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## **Bioenergy**

### **Issues Paper**

#### **Objective**

- 1 The purpose of this paper is to bring forward an overall approach for addressing the treatment of bioenergy-related activities in the Sector Classification (SEC 1).

#### **Introduction**

- 2 The overall purpose of SEC 1 is to provide guidance to undertakings to identify the sector-specific standards that are relevant for them by classifying groups of economic activities into ESRS sectors and sector groups.
- 3 SEC 1 does this by aggregating NACE Classes (and the economic activities described thereunder) into groups which then become an ESRS Sector. This aggregation has two important consequences:
  - (a) Firstly, adding a NACE Class economic activity to a group expands the boundary of the ESRS sector that is being created.
  - (b) Secondly, the aggregation of NACE Classes aims at identifying the sustainability matters and the disclosure requirements that are common to the undertakings required to apply a given standard.
- 4 Undertakings may have to apply more than one ESRS Sector standard. In particular, undertakings shall report according to the sector-specific ESRS that are its significant sectors (ESRS 2 paragraph 40 (b) and (c) and Application Requirements 12 and 13 of the Delegated Act supplementing Directive 2013/34).

#### **EFRAG Secretariat analysis**

- 5 Bioenergy is understood at EU-level as a renewable energy source derived from biologically sourced materials, encompassing biomass (solid bioenergy) and biofuels (including

biogases and bioliquids).<sup>1,2,3,4,5</sup> Biomass is defined as the organic fraction of products, and residues and waste of biological origin from agriculture, forestry and related industries (e.g., plants, trees, animal substances), as well as the biodegradable fraction of municipal and industrial waste. It may be used as fuel, and for heating and electricity generation, but given its reliance on combustion, it has consequences in terms of greenhouse gas effect.<sup>6,7,8</sup> Biofuels, such as biodiesel (rapeseed methyl ester obtained from modified rapeseed oil) and bioethanol (produced by the fermentation of sugar-rich plants, such as sugar cane and corn), can be liquid or gaseous fuels, and contain energy derived from a biological source (e.g., biomass).<sup>9,10,11</sup> Biomethane represents the main (purified) form of the biogas currently available and which can play a substantial role in the decarbonisation of EU's energy system, given its minimised atmospheric pollution potential. It is a product of modern practices in waste management, stemming from the breakdown of organic matter (fermentation of manure, sewage, food scraps or damaged crop residues), and lending itself well to be used as a low-grade organic fertiliser resulting from biogas production residues.<sup>12,13</sup>

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<sup>1</sup> [https://energy.ec.europa.eu/topics/renewable-energy\\_en](https://energy.ec.europa.eu/topics/renewable-energy_en)

<sup>2</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023L2413&qid=1699364355105#d1e1154-1-1>

<sup>3</sup> [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy_en)

<sup>4</sup> <https://www.eea.europa.eu/help/glossary/chm-biodiversity/bioenergy>

<sup>5</sup> <https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Biofuels>

<sup>6</sup> <https://www.eea.europa.eu/help/glossary/eea-glossary/biomass>

<sup>7</sup> [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomass\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomass_en)

<sup>8</sup> <https://www.eea.europa.eu/help/glossary/gemet-environmental-thesaurus/biomass-energy>

<sup>9</sup> [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biofuels\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biofuels_en)

<sup>10</sup> <https://www.eea.europa.eu/help/glossary/eea-glossary/biodiesel>

<sup>11</sup> <https://www.eea.europa.eu/help/glossary/eea-glossary/bioethanol>

<sup>12</sup> [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomethane\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomethane_en)

