



Wind Implementation
Working Group



IWG Wind-ETIPWind joint meeting

16 October, 11:00-13:00





Agenda

11:00-11:10	Welcome & Tour de Table
11:10-11:20	Opening from the European Commission – <i>Enrico Degiorgis, DG RTD</i>
11:20-11:30	Update on ETIPWind and IWG Wind activities – <i>SETIPWind Secretariat</i>
11:30-12:45	Discussion on the ETIPWind R&I priorities (2025-2027) <ul style="list-style-type: none">• 11:30-11:45: Wind Energy system integration – <i>Adrian Timbus, Hitachi Energy</i>• 11:45-12:00: O&M and Digitalisation – <i>Lars Landberg, DNV</i>• 12:00-12:15: Industrialisation, scale-up and competitiveness – <i>Mariya Trifonova, CSD.</i>• 12:15-12:30: Sustainability and Circularity – <i>Allan Poulsen, Vestas</i>• 12:30-12:45: Skills and Coexistence – <i>Helena Solman, Wageningen University</i>
12:45-13:00	Future collaborations and next steps - <i>SETIPWind Secretariat</i> <ul style="list-style-type: none">➤ <i>Feedback on joint activities proposed by Secretariat</i>➤ <i>Next joint meeting</i>



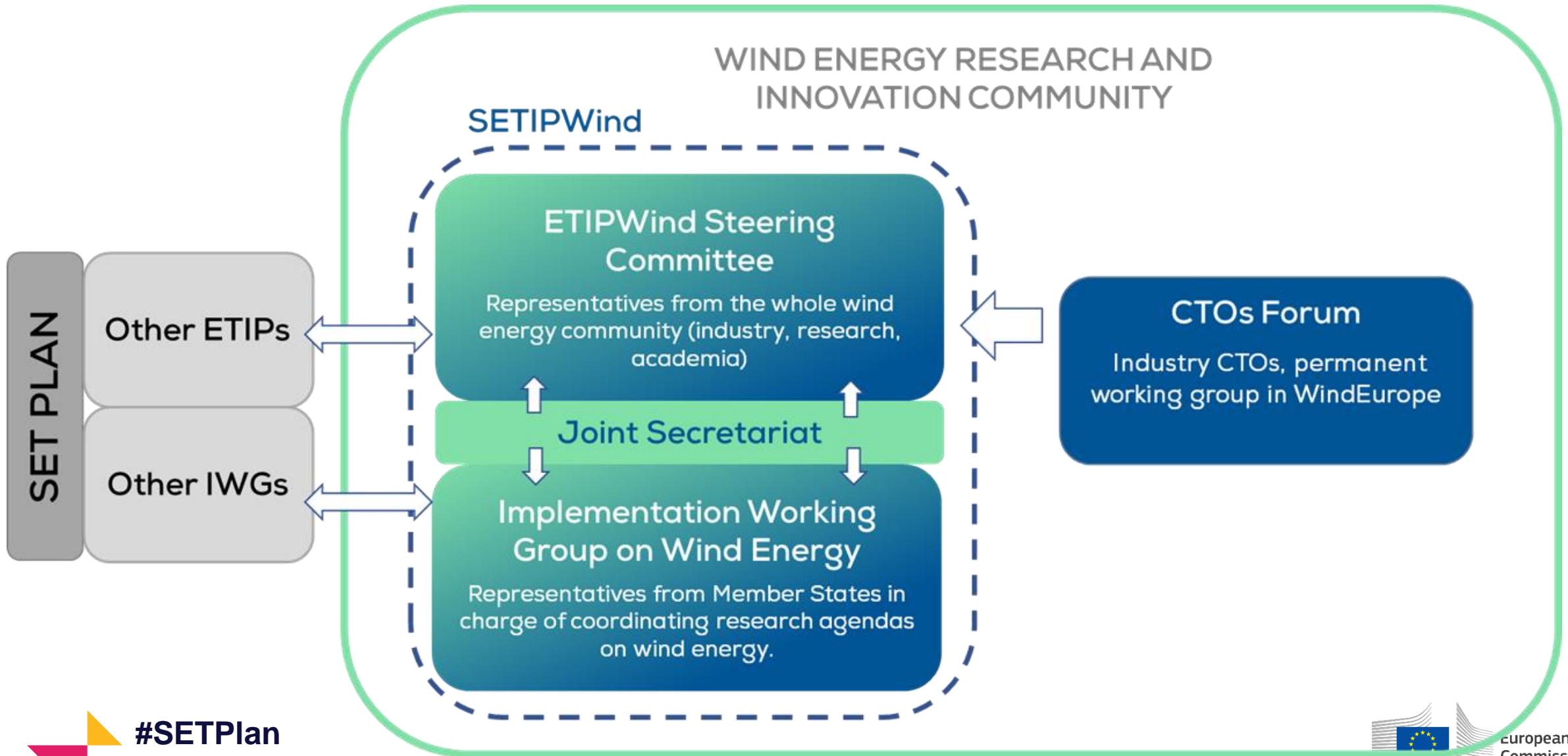
#SETPlan



Welcome and Tour de Table

SETIPWind Secretariat

Welcome and Tour de Table



#SETPlan

Welcome and Tour de Table



**35 industry / research experts
covering the whole wind supply chain**

• INDUSTRY



• RESEARCH



Wind Implementation Working Group

**10 Member States
representatives**



#SETPlan



Opening from the European Commission

