Department of the Environment, Climate & Communications (DECC)

Call for Expert Evidence – Climate Action Plan 2023

Source Galileo Submission

Introduction to Source Galileo & Background to Submission

Source Galileo[1] was founded to accelerate the roll-out of large-scale renewable energy projects as part of the energy transition to a sustainable future. The team behind Source Galileo has led over 15GW of wind and solar photovoltaic (PV) projects globally including 5GW of offshore wind projects in UK and Irish waters.

Source Galileo is partnered with Galileo Green Energy, a pan-European, multi-technology, renewable energy developer, owner and operator launched in 2020 by HRL Morrison & Co, the international investment manager.

Currently, Source Galileo is developing a number of offshore projects in Irish waters with a view to seeking Maritime Area Consents (MACs) once the Maritime Area Regulatory Authority (MARA) is established in early 2023. The development of such projects is in clear alignment with the State's ambitious decarbonisation policy agenda as underlined in the existing Climate Action Plan 2021 ('CAP 2021') and the Climate Action and Low Carbon Development (Amendment) Act 2021.

From a policy perspective, the development of such projects has the potential to make a significant contribution to the overarching Government objective of achieving a 51% reduction in Ireland's greenhouse gas emissions (GHG's) by the end of this decade and to the 80% target of Irish electricity

[1] web address: www.sourceenergie.com

consumption originating from renewable sources by 2030 provided the enabling framework is in place and operating in an expeditious manner.

Moreover, the proposed projects are also compatible with the State's and the EU's longer-term post 2030 energy and climate objectives including the objective of reaching net zero no later than 2050 as now enshrined in law and can similarly play a clear role in contributing to the State's goal of generating at least 5GW of offshore wind energy by 2030 as underlined in the Programme for Government (PFG). This overarching target is due to be updated to 7GW and 2GW of green hydrogen in light of the recently agreed sectoral emission ceilings.

Source Galileo fully supports such policy initiatives and the delivery of much greater volumes of clean renewable energy given the now unprecedented challenges arising from the ongoing war in Ukraine and associated global energy market disruption. This much changed geopolitical landscape serves to underscore the need for Ireland to urgently transition away from fossil fuels in order to secure the State's long-term competitiveness by an effective transition to net zero.

Source Galileo also supports and welcomes the policy and legislative proposals contained in the REPowerEU Plan and which seek to build on the implementation of the European Green Deal, the Fit for 55 proposals (seeking to reduce emissions by at least 55% by 2030), the proposed revisions to the react Renewable Energy Directive ('RED II') to increase the renewable energy target to 45% by 2030 and to accelerate the deployment of renewables through faster permitting processes and creation of 'go to' areas for the same.

Source Galileo also recognises that there is significant potential to produce green hydrogen from renewable electricity sources given Ireland's vast offshore wind energy potential and which is being actively considered in light of the recent public consultation on developing a dedicated Hydrogen Strategy for Ireland.

In this regard, Source Galileo is in the process of developing Project Dylan in the Celtic Sea Area of Interest (Wales Offshore Region) in collaboration with Environmental Resources Management (ERM). The ERM Dolphyn Process ('Deepwater Offshore Local Production of Hydrogen') will be deployed and involves a 300 MW floating offshore wind turbine concept for the production of green hydrogen and comprises a floating foundation, wind turbine and hydrogen production facility.

Given the clear alignment of such development proposals with the European Union and State's ambitious climate change and decarbonisation policy frameworks, Source Galileo very much welcomes the opportunity to respond to this important public consultation aimed at updating the

existing Climate Action Plan 2021 as legally mandated by the Climate Action and Low Carbon Development (Amendment) Act 2021.

Notwithstanding the ambition and aims of the existing Plan, it is now clear that the same does not provide a workable framework necessary to deliver a secure decarbonised electricity system and one that can contribute in a meaningful manner to the achievement of the State's renewable energy and decarbonisation targets within the window to 2030 and ultimately to the achievement of climate neutrality no later than 2050 and indeed to the State's international commitments pursuant to the Paris Agreement.

As such, it is imperative that the updated Plan for 2023 fully takes account of the scale of the present challenges which can only be described as unprecedented in nature, lays down an enabling and pioneering framework for the delivery of greater levels of offshore wind, electricity storage, green hydrogen, and interconnection. The same must also place a strong focus on implementation and be accompanied by specific timelines in order to deliver long-term security of affordable energy supply and to enable Ireland to become a leader in responding to the challenge of climate change through the deployment of renewable energy infrastructure at scale.

