



EUROPEAN TECHNOLOGY & INNOVATION
PLATFORM ON WIND ENERGY

Executive Committee meeting

December 2020

etipwind.eu



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This report has been produced with support of the European Commission. The views represented in the presentation are those of its authors and do not represent the views or official position of the European Commission.

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Competition compliance reminder

WindEurope and its members are committed to full and fair competition, and neither WindEurope nor its activities, working groups or task forces shall be used in any way inconsistent with relevant competition laws. In order to promote the compliance with these laws, WindEurope has adopted this Competition Compliance Policy in which the basic rules for competition compliance are set out.

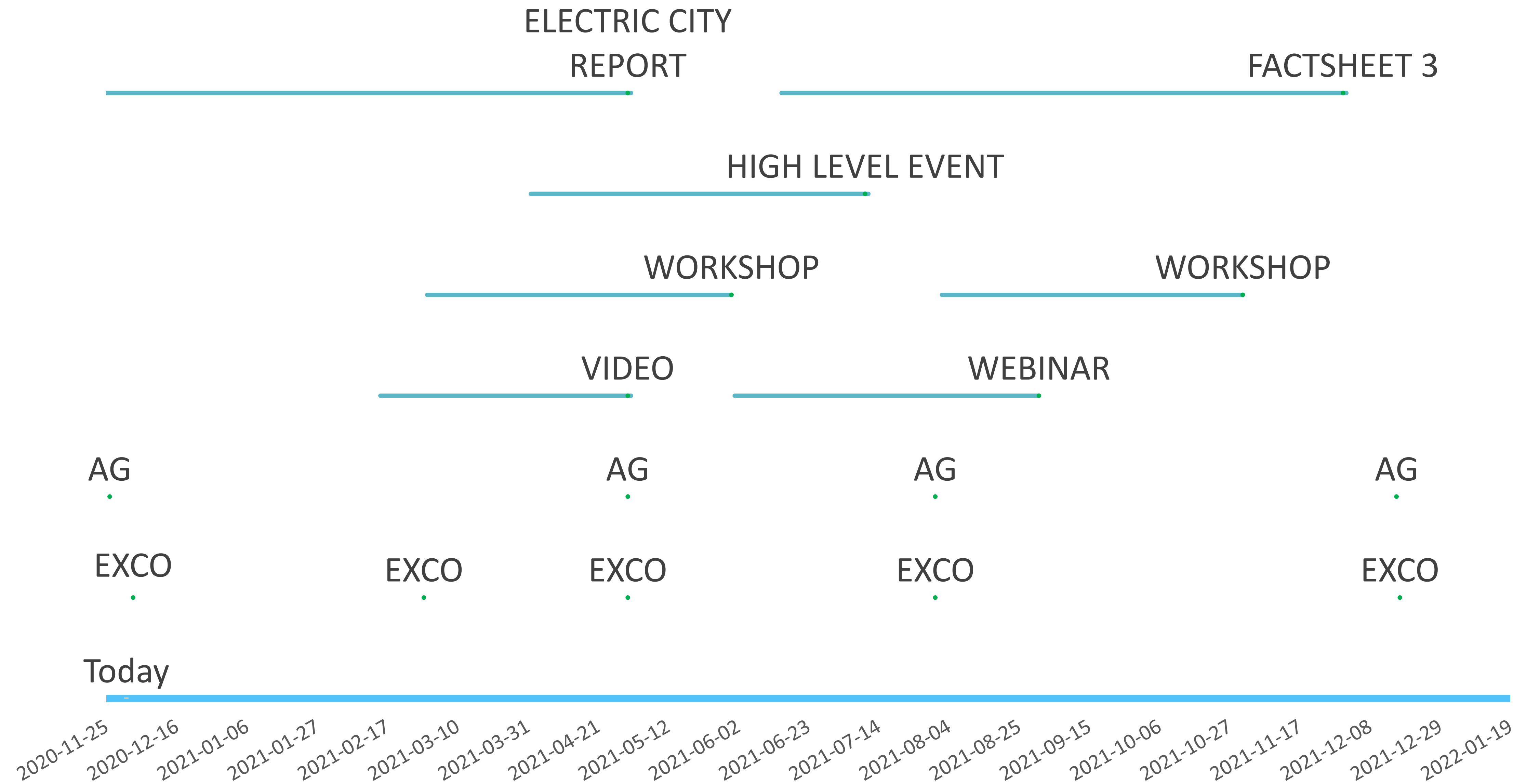
TIMING	AGENDA ITEM	SCOPE
10:00 – 10:05	Introduction and welcome By Adrian Timbus, Executive Committee Chair	For information
10:05 – 10:30	Updates from the ETIPWind secretariat <ul style="list-style-type: none"> 2021 work programme and communication (15') ETIPWind Flagship report 2021 (10') 	For information
10:30 – 10:50	R&I messaging on wind energy <ul style="list-style-type: none"> Outreach & timeline (10') Funding programmes (10') By ETIPWind secretariat	For discussion
10:50 – 11:00	Updates from Advisory Group meeting By Mike Anderson, Advisory Group Chair	For information
11:00 – 11:20	Onshore wind turbine noise propagation By Andree Altmikus, Head of customer support, Enercon	For discussion
11:20 – 11:50	Strategic research for wind energy: Lighthouse projects By John Olav Tande, Sintef	For discussion
11:50 – 11:55	AOB	For discussion
11:55 – 12:00	Closing remarks By Adrian Timbus, Executive Committee Chair	For information

Updates from the ETIPWind Secretariat

Recap last actions: EXCO meeting 8 September

- Action for the Secretariat
 - ✓ Flagship report 2021 (DONE)
 - Manage organisation of the Flagship report
 - ✓ ETIPWind Communication Task Force (DONE)
Scope:
 - Increase ETIPWind visibility at EU and National level
 - Increase the impact of public publications.
 - ETIPWind as primary brand for R&I activities.
- Action for the members
 - ✓ Communication
 - Share relevant materials on wind energy R&I
 - ✓ National/EU policies
 - Reach out national ministries -> Horizon Europe budget

2021 Work Programme



How to understand what is going on in EU R&I policies?

✓ ETIPWind Secretariat overview documents on key policy initiatives:

