International Association of Oil & Gas Producers

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IOGP written input to the consultation "Maritime sector – a green post-COVID future"

Introduction

The International Association of Oil & Gas Producers' (IOGP) member companies account for approximately 90% of the oil and gas produced in Europe. IOGP shares the world's ambition to reach the Paris Agreement's goals and supports the EU's objective of climate neutrality by 2050 upon the implementation of enabling measures.

Oceans and seas are important areas of operations for the European oil and gas industry, as more than 80% of its current oil and gas production takes place offshore. To protect the marine environment, exploration, drilling and production are conducted according to the highest industry standards and in line with the applicable EU legislation.

IOGP also has access to a wealth of technical knowledge and experience with its members operating around the world in many different ocean governance frameworks, supporting goals of the 2030 Agenda for Sustainable Development, and in particular the Sustainable Development Goal on the Ocean (SDG14).

We believe that the development of the EU's more sustainable 'blue economy' should be based on cooperation of all relevant stakeholders, sharing knowledge and experience, and include all technologies that can contribute to the objectives of the EU Green Deal such as Carbon Capture and Storage (CCS), Carbon Capture and Utilization (CCU), renewable and low-carbon hydrogen, and Liquified Natural Gas (LNG). **We therefore welcome this early opportunity to share our input and provide a set of recommendations that could be considered, while developing the sustainable blue economy:**

1. A stable, predictable, and transparent regulatory framework

More than 80% of all current European oil and gas production takes place offshore, mainly in the North Sea[1]. There are more than 600 offshore oil or gas installations in operation in European waters[2], specifically in the exclusive economic zones of the United Kingdom, Norway, the Netherlands, and Italy. However, other regions, such as the Black Sea, and the Mediterranean region have a high potential for an increase of oil and gas operations in the future.

A stable, predictable and transparent regulatory framework in the EU seas and international oceans is essential to the planning and conduct of industrial projects offshore. Oil and gas projects involve long-term planning (5-20 years) and involve significant investment (multi-millions/billions of euros). This encompasses technical requirements, permitting, as well as visibility on financial terms.

For that reason, we continue to support initiatives that aim at efficient regulations, and a more efficient coordination ensuring closer cooperation between all organizations involved in ocean affairs, internationally and regionally.

[1] The EU Blue Economy Report 2020

[2] Report from the Commission Annual Report on the Safety of Offshore Oil and Gas Operations in the European Union for the Year 2018, COM(2020) 263 final

2. New technologies to enable growth

As a traditional blue economy sector the oil and gas sector evolves and develops new technologies, infrastructure and operational skills enabling the future growth in line of the EU Green Deal. These include:

a) Carbon Capture Utilisation and Storage (CCU and CCS)

A range of scenarios have shown that CCS is an integral part of meeting the targets set under the Paris Agreement, including; the IPCC's SR1.5[3] and the IEA, Sustainable Development Scenario[4]. The Commission's 2030 Climate Target Plan impact assessment[5] and 2050 long-term strategy[6] equally show that CCS will be necessary to achieve the EU's energy and climate objectives.

CCU and CCS technologies capture CO_2 from power or industrial plants, and then utilise the CO_2 or store it in deep underground geological formations. Many of these projects are planned offshore[7]. In Europe, Norway has already deployed CCS at two offshore geological CO_2 storage sites (Sleipner in the North Sea since 1996 and at Snøhvit in the Barents Sea since 2007). Several additional offshore CCS projects are under development in the wider area of the North Sea (offshore Norway, the UK, Denmark, the Netherlands, and Sweden), most of them in the depleted hydrocarbon fields. It is estimated that CCS projects may have the capacity to store between 30 and 60 million tonnes CO_2 per year by 2030.[8]

Most of the CCS and CCU projects aim to address clusters of industrial emissions, decarbonise hydrogen production and transport of CO_2 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. Carbon capture and utilisation (CCU) includes also the utilisation of the CO_2, enabling Circular Economy principles into practice.

