A WORD ABOUT WIND

JANUARY 2017

FINANCE 2017

Featuring an interview with Sandy Reisky from Apex Clean Energy

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EDITORIAL

by Richard Heap,
editor at A Word About Wind

There is nothing like the election of a climate change denier and serial wind farm objector as 'leader of the free world' to raise the blood pressure of this industry.

But, this month, President Donald Trump is set to become a reality. This time last year, the US wind sector was celebrating an unexpected five-year extension of the production tax credit, which promised to power growth in this sector until 2020 and beyond. Now we are asking where wind power fits into the new world order.

"Now we are asking where wind power fits into the new world order."

It is a timely question for Europe too.

The impact of the UK's decision to leave the European Union is one of a series of headaches for the continent. The result of Italy's referendum on constitutional reforms could trigger a banking crisis and lead to the country leaving the euro; while the rise of far-right politicians ahead of elections in France, Germany and the Netherlands all pose threats to the future of the EU – and to the continued growth of the wind sector. Uncertainty rules.

That is where Finance 2017 can help.

In this report, we give our insight on what the rise of far-right parties means for the future of wind in Europe (p.5); and our Italian banking specialist Ilaria Valtimora reports from her home country on the roots of the current banking crisis and what it means for Europe's financial system (p.17).

We also look at what potential interest rate rises in the US and Europe mean for the wind sector. Low interest rates have helped to fuel growth in wind since the global financial crisis of 2008, as they have helped developers to keep their cost of capital low and made wind farms look like more attractive investment propositions than government bonds. Check out analysis from industry experts on page 19.

And we have scoured the wind world for other insights too.

For our cover interview, we have spoken to top US developer Sandy Reisky (p.13), founder and chairman of Apex Clean Energy. Reisky is a serial entrepreneur in the renewable energy sector who previously built developer Greenlight Energy and sold it to BP; and has now taken Apex from a start-up in 2009 to one of the biggest wind developers in the US. He is confident in wind's prospects under Trump.

We have also spoken to Markus Lesser, who took over as chief executive of German developer PNE Wind last April to guide the firm out of difficult times. He discusses how the business is moving ahead with its new strategy in the new year (p.9), including its recent sale of an 80% stake in its 142.5MW German portfolio to Allianz Global Investors.

Last but not least, we have a comment piece from Sacha Kamp, head of renewable energy for the EMEA region at Sumitomo Mitsui Banking Corporation, who on page 11 focuses on the future of project finance in the offshore sector. Competitive auctions are helping reduce the cost of offshore wind, but the Borssele 3 & 4 tender suggests that firms using project finance can still compete with cash-rich utilities.

Plenty to get stuck into, and this proves that wind in the next 12 months will be anything but boring.

Wishing you all a prosperous 2017.

All the best,

Rich

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EU DON'T LOOK WELL

The rise of far-right politicians poses a threat to the growth of wind and the future of the European Union

It is 25 years since the members of the European Commission signed a treaty in Dutch town Maastricht, which set the blueprint for the European Union as we know it.

The Maastricht Treaty gave people in the European Community the right to move to, and live in, any of the community's 12 nations. It also set up international policies on justice and security; and became the basis for the community's economic union and, eventually, the euro. The European Union came into force in November 1993.

The EU has since grown from 12 member states to 28, but for how much longer? It is coming under threat because of the rise of right-wing politics across Europe. This poses as much of a threat to the wind sector as it does to EU ideals about unity.

The rise of right-wing politics across Europe poses as much of a threat to the wind sector as it does to EU ideals about unity.

RISE OF THE RIGHT

We can see this in two votes in the last 18 months. Poland's election in October 2015 and the UK's referendum on EU membership in June 2016 have both shown there is growing concern from conservatives about issues including immigration. This looks set to continue throughout Europe in 2017.

The Austrian people rejected the far-right Norbert Hofer, from the Freedom Party, in a presidential election last month but there is no guarantee people will do the same in the general election in the Netherlands in

Facing the voters: Germany's Angela Merkel is among European leaders facing elections this year

Source: AP Photo/Steffi Loos

2017: Key dates for the EU

15 March: The Netherlands to hold general election

31 March: UK prime minister Theresa May's self-imposed deadline to officially start the two-year process of leaving the European Union

23 April: First round of the French presidential election process

7 May: France votes between the two final candidates to become its new president

By October: Czech Republic to hold its legislative election

By 22 October: Germany to hold presidential election

March: the far-right Geert Wilders is still in contention to oust Mark Rutte as prime minister, though that depends on whether he can form a coalition with other parties.

In France, two of the leading candidates in the presidential election in April – Francois Fillon and Marine le Pen – are both Eurosceptics, and the latter has pledged to give people a vote on whether France should remain in the EU. The result of the French election could also have a knock-on effect on Germany, where people are due to vote for the chancellor in October, and Angela Merkel faces challenges from all sides, although still enjoys broad support.

It is not just Brexit that has spooked EU leaders. Italy's prime minister Matteo Renzi lost a referendum on constitutional reforms last month. The fallout from this, and his subsequent resignation, could spark a crisis among Italian banks and set in motion a course of events that could end up with the country leaving the euro (see p.17).

These all pose risks to the future of the EU – and that is before we get to the US.

The election of controversial billionaire Donald Trump as US president in November has emboldened populist parties in Europe. The result could be more countries that seek to put their own interests before the EU's, and this could lead to the collapse of the EU. Even if that does not happen, the rise of populist parties on both the left and the right is likely to have a big impact on energy policy, and renewables in particular.

GLOBAL WARNING

"The concept of global warming was created by and for the Chinese in order to make US manufacturing non-competitive," wrote Trump on Twitter in 2012.

This quote is not just revealing in terms of the US president-elect's attitudes towards climate change and the role of humans in contributing to it. It also represents a view held by many in the US Republican Party, and right-wing politicians elsewhere.

There are many reasons why politicians on the right are sceptical about climate change and hostile to renewables, particularly wind. It is not all about science.