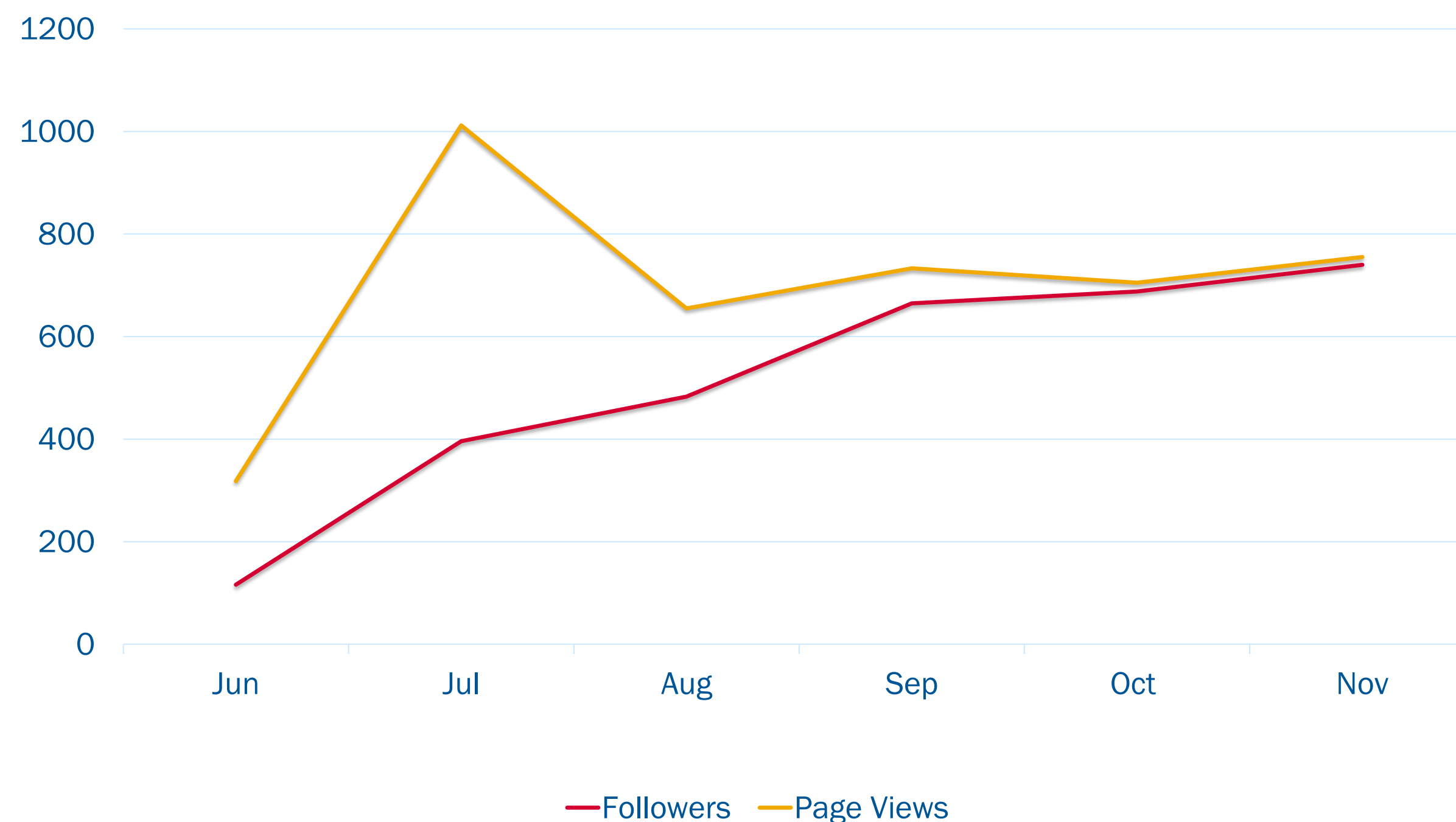
- Horizon Europe
- Offshore Renewable Energy Strategy
- National Energy and Climate Plans

✓ Monthly email with updates on EU R&I policies.

ETIPWind Communication Social Media

ETIPWind Communication on LINKEDIN

ETIPWIND LinkedIn Q3-Q4 2020



ETIPWind
742 followers
1mo • Edited •

Only 3 weeks left to submit your application.
Deadline 29 October.

...see more

INEA - Innovation and Networks Executive Agency
22,080 followers
1mo • Edited •

Only 3 weeks left to submit your application

The deadline for the #InnovationFund first call for large-scale proj ...see more

INNOVATION FUND
First call for large-scale projects

GRANTS
EUR 1 billion from the EU Emissions Trading System

SECTORS
Renewable energy
Energy intensive industries
Carbon capture, use and storage
Energy storage

DEADLINE FOR APPLICATIONS
29 October 2020

ETIPWind
742 followers
1w • Edited •

Today the European Commission presents its Offshore Renewable Energy Strategy.

#Offshorewind is an indispensable resource to achieve a just and #cleanenergytransition. There is no simple solution to reach 300 GW of offshore wind capacity by 2050. #Europe needs technology innovation, improved market design and grid planning.

Do you want to know how to boost #research and #innovation to support the offshore wind integration? Read more in here: <https://bit.ly/2UGbiw5>

#ETIPWind EXCO Chair Adrian Timbus put out the following statement.

#renewables #windenergy #windpower #wind #offshorewindenergy #grids #greendal #greentransition #researchanddevelopment #research #innovation #eufunding

Adrian Timbus
Chair of the Executive Committee
ETIPWind

with Adrian Timbus and 4 others

"To deliver the Offshore Renewable Energy Strategy Europe needs to keep investing in Research & Innovation (R&I). EU Funding from Horizon Europe and Innovation Fund must prioritise wind energy R&I. This will reduce costs and help maintain EU technology leadership. We need to industrialise component manufacturing, optimise installation techniques and equipment, and scale-up floating wind and offshore grid infrastructure."

ETIP Wind

ETIPWind
742 followers
4d • Edited •

Last week, Christina Aabo (Ørsted) and Hanif Mashal (LM Wind Power), members of the #ETIPWind Advisory Group, participated in the WindEurope #EOLIS2020 event.

Read the #ETIPWind conclusions on how #Research and #innovation will help decommission #onshorewind farms: <https://bit.ly/3mdvHVp>

If you want to know more about our #recommendations on #blade #recycling, take a look at our report on "How wind is going circular: blade recycling": <https://bit.ly/2Vb9GKU>

#circularity #sustainability #decommissioning #dismantling #recyclingindustry #recycledmaterials #research #innovation #ETIPWind #onshorewind #wind #windfarms #climateemergency #endoflife #wastemanagement #EUindustry #eugreendal #energytransition

How will Research and Innovation help decommission onshore wind farms?

etipwind.eu • 2 min read

ETIPWind
742 followers
2w • Edited •

Join Offshore Renewable Energy Catapult with Fraunhofer-Institut für Windenergiesysteme for the VirtualWind III #onlineconference to discuss challenges for #offshorewind #energy in the North Sea.

Offshore Renewable Energy Catapult
30,244 followers
2w • Edited •

Hear from #offshorewind experts including a keynote from Giles Dickson, CEC WindEurope & our own Head of Strategic Research, Paul McKeever at VirtualWind III: Current Challenges for Offshore Wind Energy in the North Sea.

