ETIPWind

Roadmap Executive Summary

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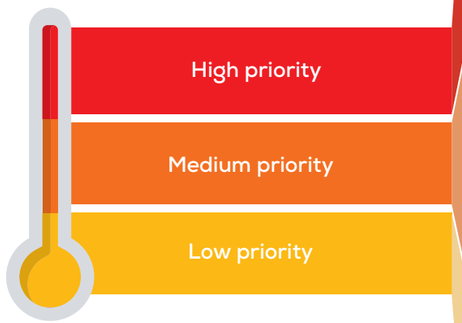
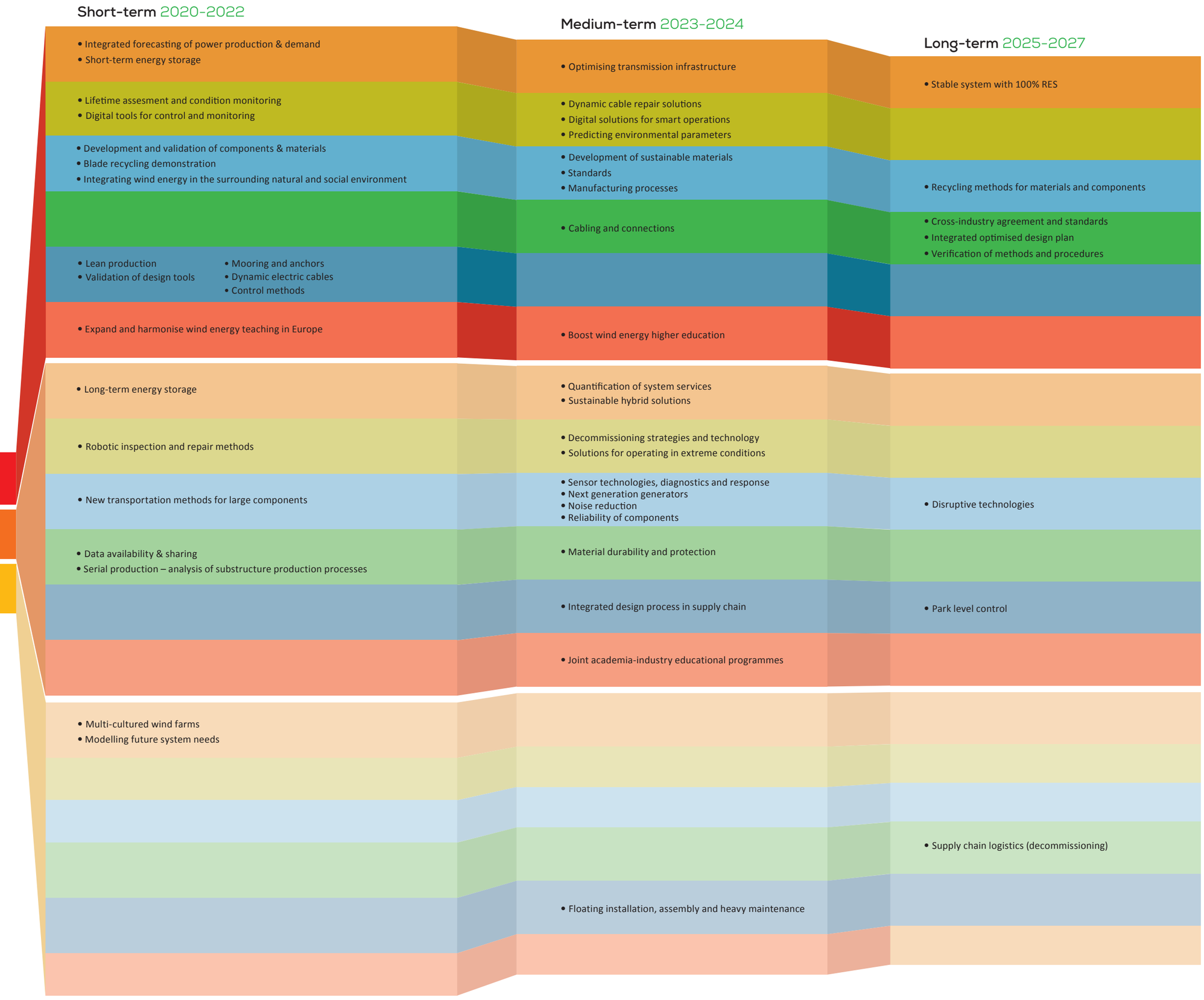
ETIP Wind

EUROPEAN TECHNOLOGY & INNOVATION PLATFORM ON **WIND ENERGY**

Research & Innovation priorities 2020-2027

Technology Roadmap





Our climate is undergoing dramatic changes and the effects on our society are becoming more visible and more intense. To halt the disastrous effects of climate change most governments, including the European Union, have pledged to keep global warming well below 2° Celsius by 2100.

Achieving this goal will require a near complete decarbonisation of the energy system and a significant increase in renewable power generation. This energy transition must be swift, sustainable and fair. Wind energy is expected to become the flagship of this transition and provide for at least half of the EU's electricity demand. Deploying wind energy as part of the energy transition will bring several benefits to European citizens and businesses. Carbon emissions will drop, air quality will improve, the environmental impact of the electricity sector will reduce and thousands of new jobs will be created across Europe.

Still, the clean energy transition will require substantial Research & Innovation at all Technology Readiness Levels (TRLs). To deliver on the ambitious climate and energy targets Europe needs strong and fit-for-purpose industrial and research programmes to further develop and improve technology solutions and applications. And to support existing European supply chains. In particular, EU policy should underpin the immediate and large scale deployment of renewable energy technologies by supporting Research & Innovation to:

- improve performance and reduce cost of utility-scale renewable energy production and bring new concepts faster to market;
- enhance sustainability and promote circularity within European industries; and
- accelerate renewables-based electrification (direct and indirect) of hard-to-abate sectors.

Energy experts and policymakers expect wind energy to take a leading role in the power sector, with a total installed capacity of up to 1200 GW by 2050. Such ambitious targets need to be supported with a dedicated industrial policy on wind energy. Wind energy holds a unique place in the European industrial fabric. It is at the same time a high-tech green and heavy manufacturing industry. Innovation and technology development play a big part in the success of wind energy in Europe and further technology advancement will be essential for a successful and just energy transition.

To sustain this trend the industry needs continued support to design and manufacture new component structures and materials and develop new high precision manufacturing lines suited to mass production of larger and more efficient turbines. New materials and multi-material solutions should reduce weight, increase durability and improve mechanical performance.

At the same time, the wind industry is committed to sustainable production by enhancing circularity and developing new materials. Improved and more cost effective recycling technologies will further reduce the ecological footprint of the sector. Critical materials such as glass and carbon fibres can be recovered and re-used in a circular economy. Research into new, more recyclable materials will reduce EU's dependence on rare earths and other critical raw materials.

Targeted R&I support will also strengthen the leading role of the European industry in the global market. Competition from non-EU players is rapidly increasing and the associated cost reduction pressures have a big impact on revenues and employment, especially in the European supply chain.

ETIPWind therefore recommends European and national governments to align their R&I funding programmes with the priorities laid out in this report.

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