

Putting industrial leadership in wind energy at the heart of the European Green Deal

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EXECUTIVE SUMMARY

Europe's wind energy sector is strategic for the EU economy. It is instrumental to our energy security, to our climate objectives, and to our long-term economic success.

Wind energy already meets 14% of Europe's power demand. The sector employs 300,000 people, represents billions in technology exports, and makes more than EUR 25 billion in new investments every year. Onshore wind is the most cost-competitive source of new electricity generation in most of Europe, and offshore wind is not far behind.

The European Commission's 2050 long-term decarbonisation strategy foresees that wind will be far and away the largest source of power generation by mid-century. Its most ambitious scenario, which would put the EU on track to carbon neutrality, would see 1,200 GW of wind energy up from today's 189 GW.¹

But pressures are emerging: uncertainty on future volumes; rising competition from non-European players on domestic and global markets; a yawning green investment gap; incoherent trade and climate & energy policies; limited support for wind Research and Innovation; and poor policy-making still in some countries. In Germany alone 38,000 jobs have been lost since the beginning of 2016.

Commission President-elect Ursula von der Leyen's European Green Deal and the objective to be climate neutral by 2050 offer a positive policy signal to the market. But the Green Deal must have an industrial policy component firmly embedded in it that allows the European wind industry to remain competitive – at home and abroad.

The EU's economic and energy & climate policies need to work in harmony to ensure market scale, support the European wind industry's global supply chains, and refocus EU Research & Innovation and skills funding. This will allow Europe to capitalise on a home-grown technology that provides a solution to the global climate crisis whilst translating the EU's climate objectives into jobs and growth.

POLICY RECOMMENDATIONS

The following elements will form the basis of an industrial strategy for wind energy to deliver cost-effectively on Europe's Green Deal:

- Recognise wind energy as a Strategic Supply Chain for the delivery of climate neutrality by 2050;
- Revitalise the EU's domestic wind energy market through robust and timely implementation of the EU's Clean Energy Package;
- Drive investments in infrastructure that are Paris-compatible and support Europe's wind energy industrial hub e.g. electricity grids, storage, electric vehicle charging, roads and ports;
- Align the EU's trade policies with climate & energy, industry and competition objectives; and
- Continue and increase EU Research & Innovation funding to support technologies such as wind energy that will deliver the energy transition.

¹ European Commission. 28 November 2018. IN-DEPTH ANALYSIS IN SUPPORT OF THE COMMISSION COMMUNICATION COM(2018) 773: A Clean Planet for all A European long-term strategic vision for a prosperous, modern, competitive and climate neutral economy, p. 77.

1.1. A STRATEGIC SECTOR UNDER PRESSURE

The European wind industry has been central to kick-starting the energy transition and has made a remarkable contribution to the European economy. The sector directly and indirectly employs 300,000 Europeans. And it contributes more than EUR 36 billion to the EU's GDP. Five of the world's top ten wind turbine manufacturers are headquartered in the EU, while Europe's wind industry is at the cutting edge of technology. Thanks to its first mover advantage the European wind industry has made big inroads to the American markets, and is competing successfully in new markets in the Asia-Pacific.

Wind energy is instrumental to Europe's long-term economic success. Onshore wind is the most cost-competitive source of new electricity generation in most of Europe, and offshore wind is not far behind.

But pressures are emerging. To safeguard the industry's competitiveness and ensure wind plays its role in delivering on the EU's 2050 climate objectives, European policymakers need to address:

- the uncertainty on future deployment volumes as a result of stop-and-go regulatory frameworks and administrative barriers, which are undermining investments in the wind energy supply chain;
- the green investment gap in grid & logistics infrastructure that could hold back the acceleration of wind energy capacity build-out in line with the 2050 decarbonisation targets;
- current EU trade policy that fails to factor in the EU's climate & energy objectives; and
- EU Research & Innovation (R&I) policies that must better support the industry's future competitiveness in the face of mounting global competition.

Failure to change policy course will have dire consequences for jobs in Europe and for the wind industry's ability to deliver a cost-effective and inclusive energy transition. Already in Germany alone 38,000 wind industry jobs have been lost since the beginning of 2016.

Commission President-elect Ursula von der Leyen's European Green Deal and the goal to be carbon neutral by 2050 is a positive policy signal. But the Deal must have an industrial policy component firmly embedded in it that allows the European wind industry to remain competitive – at home and abroad.

