

IOGP input to the Commission's Delegated Regulation establishing the technical screening criteria for economic activities contributing substantially to climate change mitigation or climate change adaptation

The International Association of Oil & Gas Producers' (IOGP) member companies account for approximately 90% of oil and gas produced in Europe. IOGP supports the goals of the Paris Agreement and the EU's objective of climate neutrality by 2050 supported by adequate policies. One of them is a well-designed and inclusive sustainable finance framework.

We welcome the EU's efforts to establish a set of coherent and consistent policy tools that will stimulate private investments required for projects and technologies aimed at reducing greenhouse gas (GHG) emissions, and support the transition to a sustainable future. Access to finance is critical for those investments and thus to maintain European competitiveness.

IOGP congratulates the European Commission for the progress made in establishing a taxonomy for sustainable investments and appreciates the opportunity to provide this input to the development of the first Delegated Regulation:

- 1) This Delegated Regulation should ensure that "transitional activities" have their own dedicated Technical Screening Criteria (TSC) to reflect their transitional nature.** The technical screening criteria for transitional activities should be realistic and avoid excluding investments in necessary transition solutions. For example, natural gas should have a dedicated threshold, above the current 100gCO₂e/kWh, to reflect its role to facilitate an affordable and fair energy transition by enabling a shift away from coal in power generation and heating, providing dispatchable power to complement renewables and offering an alternative fuel in transport.¹ Natural gas will decarbonise over time with the addition of renewable and low-carbon gases, such as hydrogen from natural gas with CCS or biomethane. In this way, any possible lock-in effects will be avoided.
- 2) The Delegated Regulation should seek to be consistent with Article 19.1(a) of the Taxonomy Regulation, which highlights that the technical screening criteria should respect the principle of technological neutrality.** As an example, electricity and heat/cool generation (including CHP) from gaseous and liquid fuels should, where the emissions are below the 100gCO₂e/kWh threshold (which they could be with CCS and/or fuel switching), should be treated as an environmentally sustainable activity **permanently**. This would be a technology-neutral approach and consistent with the treatment of other technologies, for example, power generation from hydropower (section 4.5) and geothermal energy (section 4.6) both qualify as a permanent environmentally sustainable activity under the Delegated Regulation provided they meet the 100gCO₂e/kWh threshold.
- 3) We welcome the Commission's proposals on low-carbon technologies such as carbon capture and storage (CCS) and hydrogen** and recommend introducing some adjustments to ensure that the text is understandable and captures all projects and solutions devoted to these innovative technologies. Indeed, Article 10.1(e) of the Taxonomy Regulation identifies carbon capture and storage (CCS) technologies that deliver a net reduction of GHG emissions as activities that substantially contribute to climate change mitigation. Moreover, a range of scenarios has shown that CCS is an integral part of meeting the targets set under the Paris Agreement, including; the IPCC's SR1.5² and the IEA's 2020

¹ Gas Combined Heat and Power (CHP, also known as cogeneration) can also help increase the efficiency and lower the carbon footprint of energy and heat cost-effectively, in particular when combined with district heating. Furthermore, thresholds for the transport sector should be amended to allow the contribution of all alternative fuels in accordance with the Alternative Fuels Infrastructure Directive (AFID) (including biofuels, LNG and CNG).

² IPCC (2018): Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development, p. 135. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.*

World Energy Outlook.³ The Commission's 2030 Climate Target Plan impact assessment⁴ and 2050 long-term strategy⁵ equally show that CCS will be necessary to achieve the EU's energy and climate objectives. For these reasons, **the Commission should incorporate into the Delegated Regulation – Annex I standalone sections on Capture of Anthropogenic Emissions and Direct Air Capture of CO₂ (as outlined in the TEG Report), and recognise all modalities of CO₂ transport.**

- 4) We endorse the TEG's **recommendation to incorporate a section on carbon capture and utilisation (CCU)** as also outlined by the Taxonomy Regulation (Article 10.1(e)). There are techniques that enable capturing CO₂ released by industrial processes and convert them into useful applications (e.g. construction materials, raw materials for the chemical industry, etc.). We hope the recently established Platform on Sustainable Finance will make proposals on this technology.
- 5) **Ahead of its publication, inconsistencies and clarity of different terms should be addressed to ensure that the Delegated Regulation will be user-friendly and understandable by all stakeholders:**
 - To ensure that the Delegated Regulation is accessible to all users, its technical screening criteria for all economic activities should be defined coherently and understandably. We struggle to comprehend the meaning of the "additionality" criterion (in sections 1 and 2) as it includes a reference to "*an activity being accepted for financing as a sustainable investment*" (based on compliance with the Taxonomy Regulation)⁶ as a condition to demonstrate additionality. It seems that there is a need for evidence that without the activity *being accepted for financing as a sustainable investment*, the activity would not have been possible or implemented or that the area would have been used for other activities that would have a negative impact on climate. In our view, this doesn't reflect the spirit of the Taxonomy Regulation as the Commission has always stressed the EU Taxonomy is not a mandate for financing. This approach could also result in the situation that private investors who may not require access to third-party financing could be discouraged from investing in the protection or enhancement of natural sinks since that activity may not qualify as a taxonomy-aligned activity.
- 6) **Alignment with existing recommendations and legislation is needed to comply with the Better Regulation principles:**
 - We strongly call for the sustainability criteria for biofuels to be consistent and compliant with the whole body of existing EU legislation (e.g. the RED II, Directive 2018/2001). Eventually allowing access to sustainable finance only for a limited part of the biofuels pool would hinder the development and deployment of many other biofuels which the European legislation classifies as sustainable and that can provide significant GHG emission reductions compared to fossil fuels.
 - Blends should not be excluded, as they are needed in the transition to the use of predominantly sustainable fuels. In this context, some essential adjustments still have to be made, in particular, to achieve full compliance with the RED II. We call for the explicit inclusion of liquid and gaseous transport fuels of non-biological origin (RFNBOs) and Recycled Carbon Fuels (RCFs) as they are defined in the RED II. Low-carbon liquid fuels will play a critical role in the energy transition and in achieving carbon neutrality in all transport modes, as the global demand for competitive liquid fuels is expected to increase progressively. Therefore, alongside electrification and hydrogen technologies, low-carbon liquid fuels will remain essential beyond 2050, bringing significant benefits to the European economy and society.
 - The Commission's Impact Assessment on the 2030 climate target plan shows that aviation will need 63% sustainable aviation fuels (SAFs) which will be made in a large part from advanced biofuels. For

³ IEA (2020): World Energy Outlook 2020.