<sup>13</sup> <https://www.eea.europa.eu/help/glossary/eea-glossary/biogas>

6 Overall, modern bioenergy plays a fundamental role in the clean transition of the global energy sector, especially given the recently growing energy security concerns, which led to a 6% rise in biofuel demand from advanced economies (mainly EU and USA) in 2022-2024<sup>14</sup> and to a forecasted overall expansion of around 30% in 2023-2028 (compared to the last two five-year periods) dominated by emerging economies.<sup>15</sup> Biofuels help accelerate the replacement of fossil fuels with renewable sources from organic material, accounting for 55% of global renewable energy.<sup>16,17,18</sup> Similarly, the consumption of biomass represented 59% of the EU renewable energy consumption in 2021.<sup>19</sup> Furthermore, certain perennial cropping systems fed by biomass residues are capable of delivering up to 80-90% of emission decreases compared to the fossil energy baseline.<sup>20</sup> In IEA's Net Zero Emissions Scenario, the total bioenergy supply grows to 13% in 2030 and 18% in 2050, from the 6% in 2023 (with increased use primarily led by emerging and developing economies, especially for liquid biofuel in the transport sector). Such an uptake is possible also due to the compatibility of bioenergy with existing infrastructure (e.g., biomethane in natural gas infrastructure), as well as the broad global distribution of bioenergy raw materials (e.g., forestry and agricultural residues) and their transition from conventional to advanced feedstock (from dedicated crops and plantings creating land-use conflicts to the recovery of waste and residues).<sup>21</sup> Another driver in the acceleration of the uptake of bioenergy (especially biomethane) is represented by the strong foundation of policies that are

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<sup>14</sup> <https://www.iea.org/reports/renewable-energy-market-update-june-2023/will-energy-security-concerns-drive-biofuel-growth-in-2023-and-2024>

<sup>15</sup> <https://www.ieabioenergy.com/blog/publications/iea-renewables-2023-biofuel-and-biogas-forecasts/>

<sup>16</sup> <https://www.iea.org/energy-system/renewables/bioenergy>

<sup>17</sup> [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy_en)

<sup>18</sup> <https://www.epa.gov/environmental-economics/economics-biofuels>

<sup>19</sup> [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomass\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomass_en)

<sup>20</sup> <https://www.ipcc.ch/site/assets/uploads/2018/03/Chapter-2-Bioenergy-1.pdf>

<sup>21</sup> [https://iea.blob.core.windows.net/assets/9a698da4-4002-4e53-8ef3-631d8971bf84/NetZeroRoadmap\\_AGlobalPathwaytoKeepthe1.5CGoalinReach-2023Update.pdf](https://iea.blob.core.windows.net/assets/9a698da4-4002-4e53-8ef3-631d8971bf84/NetZeroRoadmap_AGlobalPathwaytoKeepthe1.5CGoalinReach-2023Update.pdf)

currently under development.<sup>22</sup> Additionally, as a demonstration of the criticality and urgency for the uptake development of this sector, the Global Biofuel Alliance was launched at the G20 summit on 9 September 2023.<sup>23,24</sup>

- 7 In the EU context, bioenergy is at the centre of the legislator's attention for its potential in decreasing greenhouse gas emissions, as well as EU's dependency on external energy. EU's ambition to strengthen and affirm its global leadership in renewable energy markets led to the revision of the Renewable Energy Directive ("RED", from EU/2018/2001 to EU/2023/2413), which entered into force on 20 November 2023. Within this legislative context, bioenergy has acquired a prominent role in the acceleration of EU's clean energy transition.<sup>25</sup> through the setting of specific rules for biofuels, bioliquids and biomass fuels.<sup>26</sup> More specifically, sustainability criteria to ensure the effectiveness of biomass in greenhouse gas emissions reduction through a reconfiguration of its production were extended to cover large-scale biomass for heat and power, agriculture and forestry waste and residues from biofuels and bioliquids for transport.<sup>27</sup> As for biofuels, specific rules in the RED include the establishment of set biofuel shares in mixed fuels (14% minimum by 2030 for transport energy, with at least 3.5% of advanced biofuels), the Union Database for Biofuels (UDB) to improve their traceability, reinforcement of sustainability criteria to avoid indirect land use change (conversion of cropland for growing food or feed or areas with high carbon stock, such as forests, wetlands and peatlands, to biofuel production), and quality standards for biofuels to be developed in collaboration with the European Committee for Standardisation (CEN).<sup>28</sup> Concerning biomethane, in particular, the EU devised a series of key actions through the Waste Framework Directive (mandating separate organic waste collection by 2024, with an opportunity to scale-up biomethane

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<sup>22</sup> <https://www.ieabioenergy.com/blog/publications/iea-renewables-2023-biofuel-and-biogas-forecasts/>

