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engineering

THE CROWN ESTATE

SUPPLY CHAIN EVENTS

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It is surely evidence of the enormous potential of offshore wind in the United Kingdom that The Crown Estate has created a new position dedicated to the sector. At the beginning of March 2012 The Crown Estate, the body responsible for the management of the monarch's real estate, confirmed the appointment of Huub den Rooijen as head of offshore wind energy.

Over recent years The Crown Estate has taken a more active role in the offshore sector having overseen the leasing of sites through Rounds 1, 2 and 3, in addition to managing leasing rounds for Scottish and, most recently, Northern Irish waters. As such, the Estate's offshore wind team outgrew its position in the marine directorate and, as part of an organisation-wide restructuring, has become a separate entity within the new energy and infrastructure directorate.

Den Rooijen joins The Crown Estate to head the offshore team having previously played a role in a number of Europe's largest offshore developments. Formerly a director of leading energy consultancy PMSS, he has a number of years' experience in advising utility companies working in offshore wind.

At what many perceive is a crucial time for UK offshore wind, as Round 3 projects move towards consenting and initial construction, Offshore Wind Engineering spoke to den Rooijen about how he and The Crown Estate are encouraging the development of the sector.

OFFSHORE WIND ENGINEERING:

Congratulations on your appointment. What are your particular responsibilities and objectives in your

Offshore Wind Engineering speaks to Huub den Rooijen, The Crown Estate's newly installed head of offshore wind energy.

Interview by **Alistair Welch**

New agenda

role at The Crown Estate?

Huub den Rooijen: With the expansion of the offshore wind sector, the challenges to delivery have become greater for everybody involved. My role is to coordinate all our efforts across the various projects to ensure a steady delivery programme and ensure the development of our staff so that they can continue to contribute to the sector, and the integration of our activities as part of the wider Crown Estate.

I work with a team of roughly 30 people in all stages - from operational sites through to the new developments all around our shores. My main objective is to ensure the best possible investment climate for offshore wind in the UK, both in assets such as windfarms and transmission systems, and in the supply chain. In fact, one of the things that attracted me to The Crown Estate was the coordinating effort that the organisation has played to unlock the offshore wind resources in Round 3.

OWE: Is it fair to say that The Crown Estate is taking an increasingly active

role in the development of an offshore wind industry in the UK?

HdR: Yes. Effectively, we manage the real estate owned by the Crown and we're dedicated to promote sustainable development in all aspects of what we do. As a property developer we take an active role in the investment programmes of our tenants and we have brought the same proactive approach to offshore wind as we would to perhaps more conventional real estate.

In Round 3 we are making active investments, together with the developers, to unlock the value of the seabed. We are not so much designing windfarms, because that is the responsibility of our development partners, but we are taking a share of the cost in many of the development zones. For example, we are contributing to the cost of environmental surveys and site investigation to make it easier for developers working on those sites to progress their projects.

OWE: In your short time at The Crown Estate have you managed to get an



impression of the rate of progress in the various offshore zones?

HdR: One of the first things that struck me when I got to The Crown Estate was just how advanced the business is. As of 2011, our offshore wind assets have generated roughly 1.5 percent of the UK's electricity consumption and, through projects already under construction, we are set to double that figure over the course of the coming year.

Our zones are all around the shores of the UK - there are projects in Scottish waters, in the Irish Sea, in the North Sea, and we have just started off a similar round in Northern Ireland. All these different locations involve different issues with environmental challenges, with grid-connections or with seabed properties. As the clock ticks, certain projects will develop at a different pace to others. However, I would say that, overall, there is very good progress across the portfolio. We understand that, by the end of the year, a number of zone developers will have submitted their planning applications to the statutory authorities - a

significant milestone.

OWE: Thinking about Round 3, does releasing nine zones at one time bring its own challenge in terms of pressure on the supply chain? Or do you see it as an opportunity to build an industry?

HdR: Of course it's a challenge! This is the 'grand scheme' of The Crown Estate. You need to bring scale to the business in order to drive innovation and bring costs down. What we have achieved is, rather than an industry that is moving small step by small step in piecemeal fashion, we have seen breakthrough innovation that is really changing the game and accelerating delivery. Who would have thought even a few years ago that wind turbines of 5MW and more would become a commercial reality so soon? And that we would see so many suppliers entering the market?

