

Shell Response to the EU Offshore Renewable Energy Strategy Consultation

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Introduction

Shell¹ welcomes the EU's Green Deal and supports the target to achieve climate neutrality in the EU by 2050. For this to happen, the offshore wind industry needs ambitious renewable energy and greenhouse gas reduction targets and an enabling policy framework for investment. The European Commission's EU Offshore Renewable Energy Strategy provides an opportunity to set clear objectives and align the multiple and integrated policy mechanisms needed to accelerate offshore wind build out and create the conditions for the synchronised scaling up of renewable power demand in key sectors, supply and infrastructure.

The Shell scenario sketch: A Climate Neutral EU by 2050², shows that to achieve Net Zero Emissions (NZE) in the EU energy system by 2050, electrification of final energy demand would need to grow from about 20% today, to more than 60% (with renewables accounting for 75% of power generation). The electricity system will also need to more than double the size it is today.

This deeper electrification will require a fundamental rewiring of the EU economy – such as electrifying industrial processes and building infrastructure to electrify transport and buildings. In addition to ramping up the scale of renewable deployment, expanding the capacity of the power grid, onshore and offshore, and optimising power generation and distribution across the EU will be needed. The use of clean hydrogen will need to rise to decarbonise hard to abate sectors such as industry (in particular, energy-intensive sectors like chemicals, refining, steel and cement) and freight road transport, where direct electrification is not currently a viable solution. Shell believes in the value of integration of offshore wind with hydrogen to realise clean hydrogen hubs to enable achievement of EU carbon neutrality by 2050.

Specifically, achieving the European Commission ambition to install between 230 and 450 GW of offshore wind capacity by 2050 would require twenty times today's installed capacity). Currently, around 3 GW offshore wind capacity per year is installed in the EU. This would need to increase to 7 GW per year by the second half of the 2020s. After 2030, this would need to rise to over 20 GW per year³. The scale of growth needed in offshore wind and the deeper system electrification will require significant regional cooperation.

Shell and Offshore Wind in Europe

Shell has set itself an ambition to become an NZE energy business by 2050, or sooner, in step with society. As part of the measures to fulfil this ambition, Shell is building an integrated renewable power business: from generating electricity, to buying and selling it, storing it and supplying directly to customers to power homes, businesses and vehicles. Wind is critical to this mission. The total global installed capacity of our wind portfolio and pipeline today is more than 5 GW with a Shell share of

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² [Shell Sketch Scenario](#); read disclaimer in Annex B

³ <https://windeurope.org/about-wind/reports/our-energy-our-future/>

2GW. Shell sees the value of a wind farm as part of an integrated electricity system, not just a stand-alone asset.

We see opportunity in both onshore and offshore wind and we are currently growing our wind portfolio globally. In Europe, Shell is associated with several offshore wind projects in varying stages of operation and development. These projects include innovative technologies as well as integration of other forms of power generation and storage.

We are also involved in numerous research projects and industry coalitions to further innovation in the offshore wind industry. Additional information regarding Shell's Offshore Wind in Europe is provided in Annex A.

EU Offshore Renewable Energy Strategy Recommendations

Shell would like to contribute with the following recommendations:

Significant investment and regional coordination will be needed across the energy system to enable the offshore wind capacity buildout needed in the EU by 2050. Key challenges include ensured long term investment certainty, the need for regional integration and electrification of demand and infrastructure buildout, and innovation to deliver further development of scale in a cost-effective manner.

The implementation of the EU Green Deal and the EU Offshore Renewable Energy Strategy (as well as the recently issued Energy System Integration and Hydrogen Strategies), provide an opportunity to overcome these challenges. We make the following recommendations to support the enabling framework for offshore wind in Europe:

1. Shell supports the Commission proposal for a 55% GHG net reduction target by 2030, which is aligned with the EU transition to climate neutrality and the goals of the Paris Agreement. A clear target for 2030 enhances the business case for low carbon investment. This is a very challenging target that will require implementing measures to accelerate existing low and zero carbon technologies and infrastructure and to support European industrial competitiveness, cost effectiveness and social fairness. Delivering this goal will require decisive policy action to accelerate GHG reductions across all economic sectors simultaneously, supported by the implementation of the EU recovery instrument. A robust sectoral approach should be anchored at the heart of the Green Deal including sectoral pathways to net zero which synchronise policy support for the demand and supply of clean energy in key sectors, especially the harder to decarbonise. Sectoral pathways would need to be consistent with the climate neutrality target and the 2030 trajectory.
2. The 2030 renewable energy targets should be increased in line to meet the 2050 climate neutrality target and the revised 2030 GHG emission reduction targets to provide long term investment certainty.
3. The reform of the EU Emissions Trading System (ETS) to align it with the climate neutrality objective and ensure it will deliver net-zero emissions. A meaningful carbon price from the EU ETS will enable a cost-effective decarbonisation of the power system.