⁴ SWD(2020) 176 final: Impact assessment accompanying the 2030 Climate Target Plan.

⁵ COM(2018) 773 final: A Clean Planet for all – A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy.

⁶ The "Additionality" criterion in the Draft Delegated Regulation Annex I refers to Regulation 2020/853. We believe there is a typo and the reference should be to Regulation 2020/852 (Taxonomy Regulation). There is a further reference to Regulation 2020/853 in section 1.6 of both Annexes I and II. There are also typos in certain cross-references in Annex I (e.g. section 5.11 of each of Annex I and II should cross-refer to section 5.12, not section 5.11).

this reason, the manufacture of biogas and biofuels for use in transport should be classified as an environmentally sustainable activity rather than a transitional one.

- We would like to draw the Commission's attention to several cases of misalignment. For instance, there are inconsistencies in references to fertilisers in sections 1 and 2, compared to the rest of the Delegated Regulation (and against the TEG recommendations). In the Forestry and Restoration of Wetlands sections, there seems to be a prohibition on the use of fertilisers under the DNSH criteria, while in other activities the use of fertilisers is (in a targeted way) allowed (i.e. in section 1.1 – growing of non-perennial crops).
- We note that adaptation to climate change is important. The requirements set out in the EU Taxonomy should be coherent with other existing climate adaptation references (e.g. in the TCFD).

7) Life-cycle analysis & usage of means of transport:

- Putting thresholds only on a tank-to-wheel (tailpipe) value is not at all appropriate and could even lead to more GHG emissions in real-world performance than shown by the reduction at the tailpipe. Several references are made to the need to consider life-cycle approaches. We think that therefore tailpipe values should at least be replaced by a well-to-wheel approach including the contribution of GHG emissions from the production of the fuel or energy used.
- Combining the production criteria with the usage ones throughout the Delegated Regulation increases the complexity of this legislative proposal. For example, it is not very clear how it is possible to determine that a particular vehicle or vessel will be/will not be dedicated to the transport of fossil fuels or how this could be assessed in the long-run. We, therefore, believe further reflection is required on addressing this criterion to avoid confusion among the EU Taxonomy's users while ensuring an inclusive approach through capturing, e.g. transportation of blends.

- #### 8) Research, development and innovation will enable meeting the EU's climate neutrality objective by 2050:
- We welcome section 9.1 on R&D&I as innovation is a crucial driver to achieve a net-zero economy. Technological change and development will significantly enhance the portfolio of options available and, over time, will bring down the cost of achieving the climate goals. Digitalisation, which we understand can be classified within this section, operates as an accelerator and enabler of a number of the Sustainable Development Goals (SDGs). Digitalisation is a huge lever in the energy industry, reducing risk, optimising system performance, reducing costs and – by improving efficiency - also reducing emissions.

Final remarks: Set achievable timelines to implement the EU Taxonomy in an effective manner

IOGP appreciates this opportunity to provide input on this occasion to the upcoming Delegated Regulation on climate change mitigation and adaptation and is ready to constructively contribute to the development of any future technical screening criteria that should be evidence-based, and user friendly. To address the latter, we propose the use of a simple table of contents at the beginning of each Annex.

We would like to emphasise that reporting on taxonomy-compliant activities will require companies to review their reporting processes and establish new systems/reporting functionalities, and internal processes enabling changes in data collection, processing and assurance. Therefore, any disclosure must be material and create benefits for the users' of this data. Together with the timing of the Delegated Regulation on the technical screening criteria for mitigation and adaptation, and on the disclosure obligation by mid-2021, it will be extremely challenging to meet disclosure obligations for the financial year 2021 in the course of 2022. To ensure a smooth and proper implementation of the upcoming rules, a realistic and well-sequenced application timeline is needed, especially regarding the corporate disclosure obligations. **We, therefore, encourage the Commission to assess the possibilities to consider extending the timeframe for the implementation of the disclosure obligation or retain the principle of one or two pilot years.**

**We would like to propose the following amendments to the text to
Annex I – economic activities contributing to climate change mitigation:**

Sections on innovative low-carbon technologies – CCS and hydrogen

European Commission's proposal – Annex I 3.2. Manufacture of equipment for the production of hydrogen	IOGP recommendation – Annex I 3.2. Manufacture of equipment for the production of hydrogen
<p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation</p> <p>The economic activity manufactures hydrogen electrolysis technologies.</p>	<p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation</p> <p>The economic activity manufactures renewable and low-carbon hydrogen electrolysis technologies.</p>

Justification: Both renewable and low-carbon hydrogen are needed to realise the EU's energy and climate ambitions. The impact assessment accompanying the 2030 Climate Target Plan⁷ states that a decarbonised energy system will require going beyond electrification and that further deployment of both renewable and low-carbon fuels will be needed to meet increased climate ambitions. The EU Hydrogen Strategy itself also recognises the need for low-carbon hydrogen produced from natural gas with CCS over the short to medium term to rapidly reduce emissions from existing hydrogen production and support the future uptake of renewable hydrogen. We therefore strongly recommend reflecting this in the Delegated Regulation. This will ensure that all types of hydrogen technologies will be able to qualify for sustainable finance and so contribute to significant GHG emission reductions while respecting the spirit of the Taxonomy Regulation regarding the technology neutrality principle.

European Commission's proposal – Annex I 3.9. Manufacture of hydrogen	IOGP recommendation – Annex I 3.9. Manufacture of hydrogen
<p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation</p> <p>The activity complies with the life cycle GHG emissions savings requirement of 80 % relative to a fossil fuel comparator of 94g CO₂e/MJ [resulting in 2.256 tCO₂eq/tH₂] in analogy to the approach set out in Article 25(2) of and Annex V to Directive (EU) 2018/2001 of the European Parliament and of the Council.</p>	<p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation</p> <p>The activity complies with either of the following criteria:</p> <p>a) the life cycle GHG emissions savings requirement of 80% relative to a fossil fuel comparator of 94g CO₂e/MJ [resulting in 2.256 tCO₂eq/tH₂] in analogy to the approach set out in Article 25(2) of and Annex V to Directive (EU) 2018/2001 of the European Parliament and of the Council.</p> <p>b) Direct GHG emissions from manufacturing of hydrogen no more than 5.8 tCO₂e/tH₂.</p>

Justification: We welcome that the draft Delegated Regulation considers the role of hydrogen. Today, hydrogen produced from natural gas delivers the lion's share (over 70%) of industrial hydrogen, while hydrogen from renewables is produced in smaller volumes (1%)⁸. Scaling up renewable hydrogen from renewables requires large amounts of renewable electricity, as explained by the Commission's Hydrogen and Offshore Renewable Strategies. There is no doubt that meeting the EU carbon neutrality objective by 2050 will require

⁷ SWD(2020) 176 final: [Impact assessment accompanying the 2030 Climate Target Plan](#) (p.12).

