European offshore wind 2014
Financing the opportunities
In a world where utilities’ ability to shoulder the burden of offshore new builds entirely on their own is limited, equity, debt financing and regulatory reliability are now key.

Wolf Spieth, Co-head of Low Carbon
About the research

This report provides insight into investment trends in Europe’s offshore wind sector. It provides an update on many of the themes discussed in *European offshore wind 2013 – realising the opportunity*, released in June 2013. The findings are based on a survey of 300 senior executives in the offshore wind industry. The report was written in collaboration with Clean Energy Pipeline, a specialist renewable energy research, data and financial news provider. Transaction data and statistics included in this report have been extracted direct from Clean Energy Pipeline’s databases. Clean Energy Pipeline is a division of VB/Research.

The report was completed between August and October 2014 and covers views from across the offshore wind industry including utilities, independent power producers, financial investors, banks and industry associations. Survey respondents were spread across Europe. To supplement the survey findings, interviews were conducted with the following executives:

- **Michael van der Heijden**, Managing Director, Amsterdam Capital Partners (formerly Managing Director, Typhoon Offshore)
- **Michael Lewis**, Chief Operating Officer, E.ON Climate and Renewables
- **Jérôme Guillet**, Managing Director, Green Giraffe Energy Bankers
- **Florenz Rogge**, Head of Sales – Offshore, Hochtief Infrastructure
- **Federico Florian**, Head of Power, Renewables and Water (UK and Ireland), KfW IPEX-Bank
- **Fintan Whelan**, Co-founder and Corporate Finance Director, Mainstream Renewable Power
- **Michael Dedieu**, Partner, Marguerite Fund
- **Matthew Tilbrook**, CFA, Power & Advisory, Structured Finance Division, EMEA, Mizuho Bank
- **Omar Rahman**, Executive Director, Morgan Stanley Infrastructure
- **Johan Bernt Nordang**, Investment Director, PKA Alternative Investment Partners
- **Gordon Edge**, Director of Policy, RenewableUK
- **Dirk Simons**, CFO, RWE Innogy
- **Alejandro Ciruelos**, UK Head of Project and Acquisition Finance, Santander
- **Claus Wattendrup**, Director of Offshore Wind Projects, Vattenfall

Freshfields and Clean Energy Pipeline would like to thank everyone that has been interviewed or completed a survey for this research.
Foreword

In 2013, the year we published European offshore wind 2013 – realising the opportunity, regional installed offshore wind capacity reached a record peak of 1,567MW fully grid connected. At 781MW, connection levels in the first half of 2014 are a quarter lower than the same period last year. But with 1,200MW of installed turbines awaiting grid connection and 4,900MW at various stages of construction in Europe, annual installation volumes look set to increase over the next three years.

Progress in regulation has been good in parts;

• the subsidy regime in Germany is now certain until 2020,

• France continues to promote offshore wind and is awarding a series of tenders to construct individual projects, with a target of 6GW of installed capacity by 2020, while:

• in the UK the small budget for less established technologies in the first allocation round of contract-for-difference contracts has created uncertainty fuelling some current negative news about UK Offshore, and

• In the Netherlands, some regulatory uncertainties still need to be clarified, such as how the cost of grid connection will be incorporated in the country’s subsidy scheme.

But the real story lies in finance

In a world where utilities’ ability to shoulder the burden of new builds entirely on their own is limited, equity and debt financing are key. The standout transaction of 2014 is the €2.8bn financing deal for the 600MW Gemini project off the coast of the Netherlands, which includes debt financing of €2.2bn. This is the largest project finance transaction in the offshore wind sector anywhere in the world so far.

We wanted to find out what role equity and debt finance now play in offshore wind projects in Europe and what utilities can do to attract financial partners as investors. We had many questions. Have sponsors’ divestment strategies changed? Who are utilities’ most likely partners in developing offshore projects? Was investors’ willingness to take construction risk changing? And what could utilities do to secure project debt financing?

Working with Clean Energy Pipeline, we surveyed 300 senior executives in the offshore industry across Europe to get their views. We combined the results with further interviews with leading figures in the sector and Clean Energy Pipeline’s statistics to create this report, European offshore wind 2014 – Financing the opportunities. We are grateful to all those who contributed to this report and for the unique body of current data they provided.

What we found is that there is a healthy appetite in the lending market for the offshore wind sector. According to the European Wind Energy Association, commercial funding topped €1bn in the first half of 2014. And $4.1bn of debt has been invested in three offshore wind farms in 2014 – two-and-a-half times more than in 2013.

Despite budgetary constraints and the continual call for regulatory clarity and governmental leadership, those projects that have a sound commercial or financial structure do secure strong levels of interest in funding for construction or refinancing. The sector is clearly beginning to benefit from competitive capital costs and this is producing a strong pipeline of new deals. The ‘headwinds’ we reported in 2013 have not entirely abated but our 2014 view of the future is an encouraging one.

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1 European Wind Energy Association
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European offshore wind 2014

Executive summary

Utilities seeking partners to fund construction

Utilities are limited in their ability to finance construction of offshore wind farms of the scale proposed. The considerable fall in wholesale power prices - in part due to a 72 per cent increase\(^2\) in installed solar PV and onshore wind capacity in Europe - has impacted the profitability of many conventional power generation assets. In Germany, prices have decreased by some 40 per cent\(^3\) since spring 2011.

Our survey data underlines the extent of the challenge utilities face today – over 60 per cent of utility and investor survey respondents believe utilities are not sufficiently capitalised to fund alone their projected offshore wind projects.

To address this funding issue, many utilities have divested stakes in their offshore wind projects before or during the early stages of construction. This has enabled them to share the capital costs of construction. In 2014 to date, some of the largest investors in offshore wind including DONG Energy, Vattenfall and RWE have divested a combined 756MW of effective capacity (defined as the capacity of the wind farm multiplied by the stake acquired), slightly more than the 725MW divested during the whole of 2013 and 76 per cent more than the 430MW divested between 2010 and 2012.

Survey data indicates that institutional investors such as pension funds and insurance companies are increasingly likely partners in this type of transaction.

Utilities also considering project finance

Utilities are evaluating using project finance to fund construction of offshore wind farms. Utilities have typically avoided project debt finance because it is more expensive than balance sheet financing. In addition, ratings agencies usually consider project finance debt as utilities’ debt if projects are majority owned, adding further pressure to their rating. However, with utilities’ balance sheets increasingly stretched, they are now looking at project finance debt seriously because it means they are required to commit smaller sums of capital upfront to fund construction.

Encouragingly, our survey indicates that debt finance is readily available for offshore wind projects – over two-thirds of respondents believe there will be enough capacity in the debt markets to meet demand during the next five years. This is also supported by transaction activity. Some $4.1bn of debt has been invested in three offshore wind farms in 2014, over two-and-a-half times the $1.6bn invested in 2013.

Any concerns about raising significantly large sums of debt for projects over 400MW were also dispelled earlier this year when the 600MW Gemini offshore wind farm secured €2.2bn debt finance. This is the largest volume of debt ever invested in a single offshore wind farm.

\(^2\) European Photovoltaic Industry Association and Global Wind Energy Council
\(^3\) Moody’s (July 2014), “EU energy policy-related conflicts adversely affect unregulated utilities’ credit quality”
Matching capital with projects – contracting strategies are key

Utilities must adjust the way they develop and construct offshore wind projects to attract debt and equity investors to fund construction. Over three-quarters of survey respondents believe utilities need to use innovative project structures to attract financial partners as investors. DONG Energy is the most successful utility in doing this, having sold stakes in five offshore wind farms totalling 1.5GW since 2010. In four of these projects, DONG Energy offered investors a full EPC wrap, where it retained liability for constructing the asset on time and on budget, effectively insulating investors from construction risk.

However, EPC wraps are not a viable option for most projects. For many utilities, retaining liability associated with 100 per cent of the project while owning less than 100 per cent of the equity doesn’t make financial sense. EPC wraps are a risky strategy given the problems some of the earliest offshore wind farms have experienced during the construction phase.

