International Association of Oil & Gas Producers

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What's Right? What's Wrong?: IOGP comments on the European Commission's 'EU Strategy for Energy System Integration' & 'A hydrogen strategy for a climate neutral Europe'

Executive summary

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, and will work with the Commission to help create the essential measures to enable affordable and fair energy transition. Many challenges must be overcome to meet this objective, and the energy transition requires significant investments, new technologies, effective policies and behavioural changes.

On 8 July 2020, the Commission presented the Communications *'EU Strategy for Energy System Integration' (ESI Strategy)*[1] and *'A hydrogen strategy for a climate neutral Europe'* (Hydrogen Strategy)[2]. The ESI Strategy sets out a vision on how to accelerate the transition towards a more integrated energy system, while the Hydrogen Strategy elaborates in more detail on opportunities and measures to scale up the uptake of hydrogen in the context of an integrated energy system.

IOGP welcomes the Commission's intention to promote synergies by linking the gas and electricity markets, as we believe gaseous fuels will be an essential part of the most cost-effective solution to deliver the EU's climate objectives. In this context, ESI and Hydrogen Strategies mark an important step towards a more holistic approach to the energy transition, notably through addressing hard-to-decarbonise sectors and recognising the potential of decarbonisation technologies and energy carriers beyond electricity.

However, we regret the bias towards promoting hydrogen from renewable electricity as opposed to a market-based and technology-neutral approach which centres on greenhouse gas (GHG) emission savings and consistently takes into account all renewable and low-carbon hydrogen production technologies (including hydrogen from natural gas with CCUS[3] or pyrolysis). **Furthermore, EU policy makers should ensure consistent and science-based policy making in the next steps stemming from the ESI and Hydrogen Strategies based on thorough, transparent and inclusive impact assessments.**

This paper outlines IOGP's comments on the ESI and Hydrogen Strategies and provides recommendations for the Commission's next steps in order to facilitate:

1) Taking an integrated, inclusive and technology neutral approach to tackling GHG emissions in a cost-effective way
2) Designing market and infrastructure rules for the successful development and deployment of renewable and low-carbon gases
3) Enabling all renewable and low-carbon hydrogen production technologies to compete on a level playing field and facilitating their uptake in the industrial, transport and heating sectors
4) Addressing barriers through establishing a supportive regulatory framework for carbon capture, utilisation and storage (CCUS)
5) Promoting research and innovation to accelerate hydrogen and CCUS deployment
6) Ensuring consistent and science-based policy making through thorough, transparent and inclusive impact assessments

[1] ESI Strategy: https://ec.europa.eu/energy/sites/ener/files/energy_system_integration_strategy_.pdf
[2] Hydrogen Strategy: https://ec.europa.eu/energy/sites/ener/files/hydrogen_strategy.pdf
[3] CCUS covers carbon capture utilisation and storage; includes CCS – carbon capture and storage as well as CCU - carbon capture utilisation

1) Taking an integrated, inclusive and technology neutral approach to tackling emissions in a cost-effective way

IOGP welcomes the Commission's intention to promote synergies by linking the gas and electricity markets, as we believe gaseous fuels will be an essential part to deliver the EU's climate objectives. In this context, ESI and Hydrogen Strategies mark an important step towards a more holistic approach to the energy transition, notably through addressing hard-to-decarbonise sectors and recognising the potential of decarbonisation technologies and energy carriers beyond electricity.

Although the share of electrification across various sectors is expected to increase, certain parts of the EU economy will be difficult, if not impossible, to electrify. The Eurelectric study, 'Decarbonisation Pathways' states that deep decarbonisation of the economy requires 50% electrification or more, up to 60%, by 2050[4]. This means that at least 40% of the economy won't be electrified. Therefore, full electrification must not be an objective in itself, as more cost-effective emission reductions may be achieved by using low-carbon liquids and gases in hard-to-decarbonise sectors. Furthermore, the role of natural gas as a transitional enabler of low-carbon gases should also be recognised in this process.

An inclusive approach to decarbonisation, which combines renewable electricity with other technologies such as low-carbon liquids and gases from various sources is a required step to meet the EU's climate objectives. It can address issues such as the intermittency of renewable electricity and the requirement for low-carbon feedstock and high-temperature heat in industry.

Our recommendations:

- We call for a consistently integrated, inclusive and technology neutral approach to all follow-up measures stemming from the Hydrogen and ESI strategies.