In light of the foregoing and rather than addressing all the questions in the Consultation, Source Galileo has chosen to focus on the consultation questions that we are best placed to answer as detailed below. Also, Source Galileo as a member organisation, endorses and fully supports the Wind Energy Ireland (WEI) consultation response.

Consultation Questions

Electricity Questions

What options are available to increase the penetration of renewable electricity beyond the up to 80% committed to in the Climate Acton Plan?

In order to increase the penetration of renewables, all policy measures currently in place must be actioned and delivered upon immediately to facilitate the delivery of onshore and offshore wind, solar etc. It is clear that the State's RES target cannot be achieved without significant levels of offshore wind. To this end, the delivery of greater levels of offshore wind beyond the 7GW by 2030 target currently provided for is urgently needed with the identification of further optimal regions

such as the Southern coast required. It is also clear that non-grid solutions, flexibility and stability services must be delivered to support this ambition.

In addition, and in order to deliver the required renewable generation infrastructure including offshore wind in time to contribute to the State's 2030 targets as set out in the Climate Action Plan, all elements of the planning, consenting, and grid connection processes and transmission capacity solutions, and the offshore Renewable Electricity Support Scheme (ORESS) must be advanced in parallel and in a timely manner (see question below regarding the EU REPowerEU Plan and planning reform in this regard).

Finally, the facilitation of hybrid connections as provided for in the existing Climate Action Plan would enable complementary technologies such as offshore wind, battery storage, interconnectors etc to make efficient use of available grid capacity whilst enhancing security of supply. Such connections could also deliver beyond the current offshore ambition and therefore, should be recognised in the updated Climate Action Plan initiatives (Action 125) to address existing regulatory barriers to such connections being delivered upon as soon as possible.

What can be done to accelerate / facilitate the delivery / of offshore wind and solar pv in particular in the context of the Climate Action Plan and the Repower EU ambition?

Since the publication of the Climate Action Plan in 2021, there now exists a much-changed policy and geopolitical landscape in light of the ongoing war in Ukraine and enduring security of supply concerns. The European Union is now seeking to rapidly reduce the EU's dependence on Russian fossil fuels and address the associated global energy market disruption via a suite of legislative and policy proposals as underlined in the REPower Plan.

This Plan seeks to build on the implementation of the European Green Deal, the Fit for 55 proposals (seeking to reduce emissions by at least 55% by 2030), the proposed revisions to the Renewable Energy Directive ('RED') to increase the renewable energy target to 45% by 2030 and to accelerate the deployment of renewables including offshore wind.

These proposals include the recognition of renewable energy as an overriding public interest, the creation of dedicated 'go-to' areas for renewables, namely a specific location, whether on land or sea, which has been designated by a Member State as particularly suitable for the installation of plants for the production of energy from renewable sources and shortened and simplified permitting processes in areas with lower environmental risks.

Given the unparalleled challenges that Ireland and the EU are facing, these proposals should be implemented without delay in order to vastly accelerate the deployment of renewables including offshore wind in the near term.

Without major interventions such as those laid down in the REPowerEU Plan, it is clear that the binding carbon budgets, and sectoral emissions ceilings will not be achieved nor will the State's requirement to increase the proportion of renewable electricity to up to 80% by 2030 and a 51% reduction in GHG emissions by 2030.

More generally, recommendations included below in relation to planning system reform should also be implemented in an expedient manner with the new Maritime Area Regulatory Authority (MARA) established as soon as possible and provided with sufficient resources to progress Phase 2 and enduring applications in a timely manner.

Finally, and to assist with a more rapid acceleration of Ireland's significant wind resource capable of supporting investment, jobs and innovation and aiding the development of 'blue' sustainable economies across the island of Ireland as underlined in the statutory National Marine Planning Framework (NMPF), the creation of a dedicated Offshore Wind Industry Strategy should be considered. This in addition to a joint industry, community, and governmental body forum to be overseen by the Department of Enterprise and Enterprise Ireland would be of the utmost benefit in kick starting and building momentum for the nascent offshore wind industry.