As an alternative, many project sponsors are revising their contracting strategy to minimise the number of contracts associated with a project. This is attractive to equity investors and banks because it reduces the likelihood of communication issues or misunderstandings between contractors. For example, the 600MW Gemini offshore wind farm, which secured €2.2bn debt finance earlier this year, had only one supply chain contract with Van Oord, which managed sub-contractors for all components of the offshore wind farm including foundations and cables. This deal is an example of the contracting strategy developers need to pursue to secure financial partners for their projects.

UK: CfD allocation risk a major issue

The long-term prospects for offshore wind in the UK have been dented following the unveiling of the budget for the first round of CfD allocation contracts. The UK government announced in October 2014 that offshore wind farms will have to compete for a budget of £235m. The industry association RenewableUK estimates that this budget will be enough to support 700–800MW of offshore wind capacity, which is smaller than some of the projects that might want to bid in this round.

The budget for future allocation rounds might be larger, but this is not guaranteed. Assuming the budget remains unchanged in the second round, RenewableUK estimates that less than 10 per cent of the capacity eligible to bid will secure a CfD. Budgeting issues aside, over 75 per cent of UK survey respondents now believe the structure of CfD contracts is adequate to offer investors the long-term certainty they need to invest in the sector.

Germany: EEG reforms clarify subsidy mechanisms

According to survey respondents, Germany, alongside the UK, will be the most active market in the offshore wind sector for transaction activity during the next 18 months. This is mainly due to the EEG reforms earlier this year.

Two aspects of the reforms are noteworthy. First, projects can now qualify for the acceleration subsidy model until the end of 2019. This equates to a two-year extension. Second, the 2020 target for offshore wind installation has been reduced from 10GW to 6.5GW. This reduction is based on consultation with the industry about the level of installation that is achievable.

In reality the EEG reforms made a minimal impact on offshore wind, especially compared with changes implemented for solar PV and onshore wind. However, finalising the reform process itself is an important milestone for investors in the German offshore wind sector.
Developments in offshore wind since June 2013

The European offshore wind sector has experienced a turbulent 18 months since we published European offshore wind 2013 – realising the opportunity in June 2013.

Installation volumes down from 2013’s peak
A record-breaking 1,567MW of offshore wind capacity was fully grid connected during 2013 – a 34 per cent increase on 2012, according to the European Wind Energy Association. This year the 781MW connected during the first six months is 25 per cent below the corresponding period last year. But the 1,200MW of turbines installed in European waters awaiting grid connection and the further 4,900MW at various stages of construction indicate that annual installation volumes will continue to accelerate over the next three years.

Geographically, the UK continues to lead – of the 781MW fully grid connected in the first half of 2014, 532MW was connected in the UK, 141MW in Belgium and 108MW in Germany.

Finance and investment: encouraging developments
We have seen encouraging developments in finance and investment during the past 18 months. Most notably, the 600MW Gemini wind farm off the Netherlands coast reached financial close in May 2014. At €2.8bn ($3.8bn), this is the largest ever project finance transaction in the offshore wind sector.

The transaction included a significant €2bn of non-recourse senior debt, €900m of which was provided by commercial banks. The debt was considerably oversubscribed and attracted a number of institutions that had not previously lent to offshore wind, confirming that there is sufficient liquidity for these assets if they are structured appropriately.

Annual fully grid connected offshore wind capacity in Europe

MW

2,000
1,500
1,000
500
0


Source: EWEA
Note: Six-month installation breakdowns are not available before 2010.

4 European Wind Energy Association
On the equity side, a number of sponsors successfully attracted financial partners to share the investment burden of their projects in the past 18 months. Divestments of stakes in pre-construction stage assets have accelerated in the past five months, with RWE, DONG Energy and Vattenfall all reducing their stakes in German offshore wind farms that are set to begin construction next year. In total, sponsors have divested 756MW of offshore wind projects at the pre-operating phase in 2014 so far – more than the 725MW divested in 2013 and the 139MW divested in 2012.

**Regulation: greater certainty in Germany**

Investors in German offshore wind can now be certain of the subsidy regime until 2020 after the country’s reformed EEG (Renewable Energy Law) passed into law on 1 August 2014. The new law, the subject of two years of intense negotiations, contains mostly minor alterations to the level and structure of subsidies for the offshore wind sector. For example, the deadline for projects to qualify for the acceleration subsidy model, which provides an enhanced tariff for the initial eight years of a project’s life, has been extended by two years to the end of 2019.

Germany has also decided to impose strict controls on grid connection. By the end of 2020, it plans to have provided grid connections for exactly 6.5GW of offshore wind capacity. Thereafter, the government will allocate 800MW of offshore wind connections per year. If there is excess demand for grid connections, additional capacity will be allocated through auctions.

**Some setbacks: downsizing and budget constraints**

Unfortunately, there have also been setbacks to the industry over the same period.

First, despite the large volume of offshore wind farms that are scheduled to come online in the next three years, a number of projects at the very early development phase have been downsized significantly or, in some cases, shelved during the past 12 months.

According to data tracked by Clean Energy Pipeline, project sponsors have cut just over 10GW from offshore wind development plans in the past 12 months. Hardly any projects were downsized in the previous 12 months.

Some of these downsizings are due to utilities abandoning those projects that are hardest and most expensive to construct – a natural development as utilities move forward with projects and a sign of the increasingly maturing of the sector. But a number are due to the financial challenges most of Europe’s major utilities are facing – a direct result of a general decline in wholesale power prices caused by the expansion of renewable energy.

Second, while Germany’s offshore wind industry is now clear on the legal framework for offshore wind until 2020, the UK has been affected by the small budget (£235m) for less established technologies in the first allocation round of contract-for-difference (CfD) contracts, due to be awarded in early 2015. In July 2014 the UK government announced the budget for the first allocation round would be £155m, only enough to support 500–600MW of offshore wind capacity. In October 2014 the government increased the budget to £235m. While this is an improvement on the initial announcement, it is still only enough to support 500–800MW of offshore wind capacity. Significantly, it is much smaller than some of the offshore wind projects that might want to bid in this round.

In summary, Europe’s offshore wind sector has taken considerable strides in the past 18 months and installation volumes will be robust during the next three years. However, the difficult trading conditions experienced by many of Europe’s major utilities, combined with the small budget allocated to subsidies for future offshore wind farms in the UK, still casts a shadow over the long-term prospects of Europe’s offshore wind sector.

5 RenewableUK analysis
There is certainly not as much capital available from utilities as before. This will mean utilities will have to form more partnerships to fund construction. Traditionally companies like us have financed large projects such as offshore wind only with similar sized utilities. But I do foresee this changing.

Michael Lewis, Chief Operating Officer, E.ON Climate and Renewables
Exploring the new equity framework

It’s all about partnerships

Europe’s largest utilities are facing challenges. The increasing presence of renewable energy on the grid has resulted in significant declines in wholesale power prices, which has in turn made many conventional power stations unprofitable.

The situation is toughest in Germany, where a considerable expansion in renewable energy resulted in wholesale power prices declining 40 per cent since spring 2011, according to ratings agency Moody’s. But the picture is challenging throughout Europe. Data compiled by the Economist shows the market capitalisation of Europe’s 20 largest utilities has more than halved since its 2008 peak of roughly €1tn. Furthermore, only five of Europe’s 10 largest utilities currently have a credit rating of A or better. In 2008 all 10 did.

This is confirmed by the survey data, which indicates that utilities are restrained in their ability to finance the construction of offshore wind farms alone. Over 60 per cent of utility and investor survey respondents believe utilities are not sufficiently capitalised to fund construction-stage equity investment in their offshore wind projects.

Divestments to exceed 2013 levels?

In the current climate, many utilities have adopted an approach based on partnerships to develop and operate offshore wind projects. To pursue this strategy, many are divesting stakes in pre-construction, construction or operating projects. For example, RWE announced the sale of an 85 per cent share in its 332MW Nordsee One offshore wind farm in the German North Sea to Canadian power producer Northland Power in September 2014.

And two months earlier, DONG Energy announced the sale of a 50 per cent stake in its 252MW Gode Wind 2 offshore wind farm to a consortium of Danish pension funds.

In total, developers of offshore wind farms have announced the sale of 913MW of effective offshore wind capacity (defined as the capacity of the wind farm multiplied by the stake acquired) in 2014 so far. This is only slightly less than 2013 (999MW) but significantly more than 2012 (139MW). At the current rate, the volume of divestments in 2014 will exceed 2013 levels. A list of notable divestments in 2014 is shown in the table on the following page.

