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Department of the Environment, Climate & Communications (DECC)

Review of the Security of Energy Supply of Ireland's Electricity, & Natural Gas Systems Consultation

Source Galileo Submission

Introduction to Source Galileo

Source Galileo is pleased to be afforded the opportunity to respond to this important and timely public consultation and review of security of Ireland's electricity and natural gas systems as committed to in the Programme for Government (PFG). This review underlines in stark terms, the need to deliver long-term security of affordable energy supply to enable Ireland to become a leader in responding to the challenge of climate change through the deployment of renewable energy infrastructure at scale.

By way of introduction, Source Galileo 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[1] 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.

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. 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.

[1] Further detail on the proposed offshore wind developments in Ireland (located at Malin Head off the North Coast, the Southern coast and the Eastern coast) is available at: Projects - Source Energie

Source Galileo is also 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.

Consultation Questions - Mitigation Options

Do you have any additional mitigation options that you think should be considered?
Which gas supply mitigation options, if any, should be considered for implementation?

The technical report which accompanies the consultation assesses different measures to support energy security in the State while meeting climate obligations and short-lists green hydrogen, demand response, electricity interconnection and storage as beneficial security measures.

In this regard, the Report expressly notes, that:

> *"Higher rates of electrification coupled with investment in significant renewable generation capacity should help to alleviate challenges in relation to gas security of supply by 2025 and 2030."*

This finding is very much welcomed by Source Galileo and is expanded upon in response to question 9 below relating to proposed policy measures.

While the Report rules out commercial LNG (onshore or floating) and additional gas reserves from existing exploration licences, it goes on to short list two potential gas infrastructure options including a floating LNG terminal operated as a back-up facility only and a state-backed gas storage facility also operated as a back-up measure.

It is clear that some form of gas storage / backup solution is necessary given that Ireland lacks any form of strategic gas storage infrastructure. Gas storage facilities are considered critical infrastructure pursuant to the recently revised Gas Storage Regulation (EU/2022/1032) and Council Directive 2008/114/EC on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection. These rules will contribute to reducing security of supply risks and to supporting the EU's competitiveness by ensuring that storages are properly filled.

The recently revised Gas Security Regulation requires Member States to ensure that underground gas storage on EU countries' territory must be filled to at least 80% of their capacity before the winter of 2022/2023 and to 90% before the following winter periods.

Notwithstanding that Ireland has been granted an exemption as the State is not directly interconnected to a gas interconnected system of any other Member State (as the UK is now a third country for the purposes of EU law

and policy), it does not appear appropriate that an exemption of this nature be availed of on a long term or indefinite basis.

Where possible, underground storage is an efficient and economic technical method to respond to gas demand fluctuations. It is also considered a safe method when it comes to public security and from an environmental protection perspective. As such, the development of a strategic critical underground gas storage facility to ensure security of supply should be considered in the Irish context.

This is in alignment with EU policy and regulation as opposed to a short-term floating LNG option as it is not clear that such an option adequately addresses the balancing of supply and demand and does not appear to be in adherence with current Government policy.

Moreover, EU Member States are subject to the requirements of the 'Taxonomy Regulation' (EU) 2020/852 on the establishment of a framework to facilitate sustainable investment, by setting out a classification system (or 'taxonomy') for environmentally sustainable economic activities. It is necessary to consider if the development of a floating LNG terminal even as a backup facility, is in alignment with this framework which requires the avoidance of environmentally harmful lock-in effects, including carbon-intensive lock-in effects, during the economic lifetime of the funded economic activity and the risk of certain assets becoming stranded.

Additionally, the current revision of the EU gas market rules ('Hydrogen and Decarbonised Gas Market Legislative Package') which is needed to ensure alignment with the EU's evolving energy and climate objectives, also underlines in clear terms the importance of avoiding stranded assets or potential 'lock ins' in the clean energy transition and the goal of reducing the dependency of the Union to external fossil fuels providers.

