

FINANCE QUARTERLY

Q3 2017

A WORD ABOUT WIND 

FRANCE UNDER MACRON

.....
What the new
president means
for wind, and we
talk to French
utility Engie



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EDITORIAL



By Richard Heap
Editor, A Word About Wind

Welcome to our first Finance Quarterly. We are delighted to be able to finally share this evolution of our special reports, in partnership with headline sponsor DNV GL.

This idea has been six months in the making. At the start of 2017, we sat down and asked ourselves some tough questions about our special reports. How could we improve them to better provide the mix of data and analysis that readers told us they wanted?

We took this further in March and April with a survey where we asked you what you needed – and, after reading hundreds of responses, we started work on this report. We plan to publish a Finance Quarterly every three months to give a snapshot of wind featuring high-level insights, supported by deals data from the last three months.

You will see that we have retained the aspects of our previous reports that you told us you liked: interviews and commentary. We have interviewed Engie's head of wind Luc Goossens (see page 6) about the French utility's plans in wind; and Declan Flanagan, CEO of Lincoln Clean Energy (see page 18).

We also have DNV GL's expert insights about extending the life of wind farms (see page 10). Check that out now.

And we have built on this in three ways:

Deals information: You told us that you wanted more information about key deals in wind worldwide. In response, we delved into our deals data to put together tables of key project M&A and power purchase deals from the last three months (see page 4).

Corporate activity: You also said you wanted more analysis on corporate activity in the market. On page 13, you will find a round-up of the most important acquisitions in wind from the last three months – including some blockbusters – and five to watch.

Market focus: Finally, you told us that you wanted more insights into the situation in key markets. In this edition, you will find an analysis of the state of wind investment in France after the election of Emmanuel Macron as president (see page 15).

He has pledged to “make the planet great again” despite the threat that US President Donald Trump poses to the Paris climate change agreement. If Macron can fuse a pro-renewables stance with pro-business policies, this could be an exciting time to be in the French wind industry. We will focus on a different country in each report so, if there is somewhere on which you would particularly like us to focus, let us know.

In addition, we have rounded up all of the big global offshore stories (see page 5) to give a snapshot of activity in the last three months in this fast-growing part of the market. That covers Europe, Asia, North America and beyond.

We are excited about this evolution of our special reports – and, as always, we are keen to get your views on what we are doing well and how we can improve. And finally, we look forward to seeing you at our conference on 9 November.

Thanks for reading! ■

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WIND DATABANK

In each Finance Quarterly, we will round up the most significant deals and developments in the previous three months, covering onshore and offshore.

In this Databank feature, we have delved into our archive to pick out some of the key stories of last quarter. We focused on three areas where members have asked for more.

First, our project M&A focus (table 1) features some of the key project purchases of the last three months. Upheaval in Brazil has resulted in

significant activity out there, while activity in the US continues apace after the extension of the wind production tax credit in late 2015.

Second, we have featured the key power purchase agreements signed with corporates and utilities (table 2); and third, our offshore project activity tracker (table 3) gives a good view of

what is happening in offshore wind schemes worldwide.

In all cases we have tried to be comprehensive but we also are keen to hear about deals we might have missed, and future transactions. If you have any deals you would like us to try to include next time, please get in touch: editorial@awordaboutwind.com

