Topic: Offshore Wind

Congratulations, Vindeby – 20 years of offshore wind turbines

Danish waters provide ideal conditions for North Sea offshore wind parks

OWIB open for bookings

Ministry of Climate and Energy: Offshore wind farms will become cheaper

Maersk Training targets offshore wind market

Foundations of the future

Esbjerg Harbour makes room for more offshore wind turbines

Falck Nutec opens training facility in Germany

SubC Partner gains access to Germany

Great need for skills and qualifications upgrading of new employees

Still larger offshore wind farms pose still greater challenges
Customized courses fitted to YOUR needs. Do you have the necessary skills to save lives and values?

For more than 30 years Falck Nutec has provided safety training to the offshore industry, offshore wind industry, the petrochemical industry, the maritime industry, fire and emergency units, the armed forces, public authorities and the service industry.

Falck Nutec is a global company providing the same quality of basic and tailor made solutions cross border. As well as being the Global leader in advanced safety training Falck Nutec also offers modern course and conference facilities along with hotel facilities.

For further information visit Falck Nutecs website www.falcknutec.dk

Welcome to a lifelong learning process.
Welcome

After a few lean years the offshore sector is enjoying a tailwind again. A rising number of countries have realised the advantages of offshore wind turbine technology, and this means assignments for Danish manufacturers of foundations and turbine parts and for Danish sub-suppliers.

The progress made in the sector in recent years is the visible effect of the EU’s objective to cover 20% of European power consumption by means of renewable energy by 2020. A large part of this energy is expected to come from offshore wind turbines, and the adventure has only just begun. In the coming years demand for qualified labour and reliable suppliers will increase significantly, and the EWEA foresees that 150,000 more employees than today will be needed in the offshore wind sector over the coming decade – even after several years of progress.

Danish companies are in a strong position in the global market for offshore wind technology, but holding on to market share requires hard work in today’s environment with many foreign competitors. However, there is a great potential. Danish companies can still promote themselves by saying they have the right experience, but in the coming years focus will be on how expenses per produced kW can be reduced. A need for rationalisation and work process efficiency improvements will emerge, but if Danish suppliers can live up to future demands, there will be ample opportunity for making profits.

At the 20th anniversary of the world’s first offshore wind farm – which is Danish – Offshore Center Danmark is going to turn the spotlight on the offshore wind sector and prospects in the sector. The theme of ON/OFF News 29 focuses entirely on the offshore wind sector and thereby serves as a reminder that one must strike while the iron is hot – or rather while the wind blows.

Kind regards, Peter Blach

Next topic: Offshore Energy
Congratulations, Vindeby – 20 years of offshore wind turbines

July 11, 1991 is a historic day. 20 years ago on this day the world’s first offshore wind farm delivered the first power for the power grid. It is called Vindeby and lies on the northern coast off the island of Lolland. It is Danish and the centre of a historic anniversary.

In the course of 20 years, energy from offshore wind turbines has changed from being a phil-anthropic experiment into a sincere, environmentally friendly alternative to fossil fuels, and Denmark is in full swing when it comes to meeting the EU’s challenge of covering 20% of power consumption with the help of renewable energy sources in 2020.

Offshore Center Danmark’s director Peter Blach says:
“In all likelihood, no one imagined in 1991 how things would develop. Apart from being a good source of energy, the offshore wind sector is today a thriving business in Denmark and, with the speed with which an increasing number of countries involve themselves in offshore wind turbines, it’s a rapidly growing sector.”

Peter Blach adds:
“The Vindeby offshore wind farm has a modest size compared with other wind farms. The 11 turbines combined deliver nearly 5 MW, which corresponds to what a single offshore wind turbine is capable of delivering today. Nevertheless, the Vindeby project has made its mark in history as the first milestone in what has since developed into one of Denmark’s greatest business adventures.”

Bigger and bigger
The 11 450 kW turbines were originally delivered by Bonus, which is now owned by Siemens Wind Power, and the offshore wind farm was established as a pilot project intended to show the way for future offshore wind projects. The experiences gained from the project have been very important to later projects.

Energi E2 stated about the project in its final report about the project:
“It has been extremely valuable to the ongoing development of offshore wind farms. One of the reasons for this is that the experiences gained from Vindeby were obtained concurrent with several large offshore wind turbine projects. It can thus be concluded that experiences have been gathered in the most efficient manner, and that these experiences have been used directly in relation to new offshore wind installations.”

Frank A. Olsen from Elkraft – today DONG Energy - was project responsible when the power company as the first company in the world gave birth to the idea of moving wind turbines from land to the ocean. Because of a high population density and ambitious political targets for renewable energy, Elkraft anticipated that they could not combine those two things if they stayed onshore – and they went offshore.

“Corrosion problems and boat landing facilities was some of the challenges, but as history shows Vindeby has been a success. - It was exciting and satisfying. We had to create new solutions in a lot of areas” says Frank A. Olsen.
30 years of experience in safety solutions. And we are still developing new products.

ABB is certified by TÜV to deliver safety solutions according to IEC 61508 and IEC 61151 for Functional Safety Management. As customer you will achieve highest demands for safety and functionality when cooperating with ABB.

Within safety ABB has a wide range of products to fulfill your requirements – including our high integrity controller for SIL3 applications. ABB takes safety system development forward. www.abb.dk
Danish waters provide ideal conditions for North Sea offshore wind parks

Many new jobs in the offshore wind industry will probably be established in Denmark.

If finding the most cost efficient energy solution is a priority for Northern European politicians then common offshore wind turbines should be erected in Danish territorial waters.

Denmark is by far the cheapest and most practical North Sea country to erect offshore wind turbines in, according to a recent report by WindSpeed, a techno-economic project funded under the Intelligent Energy Europe programme by the European Commission. Denmark is particularly suitable mainly because of its relatively shallow waters compared to other North Sea countries.

Initial findings of the report called ‘2030 roadmap to offshore wind deployment in the Central and Southern North Sea’, were presented at a European Wind Energy Association conference in Brussels in March and the final findings will be released during May.

“The possibilities for significant cost benefits from a common solution where wind turbine produced energy comes from Denmark and is distributed elsewhere by cable at sea and not via land in several North Sea fronting countries are well worth considering,” says Hans Christian Sørensen, Manager of the consultancy Spok, which is part of WindSpeed.

Need to step up efforts

This would result in more than one third of electricity production in six North Sea countries (Denmark, Germany, Netherlands, Belgium, Norway, and U.K.) or a total of 130 GW of electricity coming from the central and southern North Sea region. According to the countries’ national renewable energy action plans only a fraction (around 32 GW) of overall wind potential is estimated as attainable in their sea basins by 2020.

Pursuing this vision, however, requires North Sea countries to step up their efforts to create a common cable and grid system to distribute the energy produced. It also requires countries that started later than Denmark in offshore wind to let go of their pride about doing something locally which is good for the environment. They also have to partly relinquish the dream of creating a new growth industry with plenty of local jobs - the latter being probably the hardest sacrifice to make. But leaving it to Denmark does not necessarily mean that all the jobs will be in Denmark alone.

“With all that is in the pipeline there will be plenty of work for all of the coun-
tries,” says Hans Christian Sørensen. “But of course the majority of jobs would be in Denmark, which has the oldest wind energy industry by far.”

**Co-ordinated approach**

A co-ordinated approach to grid planning is necessary as wind farms need to be increasingly moved further from shores due to restrictions concerning the environment (birdlife and sea creature habitats), shipping lanes or aesthetics (concerning disruptions to ocean views).

“It requires internationalisation and a transnational approach,” says Hans Christian Sørensen, adding that there are several issues to be solved like: “Who should build the first cable? Should the cable come before the wind turbine of vice versa and who should pay?”