As such and in the light of the foregoing, the development of an underground gas storage facility which constitutes critical infrastructure pursuant to the EU legal framework and which is needed to ensure security of supply should be fully considered in advance of the deployment of a floating LNG facility in the State.

Policy Measures

Do you support the policy measures proposed in section 8 of the consultation paper?

What further tools and measures do you think would contribute the most to Ireland's energy security of supply?

The consultation report identifies green hydrogen, demand response, electricity interconnection and storage as beneficial security measures. While the report acknowledges that the significant potential of hydrogen is unlikely to be realised by 2025, production can be gradually increased by 2030 which is consistent with stated policy positions including the Climate Action Plan 2021 which includes ambitions for renewable gas production by 2030.

This finding is very much welcomed by Source Galileo as 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. Many countries are progressing ambitious

hydrogen strategies as a means of diversifying their energy mix and increasing their energy independence. Such strategies also highlight the fundamental role of green hydrogen in enabling the continued integration of wind and solar energy into the energy supply system.

Latest emissions data[2] published by the Environmental Protection Agency (EPA) highlight in stark terms the scale of the challenge with total emissions in Ireland increasing to 4.7% in 2021 and emissions now back to pre-pandemic levels. Ireland now has the third highest level of greenhouse gas emissions per capita in the EU with the EPA forecasting that the State will not be a position to meet a 51% reduction in emissions by 2030 with the latest projections: *'indicating that the sectoral and overall targets set out in the Climate Action Plan will not be met with the measures currently modelled'.* Such findings must be viewed in the context of recent Central Statistics Office (CSO) preliminary 2022 census data showing a population of 5.12 million people projected to increase to 5.5 million in 2030, 5.9 million in 2040 and 6.2 million by 2050 underlining a clear and urgent need to significantly reduce per capita emissions in the immediate term.

Thus, and in the Irish context, if hydrogen is to contribute effectively to such decarbonisation policy objectives in the period to 2030, enabling and dynamic frameworks must be developed and instituted without delay. 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.

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.

As is stated in the European Commission Hydrogen Strategy:

> *"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…"*

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.

While the policy measures detailed in the consultation document are welcome and in particular, the proposed joint electricity and gas assessment which will consider renewable gases such as biomethane and hydrogen and

[2] EPA, Latest emissions data, June 2022, Available at: Latest emissions data | Environmental Protection Agency (epa.ie)

which is very much needed as more intermittent renewable sources are added to Ireland's energy system, more immediate actions are required including progress on existent policy positions relating to green hydrogen.

These include the prioritization of the publication of the hydrogen strategy as underlined in the National Energy Security Framework (NESF) and the publication of the technical feasibility study by GNI (Gas Networks Ireland) relating to the injection of hydrogen into the existing gas grid as committed to in the Climate Action Plan. The advancement of such policy proposals would be of enormous benefit in terms of developing potential end uses for hydrogen as part of specific early hydrogen proposals. It would also represent an important first step in kick-starting a long-term market for the deployment of green hydrogen and the creation of a dynamic green hydrogen economy in the State.

In terms of recommended actions, there are a number that could be implemented without delay in relation to the facilitation of green hydrogen deployment as outlined below.

Source Galileo Recommendation(s) - Green Hydrogen

- The publication of the dedicated Hydrogen Strategy for Ireland as consulted upon in July (and responded to by Source Galileo) and the laying down of 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 is key for the nascent hydrogen sector in Ireland. This represents a necessary first step in laying the necessary policy foundations for the deployment of hydrogen and the development of a hydrogen ecosystem in the State

- The publication 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 the near term

- In this regard, and from 1 October 2025, transmission system operators will be required to accept natural gas with a blended hydrogen level threshold of up to 5% in gas flows at interconnection points pursuant to the EU Hydrogen and Decarbonised Gas Markets Legislative Package, once enacted into law. As such, progress must now be made on this front to ensure that this requirement can be implemented and complied with

- Similarly, the development and publication of a Regulatory roadmap relating to hydrogen as committed to in the Climate Action Plan would provide much needed clarity around the injection of hydrogen in the existing gas grid and facilitate early development proposals to proceed in a timely manner