VIRTUAL WIND III Online conference

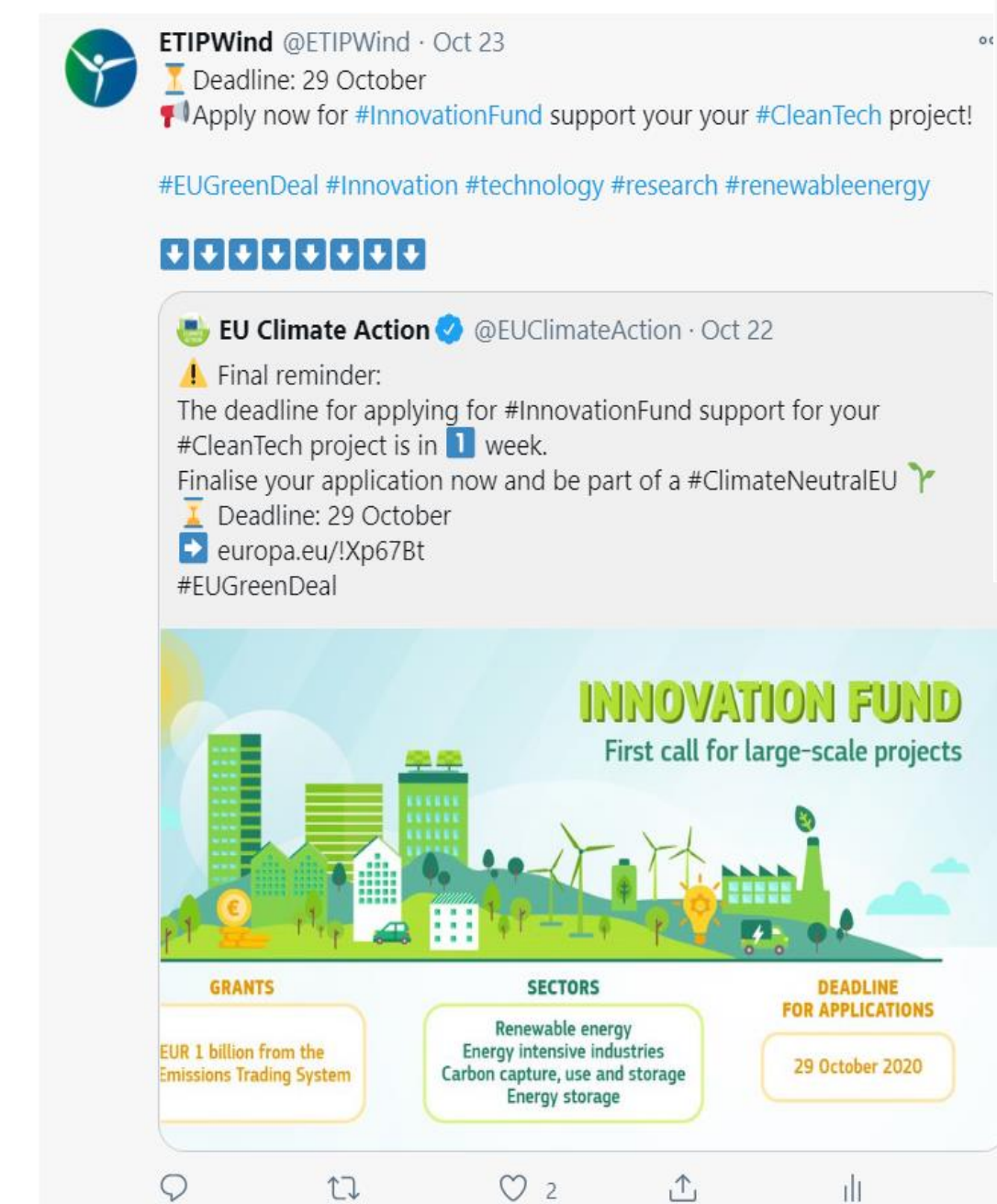
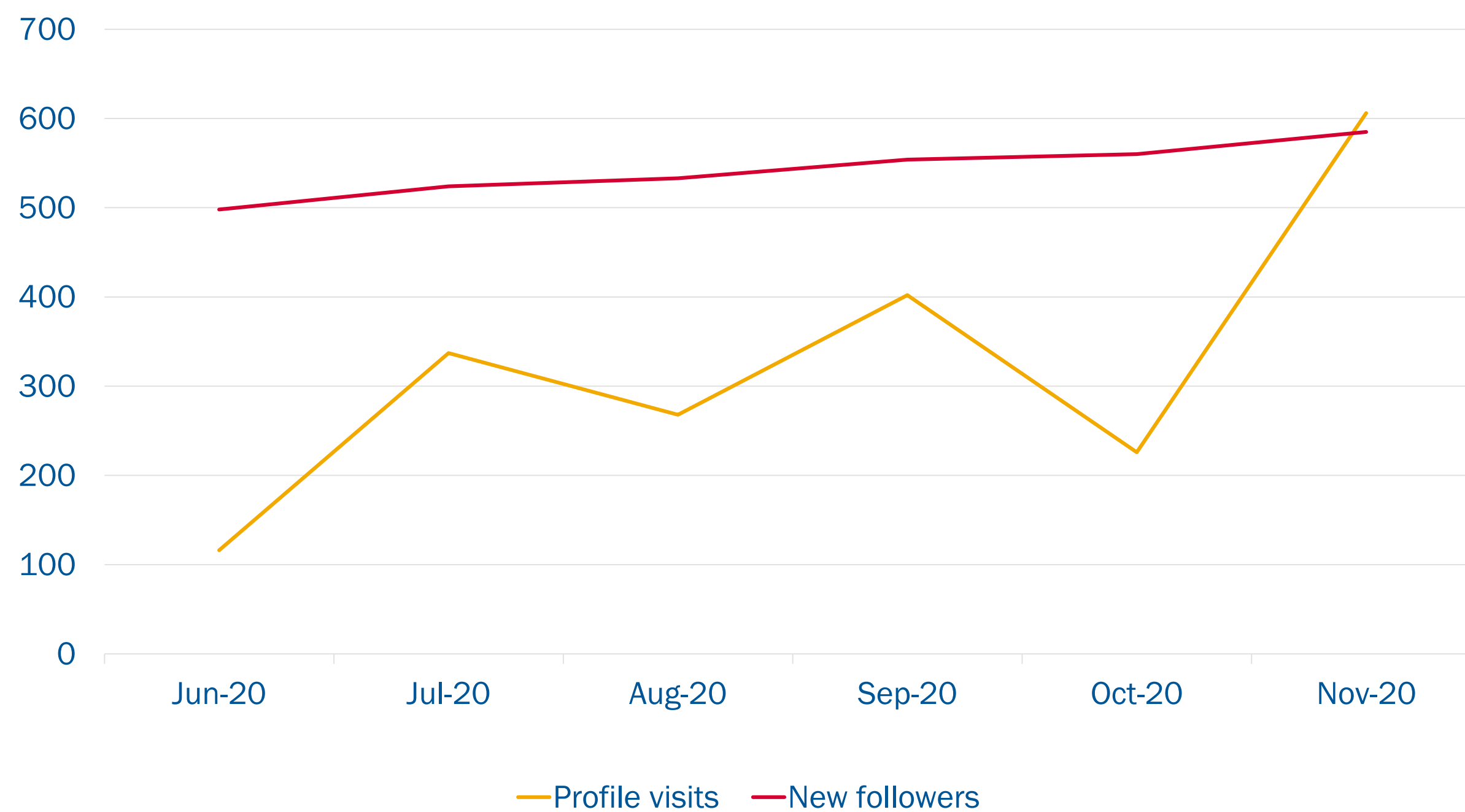
Current challenges for offshore wind energy in the North Sea

Virtual Wind III: Challenges in the North Sea - ORE

ore.catapult.org.uk • 2 min read

ETIPWind Communication on TWITTER

ETIPWind Twitter Q3-Q4 2020



ETIPWIND Communication: NEWS PIECES

23 September -> European Green Deal Call is launched

24 September -> 4 ways to improve on R&I in the 2030 National Energy & Climate Plans

1 October -> European Research and Innovation Days 2020: what next for European R&I in wind?

23 October -> How can wind energy support Europe's economic recovery?

19 November -> How to boost research and innovation to support the offshore wind integration?

27 November -> How will Research and Innovation help decommission onshore wind farms?

4 ways to improve on Research & Innovation in the 2030 National Energy & Climate Plans



Member States need to support and provide a new strategic approach to wind energy Research & Innovation to make the European Union climate-neutral by 2050.

All Member States have now submitted their first National Energy and Climate Plans (NECPs) to outline climate and energy goals, policies and measures from 2021 to 2030. The aim of the NECPs is to provide investment for the renewable sector to meet the 32% renewable target for 2030. However, most Member States shy away from Research & Innovation (R&I) targets in clean energy.

In its first assessment of the first Plans, the European Commission forecasts the serious lack of clear and long-term objectives and funding targets. It states that the "first NECPs fail to pay sufficient attention to R&I needs for delivering on climate and energy objectives" and that "there is an overall decrease in national budgets devoted to R&I in clean energy technologies".

The European Commission recommends national governments and industrial sectors to adopt a "new strategic approach to clean energy R&I and competitiveness" in support of Europe's economic recovery and transition to climate neutrality. A better link-up between national and European policies, and funding instruments is essential. The revision of the Strategic Energy Technology plan (SET-Plan) is due in 2023. The Commission will issue country-specific recommendations on all Plans in mid-October 2022 in line with these considerations.

