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## Designing the Net Zero Hydrogen Fund: Consultation Response

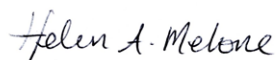
Scottish Renewables is the voice of Scotland's renewable energy industry, working to grow the sector and sustain its position at the forefront of the global clean energy transition. We represent around 260 organisations across the full range of renewable energy technologies in Scotland and around the world, ranging from energy suppliers, operators and manufacturers to small developers, installers, and community groups, as well as companies throughout the supply chain.

In responding to this consultation, we would like to draw your attention to the following points:

- Our recommendation for ring-fenced funding for electrolytic hydrogen is more likely to deliver in practice on HMG's intended "twin-track" approach and stimulate the electrolytic hydrogen market.
- £240m is a limited amount of money and while we recognise the value of DEVEX funding, the primary focus of the NZHF should be to provide CAPEX support because DEVEX spending does not guarantee the actual construction and operation of low carbon hydrogen production projects.
- One of the main challenges we have heard from industry concerns risk around the first-mover status. There are many concerns around demand risk too so the Government sharing some of those risks by providing direct capital funding until there is clear visibility on the route to market, would be beneficial.
- We seek further clarity on the sequencing of the application process because this is currently not clearly outlined.

Scottish Renewables would be keen to engage further with this agenda and would be happy to discuss our response in more detail.

Yours sincerely,



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## **1. What wider benefits could the NZHF deliver, such as local growth and low carbon leadership opportunities?**

Arup's Hydrogen Assessment Project modelled a scenario that suggested by 2045 Scotland could have 37GW of renewable generation producing 126TWh of renewable hydrogen, of which 94TWh would be produced for export. To maximise economic benefits the UK and Scottish Government's plans should recognise the export potential of Scottish electrolytic hydrogen and adopt a strategy that looks to maximise the opportunity over and above Scotland's needs.

The potential for economic benefits is huge, the Scottish Government's Hydrogen Policy Statement states these to be:

'Economic impact scenarios developed this year as part of our Scottish Hydrogen Assessment Project suggest that in the most ambitious scenario, establishing Scotland as an exporter of electrolytic hydrogen to Europe, where there is already growing demand, could result in a £25 billion (bn) annual gross contribution to Scotland's Gross Value Added (GVA) with over 300,000 jobs supported by 2045.'

## **2. Do you agree with the proposed scope for the NZHF?**

We agree with the proposal that funding is needed right across the hydrogen value chain. We understand why the NZHF should support multiple production technologies, however, to date, there has been less focus on electrolytic hydrogen and if moving to electrolytic hydrogen production is the eventual aim to meet our decarbonisation targets and achieve net zero, then we need to significantly scale this up now so that costs can fall later on. Supporting multiple hydrogen production routes risks diluting the amount of electrolytic infrastructure. Therefore, we suggest ring-fenced funding for electrolytic hydrogen. In addition, electrolytic hydrogen production projects could be operational by 2023, compared to CCUS projects that are not expected to be operational until the latter part of this decade. This should be reflected in Government's overall approach to support, also taking account of both the hydrogen business model and the NZHF proposals.

It is clearly anticipated that CCUS-enabled hydrogen projects in the first CCUS clusters will be supported via the hydrogen business model scheme. These large schemes can be fully financed off the back of support from the business model scheme alone - due to the long-term strike price and revenue certainty which that scheme will provide. In this context it is not

clear that there is any need to use NZHF funds to support early CCUS enabled hydrogen projects.

Conversely, due to its greater complexity, the hydrogen business model scheme is not so clearly suited to supporting the initially much smaller scale projects which will emerge in the electrolytic hydrogen sector. These early smaller projects are essential for delivering the market experience, learning by doing and cost reduction through economies of scale necessary for growing the sector.

Our recommendation for ring-fenced funding for electrolytic hydrogen is more likely to deliver in practice on HMG's intended "twin-track" approach and stimulate the electrolytic hydrogen market. Kick-starting the electrolytic hydrogen sector could also enable it to take better advantage of the business model scheme.

With respect to the target timeframe for NZHF supported projects, the proposal to target projects that can realistically begin production of low carbon hydrogen "during the 2020s" is not at the right level of ambition to realise the potential of the sector and support early growth towards the Government's 5GW target for 2030. We recommend amending this text to "target projects that can realistically begin hydrogen production in the next 2-3 years" because this sets the right level of ambition to stimulate the early hydrogen market and facilitate more smaller electrolytic projects.

Considering that this fund is covering the whole of the UK, £240 million over 4 years is £60 million a year, which is quite limited. We note too that the consultation document states that it is co-funded by the private sector, so clarity is needed as to how that will happen.