CCS is a mature and commercially available and integral technology to safeguard existing industrial activity, jobs and growth while decarbonising economic activity to meet the EU's climate objectives. The further development of CCS would benefit from cooperation on the European level, as not all Member States will have the same potential for geological CO_2 storage nationally and CO_2 might therefore be captured in one country and transported for storage in another. Enabling transport of CO_2 cross-border will be an essential element for the scale-up of new CCS projects. Most of the EU legislation is focused on the transport of CO_2 by pipeline. However, CO_2 transport by shipping provides additional flexibility and can be more cost effective than pipeline over large distances (as in the case of the Northern Lights project[9], which has PCI status[10]). **Modifications are necessary in the EU legislation, such as the Energy and Environmental State aid Guidelines (EEAG), EU ETS Directive, MRR Regulation, TEN-E Regulation, Gas Directive and the and CCS Directive (when revised) to facilitate this mode of CO_2 transport**.

b) Hydrogen (including low-carbon hydrogen produced from natural with CCS or pyrolysis)

CCS enables the production at scale of low-carbon hydrogen from natural gas, where CO_2 is captured from the gas-to-hydrogen reforming process to provide hydrogen with a significantly lower GHG footprint[11]. Methane pyrolysis is another option for producing low-carbon hydrogen from natural gas, splitting methane into hydrogen with solid carbon as a byproduct[12]. 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 Plan confirms that a decarbonised energy system will require going beyond electrification, and that further deployment of both renewable and low-carbon fuels will be needed in order to meet increased climate ambitions. Slow progress on energy system integration and on the uptake

[3] 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.*

[4] IEA (2020): World Energy Outlook 2020.

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

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

[7] IOGP (2019): The Potential for CCS and CCU in Europe.

[8] See IOGP (October 2020) CCS map.

[9] More information on the Northern Lights project: link

[10] European Commission (2019): 4th Union list of projects of common interest.

[11] SINTEF & IFPEN (2019): Hydrogen for Europe – Pre-study.

[12] Poyry (2019): Hydrogen from natural gas – The key to deep decarbonisation.

of low-carbon technologies such as CCU and CCS will affect the pathway to climate neutrality negatively - especially if combined with a lack of dedicated infrastructure and markets[13]. Furthermore, 25 Member States' National Energy and Climate Plans (NECPs) foresee a role for hydrogen from various sources (including from natural gas with CCU and CCS) in the decarbonisation of their energy system[14]. Different national strategies are contingent upon different economic and geographical conditions (e.g. offshore energy or CCU and CCS potential). Renewable and low-carbon hydrogen from natural gas with CCU and CCS can benefit the sustainable Blue Economy by providing an effective solution for maritime transport, either in the form of liquid hydrogen or ammonia. Renewable and low-carbon hydrogen as well as CCU and CCS can play a key role in decarbonising coastal industrial areas. The EU can in the context of the sustainable Blue Economy agenda act as an enabler of renewable and low-carbon hydrogen production as well as of cooperation between Member States to further develop these technologies.

c) Re-purposing of existing offshore oil and gas infrastructure for CO_2 and hydrogen transport and offshore renewable energy

Europe is well placed to benefit from CCS, CCU, and hydrogen due to its extensive existing gas pipeline infrastructure (onshore and offshore) which may be used to transport CO_2, hydrogen and other renewable and decarbonised gases. Europe also has extensive subsea expertise, and geological CO_2 storage capacity. Countries such as Norway and the UK are willing to enable shared access to their offshore storage facilities for CO_2 from the EU industry.[15]

Oil and gas infrastructure may also be reused to work in synergy with the development of offshore renewables, e.g. by providing offshore bases for maintenance or for transporting renewable and low-carbon hydrogen to shore.

All these developing technologies should be included in the EU's sustainable blue economy agenda, and the future plans for maritime spatial planning, as they are key enablers of the EU Green Deal objectives. Please refer to Annex I for more information about recent publications on the role of CCS, CCU and Hydrogen.

3. Contribution to sustainable shipping sector

To achieve the ambitious GHG reductions objectives in the shipping sector by 2030, and contribute to a sustainable blue economy, all market-ready solutions, product and infrastructure availability and coherence with existing regulatory frameworks have to be taken into account. Any approach to reduce shipping emissions should consider societal costs of GHG abatement along the full value chain (from ship design to port infrastructure and fuel R&D) and the carbon leakage potential.