These include a hostility to policies on curbing emissions that could harm business; reluctance to endorse anything that could be seen as pushing a liberal agenda; and an 'anti-elitist' refusal to accept that the vast majority of climate change scientists are convinced that humans are playing some role in changing the Earth's climate. These have all contributed to the US Republicans' sceptical position on climate change.

Those in wind should not take this lightly. We have seen in the last two years how right-wingers can quickly harm the sector.

In Australia, prime minister Malcolm Turnbull from the Liberal Party, has recently blamed wind farms for blackouts caused by huge storms; and his forerunner Tony Abbott systematically cut support for the sector during his two years in charge. Abbott's policies resulted in only 380MW of new capacity being added in 2015.

The damage has been even worse in Poland, where the conservative Law & Justice Party came to power in November

Renzi resignation: Matteo Renzi quit as prime minister in December

Source: Bip America via Flickr

French connection: Marine Le Pen is seeking to become France's new president

Source: Blandine Le Cain via Flickr

2015. In May 2016, it adopted tough new rules to restrict where wind farms can be built, which effectively bans new wind development, and sidelined the sector in a renewable energy auction last month.

These two examples show how quickly a committed anti-wind government can move if it wants to damage the sector. The economics of wind farms may be attractive, but it is still easy for a government to stifle the sector if it uses other regulations. This is why those in wind should watch Europe's elections in 2017 with interest.

For example, Dutch prime ministerial contender Geert Wilders has not revealed his energy policies, but he and his Party for Freedom are cut from the same cloth as the US Republicans when it comes to scepticism about man-made climate change.

It is likely that he would go further in terms of cutting support for renewables than the current government, which published an 'energy agenda' last month that sets out its intention to get rid of subsidies for renewables including wind over the next decade.

Under this agenda, the government plans to phase out support for offshore wind by 2026. However, a hostile incoming government could go further, by introducing strict rules on where new wind farms could be located, as has been the case in Poland.

In France, the presidential frontrunners Fillon and Le Pen are set to prioritise support for the country's ailing nuclear sector over the country's transition to renewables, as well as looking to sell stakes in state-backed energy groups including Engie.

The exception is Germany. Chancellor Angela Merkel has become synonymous with the nation's clean energy transition policies – 'Energiewende' – but last year agreed to slow the pace of change, to 2.8GW of new wind capacity a year; and introduced competitive tenders for wind farms, which came into force this month.

She has been forced to make the shift to rein in subsidies, but the fact that her most likely main opponent is set to be Sigmar Gabriel of the Social Democratic Party – the current minister for economic affairs and energy – should ensure consistency.

FUTURE OF THE EU

Le Pen and Wilders would both love for their countries to follow the UK out of the EU exit door and bring about its demise.

We have seen in the last two years, in Australia and Poland, how right-wing leaders can quickly harm wind.

Dutch vote: Far-right candidate Geert Wilders

Source: Serg Hoholok via Flickr


World leader: Trump with supporters at a rally in June

Source: Gage Skidmore via Flickr

In reality, it would take years for the EU to unravel, and it still looks unlikely that it would. As it stands, the EU's major players have too much invested in the project to allow that to happen without a fight.

However, if the EU is weakened then it would make it even more difficult for it to get European nations heading in the same direction in policy areas including energy.

The EU is strongest when it is working on policies that affect all of its member states. For example, it played an key part in getting support from member states for the climate change deal agreed at United Nations talks in Paris in December 2015; and sped up its ratification, which happened before Trump's victory in November 2016, to make it tougher him to de-rail the deal.

The draft renewable energy directive published by the European Commission on 30 November also has an important role to play, in terms of setting the rules for nations to cooperate on cross-border energy deals and joint renewables schemes.

But the directive also shows how the EU is limited in what it can achieve because of its reliance on national governments to implement its policies. The directive sets a goal that the EU should source at least 20% of its total energy needs from renewable sources by 2020, and 27% by 2030, but it is a target that applies across the whole of the EU and is not binding on individual states. The EU's powers here are limited.

This is why Giles Dickson, chief executive of WindEurope, greeted the draft directive with some reservations when it was published.

He said he welcomed the directive, but also pointed out that only seven of 28 EU member states have clear plans and policies for renewable energy beyond 2020; and that investments of €254bn would be required in the power sector if Europe is to meet its 2030 targets. The EU cannot force national governments to draw up these plans, and the effect of this is clear when we look at recent wind installation figures.

The Global Wind Energy Council's most recent annual figures, from 2015, showed that Germany dominated annual installations with projects totalling 6GW completed that year, with Poland on 1.3GW, France on 1GW, and the UK with 975MW. The growth in the wind sector in Europe is dominated by a few key players, and those 2015 figures are set to drop as Germany restricts annual wind installations and Poland has axed support.

The EU can help to set the course for member states to embrace renewables, and it can give a vision for a more decentralised power system. But it cannot force member states to act, and this is one reason why Europe has been less dynamic in terms of wind installations in recent years when compared to North America and Asia. And it will not have the power to compel a right-wing government to fully embrace renewables.

This means that, regardless of what happens with the EU, the onus on those in wind must remain the same as ever: to make schemes more efficient, more reliable and cheaper, to convince politicians that it is a sensible part of the energy mix.

Politicians will change. So will the EU. But wind's core mission will not. ■

The European Union can set a course for renewables, but it cannot force member states to act.

Q&A: MARKUS LESSER, CEO, PNE WIND

Richard Heap spoke to Markus Lesser, who became chief executive of PNE Wind last April, about the firm's strategy, competitive auctions and its recent major deal with Allianz Global Investors

How do you see the market growing?

We develop wind farms for customers like Brookfield, John Laing and international financial institutions and funds; and we have built 2.4GW in Germany and around.

We see that the sector will continue to expand, particularly in emerging markets. There is great support through the COP21 regulations, and cost reduction. This means everybody in the market has to meet some challenges to increase the effectiveness of projects and reduce the costs to also increase attractiveness.