1. KEY WIND PROJECT M&A DEALS REPORTED IN Q2 2017

BUYER	SELLER	PROJECT(S)	SIZE (MW)	LOCATION	COMMENT
Copenhagen Inf. Partners	Fuhai Wind Farm Corp.	Offshore trio	1,500	Taiwan	CIP buys three offshore sites for projects of up to 1.5GW
Avangrid Renewables	Copenhagen Inf. Partners	Vineyard Wind	1,000	US	Avangrid buys 50% of 1GW project leaving CIP with 50%
First Reserve	Queiroz Galvao Energia	Portfolio deal *	759	Brazil	First Reserve in talks to buy 759MW portfolio worth \$1.1bn
Goldwind	Origin Energy	Stockyard Hill	530	Australia	Goldwind agrees \$81m deal for 530MW scheme in Australia
Actis	Gestamp Renewables	Portfolio deal	416	Brazil	Actis to buy Gestamp wind farms in Brazil for around \$762m
JP Morgan clients	Terra Firma	Infinis onshore	409	UK	Institutions advised by JP Morgan buy Infinis onshore assets
AES Tietê Energia	Renova Energia	Alto Sertao II	386	Brazil	Renova sells 386MW scheme for \$193m to recycle capital
Actis	Casa dos Ventos	Two projects	346	Brazil	Actis buys 346MW pair for new investment vehicle in Brazil
Colbún	Latin America Power	LatAm assets *	330	Chile / Peru	Colbún offers \$320m for 330MW portfolio in Chile and Peru
Pattern Energy	Pattern Development	Broadview Wind	324	US	Pattern Energy pays sister firm \$269m for 324MW scheme
Alterra	Intermountain Wind	Boswell Springs	320	US	Canada's Alterra buys 320MW Boswell Springs in the US
F2i	Veronagest	Portfolio deal	282	Italy	Italian investor F2i buys seven wind farms in south of Italy
Luxcara	Undisclosed	Portfolio deal	263	Norway	Asset manager Luxcara buys assets from unnamed seller
State Power Inv. Corp.	Latin America Power	Portfolio deal *	250	Chile / Peru	China's SPIC targets Chile with 250MW deal worth \$400m
Alliant Energy	EDF Renewable Energy	Great Western	225	US	Alliant agrees to buy a 50% stake in 225MW Great Western
Apex Clean Energy	Optimum Renewables	Great Pathfinder	200	US	Apex Clean Energy buys the up-to-200MW Great Pathfinder
Goldwind America	RES America	Heart of Texas	160	US	Goldwind agrees to buy the 160MW Heart of Texas project
Innergex	Velocita	Portfolio deal	120	France	Innergex buys majority stake in 120MW portfolio for €51m
Enbridge	EnBW	Albatros offshore	112	Germany	Enbridge buys 49.9% of Albatros, with EnBW holding the rest
Pattern Development	Wind Quarry	Willow Creek	103	US	Pattern buys project near Wyoming-South Dakota border
CEZ	Abo Wind	Portfolio deal	100	France	CEZ buys nine under-construction projects totalling 100MW
NextEra Energy Res.	Tri Global Energy	Fiber Winds	80	US	NextEra Energy Resources arm acquires 80MW Fiber Winds
Munich Re	Eolus Vind	Jenåsen	79	Sweden	Munich Re agrees to buy 79MW Jenåsen scheme for €106m
Marguerite Fund	Element Power / Krafto AB	Grimsås	47	Sweden	European fund Marguerite makes first investment in Sweden
TRIG	RES	Garreg Lwyd Hill	34	UK	TRIG buys 34MW Garreg Lwyd Hill in Wales for £100m
John Laing Env. Assets	Moelogan 2 Cyfyngedig	Moel Moelogan 2	12	UK	John Laing arm pays £23m for Moel Moelogan 2 in Wales

* Deal not confirmed at time of reporting

2. KEY POWER PURCHASE AGREEMENTS SIGNED IN Q2 2017

BUYER	BUYER TYPE	OWNER	PROJECT	PROJECT SIZE (MW)	LOCATION	COMMENT
Apple	Corporate	Avangrid	Montague	404	US	Apple to buy just under half (200MW) of project output
ERM Power	Utility	Nexif	Lincoln Gap	212	Australia	PPA supports construction of this project in South Australia
BT	Corporate	Greencoat	Stroupster	30	UK	BT agrees 15-year PPA at scheme in northern Scotland
Origin Energy	Utility	Goldwind	Stockyard Hill	530	Australia	Origin signed 530MW PPA as it sold scheme to Goldwind
Akamai Technologies	Corporate	Infinity	Seymour Hills	80	US	Tech firm Akamai's 20-year PPA set to power data centres
Unilever	Corporate	Eneco	Lochluichart	69	UK	Unilever buys 87% of the output of the project in Scotland
Minnesota Power	Utility	Tenaska	Nobles 2	250	US	Allete subsidiary Minnesota Power to buy 100% of output
Nectar Farms	Corporate	Neoen	Bulgana	196	Australia	Nectar agrees PPA for 10% of output from 196MW scheme
General Mills	Corporate	RES	Cactus Flats	150	US	General Mills signs 100MW PPA, joining General Motors
Hydro Tasmania	Utility	WestCoast	Granville Harbour	112	Australia	Hydro Tasmania signs PPA at 33-unit project, due in 2019
South. Minnesota MPA	Utility	EDF RE	Stoneray	100	US	Southern Minnesota MPA to receive power from 2020
Goldman Sachs	Corporate	NextEra	nr. Scranton	Unknown	US	Goldman's 15-year 68MW PPA to power data centres