Such a strategy if combined with the convening of regional citizen assembly forums would assist with facilitating an open dialogue in relation to the benefits of green hydrogen and offshore wind (and associated challenges) and more generally, the development of an offshore wind and indeed green hydrogen economy capable of supporting local sustainable jobs and innovation and the transition to net zero by 2050.

What are the regulatory challenges for reaching the renewable energy share targets?

Currently, there does not appear to be a coordinated approach to regulatory and consenting processes applicable to renewable energy development applications across regulatory bodies and agencies. The lack of an integrated approach poses particular challenges for the development of offshore wind farms. Such processes must be underpinned by a clear understanding of the necessity to deliver such applications within the timeframe to contribute to the State's binding renewable energy and GHG emission reduction targets.

As such, greater levels of resourcing are urgently needed as there is yet no clarity regarding timelines for the processing of Phase 2 and enduring regime applications (the outcome of Phase 1 applications also remain outstanding), designation of Marine Protected Areas (MPAs) as required by EU Directives, finalisation of the Offshore Renewable Energy Development Plan II (OREPII) or an update to the existing Electricity Interconnection Policy 2018.

The timely delivery of such applications requires an integrated and mutually reinforcing policy and regulatory framework underscored by the now vital requirement to deliver significant emissions reduction savings and net zero no later than 2050.

Non- Electricity Questions

Sectoral Emissions Ceilings'

What do you view as the key actions required to ensure the emission reduction targets set out in the Sectoral Emission Ceilings are met?

While the recently agreed sectoral emission ceilings and carbon budget programme to support a 51% reduction in GHG emissions by 2030 as required pursuant to the Climate Act and Low Carbon Development (Amendment) Act 2021 are very much welcomed, the achievement of such binding limits pose a significant and unparalleled challenge for all sectors of the economy including the electricity sector. Such emission ceilings place a binding limit on cumulative emissions for the economy as a whole for the period 2021-2030.

The delivery of a secure decarbonised electricity system and one that can contribute in a meaningful manner to the achievement of the State's renewable energy and decarbonisation targets and ultimately to the achievement of net zero no later than 2050 requires major and unprecedented interventions. The rapid decarbonisation of the electricity network is needed to achieve these targets. This will be enormously challenging given the projected increase in electricity demand, the likely timeframes to deploy offshore wind and the fact that the SEAI modelling has projected that power sector emissions will only reduce by 50% by 2030 (relative to 2018) due to a 61-69% increase in demand in the same period. Moreover, there is now an acute risk of widespread fuel poverty for increasing numbers of Irish households as recently highlighted by the Economic and Social Research Institute (ESRI) due to unparalleled increases in the cost of energy.

In this regard, the findings of a recent report prepared by Wind Energy Ireland (WEI), *Bridging the Gap: Towards a zero-carbon Power Grid*[2] demonstrates the limitations of the power sector to deliver significant emissions reduction in the absence of new grid infrastructure and without the delivery of significant levels of connected offshore wind before 2028. It also underlines the need for Ireland to urgently transition away from fossil fuels in order to secure the State's long-term competitiveness by an effective transition to net zero.

The Report assesses cumulative CO2 emissions to 2030 via two different pathways:

- (i) 4 million tonnes can be saved by faster delivery of renewables (2 years' worth of emissions savings) and
- (ii) analysis of the best outcome under current policies - i.e., Climate Action Plan targets achieved only 66 MT of CO2 saving (carbon intensive fuels including coal/gas in first half of the decade results in the 'locking in' of substantial emissions).

The Report goes on to note that the existing Shaping Our Electricity Future would only result in approx. 72 MT of CO2 over the decade and a total of 66MT will still be emitted in the most ambitious pathway to 2030 with all Climate Action Plan targets and government initiatives delivered upon.

Therefore, if such limits are to be achieved, the updated Shaping policy and Climate Action Plan for 2023 must be updated in a significant and all-encompassing manner and be made fit to deliver on the binding sectoral emission ceilings. The rapid delivery of offshore wind and enabling technologies will be key to meeting such targets and to the achievement of the State's 2030 renewable energy and decarbonisation targets and ultimately to the achievement of net zero no later than 2050.

The delivery of much greater volumes of clean renewable energy is also required in light of a nationally growing population[3] which is projected to increase by approximately 900,000 persons to 5.634 million by 2040 and a corresponding demand for electricity which is rising year on year.