    - In relation to developing this regulatory framework, it is important to bear in mind that the European Commission in the EU Hydrogen and Decarbonised Gas Market Legislative Package has expressly noted the need for a flexible regulatory framework for hydrogen during the market

ramp-up phase to accommodate different hydrogen pathways, whilst ensuring clarity about the long-term framework to create investor certainty

  - As Ireland's distribution network is comprised of polyethylene pipes and early indications are that it is already capable of transporting hydrogen or hydrogen/natural gas blends and following publication of the GNI technical assessment, injection of hydrogen into the gas network should be facilitated without delay

- In updating the Climate Action Plan for 2023, the existent actions relating to hydrogen should be reiterated and expanded upon with more immediate implementing timelines laid down to ensure swift progress and completion of stated actions

- The establishment of a dedicated hydrogen support scheme distinct from the Biofuel Obligation Scheme should be considered in line with such schemes in the UK, Germany etc. in order that the benefits of hydrogen in mobility applications can be a realised at a significant scale. This would assist with the State's obligations pursuant to the EU Alternative Fuels Infrastructure Regulation ('AFIR') which once adopted, will set 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).

Source Galileo Recommendation(s) - Offshore Wind

In conjunction with the above recommendations relating to the deployment of green hydrogen, the coupling of green hydrogen with offshore wind energy provides an important opportunity for green transformation and deeper emission reduction whilst supporting local sustainable jobs and innovation in Ireland.

Without the delivery of significant levels of offshore wind, 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 and ultimately net zero no later than 2050.

In this regard and given the scale of the decarbonisation challenge at hand, 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.

Accordingly, Phase 2 and indeed enduring projects must be facilitated in advance of the 2030 timeframe with a much-accelerated regime provided for. In terms of recommended actions, the following should be considered and implemented without delay, including:

- 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. In particular, Phase 2 projects must be immediately advanced if such renewable developments are to be in a position to contribute to the State's 2030 renewable energy and greenhouse gas emission reduction targets

- 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 with Phase 2 development proposals advanced at the earliest opportunity and with a much-accelerated regime provided for

- 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)

    - In this regard, and in the context of emergency measures on gas prices published recently by the European Commission[3], the European Council has requested that new emergency measures to accelerate the permitting of renewables and the roll out of grids and to be based on the legal basis underpinning the Treaty on the Functioning of the European Union (TFEU) (Article 12)[4]. This would permit Member States to agree measures in the space of a number of weeks without the need to negotiate with the European Parliament and without waiting for the transposition time for the RED to be implemented into national legal frameworks thus underlining the need for urgent action in relation to the acceleration of renewables deployment amidst the ongoing energy security crisis in the EU.

- In the national context, 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 and as such, the recommendations laid down in the National Energy Security Framework (NSEF) 2022 must be advanced. This Strategy 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

[3] European Commision, Energy Emergency - preparing, purchasing and protecting the EU together, COM/2022/553 final, Available at: EUR-Lex - 52022DC0553 - EN - EUR-Lex (europa.eu)

[4] European Council Meeting Conclusions, 21 October 2022, Available at: 2022-10-2021-euco-conclusions-en.pdf (europa.eu)

- The Maritime Area Planning Act 2021 permits the Minister to give priority to certain classes of application such as offshore wind by reason of the same being of special strategic, 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

- This provision in conjunction with proper resourcing of An Bord Pleanála (including implementation of the recent Action Plan for reform 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

- In practical terms, regulatory frameworks for both offshore wind and green hydrogen must be developed in tandem and in an aligned and consistent manner

- The establishment of a Delivery Taskforce to accelerate the development of offshore wind should also be instituted without delay in order to assist with the timely delivery of offshore wind developments and with the coupling of green hydrogen and which would be of enormous benefit in terms of whole system decarbonisation

- Finally, the convening of regional citizen assembly forums with stakeholders from across government, industry and regional communities 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 a green hydrogen economy capable of supporting local sustainable jobs and innovation and the transition to net zero by 2050.