⁸ IEA, 2019.

large volumes of hydrogen with a low CO₂ footprint.⁹ In many EU Member States, today's power grid is not ideal for providing the electricity needed for electrolysis because of the GHG released and the amount of fuel required due to the low efficiency of the electricity generation process. For these reasons, low-carbon hydrogen produced by methane pyrolysis and natural gas reforming combined with CCS and/or CCU will play an essential role in scaling up renewable hydrogen and contribute to the development of infrastructure and markets cost-effectively. Therefore, we call on the European Commission to include both renewable and low-carbon hydrogen into the upcoming Delegated Regulation and recognise them as "environmentally sustainable activities". In this context, we would like to stress that Article 19.1(a) of the Taxonomy Regulation highlights that the technical screening criteria should consider the principle of technological neutrality, which in our view, is respected by the proposed point (b) - *Direct GHG emissions from manufacturing of hydrogen no more than 5.8 tCO₂e/tH₂* which builds on the TEG Technical Annex on the EU Taxonomy.

Furthermore, we would like to stress that there is an inconsistency between the referenced provision of RED II and the number used for the GHG emissions savings requirement in Annex I section 3.9 of 80%. Notably, Article 25(2) of the RED II states that *GHG savings from the use of renewable liquid and gaseous transport fuels of non-biological origin shall be at least 70 % from 1 January 2021*. We don't note any reference to 80%. As stressed at the beginning of our consultation, the alignment between existing legislation and proposed technical screening criteria is vital to ensure certainty and predictability for the industry and investors.

European Commission's proposal – Annex I 4.12 Storage of hydrogen	IOGP recommendation – Annex I 4.12 Storage of hydrogen
<p><i>Description of the activity</i> Construction and operation of facilities that store hydrogen and return it at a later time.</p> <p>(...) The activity is an enabling activity in accordance with Article 10(1), point (i), of Regulation (EU) 2020/852 where it complies with the technical screening criteria set out in this section.</p> <p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation</p> <p>The activity is one of the following: (a) construction of hydrogen storage facilities.</p> <p>(b) operation of hydrogen storage facilities where the hydrogen stored in the facility meets the criteria for manufacture of hydrogen set out in Section 3.9. of this Annex.</p>	<p><i>Description of the activity</i> Construction and operation of facilities that store hydrogen or blends of natural gas/biomethane and hydrogen and return it at a later time.</p> <p>(...) The activity is an enabling activity in accordance with Article 10(1), point (i), or in the case of blends a transitional activity as referred to in Article 10(2) of Regulation (EU) 2020/852 where it complies with the technical screening criteria set out in this section.</p> <p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation</p> <p>The activity is one of the following: (a) construction of hydrogen storage facilities and facilities for storage of blends/ biomethane of natural gas and hydrogen.</p> <p>(b) operation of hydrogen storage facilities where the hydrogen stored in the facility (also blends of natural gas and hydrogen) meets the criteria for manufacture of hydrogen set out in Section 3.9. of this Annex.</p>

⁹ See the High-Level Group on Energy Intensive Industries (2019), 'Masterplan for a competitive transformation of EU energy intensive industries enabling a climate-neutral, circular economy by 2050': <https://ec.europa.eu/docsroom/documents/38403/>.

<p>European Commission's proposal – Annex I 4.14. Transmission and distribution networks for renewable and low-carbon gases</p>	<p>IOGP recommendation – Annex I 4.14. Transmission and distribution networks for gaseous fuels including renewable and low- carbon gases</p>
<p><i>Description of the activity</i> Repurposing of gas networks for the distribution of gaseous fuels through a system of mains.</p> <p>Repurposing of gas networks for long-distance transport of renewable and low-carbon gases by pipelines.</p> <p>Construction or operation of transmission and distribution pipelines dedicated to the transport of hydrogen or other low-carbon gases.</p> <p>[...] Substantial contribution to climate change mitigation</p> <p>1. The activity consists in one of the following: (a) construction or operation of new transmission and distribution networks dedicated to hydrogen or other low-carbon gases; (b) conversion/repurposing of existing natural gas networks to 100 % hydrogen and retrofit of gas transmission and distribution networks, where the main purpose is the integration of hydrogen and other low-carbon gases, including any gas transmission or distribution network activity, which enables the network to increase the blend of hydrogen or other low carbon gasses in the gas system;</p> <p>Do no significant harm ('DNSH') [...] (6) Protection and restoration of biodiversity and ecosystems An Environmental Impact Assessment (EIA) or screening³¹⁵ has been completed, for activities within the Union, in accordance with Directive 2011/92/EU. For activities in third countries, an EIA has been completed in accordance with equivalent</p>	<p><i>Description of the activity</i> Repurposing of gas networks for the distribution of gaseous fuels through a system of mains.</p> <p>Repurposing of gas networks for long-distance transport of gaseous fuels including renewable and low-carbon gases by pipelines.</p> <p>Construction or operation of transmission and distribution pipelines dedicated to the transport of hydrogen or other low-carbon gases.</p> <p>In the context of transitional activities, construction, repurposing, retrofitting or operation of transmission and distribution pipelines to carry blends of natural gas and hydrogen or renewable gas.</p> <p>[...] Substantial contribution to climate change mitigation</p> <p>1. The activity consists in one of the following: (a) construction or operation of new transmission and distribution networks dedicated to hydrogen or other low-carbon and renewable gases; (b) conversion/repurposing of existing natural gas networks to up to 100% hydrogen and retrofit of gas transmission and distribution networks, where the main purpose is the integration of hydrogen and other low-carbon and renewable gases, including any gas transmission or distribution network activity, which enables the network to increase the blend of hydrogen or other low carbon and renewable gasses in the gas system; (c) operation of transmission and distribution pipelines to carry blends of natural gas and hydrogen or renewable gas.</p> <p>Do no significant harm ('DNSH') [...] (6) Protection and restoration of biodiversity and ecosystems An Environmental Impact Assessment (EIA) or screening³¹⁵ has been completed, for activities within the Union, which are included in Annex I or II of in accordance—with Directive 2011/92/EU. For activities in third countries, an EIA has been</p>

