

Hydrogen Mobility Ireland

Response to the Department of the Environment,
Climate and Communications' Consultation on
the Review of the Security of Energy Supply of
Ireland's Electricity and Natural Gas Systems

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Notice

The opinions expressed in this publication do not purport to reflect the opinions or views of individual member companies.

Introduction

This response leverages recent work that that Hydrogen Mobility Ireland (HMI) has published, being 1) a White Paper on policy considerations¹ and 2) a report on the benefits of hydrogen for mobility². We refer to these reports collectively as the ‘HMI White Paper’.

The consultation focusses on ‘the Security of Energy Supply of Ireland’s Electricity and Natural Gas Systems’, and it is noted that the accompanying technical review recommends demand side responses. Hydrogen for mobility can enhance security of supply by 1) diversifying energy sources, which would ease demand on the systems, and the burden on oil imports, and 2) providing physical energy storage across a refuelling network.

About HMI

Hydrogen Mobility Ireland is a group of stakeholders, working to develop the deployment of hydrogen across transport, to reduce carbon emissions while keeping transport practical and affordable.

Hydrogen Mobility Ireland includes industry members from across the transport and energy industries; and its members have been informed by input from a range of policy stakeholders across Ireland.

<https://h2mi.ie/>

¹ ‘Policy to Enable Green Hydrogen’, Hydrogen Mobility Ireland, August 2022 (<https://h2mi.ie/publications/>)

² ‘The Benefits of Hydrogen for Mobility in Ireland’, Hydrogen Mobility Ireland, August 2022

Security of supply from diversity of transport options

We have previously stated how battery electric vehicles have begun to decarbonise transport and how they will continue to do so. But we have also shown that to fully decarbonise the sector, hydrogen is a vital tool, particularly for commercial transport, see the HMI White Paper.

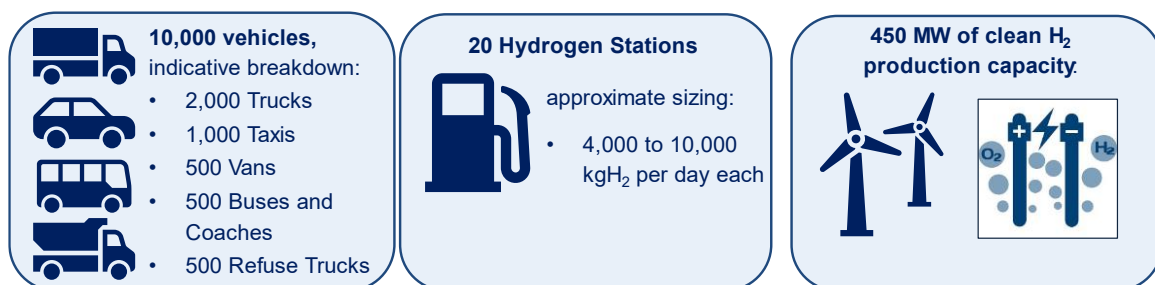
To date, the State has shown little commitment to the use of hydrogen in transport and fuel cell electric vehicles; it is a risk-averse approach in contrast to the wider EU and many member-states where multiple demonstrations have either been launched or completed. Focussing on and only developing one technology option is a risky strategy that does not enhance security of supply in our view, particularly when there are transport applications where hydrogen is so well suited.

We encourage Government to engage with industry, to promote demonstrator projects that will generate confidence among commercial users. The consultation focusses on the period up to 2030. Our work, see the section below, shows that hydrogen in transport can contribute significantly to physical energy storage if we meet REPowerEU targets³ for hydrogen-derived fuels. To get there by 2030, we need actions to happen as soon as possible.

Energy storage within a hydrogen refuelling network

When the hydrogen molecule is formed it is a viable form of storable renewable energy. We have produced a roadmap (including hydrogen production, hydrogen refuelling stations, and hydrogen fuel cell vehicles) that details how Ireland can meet proposed REPowerEU targets. This roadmap is summarised in the box below and taken from the HMI White Paper, with slight modification to allow for revised REPowerEU targets.

Hydrogen Mobility Ireland proposed roadmap to meet 5% REPowerEU targets by 2030



For a viable refuelling network that provides confidence to commercial users, it is necessary to provide for a certain amount of hydrogen storage at each station (noting that the stations could be a mixture of ones where hydrogen is produced on-site and ones where hydrogen is produced off-site and then transported to the station). Through conversations with industry experts, **the amount of storage required could range from 2.5–9x daily dispensed volumes**. At the upper end, 9x could be considered a lot, but it would enable economies of scale in supply chains, while standing back 9 days of storage is small relative Ireland’s obligations under EU legislation to maintain a minimum of 90 days stocks of oil⁴ and the collective gas storage capacity across EU nations of 107 days average annual usage⁵.

³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD%3A2022%3A230%3AFIN&qid=1653033922121>

⁴ <https://www.nora.ie/>

⁵ <https://viborc.com/europe-gas-storage-reserves-capacities-by-country-daily/>

We estimate that on average the 20 stations will dispense 7,000 kg of hydrogen per day, which equates to a range of required storage of between 350,000-1,300,000 kg of hydrogen. Using the lower heating value of hydrogen, 33.33kwh/kg **this equates to a range of energy stored of 12-42GWh**—a considerable amount of storage that would enhance security of supply.

Other considerations

Policy

In the HMI White Paper, we set out clear policy actions that can enable the roll-out hydrogen in road transport to achieve the targets and benefits that we described above.

Aviation and Maritime

The consultation document states that Ireland imports 100% of the oil that it uses. The use of green hydrogen derived synthetic fuels represents an opportunity reduce that dependency.

The current position of ReFuelEU Aviation⁶ (based on revisions proposed by Council and European Parliament) is for green synthetic fuels (e-fuels) to account for 2% of aviation fuel (on a volume basis). Under FuelEU Maritime⁷, Members of the European Parliament recently opted for a target of 2% renewable fuels of non-biological origin by 2030. In summary the targets for both aviation and maritime will be for 2% of fuel use in 2030 to come from hydrogen derived fuels.

Combined, these targets are small in the context of the overall energy use in Ireland but meeting them will diversify Ireland's energy sources and the option exists to replace imported fuel with indigenous fuel.

Clear direction from Government will help achieve meet this target by 2030, but as with road transport, the sooner those signals arrive the better.

⁶ European Commission (2021) Proposal for a Regulation of the European Parliament and of the Council on ensuring a level playing field for sustainable air transport. Available at: https://ec.europa.eu/info/sites/default/files/refueeu_aviation_-_sustainable_aviation_fuels.pdf

⁷ <https://hydrogeneurope.eu/another-big-day-for-european-hydrogen/>