[2] Wind Energy Ireland (WEI), Baringa & TNEI, Bridging the Gap, Towards a zero Carbon Power Grid (2022), Available at: bridging-the-gap-a4-report-final.pdf (windenergyireland.com)

[3] Economic and Social Research Institute (ESRI), Prospects for Irish Regions, and Counties, Scenarios & Implications (2018), Available at:
Prospects for Irish regions and counties: Scenarios and implications (esri.ie)

Finally, and given the unprecedented nature of the current challenges with regard to meeting such demanding sectoral emission ceilings in the period to 2030 and enduring security of supply concerns, the convening of the Energy Supply Emergency Group on a routine and recurrent basis should now also be implemented without delay.

Carbon Pricing and Cross-Cutting Issues Consultation Questions

Are there any unintended barriers within the planning system that should be addressed at national policy level in order to deliver our climate ambitions?

Yes, the now numerous and well documented issues with Ireland's planning and grid connection systems' mean that many renewable energy development proposals can take numerous years to reach the operational stage. Enduring delays in the planning process for renewable energy developments which are of national, strategic, and economic importance to the State, are widely recognised to be the principal barrier to the timely delivery of renewable infrastructure.

The planning system itself has also become unduly onerous and complex and is increasingly difficult to navigate. Worryingly, the provisions of the statutory National Planning Framework (NPF), the national policy to guide strategic planning and development for the country over the next 20 years is not being followed by all local authorities in contravention of the national planning policy framework.

This situation is impacting the State's ability to comply with renewable electricity and greenhouse gas emission reduction targets and is likely to impact the ability to comply with the recently agreed sectoral emission limits. Such enduring delays are also likely to lead to additional significant fines to the European Union for failing to meet targets on renewable energy generation and GHG (greenhouse gas) emission reduction.

Indeed, the European Commission's country specific recommendation for Ireland underlined in the Repower EU Plan focuses on the long duration of planning permission procedures and lengthy and costly appeal procedures in Ireland and further notes the need to ensure appropriate resourcing at all stages of the planning and permitting system as specific policy areas requiring reform.

In the first instance and with regard to the development of offshore wind, the establishment of the new Maritime Area Regulatory Authority (MARA) scheduled for early 2023, must be adhered to and must be adequately resourced and delays avoided at all costs. To date, the Maritime Area Consent process for Phase 1 projects have not been issued.

While Ireland's significant offshore wind resource has the potential to support investment, jobs, and innovation across the island of Ireland whilst supporting the green and net zero transition, greater levels of regulatory certainty is very much needed in relation to the applicable planning and consenting processes.

Further delays to this regime, will in turn affect the current availability of funding for such significant offshore developments with investors likely to look to other jurisdictions where such acute uncertainties and regulatory challenges do not exist. The withdrawal of further market participants in the renewable energy space must be avoided at all costs as occurred in 2021 as not only does the same result in serious reputational harm to 'Ireland Inc', it will also undermine the delivery of a net zero society and economy in real terms given the scale of the decarbonisation challenge that must be addressed in the near term.

Phase 2 and indeed enduring projects must be facilitated in advance of the 2030 timeframe with a much-accelerated regime provided for. To this end, adequate resourcing and expertise must be provided for across all governmental and regulatory agencies to support the timely delivery of additional renewable energy projects including offshore wind in the State, including those relating to green hydrogen.

In terms of recommended actions, there are a number that could be implemented without delay in order to improve issues with the planning system and timelines, including:

1. In the first instance, the European Commissions' proposals under the Repower EU Plan and existing requirements under the Renewable Energy Directive (EU) 2018/2011 in relation to proposals to speed up the permit-granting process for renewable energy projects through the designation of 'go to areas' for same, should be enacted without delay (i.e., via insertion of Articles 15b and c to the Renewable Energy Directive RED)).

   This EU proposal also provides that Member States shall ensure that, in the permit-granting process, the planning, construction and operation of plants for the production of energy from renewable sources, their connection to the grid and the related grid itself and storage assets are presumed as being in the overriding public interest and serving public health and safety provided the same are balanced with the provisions of the Habitats, Birds and Water Framework Directives.