913MW

doctor effective offshore wind capacity has been sold by developers in 2014 thus far.
## Notable offshore wind transaction in 2014

<table>
<thead>
<tr>
<th>Project</th>
<th>Equity investors</th>
<th>Vendor</th>
<th>Deal value</th>
<th>Stake acquired</th>
<th>Date announced</th>
<th>Stage of asset when acquired</th>
<th>Effective capacity acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nordsee 1 - 332MW, Nordsee 2 and Nordsee 3 - 670MW (Germany)</td>
<td>Northland Power</td>
<td>RWE Innogy</td>
<td>Undisclosed</td>
<td>85%</td>
<td>Sep-14</td>
<td>Pre-construction</td>
<td>282MW</td>
</tr>
<tr>
<td>Gode Wind II - 252MW (Germany)</td>
<td>PKA (24.75%), Industriens Pension (10.5%), Lærernes Pension (8.75%), Lægernes Pensionskasse (8%)</td>
<td>DONG Energy</td>
<td>€600m ($821m)</td>
<td>50%</td>
<td>Jul-14</td>
<td>Pre-construction</td>
<td>126MW</td>
</tr>
<tr>
<td>Sandbank - 288MW (Germany)</td>
<td>Stadtwerke München</td>
<td>Vattenfall</td>
<td>Undisclosed</td>
<td>49%</td>
<td>Jun-14</td>
<td>Pre-construction</td>
<td>141MW</td>
</tr>
<tr>
<td>Westermost Rough - 210MW (UK)</td>
<td>UK Green Investment Bank (25%), Marubeni (25%)</td>
<td>DONG Energy</td>
<td>£240m ($400m)</td>
<td>50%</td>
<td>Mar-14</td>
<td>Construction</td>
<td>105MW</td>
</tr>
<tr>
<td>Gwent y Môr - 576MW (UK)</td>
<td>UK Green Investment Bank</td>
<td>RWE Innogy</td>
<td>£220m ($366m)</td>
<td>10%</td>
<td>Mar-14</td>
<td>Construction</td>
<td>57.6MW</td>
</tr>
<tr>
<td>London Array - 630MW (UK)</td>
<td>Caisse de dépôt et placement du Québec</td>
<td>DONG Energy</td>
<td>£644m ($1,063m)</td>
<td>25%</td>
<td>Jan-14</td>
<td>Operating</td>
<td>157.5MW</td>
</tr>
<tr>
<td>Gemini - 600MW (Netherlands)</td>
<td>Northland Power</td>
<td>Typhoon Offshore</td>
<td>Undisclosed</td>
<td>5%</td>
<td>Jan-14</td>
<td>Pre-construction</td>
<td>30MW</td>
</tr>
<tr>
<td>Butendiek - 288MW (Germany)</td>
<td>Elektrizitätswerk der Stadt Zuerich (EWZ)</td>
<td>WPD</td>
<td>Undisclosed</td>
<td>5%</td>
<td>Jan-14</td>
<td>Pre-construction</td>
<td>14.4MW</td>
</tr>
</tbody>
</table>

Source: Clean Energy Pipeline
Equity investment in European offshore wind farms

Effective capacity MW

Source: Clean Energy Pipeline

Note: Effective capacity equates to the total capacity of the project multiplied by the stake acquired. The capacities shown in the graph above relate to the total capacity of the project.

Divestment at pre-operating stage on the rise

The transaction data also underlines how sponsors’ divestment strategies have changed. While they previously disposed of stakes in operating assets to recycle capital into new investments, they now divest assets pre-construction to share the financial burden of construction. Between 2010 and 2012, only 430MW of effective offshore wind capacity at the pre-operating phase was divested, all of which was sold by DONG Energy. In 2013, four separate sponsors divested 725MW of effective offshore wind capacity at the pre-operating stage. In 2014 so far, sponsors including Vattenfall, RWE and DONG Energy have divested 756MW of effective offshore wind capacity at the pre-operating stage.

Given that many utilities’ finances are not improving, bringing financial partners into offshore wind farms at the pre-operating phase will remain popular. ‘There is not as much investment potential available from utilities as before,’ explains Claus Wattendrup, Director of Offshore Wind Projects, Vattenfall. ‘This will mean utilities will have to form more partnerships to fund future growth. For example Vattenfall recently announced that it sold a minority share in the Sandbank offshore wind farm to Stadtwerke München.’
What types of investors do you expect to see acquiring/investing equity in offshore wind projects in the next 18 months?

Ranked: one being the most active and three being the least

Institutional investors (pension funds, insurance funds, infrastructure funds)

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<thead>
<tr>
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<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td></td>
<td>24%</td>
<td>25%</td>
<td>19%</td>
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Utilities

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<tbody>
<tr>
<td></td>
<td>40%</td>
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Japanese trading houses (eg Mitsubishi / Marubeni)

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<th>1</th>
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<tr>
<td></td>
<td>2%</td>
<td>17%</td>
<td>18%</td>
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IPPs, project developers

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<tr>
<td></td>
<td>12%</td>
<td>10%</td>
<td>14%</td>
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Oil & gas companies (eg Statoil)

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<tr>
<td></td>
<td>2%</td>
<td>9%</td>
<td>14%</td>
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Wind equipment manufacturers / EPCs

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<tr>
<td></td>
<td>9%</td>
<td>7%</td>
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Sovereign wealth funds

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<td>5%</td>
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YieldCos

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<td>5%</td>
<td>6%</td>
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Corporates (not in the energy sector)

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Other

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<td>1%</td>
<td>1%</td>
<td>1%</td>
</tr>
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Institutional investors are utilities’ most likely partner

Survey data suggests that institutional investors, such as pension funds and insurance companies, are most likely to partner with utilities for offshore wind development. A quarter of respondents expect institutional investors to be the most active investors in offshore wind during the next 18 months, making them the second most active type of investor after utilities (40 per cent). In theory, offshore wind assets should be very attractive to institutional investors because their long-term, low-risk returns match the tenure of institutional liabilities. ‘Offshore wind farms provide long-term cash flows over 20 to 25 years, which suit the maturity of our liabilities,’ explains Johan Bernt Nordang, Investment Director, PKA Alternative Investment Partners – one of the earliest pension funds to invest in offshore wind. ‘There is quite good visibility of these cash flows.’
Although they vary from year to year depending on how much power is produced, the cash flows are not dependent on general market conditions in the fixed tariff periods, which is also attractive to us. In addition, typical investments that institutional investors like us make, such as government bonds and money market products, are currently yielding very low or even negative real returns.

**Acquisitions more than double**

Institutional investors are already showing an appetite for offshore wind investments. In July, DONG Energy divested a 50 per cent stake in its 252MW Gode Wind 2 offshore wind farm to four Danish pension funds – PKA, Industrins Pension, Lærernes Pension and Lægernes Pensjonskasse. According to deals tracked by Clean Energy Pipeline, pension funds and insurance companies have already acquired 284MW of effective capacity in 2014 – more than double the 130MW acquired in 2013.

The market is getting bigger and there is not just one route to financing a project. Each country has a different incentive regime, some with merchant risk, some with a medium-term market risk. The different parameters attract different types of investors.

**Japanese trading houses show engagement**

Survey respondents also identify Japanese trading houses as potential investors in European offshore wind assets. Over 40 per cent of survey respondents believe Japanese trading houses will be one of the top three investors in European offshore wind projects during the next 18 months, making them the fourth most active investor type behind utilities, institutional investors and independent power producers (IPPs).

Like institutional investors, offshore wind projects should attract Japanese trading houses because they represent a low-risk, long-term investment opportunity. There is also a strategic rationale. Japan has ambitious targets for offshore wind development and investing in Europe’s more mature sector will give its trading houses vital lessons they can transfer to their domestic market.

There are already numerous examples of Japanese trading houses investing in offshore wind. In March 2014, Marubeni acquired 25 per cent of DONG Energy’s 210MW Westermost Rough offshore wind farm. A year earlier, Sumitomo acquired a 39 per cent stake in the operating 165MW Belwind 1 offshore wind farm and a 33 per cent stake in the 216MW construction-stage Northwind offshore wind farm, both off the coast of Belgium.