4. This should be complemented by time-limited technology support to enable the large-scale demonstration of pre-commercial technologies (such as floating offshore wind). In addition, support for innovations which can lead to cost reductions, such as larger wind turbine installation at sea, logistics and digitalisation technologies is needed. To support expansion of areas available to offshore wind, regulatory guidance and funds for research on Strategic and Cumulative Environmental Assessments and co-use of wind farm areas by other economic activities such as aquaculture, fisheries, and tourism is also needed.
5. We welcome the intent outlined in the Commission Communication on stepping up Europe's 2030 climate ambition which identified that the *"EU needs to transit from today's energy system to an integrated energy system largely based on renewables already by 2030"*. We support the timely implementation of policies such as the pending Renewable Energy Directive (RED II) delegated acts for hydrogen⁴ to incentivise integrated hydrogen and renewable power projects.
6. Further to RED II, we acknowledge the role that revenue stabilisation and support schemes, such as Contracts for Difference (CfD) and Feed in Tariffs/Premiums, can initially play in some Member State markets and to encourage emerging technology development to maturity/cost competitiveness, such as Floating Offshore Wind. Variations among the Member States which can impact the need, role and design of revenue stabilisation measures to deliver wider scale offshore wind build out should be recognised and where instituted, schemes should strike the right balance between investors' need for certainty and lower costs for society. In Europe, we support the eventual move to merchant market offshore wind projects with government support focused on electrification of demand, investments in facilities and infrastructure in new markets and offshore wind hubs (e.g. ports and supply chain) and new technology projects.
7. Critical to the investment case for offshore wind is greater and long-term electrification of demand. Policies that support and incentivise increased electrification in heating, hard-to-decarbonise sectors such as heavy industry, and electrification of segments of transport (such as Electric Vehicles for light duty vehicles and hydrogen for heavy duty road freight) will be needed. For instance:
 - **National Recovery and Resilience Plans** prepared by Member States (MSs) as part of the EU Recovery Package should clearly identify ambitions and initiatives that will further encourage electrification of end uses while also increasing overall system energy efficiency as well as increase synchronous supply of renewable power and low carbon gases. Plans should consider the potential electricity demand resulting from green hydrogen⁵ production to ensure adequate renewable buildout in the future.
 - **Transport:** The Alternative Fuel Infrastructure Directive (AFID)⁶ should be revised to provide strong electrification demand signals within national policy frameworks. These frameworks should be based on demand assessments and provide incentives for hydrogen and hydrogen-based products, electric vehicles, and demand-side measures to encourage the use of alternative fuelled vehicles.
 - **Heating:** Policies that enable the uptake of residential electric heating technologies, including mechanisms to stimulate demand for heat pumps (and bring costs down for consumers⁷) and measures to build consumer trust and acceptance of these technologies.

⁴ The pending REDII delegated acts for hydrogen can support hydrogen production via the use of renewable electricity and demonstration of additional renewable energy in use in transport.

⁵ [Shell response to consultation on the EU Hydrogen Strategy.pdf](#)

⁶ [Shell's response to the Evaluation of the Alternative Fuels Infrastructure Directive](#)

⁷ Several policy schemes at Member State levels, such as the Dutch Investment Subsidy in Renewable Energy (ISDE), provide upfront grants to support consumers in the procurement and installation of heat pumps. Shell is supportive of

- **Industrial Electrification:** Policy support to enable transport of large quantities of electricity to industrial hubs will be required (including alignment of Trans-European Networks Regulation for Energy (TEN-E) and Transport (TEN-T)). Research and development of low carbon electrification technologies for industry need to continue.

6. The EU Offshore Renewable Energy Strategy should outline deeper EU and regional coordination across key Member States and with key stakeholders (such as Transmission System Operators (TSOs), wind developers and other users of the maritime space) to ensure offshore wind buildout at scale and pace. This should include:

- Maritime Spatial Plans (MSP) that reflect the EU 2050 target and include strengthened cooperation with society, businesses, governments across specific offshore wind development regions such as the North Sea, are needed. These plans should align on sea uses, identify options to meet needs of future demand centres (similar to the proposed North2 project), include hybrid projects (such as those including multiple technologies (e.g. the Crosswind Project) and resolve requirements for interconnected hybrid projects (which are connected to grids of multiple MS).
- A strategy for a guided MS auction plan that is paced with supply chain, workforce growth, and supporting infrastructure buildout. For instance, infrastructure adaptations to support 2 to 4 GW/year installations for large ports and 1 to 2 GW/year for small ports will be needed.⁸ These will also need to be better interconnected with pipelines and power grids.
- A long-term and integrated offshore grid masterplan, including the identification of landing points for offshore connections and onshore grid upgrades should be developed to reflect the offshore wind growth ambition. This should include the onshore and offshore grid planning within the Trans-European Networks Regulation for Energy (TEN-E) and Transport (TEN-T), which should be revised to support the development and roll out of hydrogen infrastructure along core network corridors and offshore wind centres (e.g offshore hubs/islands for loading carriers/vessels) and High Voltage Direct Current (HVDC) terminals. The role of initiatives such as the North Sea Wind Power Hub should be highlighted within the EU Offshore Wind Strategy.⁹

such grants to help industry scale up the supply of heat pumps and bring down production costs. Subsidies for heat pumps should be phased out once the technology has become cost competitive

⁸ <https://windeurope.org/about-wind/reports/our-energy-our-future/>

⁹Shell supports long term cross border infrastructure planning for large scale offshore wind development in the North Sea and is ready to collaborate with government and industry to ensure an enabling framework for offshore wind capacity growth to supply the renewable electricity demand that will be needed to deliver Europe's energy transition

Annex A – Shell Offshore Wind in Europe

- **NoordzeeWind Joint Venture** with Vattenfall which operates the **Egmond aan Zee Offshore Wind Farm**, began operations in 2006 and comprises 36 wind turbines, each with a capacity of 3 MW each and total installed capacity of 108 MW.
- The **Blauwwind consortium** that is building the **Borssele 3&4 wind farm** off the Dutch coast and which is expected to be completed in October 2020 with an installed capacity of 731.5 MW. In August 2020, Blauwwind achieved the important milestone of “first power”.
- In July 2020, **the CrossWind consortium**, a joint venture between Shell and Eneco (both in the Netherlands) were awarded the tender for the subsidy-free offshore wind farm **Hollandse Kust (noord)**. The consortium plans to have Hollandse Kust (noord) operational in 2023 with an installed capacity of 759 MW, generating at least 3.3 TWh per year. It includes five technology innovations that could be implemented at full-scale in the future: 1) a floating solar park; 2) short-term battery storage; 3) turbines that are optimally tuned to the network to minimise the negative ‘wake’-effects that wind turbines have on each other; 4) ‘green hydrogen’ made by electrolysis as a further storage technique; and 5) the combination of these individual measures to ensure a continuous power supply regardless of the presence of wind.
- We are also participants in a **consortium with Gasunie and Groningen Seaports called the North2 project**: the production of green hydrogen using renewable electricity generated by a mega offshore wind farm, 3 to 4 gigawatts in 2030. Additionally, it has the ambition to grow to about 10 gigawatts around 2040. Studies have commenced to assess the feasibility of this ambition.
- Shell also sees great potential in floating wind technology, and in 2019, **we acquired French renewable power developer and floating wind specialist EOLFI**, which added a share in the Groix & Belle-Île wind farm, a floating wind demonstration project that is being developed off the coast of Brittany, France.
- Together with Stiesdal Offshore Technology and RWEInnogy, **Shell is testing a new type of floating foundation called the Tetraspar demo near Stavanger in Norway**. The Tetraspar demo platform can be assembled without the same infrastructure needed for fixed foundations therefore could enable cost reduction and increase potential for local content opportunities.

We are also part of a number of collaborations between Shell, industry members and the public and private sectors to drive innovation and best practice development in industry such as the Offshore Wind Accelerator and the Carbon Trust floating wind joint industry partnership in the UK and the GROW consortium in the Netherlands, which aims to expand the role of offshore wind in the energy system.

Disclaimer

On 4 March 2020, the European Commission proposed the European Climate Law that would establish a legally binding target of net-zero greenhouse gas emissions by 2050. Shell strongly supports the proposed European Climate Law and its binding target of net-zero greenhouse gas emissions by 2050. We believe meeting this target will be extremely challenging but possible. This response contains an assessment of what we believe may be needed to decarbonise the energy system in order for the EU to meet the proposed target of net-zero greenhouse gas emissions by 2050. This response is not intended to be prescriptive and there are other pathways for the EU to follow in reaching the target. It is important to note that the suggestions contained in this response are those to be taken by the EU, and not necessarily Shell. While Shell is supportive of the EU target of net-zero greenhouse gas emissions by 2050, our current business plan is not consistent with the proposed EU target. However, as announced on April 16, 2020, Shell aims to be a net-zero emissions energy business by 2050. Accordingly, we expect that over time, our business plan will change as society and our customers move toward meeting the goals of the Paris Agreement. We believe that the proposed European Climate Law is a significant step in this journey.

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