

Response to Public consultation on the European Commission's proposal for a regulation on measures for strengthening Europe's net-zero technology products manufacturing ecosystem.

COM(2023)161 (Net Zero Industry Act)

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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. Electricity grids 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 producers and consumers in a way that facilitates the most efficient integration of large-scale renewables and the achievement of energy independence and a decarbonised pan-European energy system.

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

Summary of recommendations

- Maintain the European Commission's focus on the eight technologies proposed in Annex 1.
- The EU must recognise that European clean tech manufacturers and clean technology developers such as SuperNode, are being tempted by increasingly attractive framework conditions from other regions of the world, not least in the United States, and take immediate and corrective action, to maintain European competitiveness.
- It is very positive that transmission grids are included as one of eight strategic technologies in the Commission's proposal and that focus is maintained. Electricity grids are enabling technologies that are vital for the rapid transition needed away from imported fossil fuels towards a decarbonised, indigenous energy supply, based predominantly on variable solar and wind.
- SuperNode proposes that a new article (New Article 26 (3) bis) is introduced to provide for transmission and distribution system operators to ensure that provisions are made for testing new, innovative grid technologies:

“For net-zero regulatory sandboxes established for Innovative net-zero Electricity grid technologies, Member States must ensure participation of relevant national TSOs and DSOs in overcoming any technical or administrative barriers to establishing the net-zero sandbox.”

Maintain Technology Focus

SuperNode welcomes the European Commission's proposal for a regulation on measures for strengthening Europe's net-zero technology products manufacturing ecosystem (Net Zero Industry Act - NZIA).

As a European developer of innovative breakthrough technology, vital for reaching Europe's climate and energy independence objectives, SuperNode Ltd finds it vital that the European Union framework conditions for developing, demonstrating, and commercialising clean energy technology innovation and manufacturing are dramatically improved.

SuperNode finds it crucial that the European Commission's proposal maintains its focus on the eight technologies suggested in Annex 1. Some proposals put forward by the European Parliament rapporteur, risk diluting the attention from the core purpose of the NZIA to “establish the framework of measures for innovating and scaling up the manufacturing capacity of net-zero technologies in the Union”, in order to provide an adequate response to the US Inflation Reduction Act.

SuperNode strongly believes that the eight strategic Net Zero technologies, outlined in the European Commission proposed Annex, should remain the priority focus of the NZIA targets and provisions. Extending the scope to a broader, ill defined, group of technologies or expanding the scope of the NZIA to include the chemicals or buildings industry, under the rationale that these materials are used in clean tech, would seriously weaken the Commission's NZIA proposal. At a time when European clean tech manufacturers and technology developers such as SuperNode are being tempted by increasingly attractive framework conditions, not least in the United States, preserving the focus of the NZIA is essential for its ability to maintain European clean technology leadership in innovation and manufacturing.

The importance of enabling technology for the energy transition

On 15 June, the EU's advisory body on climate change - The European Scientific Advisory Board on Climate Change (ESABCC) – presented its science based recommendation of achieving EU net emissions reductions of 90-95% before 2040, relative to 1990 levels¹. Such a reduction would require a doubling to more than 50 % of electricity's share of final energy demand (see graphs). Renewable energy source, especially solar and wind (and excluding bioenergy) would be likely to meet more than 85% of electricity, according to ESABCC.

All pathways to meet Europe's agreed 2050 decarbonisation target, would imply a 2040 energy system largely dependent on a fully decarbonised electricity supply, predominantly based on variable wind power and intermittent solar power. For such an energy system to materialise, Europe must start planning, demonstrating and deploying innovative grid enhancing technologies and advanced power cable technology, including superconducting cable systems, capable of moving massive amounts of electricity at no losses and with minimal use of critical raw materials. Electricity grids are enabling technologies that are vital for the rapid transition needed away from imported fossil fuels towards a decarbonised, indigenous energy supply, based predominantly on variable solar and wind.

The International Energy Agency has already established that “almost half of the 2050 reductions in greenhouse gasses must come from technologies that are currently at the demonstration or prototype phase.” It would be prudent of Europe to provide rapid and meaningful support to those innovative technologies. Therefore, it is very positive that transmission grids are included as one of eight strategic technologies in the Commission's proposal and that focus is maintained.

Innovation and Sandboxes

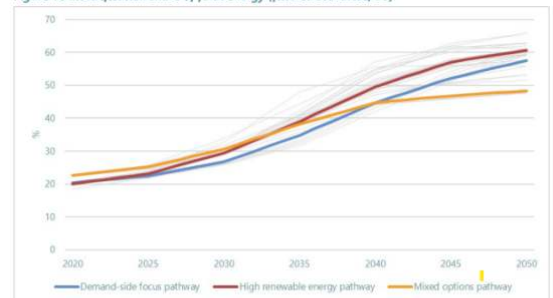
It is critical for European technology leadership that the proposal's Article 26 on 'Innovative net-zero technologies' and 'Regulatory Sandboxes' is maintained. Diluting these technologies by including all SET-plan technologies, as suggested by some European Parliamentarians, would dilute the proposal and decrease efficiency and focus.

Likewise, the Commission's proposed Article 3, which defines 'innovative net-zero technologies' must be maintained. Defining Innovative Technologies according to the SET-plan would dramatically widen the scope for these innovative technologies as well.

SuperNode proposes that a new article (**for example New Article 26 (3) bis**) is introduced to ensure that transmission and distribution system operators ensure that provisions are made for testing new, innovative grid technologies:

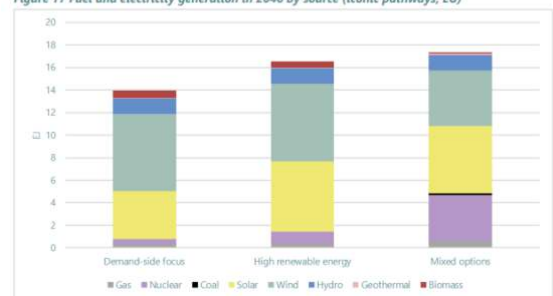
¹ [EU climate Advisory Board recommends ambitious 2040 climate target and urgent transitions for the European Union \(europa.eu\), June 2023](https://ec.europa.eu/euro-press/press-articles/eu-climate-advisory-board-recommends-ambitious-2040-climate-target-and-urgent-transitions-for-the-european-union)

Figure 16 Electrification share of final energy (filtered scenarios, EU)



Source: Advisory Board (2023).

Figure 17 Fuel and electricity generation in 2040 by source (iconic pathways, EU)



Source: Advisory Board (2023).

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Justification for this new Article 26 (3) bis is:

- Sandboxes will be needed to bring ensure that safe and reliable technology can be proven. Specifically for Innovative Grid Technologies, a mechanism is needed to secure positive engagement from TSOs and DSOs;
- There needs to be a transparent and non-discriminatory process whereby TSOs and DSOs are required to respond to requests for a sandbox project and engage in their successful implementation.
- Unlike renewable generation or supply side technology, grid technology does not aim to just connect with the grid - it aims to be part of the grid. To move power rather than to make or consume power. Therefore, innovative grid technology requires special attention;

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