3. OFFSHORE PROJECT ACTIVITY TRACKER FOR Q2 2017

PHASE	PROJECT(S)	SIZE (MW)	COUNTRY	OWNER	COMMENT
Operational	Dudgeon	402	UK	Statoil / Statkraft / Masdar	Statkraft starts sale of 30% stake
Operational	Sheringham Shoal	317	UK	Statoil / Statkraft / UK GIB	Statkraft starts sale of 40% stake
Operational	Burbo Bank	90	UK	Dong Energy	Dong plans battery for 90MW Burbo
Commissioned	Gemini	600	Netherlands	Northland / Siemens / Van Oord / HVC	Second-largest offshore wind farm
Commissioned	Veja Mate	402	Germany	Highland / Copenhagen I.P. / Siemens F.S.	Fully commissioned four months early
Commissioned	Gode Wind 1	332	Germany	Dong Energy / Global Infra. Partners	Construction took just over one year
Commissioned	Burbo extension	256	UK	Dong Energy / PKA / Kirkbi (Lego Group)	Danes open 256MW Burbo extension
Commissioned	Gode Wind 2	252	Germany	Dong Energy / four Danish pension funds	Construction took just over one year
Development	He Dreiht	900	Germany	EnBW	Zero-subsidy winner in German auction
Development	Inch Cape	784	UK	Chinese Red Rock Power	RSPB to fight consent in Supreme Court
Development	Seagreen Alpha	525	UK	Fluor / SSE	RSPB to fight consent in Supreme Court
Development	Seagreen Brave	525	UK	Fluor / SSE	RSPB to fight consent in Supreme Court
Development	Saint-Brieuc	496	France	Iberdrola / RES / Caisse de Depots	496MW project has won key approvals
Development	Near na Gaoithe	450	UK	Mainstream Renewable Power	RSPB to fight consent in Supreme Court
Development	Friesland	320	Netherlands	Ventolines	€127m funding for nearshore project
Development	Mermaid	300	Belgium	Otary	Belgium mulls withdrawing support
Development	Seastar	246	Belgium	Otary	Belgium mulls withdrawing support
Development	Borkum Riffgrund West 2	240	Germany	Dong Energy	Zero-subsidy winner in German auction
Development	OWP West	240	Germany	Dong Energy	Zero-subsidy winner in German auction
Development	Northwester 2	224	Belgium	InControl	Belgium mulls withdrawing support
Development	Trianel Borkum II	200	Germany	EWE / Fontavis / Trianel	€800m scheme reached financial close
Development	Gode Wind 3	110	Germany	Dong Energy	Winner in German auction, with subsidy
Development	Albatros	112	Germany	EnBW / Enbridge	Enbridge buys 49.9% after financial close
Development	Hywind Scotland	30	UK	Statoil	Turbines built, and to be installed in 2017
Development	Taranto Harbour	30	Italy	Beleolico (part of Belenergia)	Developer picks Senvion for Med project
Early stage	Star of the South	2,000	Australia	Offshore Energy	Australian firm plans 2GW offshore
Early stage	Hiumaa	1,100	Estonia	Nelja Energia / Hiumaa Offshore	Estonians win 1.1GW offshore backing
Early stage	Three sites	1,500	Taiwan	Copenhagen Infrastructure Partners	CIP buys 1.5GW offshore trio in Taiwan
Early stage	Two projects	1,200	Taiwan	Northland Power / Yushan Energy	Northland plans 700MW and 500MW pair
Early stage	Vineyard Wind	1,000	US	Copenhagen I.P. / Avangrid Renewables	Avangrid buys 50% of 1GW Vineyard

ENGIE TRANSITION

Luc Goossens from Engie talks to Richard Heap about wind's role in the group's three-year change plan, global expansion and floating wind



Luc Goossens, director in charge of wind, hydro and geothermal, Engie

Victories for Emmanuel Macron in France's presidential and parliamentary elections in May and June might have brought optimism to France. But when it comes to his support for renewables, he is no revolutionary. Macron is continuing a shift that was well underway.

French utility Engie, the world's largest independent power producer, is one group already making this move. In early 2015, the business changed its name to Engie from GDF Suez to reflect the global shift towards low-carbon power; and it followed this in February 2016 by launching a three-year transformation plan that seeks to establish Engie as a leading player. For this, it set out plans to invest €22bn of capital by the end of 2018.

The company is now halfway through that programme so, to find out where

wind fits in it, we spoke to Luc Goossens, Engie's director in charge of wind, hydro and geothermal. He also discussed the markets in which Engie plans to grow in the next five years, some of its upcoming projects, and why the group is pinning its hopes on floating turbines.