The question of cost is clearly crucial. These days, when everyone is scrutinising their budgets, the pressure on cost is only getting greater. We have a target 'levelised cost' of £100/MWh by 2020 and we are working with industry

to determine what specific action is required to achieve this. One very obvious area is mass manufacture: we are trying to move the industry away from bespoke builds in order to achieve a better price/performance ratio.

OWE: And what about the development of turbine technology and the supply chain?

HdR: I believe that the required technology is hitting the market now. We are seeing large manufacturers coming out with 6MW turbines, some even developing larger models that are all drawing lessons from previous generations of turbine.

We have an active programme to invest in the regions and the capabilities of ports - just one of the ways in which we see The Crown Estate fulfilling our role as active landlords. We cannot develop a sufficient supply chain at the press of a button; we all have a responsibility in its development. After The Crown Estate announced its intention to encourage local investment in the regions, turbine manufacturers and

supply chain companies became interested and responded to those positive signals.

The nature of the game is that we have got a lot of players, all of whom need to move, more or less, in the same direction, but no one necessarily wants to be the pacemaker in the field. Our role as The Crown Estate is very much to make sure that the communication amongst the supply chain participants is there.

OWE: What is The Crown Estate doing to develop the UK offshore wind supply chain?

HdR: We organise our regional supply chain events in order to make companies aware of the great opportunities this market offers.

Sometimes I feel we have an obsession with the larger supply chain companies, with the turbine manufacturers at the extreme end of this spectrum. But, we must remember that the supply chain is built on a large number of component suppliers, many of whom might not be so visible. As an example, take a company that supplies rubber industrial seals or steel brackets or something like that - they will be supplying to a wide market outside the wind sector. When these companies come to appreciate the size of the offshore wind market, they might realise that, by focusing their product development on the sector, they could have a significant opportunity for growth.

Many companies are watching the offshore space and their product development budget very carefully. Helping them to see the potential in the offshore wind sector is really important.

OWE: The UK currently leads the

world in the deployment of offshore wind. Will it be able to maintain a supply chain within the UK, or will it lose out to Europe as happened in the case of onshore wind?

HdR: We need to be confident that we can capture these economic opportunities. I would think that the ultimate market here is global. To return to the example of the company manufacturing rubber industrial seals: that's a company that could find a very healthy market share in the UK, but with good products at a competitive price why would it not export to Germany, Korea, or the USA? The advantage that the UK offers is that suppliers can build their experience and demonstrate track record like nowhere else.

OWE: Looking at installation, do you foresee any major changes in the way that turbines are installed?

HdR: We are certainly seeing some new foundation concepts coming into play with the larger turbines. Whether the installation methods themselves are becoming more industrialised - with the large number of turbines that need to be installed they will have to be.

OWE: What elements of offshore wind development need particular attention in your opinion?

HdR: The main area that is being recognised by developers is human factors. An offshore windfarm will have people working on it and it is a pretty remote place to be. People working on windfarms are vulnerable and we need to make sure that systems are in place so that people can do their work safely.

Human factors engineering is, therefore, a big theme. In one of my previous roles I was leading a joint venture

operating an offshore windfarm and it's quite a sobering experience to crawl into one of those turbines ten miles out at sea. You are very dependent on the machine and on your colleagues. Companies are recognising that they owe it to their staff to put the best they can into health and safety management.

OWE: As far as your role goes, what issues will you seek to address with the highest priority?

HdR: The biggest challenge that we have in the sector is ensuring that there is investment capital to go into the infrastructure and supply chain. This means we need to build a business case that will attract investors. We are working very hard to de-risk and accelerate these investment opportunities.

The Crown Estate is a proactive landlord keen to unlock the value of our estate, and we have a number of enabling actions in place that we carry out together with industry. We have looked, with industry, at areas where we could reduce cost and we expect to report on that within the year. We are looking at areas relating to health and safety management and we have just published our vessel safety standards.

We must also ensure that there is a return to society not only in clean and reliable power, but also in social benefit through employment and regional development.

In this sector we are a large cohort of developers, investors, manufacturing companies and many others. We are marching steadily forward. As long as we maintain our focus on the agenda, with offshore wind growing the way it is, we've got a business proposition that is fundamentally sound for UK plc. ■

www.thecrownestate.co.uk

Forward looking

Andrew McDonald of Scottish Enterprise discusses the opportunities in the offshore wind supply chain for Scottish companies with **Alistair Welch**



Scotland has the most ambitious targets for renewable energy of any European country. Blessed with enviable natural resources, particularly in offshore energy capacity, the Scottish government, in May 2011, set a target of 100 percent of the nation's energy consumption to come from renewable sources by 2020.