<p>national provisions or international standards³¹⁶. Where an EIA has been carried out, the required mitigation and compensation measures for protecting the environment are implemented. For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment³¹⁷, where applicable, has been conducted and based on its conclusions the necessary mitigation measures³¹⁸ are implemented.</p>	<p>completed in accordance with equivalent national provisions or international standards³¹⁶. Where an EIA has been carried out, the required mitigation and compensation measures for protecting the environment are implemented. For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment or screening³¹⁷, where applicable, has been conducted and based on its conclusions the necessary mitigation measures³¹⁸ are implemented.</p>
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Justification: The EU should leverage existing assets and using the natural gas infrastructure for renewable and low-carbon gases as this approach can save time and costs compared to substantial power transmission expansion. To complement this, the development of a dedicated hydrogen infrastructure and the ability to blend hydrogen with natural gas/biomethane is essential. For example, existing natural gas pipelines can be repurposed for hydrogen where parallel natural gas pipelines exist today or retrofitted to transport natural gas-hydrogen blends. Likewise, existing gas storage facilities can be repurposed/retrofitted for the storage of hydrogen or natural gas-hydrogen blends. Blending can provide an initial demand and should be accepted in the natural gas system provided that it is compatible with the quality requirements of end-users. The changes above aim at accommodating blends of natural gas and hydrogen as transitional activity in accordance with Article 10(2) of the Taxonomy Regulation.

European Commission's proposal – Annex I 5.11. Transport of CO2	IOGP recommendation – Annex I 5.11. Transport of CO2
<p><i>Description of the activity</i> Transport of captured CO2.</p> <p>Construction and operation of CO2 pipelines and retrofit of gas networks where the main purpose is the integration of captured CO2.</p> <p>Substantial contribution to climate change mitigation</p> <p>1. The CO2 transported from the installation where it is captured to the injection point does not lead to CO2 leakages above 0.5 % of the mass of CO2 transported.</p> <p>2. The CO2 is delivered to a permanent CO2 storage site that meets the criteria for underground geological storage of CO2 set out in Section 5.11 of this Annex; or to other transport modalities, which lead directly to permanent CO2 storage site that meet those criteria.</p>	<p><i>Description of the activity</i> Transport of captured CO2 by all transport modalities, including by pipeline, ocean shipping, inland barges, rail, truck.</p> <p>Construction and operation of CO2 pipelines and retrofit of gas networks where the main purpose is the integration of captured CO2.</p> <p>Substantial contribution to climate change mitigation</p> <p>1. The CO2 transported from the installation where it is captured to the injection point does not lead to CO2 leakages above 0.5 % of the mass of CO2 transported.</p> <p>2. The CO2 is delivered to a permanent CO2 storage site that meets the criteria for underground geological storage of CO2 set out in Section 5.11.12 of this Annex; or to other transport modalities, which lead directly to permanent CO2 storage site that meet those criteria.</p>

Justification: In the description of this activity, it should be clarified that it covers various transport modalities. Liquid CO₂ can also be transported efficiently and flexibly in ships, barges, by rail or in trucks, thereby unlocking access to CO₂ from installations located onshore without ready access to pipeline infrastructure, and providing flexibility to reach multiple carbon emission points across Europe. We recommend the removal of the word 'directly' as it could create complications. For some projects, CO₂ will be processed in intermediate storage before being transported for permanent storage. In that sense, the transport will not be 'direct'.

European Commission's proposal – Annex I 5.12. Underground permanent geological storage of CO ₂	IOGP recommendation – Annex I 5.12. Underground permanent geological storage of CO ₂
<p>Substantial contribution to climate change mitigation</p> <p>1. Characterisation and assessment of the potential storage complex and surrounding area (exploration) is carried out in order to establish whether the geological formation is suitable for use as a CO₂ storage site.</p>	<p>Substantial contribution to climate change mitigation</p> <p>1. Characterisation and assessment of the potential storage complex and surrounding area (exploration) is carried out in order to establish whether the geological formation, including depleted oil and gas fields, is suitable for use as a CO₂ storage site.</p>

Justification: The word 'exploration' should not be used in combination with references to 'geological formation'. Exploration is what one would do to store CO₂ in saline aquifers, but not depleted oil and gas fields. In Europe, several CCS projects are targeting CO₂ storage in depleted fields. For this reason, we recommend making it clear that geological formations include depleted oil and gas fields.

CCU and CCS technologies capture CO₂ from power or industrial plants, to then utilise the CO₂ or store it in deep underground geological formations. Many of these projects are planned offshore.¹⁰ In Europe, Norway has already deployed CCS at two offshore geological CO₂ storage sites (Sleipner in the North Sea since 1996 and at Snøhvit in the Barents Sea since 2007). Several more offshore CCS projects are under development in the broader area of the North Sea (offshore Norway, the UK, Denmark and Sweden), most of them in depleted hydrocarbon fields. It is estimated that both onshore and offshore CCS projects when entering into operation would have the capacity to store between 30 and 60 million tonnes CO₂ per year by 2030.¹¹ Most of the CCS and CCU projects aim to address clusters of industrial emissions, decarbonise hydrogen production and transport of CO₂ for storage across borders. They will take place in hubs and clusters, some of them in large port areas (e.g. Port of Antwerp, Port of Rotterdam), where different industries may share transport and storage infrastructure allowing for a cross-sectorial, and cross-border industrial system. Coupled with hydrogen infrastructure, CCS can also deliver low-carbon hydrogen across sectors of the European economy. CCU also includes the utilisation of the CO₂, bringing Circular Economy principles into practice.

¹⁰ IOGP (2019): The Potential for CCS and CCU in Europe.