Evolution of Engie

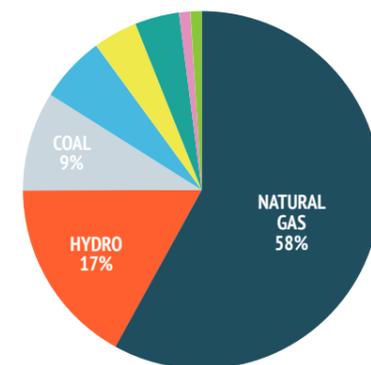
Goossens has been with the business in various guises for 24 years. He started out working at Belgian engineering group Tractebel, where he was tasked with developing its renewable energy business. Tractebel then merged with Société Générale de Belgique, a subsidiary of French utility Suez in 2003; and became part of GDF Suez in 2008 after the €70bn merger between Gaz de France and Suez. He continued to focus on renewables until four years in the GDF Suez nuclear team from 2010 to 2014, before returning to renewables in 2015.

He has been director in charge of wind, hydro and geothermal since January 2016, which coincided with the launch of Engie's plan to grow the proportion of renewables in its electricity generation mix from 19.5% at the start of 2016 to 25% by the end of 2020.

Goossens and his eight-strong team are based in Engie's decentralized generation 'metier', which supports the 12 of the firm's 24 business units that are actively focused on electricity generation. Eight of those units are in France, 11 in other regions, and five focus on sectors.

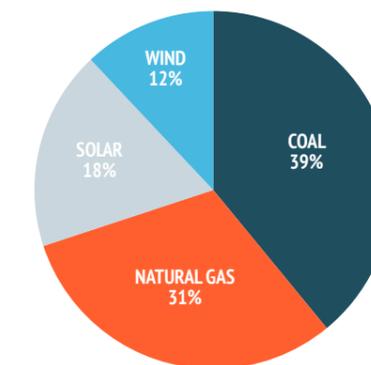
Wind is still a relatively small part of the business. In 2016, Engie reported annual sales of €66.6bn with profits before tax of €10.7bn, and owns power generation capacity totalling around 113GW. Around 22% of that power capacity is

Technology split in Engie's operational portfolio (at the end of 2016)



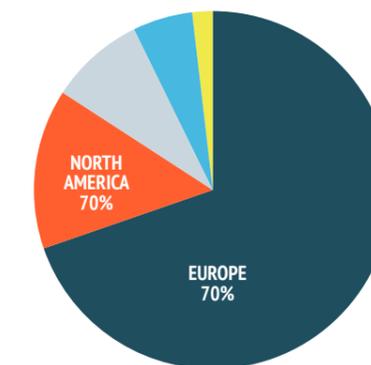
NATURAL GAS	58%	WIND	4%
HYDRO	17%	OTHER NON-RE	4%
COAL	9%	BIOENERGY	1%
NUCLEAR	6%	SOLAR	1%

Technology split in Engie's projects under construction (at the end of 2016)



COAL	39%
NATURAL GAS	31%
SOLAR	18%
WIND	12%

Geographical split of Engie wind portfolio (at the end of 2016)



EUROPE	70%
NORTH AMERICA	14%
MIDDLE EAST, TURKEY & AFRICA	9%
LATIN AMERICA	5%
OCEANIA	2%

now from renewables and, at the end of 2016, 71% of that renewables capacity was from hydro. By comparison, it owns 4.5GW of wind farms, which represents 20% of its renewables capacity.

In wind, Engie has historically focused its attention on its home markets France and Belgium, as well as Germany, and has also recently been active in Canada and Brazil. It currently has installed capacity of 1.7GW in France and is looking to hit 2GW, while its Belgian arm Engie Electrabel has worked on developing 40 wind farms and wants to own 500MW by 2020.

Goossens says Engie is looking to add 6GW of installed renewables capacity over the next five years and does not have a preferred split between sectors, which include wind, solar, hydro, biomass and geothermal. He says that utility-scale solar and wind would make up most of this because they can be built cheaply and do not require government support.

"This is one of the big changes we've seen in the last few years, on which we try to act on right now. What used to be a competition between renewables and thermal has changed, and it's now

becoming more a competition between renewable technologies."

He adds that Engie also needs to be selective about its investments because auction-based tendering systems are driving down electricity prices and squeezing developers' margins, but adds that this would not stop it investing.

"We clearly made a choice that it's not all about electricity prices in the end. We have to prepare for the future, where the value will be much more extracted from services and related services, and being able to control the system, than just producing electricity."