The importance of the European wind energy industry to the EU's industrial development and energy security will only increase. It must now be considered a Strategic Supply Chain and prioritised as central to the EU's future. The resulting job creation will go a long way towards ensuring Europeans continue to embrace the Energy Transition.

The EU's economic and energy & climate policies need to work in harmony to support market scale, plug the green investment gap, support the EU wind industry's global supply chains, and refocus EU R&I and skills funding.

1.2. DRIVING MARKET SCALE

The European Commission's 2050 long-term strategy foresees that wind will be far and away the largest source of power generation by mid-century. Its most ambitious scenario, which would put the EU on track to carbon neutrality, would see 1,200 GW of wind energy – up from today's 189 GW.²

But the European supply chain is under increasing pressure. The move from feed-in tariffs to competitive auctions has led to increased competition, driving price reductions for both onshore and offshore wind. However, the transition has not always been orderly across markets – much of the underlying policy framework that should have allowed market players to sustain price reductions and remain competitive has not adapted accordingly. Permitting is a stark example: delays have caused a sharp decline in installations in Germany, resulting in massive job losses.

In contrast, the case of China demonstrates the importance of market scale. China is now installing twice as much wind energy capacity as the EU every year. The Chinese industry benefits from economies of scale and massive R&I funding, and may yet threaten Europe's technological leadership.

The stakes for Europe's wind sector could not be higher: 75% of wind energy installations during 2020-23 are expected to take place outside Europe. If the EU is unable to deliver market scale, European jobs and manufacturing might migrate to the growth markets.

There is an urgent need for action. In order to deliver the volumes necessary to deliver the energy transition, and thereby retain employment and value-added in the EU, European policymakers need to seize the opportunity of the Green Deal and revitalise Europe's domestic wind market.

For this, the full and timely implementation of the Clean Energy Package, and in particular the 2030 National Energy & Climate Plans, is crucial to put Europe's energy transition on track with the 2050 decarbonisation goals. This requires:

- 1) Visibility on auction rounds, i.e. on a 5-year timeframe – as mandated by the Renewable Energy Directive – to give stable plans for the volumes, budget and timing of tenders. This will allow the wind industry to realise long-term investments in factories and R&I facilities;
- 2) Clear rules for support schemes design to provide revenue stabilisation and unlock private investments in wind energy. Well-designed competitive bidding processes are needed to ensure good throughflow of volumes that will take into account the particularities of national renewable energy markets. Technology-specific auctions must be the norm alongside the two-sided Contract for Difference (CfD) to provide visibility and de-risk capital-intensive wind energy projects. The revision of the State Aid Guidelines post-2022 should be fully aligned with the support scheme rulebook enshrined in the new Renewable Energy Directive.
- 3) Streamlined permitting processes for new & repowered projects, as well as for grid connections. This will provide transparency on procedures and requirements to ensure project delivery according to plans scheduled.

² European Commission. 28 November 2018. IN-DEPTH ANALYSIS IN SUPPORT OF THE COMMISSION COMMUNICATION COM(2018) 773: A Clean Planet for all A European long-term strategic vision for a prosperous, modern, competitive and climate neutral economy, p. 77.

- 4) Removal of regulatory and administrative barriers to Corporate Power Purchase Agreements (PPAs). New business models for wind energy deployment like PPAs will play an increasingly important role in the decarbonisation of the commercial and industrial sectors.
- 5) Speeding up the implementation of the new electricity market design rules. This will ensure a level playing field for wind energy investments and the transition towards a power system fit for renewables, e.g. by ending regulated prices and creating commercial markets for ancillary services in the form of flexibility platforms.
- 6) Power grid infrastructure planning, including clear roadmaps for investment in new grid capacity and grid optimisation, as well as intensified cooperation between Member States.

Increased market scale will deliver concrete benefits in terms of competitiveness, by driving more efficient investment strategies, bigger economies of scale, and increased R&I and skills spend. Most importantly for society, it will keep jobs in Europe.

POLICY RECOMMENDATIONS TO DRIVE MARKET SCALE

- The European Green Deal should recognise the strategic importance of a competitive wind energy industry in delivering climate neutral goals by 2050.
- Member States and European Commission should act without delay on the implementation of the Clean Energy Package *via* the National Energy & Climate Plans, in order to revitalise the European wind energy market.