Some of the important initial steps have been taken, like the establishment of the North Sea Countries Offshore Grid Initiative (NSCOGI) in 2007 and the signing by 10 North Sea countries of a Memorandum of Understanding to develop an offshore electricity grid.

**Offshore is the future**

Today wind farms or wind parks are connected radially, or directly to shore. The near shore areas are however becoming very congested. After 2020 there are very few applications for wind farms located near shorelines, so increasing targets ultimately means increasing offshore capacity, unless some close to shore restrictions are modified or overlooked.

The key to a new North Sea renewable energy approach is a series of scenarios created by the Energy Research Centre of the Netherlands (ECN), one of the partners of the WindSpeed project. It is based on the establishment of an inventory of current sea users and the development of their activities up to 2030 and a cost of production of offshore wind energy model. The estimates come from a specially developed spatial planning tool based on a geographic information system (GIS). Such calculations culminated in several policy recommendations which, if implemented, would help Europe achieve ambitious offshore wind produced energy targets.

**Denmark the winner, but need for action soon**

The recommended placement of offshore wind farms in mainly the Danish part of the North Sea basin, as opposed to other North Sea countries’ basins, has to do with the shallowness of Denmark’s waters, making it easier and therefore cheaper to build foundations, install and maintain wind turbines.

“For Denmark, it’s particularly interesting that the best areas to produce wind are actually in Denmark,” says Hans Christian Sørensen. “But if no-one takes the initiative for this then nothing will happen until energy prices are really high. If the energy system develops the way it seems to be going then this could be the only alternative to producing wind turbines on land. Hopefully it will happen before we run out of electricity.”

Furthermore, Danish knowhow also plays a role. Both selling points – geographical conditions and expertise – are recognised by the Danish Energy Agency as extremely important success factors.

“In Denmark we have a significant potential for further development based on currently available technology,” says Mette Buch, Special Adviser, Danish Energy Agency. “Denmark has potential for relatively low depth installations.

---

**Revisions to placement of Danish wind farms up to 2025 - The Danish Energy Agency**

At the end of April 2011 the Danish Energy Agency published several new offshore wind turbine reports. One was an update to its 2007 publication “The future wind turbine locations 2025”. The update does not identify new areas but mainly adjusts the placement of already identified areas, most of which are moved closer to shore, and increases their concentration.

A screening of existing knowledge of sea bed conditions and installation costs has been done.

The location alterations are minor adjustments and have come about due to more thorough analysis of the areas and proposed set-up. They are closer to the service harbours to reduce operational and maintenance costs. They have also been moved to shallower waters to reduce foundation costs.

“The locations have been reviewed and are now on shallower water and closer to service harbours to reduce costs.” says Mette Buch, Special Adviser, Danish Energy Agency.

The Danish North Sea area has been screened several times (1997, 2003 and 2007) for possible placement of wind turbine parks. Screenings for suitable wind turbine locations take into account several factors like: more knowledge about seabed conditions, foundation possibilities, net connections etc.
For the 5. consecutive Offshore Center Danmark gathers the international offshore wind sector in Esbjerg

Registrations can now be made for one of the most significant events in the offshore wind sector – the Offshore Wind International Business2Business Event 2011 in Esbjerg on November 9, which is organized by Offshore Center Danmark. OWIB 2011 is the sector’s version of speed dating and gathers operators, producers, suppliers, energy companies and consultants from Denmark and from abroad to discuss future projects, exchange experiences or to look for new suppliers in an international setting.

Brief, informal meetings provide those involved in the offshore wind turbine sector with the opportunity to acquire an overview of new suppliers and products, and to market themselves in relation to potential customers, plus renew contacts with foreign partners. Every year interest in participating increases.

Manager, Renewables Morten Holmager from Offshore Center Danmark explains: “This is the 5. year running that we’re organising OWIB and, since we enjoyed a record turnout last year, we’ve raised the bar yet again. One of the things we’ve done is to intensify marketing in Germany, Britain, China and the U.S. in order to attract as many international participants as possible. Our aim is for our event to be one of the most significant of its kind.”

The people who take part in OWIB are provided with a list of all those who have registered. They can then request to have meetings with representatives from specific businesses, energy companies or industry organisations. Offshore Center Danmark will organise the meetings so that as many people as possible will have the chance to talk to each other for 15 minutes. As was the case last year, wind turbine manufacturers Vestas and Siemens Wind Industry, energy companies DONG Energy and Vattenfall plus a number of Danish and foreign sub-suppliers will be present.

The Dutch company Nordhooek, that specialises in special vessels for the offshore sector, participated in OWIB...
New co-operation between Offshore Center Danmark and Ministry of Foreign Affairs of Denmark

Offshore Center Danmark is joining forces with Invest in Denmark to market Denmark to foreign companies in the offshore wind energy sector during OWIB. Invest in Denmark is under the auspices of the Ministry of Foreign Affairs of Denmark, which is making an effort to attract foreign investments that can create knowledge-intensive jobs in Denmark.

Invest in Denmark is going to use the international event for the offshore wind turbine sector in November as a platform for marketing the strong Danish wind energy sector internationally – for instance in relation to Germany.

Regional Project Manager Kim Schultz explains: “OWIB is one of the largest events in the European offshore wind turbine sector and is the obvious venue for Invest in Denmark to enter into a dialogue with foreign companies. The idea of gathering operators, producers, suppliers, energy companies and advisors for a kind of speed dating is unique, and Invest in Denmark sees the event as an obvious opportunity to market Denmark internationally.”

Kim Schultz says Denmark enjoys a high status among other countries in offshore wind turbine technology and that it is obvious that we should seize this opportunity to market this country to companies abroad with a view to having them establish themselves in Denmark.

Kim Schultz adds: “The offshore wind turbine sector is growing. Not only Germany and Britain are well underway with new offshore wind farms; also the US, China and other countries have spotted the opportunities offered by offshore wind farms, and our aim is to create Danish jobs in a rapidly growing sector.”

Manager Renewables Morten Holmager from Offshore Center Danmark says: “We’re very pleased that Invest in Denmark is involved in the OWIB because it underlines the international appeal of the event. Last year 2,200 contacts and appointments about further meetings were made in the course of one single day. There’s no doubt that Invest in Denmark will obtain many relevant contacts, and we consider this to be a seal of approval for our event.”

Under the auspices of the Ministry of Foreign Affairs of Denmark, Invest in Denmark aims to attract foreign investment to Denmark that will create knowledge-intensive jobs and growth in green energy, life sciences and IT. Please read more at www.investindk.com. Invest in Denmark collaborates formally and closely with the North Denmark Region, Region Mid-Jutland and the Region of Southern Denmark in the association Vestdansk Investeringsfremme VFI, that promotes investments in western Denmark. The purpose is to attract knowledge-intensive investments and jobs to western Denmark.

At OWIB last year around 2,200 contacts were made in one single day, and Morten Holmager expects this figure to be raised considerably this year. Please read more about OWIB 2011 and order brochures at www.owib.dk. Here you can also sign up for the event and subscribe to a newsletter.

Registration and information at: www.owib.dk
Ministry of Climate and Energy: Offshore wind farms will become cheaper

The price of power from offshore wind turbines can be reduced by 25-30%, says the accountancy firm Deloitte in a recently published report.

In recent years, suppliers to the offshore wind sector have focused on the reduction of costs per installed MW. One of the ways in which money has been saved has been through economies of scale. Standardisation of installation methods, use of the same equipment from project to project and general rationalisation have resulted in reduced costs.

Now the Ministry of Climate and Energy has investigated this and published an analysis prepared by the accountancy firm Deloitte, that points to significantly reduced prices in terms of establishment and operation of future offshore wind farms.