He estimates this 6GW would require investment of around €6bn. It is looking to fund this capital expenditure by selling its existing coal and gas assets. For example, it sold 8GW of gas-fired and 700MW of coal-fired power plants for \$3.3bn in February to Dynegy and ECP; and 70% of its international exploration and production arm to Neptune Energy for €4.7bn in May.

Engie's biggest wind deals in the last 16 months have been in France, where the government has been putting in place

Value will be much more extracted from services, and being able to control the system, than just producing electricity.



Child's play: Engie's green plans pre-date President Macron

Source: Lorie Shaull via Flickr

supportive policies for investors and developers in recent years (see France analysis, p.13).

In March 2016, it bought the 51% of French developer Maia Eolis that it did not own; and, this April, bought the 41% of another French developer, La Compagnie du Vent, that it did not own. Goossens says that Engie will look for similar deals in its largest wind markets, but is also looking at acquisitions in the UK, Netherlands and outside Europe.

But he explains that Engie wants to add value to investments, not simply buy and hold them.

“We’re not a financial player who just wants to grow his portfolio and have low returns on it. If we can’t bring something in there that makes us more competitive in other fields, it doesn’t make a lot of sense to do this acquisition,” he says. For example, this could include deals that bring it expertise and new ways of maintaining its operational assets.

Overseas expansion

While France is still Engie’s key wind market, it is also expanding globally.

For example, it has been reining in its plans for Canada because new auction-

based systems are putting pressure on returns. It is focusing more on Latin America where Goossens says there is great potential “not only in our home markets like Brazil... [but also in] countries like Chile, Peru, and even Argentina, which used to be out of our scope for quite a few years”.

Engie’s Brazilian arm owns 8.6GW of electricity generation capacity, of which 7.1GW is in hydropower, 1GW is thermal, and 482MW is other renewables. Of this, wind farms account for 277MW. Its largest working wind projects are the 115MW Trairi complex and the 78MW Santa Monica complex, the latter of which completed this year. Engie is now working on the first phase of the 327MW Campo Largo complex.

Goossens says the business is looking at Africa too, where it currently owns the 301MW Tarfaya wind farm in Morocco in a joint venture with Nareva Holding.

Tarfaya is currently the largest operational wind farm in Africa. Engie and Nareva last year agreed a partnership to jointly develop up to 6GW of power projects in north and west Africa by 2025; and plan to expand from Morocco into Cameroon, Egypt, Ghana, the Ivory Coast and Senegal.

“Do we want to be number one in future? Only if it makes sense and we make good investments.”

This is in addition to Engie’s work in South Africa. And the utility is also working on early-stage projects in Indonesia, Mongolia and the Philippines, and is considering a move into the Middle East through an upcoming renewable energy tender in the United Arab Emirates.

This international work has helped Engie to establish itself as one of the largest utilities in renewables globally, alongside fellow European players EDF, Enel and Iberdrola.

But Goossens contends that Engie is not fixated on becoming the largest utility in renewables globally: “Do we want to be number one in the future? Only if it makes sense and we make good investments. We don’t have that absolute focus. We just want to change our company.”

Offshore expansion

It is looking offshore too, but progress has been slow. Engie is a 47% shareholder in a group with EDP Renewables (43%) and Group Caisse des Depots (10%) that is developing two 62-turbine 496MW fixed-turbine projects.

The first is off the coast of Dieppe and Le Treport; and the second is off the islands

of Yeu and Noirmoutier. Adwen is the turbine supplier for both schemes, where work is due to start in either 2020 or 2021.

Engie is also part of the Otary group that owns 65% of the planned 266MW Mermaid project in the Belgian North Sea; and this month agreed to buy a 23% stake in the 1.1GW Moray Firth project in UK waters for £21m from a subsidiary of EDP Renovaveis.

However, one area where Engie wants to get ahead of its competitors is in floating projects, where it has been working on the 25MW WindFloat Atlantic pilot scheme that is due to start operations in 2018. Engie is working with Chiyoda, EDP Renewables, Mitsubishi and Repsol.

That is in addition to its involvement with a consortium is looking to build a floating offshore project in the Mediterranean. Goossens said that gaining experience with floating turbines and helping to commercialise the sector would enable Engie to achieve its long-term aims of expanding in offshore wind globally: it is looking



Leading the charge: Engie is led by CEO Isabelle Kocher

Source: Engie

at schemes in Taiwan, Korea and Japan.

He is bullish on the prospects for floating offshore wind: “In the coming four to five years, and especially for the bigger schemes in water depths from 50-60 metres, we hope to be able to propose competitive bids with fixed offshore,” he says. “We think that floating technology clearly has some advantages which

will make it a competitive industry for the future. Those will typically be very interesting for Asian markets, so we are focused on that.”