Enrico Degiorgis, Policy Officer, DG RTD

#SETPlan



Update on ETIPWind and IWG Wind activities

SETIPWind Secretariat

#SETPlan



Roles of ETIPWind and IWG Wind

- **ETIPWind:** public platform gathering **industry and research experts** to **identify common Research & Innovation (R&I) priorities** and to foster breakthrough innovations in the sector. They **inform policymakers** on how to maintain Europe's global leadership in wind energy technology through R&I.
- **IWG Wind:** working group that **strengthens cooperation between the SET-Plan countries** to accelerate the development and deployment of wind energy. It maximises synergies and **define the R&I activities that must be implemented at the national level** to place Europe at the forefront of next generation wind technologies.

Common goal: To support, through R&I, the deployment of wind energy that Europe needs to achieve its climate and energy targets

ETIPWind key achievements

Election of a new ETIPWind Steering Committee

9 additional experts elected



ETIPWind relaunch event in Brussels

More than 120 attendees, 9 EU and national policymakers

ETIPWind key achievements



ETIPWIND'S RESPONSE TO THE EU CONSULTATION ON THE HORIZON EUROPE STRATEGIC PLAN 2025-2027

FEBRUARY 2023

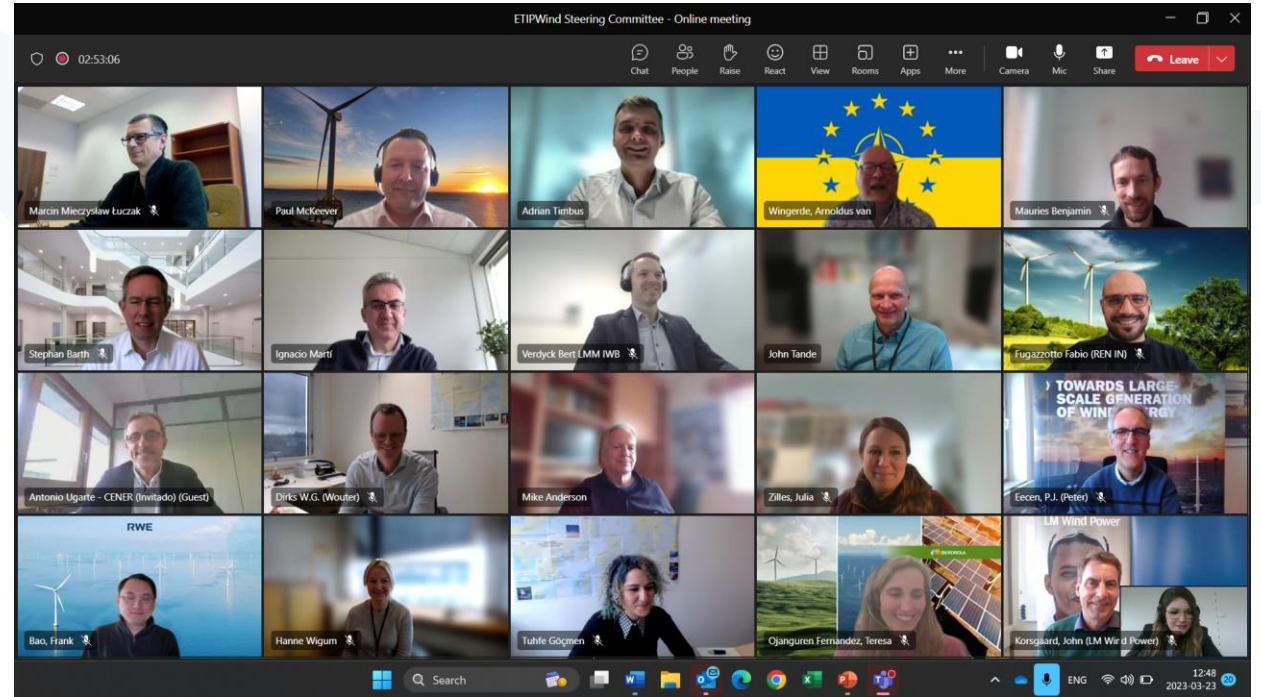
The European Technology and Innovation Platform on Wind energy (ETIPWind) welcomes the opportunity to input the Horizon Europe Strategic Plan 2025-2027.

