

ETIPWind CTOs + Steering Committee meeting



Funded by
the European Union

24 October 2023 – 9:00-12:30

Lunderskov, LM Technology Centre

Welcome & Introduction

Adrian Timbus
Vice President Portfolio and Market
Strategy, Hitachi Energy
ETIPWind Chair

Wind Power Package



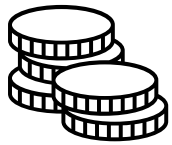
Ursula von der Leyen, State of the European Union speech, September 2023

- Fast-track **permitting** more than current legislation already does
- Improve **auction systems** in Member States
- Focus on **skills, access to finance** (inc. Innovation Fund) **and stable supply chains.**

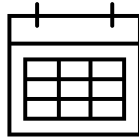
Action plan to be published by 24 October.

The Innovation Fund

➤ Next call for proposals:



€4bn
available



Open: 23 November
Deadline: 4 April



Funding: 60 % funding CAPEX
+ OPEX

Clean tech manufacturing

Scaling-up / manufacturing, logistics

Automation / Digitalisation

Make the case it's innovative

Mid-sized pilots

Projects for validating, testing and
optimizing highly innovative solutions

Last meeting in Copenhagen

- Identify and discuss the **main challenges faced by the wind sector** today.
- Get feedback on the **ETIPWind Gap analysis** (Horizon Europe projects and calls vs. ETIPWind priorities).
- Gather CTOs' feedback on **how Research & Innovation can support** the sustainability, the reliability and the competitiveness of the supply chain.



Objective of today's meeting

- Get your feedback on the first draft of the **ETIPWind's Strategic R&I Agenda**, in particular on the R&I priorities defined for 2025-2027.
- Discuss how to enhance **sustainability and circularity** of the wind supply chain.



Agenda

9:00-9:05	Welcome & Introduction	John Korsgaard, LM Wind Power Adrian Timbus, ETIPWind Chair
9:05-9:15	Keynote speech	<i>Claus Meineche, Danish Energy Agency</i>
9:15-9:35	Update of ETIPWind's Strategic R&I Agenda <i>Including 10mn for CTOs' general remarks on the structure, vision, etc.</i>	ETIPWind Secretariat
9:35-10:30	Presentation of ETIPWind R&I priorities – Part 1	ETIPWind experts
10:30-10:50	<i>Coffee break</i>	
10:50-11:25	Presentation of ETIPWind R&I priorities – Part 2	ETIPWind experts
11:25-11:30	Next steps for the ETIPWind's Strategic R&I Agenda	ETIPWind Secretariat
11:30-12:15	Session on Wind energy sustainability & circularity <i>-Thematic presentation 1 – LM Wind Power</i> <i>-Thematic presentation 2 – Miriam Marchante Jiménez, Ørsted</i> <i>-Thematic presentation 3 – Allan K. Poulsen, Vestas</i> <i>Open discussion with CTOs.</i>	Moderated by ETIPWind Secretariat
12:15-12:30	Conclusion and Presentation of the LM's test facilities	Adrian Timbus, ETIPWind Chair John Korsgaard, LM Wind Power
12:30-13:30	<i>Lunch</i>	
13:30-15:30	<i>Visit of the test facilities</i>	

Keynote speech

Claus Meineche

Head of Secretariat, Energy Technology
Development and Demonstration Program (EUDP)
Danish Energy Agency



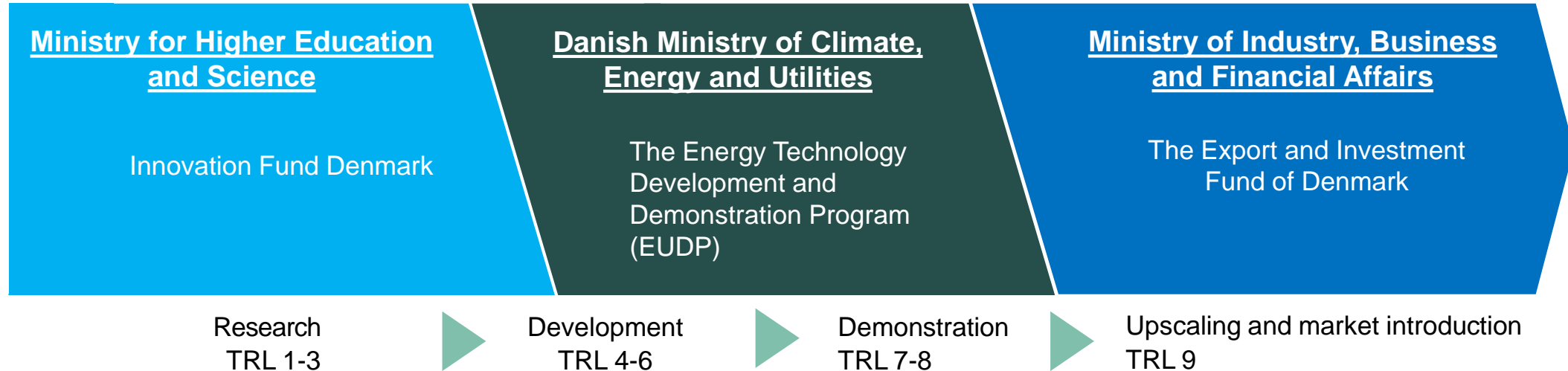
Funding Wind R&D – Denmark - a brief overview

Presented by Claus Meineche

Head of secretariat EUDP

October 24, 2023 at LM Windpower - ETIPWind

Main Danish funding landscape, Energy/Climate



EUDP and GreenLabs DK in the funding landscape

- EUDP support development and demonstration of new energy technology (TRL 4-8) - *state aid rules art. 25*
- Research can be supported if related to development and demonstration in a project
- In average EUDP has brought projects from TRL 4 to 6,8 for projects finalized in 2019-2023
- GLDK support establishing test facilities – *State aid rules art. 26*

Research



Development



Demonstration

TRL 1	TRL 2	TRL 3	TRL 4	TRL 5	TRL 6	TRL 7	TRL 8	TRL 9
Basic principles observed	Technology concept formulated	Experimental proof of concept	Technology validated in lab	Technology validated in relevant environment	Technology demonstrated in relevant environment	System prototype demonstration in operational environment	System complete and qualified	Actual system proven in operational environment

EUDP

- Legal foundation in the EUDP law

Support political objectives:

Security of supply

Cost efficiency

Independence of fossil fuels

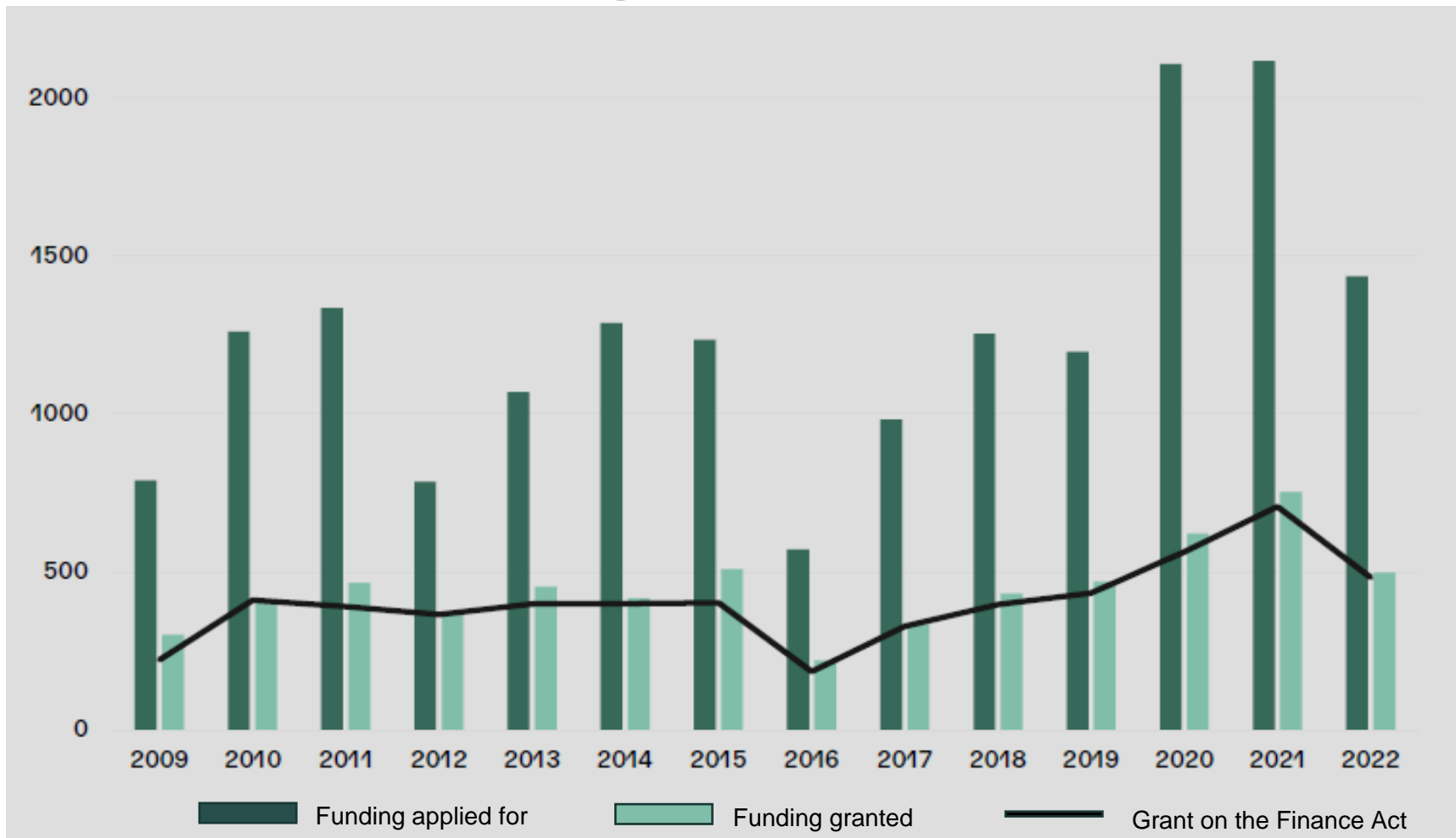
Promote Danish business potential

Climate and environment

Support private/public cooperation

- EUDP has supported 1.200 projects with 6,2 bio. DKK since 2007
- In addition appr. similar co-financing from project partners (!)

EUDP financing



Strategy 2020-2030

Frame

- 70% reduction in 2030 and climate neutrality in 2050
- Increased electrification and CCUS