<sup>23</sup> <https://www.epa.gov/environmental-economics/economics-biofuels>

<sup>24</sup> <https://www.weforum.org/agenda/2023/10/global-biofuel-alliance/>

<sup>25</sup> [https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive\\_en](https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en)

<sup>26</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023L2413&qid=1699364355105#d1e1154-1-1>

<sup>27</sup> [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomass\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomass_en)

<sup>28</sup> [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biofuels\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biofuels_en)

production), the REPowerEU plan (establishing biomethane industrial partnerships for sustainable production), and the revised RED (accelerating new biogas and biomethane investments).<sup>29</sup>

- 8 The previous statistical classification of EU's economic activities (NACE Rev. 2.0) did not provide sufficient visibility to this sector. In fact, the biomass and bioenergy keywords were completely absent from the NACE database, but indirectly referred to under the codes **02.20 (Logging)**, **35.21 (Manufacture of gas)**, and **46.71 (Wholesale of solid, liquid and gaseous fuels and related products)**. Whereas biofuels and biogas were only mentioned once respectively under the description of code **19.20 (Manufacture of refined petroleum products)** and **38.21 (Treatment and disposal of non-hazardous waste)**. Annex 1 provides an extended description of these code items.
- 9 The latest NACE update (NACE Rev. 2.1) will be used for European statistics from 2025 onwards and introduces a restructuring of existing headings, modernizing the list of economic activities. In particular, it gives prominence to bioenergy-related activities and now includes six specific, and two implicit, codes for bioenergy, respectively in its solid (e.g., C.16.26 Manufacture of solid fuels from vegetable **biomass**), liquid (e.g., C.20.51 Manufacture of **liquid biofuels**), and gaseous (e.g., D.35.21 Manufacture of gas, including **biogas**) forms. As for code E.38.21 (Materials recovery), although explicitly referring to the 'production of biogas from waste', it was not considered due to it being 'not for the purpose of gas or energy supply'.
- 10 Nonetheless, these codes are located in separate sections, instead of one unified 'bioenergy' sector. This means that bioenergy-related activities are currently scattered across four separate ESRS sector standards – *Forestry and wood products*, *Chemicals*, *Power production and energy utilities*, and *Oil and gas* – and depending on their nature (solid, liquid or gaseous). Appendix 2 provides an extended description of the above eight NACE items and the equivalent ESRS sectors (with E.38.21 being in strike-through due to the aforementioned reason), as of present.
- 11 Given the above considerations and in seeking alignment for SEC 1 with NACE Rev. 2.1, the EFRAG Secretariat is considering whether combining the above-mentioned codes from NACE Rev. 2.1 (with the exclusion of E.38.21) into a separate 'Bioenergy' sector is appropriate.

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<sup>29</sup> [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomethane\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomethane_en)

- 12 For this purpose, the EFRAG Secretariat proposes, here below, an account of arguments in favour and against this decision for SR TEG's consideration.

### **Arguments in favor**

*SEC 1 Workshop on Mining, Oil and gas, Power production and energy utilities, Water and waste (6 February 2024)*

- 13 The issue of creating a separate bioenergy sector was discussed during the sector community workshops. When comparing bioenergy-related activities to the *Oil and gas* sector, one stakeholder noted that biofuels are different from the fuels used by refineries, including in terms of emissions (e.g. particulate matter, GHG reporting such as fugitive emissions stemming from transport). The stakeholder recommended to get in touch with the IPCC concerning the discussion of the implementation of the bioenergy sector, and to identify a consistent approach in the reporting of GHG emissions for biofuels and fossil fuels.

*Sector communities survey related to Sector Classification (1 March 2024)*

- 14 One comment enquired on the description for a sector on bioenergy, noting that it was missing.
- 15 Another stakeholder allowed the idea of a separate standard by requesting a clarification on whether the production of crops for biofuels would be part of the *Agriculture, Farming and Fishing* ESRS or a separate one.