Now Engie must deliver through the second half of its three-year strategy and beyond. With a pro-renewables government led by Macron, it should find no lack of home support. ■

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HOW TO MANAGE AGEING WIND FARMS

Taking a proactive approach to managing wind farm lifetime can boost asset values and returns – but how should owners do this?

It is easy to forget how young the wind sector really is. According to the Global Wind Energy Council, only 1.6% of the world's total installed wind capacity of 487GW is in wind farms that were operational 20 years ago, and only 6% of projects are more than 15 years old. Most wind farms (81%) were built in the last decade.

This means there is little knowledge of how best to manage wind farms when they approach the end of their design lifetimes. Most owners have not yet had to grapple with the question of whether to decommission, re-power, or extend the life of older wind farms; and there is limited information about how different strategies can affect the financial performance of those projects.

But this is a challenge that many owners will need to begin dealing with in the next five years. A Word About Wind spoke to Andrew Strachan, principal engineer at DNV GL, about some of the steps that owners should take when working out how long they could economically run their projects. He also discussed how the industry could adapt in the next five years as more wind farms approach their fifteenth birthday.

Key considerations

The first question for those working out how long to run their wind farm is a fairly obvious one: will the turbines survive? Original equipment manufacturers (OEMs) will design the

primary structural components of a wind turbine to operate for a set period – typically 20 years. More owners are assuming that they can operate their wind projects for 25 years, or even up to 30 years in some US schemes.

Owners who want to run their projects for longer than the design life need to know that they are not taking a step into the unknown. The original turbine design calculations would normally have assumed more arduous wind conditions than those actually experienced on site.

In addition, safety factors inherent in the design process mean that it is extremely unlikely that a wind turbine will immediately fail on its 20th birthday. Strachan says that a first step for owners working out how best to run their older projects is therefore to evaluate how much wear and tear their turbines have accumulated. Identification of weak spots in the turbine structure will also enable inspection and maintenance programmes to be designed optimally.

He says: “You need a structural reliability assessment, but there are ways of doing this. The most rigorous method includes numerical modelling of the turbines subject to site-specific wind data and calibration of the results with equipment inspection data. However, potentially there are simpler approaches which can give you an initial sense of how close to the wind you’re sailing in terms of site load margins.”



While the focus in the past was more on building new projects, the future challenge will be to optimise existing ones.



Andrew Strachan, principal engineer, DNV GL



Life extension: Whitelee wind farm, commissioned in 2009, could run well into the 2030s

Source : Ian Dick via Flickr

The second question for owners is how long they can economically run their wind farms given the growing risk of parts failures and turbine downtime. The reliability of non-structural components such as control hardware and gearboxes can be as critical – or more critical – than the primary structure. Condition monitoring systems on newer turbines will help owners to predict when components might fail, but that is of little use on the older machines with less in-built digital technology.

Strachan says that modelling the failures of components and predicting O&M costs under various scenarios can guide owners on how to run older schemes. For example, they could either “run hard to maximise output and revenue from their turbines for the last five years or run them in a de-rated mode for a further ten years”.

He adds that, because wind farms consist of many turbines, good management of condition, parts strategies, and maintenance routines gives scope for reaching the end of a project’s economic life gradually, rather than suddenly.

The third question for owners is whether there are regulatory barriers to running a project for longer than originally planned. This includes checking planning consents, land leases and any other regulation that could force an owner to shut down a wind farm on a given date. This is an area that opens up policy uncertainty for owners.

“In the UK there are varying opinions on whether wind farms are a good thing... so it’s not a foregone conclusion that a site will be permitted to keep running,” he says.

Industry evolution

Currently, OEMs tend to offer parts and downtime guarantees for the first 15 years of projects, and those older than 15 years are dealt with by asset managers. Strachan says the strategies of these asset managers will need to evolve as they work out the failure rates of different components in older machines and need to procure parts.

This could be challenging: “Once the OEM contract expires, the life of an asset manager gets a lot busier. All of a sudden they’re having to go out and

procure parts, manage stockholdings, and do some of the day-to-day O&M work that is currently performed by the OEM,” he says. This could require new contractual structures.