With an estimated quarter of Europe's wave and offshore wind

energy resource and a tenth of the continent's tidal potential in its waters, Scotland certainly has the sufficient capacity to meet its self-imposed target. However, for this potential to be fully realised, and, in turn, the economic and social benefits to Scotland to be maximised, there is work to be done in promoting innovation and developing a robust regional supply chain.

Andrew McDonald, the director

for renewable energy and low carbon technology at Scottish Enterprise, is tasked with ensuring that Scottish businesses are able to derive the greatest benefit from the energy resources on their doorstep. His organisation, alongside Highlands and Islands Enterprise, is one of two Scottish development agencies; its overall mission is to work with businesses across Scotland to stimulate economic growth and improve the business environment. McDonald's team works, in particular, with companies operating in, or looking to enter, the renewables sector.

Understandably, a significant portion of his team's activity is in the offshore wind space and speaking to *Offshore Wind Engineering* in advance of the Crown Estate's series of regional supply chain events (the Scottish instalment will take place on 24 May at the All-Energy conference in Aberdeen) McDonald explains that the offshore wind sector will have a central role in helping Scotland to meet its 2020 renewables targets.

Scottish Enterprise has been instrumental in devising the offshore route map, which defines the massive scale of Scotland's offshore wind potential. "The route map talked about a potential scale of investment in the order of

£30 billion between now and 2020," says McDonald. "And, if Scotland did everything it could to attract inward investment, and Scottish companies were to supply those investors, there could be an additional £7 billion injected into the Scottish economy."

McDonald explains that Scottish Enterprise is focussing on four main areas in its offshore wind development work: physical infrastructure, supply chain, innovation, and investment.

As far as physical infrastructure is concerned, large-scale port sites, such as Leith and Methil (where Samsung are to test their new 7MW turbine) and Dundee are already gearing up to service the offshore wind industry. "We need to make sure that there is enough space for facilities to help grow the sector," adds McDonald. Meanwhile, Scottish Enterprise continues to work with individual companies and inward investors to understand how Scotland might endeavour to meet their supply chain requirements.

Creating a business climate that promotes innovation is also a crucial factor. "We need companies here to drive manufacturing," says McDonald. "In Scotland's case we have a particular interest in technology transfer from the oil and gas industry." Of course, the question of where the investment to fund these various projects comes from always remains and is being addressed by Scottish Enterprise: "For the last couple of years we have run a low carbon investment conference in Scotland to bring together international investment expertise, deal makers, and companies looking for support. We are always looking at ways of building the flows of capital in renewable energy."

Scottish Enterprise manages a number of general programmes, such as the Scottish Manufacturing Advisory Service, which support businesses in all sectors alongside programmes dedicated to the renewables industry. For example, working with the Carbon Trust, the Technology Strategy Board (TSB) and DECC, the organisation oversaw a call for technologies addressing turbine cost reduction and is preparing a call based around remote sensing management technologies; areas where, according to McDonald, "we have identified an opportunity to contribute to the overall reduction in cost of energy."

Scottish Enterprise recently struck a deal with 2-B Energy that will see the Dutch renewables company establish testing and demonstration facilities in Scotland by the end of 2014. Furthermore, the agency has been instrumental in the foundation of the renewables Catapult Centre, a TSB-led research coordination facility, which intends to locate at the International Technology and Renewable Energy Zone in Glasgow.

McDonald goes on to explain that one of the most important of his responsibilities is to raise awareness of opportunities for Scottish companies within the offshore wind supply chain. "There's a perception that the sector is all about building big turbines, when in fact it's all about the components within those turbines, the host of services around that and all the O&M opportunities that will become available. The first challenge is making people aware of just what the opportunities are," he says.

One of the concerns often raised

in relation to the UK's offshore wind industry is the worry that local companies will lose out to international competitors, especially as a number of the leading turbine developers are themselves European. McDonald explains that, in his experience, these overseas firms have been very willing to engage with Scottish companies.

"What we are trying to do is act as a conduit to the opportunities," he adds. "We can help to identify the timelines that companies are working to. We can work with a major manufacturer to understand the criteria that they are looking for and we can then disseminate that information to our member companies."

