A question of priorities

As the wind industry strives to deliver the rapid build-out demanded by policymakers, thinking on species protection is shifting and developers are working with conservation groups to ensure the fight against climate change does not come at the expense of biodiversity

Words: Catherine Early

Dire warnings from scientists about the accelerating pace of climate change, coupled with the energy security challenge posed by weaning economies off Russian oil and gas as quickly as possible, have given fresh impetus to the renewables transition.

But as policymakers scale up their renewable-energy deployment targets to meet the terms of the Paris Agreement, as well as solving geo-political issues, the question of how to do it quickly without harming natural habitats has come into sharp focus.

The German government has responded to the energy and climate crises by boosting renewable energy targets to 115GW of onshore wind and 30GW offshore by 2030. Significantly, it is also moving to address permitting problems, which have led to permission for onshore wind taking up to eight years on average.

Economy and climate protection minister Robert Habeck says new wind power capacity should be considered to be of "overriding public interest," by the authorities responsible for the approval process.

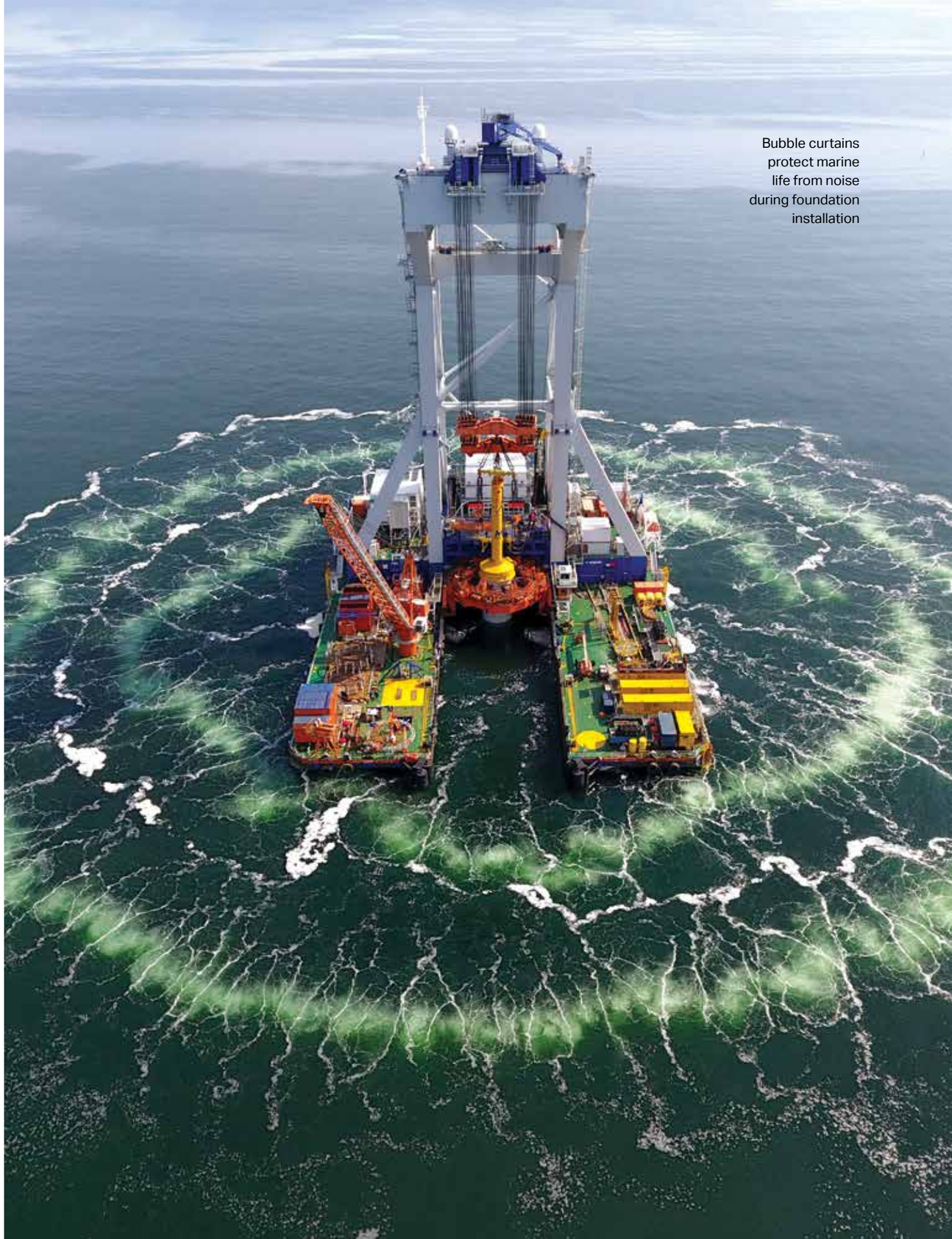
Amendments suggested by the German environment ministry and Habeck's own ministry include standardising biodiversity protection across the country's 16 states. These have typically taken many different approaches to biodiversity, resulting in delays and refusals of wind projects. Birds that need to be protected from wind turbines will be clarified in a definite list, while "taboo areas" for wind turbines will be introduced, with distances from breeding sites precisely defined.