*SASB sector framework*

- 16 SASB has in place a standalone standard on Biofuels, which was recently revised (October 2023) as part of the set of standards within the Renewable Resources & Alternative Energy sector. The scope of this standard includes biofuels that are used primarily in transportation and cover and entities primarily involved in the refining of biofuels and the processing of biomass (i.e. organic feedstock) sourced from agricultural distributors of such organic feedstock, which are part of the biofuel production upstream value chain. Their downstream value chain is composed mainly of fuel-blending and fuel-supply activities, including major integrated oil entities. SASB refers to the production of: (1) renewable fuel, (2) advanced biofuel, (3) biodiesel, and (4) cellulosic biofuel.

*GRI sector framework*

- 17 As of now, bioenergy (specifically biofuel and biomass) is mentioned across a variety of GRI Topical (GRI 302: Energy 2016; GRI 305: Emissions 2016; GRI 306: Waste 2020; GRI Topic Standard Project for Climate Change – Energy Exposure draft; GRI Topic Standard Project for Climate Change – Climate Change Exposure draft) and Sector standards (GRI 11: Oil and

Gas Sector 2021; GRI 12: Coal Sector 2022; GRI 14: Mining Sector 2024; GRI 13: Agriculture Aquaculture and Fishing Sectors 2022). Nevertheless, the GSSB Work Program for the development of sector standards for 2023-2025 includes plans for a separate GRI sector standard project for renewable energy, which will include biofuel producers and is expected to start in 2024.

### **Arguments against**

*SEC 1 Workshop on Agriculture – Food and Beverages – Forestry-Paper and Wood products – Tobacco (6 February 2024)*

18 One stakeholder from the *Agriculture* sector disagreed with the aggregation of NACE codes into one standalone sector. They noted that farmers in Europe may grow several crops in a year, one or more of which may supply the biofuel industry. From that point of view, the ideal scenario would be to view that farming system with one sector and subsector standard in mind, rather than two.

*SEC 1 Workshop on Mining, Oil and gas, Power production and energy utilities, Water and waste (6 February 2024)*

19 In the context of the *Power production and energy utilities* sector and the broader discussion on renewables, one stakeholder observed that the difficulty in making a clear distinction between renewables and non-renewables sectors makes a good argument not to create a sub-sector hosting renewables only or non-renewables only. They found that, in this case, it would make sense to leave renewables and non-renewables under each specific sector standard (e.g., production of electricity). The same stakeholder pondered about the complexity and impracticality of separating biogas production from the *Water and waste services* sectoral activities, given that in most cases one plant only is used for both activity streams (e.g., all emissions from the waste recovery need to be reported in the energy sector because steam is used).

*SEC 1 Workshop on Chemicals, Construction and engineering, Construction materials, Construction and furnishings, Metal processing (8 February 2024)*

20 One sector community member expressed their concern in creating a separate sector standard because biofuel-related activities have not yet settled as a sector of their own, they are still extremely dynamic, and the industrial structure of a future biofuels sector might look different in 5-10 years. They pondered on the idea of rather including the related activities under the Chemicals sector, given the number of shared production processes, despite the dissimilarities in the end use of biofuel products compared to chemical products.

*Sector communities survey related to Sector Classification (1 March 2024)*

- 21 One comment sought clarification on the rationale behind the proposal for a sector-specific standard for biofuels, as they believe that it deviates from the principle of relying on NACE classification for defining ESRS sectors, which they strongly advocate for. They perceived this proposal for a specific standard for biofuels as redundant, considering the detailed sustainability criteria outlined in the Renewable Energy Directive and the common use of certification schemes in the market. In addition, they noted that biofuel production spans various sectors (e.g., wood manufacturing, waste management, chemical, energy).
- 22 A stakeholder stated that biofuel, biogas and CCS should not be included in the same sector, as they are important for several sectors across the board and will not fall under the remit of one only in the future.