In order to improve R&I measures in the NECPs, Member States must provide clear objectives for climate and energy R&I. This to support and improve necessary technology solutions, such as wind energy.

We therefore recommend all Member States to:

- Identify wind energy as an R&I priority. At present, only eight Member States (Belgium, Germany, Denmark, Greece, Spain, France, Lithuania and Portugal) have identified wind as a top research priority. Onshore wind is in particular absent.

How will Research and Innovation help decommission onshore wind farms?



Wind energy experts agreed: Europe needs to invest more in Research and Innovation to diversify and scale-up composite recycling technologies. European industries and policymakers must commit to a circular economy and reduce environmental impacts throughout product life cycles.

A noticeable decommission of the first generation of wind turbines has become one of the current challenges for the onshore wind sector. Today 14,000 turbines are 20 years old, requiring a decision on their future. Most of these old turbines are in Germany, Denmark, the Netherlands, United Kingdom, France, Italy, and Spain. These countries hold 70% of Europe's old installed capacity. They will be a big market for decommissioning onshore wind farms over the next decade.

Wind turbines already have a recyclability rate of 90% to 95%. However, wind turbine blades represent a specific challenge due to the complex nature of materials used to manufacture them. To face this challenge, the wind industry is committed to develop a more circular approach to blade manufacturing and decommissioning.

Last week Christine Aulas (EUROPE) and Mark Mitchell (ETIP Wind Power), members of the ETIPWIND Advisory Group, participated in the WindEurope Road of Advances and Strategic Outlook (2020-2025). The event explored what happens when wind turbines reach the end of their operational life. The next steps must be taken out of the early sustainable decommissioning inspired with a circular economy. More intensive collaboration of industry highlighted that "long-term planning within a circular economy system at every life cycle stage will create new business opportunities".

We also need to stimulate cross-sector collaboration and sharing of best practices. At the moment "there is limited case demand for the recovered composite materials. And recycling companies have difficulties building their business case", said Mark Mitchell (WindEurope). Creating synergies across sectors will facilitate the market uptake of composite material recycling technologies.

But to achieve full circularity in blades we need to invest more in Research and Innovation. This is to fund the development and scale-up of recycling technologies at pilot and commercial scale, taking into account the environmental impacts of each solution.

Read all the recommendations in our ETIPWIND report "How wind is going circular: Make recycling".

More information:

ETIPWIND report

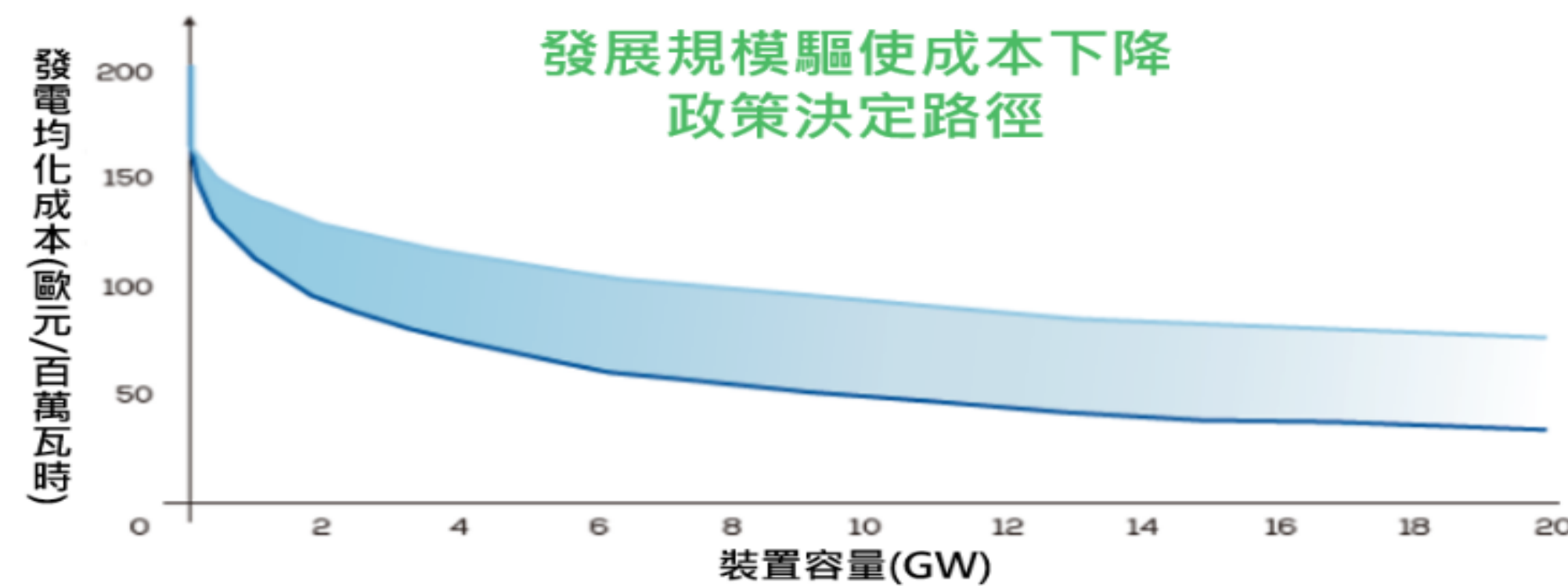
WindEurope Decommissioning report

WindEurope Blade Circularity report

SET-Plan 2030 presentation

Note: Only WindEurope members have access to the ETIPWIND 2020 proceedings.

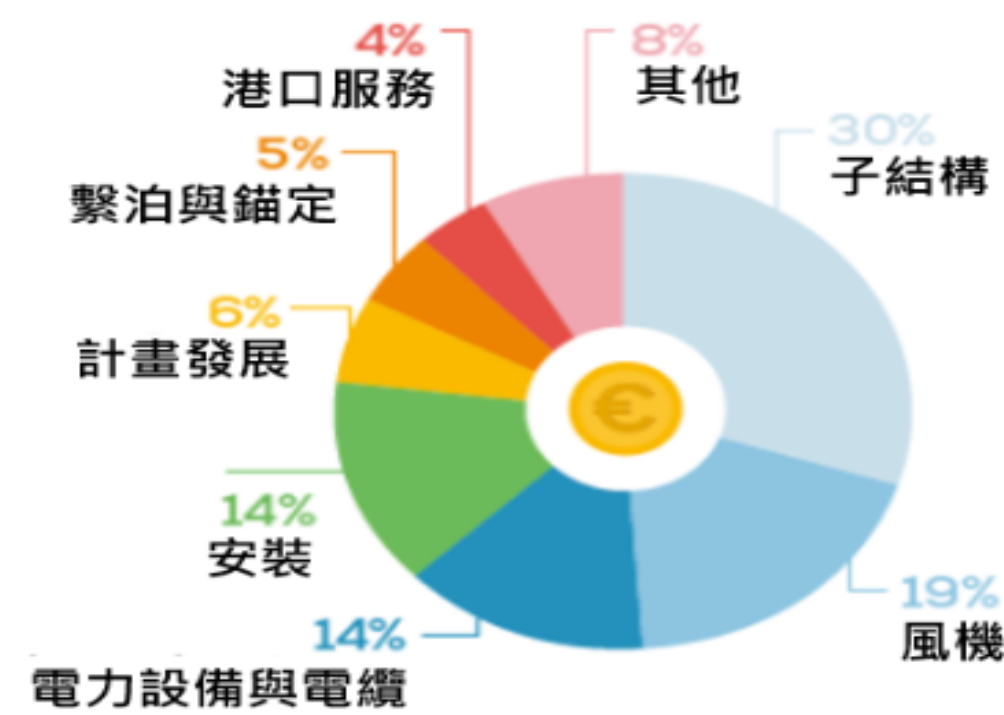
ETIPWind is becoming a global player!