How are you changing PNE's strategy?

We have on a regular basis been making bigger deals. For example, last year we completed a £103m deal with Brookfield for our 1.2GW UK portfolio; and we sold an 80% stake in our 142.5MW German portfolio to Allianz Global Investors last month. We have retained a 20% stake.

We have also been increasing the size of our repowering business, and we need to be effective across the value chain, with multi-contracting at several wind farms for several customers.

> "Everybody in the market has to meet some challenges to increase the effectiveness of projects and reduce the costs."

Tell me more about the Allianz deal.

We have done this deal in a new way. Since 2014, we have invested in the construction of a wind portfolio in Germany. We have successively bundled these separate wind farms into a larger portfolio; and have now sold the majority stake in that portfolio.

This deal shows two things. First, one of Germany's largest institutional investors values the quality of our projects; and, second, that it believes in our ability to manage them, which we will do through our 20% holding. I am delighted to have Allianz Global Investors as a long-term partner.

How big is repowering for PNE?

Since 1996 we've built wind farms together with shareholders and stakeholders. As larger numbers of those projects come steadily to the end of their time of operation, as they will start to in the next couple of years, there will be some projects where we can make repowering.

We mainly do it for our own wind farms, but we see a lot of interest in doing it for others as well. Just right now we're doing two wind farms per year, and we see that business will increase.

For example, late last year we finished the repowering of the Altenbruch wind farm at a coastal site near Cuxhaven. The pro-

ject had 16 turbines with nominal capacity of 20.8MW, which we replaced with nine modern Nordex machines totalling 27MW. The efficiency of the new machines should mean that the amount of electricity generated is doubled, which is a great success.

And how far are you involved in O&M?

We are one of the biggest in Germany and have 1.4GW in operation. Often the management of a wind farm is hiring us to be safe and know what can be improved.

Are you doing much offshore?

We have one project, the 584MW Atlantis 1, where we are preparing for the first tender in Germany in March 2017 and are speaking with potential partners. We also have a 448MW project in the North Sea, the Borkum Riffgrund 2 with Dong Energy.

Are you positive about Germany's move to tendering?

Yes. In the first tender in the UK we won 20MW onshore, so we know how to handle this. We are also in the tendering procedures in South Africa, in Poland, in Italy, in Turkey, and in Germany offshore.

Nevertheless, there is an issue of the quality of the regulation and I'm not sure if this may create a lot of projects that will not be built. Our experience shows that, if you have very professional players the market is fine, then you get a good price that is related to the market. But if you don't have that regulation then you will see that a lot of projects are not being built.

> "If we see a good target, especially in the area of servicing and O&M, we're very interested."

Because companies bid too low?

Exactly. We see in Germany photovoltaic as well, where we have a rate of 20% of projects completed after three years. You see this even in Germany where there are a lot of other people there and a lot of companies that are experienced.

We need to talk about PNE's AGM in June 2015, where the police were called and the meeting was adjourned. How are relations now between the management and supervisory board?

We had some special situations with the AGM in June 2015 around the acquisition of WKN. This got a lot of attention in the newspapers, but it was not related to the real issues or amounts of money involved; and we resolved it last year.

We have a new supervisory board with six people, I am CEO now, and the board of directors has also changed; and we are all working very closely together. So this issue from June 2015 is now history.

Are you planning more acquisitions?

Yes, if we see a good target, especially in the area of servicing, operation and management, then we're very interested.

We're always looking for good partnerships in different countries and, thanks to our deals at the end of 2016, we're in a strong position if we find the right target. ■

BANKING ON THE NEW OFFSHORE WIND TARIFFS

Sacha Kamp is head of renewable energy for the EMEA region at Sumitomo Mitsui Banking Corporation

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The views expressed in this article are purely those of the author, and not necessarily those of Sumitomo Mitsui Banking Corporation.

Competitive auctions are driving cost-cutting in offshore wind and creating challenges for project financiers

The advent of competitive tenders in European offshore wind has left project financiers somewhat unsure of their role.

Could consortia using project finance ever be competitive? And could project finance be supported at such low strike price? Successive wins by cash-rich utilities Dong Energy and Vattenfall in the Borssele 1 & 2 and Kriegers Flak tenders respectively last year, both setting new records, had us wondering if the project finance community was part of the problem.

> "All stakeholders will be working hard to make the new tariff levels feasible."

The result of the Borssele 3 & 4 tender in the Netherlands, won by a consortium led by Shell, is certainly good news for a competitive market and may be good news for the project finance industry too, given some unofficial reports that they may seek to raise project debt. If they do, Borssele 3 & 4 could well mark the beginning of a regime change in how the project finance world structures around offshore wind risk.

In offshore wind, 2016 will surely go down in history as the year of news headline-worthy price reductions. But it was also the offshore wind industry's first true price discovery in several years – and so is unsurprising that the winning bids represented a step change against the old order of rich fixed tariffs.

From the financing community's perspective, 2017 looks likely to be a year where all stakeholders in offshore wind will be working hard to make the new tariff levels feasible. Project finance banks are fundamentally conservative, comfortable with incremental change and evolutionary

innovation, but hesitant when presented with step changes and forward leaps.

But low tariffs are here to stay – competition is fierce and the political motivation is clearly focused on cost reduction. The project finance model has no choice but to adapt and recalibrate if it is to remain as relevant a part of the funding process as the wind sector needs it to be.

> "This will require more innovation, and probably more pain-sharing."

This may mean a re-distribution of risk towards models seen in Middle Eastern IPPs: construction and operational risks further pushed to contractors and sponsors in return for accepting higher leverage and financial risk. Whatever the solution, it will require more innovation, and probably more pain-sharing.

This competitive landscape in 2017 will probably not be associated with massive price movements and successive record breaking. What likely starts now is a game of incrementalism. As a result, and once funders make their peace with the new low tariff environment, painstaking optimisation of financing sources and assumptions will surely become a more critical factor in winning bids.