We agree with the proposal that support could be given to the feasibility and front-end engineering design stages of projects which could facilitate a pipeline of projects for the future. We would also support funding being considered for non-production projects that support the provision of hydrogen. This will vary in each circumstance, but each production project will likely have some requirements for storage and transmission infrastructure.

**3. Are there any technologies for low carbon hydrogen production, other than CCUS-enabled and electrolytic hydrogen, that you think could begin production of low carbon hydrogen during the early 2020s? Please give details.**

N/A

**4. What boundary should the NZHF set around production projects? Please explain your rationale, including any considerations that may change over time and / or vary according to the types of projects.**

We agree with Government focussing the £240m on supporting hydrogen production projects and excluding storage and distribution infrastructure unless this infrastructure is directly and specifically required for the hydrogen production project in question. However, we do not agree that significant funds from the NZHF should be allocated towards DEVEX spending because this will not guarantee hydrogen production projects are constructed and will take away CAPEX funding allocations that could result in the construction of hydrogen production projects. We expand on this point further in the response to the question below.

Some members disagree with the proposal to fund hydrogen production facilities rather than distribution or storage. There is inherent importance of at least small-scale distribution and storage linked to the production plant to allow for fluctuations in production and offtake.

And in order to meet the 2030 ambitions there will be various elements needed to support the success of production facilities. The need for infrastructure and storage to provide efficiency and a “buffer” increases with increasing production/demand connections.

**5. Noting the importance of revenue support which could be covered by the Hydrogen Business Model, do you agree that capital grant funding is the most effective option for low carbon hydrogen projects to come forward? Please explain your answer.**

We agree that capital grant funding is a potentially effective option to help early low carbon hydrogen projects to come forward and we welcome Government’s intention to supply funding for capital expenditure (CAPEX). However, £240m is a limited amount of money and while we recognise the value of DEVEX funding, the primary focus of the NZHF should be to provide CAPEX support because DEVEX spending does not guarantee the actual construction and operation of low carbon hydrogen production projects. Therefore, we recommend that NZHF spending should be focussed on CAPEX to ensure value-for-money, especially considering that DEVEX support for new technologies or approaches could be covered by innovation funding. Furthermore, DEVEX support for CCUS enabled hydrogen projects in the initial CCUS clusters, if needed, could be funded via other CCUS related funding streams.

Although we recognise the case for NZHF funding to provide CAPEX support for early projects, overall, we believe that OPEX support, such as that proposed by the hydrogen business model, is likely to be more effective at supporting hydrogen projects in the long term.

For other projects DEVEX funding may be more appropriate particularly if they have longer timescales.

**6. If capital grants were not available, would you consider applying for government loan funding?**

No comment

**7. Do you agree that CAPEX support through the NZHF will help projects to reach Final Investment Decision? Please explain your answer.**

Our members agree that capital support for electrolytic hydrogen projects is most important, particularly smaller ones. £240m is a limited amount of money and while we recognise the value of DEVEX funding, the primary focus of the NZHF should be CAPEX support. DEVEX spending does not guarantee that cannot access support through the business model. The money spent will result in the construction of operating hydrogen production projects and risks significant Government expenditure on projects or technologies which do not progress. Focussing NZHF spending on CAPEX would therefore help ensure value-for-money from the fund, especially considering that DEVEX support for new technologies or approaches could be covered by existing innovation funding mechanisms. We also note that existing funding streams such as the Industrial Strategy Challenge Fund exist to support development expenditure work relating to the CCUS clusters.

Business models are needed for electrolytic hydrogen specifically due to its high operational costs and revenue uncertainty.

As producing electrolytic hydrogen is still an emerging industry, it may be that patch funding is needed to make it economic to make, distribute, store and use hydrogen – multiple patches at assorted places that will change over time, requiring DEVEX as well as CAPEX support. Basically, the funding needs to be flexible.

**8. Do you know of any projects that may only want CAPEX support, without a requirement for a hydrogen specific business model, in order to take FID? If so, please give details of the project(s).**

We do not know of any such projects.

**9. What reflections do you have on the approach we have identified to address the main challenges in building new hydrogen production facilities?**

One of the main challenges we have heard from industry concerns risk around the first-mover status. There are many concerns around demand risk too so the Government sharing some of those risks by providing direct capital funding until there is clear visibility on the route to market, would be beneficial. Industry is aware that they need major projects to work through the hurdles and 'learn by doing', so the positioning of the NZHF to de-risk investment through CAPEX co-funding is good. Industry can then step up with more projects coming forward.