● 溫和政策的發電均化成本 (學習率15%)
● 加快政策的發電均化成本 (學習率25%)

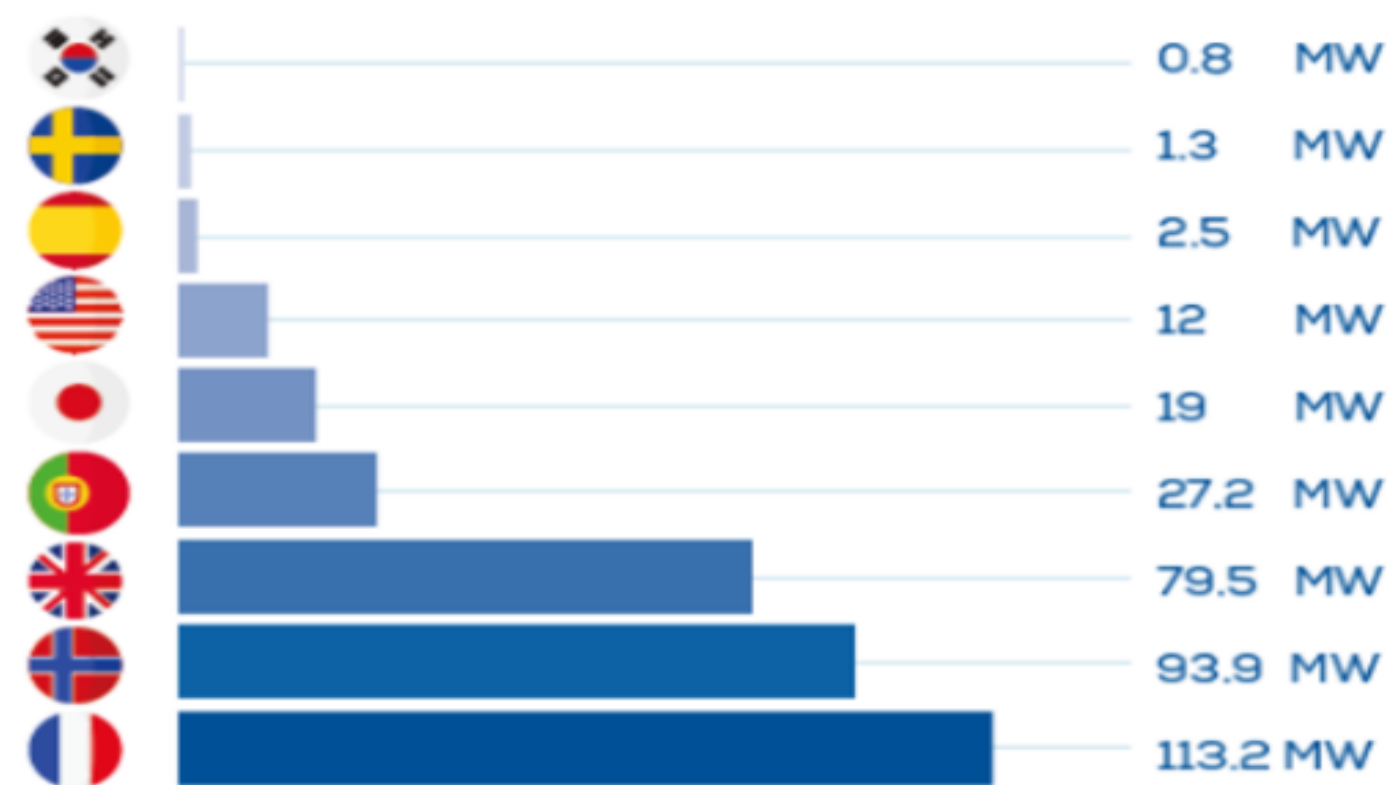
資料來源：ETIPWind
(請參考註解1)

產業化將降低浮動式技術的資本支出



浮動式離岸風場的前商業化資本支出
資料來源：ETIPWind

至2022年的累積裝置容量



資料來源：ETIPWind
(請參考註解2)



歐洲

提案數：34
裝置容量：48.5 MW
技術潛力：4000 GW
2022年前規模：318 MW



其他地區

提案數：16
裝置容量：16 MW
技術潛力：>14000 GW
2022年前規模：32 MW

資料來源：ETIPWind

註解

- 下列為此成本預測模型之假設：
 - 容量因數為45%；
 - 風機壽命達25年；
 - 以及
 - 資本的加權平均成本為9%
- 此預測僅包含達最終投資決策(Final Investment Decision, FiD)之計畫。最終投資決策包含目前已獲全權許可或已達2020至2022年之預前許可程序的計畫。

資料來源：

ETIPWind(2020), "Floating offshore wind – delivering climate neutrality,"
ETIPWind official website



中文翻譯：懂能源團隊

"Thank you for providing latest green energy news and information around the world, we will keep following your website and introducing your latest activities with people in Taiwan, hope more and more people will participate in energy transition and renewable energy development."

Cheng-Yen Hsin, Green Energy Research Laboratories, Industrial Technology Research Institute, Taiwan.

Flagship report

How wind energy can deliver climate neutrality

Demonstrate value of wind energy

Cost reductions and beyond LCOE, supply chain & logistics, and sustainability

Create a system fit for renewables

Grid infrastructure, sector coupling and energy system transformation

Accelerate electrification of energy demand

Technologies and policies to support renewables-based electrification of industry, transport and buildings

Policy innovation

Recommendations on how to align EU and national policy with 2030 and 2050 ambitions

Focus on the 'how' of the energy transition

Report Structure

1. **Wind Technology** as the main energy source
2. **Electrification** is the key to decarbonisation- Putting the customer at the centre of the energy transition
 - Industry
 - Transport
 - Buildings
3. The **power grid** as the backbone of the energy system
4. **Flexibility** is the key for the system to provide reliable and low-cost renewable power
5. Advancing technology through **policy innovation**