On the basis of the Anholt Wind Farm tender in 2010, Deloitte has looked into how competition in the field of offshore wind can be reinforced to reduce prices – not least to the benefit of consumers of power. The analysis concludes there is a great deal of support for the Danish tender method from relevant players, and the way in which authorities process things and the grid connection of wind turbines are positive factors when investors are to decide if they are going to invest in Danish wind farms.

Further savings
Deloitte expects that, despite increasing demand for offshore wind turbines, prices relating to establishment and operation of offshore wind farms can be reduced by a further 25-30% in 2020 as long as the right tender and framework conditions are in place. A calculation related to Kriegers Flak Offshore Wind Farm as a business case points to an expected price of 78.1-97.9 Danish øre per kWh. This is a reduction compared to Anholt Wind Farm, where the price is 105.1 Danish øre per kWh.

The analysis recommends adaptation of the way in which tenders are made to enhance the dialogue with potential bidders and also recommends that Danish tenders should be promoted internationally. Deloitte’s analysis builds on, among other things, interviews with a range of energy companies, financial investors, authorities, etc., experiences from other countries that set up wind turbines and an assessment of the international offshore wind turbine market.

Minister for Climate and Energy Lykke Friis says:
“We now have the tools needed for planning future tenders of offshore wind...”
farms that will help us make sure consumers of power will benefit from the lowest possible costs. I’ll ask the Danish Energy Agency to prepare a plan outlining how tenders can be organised in the future with the help of the new knowledge that we’ve obtained. I’m pleased that we can expect significantly lower costs concerning wind turbines as we approach 2020. It strengthens my belief that the Government’s Energy Strategy 2050 is the right one, which also applies to the proposal about putting out to tender Kriegers Flak Offshore Wind Farm so that it can start operating in 2018-20.”

**Good basis for planning future wind turbines**

Concurrently, the Danish Energy Agency will publish the analysis “Framework for Near-coastal Offshore Wind Turbines and Small Offshore Wind Farms” and the report “Large-scale Offshore Wind Farms in Denmark,” which is an update of the Committee on Offshore Wind report on the locations of the offshore wind turbines of the future. The 3 analyses form the basis of future development of offshore wind turbines.

Minister for Climate and Energy Lykke Friis adds: “These 3 reports will help us plan the future development of offshore wind turbines in Denmark.”

The analysis on near-coastal turbines recommends that test and demonstration projects are prioritised when, in the coming years, it is made possible to erect near-coastal offshore turbines of 400 MW. However, a large part of these 400 MW are expected to be set up as production turbines. A screening of the near-coastal areas will be made in order to find the areas that are best suited for offshore turbines. The establishment of the offshore wind farms will be put out to tender in order for the Government to end up with the best projects and the lowest possible costs.

**Anyone can hire a vessel.**

*Having the right people and knowhow is what makes it a success.*
Maersk Training targets offshore wind market

Global growth in the offshore wind sector makes Maersk Training believe in increasing demand for safety and security training programmes.

A rising number of offshore wind turbine projects in Britain, several projects in the pipeline in Germany and an overall global growth in the offshore wind sector have increased demand for safety and survival exercises and consultancy on safety and preparedness plans.

The prospect of even greater demand in the coming years as also France, Spain, China and the U.S. become involved in the market has made Maersk Training concentrate on the market for training programmes in the offshore wind sector.

Maersk Training Sales Executive Thomas West says:
“We’ve made a strategic choice to focus on the offshore wind market because the market is getting bigger and bigger, and many countries have only just begun to establish activities. Maersk Training already possesses the required facilities, and our aim is to acquire a ‘first runner’ advantage in the competition among companies that we expect will establish activities.”

He adds:
“We’ve got to make our move now. If we’re in the game from the beginning when the planned German offshore wind projects are initiated, we’ll be one step ahead.”

Large undertaking
The worldwide supplier of safety and security training programmes is based in Denmark and was founded in the 1970s as a direct consequence of a serious accident on one of the offshore oil and gas installations in the Danish part of the North Sea. This is why the company has until now focused on the oil and gas sector.

This will now change. Maersk Training is going to concentrate strongly on offshore wind; one of the things the company intends to do is to target training programmes to this cost-conscious sector. Thomas West observes:
“It’s a large and expensive undertaking for companies to have their staff attend training programmes to obtain the required certifications. It’s not only about the programmes; it also involves staff being taken away from their daily work, and then there’s transport and much more. This is why we’ve decided to compete on the basis of offering to organise programmes in a way so that staff will have to attend a programme only once, and we’ll also organize our programmes to meet the wishes and needs of customers.”

He adds:
“We’ll market our programmes by saying that, in a sector that involves tight time schedules, it may sometimes be necessary to have 10 staff on a weekend programme for them to be ready for new assignments on the Monday after the weekend. Our strength will be our ability to provide this kind of flexibility, and we’ll be able to do that with the help of training centres in several locations worldwide.”

2 locations instead of 3
Concurrent with the enhanced focus on the offshore wind market, Maersk Training is going to have its activities in 2 locations in Esbjerg as opposed to the current 3 locations. This will include a headquarters in new facilities plus a training facility on the harbour front. Here the company will offer all kinds of programmes, among other things height training and HUET programmes (training in how to escape from a capsized helicopter), and Maersk Training will offer something new as well: specific programmes for companies with staff that install wind turbines. Furthermore, Maersk Training collaborates with the software company Virtual Lab on the development of special modules for e-learning and computer simulation.

Thomas West observes:
“Our headquarters is still located in Svendborg; that’s where we serve a great deal of industries. But Esbjerg is the gate to the North Sea and a natural place to have our offshore activities. We’re not yet very well known in the offshore market, but we’re working hard on that.”

In addition to the departments in Denmark, Maersk Training is represented also in Norway, the U.K., India and Nigeria.
Dedicated people, exceeding expectations...

The dedicated people in Semco Maritime are preparing to get a deeper understanding of energy industry dynamics, strategic thinking and innovation enabling them to continue exceeding expectations in projects, solutions and manpower for the global energy sector - also in the future.

semco@semcomaritime.com - www.semcomaritime.com
Foundations of the future

As wind turbines grow in size and the offshore farms they are installed in are located further from shore the challenges for finding suitable foundations to support them are also increasing. Ramboll, one of the biggest and oldest industry players explains what underlies foundation decisions and forecasts what the future holds.

The design of a wind turbine foundation depends first and foremost on the local site conditions and the chosen turbine plus the emergence of large wind farms which are playing an increasingly important role in the direction of industry solutions.

“These large offshore wind farms are setting the scene for foundations,” says Henrik Carstens, Project & Technology Director, Ramboll Offshore Wind. Henrik has more than 10 years of offshore wind design experience, having implemented 15 projects. “The deeper the water, the more wave load and this means a different strategy to what we have seen up to now.”

Within this timeframe wind turbine manufacturers like Vestas Wind Systems have doubled the diameter of rotors, further complicating the challenges for foundation design.

“When the rotor diameter increases you have to make the hub height higher,” says Henrik Carstens. “The nacelles are getting bigger too which further increases the load. When the hub height increases, because of the increasing rotor diameter, the further up the turbine goes and the more stiffness in the foundation you need.”

**Ideal foundation**
The ideal foundation takes into consideration these four aspects:
- Fabrication
- Installation
- Operation & Maintenance
- Decommissioning

Foundations cost about 21% of the total costs to set up an offshore wind turbine, which is quite a big chunk of the overall project, but water depth plays a decisive role in the final cost. This requires different solutions to those that have been pursued in land-based and close to shore installations up to now.

**Different foundations**
Monopile foundations are the most successful and widely used to date. These foundations are made out of steel. Around 70% of the world’s offshore wind foundations are monopile structures.

Another foundation used offshore, though much less frequently, is the gravity based structure. These foundations are made out of concrete and because of this they are not only heavy and thereby stable, they are also potentially cheaper to construct. However, there are only six foundations in the world like this so far for water depths in excess of 20 metres. But for areas besides the North Sea these might prove more relevant in the future.