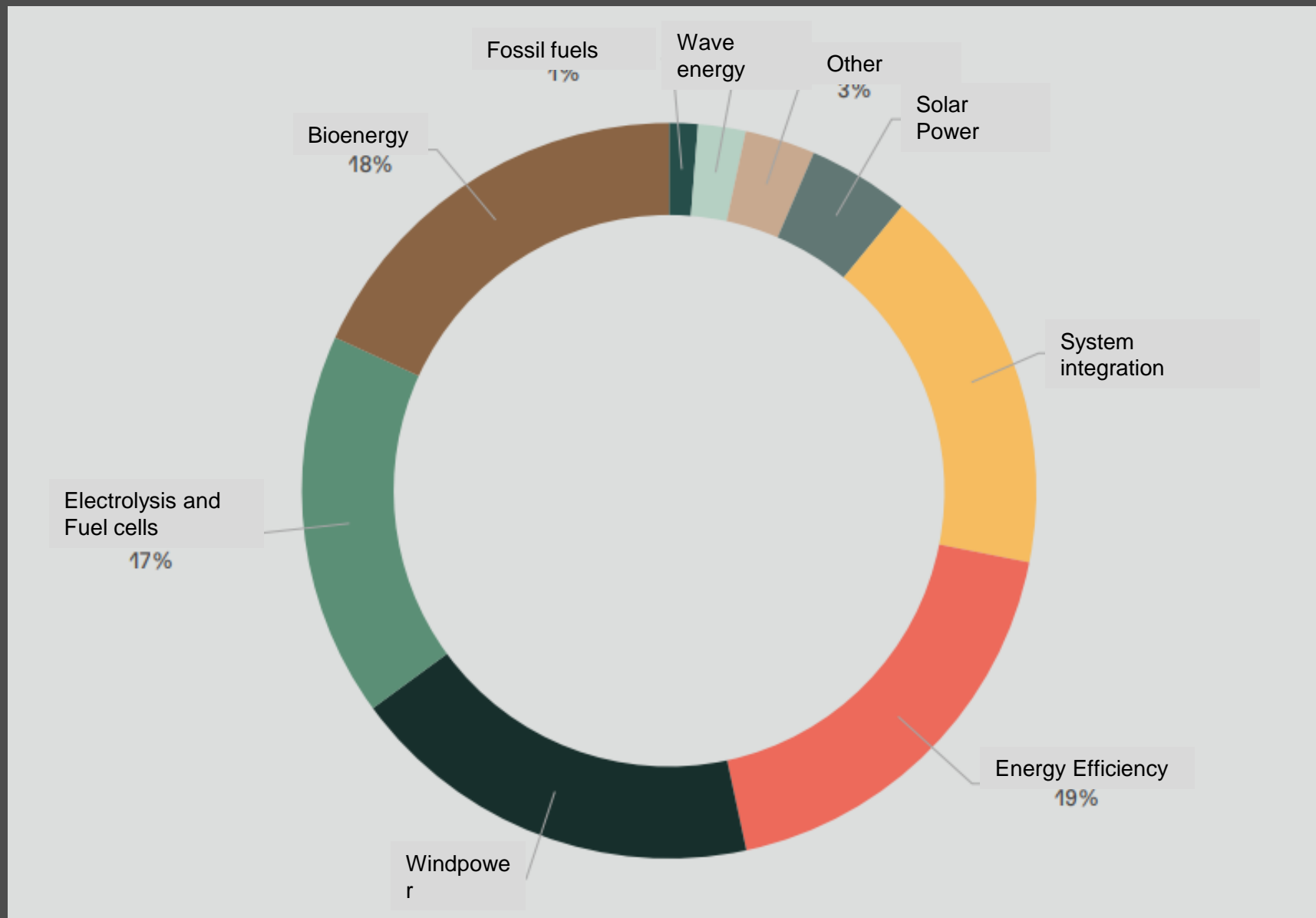
Challenges and focus areas

1. More green electricity - and for more purposes
2. Energy efficiency
3. Passenger transport and light goods transport
4. Heavy transport and power-to-X on a large scale
5. Heat and heat storage
6. Green process energy
7. Flexible electricity use, network expansion and digitalization
8. CO2 capture, storage and utilization

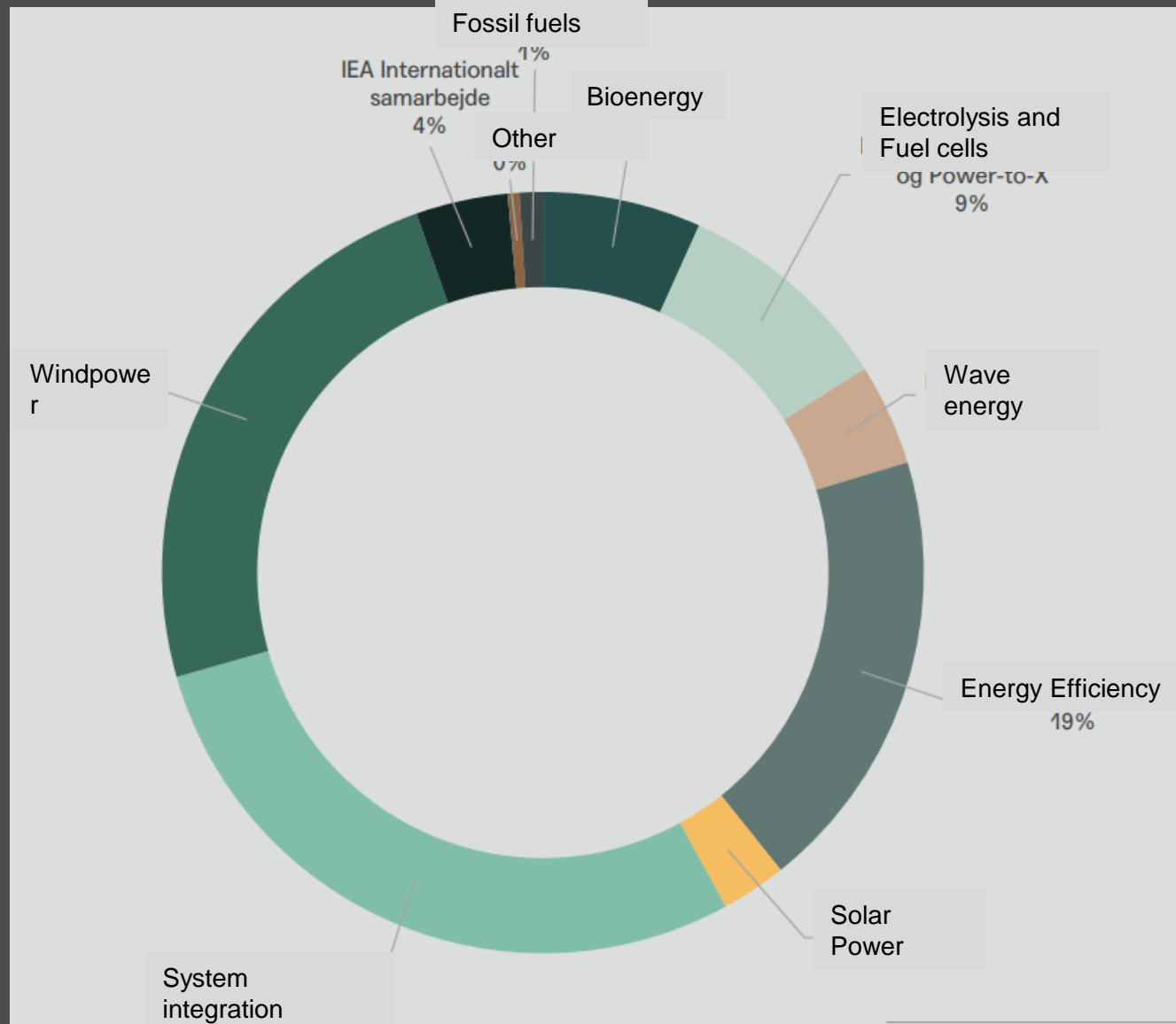
Fokusområde	Antal ansøgninger	Ansøgt tilskudsbeløb
1. Mere grøn el – og til flere formål	28	341.442.942,00 kr.
2. Energieffektivisering	23	163.961.262,00 kr.
3. Persontransport og let varetransport	-	-
4. Tung transport og Power-to-X i stor skala	8	138.826.290,00 kr.
5. Varme og varmelagring	4	12.541.747,00 kr.
6. Grøn procesenergi	1	505.125,00 kr.
7. Fleksibel el-anvendelse, netudbygning og digitalisering	14	153.921.493,00 kr.
8. CO2-fangst, -lagring og -udnyttelse	6	107.675.690,00 kr.
9. Andet	4	6.701.932,00 kr.