ETIPWind provides a public platform to wind energy stakeholders to identify common Research & Innovation (R&I) priorities and to foster breakthrough innovations in the sector. It informs policymakers on how to maintain Europe's global leadership in wind energy technology so that wind delivers on the EU's climate and energy objectives.

ETIPWind recognises that the EU R&I policies have been instrumental in advancing wind energy technology in Europe, clearly envisioning its significant role in today's and future energy system. However, the wind supply chain is currently struggling as a consequence of a various factors stemming from the poly-crises Europe is facing. First from the pandemic, then from the uneven global recovery and the subsequent supply chain bottlenecks, then from the energy prices spike due to the invasion of Ukraine, and finally due to assertive US industrial policies.

This requires an **EU-coordinated policy response, including R&I policies** to secure Europe's global technology leadership. There has never been a stronger need for a forward-looking EU industrial R&I policy than today. In the next few years, the economic shape of the net zero age will be firmly set, in the own words of the EU's President Ursula von der Leyen. Horizon Europe must be part of this.

ETIPWind's position on the Horizon Europe strategic plan 2025-2027



ETIPWind Gap analysis conducted by the Steering Committee

6 Working Groups to compare the Horizon Europe projects and calls with ETIPWind roadmap

etipwind.eu

ETIPWind key achievements

Meeting with the CTOs in Copenhagen

11 CTOs to discuss the state of play of innovation in the sector and top R&I priorities



PLATFORM ON WIND ENERGY

Public workshop in Brussels to consult on R&I priorities

50 attendees, co-organised by the European Commission

ETIPWind next main milestone



STRATEGIC RESEARCH
AND INNOVATION AGENDA

2023



Working Group 1
Wind energy system
integration

Working Group 2
Industrialisation, scale-
up and competitiveness

Working Group 3
Operations &
Maintenance and
Digitalisation

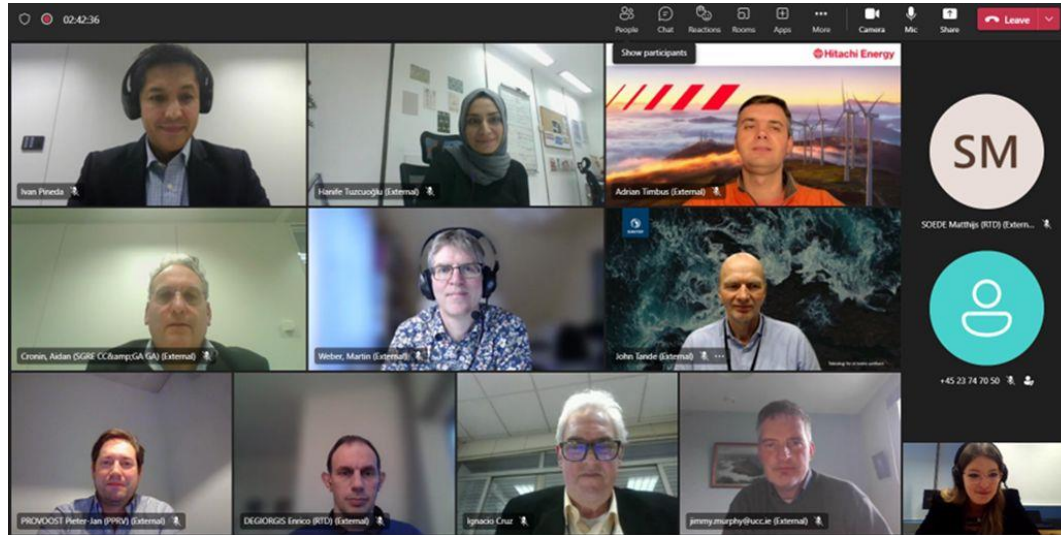
Working Group 4
Sustainability and
Circularity

Working Group 5
Skills & Coexistence

➤ **To be published end of
November 2023.**

IWG Wind key achievements

- **IWG Wind meetings**



- *Kick-off meeting, January 2023*
- *Online meeting to discuss national R&I and energy funding programmes, March 2023*



- **Synergies with other IWGs (IWG HVDC, IWG Green Hydrogen)**

IWG Wind key achievements

- Contribution to the SET Plan progress report 2023

Implementation Working Group