2) Designing market and infrastructure rules for the successful development and deployment of renewable and low-carbon gases

IOGP supports a limited review of EU gas legislation and network codes to determine whether provisions are fit for purpose for renewable and low-carbon gases. As an example, *"transmission"* and *"distribution"* are defined in the current Gas Directive as *"the transport of natural gas"*. This definition appears to be too restrictive, and should be expanded to include renewable and low-carbon gases. However, we stress that any review of the EU gas legislation should not roll back the achievements of the internal gas market, and recommend that amendments are strictly limited to their purpose.

We further support the proposed development of a European terminology and certification system for renewable and low-carbon gases based on life-cycle GHG emission savings achieved through the Renewable Energy Directive (RED) revision. Based on life-cycle GHG emission savings, the certification of hydrogen according to categories (e.g. "renewable", "low-carbon") could be an option for providing clarity to consumers.

We note that the Commission will consider establishing targets such as minimum shares or quotas for hydrogen in specific end-use sectors. Although this could help create a market by driving demand for hydrogen, we believe that the approach should be carefully assessed as it may lead to diversion of renewable electricity to hydrogen production simply to meet the target, without delivering additional GHG savings. **We strongly recommend that all policy options (including targets) are assessed in order to ensure their consistency with other policy measures and that all forms of renewable and low-carbon hydrogen are considered eligible**.

A common energy market avoids splitting the internal gas market into separate, local markets for different low-carbon products, which would damage the success of completing the EU gas market and reverse the gains made by EU citizens in terms of more efficient and cheaper energy supplies.

[4] https://cdn.eurelectric.org/media/3457/decarbonisation-pathways-h-5A25D8D1.pdf.

The EU should leverage existing assets, as using the natural gas infrastructure for renewable and low-carbon gases can save time and costs while reducing the need for dramatically expanding power transmission infrastructure. The parallel development of a dedicated hydrogen infrastructure and the ability to blend hydrogen with natural gas are both important.[5] This provides the opportunity that hydrogen and methane blending can occur at Distribution System Operator level and hence avoid cross-border quality issues of blended gas. 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 which can be managed more easily in distribution grids.

We support the integration of renewable and low-carbon gas infrastructure planning in the TEN-E and TYNDP frameworks, and would draw attention to possible synergies between hydrogen and CO_2 transport infrastructure to achieve low-carbon hydrogen production at large scale while tackling hard-to-abate emissions (e.g. in port areas and industrial clusters). This CO_2 transport infrastructure could later also be leveraged for deployment of negative emission options.

Our recommendations:

Market rules:

- We support the development of **a European terminology for renewable and low-carbon gases** (including hydrogen from natural gas with CCUS) and a subsequent system of certification of such gases based on life-cycle GHG emission savings, enabling all technologies to compete on a level playing field. Based on life-cycle GHG emission savings, the certification of hydrogen according to categories (e.g. "renewable", "low-carbon") could be an option for providing clarity to consumers.
- We propose to **establish a comprehensive terminology in a single legislative instrument that covers both renewable and low-carbon hydrogen**. Amending REDII could cover renewable and low-carbon hydrogen under a single Directive.
- IOGP recommends that renewable and low-carbon gases and natural gas are all traded as energy on a common market and to **trade the GHG emission savings certificates of renewable and low-carbon gases on a separate market.**
- We call for a **limited review of the EU gas legislation** to determine whether provisions are fit for purpose for all renewable and low-carbon gases and stress the importance of maximising the use of market-based instruments and safeguarding the achievements of the internal gas markets.

Infrastructure:

- We stress the importance of parallel development of a dedicated hydrogen infrastructure and the possibility to blend hydrogen with natural gas, and suggest that **a minimum tolerance level for hydrogen should be agreed on in Interconnection Agreements between relevant TSOs**, depending on technical grid limitations, in order to enable cross-border transport.
- We support the integration of hydrogen infrastructure planning in the TEN-E and TYNDP frameworks, and encourage in this context to leverage **the synergies between networks for electricity, gas, CO_2 transport and hydrogen** to support the production of low-carbon hydrogen at large scale and the decarbonisation of hard-to-abate sectors.

For further details, please see:

IOGP input to the ESI Strategy

[5] For example, European Transmission System Operators suggest in their 2020 Hydrogen Backbone Study that a both a dedicated hydrogen and a dedicated methane transmission network will emerge.

