioCO_2$ transport is attributed to the bio value chain, given that the term $E_{own\ activity}$ accounts for emissions from the transport network's overall operations.

Equation 33 in the draft Annex of the supplementing Regulation (EU) 2024/3012 establishing the certification methodologies for permanent carbon removals activities can serve as a reference, as it defines an allocation factor for each transport segment based on the proportion of $bioCO_2$ from the activity passing through that segment.

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