¹¹ See IOGP (October 2020) CCS map: <https://www.oilandgaseurope.org/wp-content/uploads/2020/06/Map-of-EU-CCS-Projects.pdf>

Sections on production of heat/cool, cogeneration and electricity generation from gaseous and liquid fuels

European Commission's proposal – Annex I 4.7. Electricity generation from gaseous and liquid fuels	IOGP recommendation – Annex I 4.7. Electricity generation from gaseous and liquid fuels
<p>Substantial contribution to climate change mitigation</p>	<p>Substantial contribution to climate change mitigation</p> <p>2. To be considered a transitional activity as per Article 10(2) of Regulation (EU) 2020/852, this activity should comply with the following criteria:</p> <p>a) Have GHG emissions levels that correspond to the best performance in the sector: this performance is set at direct GHG emissions of 350gCO₂e/kWh.</p> <p>b) Does not hamper the development and deployment of low carbon alternatives/ renewables and will complement renewable electricity by providing a flexible and dispatchable power source.</p> <p>c) Does not lead to lock-in of carbon-intensive assets, considering the economic lifetime of those assets: the activity will demonstrate that over a 25 years lifetime period, its performance, based on average direct GHG emissions, will fall below 250gCO₂e/kWh and will ultimately reach the criteria set out in 1.</p>
European Commission's proposal – Annex I 4.19. Cogeneration of heat/cool and power from gaseous and liquid fuels	IOGP recommendation – Annex I 4.19 Cogeneration of heat/cool and power from gaseous and liquid fuels
<p>Substantial contribution to climate change mitigation</p> <p>1. The life-cycle GHG emissions from the cogeneration of heat/cool and power from gaseous and liquid fuels are lower than 100gCO₂e per 1 kWh of energy input to the cogeneration.</p> <p>Life-cycle GHG emissions are calculated based on project-specific data, where available, using Commission Recommendation 2013/179/EU or, alternatively, using ISO 14067:2018 or ISO 14064-1:2018.</p> <p>Quantified life-cycle GHG emissions are verified by an independent third party.</p>	<p>Substantial contribution to climate change mitigation</p> <p>1. The life-cycle GHG emissions from the cogeneration of heat/cool and power from gaseous and liquid fuels are lower than 100gCO₂e per 1 kWh of energy input to output from the cogeneration.</p> <p>Life-cycle GHG emissions are calculated based on project-specific data, where available, using Commission Recommendation 2013/179/EU or, alternatively, using ISO 14067:2018 or ISO 14064-1:2018.</p> <p>Quantified life-cycle GHG emissions are verified by an independent third party.</p> <p>2. To be considered a transitional activity per Article 10(2) of Regulation (EU) 2020/852, this activity should comply with the following criteria (a) to (c):</p>

	<p>a) Have GHG emissions levels that correspond to the best performance in the sector: this performance is set at direct GHG emissions of 250gCO₂e/kWh¹².</p> <p>b) Does not hamper the development and deployment of low carbon alternatives/renewables and will complement renewable electricity by providing a flexible and dispatchable power source.</p> <p>c) Does not lead to lock-in of carbon-intensive assets, considering the economic lifetime of those assets.</p> <p>Or with the criterion as below:</p> <p>d) Comply with the Energy Efficiency Directive definition of high-efficiency cogeneration, when switching to gas in the EU Member States heavily reliant on coal.</p>
<p>European Commission's proposal – Annex I 4.23. Production of heat/cool from gaseous and liquid fuels</p>	<p>IOGP recommendation – Annex I 4.23. Production of heat/cool from gaseous and liquid fuels</p>
<p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation</p>	<p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation</p> <p>2. To be considered a transitional activity per Article 10(2) of Regulation (EU) 2020/852, this activity should comply with the following criteria:</p> <p>a) GHG emissions levels that correspond to the best performance in the sector: this performance is set at direct GHG emissions of 300gCO₂e/kWh.</p> <p>b) Does not hamper the development and deployment of low carbon alternatives/renewables and will complement renewable electricity by providing a flexible and dispatchable power source.</p> <p>c) Does not lead to lock-in of carbon-intensive assets, considering the economic lifetime of those assets.</p>

Justification:

- One size does not fit all, and each journey towards the energy transition should be considered in its own context. More opportunities for transitional activities could have a significant impact, especially in regions still highly reliant on coal. Investing today in these regions, in high-efficiency gas-fired power plants can bring immediate efficiency and significant carbon reductions, supporting the energy transition.

¹² The proposed value of 250 CO₂e per 1 kWh is in compliance with EIB lending policy requirements for CHP.

- Replacing coal plants with gas plants such as combined cycle gas turbine (CCGT) and CHP plants can halve EU emissions in the power sector and increase energy efficiency significantly. This is a vital transitional activity for Member States that heavily rely on coal. Further, CCGT plants can achieve conversion efficiencies in the order of 60%, with the prospect of even higher efficiencies in future plants¹³, compared with thermal efficiencies of 25 to 45% for coal¹⁴. When used in CHP systems, they can achieve efficiencies of over 80%.¹⁵ Investing in high-efficiency gas-fired power plants today can bring immediate efficiency gains and significant carbon reductions. A switch from coal-fired to modern gas-fired power plants could alone meet the 2030 CO₂ emissions reduction target and make considerable progress towards the 2050 objectives.
- Technical screening criteria, in particular for transitional activities, should reflect a gradual approach and efficiently incentivise transitional efforts. Setting thresholds and ceilings too low at the beginning could de facto exclude relevant activities regardless of both their potential contribution to the transition and their ability to improve their own environmental performance, running the risk of unintentionally creating a niche market.
- In our view, the single threshold 100gCO₂e/kWh is not appropriate for the transitional activities. The transitional activity threshold should be based on the best performance of technology and signal the decarbonisation pathway. Such an approach will ensure a trajectory for meeting the targets and ensure inclusion of activities that contribute to emission reductions, including retrofitting of existing processes. The threshold can be reduced with time but should not be set too low too early as otherwise suitable technology, which can contribute to the transition or could be retrofitted, will be excluded already at this stage. Furthermore, natural gas-fired power plants can reduce their emissions with the deployment of CCS, low-carbon or renewable hydrogen or biogas.
- We would like to highlight that it's unclear why the Commission suggests setting a threshold on the energy "input". Our recommendation is to use the term "output".
- These new proposals for technical screening criteria outlined in sections "4.7. Electricity generation from gaseous and liquid fuels" and "4.19. Cogeneration of heat/cool and power from gaseous and liquid fuels" in Annex I need to be reflected in the respective sections in Annex II on climate change adaptation. This means that the threshold of direct GHG emissions (<270gCO₂e/kWh) under DNSH-climate change mitigation will need to be adapted in Annex II accordingly.