Taskforce members

HITACHI

ABB


**IBERDROLA
RENOVABLES**


DNV·GL


Shell

SIEMENS Gamesa
RENEWABLE ENERGY


EERA
European Energy Research Alliance

 **edf**
renewables


RES
power for good


enel
Green Power


Ørsted


MHI VESTAS OFFSHORE WIND

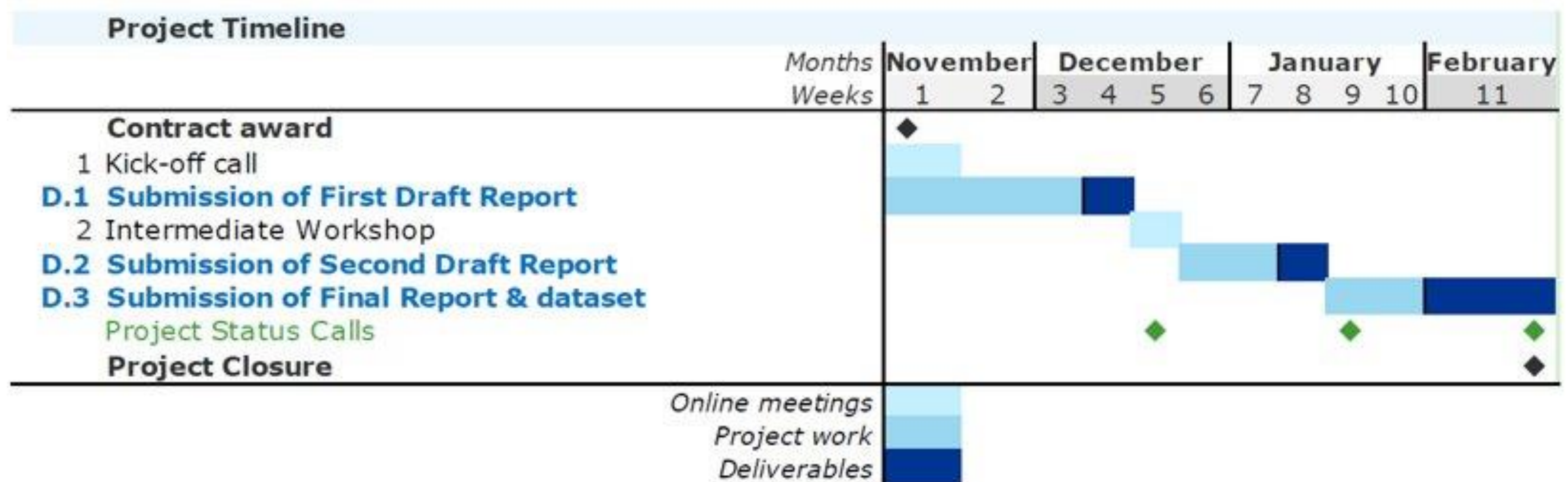

**LM WIND
POWER**


UL


**Wind
EUROPE**

Timeline

Phase 1 – data collection (Nov – Feb)



The exact dates will be discussed with WindEurope during the kick-off meeting.

Phase 2 – Drafting (Feb – Mar)

Phase 3 – Finalisation (Apr)

Value of wind energy – High level messages

- 1) Wind energy will remain (one of) the most cost-competitive sources of electricity in Europe
 - LCOE model and CAPEX – OPEX breakdown. Drivers?
- 2) Wind energy has also values beyond cost-effectiveness (Beyond LCOE)
 - Wind energy only or comparative analysis? Sustainability of materials?
- 3) Wind energy technology will evolve to provide future maximum value
 - Industry trends (turbine and wind farm). System values.
- 4) Wind energy will need more R&I support to deliver on this
 - Impact of R&D on competitiveness? Scientific research funding?

Feedback from the Advisory Group

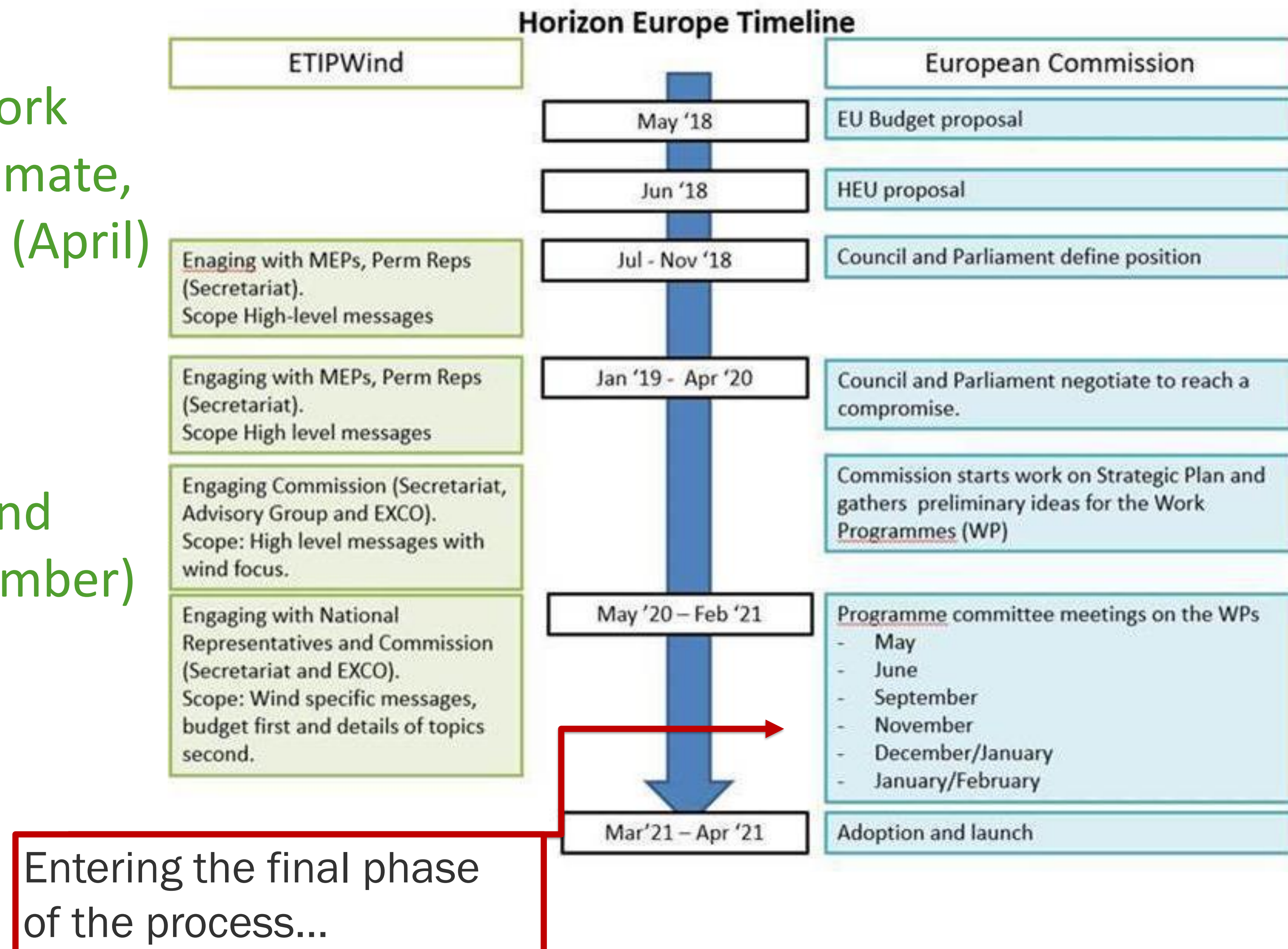
R&I policy and messaging

Action points

- Support national representatives on 1st Horizon Europe draft work programme (email 11/09 – EXCO meeting)
- Reach out to your national ministries before 29/09 to support a stronger Horizon Europe budget in the EU budget talks (email 11/09 – EXCO meeting)
- Provide national governments with feedback on the 2nd Horizon Europe draft work programme (email 06/11)