**To what extent do you agree that developers/utilities will need to create increasingly innovative project structures in order to ensure offshore wind projects are financed?**

![Survey results chart]

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Survey respondents also identify Japanese trading houses as potential investors in European offshore wind assets. Over 40 per cent of survey respondents believe Japanese trading houses will be one of the top three investors in European offshore wind projects during the next 18 months, making them the fourth most active investor type behind utilities, institutional investors and independent power producers (IPPs).
Other potential partners

As outlined in the graph above, institutional investors and Japanese trading houses are not the only potential partners for utilities. The likes of IPPs, oil and gas companies, sovereign wealth funds, corporates and YieldCos could also be interested if utilities can create an investment proposition that matches their risk return profile.

‘There will be a diverse range of investors partnering with utilities,’ confirms Jérôme Guillet, Managing Director, Green Giraffe Energy Bankers – the most active financial adviser on offshore wind M&A and project finance transactions during the past three years. ‘Just look at the investors that have already made the jump into the sector. It is a very diverse group including infrastructure funds, pension funds, corporations, Japanese trading houses and semi-public bodies like the Green Investment Bank. The market is getting bigger and there is not just one route to financing a project. Each country has a different incentive regime, some with merchant risk, some with a medium-term market risk. The different parameters attract different types of investors.’

Investors taking construction risk – contracting strategies are key

It is encouraging that institutional investors are getting comfortable with investing in the offshore wind sector. But very few are prepared to accept construction risk. Therefore, offshore wind farm developers – be they large utilities or smaller power producers – must package the project investment opportunity in a way that mitigates this risk. Given that utilities have historically funded large infrastructure projects themselves, or have partnered with other utilities, they are now being forced through circumstance to behave differently. Over three-quarters of survey respondents believe that utilities need to create innovative project structures to attract financial partners as investors in their offshore wind projects.

The following structures have been used in offshore wind transactions to encourage institutional investors to finance construction.

EPC wraps

DONG Energy has been most successful in attracting financial investors to offshore wind farms at the pre-operating stage. It has sold stakes in five offshore wind projects totalling 1.5GW (Walney, Anholt, Borkum Riffgrund, Westermost Rough and Gode Wind II) since 2010. For four of these divestments, DONG Energy offered investors an EPC wrap, whereby it retained liability for all construction risk and committed to complete construction at a fixed price and by a fixed date, effectively insulating the investors from any construction risk.

The EPC wrap was a real landmark structure because it enabled DONG Energy to attract capital to fund construction without that capital being exposed to construction risk. Interestingly, although DONG Energy has found this model very valuable, no other developers have replicated it.

To what extent do you agree that institutional investors will likely not be active investors at the construction stage because very few sponsors are prepared to offer a full EPC wrap?

- Strongly agree: 8%
- Agree: 32%
- Disagree: 56%
- Strongly disagree: 4%
This is essentially because it is a risky structure for utilities. Given the delays and cost overruns experienced during the construction of the first wave of offshore wind farms in Europe, this risk is something that very few utilities are willing to accept.

DONG Energy is prepared to offer full EPC wraps because it is one of the most experienced developers and operators of offshore wind farms. Its expertise in managing construction means it can be relatively confident its projects will be delivered on time and on budget. It also has the edge over other utilities in offering EPC wraps because it is majority owned by the state of Denmark. Therefore, DONG Energy’s projects with EPC wraps are effectively proxies for Danish government bonds.

‘DONG is one of the only utilities actually doing this,’ confirms Johan Bernt Nordang, Investment Director, PKA Alternative Investment Partners. ‘The smaller developers are not able to provide the big guarantees that you need to provide a full construction wrap. The large utilities should have the financial muscle to back these guarantees, but only DONG has done it. Early on in the offshore wind industry, lots of utilities got their fingers burnt as projects were delayed and over budget.

Many utilities won’t do it because they think it is too risky and there is a balance sheet impact of providing these guarantees.’

Survey respondents believe the inability or reluctance of sponsors to offer EPC wraps to investors will prevent institutional investors from funding projects through construction – almost 70 per cent agree that institutional investors will not invest at the construction stage unless sponsors are prepared to offer a full EPC wrap.

**Single v multi-contract models**

One way institutional investors might be prepared to invest in offshore wind farms at the pre-construction stage without an EPC wrap would be if the contract structure was relatively simple, with only two or three contractors. For example, German wind developer WPD sold a 90 per cent stake in its planned 288MW Butendiek offshore wind farm in February 2013 to two Danish pension funds – PKA and Industriens Pension, and two other institutional investors – Marguerite Fund and Siemens Financial Services. Six months later, Typhoon Offshore announced that a consortium of Northland Power, Siemens Financial Services and Van Oord had committed to acquire a 55 per cent stake in the planned 600MW Gemini offshore wind farm. Neither project had a full EPC wrap in place.

In Gemini’s case, the investors committed to investing because the project only had two contracts – a turbine supply contract with Siemens and an EPC contract with Van Oord. Having a minimal number of contracts gives comfort to investors because it limits the number of potential issues between contractors and their suppliers. It also ensures that the prime contractor, in this case Van Oord, is liable if sub-contractors fail to deliver.

Michael van der Heijden, Managing Director of Amsterdam Capital Partners and formerly Managing Director of Typhoon Offshore, which developed the Gemini offshore wind farm, explains why a simple contract structure is necessary if investors are going to commit capital at the pre-construction phase. ‘In our case we just had one party – Van Oord – that does everything Siemens doesn’t do. So the equity sponsors don’t manage the contract with the foundation or cable suppliers. Van Oord does all this for us.

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“The scarcest type of money is the long-term capital that is prepared to come in when the project is well advanced but not yet at financial close. The investor has to understand what the outstanding elements are that need to be resolved before financial close.”

_Fintan Whelan, Co Founder & Corporate Finance Director, Mainstream Renewable Power_
This comes at a price, of course, but if structured correctly you can create an attractive risk–return proposition that is sellable to investors. It is very difficult to raise equity off the back of a multi-contracting model. It’s simply too complex for new investors to get comfortable.’

That’s not to say institutional investors will only invest in offshore wind when a single contract structure is in place. In fact, construction of the 288MW Butendiek offshore wind farm is structured with a multitude of contracts. In this deal, WPD was able to divest a majority stake because the institutional investors managed to structure an insurance package to cover certain construction risks.

‘We will also invest at this stage if there is not a full EPC wrap in place, given the right risk return proposition,’ confirms Johan Bernt Nordang, Investment Director, PKA Alternative Investment Partners. ‘Two years ago we invested in the German Butendiek offshore wind farm, where there is a multi-contract structure. We favour no construction risk but are also willing to take construction risk if we can price it effectively and potentially use other means to reduce this exposure. With Butendiek, for example, we had an extensive insurance package in place covering potential delays and construction budget increases.’

Naturally, a contracting strategy with few contractors reduces risk. However, it also reduces returns because the prime contractor needs to be paid to assume more risk. For this reason utilities, which have significant project management expertise and the capability to manage multiple contract interfaces, are more likely to opt for a multi-contract approach. So for utilities, the most likely investors at the pre-construction stage are seeking higher returns and are prepared to accept a multi-contract structure.

‘For us, we would have to look at the risk return profile of each of the strategies,’ explains Omar Rahman, Executive Director, Morgan Stanley Infrastructure. ‘If the EPC wrap is bankable but expensive and the returns don’t stack up, we will not invest. So for us the multi-contracting approach with a strong project management team might be better.’

The market for development-phase equity
Most developers of offshore wind projects are sufficiently capitalised to fund the work needed to bring the project to the point at which construction can begin. This might include feasibility studies, seabed surveys and securing the necessary permits and grid connection. At this point, developers that lack the balance sheet to fund construction can secure financial partners to fund it – so-called ‘financial close’.

However, small developers might be required to secure equity finance shortly before financial close if certain costs have to be incurred that exceed the budget of the initial sponsors. Fintan Whelan, Co-founder and Corporate Finance Director, Mainstream Renewable Power, explains which type of investor is most likely to be attracted to investing in offshore wind before financial close.