Sections on bioenergy, biogas, biofuels and biomethane

European Commission's proposal – Annex I 4.8. Electricity generation from bioenergy	IOGP recommendation – Annex I 4.8. Electricity generation from bioenergy
<p><i>Description of the activity</i> Construction and operation of electricity generation installations that produce electricity from biomass, biogas and biofuels. (...)</p> <p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation (...)</p> <p>2. The greenhouse gas emission savings from the use of biomass are at least 80 % in relation to the GHG saving methodology and the relative fossil</p>	<p><i>Description of the activity</i> Construction and operation of electricity generation installations that produce electricity from biomass, biogas, biomethane and biofuels. (...)</p> <p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation (...)</p> <p>2. The greenhouse gas emission savings from the use of biomass are at least 80% 70% in relation to the GHG saving methodology and the relative fossil</p>

¹³ European Environment Agency: EN19 Efficiency of conventional thermal electricity production, Source:

<http://www.eea.europa.eu/data-and-maps/indicators/en19-efficiency-of-conventional-thermal/en19-efficiency-of-conventional-thermal>

¹⁴ Energy Technology Perspectives (2012), p.66.

¹⁵ Source: <http://chp.decc.gov.uk/cms/chp-benefits/>; http://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/bbest_chp.pdf

<p>fuel comparator set out in Annex VI to Directive (EU) 2018/2001. (...)</p> <p><i>Do no significant harm ('DNSH')</i> (...) (5) Pollution prevention and control (...)</p> <p>For anaerobic digestion of organic material, the produced digestate is used as fertiliser or soil improver, either directly or after composting or any other treatment, and meets the requirements for fertilising materials set out in Component Material Categories (CMC) 4 and 5 in Annex II to Regulation (EU) 2019/1009 and relevant national law on fertilising products.</p>	<p>fuel comparator set out in Annex VI to Directive (EU) 2018/2001. (...)</p> <p><i>Do no significant harm ('DNSH')</i> (...) (5) Pollution prevention and control (...)</p> <p>For anaerobic digestion of organic material, the produced digestate is used as input to chemicals, fertiliser or soil improver, either directly or after composting or any other treatment, and meets the requirements for fertilising materials set out in Component Material Categories (CMC) 4 and 5 in Annex II to Regulation (EU) 2019/1009 in case of certification as EU fertilising products or relevant national law on fertilising products in other cases. The produced digestate can be used for the purpose of energy generation as long as it complies with national environmental laws.</p>
<p>European Commission's proposal – Annex I 4.13. Manufacture of biogas and biofuels for use in transport</p>	<p>IOGP recommendation – Annex I 4.13. Manufacture of biogas and biofuels for use in transport</p>
<p><i>Description of the activity</i></p> <p>Manufacture of biogas or biofuels for use in transport. (...)</p> <p><i>Do no significant harm ('DNSH')</i> (...) (5) Pollution prevention and control (...)</p> <p>In case of anaerobic digestion of organic material, the produced digestate is used as fertiliser or soil improver, either directly or after composting or any other treatment, and meets the requirements for fertilising materials set out in Component Material Categories (CMC) 4 and 5 in Annex II to Regulation EU 2019/1009 and respective national rules on fertilising products.</p>	<p><i>Description of the activity</i></p> <p>Manufacture of biogas (including enrichment to biomethane) or biofuels for use in transport. (...)</p> <p><i>Do no significant harm ('DNSH')</i> (...) (5) Pollution prevention and control (...)</p> <p>In case of anaerobic digestion of organic material, the produced digestate is used as input to chemicals, fertiliser or soil improver, either directly or after composting or any other treatment, and meets the requirements for fertilising materials set out in Component Material Categories (CMC) 4 and 5 in Annex II to Regulation EU 2019/1009 and in the case of certification as EU fertilising products or relevant national law on fertilising products in other cases. The produced digestate can be used for the purpose of energy generation as long as it complies with national environmental laws.</p>

European Commission's proposal – Annex I 4.20. Cogeneration of heat/cool and power from bioenergy	IOGP recommendation – Annex I 4.20. Cogeneration of heat/cool and power from bioenergy
<p><i>Description of the activity</i></p> <p>Construction and operation of installations used for cogeneration of heat/cool and power from biomass. (...)</p> <p><i>Do no significant harm ('DNSH')</i> (...) (5) Pollution prevention and control (...)</p> <p>In case of anaerobic digestion of organic material, the produced digestate is used as fertiliser or soil improver, either directly or after composting or any other treatment, and meets the requirements for fertilising materials set out in Component Material Categories (CMC) 4 and 5 in Annex II to Regulation EU 2019/1009 and respective national rules on fertilising products.</p>	<p><i>Description of the activity</i></p> <p>Construction and operation of installations used for cogeneration of heat/cool and power from biomass, biogas and biomethane. (...)</p> <p><i>Do no significant harm ('DNSH')</i> (...) (5) Pollution prevention and control (...)</p> <p>In case of anaerobic digestion of organic material, the produced digestate is used as input to chemicals, fertiliser or soil improver, either directly or after composting or any other treatment, and meets the requirements for fertilising materials set out in Component Material Categories (CMC) 4 and 5 in Annex II to Regulation EU 2019/1009 in the case of certification as EU fertilising products or relevant national law on fertilising products in other cases. The produced digestate can be used for the purpose of energy generation as long as it complies with national environmental laws.</p>
European Commission's proposal – Annex I 4.24. Production of heat/cool from bioenergy	IOGP recommendation – Annex I 4.24. Production of heat/cool from bioenergy
<p><i>Description of the activity</i></p> <p>Construction and operation of facilities that produce heat/cool from biomass.</p> <p><i>Do no significant harm ('DNSH')</i> (...) (5) Pollution prevention and control (...)</p> <p>For anaerobic digestion of organic material, the produced digestate is used as fertiliser or soil improver, either directly or after composting or any other treatment, and meets the requirements for fertilising materials set out in Component Material Categories (CMC) 4 and 5 in Annex II to Regulation (EU) 2019/1009 and relevant national law on fertilising products.</p>	<p><i>Description of the activity</i></p> <p>Construction and operation of facilities that produce heat/cool from biomass, biogas and biomethane.</p> <p><i>Do no significant harm ('DNSH')</i> (...) (5) Pollution prevention and control (...)</p> <p>For anaerobic digestion of organic material, the produced digestate is used as input to chemicals, fertiliser or soil improver, either directly or after composting or any other treatment, and meets the requirements for fertilising materials set out in Component Material Categories (CMC) 4 and 5 in Annex II to Regulation (EU) 2019/1009 in the case of certification as EU fertilising products or relevant national law on fertilising products in other cases. The produced digestate can be used for the purpose of energy generation as long as it complies with national environmental laws.</p>