   The Climate Action Plan update for 2023 thus, provides an ideal opportunity to lay down a timeframe for implementing these proposals to support the timely delivery of additional

renewable energy projects in advance of the State's 2030 targets. In this regard, Source Galileo welcomes that a single contact point under Irish law has now been provided for via the European Union (Renewable Energy) Regulations (2) 2022 and which can be built upon in relation to the REPowerEU Plan proposals to ensure that the permit-granting process for renewable energy power plants does not exceed two years.

2. Secondly, the National Energy Security Framework (NSEF) 2022 places a key focus on the development of offshore wind and acknowledges that greater regulatory certainty and supportive polices across Government and State agencies are needed to reduce barriers with fast track permitting for renewable energy generation projects. In this regard, the Framework lays out a range of potential measures under the planning system which could better support the timely delivery of additional renewable energy sources and the required supporting infrastructure including:

    a. providing greater regulatory certainty, including timeframes, in relation to decarbonised generation;
    b. through clearly articulated, formal Government policy on relevant aspects of energy supply;
    c. by ensuring that the local planning policy framework fully supports the national objectives;
    d. by ensuring An Bord Pleanála and the Maritime Area Regulatory Authority have sufficient and appropriate expert resources to meet the State's needs in this area; and
    e. by establishing a specific division of the High Court to deal with planning and environment cases to deal with these cases, where they arise, as expeditiously as possible.

3. Thirdly, the Maritime Area Planning Act 2021[4] permits the Minister to give priority to certain classes of application such as offshore wind by reason of the same being of special strategic,

[4] As per Section 295(3 of the Act: *where the Minister considers that it is necessary or expedient that such class or classes of application be determined as expeditiously as is consistent with objectives of maritime spatial planning and principles of proper planning and sustainable development, by reason of its or their being of special strategic, economic or social importance to the State.*

economic, or social importance to the State and to be determined in a more expedited manner. This provision should be applied without delay given enduring difficulties in bringing renewable energy projects to completion in the State and to prevent offshore wind farm applications being caught in a planning limbo for years on end.

This provision in conjunction with proper resourcing of An Bord Pleanála has the potential to provide tangible improvements in planning timelines and to contribute to the State's decarbonisation policy agenda and 2030 renewable energy and emission reduction targets

4. The development and publication of Regional Renewable Energy Strategies (Action 102 of the existing Climate Action Plan 2021) must be actioned without delay and the ongoing issues at county development plan level tackled. The failure to comply with the provisions of the statutory National Planning Framework (NPF) at regional and local level is impacting the timely delivery of renewable energy development proposals and requires urgent action and reform. This need has been recognised in the National Energy Security Framework as a measure under the planning system that requires reform.

5. Lastly and in conjunction with the proposed recommendations outlined above, the completion of the review[5] of planning legislation by the Attorney General which commenced in 2021 and which is aimed at bringing about a complete overhaul of the State's planning system through a large-scale planning reform programme, must be enacted without delay. Such reforms must be enacted in line with robust legislative measures that give effect to the provisions of the Aarhus Convention whilst facilitating strategic planning applications to proceed without years of delay as is currently the case.

What other opportunities exist to support decarbonisation of the electricity sector?

Green Hydrogen

It is now broadly accepted that green hydrogen generation will form an essential part of Europe's energy mix that will support the achievement of emissions reduction and net zero targets and indeed improved energy security.

As is stated in the European Commission Hydrogen Strategy:

[5] gov.ie - Government launches review of planning legislation (www.gov.ie)

> *"Hydrogen...offers a solution to decarbonise industrial processes and economic sectors where reducing carbon emissions is both urgent and hard to achieve. All this makes hydrogen essential to support the EU's commitment to reach carbon neutrality by 2050…"*

The EU European policy framework sets a strategic approach to install at least 6 GW by 2024 and 40 GW of renewable hydrogen electrolysers by 2030 with the REPowerEU Plan underlining the twin aims of securing Europe's energy security and transitioning to a climate resilient Europe by 2050. This Plan also underlines new targets for EU domestic hydrogen production and for hydrogen imports – 10 million tonnes of each by 2030.

The green hydrogen opportunity in the national context also cannot be underestimated given the myriad issues which favour green hydrogen's use, including air pollution (low or zero tailpipe emissions, zero fugitive emissions), energy security (utilisation and storage of indigenous renewable energy resources), and economic development (investment in local infrastructure etc.).