This in turn, could mean that risk distribution and financing strategies become increasingly differentiated between bidders, and bank offerings are likely to diverge as well. Therein lies both the opportunity and challenge for project sponsors – increased chance for bidder differentiation and competitiveness, but coupled with higher execution risk on untested structures.

There will initially be tension between the desire to keep bank groups small for confidentiality reasons, and bank hesitancy in underwriting structures more aggressive than those tested in the market to date. We may see more importance given to established banking relationships and increased competition to secure bank resources.

Plenty of challenges await. The good news is that the competitive market is very much alive, and that will drive the financing community as much as it drives developers. ■

REACHING THE APEX

Sandy Reisky, founder of US developer Apex Clean Energy, talks to Richard Heap about launching in a recession, entrepreneurship and President Trump

The day the world has been waiting for is almost here. Next Friday, Donald Trump is due to be inaugurated as the 45th president of the United States of America. It still doesn't quite feel real.

His election victory last November caused some understandable concern in the wind sector. Trump is a long-standing critic of the wind industry and his rise to the position of 'leader of the free world' means he could make life very difficult for the sector, with his energy policies which include scrapping Barack Obama's Clean Power Plan.

But Sandy Reisky, founder and chairman of US developer Apex Clean Energy, says the prospects for the industry are still strong. Firms must just tell the right story: they should focus on the benefits to the economy and jobs, rather than carbon emissions.

"More than 80% of US wind projects are in districts represented by Republicans in the House of Representatives, and the local and regional economic benefits of wind are clear… With the favourable cost of energy and compelling value proposition of renewables, we are confident that our industry will continue to grow," he says.

Wind capacity in the US has tripled to over 75GW since the financial crisis of 2008, and Apex is one of the players behind this growth. Founded in 2009, the company builds wind farms on behalf of utilities and investors; and in 2015 completed wind schemes in the US with total capacity of 1GW. This made it the largest developer in the US market by completed capacity that year. It also has a 12GW project pipeline.

In this interview, Reisky tells A Word About Wind how the company has grown from a start-up to one of North America's largest wind developers in the last seven years. He also discusses the prospects for US wind under Trump; changes on the financial side of the sector; and how he became a serial renewables entrepreneur.

Vital statistics

Name: Sandy Reisky
Born: 1966 in Charlottesville, Virginia, US
Educated: University of Virginia; McIntire School of Commerce
Lives: Charlottesville

Career: Before coming into renewables, Reisky worked as a financial analyst at Klöckner Capital Corporation and as chief financial officer at a software firm. In 2000, he decided to enter the clean power sector and set up Greenlight Energy, which he sold to BP in 2006. He also founded wave power technology firm Columbia Power Technologies in 2005; Greenlight Biofuels in 2006; solar firm Axio Power in 2007; and Apex Clean Energy in 2009.

Personal interests: Family, fishing, outdoors, writing, hiking

REISKY BUSINESS

Reisky grew up in Charlottesville in the US state of Virginia before studying business at the University of Virginia, including a summer interning in Munich in Germany.

He then worked as a financial analyst in the US arm of German firm Klöckner Capital Corporation, and as chief financial officer at a software company; and, during the 1990s, spent three years working in Munich and two years in the Czech Republic. It was in the Czech Republic that he committed to get involved in clean energy.

"Eastern Europe, especially back in the late 1990s, was very polluted and I made a decision – although I didn't act on it for a number of years – that I could pivot my career and get involved in somehow making an impact to get cleaner air and cleaner water," he says. It was in 2000 when finally decided to act on it.

Specifically, it was 22 April 2000, when Reisky was in Washington DC and the city was hosting events for Earth Day. He visited the city's National Mall for an event to mark the 30th anniversary of the US Government's 1970 Clean Air Act, and looked at a series of booths by environmental non-profits and clean energy companies.

During this he learnt that utility-scale wind was already cost-competitive with fossil fuels in some US states. This inspired him to set up wind developer Greenlight Energy.

"We took a view that wind power was becoming cost-competitive, and that it was going to take a large piece of market share in the coming decades," says Reisky. The company then spent a few years raising capital from investors, including local investors and family offices, to invest in developing wind farms.

By 2004, Greenlight had completed a 150MW scheme; and, by 2006, has completed facilities with total headline capacity of 450MW, which represented investment of $750m. He eventually sold Greenlight to BP in August 2006 for around $98m.

After this, due to a three-year non-compete clause, Reisky branched out of wind by launching businesses including solar developer Axio Power. The firm built a 500MW project pipeline in the US and Ontario in Canada before it was bought out in 2011

"Are we just building and flipping companies? Absolutely not. Apex is the first company where we've been in a position to carry these projects."

by SunEdison. "The joke question is 'Did you get paid?'" he says. "The answer is 'yes'."

Reisky also stayed involved in two Greenlight spin-offs that he launched before the sale to BP, and were not part of that sale. These are wave technology specialist Columbia Power Technologies, which was set up in 2005; and Greenlight Biofuels, launched in 2006. When the BP non-compete clause ended in 2009, he set up Apex with colleagues from Greenlight, including chief financial officer Jim Trousdale.

The firm has secured financial backing from outside investors including Prudential Capital Group, which invested $80m in two tranches last year.

FINANCIAL CRISIS

In theory, setting up in 2009 was a bad time. The US was in the grip of the worst global financial crisis since the Great Depression of the late 1920s and 1930s.

"We launched when the financial crisis was really raging," he says. This gave Apex the opportunity to acquire projects from developers without the capital needed to start construction; or who were otherwise struggling financially. Over the last seven years, the company has completed 28 acquisitions with close to 100 projects, while also originating and developing its own schemes on previously undeveloped sites.

The company now has seven operating wind farms with total capacity of over 1.6GW, of which it operates five totalling 1GW for clients on a turn-key basis. It has another 613MW under construction in Texas and Oklahoma; and others in its 12GW portfolio are ready to build. It has a team of more than 220 people, and founding the firm in a financial crisis also gave Reisky a good chance to build a strong team.