3) Enabling all renewable and low-carbon hydrogen production technologies to compete on a level playing field and facilitating their uptake in the industrial, transport and heating sectors

Enabling all renewable and low-carbon hydrogen production technologies: IOGP recommends an EU approach which encompasses all renewable and low-carbon hydrogen production technologies that can deliver significant GHG emission reductions, including hydrogen from renewable electricity, methane pyrolysis and natural gas reforming abated with CCUS or biosequestration. As pointed out in the Hydrogen Strategy, hydrogen from natural gas with CCUS has a significantly lower GHG footprint than hydrogen made from today's EU electricity mix[6]. We also recognise that different technologies might play different roles depending on the timeline, with natural gas reforming with CCUS to lead in the near-term, allowing other emerging technologies to develop and scale up. This can support a timely development of the hydrogen markets and infrastructure necessary to achieve the EU's climate ambitions, and it is in this perspective that 25 Member States' National Energy and Climate Plans (NECPs) foresee a role for hydrogen from various sources in the decarbonisation of their energy system[7]. **However, what matters as well is the ability to cost-effectively reduce GHG emissions at scale and contribute to reaching the EU's climate neutrality objective**. We welcome in particular the establishment of a European Clean Hydrogen Alliance which is open to participation of all relevant stakeholders, and believe its focus should be equally open to all renewable and low-carbon hydrogen production technologies.

Policy support for renewable and low-carbon hydrogen in the context of the recovery plan and the MFF will be crucial for further development and deployment, and we therefore call for a consistently technology neutral approach across all relevant EU funding mechanisms. The implementing rules of the EU Taxonomy Regulation will also be important to incentivise private investments, and should accommodate both: transitional activities based on natural gas as well as renewable and low-carbon hydrogen.

We further support the Commission's intention to address oil and gas-related methane emissions in the forthcoming EU Methane Strategy, which would positively impact on the future GHG footprint of hydrogen from natural gas with CCUS. The oil and gas industry will continue to take actions to further reduce its methane emissions.

Facilitating hydrogen uptake: IOGP agrees with the ESI and Hydrogen Strategies in recognising the potential of hydrogen to contribute to emission reductions across sectors of the European economy, in particular in hard-to-decarbonise sectors (such as heavy-duty transport and energy-intensive industries) which cannot be easily electrified and/or require low-carbon feedstocks or high-temperature heat. A sustained technology-neutral approach will be required to secure sufficient investment from investors. The EU Hydrogen Strategy states the intention to support hydrogen applications in the industrial sector and through the forthcoming Sustainable and Smart Mobility Strategy. In this context, we would draw attention to the potential for hydrogen in maritime transport and in the heating sector, as well as the need for developing standardised designs and fuelling procedures where these are lacking and taking into careful consideration any remaining safety design issues with regards to the use of hydrogen as a fuel.

6 See Hydrogen Strategy footnotes 19 (GHG emission for the EU electricity mix result in 14 $kgCO_2eq/kgH2$) and 23 (GHG emission for steam reforming result in 1-4 $kgCO_2eq/kgH2$).
7 See IOGP (2020) assessment of NECPs: http://www.oilandgaseurope.org/wp-content/uploads/2020/04/NECPs-Factsheet-v2.pdf

Our recommendations:

Enabling all hydrogen production technologies:

- We welcome the launch of the **European Clean Hydrogen Alliance** and believe its focus should **include all hydrogen production technologies**, including hydrogen from natural gas with CCUS.
- **We believe that transitional policy support can accelerate deployment of renewable and low-carbon hydrogen alongside natural gas as transition fuel in the context of the recovery plan and the MFF instruments** (such as the Recovery and Resilience Facility, cohesion funding, Horizon Europe, Connecting Europe Facility, InvestEU, EU Innovation Fund and the Just Transition Mechanism and the Just Transition Fund).
- We draw attention to **the forthcoming delegated acts on climate change mitigation and adaptation stemming from the EU Taxonomy Regulation** and call for **including transitional activities based on natural gas** alongside the classification of the manufacturing, transportation and storage of all renewable and low-carbon hydrogen as environmentally sustainable activities ("green activities"), as well as applying a consistent threshold which allows low-carbon hydrogen from natural gas with CCUS to qualify in addition to renewable hydrogen.

Facilitating hydrogen uptake:

- Given the Commission's intention to support industrial applications of hydrogen and in the absence of a sufficient carbon price we call on the Commission to provide technology-neutral policy support, such as **the establishment of a Carbon Contract for Difference mechanism** for renewable and low-carbon hydrogen in key industrial sectors.
- We note the Commission's proposal to incentivise the use of renewable and low-carbon hydrogen, to complement the role of natural gas, in the transport sector through the forthcoming Sustainable and Smart Mobility Strategy, and further stress **the potential of renewable and low-carbon hydrogen or fuels derived from renewable and low-carbon hydrogen (such as ammonia or methanol) to reduce emissions from maritime transport** which should be reflected in the forthcoming FuelEU Maritime initiative.
- We support the Commission's intention to develop hydrogen refuelling infrastructure in the review of the Alternative Fuels Infrastructure Directive, and highlight in this context the **need to address the lack of standardised design and fuelling procedures for hydrogen-powered bunkering and refuelling infrastructure** as well as for taking into consideration remaining safety design issues with regards to the use of this fuel.

