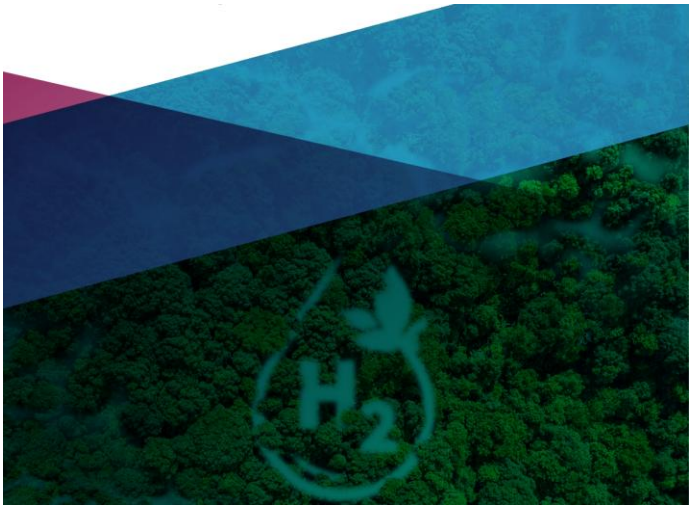
Hydrogen Strategy Update: Ireland

July 31, 2023

On July 12, 2023, Ireland published its first-ever National Hydrogen Strategy. With minimal production or end-uses today, Ireland has a unique opportunity to rapidly scale its nascent hydrogen industry. In order to meet its ambitious goals of a climate-neutral economy, Ireland plans to produce at least 37 gigawatts (GW) of offshore renewable energy by 2050, with 2 GW going towards the production of hydrogen by 2035. In this blog post, we will dive deeper into the key elements of the National Hydrogen Strategy. Sláinte!



Three main drivers identified in the Strategy include decarbonizing the economy, strengthening energy security, and creating industrial and export market opportunities. Hydrogen can help to reduce carbon emissions from some of the hardest-to-abate industrial sectors, in turn playing a significant role in meeting the country's net-zero emissions goals by 2050. Next, because Ireland's energy system is currently comprised of almost 80% fossil fuel imports, the government views the establishment of a domestic hydrogen supply as an important step towards energy independence, especially given that Europe is reducing its reliance on Russian natural gas after the invasion of Ukraine. A strong export market for hydrogen could help to bolster the domestic market by reducing production costs as well as strengthening the business case for large-scale infrastructure to be developed.

To jumpstart production, the Strategy mentions that hydrogen will be produced from grid-connected electrolysis of surplus renewables prior to 2030. This will allow for increased grid flexibility with decreased risks of curtailment by running electrolyzers during periods of low demand. The initial period of hydrogen deployment will concentrate on hard-to-abate

end-use applications where energy efficiency and direct electrification measures are not feasible or cost-effective.

Renewable hydrogen will play an important role in the Irish electricity sector by helping to decarbonize power generation while increasing storage capacity. Turning to data centers and the need for on-site generation and/or battery storage to support large demand needs, renewable hydrogen combined with direct renewable sources could serve as a short-term solution for decarbonization. High-temperature heat processing for industrial use is another area where hydrogen has been identified for rapid scaling, as it currently accounts for 25% of the country's industrial energy demand. Finally, the Strategy discussed how renewable hydrogen could be applied to heavy-duty transportation sectors where battery-electric technology is not feasible, including freight, buses, and rail. The aviation and maritime sectors, while viewed on a more long-term timeline, were identified as offering the greatest opportunities for large-scale use of hydrogen.

Although compressed tankers are mentioned as the most likely transportation and storage method due to the popularity of the existing business model, hydrogen pipelines are expected to be the most cost-effective in the long term. However, due to the fact that there is no existing regulatory or safety framework in place for transporting hydrogen via pipelines, a statutory body will need to be appointed in order to facilitate this process. This infrastructure is expected to roll out initially in several "hydrogen clusters" where high-priority demand uses and large-scale storage takes place are co-located. Regions such as Cork, Shannon, and Dublin are well-positioned to become clusters, although gaps in regulations, licensing, and permitting are needed to ensure safety is upheld throughout the hydrogen value chain. Finally, coordination with institutions of higher education is needed to support robust research and development activities.

The National Hydrogen Strategy is an important milestone in the development of a strong hydrogen economy in Ireland. However, there is much more work to be done to ensure the industry is supported across the entire value chain. FCHEA looks forward to working with our industry counterparts across the pond to ensure hydrogen is a key part of the country's overall energy landscape.