"With regards to start-ups, being able to bring in people who are domain experts to help you build your business is key. It's really about teamwork. I've found my role has always been to chart a course and say, 'Here's what we're trying to achieve' and explain why; and do a lot more of the strategic stuff like raising capital," he says.

But Reisky is not looking to sell Apex in the same way he did with Greenlight or Axio.

"You might say: 'Are they just building and flipping companies?' Absolutely not," he says. "Apex is the first company where we've been in a position to carry these projects. We have the people, we have the capital, and it's the first time we're really been in a position to execute in the market the way I believe you need to."

Reisky says that Apex's approach is to develop projects in a way that de-risks them for institutional investors and utilities.

It does this by investing its own capital during the development stage. It then sells a majority stake in the development either when construction work is due to start; or it secures an agreement with a partner when the construction is due to start but the final sale concludes when that work completes. It is an approach that means Apex takes on the risk in development and construction; and has resulted in $3.5bn of transactions for projects with total capacity of 2.2GW.

Apex would either sell the project outright, or sell a majority stake so it could retain a minority stake. Reisky says he prefers to do the latter approach, particularly if Apex is retained to manage the scheme during its operational phase. It now manages over 1GW of operational wind projects, and employs 25 people in its operations centre.

He adds that the firm may also consider working with a development partner to build a project and selling it when it becomes operational, but that this is not the plan now.

Its regular partners include utility Southern Power, to which it has sold three projects including the 147MW Grant Plains in Oklahoma in August; Ikea, which purchased a 165MW scheme in Texas in 2014; and tax


At the races: Apex completed the 300MW Canadian Hills Wind in 2012

Source: Apex Clean Energy


On track: Apex completed the 150MW Cameron Wind in Texas in 2015

Source: Apex Clean Energy

equity investors including MidAmerican Energy. In total, Reisky estimates that Apex has done $1bn of tax equity deals.

ROUTES TO MARKET

For Reisky, one of the biggest changes in US wind since he set up Apex in 2009 is the increasing number of ways to fund schemes. Back then, the only routes for Apex to take projects to market was by working with a major investors or utilities.

Developers can now make schemes financially viable by signing power purchase agreements with corporate energy buyers, of which over 2GW were agreed in the US wind sector last year; and a further 9.9GW could be done by 2025, according to a forecast from Bloomberg New Energy Finance in November 2016.

He says: "It's getting a lot of wind built and opening up a new channel of ways to get to market, which is very important."

> "PPAs are getting a lot of wind built and opening up a new channel of ways to get to market, which is very important."

Apex was also an early adopter of 'proxy revenue swaps', a risk management tool for the wind industry that was developed by Allianz Risk Transfer, Altenex, Nephilia and Resurety. A proxy revenue swap is effectively an insurance product that gives a wind farm's owner a guaranteed fee for the electricity output from their project, which protects them when winds are slow and helps them to attract risk-averse investors. Apex executed a ten-year deal on the 151MW Old Settler project in Texas in July.

These methods of funding projects should all help to support Apex's growth. Reisky says the company will remain focused on growing by using its current strategy, and by continuing to focus on US onshore. He says the US has an "abundance" of strong energy resources; a stable business environment; a reliable transmission grid; and a well-developed financial, legal and regulatory network – even with Trump in charge.

The five-year extension of the wind production tax credit in December 2015, taking it through to the end of 2019, has been a great support too. Apex is not looking to grow outside of the US as it sees a "large and attractive opportunity" in its home market; and does not want to take on the risks of building or partnering overseas.

"There's huge potential for steady growth year-on-year," he says. "The predictions are for 10GW-plus of wind a year, and solar's doing even better. They're on track to have a great year, and… both wind and solar keep getting cheaper."

Reisky says that, as wind farms get cheaper to build, this is a benefit for Apex as it means that "a portfolio of development-stage projects is, essentially, deeper in the money over a time, and so a large portfolio becomes of more value… as wind power gets more competitive". For Apex, with its 12GW pipeline, this is a major benefit.

The desire to minimise risk is also a key reason why Apex is steering clear of the nascent US offshore market, where it is difficult to secure permits and would have to develop in partnership: "We looked at that for a long time and we disengaged when we felt it didn't seem to be moving forward. In future, we may look at it if we were to partner. We'd want to partner with a larger player because of the scale."

For now, Reisky sees the greatest opportunity for Apex in US onshore, and that is where he wants to focus. Only a full assault on wind by Trump could change that. ■

A LETTER FROM ITALY

Ilaria Valtimora is an analyst at A Word About Wind

Our Italian banking expert Ilaria Valtimora explains the reasons behind Italy's banking crisis and what it means for Europe

I studied banking at university in Siena – ironically, the cradle of Europe's current financial turmoil – and one of the first things I was taught is that Italy's banking system is one of the most solid in the world.

But as I spent Christmas in the sunshine in one of the world's most beautiful countries – my Italia – I could only wonder if what my teachers used to affirm can still be true. A political crisis has triggered a banking crisis, which could lead the Italian banking system to collapse. And it all started with a referendum. Very 2016!

On 4 December, Italian voters rejected a set of constitutional reforms proposed by Prime Minister Matteo Renzi, who has subsequently resigned. In his place, former foreign affairs minister Paolo Gentiloni has been appointed by Italy's president, Sergio Mattarella, to form a new government and guide Italy until a new election, which will be held once a new electoral law is approved. This has to happen by March 2018 at the latest.

World's oldest bank: Monte dei Paschi's headquarters in Siena

Source: Sean Liu via Flickr

Gentiloni has now to deal with the uncertain condition of the Italian banking system.

Italian banks are facing issues very similar to the ones faced by some American banks in 2008. They have made a lot of loans to people who are not paying them back, a situation made worse by Italy's weak economic growth. As a result, the banking system is poisoned by more than €350bn in bad loans.