For further details, please see:

IOGP input to the EU hydrogen strategy

IOGP input to the inception impact assessment on the FuelEU Maritime initiative

IOGP feedback to the roadmap for a Renovation Wave initiative for public and private buildings

IOGP policy recommendations in the context of the EU Methane Strategy: Methane Management in the Upstream Oil and Gas Industry

4) Addressing barriers through establishing a supportive regulatory framework for carbon capture, utilisation and storage (CCUS)

The ESI and Hydrogen Strategies stress the importance of CCUS, as do several modelling scenarios by the IPCC[8], the IEA[9], the Commission in its "Clean Planet for all" Communication[10] and Impact Assessment "Stepping up Europe's 2030 climate ambition"[11]. IOGP agrees that CCUS is an essential tool to address emissions in hard-to-abate sectors while maintaining competitive industries and their associated high quality jobs in Europe, which becomes particularly important in the context of the crisis brought on by the COVID-19 pandemic. Further, CCUS provides the opportunity to pursue negative emissions options. However, current EU policy provides insufficient incentive for deployment of CCUS at scale, particularly in relation to the longer term operating costs of a CCUS project. This represents a significant barrier to large scale development of CCUS in Europe. In this context, we would furthermore draw attention to the importance of a fit for purpose State aid framework which enables both CCUS and all renewable and low-carbon hydrogen.

The ESI and Hydrogen Strategies point out that barriers to CCUS development in Europe still exist, and in this context we would draw attention to the importance of recognising the transport of CO_2 by other modes than pipeline and the capture and storage of biogenic CO_2 in the forthcoming review of the EU ETS Directive, Monitoring and Reporting Regulation and TEN-E Regulation.

Our recommendations:

- We encourage policymakers to **consider additional policy incentives to support carbon reduction technologies such as CCUS**, e.g. by an EU-wide Carbon Contract for Difference (CCfD) scheme designed in a technology neutral manner.
- We support the development of a regulatory framework for the **certification of carbon removals**, and stress the importance of compatibility with the EU ETS for installations capturing biogenic emissions
- We note the Commission's awareness of existing regulatory barriers and other issues that challenge the transport of CO_2 to those places where it will be stored or used, and **encourage the recognition of other modes of CO_2 transport than pipeline** (such as by ship) under the EU ETS Directive, Monitoring and Reporting Regulation and TEN-E Regulation.
- We stress the importance of enabling renewable and low-carbon hydrogen through appropriate State aid rules and of **including CCUS and all renewable and low-carbon hydrogen in the scope of the revised State aid guidelines** for energy and environmental protection (EEAG) as well as in the IPCEI framework.

For further details, please see:

IOGP policy matrix: Key recommendations on CCS in the current and future EU legislative framework

IOGP initial views on the TEN-E Guidelines

IOGP paper: New and old CCS projects in Europe

IOGP-coordinated report: "The potential for CCS and CCU in Europe"

[8] 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*
[9] IEA (2019): World Energy Outlook
[10] European Commission (2018). *COM(2018) 773 final. A Clean Planet for all – A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy*
[11] European Commission (2020). https://ec.europa.eu/clima/sites/clima/files/eu-climate-action/docs/impact_en.pdf , https://ec.europa.eu/clima/sites/clima/files/eu-climate-action/docs/impact_part2_en.pdf

5) Promoting research and innovation to accelerate hydrogen and CCUS deployment

EU cooperation on R&I will be central to enable the development and deployment of renewable and low-carbon hydrogen, CCUS and other low-carbon technologies allowing the European economy to remain competitive. Commercial scale projects are necessary to help raise public awareness and acceptance of the technologies. We commend the Commission's intentions to support hydrogen R&I through EU programmes such as Horizon Europe and Partnerships as well as coordination through the SET-Plan, and **we advocate for a consistently technology neutral approach to hydrogen production technologies under such programmes**. We would furthermore draw attention to opportunities for exploiting synergies between EU R&I programmes aimed at accelerating CCUS and hydrogen developments respectively, and enabling all relevant market actors to participate in R&I activities. In order to ensure that R&I results in deployment, the whole CCUS value chain should be consistently supported through EU programmes for R&I as well as through programmes for large-scale demonstration (e.g. the Innovation Fund) and infrastructure roll-out (e.g. the Connecting Europe Facility).