“There will be some sites, for example maybe when France develops its wind farms where gravity based structures are the answer because it has a lot of rock in its seabed,” says Henrik Carstens.

For shallow waters (i.e. 5, 10, 15 metres depth) gravity based and monopile foundations are mainly used. In deeper waters the wind turbines get larger and then you need a bigger diameter foundation. The

---

**About Ramboll Offshore Wind and wind turbine foundation design**

Ramboll handles foundation design, grid connections, power station specifications, scheduling, and timelines for geotechnical studies and basically assists wind farm developers all the way through projects. It optimises design using Ramboll in-house analysis software. Ramboll also does environmental impact assessments on some projects.

There are four to five stages of foundation design. It takes 3-5 years from pre-conceptual design to detailed design. After this long process, comes hopefully project sanction and financial close and that’s when contractors become involved and the wind power vision of the developer starts to become a reality.

Between 2009 and 2011 74% (2256MW out of 3058MW) of the offshore projects have been based on monopiles. Ramboll has designed the foundations for 54% (1646MW out of 3058MW) of these. To date Ramboll has carried out detailed design of more than 1,100 monopiles, corresponding to more than 50% of the world’s offshore wind foundations.
downside to these foundations is that they attract bigger waves which cause stability and durability issues and due to their size and weight they are very heavy and difficult to install.

Instead, jacket foundations (three and four leg jackets) which have for many years been widely used in the offshore oil and gas industry, are recommended to support wind turbines. They can be as stiff and sturdy as monopiles but don’t attract the same amount of wave load.

“Our experience is that these structures scale best with the size of the turbine and the seabed depth,” says Henrik Carstens. “At 20-35 metres of water depth you have a choice depending on the soil conditions and turbine’s rotor width. But in even deeper waters we believe mostly in jacket foundations.”

There are also tripod and floating structures too. Tripods are not that commonly used.

“I don’t believe much in tripods,” says Henrik Carstens. “It combines the high costs of the jacket and the high weight of the monopile and is not a winner.”

Meanwhile, floating structures are still in their infancy. There is only one floating structure in the world which is located in Norway’s North Sea basin.

**Increased degree of flexibility**

Offshore wind farms today can range from 10-20 units to 100 or more and it is estimated that it won’t be long before we see sites with 300 or more. This further increases the challenge for foundation designers as the larger the area the greater the flexibility needed because the water depth and seabed can vary greatly within the designated site.

“You have to choose a concept that is flexible over the whole site,” says Henrik Carstens. “If you have a wind farm with 200 wind turbines you want the same type of foundation in order to simplify installation, logistics and maintenance.”

**Weather's role**

Weather conditions also play a decisive role in the kind of foundations chosen as conditions further out to sea are more challenging than closer to shore. When installing a large wind farm this has to be considered, plus how many vessels are available. Maintenance is also an issue. Combined, this has an effect on the services and equipment offered by companies involved in offshore wind development.

“If you have to install 20 units you can’t just do it in the three summer months. But if you want to install 200 units, you have to do it around the clock all year otherwise you would never finish,” says Henrik Carstens.

“As there is a limit to which wave heights the various foundation concepts can be installed in, there is a drive for better equipment to make sure you can install all year round.”

**Storage/staging areas**

To install such large wind farms great storage or staging areas are required to easily supply installation vessels. The size of the chosen structure determines how much storage area or “staging area” is needed. To avoid downtime in installation this area needs to be close to the servicing harbours.

**Fabrication and installation methods and costs**

Gravity based foundations are the cheapest to produce as concrete is cheaper than steel, which is also subject to market fluctuations. Installing such structures can be more costly though as concrete weighs more than steel and requires bigger cranes and vessels than for monopile or jacket installations.
Monopile foundations cost about 2 Euros per kilo steel to manufacture, which is less than half the price of jackets. Monopile parts have the advantage of being able to be welded by robots making it suitable for automated fabrication.

Jacket foundations cost around 5 Euros per kilo steel to manufacture. Jacket structures are more expensive because of the tubular joints which are welded manually.

Based on these differences it is apparent there’s room for optimisation of the manufacturing process.

“We expect that with the huge projects we are facing that there will be a lot of fabricators looking into automating the manufacturing process for jackets,” says Henrik Carstens. “And if someone figures this out and automates the process then the jacket will become more and more competitive.”

But for now it’s still cheaper to make a monopile. However in deeper waters the transportation and installing of such large amounts of steel becomes so great that a jacket then becomes more competitive. Calculations by Ramboll show that for a 5MW turbine in the Baltic Sea, at a depth of 35 metres the jacket and monopile are equally competitive. At even greater depths the jacket is the most cost effective solution.

“Therefore the majority of the structures we will see are going to be jackets,” says Henrik Carstens.

Other considerations

The availability of installation vessels is also an important factor. If there’s only one vessel in the world to install then a developer’s negotiation position is not good.

The collision friendliness of a structure - so it collapses if hit by an oil tanker to avoid environmental damages - also influences the foundation chosen. This is particularly in focus in German offshore developments.

Decommissioning

No real decommissioning of wind farms has occurred yet but this process has to be taken into consideration too. Jacket and monopile structures are easy to remove whereas gravity based structures, which are also often filled with stones to provide further ballast, are more difficult.

“Ideal foundations take into consideration all of these factors,” says Henrik Carstens. The best choice is site and turbine specific. Thankfully the global energy challenge is driving the cost down and making wind power more competitive with other power sources.”
Esbjerg Harbour makes room for more offshore wind turbines

Expands southern part of harbour by 650,000 m²

Esbjerg Harbour has looked into a crystal ball and seen the course of development the offshore wind turbine sector will take. New wind farms are currently being built and planned to the extent that even Denmark’s largest commercial harbour is bound to expand its territory.

The prospect of several large German and British projects being shipped from Esbjerg has speeded up the development of an entirely new harbour section that will be named the East Harbour. The development of the harbour will result in 1 km of new piers and 1 million m² for storage of, for instance, blades and nacelles. The development of the new area will be initiated in autumn 2011 and is expected to be ready in 2014.

Harbour Director Ole Ingrisch says: “We’re able to foresee that the offshore wind turbine market in the North Sea will explode in the coming years. Britain, Germany and the Netherlands have ambitious offshore wind turbine programmes, and we believe in growth also in the domestic market. When you consider the development in our other business areas, an even greater need for Esbjerg Harbour than before will emerge, and there’ll also be a need for us to meet customers’ requirements concerning capacity, access roads and other infrastructure.”

**Attracts new ship routes**

In addition, Esbjerg Harbour will make room for more shipping routes because rising amounts of goods and passengers are expected following a few years of decline. The new routes will emerge concurrent with the extension of the E20 motorway, whose last 3.4 km will reach Esbjerg Harbour in 2012.

Sales and marketing manager Søren Clemmensen says: “We expect that the need for transport of goods will rise in future and that also intermodal traffic will grow, primarily in the field of Ro-Ro. Due to its location, Esbjerg Harbour is the best Danish option that can be used to take the load off the most burdened roads on the Continent, and we’re constantly collaborating with the harbour’s companies to attract new short sea shipping routes.”

**Adapts to the market**

The expansion of the South Harbour is the last part of the harbour’s masterplan for the years 2004-2014 and will increase the total area of the harbour to around 2 million m². Atlantkaj (pier), which is 250 m long, and Arieskaj, which is 380 m long, are among the already implemented investments, and the strong growth in the shipping of components for offshore wind farms in the North Sea area made it necessary to expedite the 350 m long Tauruskaj, which was completed at the beginning of 2011.