1.3. INVESTING FOR THE ENERGY TRANSITION

Increasing EU wind energy capacity to 1,200 GW by 2050 will require massive investment. Between now and 2030 alone there is an annual investment gap of EUR 260 billion required to meet the 40% greenhouse gas emissions reduction target. Going for a 50-55% reduction would require even higher investments.³

The EU must gear its investment strategy towards the cost-effective delivery of its climate objectives. The European Commission's Sustainable Europe Investment Plan needs to ensure that investments contribute to the EU's decarbonisation targets and act as an enabler for industrial leadership in the technologies such as wind energy that will deliver the European energy transition.

Measures to increase market scale must go hand-in-hand with infrastructure that is ready to support the new capacity. Strengthening and extending the existing power grids both on- and offshore, as well as further interconnecting European energy markets, will be critical in delivering clean and competitive wind power to consumers.

Renewables-based electrification across sectors will hold the key to a successful decarbonisation of the European economy while ensuring Europe retains its competitive edge in climate mitigation technologies. The direct electrification of Europe's heating & cooling and transport systems should be prioritised. This

³ European Commission. 18 June 2019. United in delivering the Energy Union and Climate Action - Setting the foundations for a successful clean energy transition. COM(2019) 285 final.

requires a smart roll-out of network infrastructure, e.g. storage, electric vehicle charging stations, and smart grids.

Indirect electrification through renewable hydrogen will also have a role to play, for example in the decarbonisation of heavy industry. Future infrastructure investment must be consistent with Europe's climate neutrality commitments and avoid long-term fossil fuels lock-in. This will pave the way for exploring the benefits of sector coupling.

EU investment instruments should also support the increasing needs of the wind industry supply chain in terms of transportability of wind turbine components for both onshore and offshore wind. This requires beefing up road and ports infrastructure as well as the development of new transportation methods and vehicles.

EU investment funds and a decarbonised European Investment Bank should be used to de-risk wind energy projects at scale. This should be done as a priority for emerging technologies like floating wind, where the EU risks losing its competitive edge to third countries like South Korea.

Crucially, if the wind energy industry is to grow in line with the EU's decarbonisation objectives, skills demand will increase dramatically. This is foremost an opportunity for the EU: re-skilling of workers from traditional industries, such as coal, to take up manufacturing, logistics, and operations & maintenance roles meets the wind industry's growing needs while ensuring a just energy transition.

POLICY RECOMMENDATIONS FOR INVESTING IN THE ENERGY TRANSITION

- The European Commission's Sustainable Europe Investment Plan must channel investments in grids, storage, electric vehicle charging and other infrastructure, e.g. ports for offshore wind.
- The European Investment Bank should double its share of green investments in line with its decision to divest from all fossil fuels and transform itself into a genuine green investment bank.
- At least 20% of the Just Transition Fund should be used to re-skill workers from regions in transition to work in the renewable energy sectors.

1.4. GREEN TRADE

The EU wind sector relies on strong European industry to provide raw materials and components. Cost-competitive European steel, glass fibre, cables, and electrical components are essential to a stable wind energy supply chain. With the 500% increase in the rate of capacity build-out required over the next thirty years, demand for these inputs will only rise.

Nevertheless, global supply chains are critical to the industry's ability to compete in a highly dynamic and competitive international market environment. In the case of glass fibre fabrics, blade manufacturers pursue diversified, multi-sourcing strategies: since qualifying new suppliers can take up to two years, the use of a sole supplier would present an excessive risk. In other cases, non-EU suppliers are used when EU suppliers are not able to provide to the scale required to meet tight project delivery deadlines. In a few cases, quality is an issue, e.g. for European grain-oriented electrical steel (used in transformers), which

owing to greater core loss is less compliant with the EU's EcoDesign requirements than Japan-made product.

The global trade environment is putting extreme pressure on these supply chains. EU trade defence measures, which in some cases have come in response to additional tariffs levied by third countries, are driving up costs and creating uncertainty for wind turbine and component manufacturers.

Trade defence policies impacting the wind industry's global supply chains reduce the competitiveness of European supply chains as well. This limits the ability of European industry to deliver on the EU's decarbonisation targets, and to supply goods for export to third country markets. Ultimately, it encourages the delocalisation of manufacturing outside of Europe.