Last July, Renzi tried to organise a government bailout to inject around €50bn into the banks to provide some support to their balance sheets. However, after the global financial crisis of 2008, the European Union has prohibited governments from doing this kind of bailouts. Under European law, a bank's own creditors must take losses before the government can spend taxpayers' money to shore up the bank's finances.

And then things really got out of hand. Banca Monte dei Paschi di Siena, Italy's third largest bank, failed in December with its recapitalisation plan of €5bn as the political uncertainty following the referendum vote undermined investors'

confidence. The bank needs this recapitalisation after failing the European stress tests released last summer.

The failure caused large outflows of deposits, which rapidly deteriorated its liquidity position towards the end of the year. The European Central Bank now says that Monte dei Paschi needs about €8.8bn of capital to restore the lost liquidity in its balance sheet and to unload nearly €30bn in bad loans.

> "A political crisis has triggered a banking crisis, which could lead the Italian banking system to collapse."

In December the Italian government obtained permission from parliament to increase Italy's public debt by €20bn to rescue Monte dei Paschi, and to also help strengthen the balance sheet of other smaller banks in Italy.

At €2.2trn, Italy's public debt is already the second-biggest in Europe after Greece as a percentage of gross domestic product; and the fragility of the country's banks, coupled with recent political instability, has caused turmoil in the financial markets.

We expect to see both political and economic fallout over the next 12 months.

The Five Star Movement – Italy's populist party and also the most popular opposition party according to polls – has pledged to hold a referendum on Italy's euro membership. Recent polls show that only 15% of Italians would support a euro exit, but a referendum of this kind would further weaken Italy, the European Union as a whole, and investors' confidence.

And the fact is that the Italian economy is not strong enough to deal with new political uncertainty, as a high unemployment rate, deflation and non-existent economic growth have put the country on the edge of a recession since the 2008 crisis.

There is still room for optimism. Italy's economy survived 20 years of being governed by Silvio Berlusconi. The banking system may not be as solid as I was taught – but at least it still has its landscape, its weather and its food. ■

WATCHING WITH INTEREST

Ultra-low interest rates have helped wind drive the cost of power to record lows, but rate rises are coming, says Ilaria Valtimora

Loose monetary policy has made it cheaper to build schemes, and made wind farms more attractive for investors.

Eight years. That is how long it has been since the financial crash forced four of the world's largest central banks – the Bank of England, Federal Reserve, European Central Bank and Bank of Japan – to adopt extraordinarily loose monetary policies to boost the economy, including setting interest rates at historic lows (see graph 1, below).

Generally, low interest rates are not good news for the global economy as it indicates that action has been taken by central banks to jolt lending, fight a sluggish economy and spur inflation that is dangerously below the 2% target needed for steady growth.

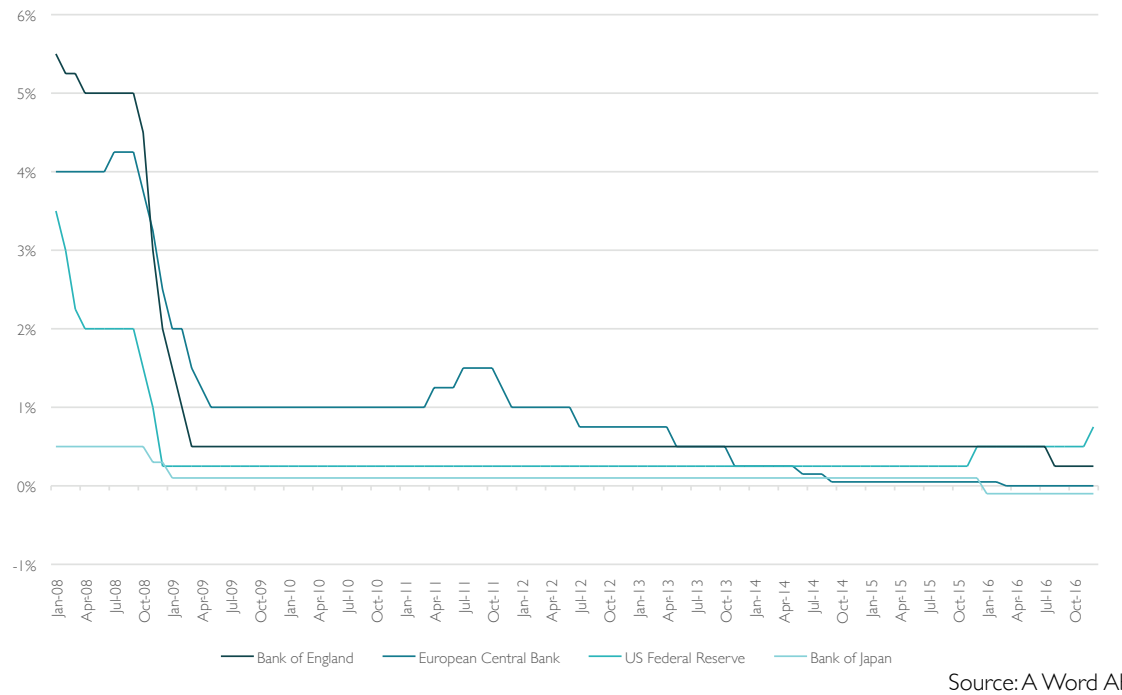
It has also punished savers with rates that have moved progressively closer to zero.

However, loose monetary policy has been good for wind. It has helped to make it cheaper for developers to build schemes; and has made wind farms more attractive for investors than some other types of investments, including government bonds. Wind is now appealing for investors seeking stable yields for manageable risks.

This has resulted in a growing amount of wind capacity installed annually, which has helped turbine makers cut the costs of their machines, and reduced prices for the sector.

In turn, this has helped wind compete with other types of energy. Wind is now the cheapest form of new energy generation in some parts of the world.