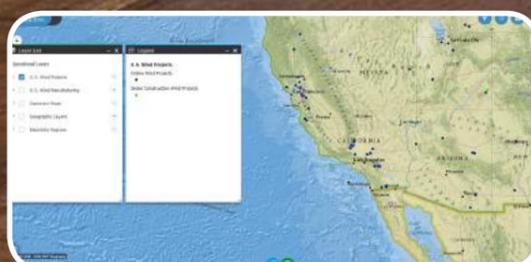
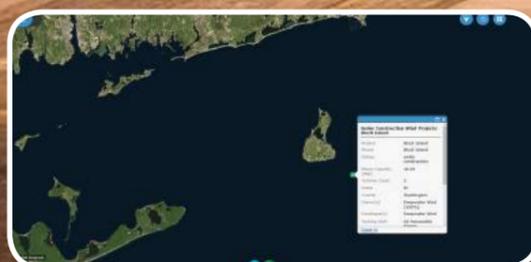
For example, as more wind farms pass their fifteenth birthdays, we could see OEMs less willing to offer the same level of support as they do for younger projects. This could force more owners to take on responsibility for procuring replacement parts.

But, however the market adapts as projects get older, we can be sure more owners will look at how managing the life of their projects can help them boost asset value and returns.

“You’re going to see owners looking to squeeze the pips on their projects for as long as possible. While the focus in the past was more on building new projects, the future challenge will be to optimise existing ones,” says Strachan.

In the next five years we will see many more wind farms entering their tricky teenage years – and, as with people, that’s when the problems multiply. ■

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CORPORATE M&A DATABANK

In each Finance Quarterly, we will round up the most significant corporate M&A deals in the wind sector in the previous three months

It has been a big quarter for mergers and acquisitions in wind. Five major transactions were completed worth a combined €7.3bn, while a host of smaller deals also closed.

These bigger deals include a handful of buyouts that are set to have a major impact on the growth of the wind sector in the next few years, including Macquarie's €2.6bn controversial buyout of the UK Green Investment Bank; General Electric's €1.5bn acquisition of

blade specialist LM; and the purchase by Siemens of a 59% stake in Spanish rival Gamesa to form Siemens Gamesa.

In each Finance Quarterly, we will bring you the key details from the most significant deals completed in the last three months (top table) and a handful to look out for (bottom table).

We aim to be comprehensive but, if we have missed your big deal, contact us at: editorial@awordaboutwind.com

DEALS DONE: M&A DEALS IN WIND (COMPLETED Q2 2017)

TARGET	BUYER	DEAL VALUE	COMMENT	TARGET COUNTRY	BUYER COUNTRY
UK Green Investment Bank	Macquarie Bank	€2.6bn	Macquarie pays UK Government €2.6bn for green bank	UK	Australia
LM Wind Power	General Electric	€1.5bn	US giant GE buys LM for €1.5bn from Doughty Hanson	Denmark	US
EDP Renovaveis	EDP	€1.3bn	Portuguese utility EDP buys 22.47% of subsidiary EDPR	Spain	Portugal
Gamesa	Siemens Wind Power	€1bn	Siemens buys 59% of Gamesa to form €11bn turbine giant	Spain	Germany
Dong Energy E&P	Ineos	€938m	Ineos buys offshore wind giant Dong's oil and gas division	Denmark	UK
ExGen Renewable Partners	John Hancock	€358m	Acquisition of 49% stake of ExGen from US utility Exelon	US	US
Futuren	EDF E.N.	€320m	EDF buys 67.2% of Futuren from controlling shareholders	France	France
EnerNOC	Enel Green Power N. A.	€268m	US arm of Enel Green Power buys energy software firm	US	US
Pattern Energy	PSP Investments	€190m	PSP buys 9.9% stake as Pattern unveils \$1bn growth plan	US	Canada
ReNew Power	Sumant Sinha	€89m	ReNew CEO Sumant Sinha grows stake to 10%+ pre-IPO	India	India
AeroTorque	Timken	-	Engineering firm buys AeroTorque from EdgePoint Capital	US	US
Greensmith	Wartsila	-	Finnish group bolsters storage offer with Greensmith buy	US	Finland
La Compagnie du Vent	Engie	-	Engie buys 41% of this French developer from Soper SAS	France	France
NRG Systems	ESCO Technologies	-	Acquisition of wind technology developer NRG Systems	US	US
RES Japan	Macquarie Capital	-	Macquarie bolsters presence in Japan by buying RES arm	Japan	Australia
Scout Clean Energy	Quinbrook	-	Quinbrook buys Scout, which has 1.6GW wind pipeline	US	US