EU trade defence policy must consider the impact of additional duties on the wind energy industry, which is a key user of imported raw materials and components. Crucially, policymakers should take the EU's climate & energy targets into account when considering 'Union interest', which has too often been defined on narrow economic grounds. Any successful and cost-effective European Green Deal will need to be underpinned by a coherent trade policy.

The Carbon Border Adjustment Mechanism under consideration as part of the European Green Deal – if agreed – should be used in the first place to leverage meaningful environmental reforms in third countries. Well-designed Emissions Trading Systems and/or carbon taxes should be rolled out in all the major economies, to ensure that European industry is competing on a level playing field. Not only will such a change increase fairness, it will drive global demand for renewable energy technologies.

WindEurope has always supported the conclusion of the Environmental Goods Agreement. Free trade in renewable energy goods and services should be a priority. However, given the current trade environment, it is through bilateral trade deals that the EU is best able to take apart the barriers to EU wind industry exports. These include Local Content Requirements and burdensome regulations and standards.

POLICY RECOMMENDATIONS FOR GREEN TRADE

- Climate & energy policy considerations must be integrated on par with economic ones into analyses of 'Union Interest' made in the context of trade defence investigations.
- The removal of Local Content Requirements and burdensome regulations should be prioritised in the EU's bilateral trade negotiations, along with the promotion of international standards.
- The European Commission should look into restarting negotiations for an Environmental Goods Agreement, with a focus on the APEC list of environmental goods.
- The European Commission should publish an Export Strategy for renewable energies, including thorough consideration of how export credits might encourage the export of made-in-Europe green goods and European services.

1.5. SUPPORT FOR RESEARCH & INNOVATION (R&I)

EU funding for wind energy Research & Innovation is critical to sustain the future competitiveness of the wind energy industry. R&I will help further improve performance and reduce the cost of energy production. It can improve the recyclability and circularity of materials and components. And it can help bring new concepts faster to market. More broadly, Europe must lead a paradigm shift in energy production and supply the technologies that will help deliver the global energy transition.

Post-2020 R&I spending needs to prioritise renewables and the technologies that will deliver the energy transition like wind energy. Compared to other renewable energy technologies, wind energy research received significantly less funding from the Framework Programmes for Research and Technological Development (1996-2016). Whereas wind energy received EUR 565 million over this period, solar (photovoltaic and thermal) and bioenergy (biofuels and biomass) received EUR 1,200 million each.⁴

Onshore wind energy in particular is often considered to be a ‘mature technology’ that has less to gain from public support to R&I than emerging energy technologies. That approach is misguided. But it is reflected by the allocation of EU funding in recent years, despite the fact that onshore capacity will still account for 80% of all wind installations in 2030. And will have to grow from 159 GW today to 750 GW in 2050. Continuous R&I funding in onshore wind will be critical for the delivery of the EU decarbonisation objectives.

R&I will also be central to the development of next generation components, materials, towers and support structures for offshore wind. This includes: offshore grid design, substructure design, research and testing of floating offshore wind structures and mooring, as well as cable technologies. This will be critical in scaling up offshore wind to reach 450 GW of capacity by 2050.

Research and Innovation can boost circularity too, e.g. for hard-to-recycle materials like glass fibre. It can support more effective operations & maintenance – an increasingly important component of turbine manufacturers’ business model as installations increase. And it can make a valuable contribution to grid and systems integration.

Specific R&I funding can also help bring new concepts faster to market. New wind energy concepts often get stuck in the ‘valley of death’: the gap between prototype stage and large-scale market demonstration. The Innovation Fund attached to the Emissions Trading Scheme, which focuses on technology at higher technological-readiness levels (TRLs) than Horizon 2020 (e.g. TRLs 7-9), can help bridge this gap.

POLICY RECOMMENDATIONS FOR RESEARCH & INNOVATION

- EU R&I funding under Horizon Europe must reflect the importance of wind energy to the Energy Transition: this means 5% of the climate, energy & mobility cluster (c. EUR 800 million), or around double what was allocated under Horizon 2020.
- Evaluations of Horizon Europe projects should consider the potential for further funding (e.g. TRL 7-9), for example under the ETS Innovation Fund, to create an EU sustainable technology development pipeline.

⁴ European Commission. January 2019. Study on impacts of EU actions supporting the development of renewable energy technologies. PP-05441-2017.