There are many solutions that can contribute to a more sustainable maritime sector. For example, IOGP members can contribute to the transformation of the maritime sector by providing sustainable alternative fuels such as Liquefied Natural Gas (LNG) and low-carbon hydrogen. LNG is the only market ready, available fuel at reasonable cost that can ensure lower carbon emissions in shipping by 2030. By investing in LNG-fuelled vessels now, ship-owners can realize immediate GHG benefits – up to 21% on a Well-to-Wake basis, and 28% Tank-to-Wake according to the CE Delft Study[16]. Further GHG reductions are possible as these LNG based assets, with little or no modifications, can use non-fossil fuel methane such as liquefied biomethane (LBM) and liquefied synthetic methane (LSM). As LBM and LSM become available at scale, they can contribute to reducing GHG emissions and reaching the ambitions of the EU.

These fuels are beneficial for the environment, as LNG meets IMO targets, as its sulphur emissions (SOx) level is 1,000 times lower than the IMO 0.5% rule[17]. LNG also improves air quality in urban areas and ports, thus having a direct positive impact on human health (LNG's nitrogen oxides (NOx) emissions are up to 95% and particulate matter (PM) up to 99% lower than heavy fuel oil's). Whereas, low-carbon hydrogen produced from natural gas-to-hydrogen conversion with CCS, emits zero CO_2, zero SOx and only negligible amounts of NOx when combusted[18].

Therefore, the policy framework should support a holistic approach to the decarbonization of shipping through the deployment of a wide range of sustainable alternative fuels (LNG/bio-LNG, ammonia, methanol, liquids such as bio- and e-fuels or hybrid options) including Liquefied Natural Gas (LNG), as well as renewable and low-carbon hydrogen.

[13] SWD(2020) 176 final: Impact assessment accompanying the 2030 Climate Target Plan (p.12).
[14] See IOGP (2020) assessment of NECPs: http://www.oilandgaseurope.org/wp-content/uploads/2020/04/NECPs-Factsheet-v2.pdf
[15] See e.g. the Norwegian "Longship" CCS project.
[16] CE Delft study
[17] DNV GL – In focus – LNG as a ship fuel: link
[18] DNV-GL & SEA-LNG "Comparison of alternative marine fuels" study: link

4. Industry and science collaborations

Improving our knowledge and understanding of the ocean is key to enabling a responsible and sustainable Blue Economy ensuring a level playing field for all users of the ocean. Oil and gas companies undertake a variety of ecological assessments aimed at characterizing and monitoring the environments in which they operate; the industry has tremendous experience in operating in challenging marine environments and can share this knowledge.

We believe that there should be more opportunities for exchange of views and information regarding the ocean science among various stakeholders (regulators, industry and civil society). Moreover, the outcomes from these discussions could be better used and reflected in the regulatory framework. The oil and gas industry is already involved in a number of ocean governance initiatives (outlined in Annex II) and research projects with a combined budget of more than €60 million (outlined in Annex III). Some of these collaborations should be used for more informed, and science-based policy making.

We stand ready to share the outcomes of our projects and the gathered data and experience collected by our researchers throughout the decades.

Given the above, we would like to encourage the European Commission to engage in a meaningful dialogue with the industry and science collaborations, and in general create more opportunities between policy makers, industry and researches to exchange views and information.

Final Remarks

Oil and gas industry is an important stakeholder in the blue economy. The sector's long history of responsible operations in the maritime space and its experience, knowledge and skills should be used in building a sustainable blue economy for the future.

To achieve the objectives of EU Green Deal, CCUS will be an integral part of meeting the ambitious GHG targets in 2030 and 2050, along with renewable and low-carbon hydrogen.

IOGP would like to stress the importance of inclusive and transparent dialogue with all relevant stakeholders to build a stable regulatory framework. Industry and science collaboration should play an important role in this process.

We look forward to cooperating with all the relevant stakeholders, sharing our experience, knowledge regarding the ocean research and policy framework, and the outcomes of our many projects (Annex II).