‘There is a stage before financial close when, depending on the regulatory environment you are in, you may have to put down deposits or reservation payments for the long lead time items. The scarcest type of money is the long-term capital that is prepared to come in when the project is well advanced but not yet at financial close. Pension funds will not invest at this stage. The investor has to understand what the outstanding elements are that need to be resolved before financial close.

This type of investor could be a utility, an experienced active financial investor or a strategic industry partner – an investor that is not quite an infrastructure fund but operates the assets and likes to be involved at the start of construction to ensure the project they expect to hold an interest in for its entire life is constructed properly.’
Debt financing

Debt finance is increasingly available for offshore wind

According to survey data, debt finance is now readily available for offshore wind projects – over two-thirds of respondents believe there will be enough capacity in the debt markets to meet demand over the next five years. This is reflected in transaction activity. In 2014, three European offshore wind farms have already secured $4.1bn of debt – more than double the $1.6bn invested in 2013. In fact, this year is already the largest on record for project debt finance by dollars invested in the offshore wind sector.

Much of this increase is due to the €2.2bn invested in the 600MW Gemini offshore wind farm. This is the largest amount of debt ever invested in a single offshore wind farm and the largest offshore wind project to secure project debt finance.

Details of the project debt finance transactions completed in 2013 and 2014 are outlined on the following page.

To what extent do you agree that there will be sufficient project debt finance capacity to meet demand during the next five years?

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>55%</td>
<td>32%</td>
<td>1%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Source: Clean Energy Pipeline
### UK - Westermost Rough - 210MW

<table>
<thead>
<tr>
<th>Owners</th>
<th>Debt providers</th>
<th>Financing date</th>
<th>Tenor</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DONG Energy (50%), Marubeni Corp (25%), UK Green Investment Bank (25%)</td>
<td>Japan Bank for International Cooperation, The Bank of Tokyo-Mitsubishi UFJ, Ltd., Mizuho Bank, Ltd., Siemens Financial Services, Societe Generale Corporate &amp; Investment Banking</td>
<td>Aug-14</td>
<td>N/A</td>
<td>The consortium of banks provided £375m debt financing for the refinancing of part of Marubeni and the UK Green Investment Bank's 50% stake in the project.</td>
</tr>
</tbody>
</table>

### The Netherlands - Westermeerwind - 144MW

<table>
<thead>
<tr>
<th>Owners</th>
<th>Debt providers</th>
<th>Financing type</th>
<th>Debt-equity ratio</th>
<th>Tenor</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Westermeerwind BV</td>
<td>ING, Rabobank, ASN Bank, Triodos Bank</td>
<td>Non-recourse project financing (pre construction stage)</td>
<td>N/A</td>
<td>N/A</td>
<td>Westermeerwind is a near-shore wind farm. The foundations will be installed in water between three and seven metres deep. Part of the funds are guaranteed by EFK.</td>
</tr>
</tbody>
</table>

### The Netherlands - Gemini - 600MW

<table>
<thead>
<tr>
<th>Owners</th>
<th>Debt providers</th>
<th>Financing date</th>
<th>Tenor</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northland Power (60%), Siemens Financial Services (20%), Van Oord Dredging and Marine Contractors BV (10%), HVC (10%)</td>
<td>ABN AMRO Bank, BNP Paribas, Bank of Tokyo-Mitsubishi UFJ, Deutsche Bank, Export Development Canada, Natixis, Sumitomo Mitsui Banking Corporation, Bank of Montreal, CIBC, Bank Nederlandse Gemeenten, Banco Santander, CaixaBank, EKF, Euler Hermes, Delcredere/Ducroire, EIB, PKA</td>
<td>May-14</td>
<td>17 years</td>
<td>Gemini is the world's largest renewable energy project to be funded using a non-recourse project finance model. It is also the first time a Canadian sponsor (Northland Power) has participated in the construction and financing of a European-based offshore wind farm. The senior debt facilities will have a final maturity date of June 2031, repayable in semi-annual instalments. The interest rate has been hedged over the full loan amortisation period with an effective interest rate of approximately 4.75%.</td>
</tr>
</tbody>
</table>
### European offshore wind 2014

**Debt financing**

<table>
<thead>
<tr>
<th>UK - London Array - 630MW</th>
<th>Debt financing secured: £266m ($425m)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Owners</strong></td>
<td>E.ON (30%), DONG Energy (25%), La Caisse de dépôt et placement du Québec (25%), Masdar (20%)</td>
</tr>
<tr>
<td><strong>Debt providers</strong></td>
<td>UK Green Investment Bank, The Bank of Tokyo-Mitsubishi UFJ Ltd., KFW-IPLEX Bank, Siemens Bank GmbH, Sumitomo Mitsui Banking Corporation</td>
</tr>
<tr>
<td><strong>Financing date</strong></td>
<td>Oct-13</td>
</tr>
<tr>
<td><strong>Financing type</strong></td>
<td>Refinancing of minority stake</td>
</tr>
<tr>
<td><strong>Debt-equity ratio</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Tenor</strong></td>
<td>12 years</td>
</tr>
<tr>
<td><strong>Notes</strong></td>
<td>The refinancing of Masdar’s stake was supported by five international lenders including the state-funded UK Green Investment Bank (GIB), which provided GBP58.6m (USD94m) of debt. The refinancing is the first time that a limited-recourse structure has been completed for an unincorporated joint venture within the renewable energy industry.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Germany - Butendieck - 288MW</th>
<th>Debt financing secured: €850m ($1,150m)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Owners</strong></td>
<td>Marguerite Fund (22.5%), Industriens Pension (22.5%), PKA A/S (22.5%), Siemens Financial Services (22.5%), WPD (10%)</td>
</tr>
<tr>
<td><strong>Debt providers</strong></td>
<td>KfW IPEX-Bank, UniCredit, Bremer Landesbank, EIB, EKF, BayernLB, HeLaBa, HSH Nordbank, ING, Rabobank and SEB</td>
</tr>
<tr>
<td><strong>Financing date</strong></td>
<td>Feb-13</td>
</tr>
<tr>
<td><strong>Financing type</strong></td>
<td>Non-recourse project financing (pre construction stage)</td>
</tr>
<tr>
<td><strong>Debt-equity ratio</strong></td>
<td>65:35</td>
</tr>
<tr>
<td><strong>Tenor</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Notes</strong></td>
<td>The European Investment Bank provided €450m in two tranches. The first tranche of €300m is covered by Danish export credit agency EKF, while the second €150m tranche is an uncovered senior loan. KfW contributed €200m while the remaining €300 million was provided by the commercial banks, with each providing an average of €30m.</td>
</tr>
</tbody>
</table>

Source: Clean Energy Pipeline

### More commercial banks invest

Significantly, more and more commercial and government-backed banks are prepared to provide project debt finance in this sector. Indeed, €900m of the €2.2bn debt invested in Gemini was provided by a consortium of 12 commercial banks, some of which had never previously invested in offshore wind. The commercial debt tranche was also reported to be significantly oversubscribed. In total, 18 commercial banks invested in offshore wind farms in 2014 compared with only 14 in 2013.
Export credit agencies and multilateral finance organisations

In addition, the sector is widely supported by a number of active export credit agencies (ECAs) and multilateral finance organisations, which can invest significant sums per project. For example, the European Investment Bank (EIB) and three ECAs – EKF, Euler Hermes and Delcredere/Ducroire – provided some €1.1bn of non-recourse senior debt to Gemini, with the EIB investing €587m alone.

The importance of ECAs and the EIB in financing European offshore wind projects cannot be understated. All 10 deepwater offshore wind farms that secured project debt financing (excluding refinancing deals) in the past five years involved at least some participation from an ECA or the EIB.

‘Project sizes have not massively increased, although capex is slowly increasing, but the supply of credit to the market has improved massively,’ explains Alejandro Ciruelos, UK Head of Project and Acquisition Finance, Santander. ‘So borrowers are in a much better position than they were two or three years ago, as is the case across nearly all markets. More lenders have got comfortable with the sector and the underlying credit assumptions. The ECA market is quite active and fluid, and the commercial bank market has come back.’

Pension funds now provide debt

Pension funds are also starting to provide debt financing. Survey data suggests that, while commercial banks, ECAs and MFOs will dominate the offshore wind lending landscape during the next 18 months, there is appetite among pension funds for debt investments – 61 per cent of survey respondents expect pension funds to be among the three most active types of lenders to offshore wind during the next 18 months.