Green hydrogen generation also provides an important opportunity for green transformation as it constitutes a clean energy vector which produces no direct emissions, pollutants, or greenhouse gas emissions. Green hydrogen is also likely to play a key role in the inter-seasonal storage of electricity as part of decarbonisation of the power system on the pathway to net zero emissions and in relation to transport and mobility related applications.

Notwithstanding the environmental necessity of deploying green hydrogen, the nascent nature of the hydrogen market in Ireland means that it is not positioned to develop in a timely manner without targeted government subsidisation given the lack of generation infrastructure and resultant high costs of production. In relation to specific policy supports needed for green hydrogen deployment, the EU Hydrogen Strategy acknowledges the need for government support schemes to incentivise private sector investment given the significant up-front investments to scale up renewable hydrogen demand and supply.

In this regard, Source Galileo as a global scale renewables investor aspires to invest in early green hydrogen proposals which are uniquely placed due to the lack of grid infrastructure in the State. Moreover, given Ireland's vast offshore wind resource, the coupling of green hydrogen with offshore wind energy could support significant revenue generating capability for Ireland. An enabling and dynamic framework must be developed in a timely manner if such early proposals are to progress in the near time to 2025 and beyond.

Against this backdrop, the recent public consultation by the Department of the Environment, Climate and Communications (DECC) on the development of a dedicated hydrogen strategy has been

welcomed by industry at large and represents an important first step in laying the necessary policy foundations for the development of a hydrogen ecosystem in the State.

Source Galileo was pleased to be afforded the opportunity to respond and in the interests of conciseness, would draw the Department's attention to the specific recommendations included in our recent response including: the need for defined deployment targets for green hydrogen, the need to focus on deployment in transport and related applications in the initial deployment phase and establishment of a dedicated support scheme, the appointment of a hydrogen regulator and development of the required policy and regulatory roadmap for green hydrogen production, transport and storage and finally, with regard to public engagement, the convening of regional citizen assembly forums to underscore the benefits of green hydrogen and offshore wind.

With regard to this dedicated Strategy and the update to the Climate Action Plan for 2023, it is vital that the same be accompanied by specific deployment targets in order to anchor and measure progress within the relevant defined phases as is provided for in the EU Hydrogen Strategy, the REPowerEU Plan, numerous European Member State, and international hydrogen strategies.

The update to the Climate Action Plan for 2023, provides an ideal opportunity to promote the development of a green hydrogen economy in Ireland in line with the rapidly evolving framework already in place at EU and international level. While the existent Plan contains a number of actions relating to hydrogen, it is not clear that such actions have been progressed to completion and as such, must be advanced significantly with more accelerated timelines in the updated Plan.

In particular, the publication in the near term of the technical assessment being undertaken by Gas Network Ireland (GNI) in relation to how levels of hydrogen could be accommodated in the gas network in line with the commitments of the Climate Action Plan would be of benefit in terms of developing potential end uses for hydrogen as part of specific hydrogen proposals.

In conclusion, it is submitted that the publication of the dedicated Green Hydrogen Strategy for Ireland must be advanced without delay and by year end and time bound concrete actions included in the updated Climate Action Plan for 2023 to give effect to the ambition of the REPowerEU Plan in order that green hydrogen can assist with and make a vital contribution to decarbonising Ireland's economy.

Similarly, as committed to the Climate Action Plan 2021, the National Policy Statement on Electricity Interconnection 2018[3] is being updated to reflect a range of significant policy developments including the State's increased climate and energy ambition in Ireland and the EU, the Government objective to deliver 5 GW of installed offshore wind generation by 2030 (due to be updated to 7GW), the decision

by the UK to leave the EU, and the revision of the EU TEN-E Regulation. Given the significant contribution that increased levels of interconnection can make to the State's longer-term post 2030 energy and climate objectives, the existing regulatory and legislative framework to facilitate interconnection must also be amended and reflected in the updated Climate Action Plan for 2023.

Transport

What other opportunities exist to support the decarbonisation of the transport sector?

The use of green hydrogen in transport and mobility related applications would appear to present the best end use for hydrogen in the initial market development phase whilst also being capable of contributing to security of supply, diversity of supply, and zero emissions benefits that hydrogen for transport and mobility can provide.

