



EIH2 welcomes the opportunity to respond to the Department of the Environment, Climate and Communications on its Offshore Wind – Phase Two Consultation.

EIH2 is Ireland's first green hydrogen company. We are taking leadership in the country's climate change battle by planning to build Ireland's first green hydrogen facility, which will be one of the biggest in the world.

Through state-of-the-art technology we will offer a cost-efficient solution to the climate crisis whilst removing thousands of tonnes of carbon emissions annually from the Irish industry and power generation.

EIH2 will become a key enabler of Ireland's transition to a clean, independent energy future and as a member of Hydrogen Ireland and chair of its working group on Policy and Advocacy, EIH2 supports Hydrogen Ireland's responses and stresses the content of the following responses:

Responses

Considering the potential to support longer-term renewable energy ambition through the production, distribution and usage of green hydrogen, our following responses focus on questions 10 and 11 as opportunities to incorporate green hydrogen as an enabler of an efficient Irish energy system.

Response to Question 10.

Hybrid Grid Connections

Do you support the facilitation of such connections, as defined? Why?

EIH2 supports the facilitation of hybrid connections. However, we stress that hybrid grid connections should not be limited to just a combination of providing electricity to grid from ORE and thermal generation. EIH2 encourages to take the opportunity for the implementation of strategic energy hubs that could enable energy system integration. These could include energy storage and electrolysis for hydrogen production for example. This move to a new type of combining energy production storage and transport would enable Ireland's energy transition.



At a national level, a practical example of hybrid grid connection in Ireland could potentially play a role as follows:

An electrolyser could act as a captive offtake for offshore wind, producing green hydrogen for use in heat, power and transport. The offshore wind farm / electrolyser configuration could also be connected to the national electricity grid, due to the fast ramp up / ramp down rate of electrolysers offshore wind electricity could be diverted from the electrolyser to the grid during times of high demand. Through the electrolyser providing grid services and the green hydrogen being used for power generation on low wind days, this hybrid connection could increase the amount of renewable electricity on system, whilst simultaneously increasing the amount of renewable heat and transport on the system.

Response to Question 11

Innovation Technologies

11. Should any special allowances for innovation technologies be included in the Phase Two process?

a. What technologies should be provided with special allowances and why?

EIH2 supports the opportunity that floating offshore wind represents to help achieve Net Zero by 2050. Therefore, this technology should be embraced as soon as possible and not left to beyond 2030.

Additionally, the decarbonisation of the whole energy system requires an increasing level of integration between its various components, multiple energy carriers (e.g. electricity, gas, heat), infrastructures and consumers (industry, buildings, transport).

In this framework, EIH2 stresses the importance of green hydrogen and hydrogen technologies as enablers of such energy system integration, contributing to improving the overall efficiency of the system and cost reductions in the energy sector and across the economy.

Nevertheless, innovation should not be limited to technologies. There are innovative approaches to building Ireland's supply chain so that the economy can be enhanced throughout the entire lifecycle of projects. Should developers identify a way of enabling same, they should be prioritised.

b. What allowances should be made? At what stage(s) of the Phase Two process? Should capacity be reserved in the MAC and ORESS processes for any of these technologies?

In order to maximise the amount of Ireland's offshore wind that can be capitalised on, Phase Two could include separate allocations for electricity that will supply Eirgrid and for electricity to be used for electrolysis to convert electricity to green hydrogen for use in Ireland as well as export.

Similarly, when it comes to allowances for innovation, projects to supply electrolysis should be given special consideration. Considering the fast paced progress made on renewable electricity in Ireland, we must **simultaneously** take action on enabling the decarbonisation of sectors that can't be fully electrified.

Furthermore, projects should be incentivised if they are utilising offshore wind without connecting to the grid, as it maximises use of the resource. This could be motivated by enabling private ownership of the electrical infrastructure. For example, an alternative route to market for offshore wind through the production of green hydrogen is proposed. Whereby green hydrogen developers are allowed to construct, own, and operate offshore transmission infrastructure. This will help to achieve the 5GW offshore wind target, as well as reducing pressure on the national electricity grid and on Eirgrid to deliver the expansion of the transmission network and therefore, it will be in line with the "EU Energy and Competition Policy" as the primary objective is not electricity production.

c. Should these types of projects also be required to deliver by 2030?

Considering that the European Green Deal identifies green hydrogen as key to a clean and circular economy and that the European Union (EU) hydrogen strategy includes phases to promote a fast and targeted development of production capacities for green hydrogen as follows:

- By 2024, the production of green hydrogen should increase to one million tons per year;
- By 2030, the production of green hydrogen should increase to ten million tons per year;
- From the period between 2030 and 2050, green hydrogen is to be produced on a systemically relevant scale.

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Hydrogen Ireland considers that green hydrogen project should certainly be required to deliver by 2030.

This request is supported considering Ireland's +75GW of offshore wind resource and its consequent capacity to produce a significant quantity of green hydrogen, which could be used domestically and internationally. However, Ireland needs to act fast in order to ensure that this opportunity is seized.

Therefore, successful implementation requires a sufficient degree of initiative at the national level and taking into account Ireland's high potential due to its natural resources and privileged location, special allowances for green hydrogen into Phase Two are required.

d. What level of offshore wind capacity could be deployed before and after 2030 that does not depend on the Irish grid for offtake? i.e. generation that is instead utilised for non-grid offtakes such as green fuel generation or export by cable to another jurisdiction?

EIH2 supports prospective scenarios included in Hydrogen Ireland's submission.

These scenarios have demonstrated that by 2030 we would have 49 TWh and when to this figure we subtract the 41 TWh that Ireland will demand (according to Eirgrid's Tomorrow Energy Scenario)¹, then we would obtain 8 TWh that would be left for exporting and/or to be used for green hydrogen production.

Similar calculation but at a bigger scale is shown in a 2050 scenario where we would have 474 TWh and when to this figure we subtract the 75 TWh that Ireland will demand (according to the MaREI's report Our Climate Neutral Future Zero by 50²), we would obtain 399 TWh. These 399 TWh would be left for exporting and/or to be used for green hydrogen production.

If there are any questions, you can contact the EIH2 team by email to info@eih2.ie

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¹ <http://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid-TES-2019-Report.pdf>

² <https://www.marei.ie/wp-content/uploads/2021/03/Our-Climate-Neutral-Future-Zero-by-50-Skillnet-Report-March-2021-Final-2.pdf>