IWG WIND'S CONTRIBUTION TO THE SET PLAN REPORT 2023

1. Details on your working group

This section aims to gather and update the general information associated with your working group. Please provide relevant contact points:

• Question 1.1 Implementation Working Group Chair Name:
There is no IWG Wind Chair for the moment.

• Question 1.2 Email of the Chair:
info@setpwind.eu

Question 1.11 Website of the working group (if applicable):
<https://setpwind.eu/iwg-wind/>

1.2 Composition

Please select the SET Plan countries that are part of the working group

	Chair	Member	Observer
Austria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belgium	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Bulgaria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Croatia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cyprus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Czechia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Denmark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Estonia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
France	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Disclaimer

Powered by the European Commission



- Presentation to the SET Plan Steering Group on the IWG Wind's activities

IWG Wind key achievements

- Revision of the SET Plan targets on wind energy



Target 1: At least 3% increase of national R&I funding dedicated to wind.



Target 2 : At least 0.5 percentage points increase per year of wind energy penetration in electricity needs at European level thanks to R&I actions.

:

Target 3: At least 2 GW of wind manufacturing capacity added per year at European level enabled by the implementation of R&I actions.



#SETPlan

IWG Wind key achievements

- Revision of the SET Plan targets on wind energy



Target 4: Each Member State dedicates R&D budget to materials recovery technologies including recycling and critical raw materials.



Target 5 : At least 100,000 workers trained by 2025 at the EU level supported by national funding dedicated to wind energy research centres, universities, training centres, etc.



Target 6: One research project on average per year enabling faster permitting for wind energy projects.

#SETPlan

IWG Wind next main milestone



Objectives of the Implementation Plan:

- Spells out the actions and investment needed at the national level to achieve SET Plan targets.
- Describes the technological and non-technological R&I activities to be implemented
- Joint R&I activities between different SET Plan countries.
- Should be aligned with ETIPWind's R&I priorities 2025-2027.