The decarbonisation of the transport sector presents a unique challenge given the embedded use of fossil fuels in Ireland and growing demand due to projected increases in population and economic growth in the State. This is evident given that the transport sector accounted for approximately 17.8% of the State's overall greenhouse gas emissions in 2020 and the recently agreed sectoral emission ceiling for the sector is a 50% reduction in emissions by 2030, relative to 2018 levels.

From an EU perspective, Ireland will be obliged to comply with the EU Alternative Fuels Infrastructure Regulation ('AFIR') once adopted and which sets out refuelling requirements for hydrogen infrastructure set at refuelling points of 350 bars and 700 bars every 200km on the core Trans-European Network for Transport (TEN-T).

In time, decarbonisation targets in sectors such as maritime and aviation will also create a demand for hydrogen-based renewable or carbon-neutral fuels. Similarly, as hydrogen can be used to produce green ammonia, which is a renewable maritime fuel, its deployment would assist the maritime sector to reach net-zero by 2050.

An opportunity also exists for State leadership in relation to the utilisation of green hydrogen in transport related applications given that a number of transport companies are state owned entities. The transition of such state-owned fleets to hydrogen would provide a significant opportunity for such bodies to be at the forefront of the net zero transition and the creation of a hydrogen economy whilst simultaneously boosting investment by the private sector fleet.

Against this backdrop, actions relating to the deployment of green hydrogen in transport and mobility related applications in the initial deployment phase should be reflected in the updated

Climate Action Plan given the contribution that can be made to significant emissions reduction and to the achievement of the sectoral emission ceiling for the transport sector. This would also assist with kick-starting a long-term market for the deployment of green hydrogen and the creation of a dynamic green hydrogen economy in Ireland in the long term.

Enterprise Question

What general opportunities exist to support enterprise in the renewable energy sector?

As referred to above in relation to measures needed to accelerate the deployment of offshore wind, the development of an Enterprise Ireland Offshore Industry Wind Strategy would be instrumental in underlining and promoting the significant benefits that can be provided by the offshore wind industry and which is capable of supporting local sustainable jobs and innovation and the State's renewable energy and emission reduction targets.

Moreover, and given Ireland's vast offshore wind resource, there exists significant potential to produce green hydrogen from renewable electricity whilst also providing an important opportunity for green transformation and deeper emission reduction. In terms of export, the coupling of green hydrogen with offshore wind energy could support significant revenue generating capability for Ireland if developed in conjunction with domestic production demand.

Thus, the development of a further Enterprise Ireland Hydrogen Export Strategy should also be considered. As Enterprise Ireland is the national agency tasked with the growth and development of Irish enterprises in world markets, the same would be invaluable in terms of identifying hydrogen export markets which could stimulate the scale of production and storage required for cost-effectiveness. This would also be useful in terms of unlocking the economies of scale required given that domestic demand will initially be limited.

To this end, the publication of an Enterprise Policy White Paper later this year as referred to in the Hydrogen Strategy Consultation document is very much welcomed. This will consider what domestic opportunities and value-adding activities industrial policy might be promoted in Ireland and in proximity to this potentially significant and decarbonised energy resource. This White Paper could be built upon in terms of the significant revenue generating potential that exists with regard to the export of green hydrogen from Ireland.

Finally, as referenced above the current update to the Electricity Interconnection Policy 2018 is relevant and should be reflected in the Enterprise Policy White Paper and in any dedicated Enterprise Ireland Strategy relating to the export of green hydrogen. In terms of export, an increase in

interconnection capacity and the coupling of green hydrogen with offshore wind energy could support significant revenue generating capability for Ireland in time.

Given the significant range of benefits that can be provided by increased interconnection capacity (including dual purpose hybrid interconnection) and clear alignment with a range of stated policy positions at EU and national level, the established of minimum targets for interconnection should be given due consideration and reflected in the updated Climate Action Plan for 2023.

This would ensure consistency of future interconnection development with the offshore wind plan-led enduring regime that will deliver post 2030 offshore objectives beyond the 7 GW target. This by proxy would also support carbon emission reduction commitments, increase Ireland's security of electricity supply through reducing reliance on imported fossil fuels, contribute to meeting expected increases in domestic electricity demand, and more broadly would provide significant economic benefits to the State.