EUDP can support applications outside the focus areas if the project fulfill the requirements set for all projects

Distribution of grants by technology area, 2007-2022



Distribution of grants by technology area, 2022



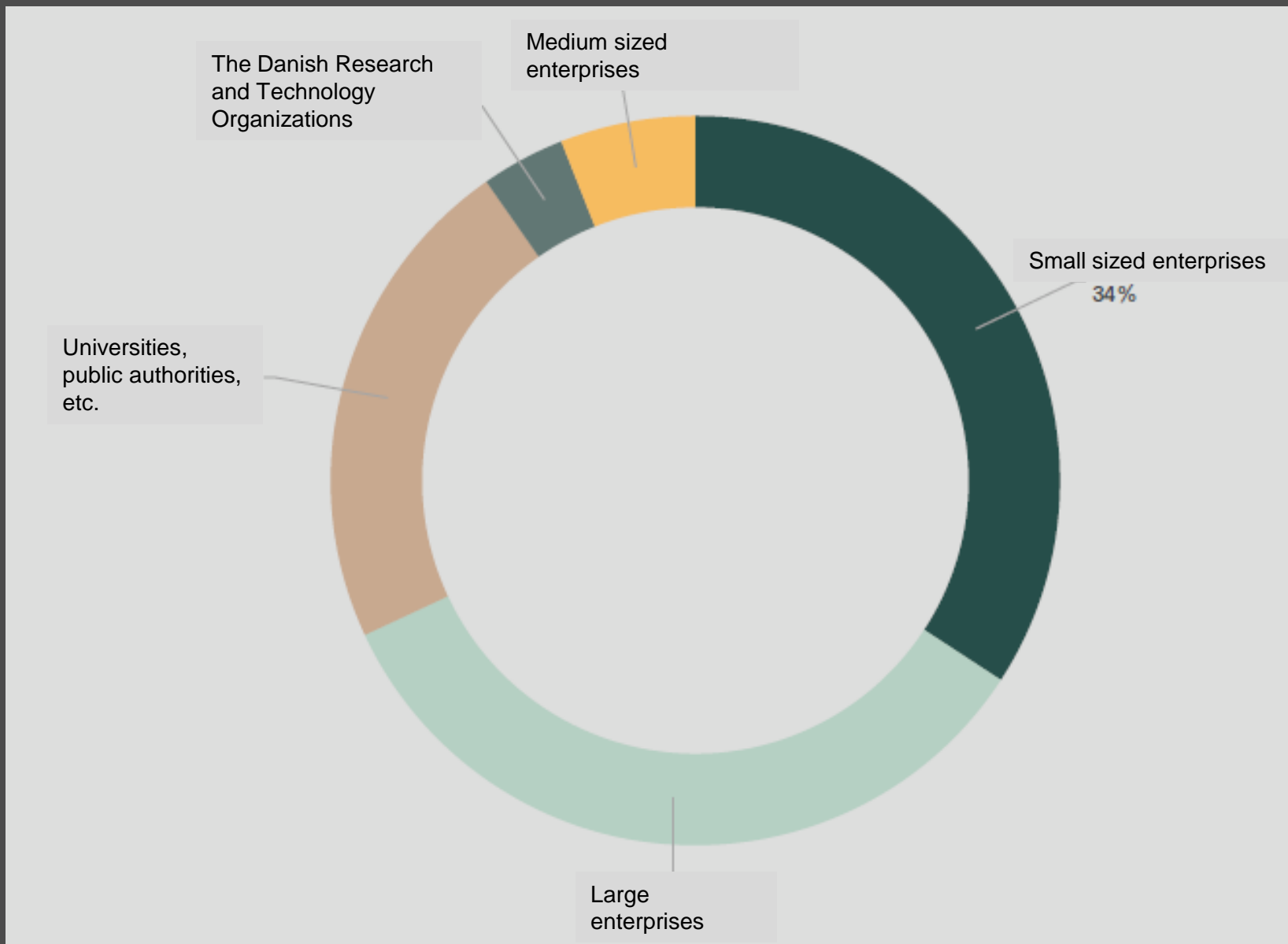
Figur 3 Sum af tilsagn tildelt i 2022 fordelt på teknologiområder.

Succes rate Wind applications (2022)

2022	ANSØGT STØTTE PR. TEKNOLOGIOMRÅDE	TILSAGN PR. TEKNOLOGIOMRÅDE	SUCCESRATE
Bioenergi	202,2	33,6	17%
Brint og brændselsceller	105,2	48,2	46%
Bølgekraft	58,5	21,5	37%
Energieffektivitet	348,3	97,8	28%
Fossile brændsler	4,9	4,9	100%
Solenergi	53,6	18,2	34%
Systemintegration	340,8	145,3	43%
Vindkraft	256,2	125,8	49%
Øvrige	28,2	2,5	9%

2022	ANSØGNINGER	TILSAGN	SUCCESRATE
Biomasse	22	4	18%
Brint og brændselsceller	12	7	58%
Bølgekraft	6	2	33%
Energieffektivitet	52	17	33%
Fossile brændsler	1	1	100%
Solenergi	11	7	64%
Systemintegration	21	6	29%
Vindkraft	28	15	54%
Øvrige	3	1	33%

Distribution of grants by type, 2022



Trends in new wind projects

- LCOE reduction
 - Production
 - Material
 - Installation
 - Maintenance – (e.g.prediction)
- Efficiency
 - Turbines, blades
 - Forecasting tools
- Retrofitting
- Decommissioning - recycling

EUDP

Læs mere på:

energiteknologi.dk

Kontakt:

clme@ens.dk

Følg EUDP:



Update of ETIPWind's Strategic R&I Agenda

ETIPWind Secretariat

Methodology

TABLE 1

Summary table of the Gap analysis for Pillar 1 topics

Research area	Horizon Europe WP2021-22 projects	Horizon Europe WP2023-24 calls
Integrated forecasting of power production & demand	Partially addressed	Partially addressed
Short-term energy storage	Partially addressed	Not addressed
Long-term energy storage	Partially addressed	Partially addressed
Multi-cultured wind farms	Not addressed	Not addressed
Modeling future system needs	Partially addressed	Not addressed
	Partially addressed	Partially addressed
	Partially addressed	Not addressed
	Partially addressed	Partially addressed



Gap analysis and CTOs feedback

Online survey (71 answers)

ETIPWIND ONLINE SURVEY ON RESEARCH & INNOVATION PRIORITIES 2025-2027



The objective of this online survey is to consult the wind energy community on the next Research & Innovation (R&I) priorities that will have a significant impact on the competitiveness of the European wind energy sector in the short to medium-term.

This online survey has been elaborated by ETIPWind based on the inputs from its Steering Committee and a forum of wind energy Chief Technology Officers (CTOs Forum). It is the first step of a consultation process that will help ETIPWind updating its Strategic R&I Agenda which will inform the European Commission's Horizon Europe project calls from 2025 to 2027.

You need 10 to 15 minutes to fill in the survey. It is structured in 4 sections:

1. Main challenges faced by the wind energy industry
2. Research & Innovation topics that can help solving these challenges
3. More detailed R&I activities and projects that will have a positive impact within each R&I topic.
4. A prioritisation exercise between different R&I topics.

The deadline to answer this survey is **Friday, 9 June**.