**Conclusions:**

- 23 The decision to create a separate 'bioenergy' sector would result in the following changes:

<i>New NACE code</i>	<i>Current ESRS sector</i>	<i>Proposed new ESRS sector</i>	<i>Reason</i>
C.16.26	Forestry and wood products	Biofuels	NACE 2.1 update
A.02.20	Forestry and wood products		
C.20.51	Chemicals		
D.35.21	Power production and energy utilities		
D.35.12	Power production and energy utilities		
C.19.20	Oil and gas		
G.46.81	Oil and gas		

- 24 Arguments in favour of this approach are: a) the alignment with SASB and GRI, both working at the level of renewables separately from non-renewables; b) the singularity of emissions of biofuels compared to fossil fuels; c) the need for a draft sector description for Bioenergy, and further clarification on whether bioenergy-related activities would be allocated to a separate sector; d) the need for equal requirements across sectors on biologic material use for energy.
- 25 Arguments against this approach include: i) the specificity of operations in certain sectors make it difficult to clearly decouple renewables and non-renewables activities (e.g., crops for bioenergy in agriculture, biogas recovered through waste); ii) the dynamics and novel character of bioenergy-related activities make it likely subject to future changes; iii) the potential misalignment with NACE classification in the structuring of ESRS sectors. Should these arguments against be supported, the NACE codes will remain assigned to the existing



ESRS sectors (2<sup>nd</sup> column of the table above); for example, C.16.26 would stay related to the *Forestry and wood products* sector (pellet production).

- 26 Considering all the arguments above, the Secretariat recommends creating a separate Bioenergy sector in order to: a) align with the IFRS approach, which considers separately the singular biofuels impacts on air quality, water management, lifecycle greenhouse gas emissions, feedstock production, etc; and b) clearly define the boundaries of the bioenergy sector.
- 27 As an initial response to the later point (b) above and to address concerns raised by the stakeholders on the overlap of core productions in specific sectors (agricultural crops and forestry plantings) with the production of bioenergy, the Secretariat proposes to focus on the actual processing and transformation of those biological raw materials into fuels, rather than on the production of biomaterials. The Secretariat recognises that agriculture and forestry would be part of the supply chain of the Bioenergy sector, but not be a part of the Bioenergy sector itself. Therefore, it recommends leaving the dedicated production of biomass within the agriculture and farming domain, incorporating, however, the transformation and processing of biomass for the production of biogas and bioliquids (including through processing of agricultural and forestry residues) into a separate Bioenergy sector. To this end, Annex 3 provides a tentative description of the Bioenergy sector along with an additional proposal for the aggregation of NACE codes (which excludes the primary production) to reflect the approach based on transformation of biomaterials for energy use purposes rather than their production in primary sectors.

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**Questions for EFRAG SR TEG**

- 29 Does EFRAG SR TEG agree with the creation of a new ESRS sector Bioenergy? Please explain.

## Annex 1: NACE Rev. 2.0 codes relating to bioenergy (biofuels only).

<p><b>02.20 Logging</b></p> <p>This class includes:</p> <ul style="list-style-type: none"><li>- gathering and production of wood for energy</li><li>- gathering and production of forest harvesting residues for energy</li><li>- production of charcoal in the forest (using traditional methods)</li></ul> <p>This class excludes:</p> <ul style="list-style-type: none"><li>- production of charcoal through distillation of wood, see 20.14</li></ul>
<p><b>19.20 Manufacture of refined petroleum products</b></p> <p>This class includes:</p> <ul style="list-style-type: none"><li>- blending of biofuels, i.e. blending of alcohols with petroleum (e.g. gasohol)</li></ul> <p>This class also includes:</p> <ul style="list-style-type: none"><li>- manufacture of peat briquettes</li><li>- manufacture of hard-coal and lignite fuel briquettes</li></ul>
<p><b>35.21 Manufacture of gas</b></p> <p>This class includes:</p> <ul style="list-style-type: none"><li>- production of gas for the purpose of gas supply by carbonation of coal, from by-products of agriculture or from waste</li><li>- manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas</li></ul>
<p><b>38.21 Treatment and disposal of non-hazardous waste</b></p> <p>This class includes the disposal and treatment prior to disposal of solid or non-solid non-hazardous waste:</p> <ul style="list-style-type: none"><li>- disposal of non-hazardous waste by combustion or incineration or other methods, with or without the resulting production of electricity or steam, compost, substitute fuels, biogas, ashes or other by-products for further use, etc.</li></ul>
<p><b>46.71 Wholesale of solid, liquid and gaseous fuels and related products</b></p> <p>This class includes:</p> <ul style="list-style-type: none"><li>- wholesale of fuels, greases, lubricants, oils such as:<ul style="list-style-type: none"><li>• charcoal, coal, coke, fuel wood, naphtha</li></ul></li></ul>

Annex 2: NACE Rev. 2.1 codes relating to bioenergy.