To be published mid-2024



Discussion ETIPWind' R&I priorities 2025-2027

ETIPWind and IWG Wind experts



WG1 – Wind energy system integration

Adrian Timbus, Hitachi Energy

WG1 – Wind energy system integration

R&I priorities	Examples of R&I actions	Estimated public funding (in €m)
Definition and modelling of future system needs	Analysis of interdependencies between grid developments and increased system services requirements, new methodologies/digital benchmarks, operational tools for predicting and real-time monitoring system stability, pilot projects to trial potential system services to handle new, advanced capabilities, etc.	20
Advanced grid capabilities	Black start demonstration, grid synthetic inertia development, black start scenarios modelling, grid ancillary services development, etc.	130
Interoperability	Digital twin for wind and hybrid power plants, online tools for monitoring and coordinated control of wind power plants, cyber resilience and cybersecurity of wind power plants, multi-vendor wind power plants combined with batteries, PVs, etc, interoperability of models and testing platforms.	60
Solutions to manage curtailment	Assessment of interdependencies between share of wind generation and curtailments, new tools/simulation models/digital benchmarks for assessing the impact of grid developments, new grid operating methods, pilot projects to trial congestion management technologies (DLR, FACTs, Storage, RAS,...), adoption of virtual power plants concepts and their automated controls.	60
Wind power-to-X	Analysis of market needs for business case development, modelling and optimisation of hybrid projects including ancillary service provision, demonstration of hybrid project solutions involving repurposed and new infrastructure (such as energy islands).	70
DC Grid projects	Grid topology option assessment and development, technology development and validation (at component and system level), arge scale demonstrations (some incorporating offshore demonstration and energy island operation).	60



WG3 – Operations & Maintenance and Digitalisation

Lars Landberg, DNV

WG3 – Operations & Maintenance and Digitalisation

R&I priorities	Examples of R&I actions	Estimated public funding (in €m)
New decommissioning methods	Development of decommissioning methods and tools for offshore and onshore wind, development of decommissioning processes to ease reuse and recycling of wind components for both onshore and offshore, development of economic model for full decommissioning project cycle, etc.	120
Digital tools for lifecycle optimisation, park level control and operating domain	New solutions for service technicians in the field by using augmented or virtual reality, New AI tools for monitoring and predictive maintenance activities, to read service reports and extract patterns by large language models, reliability prognosis models and data for ultra long operations, etc.	60
Autonomous O&M	Improve robotic blade service especially regarding damage reparations in deeper layers, part-automised inspection methods before repairs with more advanced detection methods, methods for improved condition monitoring for generators and converters are needed, autonomous vessels and optimisation of marine operations.	110
Enable digital ecosystems	Data sharing and standardisation, sensor technologies, industrial IoT, cloud analytics, interoperability of digital tools and advanced communication technologies for wind energy, including Cybersecurity. Optimisation and Decision-making support, etc.	50
Replacement and transport for major components	Major component replacement solutions onshore qualification & demonstration, floating wind qualification & demonstration, quick connect/disconnect systems for mooring lines, quick connect/disconnect systems for Inter-Array Cable, improved large component repairs for in situ repair and/or craneless exchange	135



WG2 – Industrialisation, scale-up and competitiveness

Mariya Trifonova, Centre for Study of Democracy

#SETPlan



WG2 – Industrialisation, scale-up and competitiveness

R&I priorities	Examples of R&I actions	Estimated public funding (in €m)
Mass-production supported by automation	Robots/cobots developments for automated / assisted and controlled manufacturing operations, qualification of new automated welding and Non-Destructive Testing processes, development of innovative assembly or fabrication methods and tools, Innovative supply-chain and production lines methodologies.	165
Design for large-scale manufacturing / deployment	Innovative design, testing and certification methods for modular blades, innovative design concepts for modularisation of wind turbines, demonstration of modularization wind turbine technology (manufacturing and assembly)	90
Design reliable products	Development and validation of reliability prediction tools for large components, investigation of possible standardisation to simplify reliability testing, development of realistic validated test methods, development of innovative health monitoring systems, explore methods to extend operation of structural relevant components beyond the current limits, etc.	51
Improve construction and installation methods	Installation methods that reduce environmental impact; demonstration projects for low noise foundation installation methods, optimisation of logistics (inc. Transport) making use of robotics, optimisation of Wind turbine generator design for easier transport and installation, optimisation of port logistics, innovative methods to enable inland transport and installation method, etc.	135
Research to find innovative financing routes	Research in legal, financial, and economic sciences to develop market-related, financial, and regulatory instruments that allow for fast, cost-effective, and lean funding of renewable power assets	6



