

Climate Action Plan 2024

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About SuperNode and Superconductors

SuperNode, headquartered in Dublin, Ireland, is a global technology development company that designs and delivers cutting-edge, superconducting cable systems for bulk electricity transmission.

Conventional transmission cables are limited in terms of current levels which in turn limit their power transfer capability. Networks based upon superconducting cable systems can move larger quantities of power over longer distances with smaller and less obtrusive infrastructure, without electrical losses and at significantly lower voltages. SuperNode's technology will connect electricity markets in a way that facilitates the integration of large-scale renewables and the achievement of a decarbonised pan-European energy system.

SuperNode was founded in 2018 by the late Dr. Eddie O'Connor and renewable energy developer Mainstream Renewable Power Ltd. SuperNode is jointly owned by Dr. O'Connor's investment group Volnay and Norwegian green investment group AKER Horizons.

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Introduction

SuperNode would like to thank DECC for the opportunity to provide input into the consultation on the Climate Action Plan 2024.

Ireland stands at a crucial juncture in its journey towards decarbonisation, with offshore wind emerging as a cornerstone of our renewable energy landscape and a resource potential that far



outstrips our demand. Ireland must develop a route to market for this excess power and SuperNode would like to emphasise the critical role that transmission technologies will play in realising the energy and economic benefits from Ireland's renewable energy potential. For this reason transmission technologies should become a key strategic technology for Ireland and should be given direct focus in the Climate Action Plan.

There is a technology gap in grids. We need new innovative cable technologies with higher capacities if we are to reach our 2050 climate and renewable energy targets. Current power transmission cable technology can only carry 1 GW per cable. If Ireland is to harness the full potential of our offshore renewables and become a net exporter, we need innovative, new, high-capacity cable technologies, like high capacity superconducting cables to be developed, tested, manufactured and commercialised this decade. Failure to do so will result in an excessive number of landing points, cable projects, and infrastructure, using far too many materials and space. Business as usual will not deliver a timely and successful renewable energy transition. "Policy makers need to create the frameworks that will enable grids to be transformed, modernised and expanded. The private sector will need to innovate and invest," wrote the IEA in its Special Report on Electricity Grids from October 2023. Ireland should look to support and nurture innovative distribution and transmission technologies to become a European, if not global, hub for its development, demonstrating, deployment and manufacturing.

Ireland should aim to become a leader in the industry. To achieve this, it's imperative that we implement a clear framework to support and nurture new technologies and to attract major grid companies to the Irish market. Outlined below are key measures that, if implemented, will facilitate the effective utilisation of offshore wind resources and position Ireland as a global hub for innovative electricity distribution and transmission technologies:

Framework for Innovation: A clear and coherent framework must be established to support and nurture innovative grid technologies.

RD&I Support: Robust support for Research, Development, and Innovation (RD&I) initiatives, including incentives for regulatory and technical trials, is essential.

Government Support: Government intervention through incentives and financial support is critical to fostering the growth of the grid technology sector.

International Collaboration: Bilateral and multilateral agreements with the EU and beyond will strengthen Ireland's position as a leader in grid technology innovation.

Innovation Fund

The Innovation Fund is one key vehicle for Irish companies looking to access funds for innovative technologies for the energy transition. It is however, a challenge for companies developing enabling technologies such as grid technologies. The evaluation criteria is based primarily on the avoidance of green house gas emissions. These are almost impossible to assess for a technology like superconducting cables. The result is a sometimes arbitrary project and technology selection process that ignores the long term benefits and carbon reduction potential of many enabling grid technologies.

SuperNode's superconducting transmission technology offers huge benefits beyond just cost reductions with the capacity to deliver bulk power with reduced losses, costs, space, materials, infrastructure and environmental footprint compared to conventional cables. However, it is not given a fair opportunity to access such a key funding vehicle.

SuperNode would seek the Departments support in the EU for key enabling technologies to better access the funds available to them.

We thank the Department for considering our input in this consultation. SuperNode is available to meet with any departmental officials or participate in any working groups or fora set up by the Department to explore this issue or any others connected with energy policy in Ireland.