ESRS Standard	NACE Section	NACE Code	NACE class description	Bioenergy form
Forestry and wood products	Manufacturing	C.16.26	<p>Manufacture of solid fuels from vegetable biomass</p> <ul style="list-style-type: none"> <li><u>includes</u>: - manufacture of briquettes, fire logs and pellets from agglomerated sawdust, wood waste and scrap, straw or other vegetable biomass</li> <li><u>excludes</u>: - manufacture of animal feed from soybean waste, see 10.9 - slicing, peeling or chipping logs, see 16.11 - manufacture of peat briquettes, see 19.20</li> </ul>	Solid
Forestry and wood products	Agriculture, forestry and fishing	A.02.20	<p>Logging</p> <ul style="list-style-type: none"> <li><u>includes</u>: - gathering and production of other forest waste for energy - production of charcoal in the forest (using traditional methods)</li> </ul>	Solid
Chemicals	Manufacturing	C.20.51	<p>Manufacture of liquid biofuels</p> <ul style="list-style-type: none"> <li><u>includes</u>: - manufacture of biodiesel - manufacture of ethanol from biomass - manufacture of mixtures of bio-ethanol and ethers partially derived from biomass - manufacture of liquid biofuels even if processes use waste as an input</li> <li><u>excludes</u>: - manufacture of solid fuels from vegetable biomass, see 16.26 - manufacture of ethyl alcohol other than for bio-ethanol biofuels, see 20.14 - manufacture of explosives, see 20.59</li> </ul>	Liquid
Power production and energy utilities	Electricity, gas, steam and air conditioning supply	D.35.21	<p>Manufacture of gas</p> <ul style="list-style-type: none"> <li><u>includes</u>: - production of biogas for the purpose of gas supply from e.g. sewage sludge, manure, waste - production of gaseous biofuels for energy supply through a gas distribution network</li> <li><u>also includes</u>: - cleansing of biogas for energy supply through a permanent network</li> <li><u>excludes</u>: - manufacture of basic organic gases, not for energy supply through a network, see 20.14</li> </ul>	Gaseous
Power production and energy utilities	Electricity, gas, steam and air conditioning supply	D.35.12	<p>Production of electricity from renewable sources</p> <ul style="list-style-type: none"> <li><u>includes</u>: - operation of generation facilities that produce electricity from renewable sources, e.g. gaseous biofuels</li> <li><u>excludes</u>: - production of electricity as part of a storage of electricity activities, see 35.16 - pre-treatment of waste for energy recovery, see 38.22</li> </ul>	Gaseous
Oil and gas	Manufacturing	C.19.20	<p>Manufacture of refined petroleum products and fossil fuel products</p> <ul style="list-style-type: none"> <li><u>includes</u>: - blending of biofuels, i.e. blending of alcohols with petroleum (e.g. gasohol)</li> <li><u>excludes</u>: - manufacture of solid fuels from biomass, see 16.26 - manufacture of liquid biofuels, see 20.51</li> </ul>	Gaseous
Oil and gas	Wholesale and retail trade	G.46.81	<p>Wholesale of solid, liquid and gaseous fuels and related products</p> <ul style="list-style-type: none"> <li><u>includes</u>: - wholesale of low or free carbon fuels, greases, lubricants, oils, e.g.: • pellets of wood or biomass • biofuels • liquefied petroleum gases, liquefied natural gas, butane and propane gas and their related bio and renewable forms, in blending or pure</li> <li><u>excludes</u>: - wholesale of hydrogen, see 46.85</li> </ul>	Solid, Liquid, Gaseous
Water and waste services	Water supply; sewerage, waste management and remediation activities	E.38.21	<p>Materials recovery</p> <ul style="list-style-type: none"> <li><del><u>includes</u>: - production of biogas from waste, <b>not for the purpose of gas or energy supply</b></del></li> <li><del><u>excludes</u>: - production of biogas from waste for gas supply, see 35.21</del></li> </ul>	Gaseous