What types of investors do you expect to see provide debt to offshore wind assets in the next 18 months?

Ranked: one being the most active and three being the least

<table>
<thead>
<tr>
<th>Rank</th>
<th>Commercial banks</th>
<th>Export credit agencies, multilateral finance organisations</th>
<th>Pension funds</th>
<th>Utilities, IPPs</th>
<th>Insurance companies</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>39%</td>
<td>30%</td>
<td>9%</td>
<td>18%</td>
<td>9%</td>
<td>2%</td>
</tr>
<tr>
<td>2</td>
<td>27%</td>
<td>32%</td>
<td>21%</td>
<td>6%</td>
<td>19%</td>
<td>19%</td>
</tr>
<tr>
<td>3</td>
<td>14%</td>
<td>14%</td>
<td>31%</td>
<td>17%</td>
<td>17%</td>
<td>1%</td>
</tr>
</tbody>
</table>
How utilities can secure project debt financing

To date, very few utilities have financed offshore wind projects using project finance structures. Given the very large balance sheets of Europe’s major utilities, most have historically had the luxury of financing offshore wind farms’ construction on balance sheet, at a lower cost of capital than project finance. But given utilities’ current financial outlook, many are now evaluating project finance funding options because it enables them to make a smaller initial investment at the construction stage.

RWE is one utility that has decided to fund offshore wind farms through project finance structures. ‘We will project finance Nordsee 1 and we expect financial close in the first half of 2015’, confirms Dirk Simons, CFO, RWE Innogy. ‘We also plan to fund future offshore wind farms in this way. We used to finance our part of the projects with 100 per cent equity but have now changed our strategy. We are going to share the capital employed and risks even more than in the past for the cost-intensive offshore projects.’

To implement a project finance structure, utilities must first deconsolidate the project from their balance sheet so the ratings agencies do not treat the project debt as the utility’s debt. The easiest way to do this is to dispose of a significant stake in the project. ‘Utilities are generally not out of cash, their current balance sheet constraints are essentially ratings-related,’ explains Jérôme Guillet, Managing Director, Green Giraffe Energy Bankers.

Danish funds set the trend

Danish pension fund PKA is an obvious trend-setter. It invested €120m of the €200m subordinated debt tranche for the Gemini project, which reached financial close in May 2014. Similarly, Danish pension fund PensionDanmark invested senior debt in the 216MW Northland offshore wind farm, which reached financial close in June 2012. In both cases, the investments were guaranteed by EKF, effectively creating an investment proposition similar to Danish government bonds.

Funds likely to avoid construction risk through investing in junior debt or in refinancing transactions

Institutional debt funds are most likely to invest in structures that minimise their exposure to construction risk. One option is junior debt. ‘We couldn’t get a full construction wrap with Gemini as we did with Gode Wind II, so we decided that investing subordinated debt provided additional security for the cash flows,’ explains Johan Bernt Nordang, Investment Director, PKA Alternative Investment Partners. ‘The subordinated debt has many similarities with equity, however with some increased certainty on cash flows.’

For debt funds that have never invested in offshore wind, refinancing structures are the most obvious entry point because the assets will have been operating for some years, which gives some certainty on the cash flows. ‘Institutional debt funds could potentially enter the offshore wind sector, they are certainly very active in other sectors and have lots of capital at their disposal,’ explains Michael Dedieu, Partner, Marguerite Fund. ‘They will most likely first enter the sector at the refinancing stage.’

We used to finance our part of the projects with 100% equity but have now changed our strategy. We are going to share the capital employed and risks even more than in the past for the cost-intensive offshore projects.

Dirk Simons, CFO, RWE Innogy
'However, ratings agencies are currently refusing to deconsolidate offshore wind projects from their rating evaluation as they consider these projects strategic to utilities and that they will invest additional money if a problem arises. So project finance is not a route they can take on their own. So they tend to deconsolidate by selling a majority stake, like E.ON has done on Rødsand II or RWE with Nordsee 1.'

Like institutional investors, banks also prefer offshore wind farms that have a limited number of construction contracts because it reduces risk. Therefore, utilities seeking to secure debt project finance must first minimise the number of contracts.

‘Nordsee 1 has fewer than 10 contracts and we were trying to reduce this number even further,’ explains Dirk Simons, CFO, RWE Innogy. ‘It is imperative to do this because it is understood in the industry that interface risks are the main risks in constructing offshore wind farms. We have had 20 contracts before for projects financed with 100 per cent equity and there are always questions about whose responsibility something is in case something is going wrong. I think it will be very difficult to arrange project finance with more than six to eight contracts.’

A steep learning curve for utilities

Creating a project structure that banks accept can be a steep learning curve for utilities, many of which are not used to securing project finance. For example, project finance comes with a number of requirements that utilities are not used to, including strict reporting requirements, control over certain decisions and expenditure caps. This forces utilities to insert more rigid language into their contracts with counterparties.

Jérôme Guillet explains some of the alterations utilities need to make to their contracts to attract project finance. 'Utilities typically work with contractors on multiple projects and not just for offshore wind, so a long-standing relationship exists,' he says. ‘This means there are a lot of implicit understandings behind the contracts that banks and financial investors cannot value. So banks will need warranties that are not necessarily stronger but certainly more explicit.’

‘Banks also want the project to be able to solve potential issues on its own,’ he continues. ‘Utilities typically don’t model contingency planning as they have plenty of internal resources to throw at a project if an issue arises. Banks and financial investors need to know what resources are formally committed and available to the project should there be a problem.

‘So contingency planning needs to be much more explicitly defined in advance and there has to be a specific focus on the project management team and its competences on a standalone basis. Utilities typically don’t like to do this as it costs more and removes flexibility.’

Bonds – not yet an option for mainstream offshore wind...

Green bonds are booming. According to deals tracked by Clean Energy Pipeline, some $20.6bn of green bonds were issued globally in the first half of 2014, a significant increase on the $10.0bn issued in 2013. However, every bank and developer interviewed for this report agrees that bonds will not be a realistic financing option for offshore wind farms during the next 18 months. Construction risk is simply too great for the type of low-risk investor that typically invests in bonds.

"Banks also want the project to be able to solve potential issues on its own. Banks and financial investors need to know what resources are formally committed and available to the project should there be a problem.

Jérôme Guillet, Managing Director, Green Giraffe Energy Bankers"
What types of offshore wind financing events will be best suited to project bonds during the next three years?

- **Highly suitable**
- **Suitable**
- **Not suitable**

<table>
<thead>
<tr>
<th>Event</th>
<th>Highly suitable</th>
<th>Suitable</th>
<th>Not suitable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refinancing an operating offshore wind farm</td>
<td>53%</td>
<td>39%</td>
<td>8%</td>
</tr>
<tr>
<td>Refinancing an operating offshore wind transmission project</td>
<td>49%</td>
<td>40%</td>
<td>11%</td>
</tr>
<tr>
<td>Financing the acquisition of an offshore wind transmission project</td>
<td>22%</td>
<td>46%</td>
<td>21%</td>
</tr>
<tr>
<td>Financing the acquisition of an offshore wind farm</td>
<td>22%</td>
<td>62%</td>
<td>16%</td>
</tr>
<tr>
<td>Financing construction of an offshore wind farm</td>
<td>19%</td>
<td>29%</td>
<td>52%</td>
</tr>
<tr>
<td>Financing construction of an offshore wind transmission project</td>
<td>15%</td>
<td>41%</td>
<td>44%</td>
</tr>
</tbody>
</table>

... but could be suitable for established projects and low-risk assets

However, bonds could be an option for projects that have operated for a number of years and that need to refinance existing project debt. Just over half of survey respondents believe bonds are a highly suitable structure to refinance operating offshore wind farms during the next three years, while 49 per cent believe bonds will be a highly suitable structure for refinancing operating offshore wind transmission assets. In contrast, the majority of survey respondents (52 per cent) agree that project bonds are an unsuitable structure for funding construction of offshore wind farms during the next three years.