Similarly, in the UK, the government's new energy security strategy has put an emphasis on reducing the time taken for offshore wind farms to gain consent. Projects currently take an average of 13 years from development to deployment, four of which are spent in permitting. The strategy aims to cut consenting times to one year while also maintaining a balance with nature protection

New permitting guidelines

Meanwhile, the EU announced new guidelines on permitting in May as part of a package of measures aimed at moving away from Russian fossil fuels and cutting high energy costs.

The plans will see member states establish "go to" locations on land and sea suitable for renewable energy, where project development would have a low environmental impact. Once these areas are ➔



Bubble curtains protect marine life from noise during foundation installation

HYDROTECHNIK LÜBECK GMBH

agreed, renewable projects could go ahead without further environmental assessments, except where they might impact another EU country. The changes will also see permitting time halved from two years to one for large projects.

So, do these changes represent a shift in balance between the interests of wind energy and biodiversity protection? WindEurope believes they do and has praised the German government in particular. "The German proposals are taking a population-based approach to species protection and not, as has often been the case in the past, the approach of protecting every single animal," says Giles Dickson, the trade body's CEO.

Dickson believes the problem does not stem from EU nature protection laws — which already enshrine this approach — but rather from authorities in Germany, which have not always recognised the flexibility they have when ruling on permitting for wind farms.

Need for clarity

He thinks the commission's existing guidance on the implementation of EU Birds and Habitats Directives is unclear, however, leading to confusion from national authorities — and even the courts in some member states — as to whether a proposal complies.

"The greyness of the law in this area has meant that those who seek to challenge permits often use biodiversity arguments because it's the easiest issue on which you can refer a matter to the courts," he says.

Juliette Webb, policy analyst at RenewableUK, cites post-Brexit legislation changes as the reason for many of the biodiversity-related hold-ups to permitting in the UK. "It's a good opportunity to ensure more environmental protection. But there isn't consistency across policy, and this creates a lot of confusion and uncertainty for developers and regulators as well," she says. ➔

> **"Given the pipeline of offshore wind projects, the impact to the environment is inevitable. Obviously, we'd like to reduce that**

Ørsted gained permission for its 2.4GW Hornsea 3 project in exchange for building nesting towers for kittiwakes

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For example, Webb says the UK's national policy statements — which set out policy for the permitting of major infrastructure — are unclear on how both climate and biodiversity targets can be met. But the energy security strategy now states that these will be strengthened to reflect the importance of net zero, which could lead to policies stressing the need for a proportionate approach to environmental challenges, she believes.

Andrew Prior, founder and director of consultancy Lucent, has advised wind-energy companies on offshore wind permitting and he thinks the European approach to the Habitats Directive has been too precautionary. He says: "One of the big advantages of Brexit is that the UK can override some of the more precautionary elements of the directive and get a bit more balance into wind farm permitting."

In addition, a lack of resources within the UK and EU's national authorities have also caused delays around biodiversity protection and offshore wind development, according to commentators from both the wind industry and conservationists.

Twin crises

The wind industry is conscious of the twin crises of climate and biodiversity. Industry bodies and some developers are vocal about the need to work on both. "There are challenges with offshore wind when it comes to bird life," WindEurope's Dickson acknowledges, adding that fish stocks and sea mammals can also be at risk.

But the industry is working on ways to mitigate problems, he says, citing the example of bubble curtains to absorb noise pollution in the surrounding area as offshore wind turbine foundations are piled into the seabed.

Even if governments are clarifying their approach to permitting in the context of the EU's nature directives, new protections to arrest the biodiversity crisis are coming. An example is the UK's Environment Act 2021, which includes measures to introduce "marine net gain", and which states that any infrastructure at sea will also need to enhance biodiversity.