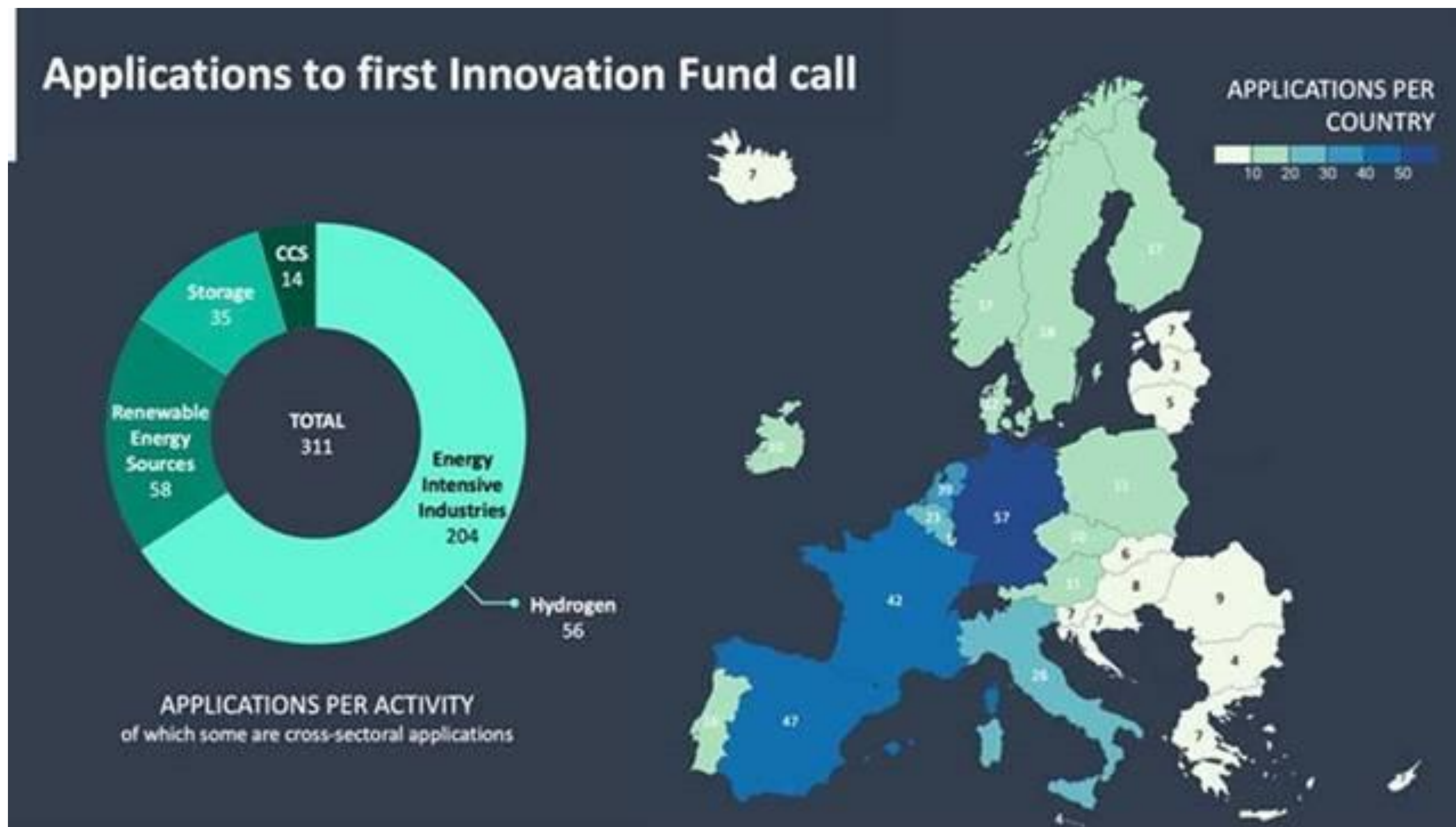
2021 policy & funding priorities

- Horizon Europe work programme for Climate, Energy & Mobility (April)
- ETS Innovation Fund second call (September)

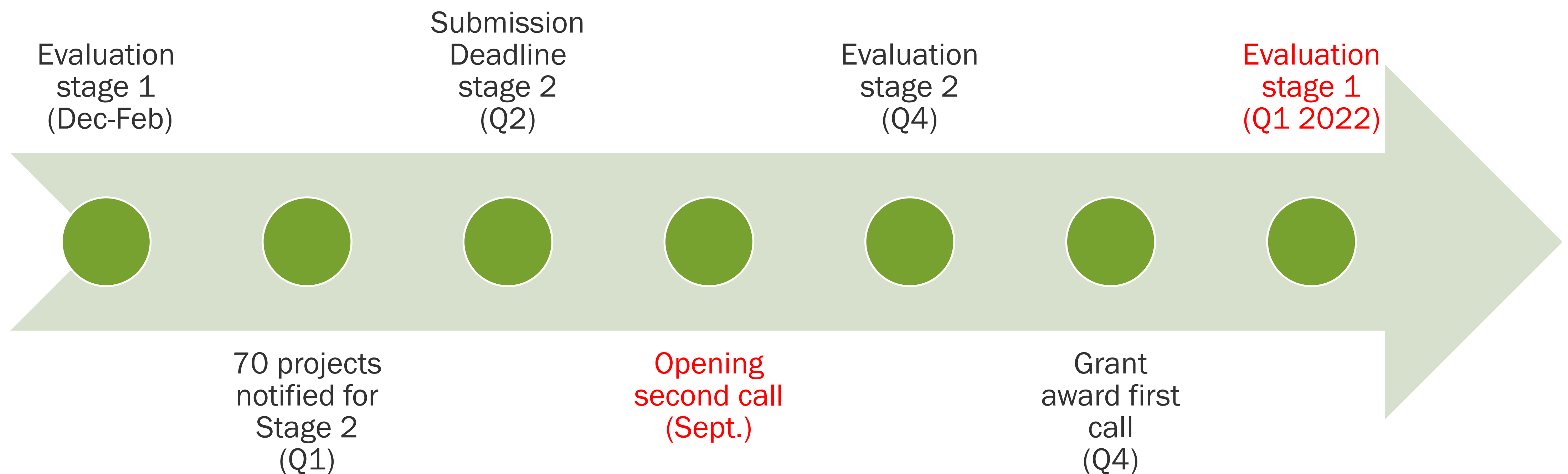


ETS Innovation Fund first call results

€21.7 billion requested by 311 projects



ETS Innovation Fund Timeline 2021-2022



Lighthouse initiatives



ETIP Wind EXCO meeting 3 December 2020

Offshore Wind Research Lighthouse Initiative

John Olav Giæver Tande, Chief Scientist, SINTEF



A photograph of several wind turbines in an offshore field during sunset. The sky is a mix of orange, yellow, and light blue, with the sun low on the horizon. The turbines are dark silhouettes against the bright sky.

What is a lighthouse initiative?

Initiative in development to develop one or more **large European research projects (tens of MEUR)** that will address the **grand scientific and technical challenges** that are crucial for the further advancement of **offshore wind energy**, providing **new knowledge and basis for innovation**.

MOTIVATION

- Offshore wind has the potential to deliver 18 times the global electricity demand of 2017
- EC scenario for 2050 to reach climate goals: 450 GW of offshore wind to supply 30 % of the electricity demand
- Equinor and Ørsted suggest that offshore global capacity can reach 1400 GW by 2050
- 80 % of the global offshore wind resource is over deep water
- A big opportunity for industrial development, new jobs and value creation
- A grand science and engineering challenge