Søren Clemmensen says: “We’re ready to adapt the harbour to what the market requires, and meeting the needs of our customers is to a large extent the reason for developing this huge area. One example is that we’re developing piers and extra areas to simultaneously be able to handle an even greater number of offshore wind turbine projects in an even more efficient way.”

When the new piers are completed in 2014, the South Harbour will be capable of receiving ships of a length up to 225 m and a draught of up to 9.5 m. The first stretches of the expansion are expected to be put to tender by the end of this year.
Falck Nutec opens training facility in Germany

The many planned offshore wind farms in Germany plus a still stronger demand for safety training have prompted Falck Nutec to open a training facility in Bremerhaven, Germany.

Falck Nutec is a part of the Danish rescue and service concern Falck Group and has its head office in Esbjerg. The company has built a worldwide network of offices and training facilities through an expansive growth strategy, and the facility in Bremerhaven will be the most recent addition to the group.

Sales Manager Claus Nexø Hansen from Falck Nutec explains: “The first courses in the new training centre in Bremerhaven were held in June, and we’re now planning to offer courses for the maritime sector in the form of boat training and sea rescue courses, plus courses like height rescue, sea rescue, first-aid, basic fire fighting and boat transfer aimed at companies and staff in the offshore wind sector. It’ll be a complete training centre where most of the types of safety training included in Falck Nutec’s programme can be held.

New projects underway
Claus Nexø Hansen states that the effort in Germany is due to the great number of planned offshore wind turbines. German players are working on plans to erect a number of offshore wind farms on the German shelf in the North Sea in the coming years.

Among the coming projects is the offshore wind farm DanTysk, which Vattenfall and Stadtwerke München are going to set up 69 km west of the island of Sylt from 2013. In addition, DONG Energy and Siemens Wind Power are going to build the offshore wind farm Borkum Riffgrund 1 with 89 turbines, and this is also expected to happen in 2013. Claus Nexø Hansen points out that Germany’s plans to reduce the use of nuclear power plants also underlines the need for involvement in the market for offshore wind turbines. He says: “The market for offshore wind turbines is growing rapidly, and our strategy is to position ourselves exactly where customers want us to be.”

Falck Nutec has training facilities in 30 locations all over the world from Brazil to South East Asia and is one of the world’s leading suppliers of safety management and safety training. One of the company’s most recent initiatives is what is called Confined Space Training courses, which are especially relevant to fitters and technicians working inside turbines. Together with specialists from the Netherlands and the U.K., Falck Nutec runs a special two-day course that will meet demands in all three countries.
THE SEMINAR
The seminar will last for two days and is intended for technical staff/engineers and project managers working with design and certification of wind turbines and support structures for onshore and offshore wind farms.

The seminar is build around DNV standards and related international standards in particular the IEC 61400 series.

WHY ATTEND:
Running a certification process for a wind turbine or wind farm will ensure that your product adheres to standards. However, in a market with scarce resources and strong growth it is important to understand the mechanisms of the certification process and how to interpret the regulatory requirements to save time and costs.

The seminar covers topics essential to understand the certification system including documentation requirements, verification process, interfaces between project partners, technical disciplines and timing.

Registration at www.dnv.com/windenergy

Copenhagen, Denmark  Date: 3-4 October 2011

DNV's wind energy offices:

Americas
USA (Seattle, Boston, Houston)
Canada (Calgary)
Brazil (Rio)

Asia
Korea (Pusan)
China (Shanghai)
Singapore
India (Hyderabad)

Europe
UK (London, Aberdeen, Manchester)
Denmark (Copenhagen)
Germany (Essen, Hamburg)
Norway (Oslo)
SubC Partner gains access to Germany

Repair work on the German offshore wind farm Alpha Ventus further strengthens the company’s success

Esbjerg-based SubC Partner, that specialises in the repair and maintenance of offshore wind farms, now has access to the German market. Until a few years ago, the main part of the company’s turnover came from the oil and gas sector; however, over recent years SubC Partner has taken on assignments in the offshore wind farm sector and today has a staff of 100 people. Its orders are split 50/50 between the 2 sectors.

The company expects further growth in the coming years, and Germany is one of the markets that Managing Director Lars Wigant believes is interesting for the company – not least after a successful contract win concerning the repair work and surface treatment of foundations for the offshore wind turbines in the German test farm Alpha Ventus in the North Sea.

SubC Partner has previously carried out repair work and maintenance on, for instance, Horns Rev 1. The results achieved here were the reason why the owners Vattenfall and E.On chose Subc Partner to perform the work on Alpha Ventus. Preparations for the work began in early 2011 and include the repair of damage sustained by the 6 foundations when they were installed plus improvements to the boat landing conditions on the installation. The work encompasses disciplines for riggers, smiths, welders, divers, painters and also involves rope access.

Lars Wigant explains: “We’ve previously carried out many types of work in construction and repairs, but we’ve begun to narrow down our
focus in the sense that we take on assignments primarily in operations, maintenance and repairs. Other players are better at handling other assignments; it’s about knowing what your core competencies are, and I’m convinced that this strategic prioritisation has cleared the way for the assignment on Alpha Ventus.”

“In the future a hundred times more offshore wind farms are to be established, and if we can keep on being among the best in terms of repairs and maintenance, we’ll secure a lot of work in the coming years. Denmark is still in an advantageous position because it was the first in the market and because it is still the best in many ways. Offshore wind turbine technology remains a new field for Germany, Britain and other countries, so Denmark is leading the pack. If we’re to maintain this position, it’s important that we as a company focus on our core competencies, and this strategy looks to have paid off,” observes Lars Wigant.

Lars Wigant says the repair of Alpha Ventus is a complicated task. At first, the German entrepreneurs attempted to deal with it themselves but had to give up. Among other things, the location of the offshore wind farm relatively far from the shore plus the fact that repair work had to be done in the splash zone complicated things. SubC Partner has teams of 16 people taking turns working offshore. In addition, the company manages the project and uses administrative staff.

Lars Wigant adds: “It’s a contract that contains many types of tasks, requires divers and involves rope access, which is making things even more complex.”

The repair work done on the turbines at Alpha Ventus (photo) was a complicated assignment that SubC Partner’s management hopes can open up for other assignments in the German offshore wind sector.

Apart from SubC Partner’s assignments in the repair and maintenance of offshore wind turbines, the company has a department that manufactures modules and construction and repairs process equipment and also handles other order-producing and project-related assignments in offshore oil and gas.

SubC Partner is managed by, among others, its 3 owners and directors Jan S. T. Nielsen, Tonny Klein and Lars Wigant.
Great need for skills and qualifications to upgrade new employees

AMU-Vest says efforts to train people to work in the offshore wind energy sector are insufficient

The European countries are busy attaining the common goal of covering 20% of power consumption with the help of energy from offshore wind turbines in 2020. Offshore wind farms are planned and are emerging in many places, which is resulting in so much work that it is expected that, within the next 10 years, 150,000 more people will have to be employed in the offshore wind energy sector in EU countries than are employed there today.

This will mean a hitherto unseen demand for qualified labour – a demand that will increase even further in the coming years. In Denmark, the obvious thing to do will be to re-train employees in other industries for them to work in the offshore wind turbine sector. This is why AMU-Vest has already reinforced its efforts and entered into collaborations with other educational institutions such as EUC Vest and the training company Maersk Training to re-train and further train unemployed people and other potential staff. According to education manager Poul Viggo Fischer, AMU-Vest is indeed capable of meeting the increasing demand in that there is no need for many new courses; instead there is a need for the courses and training programmes that AMU-Vest is already offering. The western Jutland educational establishment is actually more worried about there not being much support from politicians.

Poul Viggo Fischer says: “We’re on top of things when it comes to upgrading the skills of employees in the offshore wind turbine sector, but there’s a lack upgrading the skills of people who aren’t yet working in the sector. So we’ve
decided on a strategy to increase preparedness in all fields related to the wind turbine sector.”

