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**RE: Consultation Paper on National Research and Innovation Strategy 2021-27**

Dear Sir/Madam,

Wind Energy Ireland (WEI) would like to thank the Department of Further and Higher Education, Research, Innovation and Science for the opportunity to respond on the consultation paper for a *National Research and Innovation Strategy 2021-27*.

This new strategy provides a clear opportunity for Ireland to develop a whole-of-Government approach for research and innovation over the coming decade. To achieve this, the document needs to address directly and in substance key societal hurdles that Ireland faces, particularly the environmental and sustainability challenges which are already starting to take centre stage.

Specifically, in our view, the *National Research and Innovation Strategy 2021-27* needs to position Ireland to address the climate change challenges facing several sectors, and which will increasingly be a factor in overall economic and societal development for Ireland in the years to come.

By way of context to our response, a little bit about Wind Energy Ireland. WEI is the nation's largest renewable energy organisation with more than 150 members who have come together to plan, build, operate and support the development of Ireland's onshore and offshore wind generation. WEI works to promote wind energy as an essential, economical, and environmentally friendly part of the country's low-carbon energy future.

It is worth noting that Ireland is already number one in the world for share of electricity demand met by onshore wind, and in 2020, wind energy provided over 36% of the country's electricity

supply<sup>1</sup>. As a leader in Ireland's fight against climate change, the wind energy sector creates jobs, invests in communities, and reduces CO2 emissions. In 2019 alone, according to a report from the Sustainable Energy Authority of Ireland<sup>2</sup>, wind energy avoided 3.9 million tonnes of CO2 and cut our fossil fuel import bill by €248 million.

We are putting forward this consultation response to share our strong belief that the *National Research and Innovation Strategy 2021-27* needs to articulate the pivotal role of research and innovation as a key enabler for addressing and overcoming the effects of climate change, and to shape the transition to a green and sustainable economy. WEI believes that by having the correct mix of research and innovation supports and mechanisms in place, Ireland can build on its success to date, to deliver the transformation that is required over the coming years in decarbonisation and climate action. Below are some of the measures and policy priorities we believe can support this goal.

### **Research and innovation can help to address key national policy questions.**

WEI believe there is a definite need to recognise the research and innovation system as a resource to provide evidence-based research to address key national policy questions. In recent years WEI has carried out extensive research to support the Irish government in setting policy targets in decarbonisation, climate action and the just transition.

For example, our suite of *70 by 30* reports<sup>3</sup>, focusing on the areas of onshore and offshore wind, were pivotal publications which set out ways of delivering many of the targets in the government's 2019 *Climate Action Plan*. Our *Harnessing Our Potential* study<sup>4</sup> outlined how offshore wind energy can create 2,500 jobs over the next ten years and attract over €42 billion in lifetime investment.

Our partnership with the MaREI centre for *Our Climate Neutral Future: Zero by 50*<sup>5</sup> showed how Ireland can have a net-zero energy system by 2050. WEI feels there is enormous opportunity for significantly more research and innovation across both academia and industry to deliver on the step change required to move us to a decarbonised society, and that research and innovation can play a major role in addressing key national policy questions in the coming years.

We believe that any priorities defined in the *National Research and Innovation Strategy 2021-27* must support national policy objectives set out elsewhere in government. The development of an

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<sup>1</sup> Based on figures from the Sustainable Energy Authority of Ireland and EirGrid

<sup>2</sup> <https://www.seai.ie/publications/Energy-in-Ireland-2020.pdf>

<sup>3</sup> <https://windenergyireland.com/images/files/70by30-implementation-plan-reports.pdf>

<sup>4</sup> <https://windenergyireland.com/latest-news/3479-new-report-reveals-multi-billion-euro-offshore-wind-energy-potential>

<sup>5</sup> <https://windenergyireland.com/images/files/our-climate-neutral-future-0by50-final-report.pdf>

updated *Climate Action Plan*, following on from the *Climate Action and Low Carbon Development (Amendment) Bill 2021*, will likely set out even greater ambitious targets impacting the entire economy, to support a 51% reduction in Ireland's greenhouse gas emissions by 2030. It is our view that the funding priorities for research and innovation must be coherent with the targets set out in the government's *Climate Action Plan*, an update of which is expected in July 2021.

### **Research should be promoted in areas that will yield greatest economic benefit for Ireland.**

WEI's view is that research and innovation funding should seek to exploit the areas where Ireland's national resources convey a distinct competitive advantage e.g., renewable energy.