Vision

**Offshore wind to be a cornerstone
of the energy system**

Offshore Wind Lighthouse #1

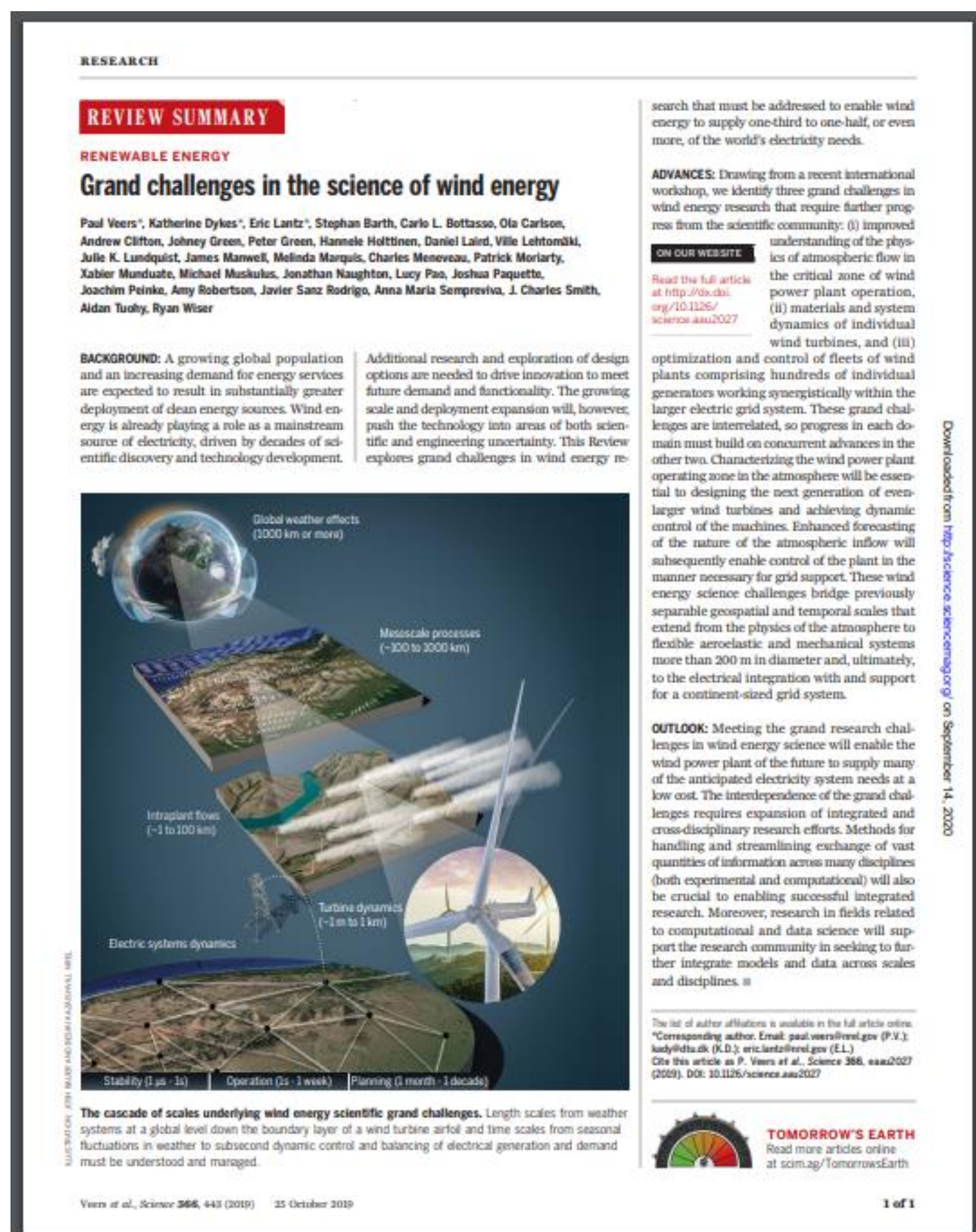
**Enable reliable
power system
operation with
large-scale
offshore wind**



Offshore Wind Lighthouse #2

**Make floating
wind cost
competitive**

Grand Scientific Challenges



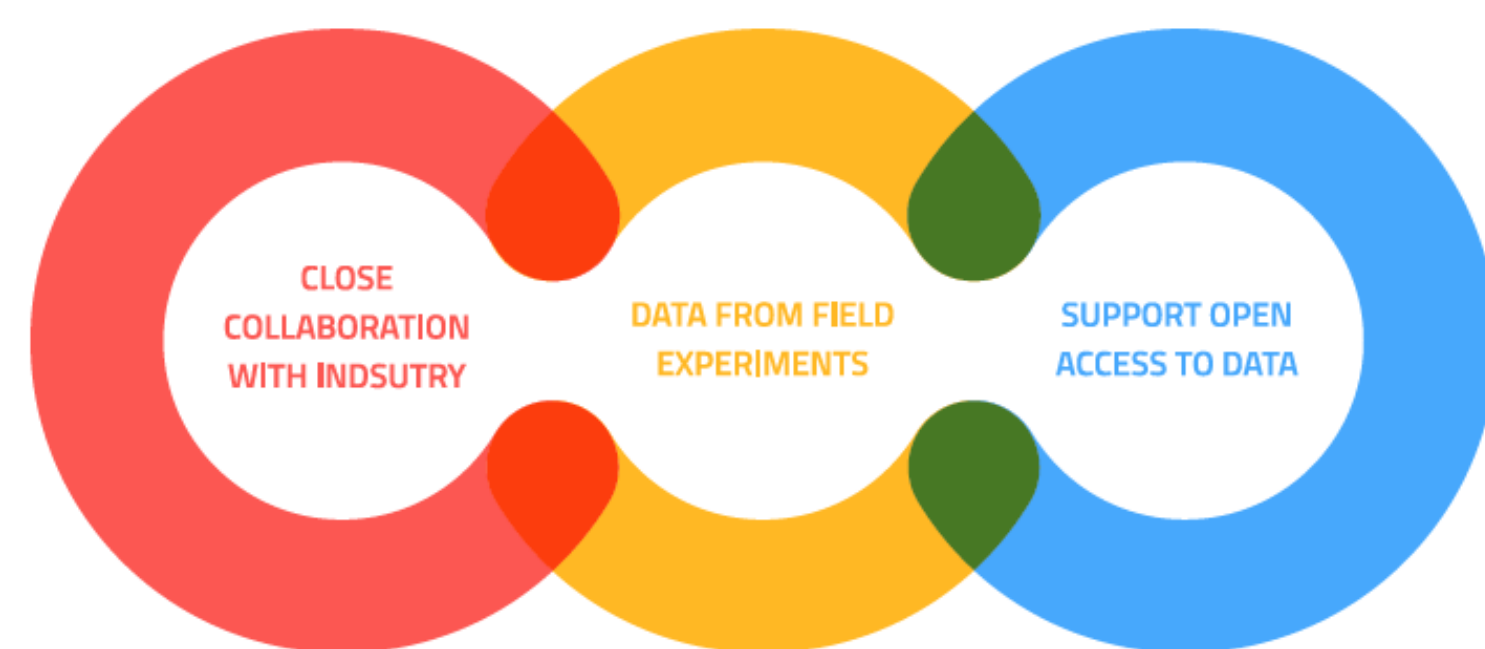
- Improved understanding of atmospheric and wind power plant flow physics
- Aero-, structural-, electrical- and offshore wind hydrodynamics of enlarged wind power plants
- Systems science for integration of wind power plants into the future electricity grid

<https://science.sciencemag.org>

Hypothesis

To succeed in bringing wind energy towards its full potential **an interdisciplinary research approach** must be taken, considering the wind power plant, together with the surrounding nature (wind, water, ..) and electric grid, as part of the same system, and understand the complex interactions of these parts in all detail.

Implementation (draft/work in progress)



- RIA call in upcoming Horizon Europe programme
- 100 % funding by EC for RIA, but enhanced through coordination with national projects
- One or two projects that address minimum 2 out of the 3 grand research challenges:
 - Improved understanding of flow physics
 - Dynamic interactions of enlarged wind plants
 - Systems science for integration of wind power
- An interdisciplinary approach should be taken
- The research should be closely linking with industry and provide new knowledge and basis for innovation

Knowledge
+
Industry **= €\$¥**

Research is **important**

(pdf: click [here](#) to play)

Summing up

- The two lighthouse initiatives represent **great opportunities** for new industry, employment, innovation and an efficient carbon-free power system.
- Well established need for more Research, Innovation and Deployment
- Bringing the lighthouse initiatives forward as **large visionary research projects** to solve grand scientific and technical challenges **will provide a solid foundation** for the successful advancement of offshore wind to be a cornerstone of the energy system.





EUROPEAN TECHNOLOGY & INNOVATION
PLATFORM ON WIND ENERGY

Join the conversation #ETIPWind



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