* First name

* Surname

* Job title

* Organisation



Public workshop (80 participants)

Creation of 5 new ETIPWind Working Groups



Steering Committee validation meeting in Amsterdam



Bilateral meetings and consultations with relevant stakeholders (inc. ETIP SNET, IWG Wind)...

ETIPWind's vision for wind energy

Wind energy – The leading solution to deliver the resilient, affordable and sustainable energy transition in Europe.

4 strategies to achieve this vision:

- **Speed-up:** Actions needed to sustain and enable the immediate future of wind in Europe
- **Scale-up:** Actions needed to stay competitive and deliver volumes.
- **Expand:** Actions needed to guarantee the viability of wind in more places.
- **Enhance:** Actions needed to continue improving for having a positive impact in society and the environment.

R&I priorities for 2025-2027

- **Short-term:** strategic R&I actions that must be funded in priority from 2025 to 2027 (impact from 2028-2030).
- **23 priorities** structured in **5 R&I areas** (= 5 Working Groups)
- **Long-term research needs:** for each R&I priority, EERA also defined long-term research needs. Snapshot from the EERA's long-term research programme.

R&I priorities for 2025-2027

WG1 – Wind Energy System integration

1. Definition and modelling of future system needs
2. Advanced grid capabilities
3. Interoperability
4. Solutions to manage curtailment
5. Co-location, offshore hybrids and wind power-to-x
6. DC grid solutions for wind power

WG2 – Indust, scale-up, compet.

1. Mass production supported by automation
2. Design for large volume manufacturing/ deployment
3. Design for reliable and lasting products
4. Improve construction and installation methods
5. Research to find innovative financing routes

WG3 – 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 major components

WG4 – Sustainability & Circularity

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

WG5 – Skills & Coexistence

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

R&I priorities for 2025-2027 – Budget

- For each R&I priority: **Definition of the public R&I investment needed to solve the issue, develop a technology, or scale-up an innovative solution.**
- **Not only EU funding!** The SRIA sets the global picture -> **EU (all funding programmes) + national funding.**

Working Group	Priority	R&I actions/ Examples of projects	Technology Readiness Level (start and end)	Examples of similar projects and budget	Number and types of projects proposed		Total budget (in million €)	
					Option 1 - Basic research, applied research (2 to €5m)	Option 2 - Small or large scale prototypes (5 to €15m)		
WG2 - Industrialisation, scale and competitiveness	Design for large volume manufacturing / deployment	Innovative design, testing and certification methods for modular blades	TRL 6- to 8	REFRESH project: Smart dismantling, sorting and REcycling of glass Fibre REinforced composite from wind power Sector through Holistic approach. Budget: €11.4m	3 small scale prototypes (€10m)	3 large scale demonstration projects (€20m)	90	
		Innovative design concepts for modularisation of wind turbines	TRL 3 to 5					
		Demonstration of modularisation wind turbine technology (manufacturing and assembly)	TRL 5 to 7					
	Design reliable products	Development and validation of reliability prediction tools for large components	TRL 3 to 7	INFINITE project: INnovative offshore wind technologies in deep waTERs. Budget: €15m	3 small scale projects for low TRL activities (€2m)	2 medium scale (€7.5m each)		2 large scale demos (€15m each)
		Investigation of possible standardisation of wind related load cycles considering also ambient operating conditions (i.e. climate, pollution, air density, humidity, etc.) to simplify reliability testing).	TRL 1 to 6					
		Development of realistic validated test methods based on knowledge and data using combinations of analytical techniques/coupon tests and statistics to reduce large scale tests.	TRL 3 to 7					
Development of innovative health monitoring systems for structural and functional relevant components with undemonstrated reliability.	TRL 3 to 7	Explore methods to extend operation of structural relevant components beyond the current limits	TRL 1 to 5					

R&I priorities for 2025-2027 – Budget

- Total public investment needed from 2025 to 2027: **€1.87bn**
- Comparison with **other ETIPs and R&I Partnerships** (only EU funding requested)

	EU funding requested	EU funding requested / year
ETIP Ocean	€271m from 2021 to 2025	€54m
ETIP SNET	€4.5bn from 2022 to 2031	€450m
Processes4Planet Partnership	€11.5bn from 2024 to 2030	€1.6bn
Clean Aviation Partnership	€1.7bn from 2021 to 2027	€242m
Clean Hydrogen Partnership	€1bn from 2021 to 2027	€142m
Batteries European Partnership	€925m from 2021 to 2027	€132m
ETIPWind	Total public investment: €1.87bn from 2025 to 2027	€624m

R&I priorities for 2025-2027 – Budget

	2025-2027
WG1 - Wind energy system integration	€400m
WG2 - Industrialisation, scale-up and competitiveness	€447m
WG3 - O&M and Digitalisation	€475m
WG4 - Sustainability and Circularity	€430m
WG5 - Skills and Coexistence	€121m
TOTAL	€1.87bn
Yearly Average	€624m / year

We want to hear
from you!

ETIPWind R&I priorities, 2025-2027

Wind energy system integration

Adrian Timbus, Hitachi Energy

Wind energy system integration

R&I priorities	Examples of R&I actions	Estimated public funding (in €m)
Definition and modelling of future system needs	<ul style="list-style-type: none"> - Analysis of interdependencies between grid developments and increased system services requirements. - New methodologies/digital benchmarks for assessing the impact of resonances/oscillations,..) - Digital benchmarks to verify/adjust advanced capabilities - Operational tools for predicting and real-time monitoring system stability - Pilot projects to trial system services and market mechanisms to handle new capabilities 	20
Advanced grid capabilities	<ul style="list-style-type: none"> -Black start demonstration looking at multiple markets, involving OEM or developer. -Grid synthetic inertia development involving OEM, developer, and TSO. -Black-start scenarios modelling (group) -Grid ancillary services development to test ability to send ancillary services deployment signals 	130
Interoperability	<ul style="list-style-type: none"> -Digital twin for wind and hybrid power plants -Online tools for monitoring and coordinated control of wind power plants -Cyber resilience and cybersecurity of offshore and onshore wind power plants -Multi-vendor wind power plants combined with batteries, PVs, etc. -Interoperability of models and testing platforms 	60
Solutions to manage curtailment	<ul style="list-style-type: none"> -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, grid optimisation to avoid curtailments - Pilot projects to trial congestion management technologies (DLR, FACTs, Storage, RAS,...) - Adoption of virtual power plants concepts and their automated controls as flexibility sources. 	60
Wind power-to-X	<ul style="list-style-type: none"> -Analysis of market needs for business case development and regulatory scheme guidance -Modelling and optimisation of hybrid projects including ancillary service provision -Development of hydrogen and energy storage technologies -Demonstration of hybrid project solutions involving repurposed and new infrastructure 	70
DC Grid solutions	<ul style="list-style-type: none"> - Grid topology option assessment and development - Technology development and validation (at component (I'm and system level) - Large scale demonstrations (some incorporating offshore demo and energy island operation) 	60

We want to hear
from you!