There is already some precedent for bonds being used in offshore wind for very low-risk assets. In December 2013, UK infrastructure company Balfour Beatty secured £305m to fund the acquisition of the Greater Gabbard offshore transmission link, which transports power generated from the 504MW Greater Gabbard offshore wind farm to the UK grid. The 19-year notes were priced at 125bps over UK gilts, with a coupon of 4.137 per cent.

The bond issuance was successful because it was used to fund the acquisition of an operating asset, meaning the investors were not exposed to any construction risk. Also, the cash flows the transmission asset generates do not depend on the yield of the offshore wind farm it connects, meaning it is immune from wind resource risk. Furthermore, the EIB provided a £45.8m guarantee for the bonds as part of its project bond credit enhancement initiative.

‘Bonds might be used for refinancing operating generation assets, but they are much better suited to transmission assets,’ confirms Matthew Tilbrook, CFA, Power & Advisory, Structured Finance Division, EMEA, Mizuho Bank. ‘The OFTO programme was designed with the capital markets in mind. They are highly investible assets and the cash flows are low risk due to the nature of the regime. Generation assets have wind resource risk, operating risk and construction risk, and bond investors are generally not used to any of these.’
Focusing on debt terms

Survey data and interviewees confirm that project debt finance for offshore wind is currently priced between 250 and 350 bps above LIBOR. The exact pricing depends on many factors including the quality of the sponsor, the contract structure and the subsidy regime. Survey data indicates offshore wind refinancing deals are being priced between 200 and 300 bps above LIBOR.

According to interviewees, this equates to a 20–50 bps premium on the cost of project debt finance secured for onshore wind projects. For some banks, a 20 bps premium versus an onshore wind deal is simply insufficient given the added risks associated with the construction of offshore wind farms.

‘Margins are dangerously low, in my view, if you compare the risks of offshore wind lending versus onshore,’ explains Federico Florian, Head of Power, Renewables and Water (UK and Ireland), KfW IPEX-Bank. ‘And the pricing differential does not reflect this. There is only a 20 bps difference in pricing on average. The same applies to cover ratios. Some people believe offshore wind construction is becoming standardised, but I don’t agree. Many banks will continue to lend to offshore wind despite the additional risks not being reflected in the margins because they are fundamentally driven by the relationship.’

What margins do you expect bank lenders to charge for construction debt in the next 18 months?

Note: assuming long term-PPAs and tier-one sponsors, EPCs and equipment providers.

Margins are dangerously low in my view if you compare the risks of offshore wind lending versus onshore and the pricing differential does not reflect this. There is only a 20 bps difference in pricing on average.

Federico Florian, Head of Power, Renewables & Water (UK & IRE), KfW IPEX-BankBankers
What margins do you expect bank lenders to charge for debt refinancing of operating assets in the next 18 months?

Tenors vary considerably

Unlike the cost of debt, tenors vary considerably depending on the term of the subsidy. For example, the new CfD mechanism that will subsidise all UK offshore wind projects that come online after March 2017 will only give subsidy payments for 15 years – five years less than the term of the Renewables Obligation Certificate (ROC) subsidy. As Alejandro Ciruelos, UK Head of Project and Acquisition Finance, Santander, explains, this will probably lead to a reduction in tenors.

‘Because the tenor of the subsidy is 15 years, the more subsidised technologies may struggle to stretch tenors to match these terms,’ he says. ‘But on the positive side they reduce price volatility, which may enable gearing to increase slightly. So we could see a strange dynamic of tighter cover ratios but shorter maturities.’

Note: assuming long-term PPAs and tier-one sponsors, EPCs and equipment providers.
Poised to dominate offshore wind deal activity

The UK is the largest offshore wind market in Europe, with over 4GW installed as at the end of June 2014 – 57 per cent of the total installed offshore wind capacity in Europe. Since offshore wind farms that come online before the end of March 2017 can be subsidised under the well-understood ROC, it is likely the UK’s position as the leading offshore wind market will be maintained for at least another two years.

Where will offshore wind transactions be most common during the next 18 months?

Ranked: one being the most active country

Given that the UK is by far the European leader, it is no surprise that survey respondents expect the majority of investment in operating assets to be concentrated in the UK – 64 per cent of survey respondents expect the UK to be the most active market for acquisitions of operating assets during the next 18 months, and 57 per cent expect the UK to be the most active market for debt refinancings.

64% of survey respondents expect the UK to be the most active market for acquisitions of operating assets during the next 18 months.
To what extent do you agree with the following statements regarding the CfD subsidy regime?

Strongly agree    Agree    Disagree    Strongly disagree

The right to lower project capacity by 25 per cent between CfD allocation and final investment decision is an important de-risking measure for developers
17%    74%    9%  

The ability to secure a set strike price for entire projects based on the incentive awarded to the first phase is an important provision for developers
10%    70%    12%    2%  

The CfD feed-in tariff system proposed under the Electricity Market Reform process will give investors with the long-term certainty they need to commit significant capital to the sector
2%    74%    19%    5%  

The CfD strike prices finalised in December 2013 are adequate to encourage investment in offshore wind
3%    64%    23%    10%  

CfD contract structure now well formed…

While the near-term outlook for investment in UK offshore wind looks reassuring, the long-term outlook is uncertain as the sector moves to the new CfD subsidy regime. This will apply to all projects that come online from April 2017. Project owners with CfD contracts will receive a fixed ‘strike’ price per KW of electricity generated. If the market price is below this strike price, a subsidy will be paid equal to the difference between the market and strike prices. If the market price rises above the strike price, generators will need to pay back the difference between the market and strike prices.

Since the publication of European offshore wind 2013 – realising the opportunity in June 2013, government and industry have consulted extensively, and a series of revisions were made to the initial CfD contract structure. Survey data indicates these have been well received – 91 per cent believe the right to lower project capacity by 25 per cent between CfD allocation and final investment decision is an important de-risking measure for developers, while 86 per cent believe the ability to secure a set strike price for entire projects based on the incentive awarded to the first phase is an important provision for developers.

Perhaps more importantly, two-thirds of survey respondents believe the CfD strike prices finalised in December 2013 are adequate to encourage investment in offshore wind.
Given the majority of survey respondents are positive about the strike price and specific provisions for developers, it is no surprise that over 75 per cent of UK survey respondents believe the structure of CfD contracts will give investors the long-term certainty they need to commit significant capital to the sector.

… but budget puts dampener on industry

Despite the structure of CfD contracts being understood and accepted, the subsidy mechanism is now uncertain, following the government’s announcement in October 2014 that the budget available for CfDs will be significantly lower than expected. Unlike the ROC regime, where project owners were guaranteed to receive ROCs once operational, projects will have to bid for a CfD contract through a competitive auction process. Auctions will be held annually, with the first to be awarded in early 2015. Offshore wind projects will be competing not only with each other, but also against other renewable energy projects the UK government has categorised as ‘less established’.

Budget size creates unease

The UK government has set the budget for the first CfD contract allocation round at £300m, with £235m dedicated to ‘less established’ technologies. The UK wind and marine trade association RenewableUK calculates that a budget of £235m would only be able to support 700–800MW of offshore wind capacity. Importantly, this is significantly less than the size of some of the projects that might want to bid for a CfD contract. Of course, the £235m budget is only for the first allocation round and it is not unforeseeable that the budget for future rounds might increase. However, the fear is that the budget for future CfD allocation rounds will not increase significantly. This is creating unease throughout the industry.

‘There is enough money on the table for 700–800MW in this allocation round if all the money in the “less established” pot goes to offshore wind, which it most likely will,’ explains Gordon Edge, Director of Policy, RenewableUK.

‘There are a number of large offshore wind projects coming forward that are significantly larger than this. Developers of those projects are left with the choice of carving out a piece of their development to fit – which is likely to make the economics more challenging – or sitting it out in the hope of a better opportunity later. If the budget for the next allocation round is the same as the first round, then less than 10 per cent of capacity we project will be eligible to bid can secure a CfD. It can take hundreds of millions of pounds to get offshore wind projects through consent, which is why the industry is getting very hot under the collar.’