Need to get a move on
However, Poul Viggo Fischer says the companies themselves and the local job centres are not preparing for an increase in demand for labour, but that they should prepare themselves now:
“The companies have told us they don’t feel they need more staff until the day after the new staff should have been hired. So we have to give them a push and have them take some initiatives.

Demand for more staff emerges at a later point when it’ll be too late to solve the problems that we’ll be facing. And there’s no doubt that there’ll be a great need for the upgradiing of the skills of staff. The obvious thing to do will be to recruit them from industries in which things aren’t looking up as they are in the offshore wind energy sector.”

Collaborates with Maersk Training
In order to be prepared for the future, AMU-Vest has entered into a strategic collaboration with the region’s other training centre EUC Vest plus Maersk Training about a training programme targeted at the offshore wind energy sector.

Poul Viggo Fischer says:
“We know very well which courses and training programme the sector is looking for. It’s simply about having the required capacity to cover the increasing demand, and we do have that capacity.”

However, Poul Viggo Fischer believes that particularly the job centres in the municipalities must get a move on, and he is disappointed about the slow dialogue with the job centres. But if the offshore wind energy sector feels it is being brushed aside, member of Parliament Hans Christian Thoning (Venstre) will be pleased to talk to the Minister for Employment.

Hans Christian Thoning says:
“I’ll be pleased to meet with the Minister for Employment to point out the things the sector is worried about. And I also think the sector should exploit the opportunities for collaboration that can be seized in the north German harbours of Hamburg and Bremerhafen. The Germans have said they’d like to collaborate with Danish partners.”

According to figures from EWEA – the European Wind Energy Agency – 192,000 people are employed in the European wind energy sector today following a 125% increase in employees from 2002-2007. This trend is expected to be reinforced so that 446,000 people will be employed in 2020 and 479,000 people will be employed in the sector in 2030. A significant number of these people will work in the offshore sector.
Still larger offshore wind farms pose even greater challenges

Development in offshore wind sector brings many logistical challenges

Still larger offshore wind farms are emerging farther and farther from the shore. This is due to the fact that the most obvious locations for offshore wind farms in the North Sea are now occupied. The new farms are growing bigger as well, which results in logistical challenges.

Not only are the offshore wind farms set up; they are also temporarily stored and transported, and personnel are sailed back and forth. As installations became larger and transport distances increase, Kaj Lindvig from the installation company A2SEA foresees that there will be fewer and larger harbours where all turbines are gathered and shipped on large ships instead of being shipped a few at a time.

Kaj Lindvig explains:
“The voyage will be too far for the installation ships if they transport, for instance, only 3 turbines at a time to a wind farm. The distances we’re dealing with today mean that the voyage takes almost a day or two, so I think there’ll be fewer but bigger harbours where the turbines are gathered and shipped by means of large vessels.”

A2SEA is one of the world’s most busy companies when it comes to installing up offshore wind turbines. Since Horns Rev 1 was established off the Danish west coast in 2002, the company has installed more than 775 offshore wind farms and 300 foundations. Logistic challenges in establishing offshore wind farms is a focus area for A2SEA; it is now using larger installation ships to meet demand.

**Room for 70**
With the help of its large jackets, the newest installation ship - the Sea Installer - is capable of operating at greater sea depths than other installation ships. And there is room for 60 people to stay on the ship overnight, which means that A2SEA has room for both its own personnel and sub-suppliers’ chartered personnel. As offshore wind farms grow bigger, so doo also the number of personnel involved.

Kaj Lindvig points to Esbjerg, Bremerhafen, Hull, Belfast, possibly a Dutch and a British harbour and a southern English harbour as central harbours for shipping which are needed to cover the projects that are underway in the North Sea. No more turbines will then be shipped from small harbours close to offshore wind farms.

A2SEA transported turbine parts to central harbours when installing the 88 turbines that make up Sheringham Shoal at the west coast of England. Barges were used to take the turbines to the nearest usable harbour, where the installation ship itself lifted foundations, turbine towers and blades off the barges with the help of cranes.

**Natural development**
According to Kaj Lindvig, it is natural that things are developing this way as transport distances become greater and greater. Among other things, he mentions the residential installation at Horns Rev 2, which was the first one to have a

Also in the future Esbjerg Harbour will be a hub for shipping wind turbines, although the still greater distances between offshore wind farms and harbours from where turbines are shipped pose challenges.
Sea Installer is much larger than the installation vessels that A2SEA has previously used and it is expected to help the company keep its market share.

With its specialty in special transports and logistic solutions, Blue Water is involved in a range of offshore wind turbine projects, and the company has entered into collaboration with a shipping company to be able to offer its customers a special hotel ship - the Comfort Sea.

Jacob Kjærsgaard from Blue Water Shipping says residential installations mean more effective working hours and less transport time and, as offshore wind farms move farther from the shore, residential installations will also become more common.

Jacob Kjærsgaard explains: “Many expenses are involved when you transport personnel back and forth every day. It may be a two-hour voyage one way and the same on the way back, and the personnel also need food and drink. A hotel ship can perhaps reduce transport time to 15 minutes, so the number of effective working hours is raised while expenses are kept at the same level.”

---

**Annual Meeting - Offshore Center Danmark**

**September 9 2011**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.00</td>
<td>Coffee and tea</td>
</tr>
<tr>
<td>10.30</td>
<td>General Assembly - Offshore Center Danmark</td>
</tr>
<tr>
<td>12.00</td>
<td>Lunch</td>
</tr>
<tr>
<td>13.00</td>
<td><strong>Conference</strong></td>
</tr>
<tr>
<td></td>
<td>Danish Offshore: Status and the future Global Offshore Prospects by CEO Andrew Reid, Douglas-Westwood Limited</td>
</tr>
<tr>
<td></td>
<td>Status and plans for Danish oil&amp;gas and offshore wind activities by Department Manager Anne-Sophie Jensen, Danish Energy Agency</td>
</tr>
<tr>
<td></td>
<td>Status and planned activities of the Danish North Sea Fund by Managing Director Peter Helmer Steen, the Danish North Sea Fund</td>
</tr>
<tr>
<td></td>
<td>Status and plans for Vestas Offshore by Managing Director Anders Søe Jensen, Vestas Offshore</td>
</tr>
<tr>
<td></td>
<td>Prospects and opportunities for wave energy by President Erik Skaarup, Waveenergy</td>
</tr>
<tr>
<td>15.00</td>
<td>Closure with coffee, cakes and jazz band</td>
</tr>
</tbody>
</table>

---

Register for Offshore Center Danmark’s annual meeting at www.offshorecenter.dk – for members only
Successful business drive in Angola

Four-day visit results in several specific deals for Danish suppliers

A good relationship has been established with one of the significant energy markets of the future thanks to four-day business drive in Angola in April. The visit aimed to secure orders for Danish offshore companies in a growing market.

25 representatives from 17 of Denmark’s leading offshore companies took part in the four-day visit, that involved meetings with the Angolan ministers of industry, science, foreign affairs and energy plus a visit to the state-owned Angolan oil company Sonangol. Sonangol’s Acting President HE Baptista M. Sumbe welcomed the delegation at the company’s headquarters in the capital, Luanda, together with the directors responsible for operations.

One of the 17 Danish companies was Danish Supply Corporation, which is considering establishing a department in Angola. Danish Supply Corporation is a collaboration between 5 Danish companies in ship supplies and supply service for ships that, for instance, transports equipment or crew to and from offshore installations.

A good relationship has been established

Angola to become one of the largest oil nations

Danish Supply Corporation operates all over the world and, even though a decision about establishing an African department has not yet been taken, it will be necessary to do so in the long run - not least due to the rapid growth of the Angolan market.