The *National Research and Innovation Strategy 2021-27* needs to support continued deployment of the proven technologies which have led the decarbonisation journey up to 2020, led by onshore wind. Furthermore, it is essential that the strategy recognises the huge potential for deployment of new technologies such as offshore wind, energy storage technology, and electrofuels such as green hydrogen, all of which offer solutions for powering Ireland's economy in the years ahead.

In the challenges to be faced in decarbonising society, there will be a requirement for significant research, applied research and innovation leading to products, patents, intellectual property and services being developed to respond to those challenges. This will include areas such as the electricity grid (both new infrastructure and smarter operational tools), onshore and offshore wind generation (bottom fixed and floating), and solar energy, ancillary services for electricity supply e.g., battery storage technology, and the advancement of zero carbon fuels.

One specific example of a technology presenting enormous economic opportunity to Ireland is floating offshore wind (FLOW). This opportunity has already been recognised by the government, with an ambition of 30GW of FLOW included in the current *Programme for Government*<sup>6</sup>. Ireland is not an outlier in this space. Europe has emerged as a global leader in FLOW, with a pipeline of at least 7GW of floating wind projects planning to come onstream by 2030. The UK, France and Norway have so far shown the most ambition for FLOW, and France has already launched its first commercial-scale tender. With an abundance of wind resources in deep waters off Ireland's south and west coasts – the best in Europe, Ireland is well positioned to prosper in this space.

WEI believes that the new strategy should play a role in incentivising research and innovation in these sectors, to facilitate their development and growth, to the benefit of Ireland as a whole.

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<sup>6</sup> <https://www.gov.ie/en/publication/7e05d-programme-for-government-our-shared-future/>

## **International collaboration needs to be at the heart of research and innovation.**

The European Union is committing significant funding to climate change, decarbonisation, and digital transformation, over the period up to 2030. The *National Research and Innovation Strategy 2021-27* needs to support Irish participation in international collaborations with universities and overseas enterprises, in Europe and further afield.

The *EU Green Deal* is the European Union's main new growth strategy to transition the European Union to a sustainable economic model. It includes supports in climate action; clean energy; sustainable industry; buildings and renovations; sustainable mobility; eliminating pollution; farm to fork; preserving biodiversity; research and development; and preventing unfair competition from carbon leakage. In parallel with the *EU Green Deal*, the *EU Recovery Plan* aims to mitigate the economic and social impact of the COVID-19 pandemic and make European economies and societies more sustainable, resilient, and better prepared for the challenges and opportunities of the green and digital transitions. If Ireland wishes to optimise the benefits of these supports, it requires an effective integrated strategy that allows us to meet national targets, while also positioning Ireland for future development built upon opportunities provided by the *EU Green Deal* and the *EU Recovery Plan*.

The importance of strengthening relationships and engagement beyond Ireland cannot be overstated, as such relationships have been a key asset in enabling Ireland to take its place among the top performers globally and excel in key areas of research and innovation. The new strategy needs to provide Irish academics and industry partners with supports for participating in *Horizon Europe*<sup>7</sup> for example. In this way, Ireland will be able to enhance its international engagement and collaboration with key research activities and bodies in the years ahead.

## **National research funding needs to increase to bring us in line with other countries.**

The *Science Foundation Strategy 2025: Shaping Our Future*<sup>8</sup> noted that many countries around the world are increasing their investment in Research, Development, and Innovation (RD&I) – South Korea 4.5% of GDP, Japan 3.3% of GDP, US 2.8% of GDP, China 2.2% of GDP (2018 figures). The RD&I expenditure of the EU in 2018 stood at 2.2% of GDP but with a target to invest 3% of GDP. Projections are that 11 countries – Austria, Belgium, Denmark, Germany, Hungary, Israel, Italy, The Netherlands, Poland, Slovakia, Sweden – are at, or will, achieve that investment target by

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<sup>7</sup> [https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe\\_en](https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en)

<sup>8</sup> <https://www.sfi.ie/strategy/SFI-Strategy-2025-Shaping-Our-Future.pdf>

2027. The UK Government has committed to increase UK investment in R&D to 2.4% of GDP by 2027 and to increase public funding for R&D to £22 billion per year by 2024/25.

Over the period 2010 – 2019, Ireland’s investment in RD&I, as a percentage of GDP declined (and in 2019 was just below 1% of GDP), largely due to a flat investment budget and growing GDP.

A significant increase in investment in research and innovation (to c. 3% GDP), and including all players (Government, State companies and private sector) will be required if Ireland is to really benefit from the opportunities provided by the decarbonisation of society (amongst others).

