**May 2023**

**Scottish Parliament Net Zero, Energy and Transport Committee Inquiry – Response from the Scottish National Investment Bank**

*"Scotland's electricity infrastructure: inhibitor or enabler of our energy ambitions?"*

## Overview

1. The Scottish National Investment Bank is a mission-led development investment bank. It has been established to invest in commercially viable businesses and projects that support delivery of the Bank's missions. Those missions focus on a just transition to net zero, building communities, and fostering innovation.

2. As a development bank, the Bank looks to adopt a higher risk appetite for investment than typical private capital might, and to prove the commercial viability of new markets and technologies, or to bridge an investment gap where private sector investment has not been obtained. In this way the Bank can act as a catalyst for private investment into businesses and projects, helping to develop and establish emergent and innovative sectors and business models within the Scottish economy.

3. This response is focussed on barriers to investment for renewable energy generation and supply chains. The response also covers the emergence of new technologies, including hydrogen.

4. Government is considering potential opportunities for Scotland in renewable energy generation. Offshore wind development is a key component of this. Not only as a source of energy generation but also to stimulate green hydrogen production and deployment, and to export energy, including in the form of green hydrogen.

5. It has been noted that there are considerable quantities of global capital seeking net zero aligned projects. However, there is competition for this capital from projects across Europe as well as further afield. Therefore, ensuring that the investment landscape in Scotland is facilitative to the investment of capital on a systemic basis is critical.

## Barriers to investment

6. There are several factors that contribute to creating an environment facilitative to investment, including:

- Clear and achievable targets e.g., for renewable energy generation;
- Coherence between those targets and the development and implementation of policy, planning and consenting systems; and,
- Clear routes to development and deployment of new and emergent technologies and commensurate government support, including financial support, to facilitate that.

### *Targets*

7. As the Committee has heard over the course of its inquiry, the setting of targets e.g., for renewable energy generation, can play an important role in signalling direction. These targets also make clear government ambition and commitment. However, these targets must be credible and have a clear route to achievement if they are to have the intended impact. The Climate Change

Committee in its advice to the Scottish Government has previously identified gaps between its targets and aspirations. These divergences are also key considerations for any potential investors.

*Policy, planning and consenting coherence*

8. Delivering a wind farm development can take up to a decade, or even longer, with much of that time spent securing the necessary permissions and consenting. This is a lengthy and complex process, encompassing significant amounts of time and resource. Development timelines in several other competing jurisdictions are significantly shorter, with further measures being taken to facilitate development. These are material considerations for potential investors.

9. A contributing factor to the challenge of developing projects in Scotland is the uncertainty of the process, and variation in how the planning system is applied and considered across responsible authorities. The uncertainty can impact timescales for projects in unpredictable ways, driving up costs as well as impacting the project's ability to bid into Contract For Difference rounds and reach financial close.

10. Further, from an investor point of view this uncertainty can make it challenging to engage with Scottish and UK based projects. From a supply chain perspective, this uncertainty has an impact on order pipeline visibility and, resultantly, on the supply chain's ability to scale up operations to compete for those orders.

11. Connected to the challenges in planning and consenting offshore wind projects are potential difficulties in obtaining planning permission for the expansions to the critical infrastructure required for offshore wind. A supportive planning system for renewable infrastructure, very broadly defined, is necessary to deliver the pipeline of projects and anchor an internationally competitive supply chain in Scotland, and thereby facilitate sustainable flows of investment.

12. Continued close engagement with the sector, taking account of their experience and feedback the development and implementation of planning and consenting systems, can help to ensure that there is a consistent flow of investible propositions.

*Routes to deployment and the role of government support*

13. The transition to net zero offers the opportunity for new technologies and sectors in the economy to emerge. Green hydrogen is a particular example.

14. Where government capital is being allocated to support the development of a sector or a technology it is important that it is allocated appropriately and in a way which stimulates activity and investment. Emerging technologies often require grant support. Grant capital, however, is not likely to be available at the scale necessary to grow a sector sustainably, and nor is it best suited to scale the businesses within it. It is therefore important for capital grants to be designed to serve as staging point - enabling businesses and projects to attract and support commercial investment further down the line.

15. Without this component, there is a risk that the business models within the sector become dependent on grant and subsidy, and are therefore not capable of attracting and supporting the commercial and private capital they will require if the business models are to become sustainable.

16. As a development bank with expertise in deploying commercial capital the Bank can play a particular role here, supporting the move from public funding towards commercial finance. This includes participating in blended capital models which contain a mix of grant and commercial capital.

17. It is our view that deploying commercial capital as a public investor can be critical to stimulating and crowding in private capital. A pertinent example of this would be the development of the floating offshore wind supply chain in Scotland, where the Bank sees a strong role for it to stimulate investment in the supply chain through taking an informed view of 'market risk' and encouraging private sector investment in the sector.

18. In this context, taking market risk can include investing ahead of final investment decisions by developers to ensure that supply chain capability and capacity is in place. The unprecedented scale of the current offshore wind supply chain opportunity in Scotland, in combination with the emerging export opportunity as the global pipeline develops, carries the potential for significant private sector investment.

19. For private capital to support fully addressing this opportunity will bring challenges, as market risk is generally not a core characteristic of their investment appetite. Therefore, the Bank has a crucial role in investing its commercial public capital in flexible forms, responsive to the particular needs of asset classes within the supply chain, to entice the required private capital.