ANNEX I

Publications on CCS/U & Hydrogen

- **IOGP coordinated report "The potential for CCS and CCU in Europe"**: The 31st Madrid Forum invited IOGP to coordinate a report on the potential of Carbon Capture and Storage (CCS) and Carbon Capture and Utilisation (CCU) technologies, including technical, economic and public acceptance considerations, working with all interested stakeholders. A Taskforce composed of interested stakeholders was subsequently established, and this group began regular discussions, including on current regulatory barriers and incentives.
  https://ec.europa.eu/info/sites/info/files/iogp_-_report_-_ccs_ccu.pdf
- **IOGP CCS Map**: An overview of existing and planned Carbon Capture and Storage facilities in Europe
  https://www.oilandgaseurope.org/news/map-of-eu-ccs-projects/
- **The Hydrogen for Europe pre-study**: A pre-study undertaken with the purpose of assessing current knowledge about the potential hydrogen has to decarbonise the European economy. Results from the Hydrogen for Europe pre-study are forthcoming and expected in Q1 2021.
  http://www.oilandgaseurope.org/wp-content/uploads/2020/01/IOGP_Hydrogen-for-Europe-Final-report-of-the-pre-study_reportstudy.pdf
- **New and old CCS projects in Europe**: CCS failed to live up to its potential during the previous investment cycle (2009-2015). This paper outlines what has changed since then in terms of regulatory context and the development of new business models for CCS, making the case for CCS as a key component in reaching the EU's long-term climate objectives:
  https://www.oilandgaseurope.org/wp-content/uploads/2020/04/New-and-old-CCS-projects-in-Europe-paper.pdf
- **Policy matrix: key recommendations on CCS in the current and future EU legislative framework**:
  This document provides an overview of existing EU legislative measures, highlighting for each of them the key changes needed to enable the development of CCS in Europe at larger scale:
  https://www.oilandgaseurope.org/ccs-in-the-current-and-future-eu-legislation-paper/
- **Guidehouse (2020): European Hydrogen Backbone**: study shows how European gas infrastructure consisting of pipelines of different sizes can be converted and complemented to facilitate the long-distance transport of hydrogen, providing an indication of the potential role of this infrastructure in a future climate neutral Europe.
- **Carbon Limits and DNV GL study on the re-purposing of the existing oil and gas infrastructure**: commissioned jointly by IOGP and the European associations for gas transmission, gas infrastructure and refining (GIE, ENTSOG and Concawe) will provide further information on the technical possibility of converting existing offshore oil and gas infrastructure for hydrogen and CO_2 transport. Final study is expected in May 2021.

ANNEX II

Oil&gas engagement in the ocean initiatives

- International Ocean Governance Forum
- 2020 UN Ocean Conference
- UN Decade of Ocean Science for Sustainable Development (2021-2030)
- UN Global Compact: Blue Resilience Brief
- UN Global Compact: Sustainable Ocean Principles
- UN Global Ocean Treaty on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ)
- UN Sustainable Ocean Business Action Platform

ANNEX III

Collaboration of industry and science

Several good examples of industry and science collaborations to collect data and scientific research projects.

- ATLAS project – The ATLAS consortium consists of 12 universities, 5 small and medium-sized enterprises (SMES), 3 government agencies and 4 national research centres and focuses on the trans-Atlantic assessment and deepwater ecosystem based spatial management plan.
- E&P Sound and Marine Life Joint Industry Programme – aims to increase understanding of how the sounds generated by oil and gas exploration and production activity – especially by seismic surveys – can affect marine life.
- Environmental Genomics Joint Industry Programme – set up to coordinate research aimed at exploring the application of eDNA-based analyses in environmental assessments and monitoring of oil and gas offshore and onshore operations.
- iAtlantic project – iAtlantic consists of 33 scientific partners and 11 international associate partners aiming to deliver integrated assessment of Atlantic marine ecosystems in space and time.
- INSITE Programme - conceived in 2012 to produce independent science leading to a greater understanding of the influence of man-made structures on the North Sea ecosystem.
- Offshore Angola and Congo - regional environmental baseline and monitoring surveys, and deep-water observatory – collaboration between industry scientists and academia. Study of deep-sea environments on the Angola-Congo margin and in the abyssal zone.
- SERPENT project – the "Scientific and Environmental ROV Partnership using Existing iNdustrial Technology" (SERPENT) project aims to make cutting-edge industrial Remotely Operated Vehicle (ROV) technology and data more accessible to the world's science community, share knowledge and progress deep-sea research. The programme interacts with science and conservation groups globally to communicate the project to the public, increasing the awareness of the fragile marine resources.