European Commission's proposal – Annex I 5.6. Anaerobic digestion of sewage sludge	IOGP recommendation – Annex I 5.6. Anaerobic digestion of sewage sludge
<p><i>Description of the activity</i></p> <p>Construction and operation of facilities for the treatment of sewage sludge by anaerobic digestion with the resulting production and utilisation of biogas or chemicals.</p> <p><i>Do no significant harm ('DNSH')</i> (...) (5) Pollution prevention and control (...)</p> <p>Where the resulting digestate is intended for use as soil improver it complies with the following criteria: (a) it meets the requirements for fertilising materials set out in Annex II to Regulation 2019/1009⁴¹² or national rules on fertilisers/soil improvers for agricultural use; (b) its nitrogen content (with tolerance level $\pm 25\%$) is communicated to the buyer or the entity in charge of taking off the digestate.</p>	<p><i>Description of the activity</i></p> <p>Construction and operation of facilities for the treatment of sewage sludge by anaerobic digestion with the resulting production and utilisation of biogas or chemicals and facilities for upgrade of biogas to biomethane.</p> <p><i>Do no significant harm ('DNSH')</i> (...) (5) Pollution prevention and control (...)</p> <p>Where the resulting digestate is intended for use as soil improver it complies with the following criteria: (a) it meets the requirements for fertilising materials set out in Annex II to Regulation 2019/1009⁴¹² or national rules on fertilisers/soil improvers for agricultural use; (b) its nitrogen content (with tolerance level $\pm 25\%$) is communicated to the buyer or the entity in charge of taking off the digestate.</p> <p>The produced digestate can be used for the purpose of energy generation as long as it complies with national environmental laws.</p>
European Commission's proposal – Annex I 5.7. Anaerobic digestion of bio-waste	IOGP recommendation – Annex I 5.7. Anaerobic digestion of bio-waste
<p><i>Description of the activity</i></p> <p>Construction and operation of dedicated facilities for the treatment of separately collected bio-waste through anaerobic digestion with the resulting production and utilisation of biogas and digestate and/or chemicals.</p> <p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation (...) 4. The produced digestate is used as fertiliser or soil improver, either directly or after composting or any other treatment, and meets the requirements for fertilising materials set out in Component Material Categories (CMC) 4 and 5 in Annex II to Regulation (EU) 2019/1009, or national rules on fertilisers or soil improvers for agricultural use.</p> <p>(...) <i>Do no significant harm ('DNSH')</i></p>	<p><i>Description of the activity</i></p> <p>Construction and operation of dedicated facilities for the treatment of separately collected bio-waste through anaerobic digestion with the resulting production and utilisation of biogas and digestate and/or chemicals and facilities for upgrade of biogas to biomethane.</p> <p><i>Technical screening criteria</i> Substantial contribution to climate change mitigation (...) 4. The produced digestate is used as input to chemicals, fertiliser or soil improver, either directly or after composting or any other treatment, and meets the requirements for fertilising materials set out in Component Material Categories (CMC) 4 and 5 in Annex II to Regulation (EU) 2019/1009, or national rules on fertilisers or soil improvers for agricultural use.</p> <p>(...) <i>Do no significant harm ('DNSH')</i></p>

<p>(...) (5) Pollution prevention and control</p> <p>(...) The Nitrogen content (with tolerance level $\pm 25\%$) of the digestate used as fertiliser or soil improver is communicated to the buyer or the entity in charge of taking off the digestate.</p>	<p>(...) (5) Pollution prevention and control</p> <p>(...) The Nitrogen content (with tolerance level $\pm 25\%$) of the digestate used as fertiliser or soil improver is communicated to the buyer or the entity in charge of taking off the digestate.</p> <p>The produced digestate can be used for the purpose of energy generation or as an input to chemicals as long as it complies with national environmental laws.</p>
<p>European Commission's proposal – Annex I 5.10. Landfill gas capture and utilisation</p>	<p>IOGP recommendation – Annex I 5.10. Landfill gas capture and utilisation</p>
<p><i>Description of the activity</i></p> <p>Installation and operation of infrastructure for landfill gas capture and utilisation in permanently closed landfills using new or supplementary dedicated technical facilities and equipment installed during or post landfill closure.</p> <p>The activity is classified under NACE code E38.21 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.</p>	<p><i>Description of the activity</i></p> <p>Installation and operation of infrastructure for landfill gas capture and utilisation in permanently closed landfills using new or supplementary dedicated technical facilities and equipment installed during or post landfill closure and facilities for upgrade of biogas to biomethane.</p> <p>The activity is classified under NACE code E38.21 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.</p>

Justification:

- Adding "biomethane" will provide legal clarity and certainty. For the same reasons, we suggest changing the level of GHG emission savings from the use of biomass to "at least 70%" as this is in line with the RED II.
- We recommend adding "in case of certification as EU fertilising products or relevant national law on fertilising products in other cases" as it provides clarity and ensures that some categories of waste are not excluded in the production of biomethane. Without the rephrasing, the potential of sewage sludge in contributing to climate mitigation would not be captured despite its sound economic and sustainability rationale. Available and widely used technologies for sewage sludge lead to GHG emissions no matter if they are used or not for biomethane production. If they are used for biomethane production, then at least adds value by having produced an energy source. Such an approach relies on the potential for circularity and reuse of waste.
- We recommend adding "The produced digestate can be used for the purpose of energy generation as long as it complies with national environmental laws." The digestate could be used as organic fertiliser or as a source of energy. In such cases, its impact on climate change mitigation remains precisely the same. Such an approach relies on the potential for circularity and reuse of waste.
- While use as a fertiliser is the best way to utilise the digestate and a biogas plant will always aim for it, there are some regions (North-West of Germany, NL) where they cannot take more digestate as a fertiliser due to existing nitrate levels in the soil. Some wastes might also contain heavy metals or plastics that prevent them from being used as fertiliser. Therefore, we believe the Delegated Regulation should also allow other uses of the digestate, such as input to chemicals.