20. The ultimate requirement for investment in the development of the offshore wind supply chain is very significant. At this stage our research has identified an investment requirement in excess of £4 billion for the supply chain opportunity to be met effectively.

*Modernising electricity grids and expanding energy storage*

21. The Bank is supportive of the evidence that the Committee has heard of the need for investment and reform to develop the electricity transmission and distribution network. The Bank also recognises the work being undertaken by Ofgem.

22. The move away from reliance on large scale fossil fuel, which provide steady baseloads along with peaking capacity, towards intermittent renewables poses challenges for the current grid system. The increasing penetration of intermittent renewable generation drives the need for new investment in both the electricity grid and in system-balancing energy storage capacity.

23. Storage technologies will be critical but will require significant private investment in order to see solutions deployed at scale in the market. Smaller scale battery projects are attracting private capital, but larger projects such as potential new Scottish pumped storage hydro schemes will only be financially viable if they have a degree of certainty through the planning system, and a revenue framework which supports long term investment decisions.

24. Other emerging long duration energy storage technologies, such as green hydrogen or liquid air energy storage, are technically less established so will likely require public sector support in order to attract private capital. It is in areas such as this where the Bank may have a role in funding early, commercially viable projects which the market sees as carrying technology risk.

**Consequences of failing to address investment barriers**

25. The strength of the opportunity in Scotland is currently attractive to private sector investors. There is, however, a real risk that investment is not realised at the scale or pace required to deliver Scotland's net zero and just transition ambitions and the associated economic opportunities.

26. As an example, significant attrition or delay in the development of the ScotWind projects because of reduced or delayed investment, will in turn inhibit the development of the offshore wind supply chain in Scotland, and vice versa.

27. The development of a green hydrogen sector in Scotland will also require substantial additional electricity generation, and that would inevitably be impacted by delays or failures to realise new renewable electricity projects.

**Unlocking opportunities – specific sectors**

*Offshore wind*

28. Scotland is set to see almost 40GW of offshore wind deployed by the mid-2030s. Much of that pipeline is driven by the 28GW of capacity anticipated for ScotWind. Those projects will be built over the next decade, with construction lasting into the early 2030s.

29. Floating offshore wind presents Scotland with an opportunity to be a global pioneer. The supply chain for floating offshore wind has distinct requirements from the fixed bottom supply chain, with the need for different towers, new blade technologies, and then the necessary floater, chains, ropes, and cables.

30. The floating offshore wind sector also has greater similarity to the offshore oil and gas industry than fixed bottom. This presents opportunities to realise the Just Transition in Scotland. Many of the lessons learned through deepwater oil and gas developments can be applied to the wind market. Globally, floating offshore wind is a nascent market, and this is a key area where Scotland could have comparative advantage.

31. It is likely that the supply chain will be developed around the integration of floating turbines and foundations, based on proximity to the assets. Manufacturing of blades, floaters, and cables is also desirable, with well paid, high-skill jobs and the possibilities for export.

32. Whilst capital is available for the development of offshore wind and other energy infrastructure in Scotland, we must recognise the real risk that this capital be diverted to other markets.

33. Recent years have seen a raft of licensing rounds across Europe and further afield and the capital to service these is limited. Developers need to balance policy risk, political and geopolitical risk, and the returns on projects.

34. If there is not a critical mass of offshore wind projects in Scotland coming to fruition in the second half of this decade and early part of next, it will be more challenging to justify developments in the domestic supply chain.

*Hydrogen*

35. The development of hydrogen, and particularly of green hydrogen, is a potential opportunity in Scotland. It is closely linked to the development of ScotWind and the wider offshore wind sector, with developers setting out intentions to incorporate green hydrogen production into their development plans.

36. As a development bank, we anticipate a role in deploying capital to help scale up hydrogen production in Scotland, particularly in the case of green hydrogen, and we could also provide support for companies looking to supply technology into this sector.

37. A key barrier to investment currently, however, is a lack of clarity on the potential off takers for green hydrogen. At present, hydrogen is currently identified as playing a wide range of roles across industry, domestic heating, personal and heavy transport, and electricity base-loading. This wide range of potential offtakes, and varying economic end-use cases for hydrogen, inhibits the development of clear, replicable business models and the infrastructure needed to realise them.

38. There has been a significant focus on the potential to export green hydrogen with a number of countries across Europe and worldwide looking to engage in this opportunity. It can be expected then that immediate and medium-term commercial investment propositions involving a hydrogen use case will be more likely to be targeted close to the site of generation. Developing projects of this type can support the emergence of the sector, and of green hydrogen generation, in advance of the infrastructure necessary to support export being put in place.

39. In the context of developing a hydrogen sector in Scotland, working towards the evolution of hydrogen clusters around Grangemouth and other major industrial sites could be a priority. There is likely to be a strong case for the use of hydrogen to decarbonise the production of ammonia, which is currently largely done through grey hydrogen processes, and energy intensive industries.

40. The fall in cost for electrolysers over the past few years has mirrored those seen in other renewable and adjacent technologies such as solar PV. It is likely the electrolyser market will enter a period of oversupply in the coming years, reducing the cost of the technologies and potentially further enabling deployment in appropriate contexts.

41. In short, Scotland's wealth in renewables can lead to a wealth in hydrogen derivatives, but those derivatives are likely best created very near to the hydrogen source, and the first targets for the development of a green hydrogen sector should be in industry including ammonia and the chemicals sector.