**10. Do you agree that there is a need/demand for government intervention to support hydrogen production projects with their development costs?**

We agree with the suggested option that to prevent a gap between First-of-a-kind (FOAK) and Nth-of-a-kind (NOAK) projects and boost the project pipeline before 2030, is for the NZHF to offer development support (DEVEX), including for non-production projects that will make a material impact in supporting the 2030 ambition. This is a nascent industry that under current market conditions cannot be profitable or attract low-cost capital. Government support at this stage is essential to grow confidence in the sector to the point where private finance can step in.

**11. In light of available funding sources for project development, at what stage of the project life cycle would government support ensure the most effective use of the NZHF's resources and why?**

We agree with the Government's proposal not to set a minimum grant threshold for the NZHF, as this could act as a barrier to smaller-scale project deployment. In the business model consultation, the consultation document sets out the smaller-scale projects will not be considered for the business model, so the NZHF being cognisant of smaller-scale projects is welcomed. There is still a need to engage and fund feasibility studies around hydrogen use and demonstration projects which can then move to a commercial scale. There is however a need for balance. The NZHF is meant to go beyond "Innovation" projects and with objective to support towards 5GW target, projects that are going to make a meaningful impact should be supported. What constitutes a 'smaller project' needs to be defined here.

We understand that a minimum grant threshold may be introduced at a later stage, and we would support that, to scale up.

Funding would be most welcome at the stakes where costs and risks are high which varies from pre-FEED, FEED and post-FID depending on the project.

**12. Do you agree with the proposed high-level eligibility criteria for NZHF applications? Please expand your answer.**

As we have said in replies to other questions, we believe that production of electrolytic hydrogen should be dealt with separately from CCUS hydrogen producers. We agree with the proposal that applicants are required to demonstrate the socio-economic and industrial benefits of projects.

With regards to the requirements around the offtaker, there are still some concerns around this with industry, for example, projects must prove they have an agreement in principle with an offtaker for some or all their production volumes lined up to be eligible for CAPEX support. What solutions are in place if there are difficulties with the offtaker? We seek further clarity on what level of evidence would be sought in this area and what level of commitment would be classed as an offtaker agreement? For example, could this include a Memorandum of Understanding, Letters of Support and would the location of a project within a hydrogen hub be a relevant factor? In addition, what percentage of a project's hydrogen production needs to be subject to evidence of offtaker agreements or arrangements?

**13. Do you agree with the proposed high-level assessment criteria for NZHF applications? Please expand your answer.**

The criteria are correct, but it may be difficult to implement them across technologies, especially regarding cost and emissions. We recommend a separate pot for CCUS and electrolytic hydrogen which has technology-specific criteria.

We note the assessment criteria cites cost as a criterion, therefore a definition is needed for what 'cost-effective hydrogen' and 'value for money' means here. Emissions reductions as a criterion is crucial here - the extent to which the project delivers carbon savings to the economy and contributes to the UK government's 2030 hydrogen ambitions. We hope that this information is reported on.

It is important that the assessment criteria are proportionate to the project size. We seek further clarity on how scalability would be assessed for future projects. For example, would there be a potential obligation for scaling up post-project completion? Alternatively, does solely the potential to scale-up need to be demonstrated?

**14. Do you have any comments on the application process for the NZHF? Please explain any practical considerations the government should take into account when designing the final bidding system.**

We understand the final bidding system will be a series of competitions with intervals and would recommend that these intervals and the number of competitions are published in advance, to create assurance for industry.

We seek further clarity on the sequencing of the application process because this is currently not clearly outlined. As the NZHF and other Government support schemes develop, more clarity will be needed particularly around timescales and application processes. On the assumption that the NZHF will launch first, it will be important that projects know where they stand with regards to receipt of funding from the NZHF before developers need to submit any final bids for the business models. With regards to the bidding process for the NZHF, we will require clarity on how developers can gain access to support over time. For example, would developers be expected to bid for NZHF on a standalone basis or on the assumption that they could receive business model support at a later date. Furthermore, as some projects may need both grants and revenue support for longevity, can Government provide clarity on the sequencing and conditions to access both in the future? In a scenario where a grant is received from the NZHF, could developers also apply for other funding simultaneously?

With regards to the requirement for Renewable Transport Fuel Obligation (RTFO) eligibility evidence as part of the application process, it will be important that, the assessment process distinguishes between RTFO and non-RTFO projects in order to create a level playing field because the grant amount needed for RTFO supported projects will be lower due to the additional subsidies received. The need for a level playing field will be relevant for all renewable hydrogen production projects to distinguish between those producing hydrogen for transport or other sectors.

**15. If your organisation is likely to apply to the NZHF, could you please state whether you would be seeking capital or development support and the estimated size of the bid? If your projects require capital support, please also express this as percentage of the overall costs.**

N/A

**16. If you are seeking capital support, what stage of your construction are you looking to get funding for?**

N/A