Longer-term budgeting framework needed

This discomfort is felt across the industry. E.ON, a major investor in UK offshore wind, believes the size of the budget has made investment in the sector challenging. ‘We were initially positive about CfDs because they bring pricing clarity, which is attractive to financial investors,’ explains Michael Lewis, Chief Operating Officer, E.ON Climate and Renewables. ‘However, recent announcements regarding the levy control framework show there is a much more limited amount of money available for offshore wind than anticipated. There is also no visibility on future budget allocations. This is really off-putting to developers who won’t know the budgets for future bidding rounds until after they have already committed significant capital to a project. We need a longer-term budgeting framework and more clarity.’
Entering a busy period of project finance activity following finalisation of EEG reform

With just over 600MW of offshore wind capacity fully connected to the grid, Germany is Europe’s fourth largest offshore wind market behind the UK, Denmark and Belgium. Despite its relatively low ranking, survey respondents expect Germany to be one of the most active markets for project debt finance – 40 per cent of survey respondents expect Germany to be the most active country for offshore wind project debt finance during the next 18 months, marginally behind the UK (42 per cent) but significantly ahead of every other European country.

New laws create certainty

Germany is expected to be a hotbed for project finance activity for two reasons. First, investors can now be certain about the future subsidy regime for offshore wind following the finalisation of the country’s new renewable energy laws in August 2014.

There had been uncertainty during the two years leading up to the agreement as investors waited for clarity on the new rules. Second, a significantly large number of German projects are being developed by smaller developers that must finance construction through project finance structures. This is in sharp contrast to the UK, where the majority of Round 3 projects are being developed by large utilities that have historically financed their projects’ construction with cash on the balance sheet.

‘In the UK there aren’t really any small developers doing offshore wind, perhaps with the exception of Mainstream,’ confirmed Florenz Rogge, Head of Sales – Offshore, Hochtief Infrastructure. ‘So the market is very utility-driven. In Germany there are a lot of projects being developed by small developers in addition to the larger utilities. They are largely depending on getting a strategic partner such as a turbine supplier or EPC contractor in the mix to make the project bankable.’

Where will offshore project finance transactions be most common during the next 18 months?

Ranked: one being the most active country

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The main aspects of EEG reform that relate to offshore wind include the lowering of the 2020 installation target from 10GW to 6.5GW. The lower target reflects what the industry considers to be realistic, following well-documented grid connection issues. Over 60 per cent of survey respondents think this new target is realistic. The reforms also contain some minor changes to the level of subsidies on offer.

Subsidy deadline extended
The acceleration subsidy model previously paid a subsidy of 19.4 cents per KWh for eight years and was available for projects coming online until the end of 2017. This deadline has now been extended to the end of 2019, although projects coming online in the extended period will only benefit from a subsidy of 18.4 cents per KWh. Because the changes to offshore wind subsidies under EEG reform are relatively minor, it is no surprise that survey respondents are divided 50:50 on whether the changes are generally positive for the industry.

To what extent do you agree with the following statements regarding the German offshore wind market?

- The provision to allow a further 1.2GW of offshore wind capacity above the 2020 limit of 6.5GW is an important development for investors
- Germany’s 2020 target of 6.5GW installed offshore wind capacity will be achieved
- Financial pressure on German utilities will result in further cuts to offshore wind investment plans
- The transition to a feed-in premium subsidy from 2017 will hinder investment in offshore wind
- In general, Germany’s EEG reforms are positive for offshore wind
- Grid connection issues have been resolved

Financing may be difficult due to ongoing grid connection issues
The next 18 months will certainly test German developers seeking finance for offshore wind farms, given the problems experienced by many wind farms in recent months. For example, Germany’s largest offshore wind farm, Bard 1 (400MW), experienced six unplanned outages in the first five months of 2014 due to technical issues with the BorWin 1 connection system. One outage lasted for 67 days. In a separate incident, connecting Trianel’s 200MW Borkum West 2 offshore wind farm to the grid has been postponed several times due to problems with the DolWin 1 connection. This project is now two years behind schedule.

A revision to the EEG at the end of March stipulates project owners are entitled to be compensated for outages that result from grid connection failure. However, stories such as these undoubtedly make investors think twice before investing. Underlining the significance of the issue, three-quarters of survey respondents do not believe grid connection issues in Germany are resolved.
The Netherlands

To what extent do you agree with the following statements regarding the Netherlands offshore wind market?

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Clear rules for grid connection need to be established before major investment in offshore wind can take place

- Strongly agree: 28%
- Agree: 70%
- Disagree: 2%

Financial close of the 600MW Gemini offshore wind farm will catalyse further offshore wind investment in the Netherlands

- Strongly agree: 15%
- Agree: 72%
- Disagree: 11%
- Strongly disagree: 2%

The Netherlands will achieve its target to install 4.5GW of offshore wind capacity by 2023

- Strongly agree: 4%
- Agree: 54%
- Disagree: 30%
- Strongly disagree: 11%

Policy certainty could lead to strong development

With 228MW of installed offshore wind capacity, the Netherlands is one of Europe’s smaller offshore wind markets. But a small number of large projects in the pipeline and the finalisation of the country’s National Energy Accord in September 2013 suggest a boost in capacity during the next decade. Just taking into account the two projects currently under construction, Luchterduinen at 129MW and Gemini at 600MW, offshore wind capacity should surpass 1GW by the end of next year.

The country’s National Energy Accord calls for 4,450MW of offshore wind capacity to be operational by 2023. Projects will be subsidised through a CfD system similar to the UK’s. The maximum average subsidy will be 15 cents per KWh in year one and fall by 0.5 cents per KWh every year thereafter.

CfD contracts will be awarded in annual allocation rounds, with the first to begin next year. The majority of survey respondents (59 per cent) expect the Netherlands to achieve its 2023 installation target.

Despite the National Energy Accord’s targets, there are still a number of areas of uncertainty that need to be clarified to encourage significant investment in offshore wind. ‘There are obstacles that need to be overcome if these targets are to be met,’ explains Ton Sledsens, Head of Offshore Wind, Netherlands Wind Energy Association. ‘For instance, the details on how the tender and the contracts will be structured still needs to be finalised, developers need good survey and wind resource data from the sites government has identified for development, and we need to know how the cost of grid connection will be incorporated in the subsidy scheme. The first tender for 450MW is due to be held next year so there is still a lot of work to do.’

4,450MW

The Netherlands 2023 offshore wind capacity target, according to the National Energy Accord.
France

To what extent do you agree with the following statements regarding the French offshore wind market?

- Strongly agree
- Agree
- Disagree
- Strongly disagree

At least some offshore wind projects awarded in the first tender round will be operating by 2020

- 24%
- 62%
- 11%
- 2%

France’s ambitions to curb its reliance on nuclear power will create long-term opportunities for offshore wind investment

- 14%
- 55%
- 20%
- 11%

Offshore wind farms in France will be financed on balance sheet

- 10%
- 50%
- 30%
- 10%

France’s offshore wind market is inaccessible for non-French companies and investors

- 6%
- 19%
- 53%
- 21%

Offshore wind industry clicks into gear

There are currently no offshore wind turbines installed in French waters. But the country has initiated a vast offshore wind development programme that targets 6GW of installed capacity by 2020 – 3.5 per cent of total power consumption.

The country is promoting offshore wind by awarding a series of tenders to construct individual projects. The first round of tenders, for a combined capacity of 2GW, were awarded in April 2012. A consortium led by EDF won tenders for three of the five development zones, while a consortium led by Iberdrola won the fourth. The fifth development zone was not awarded because it was thought that the sole bid, by GDF, was too expensive. EDF expects its projects to start coming online from 2018.

The second round of tenders, totalling 1GW, was awarded in May 2014. Both projects in the tender were awarded to a consortium comprising GDF Suez, EDF, Neoen Marine and Areva. One project is off the coast of Le Tréport in northern Normandy and the other is near the islands of Noirmoutier and Yeu off the Vendée coast. Both projects will not come online until 2021 at the earliest. France’s energy minister Ségolène Royal revealed earlier this year that a third tender will be launched ‘soon’, but no exact details have been disclosed. It is thought the third tender will cover both fixed and floating turbines.

The majority (60 per cent) of survey respondents agree that offshore wind farms in France will be financed on balance sheet. However, given the size of the offshore wind projects awarded to EDF and GDF Suez and the magnitude of the investments to be made, it is more likely that the construction will be financed off balance sheet, thus creating many opportunities for project finance banks.
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