To gain permission for the 8GW of round-four offshore wind projects awarded in Welsh and English waters last year, developers will increasingly need to provide "strategic

VLIZ/JAN REUBENS

Artificial reefs were installed in Belgian waters close to offshore wind projects (left). Mussels on turbine foundations at the Alpha Ventus wind farm in the German North Sea (below)

ALFRED-WEGENER-INSTITUT / ROLAND KRONE

> **"Biodiversity and nature health is vital to the future of the planet every bit as much as tackling climate change. If you don't solve both, you fail on both**

compensation" for regions close to wind farms or for entire populations of protected species, such as the kittiwake. Strategic compensation also exists under the Habitats Directive. Ørsted gained permission for the round-three Hornsea 3 development in exchange for building nesting towers for the seabirds. The government consulted on both these policies last year but has yet to publish its full response to the results.

Webb believes the wind industry is in favour of strategic compensation. "Given the pipeline of projects, impact on the environment is inevitable. Obviously, we'd like to reduce that," she says.

But bird conservation charity the RSPB counters that it will take years to find out if compensatory measures have worked or not. Helen Quayle, a policy officer in the RSPB's marine team, says kittiwakes are suffering from a lack of food, not nesting sites, so the Hornsea 3 compensation does not tackle the root cause of their problem.

The EU is due to publish policies for how it will meet its biodiversity strategy, which aims to halt biodiversity losses, including by protecting 30% of land and seas for nature by 2030. These targets will be adopted by governments across the world if proposals for a new nature protection deal at UN level are approved later this year.

Given the direction of travel, some developers are actively working on solutions. Last year, major offshore wind player Ørsted declared an ambition for all its projects to achieve "net-positive biodiversity impact" from 2030 at the latest.

The Danish developer says it will minimise and mitigate any unavoidable impacts of its projects and will act to enhance biodiversity and repair ecosystems currently under threat from both the climate and biodiversity crises. In May, the firm announced a new project to grow corals on offshore wind-turbine foundations (see box, right).

"Biodiversity and nature health is vital to the future of the planet every bit as much as tackling climate change. At Ørsted, our view is that if you don't solve both, you fail on both," says Benj Sykes, the firm's head of environment, consenting and external affairs.

"We have to find better ways to deliver positive environmental outcomes as we accelerate the build out of offshore wind."

Piecemeal approach

Nature conservation organisations, such as the RSPB in the UK and BirdLife International, stress that they support wind-energy development. The charities also want to see reform of permitting, which they say is too piecemeal considering the scale of planned offshore wind-energy development.

Instead, they favour a more strategic approach to developing offshore wind under which areas deemed sensitive for wildlife are avoided from the start. They think this is preferable to developers being locked into planning wind farms in locations that are inappropriate for biodiversity and then having to find ways to mitigate impacts.

Offshore wind meets coral reefs

Ørsted is testing a new concept to grow coral reefs at the Greater Changhua 1 offshore wind farm, located 35-60km off Taiwan. A pilot will begin this summer that aims to determine whether corals can be successfully grown on offshore wind turbine foundations and to evaluate the potential biodiversity impact of scaling up the initiative.

The idea is to take advantage of the more stable water temperatures at the sites of offshore wind farms that will limit the risk of coral bleaching, and allow healthy corals to grow on turbine foundations.

The concept has already been trialled on underwater steel and concrete substrates at a quayside test facility. The offshore trial this summer will study how it works in open water on four separate foundations.

The coral eggs used to grow the reefs are not removed from existing ecosystems but are instead collected as surplus eggs that wash up on shorelines, in a method developed by Ørsted and Taiwan's Penghu Marine Biology Research Centre.

The developer is launching a proof-of-concept trial in June

This approach has been used for onshore wind development through sensitivity mapping, which outlines locations that should be avoided. Marine spatial planning could be used to achieve the same outcomes at sea, they say (see box, right).

Quayle thinks the UK's current piecemeal approach, under which sea bed manager the Crown Estate decides where offshore wind will be developed, is the main reason why wind projects have been challenged.

"It's not that offshore wind itself is a terrible technology, it's more that it's adding a pressure when nature is already at the brink and we're now at the point where we are risking irreversible losses," she says.

Sea mammals such as the humpback whale need protection from noise caused by wind farm construction

BY WILDESTANIMAL/GETTY IMAGES

The UK lost almost a quarter of its seabirds between 1986 and 2019, nearly half of which were in Scotland. "The current permitting process isn't fit for the purpose of delivering net zero, energy security, or our nature commitments," Quayle adds.

Common ground

Industry, governments and conservation groups have formed various alliances to find common ground and try to balance wind installation with nature protection.