Sections on transport

European Commission's proposal – Annex I 6.3. Urban, suburban and road passenger transport	IOGP recommendation – Annex I 6.3. Urban, suburban and road passenger transport
<p><i>Technical screening criteria</i></p> <p>Substantial contribution to climate change mitigation</p> <p>The direct (tailpipe) CO₂ emissions of the vehicles are zero.</p>	<p><i>Technical screening criteria</i></p> <p>Substantial contribution to climate change mitigation</p> <p>The activity complies with one or more of the following criteria:</p> <p>(a) the direct (tailpipe) CO₂ emissions of the vehicles are zero.</p> <p>(b) it can be demonstrated that use of an alternative fuel (as defined in Article 2(1) of Directive 2014/94/EU) and contributes to significant reductions of CO₂ in accordance with the meaning of a transitional activity as referred to in Article 10(2) of Regulation (EU) 2020/852.</p>
European Commission's proposal – Annex I 6.15 Infrastructure enabling low-carbon road transport	IOGP recommendation – Annex I 6.15 Infrastructure enabling low-carbon road transport
<p><i>Technical screening criteria</i></p> <p>Substantial contribution to climate change mitigation</p> <p>1. The activity complies with one or more of the following criteria:</p> <p>(a) the infrastructure is dedicated to the operation of vehicles with zero tailpipe CO₂ emissions: electric charging points, electricity grid connection upgrades, hydrogen fuelling stations or electric road systems (ERS);</p> <p>(b) the infrastructure and installations are dedicated to transshipping freight between the modes: terminal infrastructure and superstructures for loading, unloading and transshipment of goods;</p> <p>(c) the infrastructure and installations that are dedicated to public passenger transport.</p>	<p><i>Technical screening criteria</i></p> <p>Substantial contribution to climate change mitigation</p> <p>1 The activity complies with one or more of the following criteria:</p> <p>(a) the infrastructure is dedicated to the operation of vehicles with zero tailpipe CO₂ emissions: electric charging points, electricity grid connection upgrades, hydrogen fuelling stations or electric road systems (ERS);</p> <p>(b) the infrastructure is dedicated to transshipping freight from road to rail or water: terminal infrastructure installations and equipment for loading, unloading and transshipment of goods;</p> <p>(c) the infrastructure and installations that are dedicated to public passenger transport.</p> <p>(d) the infrastructure is dedicated to the operation of vehicles that use alternative fuels (as defined in Article 2(1) of Directive 2014/94/EU) in accordance with the meaning of a transitional activity as referred to in Article 10(2) of Regulation (EU) 2020/852 .</p>

European Commission's proposal – Annex I 6.16 Infrastructure for water transport	IOGP recommendation – Annex I 6.16 Infrastructure for water transport
<p><i>Technical screening criteria</i></p> <p>Substantial contribution to climate change mitigation</p> <p>1. The activity complies with one or more of the following criteria:</p> <p>(a) the infrastructure is dedicated to the operation of vessels with zero direct (tailpipe) CO₂ emissions: electricity charging, hydrogen-based refuelling;</p> <p>(b) the infrastructure is dedicated to the provision of shore-side electrical power to vessels at berth;</p> <p>(c) the infrastructure is dedicated to the performance of the port's own operations with zero direct (tailpipe) CO₂ emissions;</p> <p>(d) the infrastructure and installations are dedicated to transshipping freight between the modes: terminal infrastructure and superstructures for loading, unloading and transshipment of goods.</p>	<p><i>Technical screening criteria</i></p> <p>Substantial contribution to climate change mitigation</p> <p>1. The activity complies with one or more of the following criteria:</p> <p>(a) the infrastructure is dedicated to the operation of vessels with zero direct (tailpipe) CO₂ emissions: electricity charging, hydrogen-based refuelling,</p> <p>(b) the infrastructure is dedicated to the provision of shore-side electrical power to vessels at berth;</p> <p>(c) the infrastructure is dedicated to the performance of the port's own operations with zero direct (tailpipe) emissions;</p> <p>(d) the infrastructure and installations are dedicated to transshipping freight between port, rail and inland waterways: terminal infrastructure installations for loading, unloading and transshipment of goods.</p> <p>(e) the infrastructure is dedicated to the operation of vessels that use alternative fuels such as LNG/LBM/LSM in accordance with the meaning of a transitional activity as referred to in Article 10(2) of Regulation (EU) 2020/852.</p>

Justification:

- The infrastructure should not only be linked to zero-emissions vehicles but also to vehicles that use alternative fuels as defined by the Alternative Fuels Infrastructure Directive. These fuels should be included as transitional activities into the scope of this Delegated Regulation.
- The technical screening criteria for the transport sector should allow the contribution of all alternative fuels, including LNG and CNG. The Sea-LNG CE Delft Study report¹⁶ from 2020 shows that LNG can future-proof ship-owners' investments against increasingly stringent GHG emission reduction regulations on local and GHG emissions. LNG, through blending with liquefied biomethane (LBM), offers a clear potential pathway to net-zero carbon emissions from shipping. By investing in LNG-fuelled vessels now, ship-owners can realise immediate GHG benefits – up to 21% on a Well-to-Wake basis, and 28% Tank-to-Wake according to the CE Delft Study. These LNG based assets, with little or no modifications, can use non-fossil fuel methane such as LBM and liquefied synthetic methane (LSM), initially as drop-in fuels.
- The European Maritime Safety Agency (EMSA) identified LNG as the vital option for maritime transport to significantly reduce its emissions¹⁷. LNG, as a transportation fuel, offers substantial benefits to the environment, improves air quality and reduces GHG emissions. Its combustion emits less CO₂ than currently used conventional liquid fuels. It has very low pollutant emissions (NO_x & SO_x and particulate matter) both well-to-tank and tank-to-propeller¹⁸.

¹⁶ <https://sea-lng.org/ce-delft-study-confirms-bio-and-synthetic-lng-provide-a-viable-pathway-towards-decarbonisation/>

¹⁷ EMSA, Guidance on LNG Bunkering to Port Authorities, 31.01.2018

¹⁸ DNV GL, Assessment of the Selected Alt Fuels and Technologies, June 2019, p. 9