### Annex 3: Bioenergy sector description.

- 30 The Bioenergy sector is composed of the sub-sectors biomass (solid biofuels), liquid biofuels, and biogas, as well as wholesale of bioenergy.
- 31 The sub-sector biomass includes the processing of biological raw materials (e.g., briquettes, fire logs and pellets from agglomerated sawdust, wood waste and scrap, straw, charcoal or other vegetable biomass, agricultural residues) resulting from the agriculture and forestry sectors for the purpose of energy supply.
- 32 The sub-sector liquid biofuels includes the transformation of biomass into biodiesel, ethanol, the manufacture of mixtures of bio-ethanol and ethers partially derived from biomass, and manufacture of liquid biofuels even if processes use waste as an input.
- 33 The sub-sector biogas includes the transformation of sewage sludge, manure, and waste into biogas for the purpose of gas supply from, and the production of gaseous biofuels for energy supply through a gas distribution network. It also includes the cleansing of biogas for energy supply through a permanent network, as well as the operation of generation facilities that produce electricity from gaseous biofuels.
- 34 This sector also includes supplementary activities, such as the blending of biofuels, i.e. blending of alcohols with petroleum (e.g. gasohol), as well as the wholesale of low or free carbon fuels, greases, lubricants, oils, such as pellets of wood or biomass, biofuels, liquefied bio forms of petroleum gases, natural gas, butane and propane gas in blending or pure.

ESRS Standard	NACE Section	NACE Code	NACE class description	Bioenergy form
Chemicals	Manufacturing	C.20.51	<p>Manufacture of liquid biofuels</p> <ul style="list-style-type: none"> <li><u>includes</u>: - manufacture of biodiesel - manufacture of ethanol from biomass - manufacture of mixtures of bio-ethanol and ethers partially derived from biomass - manufacture of liquid biofuels even if processes use waste as an input</li> <li><u>excludes</u>: - manufacture of solid fuels from vegetable biomass, see 16.26 - manufacture of ethyl alcohol other than for bio-ethanol biofuels, see 20.14 - manufacture of explosives, see 20.59</li> </ul>	Liquid
Power production and energy utilities	Electricity, gas, steam and air conditioning supply	D.35.21	<p>Manufacture of gas</p> <ul style="list-style-type: none"> <li><u>includes</u>: - production of biogas for the purpose of gas supply from e.g. sewage sludge, manure, waste - production of gaseous biofuels for energy supply through a gas distribution network</li> <li><u>also includes</u>: - cleansing of biogas for energy supply through a permanent network</li> <li><u>excludes</u>: - manufacture of basic organic gases, not for energy supply through a network, see 20.14</li> </ul>	Gaseous
Power production and energy utilities	Electricity, gas, steam and air conditioning supply	D.35.12	<p>Production of electricity from renewable sources</p> <ul style="list-style-type: none"> <li><u>includes</u>: - operation of generation facilities that produce electricity from renewable sources, e.g. gaseous biofuels</li> </ul>	Gaseous

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			<ul style="list-style-type: none"> <li>• <u>excludes</u>: - production of electricity as part of a storage of electricity activities, see 35.16 - pre-treatment of waste for energy recovery, see 38.22</li> </ul>	
Oil and gas	Manufacturing	C.19.20	<p>Manufacture of refined petroleum products and fossil fuel products</p> <ul style="list-style-type: none"> <li>• <u>includes</u>: - blending of <b>biofuels</b>, i.e. blending of alcohols with petroleum (e.g. gasohol)</li> <li>• <u>excludes</u>: - manufacture of solid fuels from biomass, see 16.26 - manufacture of liquid biofuels, see 20.51</li> </ul>	Gaseous
Oil and gas	Wholesale and retail trade	G.46.81	<p>Wholesale of solid, liquid and gaseous fuels and related products</p> <ul style="list-style-type: none"> <li>• <u>includes</u>: - wholesale of low or free carbon fuels, greases, lubricants, oils, e.g.: • pellets of wood or biomass • <b>biofuels</b> • liquefied petroleum gases, liquefied natural gas, butane and propane gas and their related bio and renewable forms, in blending or pure</li> <li>• <u>excludes</u>: - wholesale of hydrogen, see 46.85</li> </ul>	Solid, Liquid, Gaseous