Graph 1: Interest rates since the 2008 financial crisis



Source: A Word About Wind

Raising rates: US Federal Reserve chair Janet Yellen

Source: Day Donaldson via Flickr

Central banks have fought hard to push up inflation to prevent their countries falling back into recession, and it looks like inflation is coming.

But the era of historic low interest rates has to come to an end – and 2017 could be the year that starts to happen.

RISING INFLATION

Central banks have fought hard to push up inflation to prevent their countries falling back into recession, and it looks like inflation is coming. That is the evidence we are seeing from government bond yields.

Benchmark government borrowing costs in the bond market have climbed since the middle of the year, after several years of gradual decline (see graph 2, next page). Given the exceptionally low starting point, this could signal the start of a reversal.

Since the second half of 2016, yields on US 10-year government bonds and UK 10-year gilts have risen respectively by 85% and 185%, signalling that they might have bottomed. In fact, the prospect of higher inflation erodes future bond income and, typically, drives yields higher.

The natural response from central banks to rising inflation is to raise interest rates, which could have a knock-on effect on capital costs of developing new wind farms and wind's attractiveness as an asset class.

The catalyst will be the US Federal Reserve, which in mid-December raised its benchmark interest rate by 0.25% for the second time since December 2015, to 0.75%. And the Fed expects to do so more than once a year as it forecasts its federal funds rate to achieve 1.375% in 2017 and 2.125% in 2018, as expectations of inflation grow; the economy is performing well; and the job market has shown further improvements.

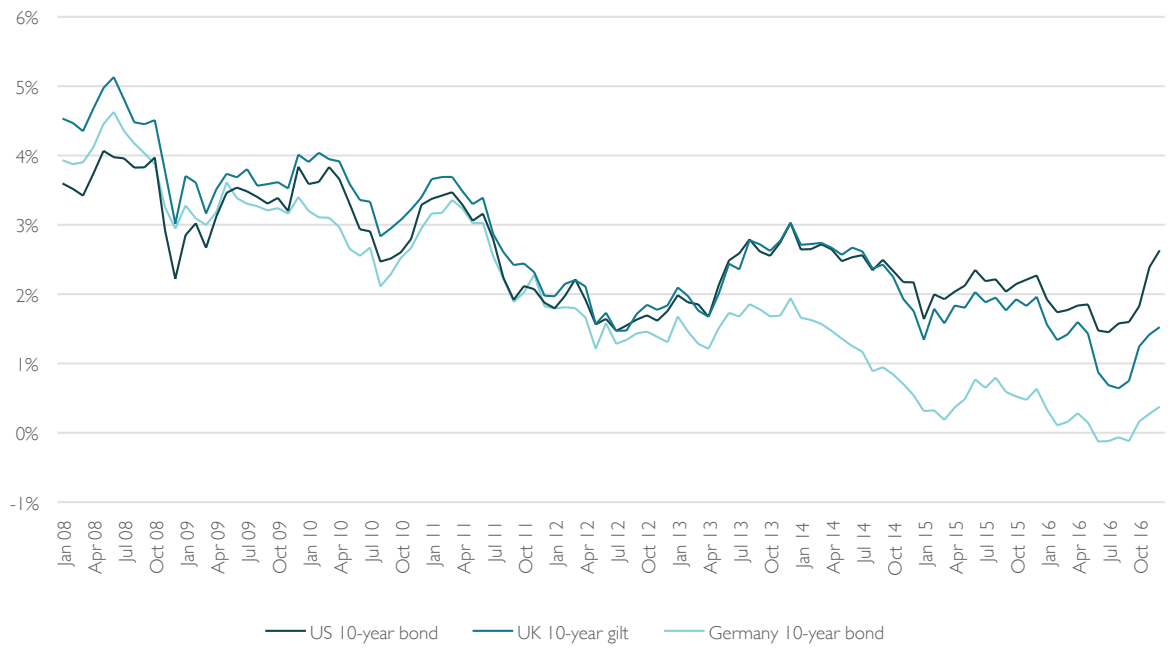
Incoming US president Donald Trump could also play an important role in the Fed's monetary policy decisions in 2017 as he plans to cut taxes and boost spending, which would give Fed chair Janet Yellen enough scope for further increases.

Bloomberg economists' consensus is for US inflation to surpass the 2% Federal Reserve's target in every quarter of next year. Financial institutions are getting prepared for this possibility and big banks such as Morgan Stanley and Goldman Sachs expect US 10-year rates to rise.

Something similar is happening in the UK, where the market for government bonds is starting to pick up as inflation is likely to show price increases of 2.3% next year. Increasing inflation in the UK can be seen as a direct consequence of the turmoil caused by the country's decision last June to leave the European Union.

In reaction to the immediate uncertainty caused by the referendum, the Bank of England cut the UK interest rate from 0.5%

Graph 2: Government bond rates since the 2008 financial crisis



Source: A Word About Wind

to 0.25%. However, it may now be forced to reverse its monetary policy decisions.

The pound has lost 18% of its value so far against its major peers after the vote, and inflation is happening quicker than the bank's officials have forecast. To stop inflation overshooting its 2% target, the BoE may start raising its interest rate this year.

INTEREST IN WIND

This will have a knock-on effect on wind.

Wind projects typically require high levels of investment early in the development and construction process. This means that low interest rates are beneficial to developers because they help keep down the capital costs of schemes, and play a direct role in keeping the levelised cost of energy (LCOE) of new wind projects low.

Inflation consternation: The Bank of England may start raising rates this year

Source: Diego Delso via Flickr

We have seen this play a role in offshore wind. In November, the wind industry scored record low offshore LCOE as Vattenfall won the tender to build the 600MW Kriegers Flak project in the waters off Denmark at €49.90/MWh.

This trend is equally true onshore, where such low prices have allowed wind to become a cheaper source of energy, very competitive compared to other sources, and have also enabled the sector to increasingly attract investors' attention.

But what would happen to the wind sector with less-favourable financing conditions due, including interest rate rises?