ETIPWind R&I priorities, 2025-2027

Industrialisation, scale-up and
competitiveness

Aidan Cronin, Siemens Energy

Industrialisation, scale-up and competitiveness

R&I priorities	Examples of R&I actions	Estimated public funding (in €m)
Mass production supported by automation and reliable supply chain	<ul style="list-style-type: none"> - Robots/cobots developments for automated / assisted and controlled manufacturing operations throughout wind industry -Qualification of new automated welding and Non-Destructive Testing processes -Development and qualification of innovative assembly or fabrication methods and tools (additive manufacturing, new connection systems...) -Innovative supply-chain and production lines methodologies for wind components fabrication. 	165
Design for large volume manufacturing/ deployment	<ul style="list-style-type: none"> -Innovative design, testing and certification methods for modular blades -Innovative design concepts for modularization of wind turbines -Demonstration of modularization wind turbine technology (manufacturing and assembly). 	90
Design for reliable and lasting products	<ul style="list-style-type: none"> -Development and validation of reliability prediction tools for large components -Investigation of possible standardisation of wind related load cycles -Development of realistic validated test methods -Development of innovative health monitoring systems for structural and functional relevant components -Explore methods to extend operation of structural relevant components 	51
Improve construction and installation methods	<ul style="list-style-type: none"> -Installation methods that reduce environmental impact -Optimisation of logistics (inc. Transport) making use of robotics -Optimisation of Wind turbine design for easier transport and installation -Optimisation of port logistics enabling faster load out, efficient use of port space, etc. -Innovative methods to enable inland transport and installation methods 	135
Research to find innovative financing routes to scale-up	<ul style="list-style-type: none"> -Development of market-related, financial and regulatory solutions to support the deployment of wind energy in Europe. -Innovative financing instruments to de-risk wind energy technologies -Financial mechanisms to accelerate the industrialisation of recycling plants. 	6

We want to hear
from you!

The background features a repeating pattern of light blue icons. These icons include wind turbines, gears, lightbulbs, pie charts, bar graphs, a globe, a clipboard with a checklist, a battery, a leaf, a lightning bolt, a magnifying glass, a circuit board, and the letters 'EU'.

ETIPWind R&I priorities, 2025-2027

O&M and Digitalisation

Lars Landberg, DNV

O&M and Digitalisation

R&I priorities	Examples of R&I actions	Estimated public funding (in €m)
New decommissioning methods	<ul style="list-style-type: none"> - Development of decommissioning methods and tools for offshore wind - Development of new technologies for effective and environmentally friendly decommissioning of onshore and offshore wind energy systems - Development of decommissioning processes to ease reuse and recycling of wind components -Development of decommissioning vessels specifically suited to offshore wind -Development of economic model for full decommissioning project cycle, including a cost/benefit analysis, to evaluate and find cost-effective solutions for decommissioning 	120
Digital tools for lifecycle opt., park level control and operating domain	<ul style="list-style-type: none"> -New solutions for service technicians in the field by using augmented or virtual reality. -New AI tools for monitoring and predictive maintenance activities. -New AI tools to read service reports and extract patterns by large language models -Reliability prognosis models and data for ultra long operations for up to 40 years -Validation and certification frameworks for digital tools 	60
Autonomous O&M	<ul style="list-style-type: none"> -Improve robotic blade service, esp. regarding damage reparations in deeper layers. -Part-automised inspection methods before repairs with more advanced detection methods (not only cameras) to evaluate conditions below surface for blades. - Autonomous vessels and optimisation of marine operations 	110
Enable digital ecosystems	<ul style="list-style-type: none"> -Definition and implementation of best practices for exchange of data across different sub-systems, stakeholders and organisations for wind farm operation. - Advancement of the existing and development of new sensor technologies particularly for diagnostics, Structural Health Monitoring / Structural Health Assessment - Industrial IoT, cloud analytics, interoperability of digital tools and advanced communication technologies for wind energy, including Cybersecurity -Development of digital ecosystems for efficient optimisation of system level processes 	50
Replacement and transport for major components	<ul style="list-style-type: none"> -Major component replacement solutions onshore qualification & demonstration -Major component replacement solutions for floating wind qualification & demonstration -Quick connect/disconnect systems for mooring lines -Quick connect/disconnect systems for Inter-Array Cables -Develop improved large component repairs for in situ repair and/or craneless exchange 	135

We want to hear
from you!

Coffee Break 10:30–10:50



ETIPWind R&I priorities, 2025-2027

Sustainability & Circularity

Allan K. Poulsen, Vestas

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	<ul style="list-style-type: none"> -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: <ul style="list-style-type: none"> *For wind turbine blades: recyclable polymers, bio-based and artificial materials, recyclable composite materials, etc.) *For generators: alternatives to permanent magnets *For electrical and grid components: thermoset polymers with thermoplastics, alternative materials for valves, replacement of lead and PFAS, etc. 	105
Development and demonstration of recycling methods for wind turbine materials, manufacturing waste and components	<ul style="list-style-type: none"> -Development and demonstration of recycling of wind turbine composite components) as well as manufacturing waste from blade manufacturing providing a separation of reinforcement fibers, thermoplastics, metals and resins into a state, where such materials can be circled back and used for manufacturing of new products -Development of recycling processes for permanent magnets and other components -New solutions to use recycled content in the design of wind components (“circularity by design”) exploring whether closed loop approach is possible. 	110
Biodiversity solutions	<ul style="list-style-type: none"> -Development and demonstration of nature positive strategies and technologies for onshore wind farms during construction, O&M, and decommissioning. - Development and demonstration of nature positive strategies and technologies for offshore wind farms during construction, O&M, and decommissioning. - Development of use of offshore wind installations as artificial reefs -Development of collision mitigation and deterrent technologies preventing collisions - Improvement of modelling of impacts and cumulative environmental impacts on ecosys. 	135
Lifetime extension via re-using, refurbishing and re-purposing	<ul style="list-style-type: none"> -Development of supply-chain infrastructure and prototype processes for refurbishment of wind turbine components and associated grid equipment. - 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, hotspot detection, etc. 	80

We want to hear
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ETIPWind R&I priorities, 2025-2027