**Research and innovation priorities should be cognisant of the potential for job creation and new business opportunities, arising from successful links with industry.**

Looking at the new strategy through the lens of addressing the post-pandemic recovery and climate change, if addressed in a suitably strategic and integrated manner, WEI members foresee significant opportunities for Ireland to create sustainable jobs, which could also contribute to developing a sustainable competitive advantage for the country into the future. *Our Climate Neutral Future: Zero by 50*<sup>9</sup> estimates that delivering a net-zero energy system could create at least 50,000 jobs in Ireland.

The scale of the transformation is such that the new ‘green jobs’ will be required across the whole economy. Some of these jobs will be in the areas of:

- Installation and maintenance of wind turbines (onshore and offshore), solar PV, and other forms of renewable energy at scale.
- Installation and maintenance of local renewable energy generation (microgeneration) and shared services offered by energy cooperatives (e.g., demand-side management, peer-to-peer trading, virtual power plants).
- Installation and maintenance of the charging infrastructure for electric vehicles and other non-fossil advanced fuel (biofuels, hydrogen, etc.) and electric vehicles.
- Local engagement agencies providing information to the public and communities.

The fact that Ireland is currently one of the countries at the forefront of decarbonising its electricity system provides an opportunity for Ireland to become a ‘test bed’ and an exemplar for the electrification of broader society. With the existing strong presence of expertise in the energy

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<sup>9</sup> <https://windenergyireland.com/images/files/our-climate-neutral-future-0by50-final-report.pdf>

sectors, there is a basis for creating an ecosystem to support significant innovation related to decarbonisation, not just of the electricity sector but of all businesses.

To achieve this would require the establishment of a specific supportive ecosystem that could offer opportunities for collaboration between academic researchers, private companies, state companies and agencies, the Commission for the Regulation of Utilities and industry bodies such as Wind Energy Ireland. Because of the high capital investments required in the energy sector, this ecosystem would require financial support for establishing and running some 'test beds' and this would need to be provided for in the new strategy.

Such an innovation would enable Irish companies, academic researchers, and local communities, to collaborate in finding solutions to problems associated with the decarbonisation of society. If this ecosystem was established, it is likely to result in Irish patents, new Irish companies being formed and new jobs arising at various skill levels and in regional areas around the country.

**A dynamic ecosystem is needed to underpin collaboration between researchers, industry players, and the public at large.**

It is WEI's view that greater levels of industry and academic collaboration are needed to ensure early deployment and implementation of existing and new technologies over the coming years. A key constraint in the delivery of any form of innovation is ensuring effective transfer of research and development to commercialisation. We believe that this can be best facilitated by effective agreements between industry and academic institutions, through the formation of partnerships and the co-production of energy research. There is a need to link academia at the forefront of research in particular areas with potential private and state beneficiaries. Dissemination of research findings to end users, whether in energy, or other industries, needs to be a priority of the *National Research and Innovation Strategy 2021-27*. It is our view that a developed knowledge transfer system will play a key role in supporting collaboration in this space.

The dissemination of research extends to communication of scientific breakthroughs and solutions to the public too. Communicating the importance of research and innovation will be needed across society to ensure that it is acknowledged as key to many areas of policy development and decision making. The Irish public, particularly our young people, are demonstrating their desire to be heard and to connect with decision-makers in areas of significant challenges such as climate change. It is timely to grasp this possible once in a generation opportunity and continue to enhance the public's interest and engagement in research and innovation initiatives to address climate change. The new strategy should set out a pathway for building support, understanding and appreciation of the benefits and value of research as a means of social, economic, and environmental transformation for Ireland. We believe WEI can support these activities, through our large industry network, and we look forward to significant collaboration over the coming years.

## Conclusion

In conclusion we again thank the Department of Further and Higher Education, Research, Innovation and Science for the opportunity to make this submission.

In summary, WEI believes that:

1. Research and innovation can help to address key national policy questions.
2. Research should be promoted in areas that will yield greatest economic benefit for Ireland.
3. International collaboration needs to be at the heart of research and innovation.
4. National research funding needs to increase to bring us in line with other countries.
5. Research and innovation priorities should be cognisant of the potential for job creation and training opportunities, arising from successful links with industry.
6. A dynamic ecosystem is needed to underpin collaboration between researchers, industry players, and the public at large.

We look forward to engaging with you and a wider group of stakeholders on the next steps towards a new *National Research and Innovation Strategy 2021-27*.

Best Regards,

*Dave Linehan*

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Dave Linehan

Head of Research, WEI