Managing Director of Danish Supply Corporation Leif Hermansen says: “We feel quite optimistic. Angola is a growing market; among other things, this is indicated by the fact that not all the large oil concessions in the country have yet been exploited. As this happens, Angola will become one of the world’s greatest oil nations, and the need for supply service for an increasing number of vessels will steadily grow.”

In addition to Danish Supply Corporation, the Danish delegation was comprised of representatives from 17 companies, among which were NKT Flexibles, Falck Nutec, Welltec, Grundfos and Vestas. One of the highlights of the trip was a visit to Sonangol.

Visit of great value

Offshore Center Danmark director Peter Blach says: “Oil profits constitute 80% of Angola’s gross national income, and Sonangol owns 20% of oil concessions in Angola, which makes it a significant oil company – also in global terms. Angola produces almost 318,000 m³ (2 million bbl) a day and is by far the largest African oil exporter – larger than Nigeria and much larger than Libya. So it’s of great value to us that we’ve had the opportunity to present Danish know-how to the management of Sonangol.”

Offshore Center Danmark and the Confederation of Danish Industry headed the delegation.

Peter Blach adds: “They were very, very forthcoming and friendly. And when you consider the fact that we’re talking about a very strong oil economy that badly needs external help to raise the country’s standard of living and educational level - which they can and will pay for – then there’s no need for second thoughts. This is why we’re also pleased that the visit has already resulted in specific deals for several of the companies that took part in the delegation.”

Greatest growth in Angola

The Economist business magazine recently stated that Angola is the country that had the strongest growth in the world from 2000 to 2010, averaging at 14% a year. The past few years’ increasing production of oil and gas has significantly contributed to this growth. For that same reason, Offshore Center Danmark believes Angola is one of the most promising foreign markets for Danish companies that wish to be involved in international markets.
Full overview of events including all our project meetings and network events, can be found online: http://offshorecenter.dk/events.asp

To have an event included in ON/OFF News, please inform the editorial team at news@offshorecenter.dk. This service is free for members. Events will also be included in the online event calendar at www.offshorecenter.dk.
Offshore Center Danmark welcomes new member

ADVODAN Esbjerg
www.advodan.dk

ADVODAN is a nationwide chain of lawyers with departments in 35 towns. The Esbjerg department serves companies and consultants in the offshore industry; ADVODAN Esbjerg thus offers legal assistance in, for instance, employment and contracts, the founding of Danish and foreign companies, ownership transfer and purchasing of companies, company law and much more.

Danbor Service AS
www.danbor.dk

Danbor Service is part of the A.P. Moller-Maersk Group, and with more than 30 years of experience within the oil and gas industry and more than 500 employees Danbor Service is the largest and most experienced offshore base dealing with agencies, transport and logistic solutions.

EFD Induction
wwwefd-induction.com

EFD Induction is Europe’s largest industrial induction heating specialist - bringing the benefits of induction technology to many of the world’s leading manufacturing and service companies. EFD Induction offers a comprehensive range of induction heating products, from small mobile generators to customised in-line systems.

GMS Esbjerg A/S
www.gms.dk

GMS Esbjerg A/S was founded in 1987 and has grown from a small smithy into an experienced and respected partner that takes part in large and complex assignments.

Furmanite A/S
www.furmanite.com

Furmanite is one of the world’s largest specialty technical services companies delivering a broad portfolio of engineering solutions for the offshore industry, minimising downtime and maximising profitability.

In 2009 GMS Esbjerg A/S was acquired by Johs. Møllers Maskinfabrik, which now has full ownership of the company.
Niels Aage Giversen turned 70

Master of Engineering Niels Aage Giversen, who has been chairman of Offshore Center Danmark’s board during recent years, turned 70 June 11.

Niels Aage Giversen is one of the offshore sector’s great personages and has worked in the sector since things began in the 1970s. Originally, he graduated as a Master of Engineering from the Technical University of Denmark. As a recent graduate, he was employed with the Svejsecentralen, which is now called FORCE Technology, where he worked until retiring in 2009.

In the 1970s Niels Aage Giversen was manager of the Svejsecentralen’s department for NDT training and certification and was involved in the setting up of the Nordtest system for certification of NDT operators – a system that was groundbreaking in Europe. When he was stationed as a supervisor for Mobil Oil at a shipyard in Holland, Niels Aage Giversen became acquainted with the offshore oil and gas sector, which was only just emerging in Denmark.

This is why Niels Aage Giversen was the obvious choice as manager of Svejsecentralen’s department in Esbjerg, which was established in 1981 because of the rapidly growing oil and gas activities in the North Sea and the establishment of the Danish natural gas grid. He then handled the setting up of the Esbjerg department and the establishment of a local professional network not least the collaboration with Aalborg Polytechnical/Aalborg University, where FORCE Technology supplied teachers in a range of fields, was important – not to mention the Esbjerg Petroleum Club.

In 1990 Niels Aage Giversen was appointed head of FORCE Technology’s Inspection and Testing, Region South, which included Jutland all the way up to a point north of Horsens, Funen and the entire North Sea. From 2000 he was responsible for the whole area west of the Great Belt.

When Offshore Center Danmark was founded in 2003 as a knowledge centre for the offshore sector, the centre became a natural partner, and Niels Aage Giversen became a member of the board that same year. When he retired from FORCE Technology in 2009, he was appointed chairman of Offshore Center Danmark. One of the things he was responsible for was the centre’s strategy on internationalisation and professionalisation of the sector with a view to securing assignments for Danish companies in a global market.

Offshore Center Danmark director Peter Blach says:
“Niels Aage Giversen has made a great contribution to the positive way in which Offshore Center Danmark has developed in recent years. His commitment and in-depth knowledge of the sector have been indispensable to the centre and have been important factors in the success that we are enjoying. Niels Aage Giversen is also a competent partner and very well respected.”

Falck Nutec beams up sales department

Falck Nutec has strengthened its sales department with a view to reinforcing the level of service in relation to existing and new customers. The effort is due to increased demand for safety courses and safety consulting services.

The 2 main markets oil/gas and wind energy have been split up, and Lars Beck Frederiksen has been appointed Key Account Manager with responsibility for the oil and gas markets in Denmark. Lars Beck Frederiksen previously held a similar position with Maersk Training and has also been employed with Danbor. He has 15 years of experience of sales to the offshore industry.

Concurrent with the appointment of Lars Beck Frederiksen, a reshuffle is taking place in the sales department to improve customer service. Apart from the appointment of Lars Beck Frederiksen, Dorte Aasted has been assigned to handle follow-up service of customers.

Helle Meiling Andersen will be Key Account Manager of the wind energy sector, where Linda Nees will handle customer support.

Sales Manager Claus Nexø Hansen states:
“Service is a critical parameter for Falck Nutec and, with the help of the recent reshuffle, we’ve optimised the service level and ensured that customers not only buy our products but are also provided with good and attentive customer service.”

NAMES IN NEWS
- news about names within the offshore sector. The editors are happy to receive notes about new employees, promotions and similar. Material can be sent to news@offshorecenter.dk
Notes & News

Vestas conquers the offshore market with 7 MW turbine

The new V164-7.0 MW is expected to be ready for production in 2015.

Higher, bigger, more powerful. The turbines for the offshore market are getting bigger and bigger, and now Vestas Wind Systems plans the next generation offshore turbine, the V164-7.0 MW with a rotor diameter of 164 m.

President of Vestas Offshore Anders Soe-Jensen says the offshore wind market is set to significantly expand over the coming years, more so in some parts of the world than in others. “We expect the major part of offshore wind development to happen in Northern Europe where conditions at sea are particularly rough. The V164 will provide the highest energy capture and reliability in this rough and challenging environment. This makes our new turbine a good choice for many U.K. Round-3 projects.”

Vestas says development ran on two separate parallel R&D tracks. One focused on direct drive and one on geared designs. The final decision went to a medium-speed drive train.