Skills and Coexistence

Mariya Trifonova, Centre for Study of
Democracy

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	<ul style="list-style-type: none"> -Creation of dedicated interdisciplinary programmes in technology-industry partnerships. -Development of new educational tools for teachers (business games, computer simulations, project games) adapted to each stage of education. - Development of centres of competence at schools, integrating science with industry and business, support schools in cooperation with universities, carry out innovation and development activities to disseminate knowledge and new technologies. 	20
Skilling, re-skilling and upskilling activities	<ul style="list-style-type: none"> - Interdisciplinary programmes for (re- / up) skilling covering the entire value chain. - Easy-to-access lifelong learning activities, also boosting the geographic range, gender, and diversity for learners and educators -Mapping transferable resources (e.g. oil and gas sector) -R&I that helps people to enter into the work force faster (e.g. AR 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	<ul style="list-style-type: none"> -Citizen science projects that focus on answering questions from society -New ways and practices for increasing public dialogue in wind energy projects -Tools to map stakeholder concerns and facilitate the interactions between stakeholders. (including fishing, aquaculture, energy, military, tourism, and transport). - Development of models and data sets specifically for interaction between stakeholders in the planning phase and the demonstration of these models in (existing) digital interaction tools made suitable for interactive stakeholder involvement in the project design phase. 	20

We want to hear
from you!

Next steps for ETIPWind's Strategic R&I Agenda

ETIPWind Secretariat

Next steps for ETIPWind SRIA

- The first draft is **being reviewed** by several stakeholders:
 - *ETIPWind Steering Committee*
 - *CTOs Forum*
 - *IWG Wind (Member States representatives)*
 - *Other ETIPs (e.g. ETIP SNET)...*
- Please share your last comments with us **no later than Friday, 27 October!**
- **Final draft** must be finalised **by 6 November**. Publication is foreseen by the **end of November**.

Next steps for ETIPWind SRIA

- Dissemination will start at the **SET Plan Conference** on 13-14 November.
- SRIA Launching event on **4 December** (tentative date).

At **ZF Wind Power's facilities**, in Lommel (Belgium).

- **Half day event**, around **50 participants**, **high-level speakers** (Commissioner Research & Innovation, Flemish Minister for Innovation, etc.)



Save the Date!

Thematic session: Enhancing sustainability and circularity of wind supply chain

Presentation 1

John Korsgaard, Senior Director -
Engineering and Excellence, LM Wind Power

Presentation 2

Miriam Marchante Jiménez, Asset Value
Engineering Senior Lead Specialist, Ørsted

Ørsted's circularity strategy

A close-up, low-angle shot of a white wind turbine blade and nacelle against a clear blue sky. The blade is the central focus, showing its aerodynamic shape and a series of small, dark, rectangular openings along its length. The nacelle is visible at the bottom right, showing its complex mechanical structure and a grid-like pattern. The overall composition is clean and modern, emphasizing the engineering and design of the renewable energy technology.

Miriam Marchante
Chief specialist, Engineering

Circularity plays a key role in mitigating impacts while ensuring a more resilient supply chain for the build-out of green energy

1. Increasing scrutiny from media and investors

Sustainable Business Practices

The Dark Side of Solar Power

by Atalay Atas, Serasu Duran, and Luk N. Van Wassenhove

June 18, 2021



HollandseXZ/Getty Images

Summary. Solar energy is a rapidly growing market, which should be good news for the environment. Unfortunately, though, the environmental cost of solar panels is not as clear as it seems.

2. Enabler across our sustainability programmes

Resource extraction responsible for half world's carbon emissions

Extraction also causes 80% of biodiversity loss, according to comprehensive UN study



▲ Massive dump trucks by the Syncrude upgrader plant, Canada. The tar sands are the largest industrial project on the planet, and the world's most environmentally destructive. Photograph: Rex/Shutterstock

Extractive industries are responsible for half of the world's carbon emissions and more than 80% of biodiversity loss, according to the most comprehensive environmental tally undertaken of mining and farming.


3. Help securing availability of critical raw materials

Sustainable Business Practices

The Green Economy Has a Resource-Scarcity Problem

by Dave Young, Rich Hutchinson, and Martin Reeves

July 08, 2021



innocent/Getty Images

4. Growing demand from public and private customers

Sustainable Business

Offshore wind faces shake-up as tenders abandon price-only criteria - report

Reuters

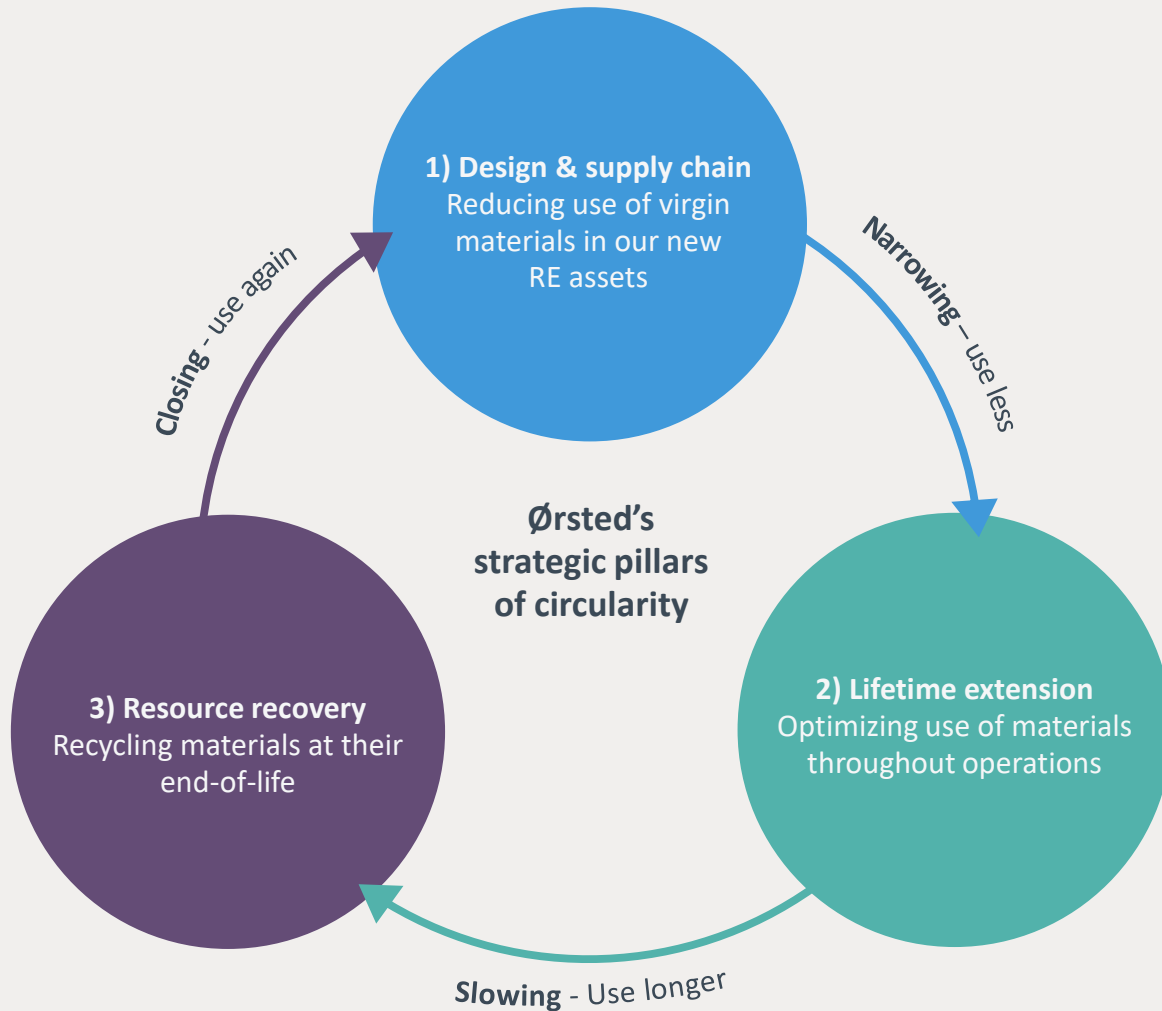
May 18, 2022 10:39 PM GMT+2 · Updated a year ago