Looking to the future of the offshore wind sector in Scotland, in addition to the ongoing significance of securing finance, McDonald sees production capacity and cost reduction as the two major challenges facing the sector. "If everything out there starts to come to fruition, there will be a real challenge in ramping up production to meet that demand," he says. "Furthermore, cost reduction remains an issue. The expertise Scotland has in technology, deployment, O&M could not only improve cost reduction, but do it quickly."

"Over the years of the Crown Estate supply chain events, the discussion has become more sophisticated. As we move forward we are seeing the impact of Round 1 and 2 sites and learning from these developments is being sent back. The interest in offshore wind is growing and there are more companies engaged in the sector now than ever before." ■

www.scottish-enterprise.com



Top cat

Established in May 2009 to supply the rapidly maturing offshore wind sector, Alicat Workboats has emerged as a market leader in crew transfer vessels. The Great Yarmouth based company, which is part of the Gardline group, initially built boats for the internal use of its parent organisation but has since expanded to supply a number of companies working in offshore wind.

"Once the market saw the quality of our vessels and we realised that we had the production capability, we felt we should begin to sell to the open market," explains director of Alicat Nigel Darling.

Alicat's core product is a 20m propeller workboat based on a design supplied by Australian aluminium catamaran specialists Global Marine Design. Aluminium panels are cut in Australia and then shipped to the UK where the vessel is assembled at Alicat's Great

Alistair Welch reports on how a Great Yarmouth boat building company is hoping to lead the market in crew transfer vessels

Yarmouth yard.

Darling explains that Alicat's current business model is to build boats on spec; at any one time there is likely to be three boats, at different build stages, at the Great Yarmouth yard. "By the time a boat is three-quarters complete we start looking for a customer," he says. "It's quite an undertaking to work in this manner; we have to have confidence in our own product and the market."

Nevertheless, things appear to be working out. Alicat recently announced that it is to supply two new crew transfer vessels to Dalby Offshore Renewables. The first of the two 20m boats, the Dalby Humber, was

ceremonially handed over at March's Oceanology event at the ExCeL Centre in London's Docklands and will work out of Ramsgate servicing the London Array offshore development.

According to Stuart McNiven, managing director of Dalby Offshore, the developer chose Alicat vessels on the back of "a number of recommendations from senior renewable personnel" and Alicat's strong reputation in producing workboats that can perform offshore whilst conditions confine other vessels to port.

Darling comments that customers are generally very happy with Alicat's standard vessels, even claiming that a skipper, piloting his new workboat for

the first time, was reduced to tears by the quality of the vessel. However, the Alicat director does not rule out the possibility of building bespoke vessels in the future. "If a company wanted to build on contract to a specific design, we would be quite happy to do that, but the boats have been so well-received that, frankly, I think it is unlikely," he says.

Alicat vessels are renowned for being very comfortable at sea and, with a top-speed of 30 knots, the boats can achieve a significant fuel saving when cruising at 24 knots compared to competitors' vessels. The workboats also feature an interchangeable bow section in order to accommodate different pile profiles and use a 'traffic light' system to promote safe crew transfer.

Alicat's Great Yarmouth yard has the capacity to produce six boats per year and the company has an arrangement with a yard in Ireland that has thus far built two vessels. Furthermore, Darling is currently looking to broker



deals with further yards to take Alicat's overall potential annual output to 12 vessels.

"The demand for the boats is such that we are now embarking on a build-under-licence programme with yards around Europe. The entire boat can be delivered to a yard in three containers for construction on-site. Careful supervision is supplied to ensure that all boats produced achieve the same high standards as a boat built in our own yard," he adds.

In addition to building production capacity, the company is also looking at building larger vessels and a 22m workboat with an 8m beam, designed with the larger, more distant from shore Round 3 sites in mind, is currently in development.

Whilst Darling might have one eye on the future, Alicat is enjoying enviable success in the current market. "The market is competitive, of course there are other people producing vessels," he says. "However, demand is such that, at the moment, competition is not driving price-pressure. Rather, it's more of an availability situation - if you've got a good vessel available then there will be a market for it.

"Customers come to us because they recognise that Alicat has a professional, reliable, high-performance product. Our vessels will be at sea when others are tied up in quay - this is certainly something we experienced when working off the west coast at Barrow - and that's essentially down to our hull quality and attention-to-detail in the overall design of the vessel." ■

www.alicatworkboats.com