WG4 – Sustainability and Circularity

Allan K. Poulsen, Vestas

WG4 – Sustainability & Circularity

R&I priorities	Examples of R&I actions	Estimated public funding (in €m)
Development of material substitution enabling decarbonisation and reducing the use of rare-earth materials	-Development and demonstration of reinforcement materials (glass and carbon fibre) for wind turbine blades with increased recycled content and reduced carbon footprint. Development and demonstration of substitution of hard to recycle or critical raw materials in key components: blades, generators, electrical and grid components.	105
Development and demonstration of recycling methods for wind turbine materials, manufacturing waste and components	-Development and demonstration of recycling of wind turbine composite components (like wind turbine blades and nacelle covers) and manufacturing waste from blade manufacturing where materials can be circled back. Development of recycling processes for permanent magnets and other components (like lubricants and greases). New solutions to use recycled content in the design of wind components (“circularity by design”).	110
Biodiversity solutions	- Development and demonstration of nature positive strategies and technologies for onshore and offshore wind farms during construction, operation, maintenance, and decommissioning. Development and demonstration of use of offshore wind installations as artificial reefs. Development of collision mitigation and deterrent technologies preventing collision of birds and bats. Improvement of modelling of impacts and cumulative impacts on ecosystems.	135
Lifetime extension via re-using, refurbishing and re-purposing	- Development of supply-chain infrastructure and prototype processes for refurbishment of wind turbine components. Assessment of most prominent wind turbine component failure modes that require further technology development to achieve lifetime extension. Development of holistic lifecycle assessment of R-strategies. Digital twinning and use of AI for lifetime extension.	80



WG5 – Skills and Coexistence

Helena Solman, Wageningen University

WG5 – Skills and Coexistence

R&I priorities	Examples of R&I actions	Estimated public funding (in €m)
Ensure a world-class education for wind energy and expand it	Creation of dedicated interdisciplinary programmes in technology-industry partnerships, development of new educational tools for teachers, development of centres of competence at schools, integrating science with industry and business, development and preparation of multi-level educational campaigns, etc.	20
Skilling, re-skilling and upskilling activities	Interdisciplinary programmes for (re- / up) skilling covering the entire value chain, including digital competences, easy-to-access lifelong learning activities, mapping transferable resources (e.g. oil and gas sector), R&I that helps people to enter into the work force faster (e.g. augmented reality technologies, etc.), training programmes for local authorities to accelerate permitting process (use of digitalised procedures, etc.)	81
Increase public engagement of citizens and coexistence with other stakeholders	Citizen science projects that focus on answering questions from society, new ways and practices for increasing public dialogue, tools to map stakeholder concerns and facilitate the interactions between stakeholders. (inc. Military), development of models and data sets specifically for interaction between stakeholders, etc.	20

ETIPWind preliminary list of R&I priorities (2025-2027)

Wind Energy System integration

1. Definition and modelling of future system needs
2. Advanced grid capabilities
3. Interoperability
4. Solutions to manage curtailment
5. Wind power-to-X
6. DC grid projects

€400m

Industrialisation, scale-up, competitiveness

1. Mass production supported by automation
2. Design for large volume manufacturing / deployment
3. Reliable products
4. Construction and installation methods
5. Innovative financing routes

€447m

O&M and Digitalisation

1. New decommissioning tools and methods
2. Digital tools for lifecycle optimisation, park level control and operating domain
3. Autonomous O&M
4. Enable digital ecosystem(s)
5. Replacement and transport of large components

€475m

Sustainability & Circularity

1. Development of material substitution and reduction of rare earth materials
2. Development of recycling methods for materials, manufacturing waste and components
3. Biodiversity solutions
4. Lifetime extension via re-using and refurbishing

€430m

Skills & Coexistence

1. World class education for wind energy
2. Skilling, re-skilling and upskilling activities
3. Increase public engagement of citizens and coexistence with other stakeholders