One of these is the Offshore Coalition for Energy and Nature (Ocean), which involves offshore wind farm developers, transmission system operators and nature conservation bodies. It works on projects to standardise data, as well as recommendations for national governments on how to make offshore wind more compatible with the needs of the environment. There are also initiatives at a national level, including in the UK and the Netherlands.

"It's a great model of collaboration," says Dickson, who believes these groups are fostering a much better understanding between various interest groups on how to move forward on offshore wind.

BirdLife International is more cautious in its support. "We're not 100% on the same page yet, because developers want to develop, and environmentalists want to protect the environment," says Carla Freund, who represents the organisation on the Ocean coalition, although she concedes that some good initiatives have emerged from it.

"There are some in the wind industry that have understood the problem and are willing to try and solve it, but don't quite know how — which is partly governments' fault for not giving them enough direction. But there are some that [only] want to be part of the coalition because it looks good," she adds.

Despite the scale of the challenge, there is optimism that solutions can be found which will allow for offshore wind to be deployed at the scale required, while also protecting nature. "I'm increasingly optimistic, because we see a political will at national and European level to simplify the permitting rules and procedures that we did not see even 12 months ago. There is a strong recognition that part of that needs to be a clarification of what the rules on biodiversity actually require in order to reduce the level of legal uncertainty," Dickson says.

Webb is also positive about the future. "It will require a lot of collaboration and creative thinking around how we tackle biodiversity and climate. I am optimistic, but I think we're in a period of change and transition so we need to remain collaborative," she says.

Sykes predicts that the focus on aligning biodiversity with offshore wind developments will spread worldwide. Currently, Europe, including the UK, has the most advanced thinking on the issue. For the Dutch auctions, which required "nature-inclusive design", Ørsted designed artificial reefs to support Atlantic cod. Sykes hopes to see more focus on sustainability outcomes in future UK leasing rounds. "I think that's a really healthy route to go down," he says.

Though it will take longer in less mature markets, developers and government agencies in the US are already taking the need to mitigate environmental impact into account in the design of offshore wind farms, adds Sykes. He concludes: "It is quite correctly becoming a theme that's going to dominate across all markets in due course. The new frontier for net zero is to do it in a way that's good for the environment". ■

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countries across the globe are developing marine spatial plans, according to the UN

How marine spatial planning protects funding and the planet

Marine spatial planning (MSP) means oceans and coastal areas are managed via an integrated approach, rather than sector by sector. All activities at sea, including offshore wind, shipping, fishing, tourism and nature conservation, are considered in one overarching plan.

More than 45 countries worldwide have or are developing such plans, according to the UN's Intergovernmental Oceanographic Commission. EU countries had a deadline of 31 March 2021 to develop plans. While only 14 of the 22 coastal member states have done so to date, this does include the bloc's major offshore players — Germany, the Netherlands and Denmark — as well as France, Belgium and Poland.

The Global Wind Energy Council (GWEC) is supportive of MSP and urges those developing plans to prioritise climate change mitigation and adaptation. The World Bank, which funds some offshore wind projects in developing countries, also endorses it.

But many emerging markets are not carrying out MSP, and this could spell trouble, according to Andrew Prior, founder of consultancy Lucent Energy, which has advised the World Bank on offshore wind.

He cites Vietnam as an example. Offshore wind farms are being planned all the way up the coast where there are mangrove swamps full of wildlife — including one of the world's rarest birds, the spoon-billed sandpiper, he says.

There has been no attempt to balance the climate and biodiversity emergencies, he adds, which could cause problems for western developers buying projects, even though they have been consented.

Risk management

"It will cause a problem, reputationally, but also for investment," Prior says. Projects in developing countries rely heavily on funding from development banks, but he thinks they will not pass the social and environmental tests under the Equator Principles risk management framework, which banks use to determine which projects to finance.

A lack of MSP could put the rare spoon-billed sandpiper at risk

TAREQ'S PHOTOGRAPHY

"Western developers will have to do more work to bring them up to a standard where they can be funded," he says. Prior also believes MSP should be used to choose sites that are appropriate for wind-farm development, but he is concerned that the motivation in developing countries to create income as quickly as possible typically overrides other concerns.

If a flagship project in a developing country fails to obtain finance because of its environmental or social impact, it could set the industry there back ten years, he warns. It would be better to carry out MSP, even though it could delay development by two years, because then the whole industry could move forward quickly with certainty and funding, according to Prior.

"There's going to be a car crash here — either a biodiversity car crash or a wind-farm funding crisis because development banks won't fund that sort of gold rush," he adds.