Construction of the first V164 prototype is expected in 2012, and production is set for the beginning of 2015. Vestas has installed about 43% of all offshore turbines in the world.

Muehlhan wins wind turbine contract

The company Muehlhan from Middelfart, Funen, has won a large wind turbine contract and is to help a South Korean company establish and operate plants in Canada for surface treatment of tower sections for wind turbines.

Muehlhan will help the South Korean manufacturer of wind turbine towers CS Wind Corporation establish and operate a large system in Canada, and the company will project-engineer, equip and man a new plant in Ontario. Here CS Wind Corporation is going to manufacture wind turbine towers in sections that Muehlhan will then surface treat.

Jens Mørk, Managing Director of Muehlhan says:

“The global level of CS Wind Corporation is one of the leading manufacturers of wind turbine towers, and we’re proud of the fact that we can be a part of such an extensive collaboration with them. We’re already the largest company in the Danish market that handles surface treatment of tower sections for, among others, Vestas and Siemens, and for the past 2 years we’ve followed a strategy about growth on the international market. This strategy has resulted in a series of new, fruitful activities and has now lead to the extensive collaboration with CS Wind Corporation.”

Muehlhan is going to station 3 leading members of staff in Ontario, who will later be joined by an as yet unknown number of colleagues, who will be given the task of training 20-30 local industrial painters who are to work in production. With the help of this order, Muehlhan hopes to have opened some doors to China and South Vietnam, where CS Wind Corporation has established production plants.

Danish company will deliver to the U.S.

The U.S.’s first offshore wind farm will be put into operation in a few years’ time, and Danish company Siemens Wind Power will provide the turbines. In April this year, the American Government voted in favour of the project, and the farm will be erected near Cape Cod, which is a popular holiday destination in the state of Massachusetts.

The wind turbines will be manufactured in Denmark and shipped to the U.S. on American cargo vessels. More specialised vessels will then transport the turbines to the waters off the southern coast of Cape Cod, where they are going to be set up.

The offshore wind farm has provoked a great deal of debate among the American population because of its location near one of the U.S.’s famous holiday resorts, but the project has now been approved by the Bureau of Ocean Energy Management, Regulation and Enforcement, which is under the auspices of the Department of the Interior.

The director of the Bureau of Ocean Energy Management, Regulation and Enforcement Michael Bromwich says: “The American Government signed the project after a thorough review had been made of environmental impacts, including birds, fish, marine animals and sea turtles.”

The expectations are that the wind farm will create around 1,000 jobs in the construction phase and when the farm is to be operated and managed.

SWORC signs first contract

The newly established company SWORC A/S has signed an agreement with Tuco
Intelligent class A power quality measurement!

Metrum has developed a completely new generation of intelligent class A power quality measurements instruments for both permanent installation and portable use.

They can be used in all parts of the power system.

Metrum and Cabicon are also solving tasks to the wind industry!

Metrum has a range of models that can be used for everything from load and energy analysis to advanced power quality measurements and advanced disturbance analysis.

Whether measuring task should be performed on an industrial enterprise or an utility company you can be sure that Cabicon and Metrum has an optimal solution.

Give us a call for more info or check our website!

Scan the code with your smartphone and see more on our website
A2SEA joins British Safety Council

The Danish offshore wind installation company A2SEA has joined the British Safety Council, BSC demanding a high level of training on the marine side of its operations. The BSC has tools that can help create standardised quality training programmes specific to what A2SEA does lifting and installing heavy wind turbines at sea, says a representative from A2SEA.

BSC offers a comprehensive suite of health and safety qualifications covering U.K. and international standards. The BSC also places particular emphasis on training for young people entering the workplace for the first time.

Short safety training programmes can be created by putting together standard modules selected from a central bank of tried-and-tested training modules. A half-day course, for example, would consist of three modules; a two-day course twelve. The courses lead to formal, internationally recognised qualifications. “The advantage,” says Trevor, “is that everyone on a project is confident they’re taking the same approach to safety as everyone else.”

Because it’s continuously updating its safety tools and standards, the BSC will also help A2SEA future-proof safety operations.

Germany’s first offshore wind farm in the Baltic Sea in operation

The Germans have the test project Aplha Ventus in the German part of the North Sea, and now the first commercial offshore wind park in the German part of the Baltic Sea is in operation.

Commissioned by the German energy supplier EnBW, the 48.3MW offshore
You can’t always live in hope. Accidents don’t have timetables, but you can schedule
preparing to avoid or react to them. Maersk Training is a truly global training provider
with a permanent desire to reduce the incident of mishaps or, should they occur, to
prepare people to take the right actions to survive them. Our core is in the maritime,
oil & gas and wind industries. Currently we have specialist centres in Svendborg and
Esbjerg in Denmark, Newcastle and Aberdeen in the UK, as well as in the Middle
East, Norway, India and Nigeria. Added to the bricks and concrete our instructors
have literally conducted courses in the four corners of the world – truly global. Your
learning experience can start with a local phone call.

For further information please call +45 70 227 950
or log on to www.maersktraining.com
wind farm Baltic 1 consists of 21 Siemens 2.3MW wind turbines and took around three years to build. Situated about 16 km offshore, Baltic 1 is the first of its kind in the Baltic Sea.

Baltic 1 is the first fully commercially developed offshore wind park to operate in Germany. Given Germany’s exemplary speed of developing renewable energy assets, many analysts were surprised about the relatively slow pace with which it has moved into offshore wind.

The recent events in Japan, however, prompted the German government to radically review its long-term energy plans, with many believing that its nuclear industry faces a markedly shorter future. Since then lobbyists have thrown their weight behind offshore wind as the next best alternative, often sidelining the solar photovoltaic sector in the process.

At the summit in Shanghai, Offshore Center Danmark’s prime offshore wind event, OWIB, was promoted and it is the hope to see Chinese companies attending the event November 9 in Esbjerg.
Nurturing and expanding your network has become an essential discipline for running a successful business. Traditional network opportunities like conferences and trade fairs are far from ideal forums for this, since time is often wasted trying to locate the people you want to talk with. With OWIB we offer organized frames for short personal meetings between you and businesses you find interesting.

Almost 2,200 contacts were made during the 640 B2B meetings and the other network opportunities at Offshore Wind International Business2Business Event 2010

The philosophy behind OWIB is to bring together businesses for a first introduction meeting. Each meeting last 15 minutes during which it is quite easy to determine if there might be a basis for cooperation. Should that not be the case, all you have wasted is 15 minutes.

Read more and register at www.owib.dk

Director, Head of Supply Chain Management Operations, Vestas Offshore

As the market leader in wind power, Vestas aims to bring offshore wind on par with onshore. OWIB lends the opportunity to meet with other industry players to discuss the key issues facing offshore wind today; therefore OWIB is a significant event in helping us reach our goal...

Examples of pre-registered companies:

- A2SEA
- Vattenfall
- Vestas
- DONG energy
- Siemens
- SEMCO maritime
- Statoil

Offshore Center Danmark is the official national competence and innovation center for the Danish offshore industry. On behalf of its +210 member companies and institutions Offshore Center Danmark push development with the aim of growth within the Danish offshore industry. Focus areas are oil & gas, offshore wind, the offshore maritime area and wave energy.

Registration and information www.owib.dk

Offshore Center Danmark
WHERE DEEPENING YOUR INSIGHT ISN’T A CLICHÉ

When you work for Ramboll Oil & Gas, you become part of some of the world’s most complex and interesting oil and gas projects. We promise to deepen your insight, broaden your horizon and widen your perspective through challenging problem solving, engaging colleagues and high professional standards. Interested? Then check our website for exciting vacancies and read more about what it’s like to work for us:

WWW.RAMBOLL-OILGAS.COM