Reuters/PIN/NOISE

OSLO, May 18 (Reuters) - A new set of factors beyond bidding price is gaining

As a developer, Ørsted has a key opportunity to ensure circularity across the full life-cycle of our renewable energy assets



1. Design and supply chain

- Minimise input materials by rethinking designs and processes
- Ensuring longevity and recyclability of components
- Increasing use of secondary (recycled) input materials



2. Lifetime extension

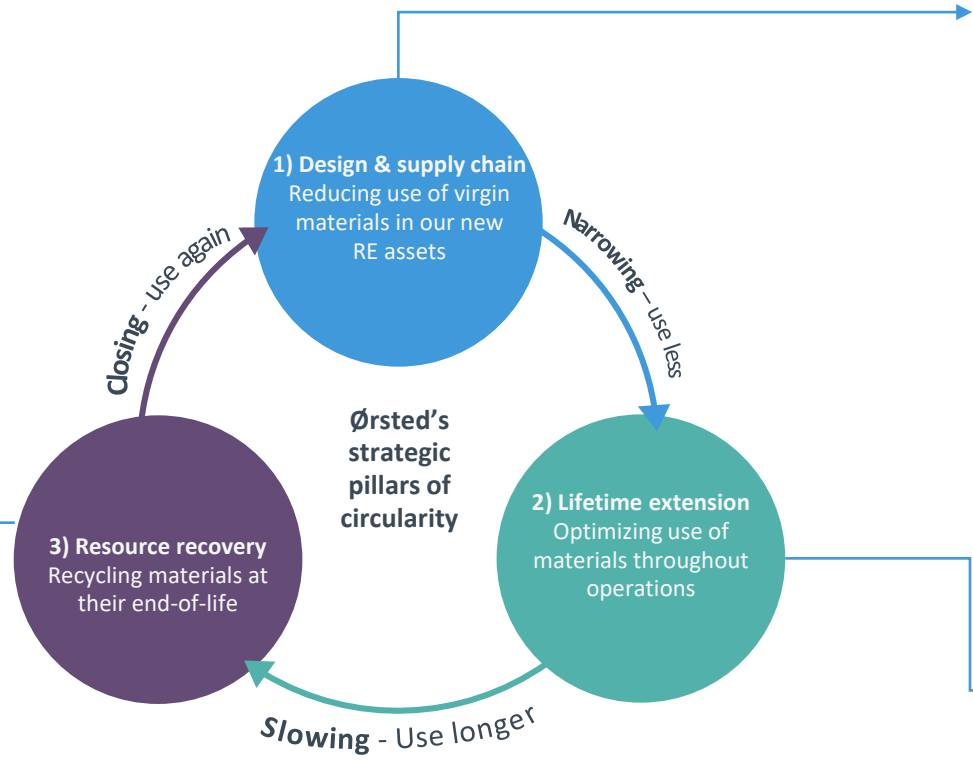
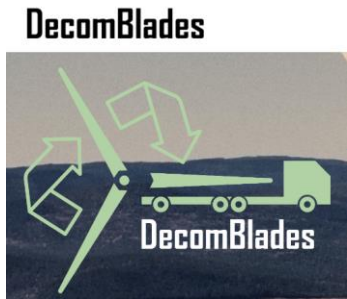
- Repair and reuse of main components
- Lifetime extension of our assets
- Circular decommissioning in balance with nature



3. Resource recovery

- Increase recyclability rates
- Circulate end-of-life materials back to renewables supply chain when feasible

We have launched major partnerships, commitments and pilots across our value chain in the past years



Ørsted and Vestas in industry-first pioneering partnership towards net-zero wind farms

07/06/2023 17:00



Today, Ørsted and Vestas, global leaders in renewable energy, are announcing a commercial sustainability partnership. Ørsted will procure low-carbon steel wind turbine towers and blades made from recycled materials from Vestas in all joint offshore wind projects.



09/03/2023 | at 09:47 RENEWABLES

Ørsted enters remanufacturing agreement on UK turbines

Simultaneously, the companies are to develop technology that increases sustainability and reduces carbon footprint in the supply chain.



There are key challenges across all life-cycle stages to increase overall circularity of the renewables industry

Design and supply chain

1. How can we ensure new RE components are designed for circularity? (longer lifetime, recyclability etc.)
2. How we help building a circular value chain by working with other industries?

Lifetime extension

1. How do we ensure availability of local repair and refurbish services?
2. How can we incentivize more repair and refurbish versus buying new
3. How can we be better at deciding what the best solution is?

Resource recovery

1. How do we reach 100% recyclability of the entire wind farm?
2. How can we tackle waste challenge together with other industries?

Presentation 3

Allan K. Poulsen, Head of Advanced Structures and Sustainability, Vestas

Open discussion

- *How to enhance sustainability and circularity of the wind supply chain?*

Conclusion

Conclusion

Adrian Timbus
Vice President Portfolio and Market
Strategy, Hitachi Energy
ETIPWind Chair

Next steps

- The **Strategic R&I Agenda** will be finalised and published **end of November**.
- Save the date for the **SRIA launching event on 4 December**, in Lommel.
- **Next CTOs meeting:** in parallel of WindEurope's annual event in Bilbao, **20-22 March 2023**. **Save the Date!**



Time for a picture!

THANK YOU

Contact: secretariat@etipwind.eu