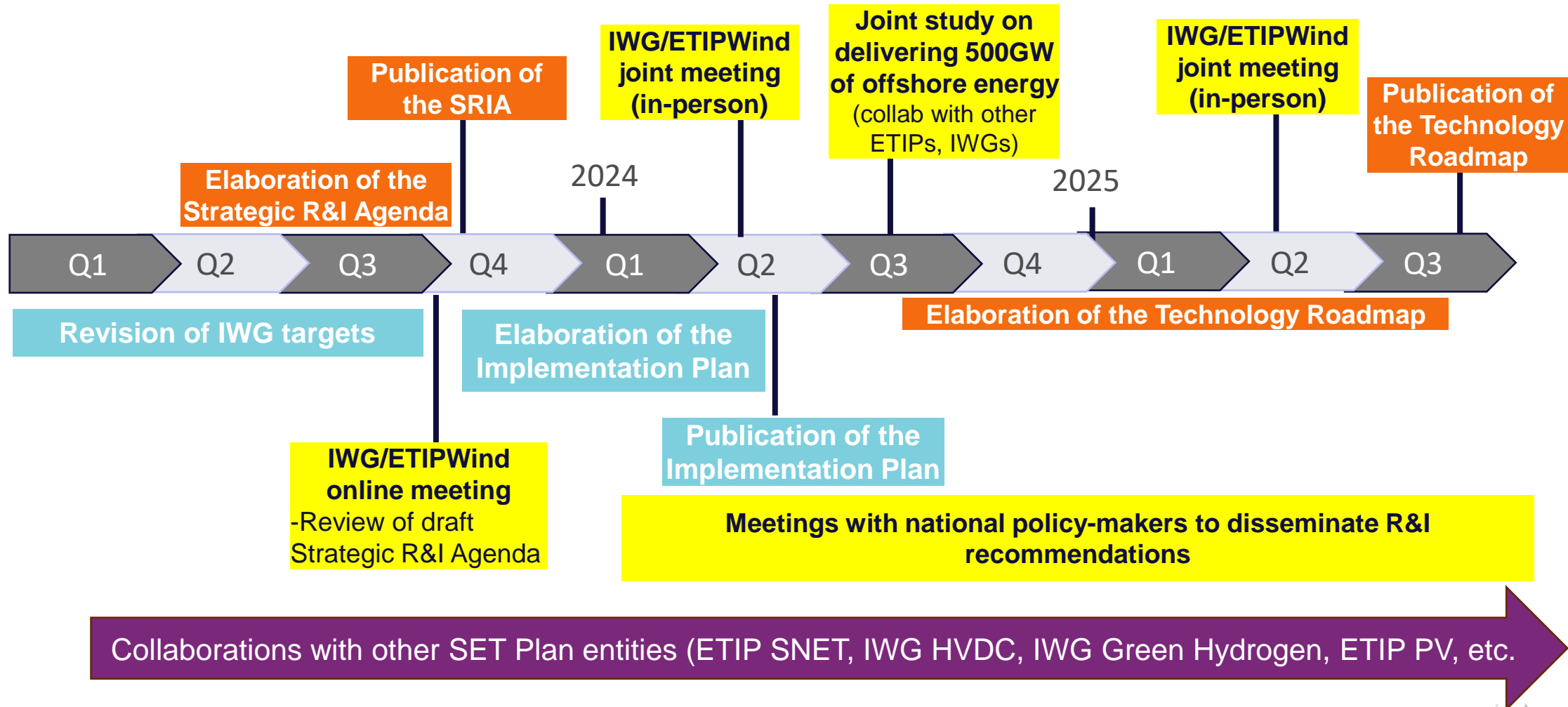
€121m



Future collaborations and next steps

SETIPWind Secretariat

Future collaborations



Future collaborations

Joint position paper?

Any other ideas?

Joint event?

Joint session in conferences?

Next joint meeting

- WindEurope's annual event 2024, Bilbao, 20-22 March 2024

Save the Date!





Thank you!

#SETPlan



© European Union 2023

Reuse is authorised provided the source is acknowledged and the original meaning or message of the document are not distorted. The European Commission shall not be liable for any consequence stemming from the reuse. The reuse policy of the European Commission documents is implemented by Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39). All images © European Union, unless otherwise stated.