In this context, we welcome the Commission's consideration of an annual European CCUS Forum and strongly encourage the establishment of such a forum at the latest in 2021 as we believe it could become an important tool to foster CCUS projects in Europe alongside the Innovation Fund. IOGP would be ready to contribute to it with the expertise and experience of the oil and gas industry.

Our recommendations:

- We strongly encourage the Commission to establish **an annual European CCUS Forum at the latest in 2021**.
- We welcome the launch of the first call of the Innovation Fund and are ready to continue collaborating with EU policy makers to **ensure that the Innovation Fund is fit for purpose** to also support the demonstration and scale-up of the whole CCUS value chain, taking into consideration new developments in CCUS business models.
- We welcome **an expanded European Partnership for Clean Hydrogen** building on the success of the existing FCH 2 JU and call for the inclusion of all end-use sectors, all renewable and low-carbon hydrogen production technologies and innovation in business models, processes and market creation in its scope, as well as the involvement of a wide range of stakeholders.
- If the Commission intends to introduce **hydrogen-related calls under Horizon Europe then it should be designed in such a way that both renewable and low-carbon hydrogen projects can compete** to deliver innovative emission reduction solutions.
- We note the Commission's proposal to **steer the development of key pilot projects that support hydrogen value chains in coordination with the SET-Plan**, and encourage the Commission to leverage synergies which can be achieved with the SET-Plan TWG9 on CCS and CCU.
- We call on EU policy makers' to guarantee that **TSOs and DSOs are enabled to undertake a reasonable level of R&I activities and pilot projects** (e.g. focusing on CO_2 transport and/or hydrogen injection in the gas system) as part of their regulated activities, without compromising general unbundling principles.

For further details, please see:

IOGP input to the Hydrogen Strategy (p.6)

IOGP feedback to the Inception Impact Assessment on a European Partnership for Clean Hydrogen

6) Ensuring consistent and science-based policy making through thorough, transparent and inclusive impact assessments

Regular impact assessments are needed to take into account new developments and ensure that all objectives, such as the wellbeing of citizens, the prosperity of society, the competitiveness of the economy, energy efficiency and security, health, protection of vulnerable consumers, different starting points, affordability, fairness and solidarity across society and regions and a science-based approach are being progressed through the transition. For example, the COVID-19 pandemic has unleashed an unprecedented socioeconomic crisis which affects all citizens and economic activities which must be addressed in such impact assessments. Uncertainties related to R&D, technology, international climate policy and other macroeconomic and geopolitical developments between now and 2050 will require the EU to carry out, in line with Better Regulation guidelines, thorough, transparent and inclusive impact assessments.

Currently, the EU Hydrogen Strategy raises questions when read in conjunction with other strategies or publications of the Commission:

- The EU Hydrogen Strategy and the ESI Strategy leave uncertainty on the ambition levels of long-term capacity from renewable electrolysers. The Hydrogen Strategy includes an ambition of 500 GW of renewable electrolysers, which would require more than 800 GW[12] of offshore wind. The ESI Strategy estimates *"the potential of offshore wind in the EU-28 between 300-450 GW by 2050"*.[13]
- The Hydrogen Strategy outlines *"a strategic objective to install at least 40 GW of renewable hydrogen electrolysers by 2030 and the production of up to 10 Mt of renewable hydrogen in the EU"*. This seems to assume a 100% load-factor and an energy efficiency of 95%, while 3rd party sources suggest that renewables load-hours can be up to 50% and efficiencies of electrolysers are currently around 70%. In this context, it must be avoided that hydrogen is certified as renewable while electrolysers in reality achieve full load through supplies from grid electricity, which would lead to higher GHG emissions from electrolysis than from grey hydrogen.

We, therefore, suggest that follow-up initiatives stemming from the ESI and Hydrogen Strategies should be impact assessed, taking into consideration science, the current state of technology, the geography and resources of the EU, in order to define deliverable targets supported by effective policies

Our recommendations:

- We call on EU policy makers to **carry out, in line with Better Regulation guidelines, thorough, transparent, inclusive and science-based impact assessments** of initiatives stemming from the ESI and Hydrogen Strategies.

[12] Assuming best in class load factor of 60% for all offshore wind mills
[13] ESI Strategy, p. 7

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