Pierre Monnin, economist at the Council on Economic Policies, said that a low interest rate environment makes green energy technologies more competitive than traditional fossil fuel sources. His analysis states that wind, and onshore wind in particular, looks to be the most competitive source in terms of LCOE among other green energy technologies up until interest rates of about 8%.

It is very unlikely that we will see interest rates close to that level for the rest of this decade. Let's take Federal Reserve's change in monetary policy as an example.

No closer: The European Central Bank is unlikely to follow the Fed and BoE

Source: Simsalabimbam via Flickr

The Fed increased its interest rate in 2015 by 0.25% to 0.5%, and raised it again by 0.25% last month, exactly 12 months after the first one. The rate is now 0.75%. Even if the Fed started to increase its benchmark interest rate more often than once per year, as it has been forecast, we are still well short of Monnin's 8% figure.

And the Bank of England is likely to implement a similar strategy, as reversing monetary policy is a slow and steady process that requires central banks to act prudently in order to avoid shocks to the economy. This will be an important role as the UK seeks to start two years of negotiations in March to leave the EU.

That certainty should be good for wind investments in the rest of this decade.

Fintan Whelan, who co-founded Mainstream Renewable Power and now works with a host of energy start-ups, says he does not see interest rate rises as a threat: "If interest rates are picking up, it must be because economic activity is picking up, so that should result in increasing demand for electricity and if there is increasing demand for electricity, there should be greater pricing power for electricity.

"If interest rates go up, the thing that needs to flex is the price that electricity gets sold for. Equity rates of return can be protected and proved resilient and still be achieved if the raise in the cost of debt service is at least compensated for by a higher price for power. Therefore, there should be a neutral impact on wind."

"If interest rates are picking up, it must be because economic activity is picking up, so that should result in increasing demand for electricity."

However, an increase in rates would push yields on government bonds higher and that may attract back some capital that institutional investors are now investing in wind, though this would be a slow process. It would take years before government bonds would become again an attractive alternative to wind investments.

For example, a wind project in the UK can currently give an internal rate of return of up to 8%, depending on the size of the project, against yields on UK 10-year gilts, which are now slowly trying to move towards the 2% level.

Rory O'Connor, head of European investment for BlackRock Renewable Power, says there are reasons for investors to be optimistic about the potential for growth in renewables.

He says that the favourable interest rate environment is just one of the factors that people consider when investing in wind; and that higher interest rates would not be enough to discourage them, especially as investing in wind assets gives significant protection against inflation, which works well for those who own a portfolio.

This looks to be even more significant in the current scenario where inflation is starting to picking up as well.

He says: "A lot of capital is flowing into the sector, driven by few things: an increasing understanding of wind as an asset class, an increasing allocation to alternative asset classes and an allocation to infrastructure as well as a general thematic. Among some of the key reasons why people are investing in this kind of asset classes, the yield is a clear one, but also inflation protection and inflation linkages are important.

"The diversification benefit of putting this kind of asset in an overall pension portfolio or insurance investment portfolio is important. Especially for the wind sector because its growth has created good investment opportunity."

EUROPE AND JAPAN

This is the situation facing the US and UK, but it will not happen in every part of the world. The European Central Bank and the Bank of Japan do not look to be any closer to tightening their monetary policy.

The eurozone economy is still struggling to avoid stagnant growth and low inflation. The European Central Bank has put all of

Negative or very low yields for government bonds have brought investors, especially institutional investors, to prefer productive assets.

its effort into easing the monetary policy as much as possible in order to revitalise the economy.

The result has been, among other measures, an interest rate cut on main refinancing operations to an historic low of 0%. The consequence was that for the most of 2016 government bonds across Europe have offered yields close to zero, or below zero in countries including Germany.

The Bank of Japan has followed the ECB's lead and it has actually gone beyond that, cutting its benchmark interest rate to -0.1%. But again these have been largely beneficial for the wind sector.

A main refinancing rate at 0% means that developers can now build a wind farm in Europe with a cost of debt as little as 2.5% per year. Also, negative or very low yields for government bonds have brought investors, especially institutional investors, to prefer productive assets such as wind projects and banks to show appetite for providing project financing.

In Japan, Mitsubishi UFJ Financial Group and Sumitomo Mitsui Financial Group, two of the country's biggest banks, have re-doubled their effort to lend to the renewable energy industry, with particular focus on offshore wind projects in the North Sea, as negative interest rates at home have forced them to look for profitable yields abroad.

It is very unlikely that the situation in both Europe and Japan will change any time soon. GDP and inflation figures have not been consistent with a change in monetary policy in either Europe or Japan. Even though they are slightly picking up in some cases, it still not enough to consider a tighter monetary policy.

If there are no big changes in monetary policy in 2017 then developers and manufacturers should maintain current levels of interest in pursuing new wind projects in Europe, encouraged by favourable financing conditions, and Japanese companies to increasingly seek opportunities abroad to escape low returns at home.

But the US and UK will be the most interesting viewing in the next 12 months as the government bond figures suggest that more interest rate rises are on the cards. As long as Trump and Brexit do not sow too much uncertainty, that is. ■

KEY DATES

Top decision-makers in wind energy finance trust A Word About Wind to deliver news, analysis and new business connections

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Our rapidly-expanding membership base benefits from a range of intelligence, insight and networking services. In addition to the newsletter, published three times every week, we also publish special reports and run events. You can see key dates for our forthcoming programme of reports and events below:

Events

7th March	Women's Power List launch
23rd March	Quarterly Drinks Q1
15th June	Quarterly Drinks Q2
7th September	Quarterly Drinks Q3
October	Annual Conference
16th November	Quarterly Drinks Q4

Reports

7th March	Women's Power List
9th May	Emerging Markets
11th July	Special Report (TBC)
5th September	Landmark Deals
7th November	Top 100 Power People

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Nicola Riley, Head of Wind Energy UK, Fichtner

Vital market insight at A Word About Wind annual conference in October 2016

A WORD ABOUT WIND