FIVE TO WATCH: ONGOING WIND M&A DEALS

TARGET	BUYER	DEAL VALUE	COMMENT	TARGET COUNTRY	BIDDER COUNTRY	STAGE
EDP	Gas Natural	€35bn	Spanish giant eyes merger to form giant with €35bn sales	Portugal	Spain	Early stage
TerraForm Global & Power	Brookfield A.M.	€1.3bn	Talks ongoing for troubled SunEdison's two yieldcos	US	Canada	Deal agreed
Renova Energia	Brookfield A.M.	€57m	Acquisition of 20.3% stake in Brazilian developer Renova	Brazil	Canada	Deal agreed
Adwen	Various parties	-	Shell and others mull bids for Siemens Gamesa subsidiary	Spain	Various	Early stage
Innogy / RWE	Engie	-	Engie and RWE mull plans for Franco-German utility giant	Germany	France	Early stage



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COUNTRY ANALYSIS: FRANCE

President Emmanuel Macron's change agenda must reach the wind sector if the industry is to attract more overseas investment. Ilaria Valtimora reports

When 196 countries signed the United Nations climate change deal in late 2015, the world's eyes were on Paris. They are again now.

Two months ago, Emmanuel Macron defeated the far-right Marine Le Pen to become the country's new president. Then, in June, US President Donald Trump confirmed he plans to withdraw the US from the Paris climate change deal agreed in December 2015, which has prompted Macron to rebuke Trump with a play on Trump's campaign slogan: "Make our planet great again." It was an early test for the business-

friendly Macron, and is hopefully an indication for those working in wind that they can expect supportive policies and stability for the five years of his presidency. However, energy is not the only challenge for the new president.

Macron economics

France may be Europe's third-largest economy, but it has suffered years of sluggish growth, high unemployment and budget deficits.

After the global financial crisis that started in 2008, France has introduced successive rounds of austerity cuts that

Macron must carry on if France is to comply with EU budget rules.

These policies have dampened investor appetite in every sector and meant annual GDP growth has averaged just 0.8% a year for the last decade.

Wind is just a small part of France's energy mix but it has been steadily growing despite that macroeconomic background. France uses nuclear for 75% of its total electricity production and, according to the latest data from Eurostat, wind accounted for just 7% back in 2014.

KEY POLITICAL DATA

PRESIDENT EMMANUEL MACRON

PARTY EN MARCHE!

SOVEREIGN CREDIT RATING (S&P) AA

KEY ECONOMIC DATA

	2015	2016	2017e
Economic Growth (YoY)	1.21%	1.10%	1.60%
Consumer Price Index	0.18%	0.61%	1.10%
Interest Rate	0.05%	0%	0%
Population	66,453,732	66,726,000	66,991,000
Population Growth (YoY)	0.49%	0.41%	0.40%

KEY RENEWABLE ENERGY DATA

WIND ENERGY TARGET:

UP TO 26GW OF ONSHORE WIND CAPACITY BY 2023

UP TO 6GW OF OFFSHORE WIND CAPACITY BY 2023

	2015	2016
Total Installed wind capacity (MW)	10,505	12,065
New wind capacity installed (MW)	1,073	1,561
New wind capacity financed (MW)	600	583
Investments in wind (€bn)	1.36	1.07

Since then, wind capacity has been growing and, in 2016, almost 1.6GW of new wind farms were installed in France, putting it second only to Germany in terms of annual installations in Europe. France now has total wind capacity of 12GW. This is a testament to work done by the government of Macron's predecessor Francois Hollande, another

backer of renewables and a key figure in the 2015 Paris deal. Under Hollande, the previous government boosted support for the wind sector, which its approach to competitive auctions for renewables is similar to the system in Germany.

For instance, in August 2015, the French Parliament adopted the Energy

Transition Act, which replaced feed-in tariffs for onshore wind and solar PV with a feed-in premium. The FIT offers a guaranteed fixed price from the government for each unit of electricity produced, while the FIP pays producers a fee above the market price.

The shift to the new system has not



President Macron: Wind should benefit from pro-green policies

Source: Shutterstock

“The most important thing was to give investors some comfort. We have seen some improvements already.”

been smooth though, and 2016 was a transitional phase for the new laws, causing confusion for developers and investors. This meant that investment in wind fell by 21% year-on-year to €1.1bn in 2016, according to WindEurope.

Confusion about the rules has also made France an insiders' game, where it was easier for local players to understand the rules and made it tougher for overseas players without that knowledge. This is on top of the tariffs set up to favour local manufacturers and other firms.

In addition, developers and investors in France have to contend with a long permitting process. It can take five years from the start of permitting to completion for a small onshore wind farm and almost ten offshore. France gave support for six offshore projects totalling around 3GW in 2011 and 2012, but the earliest these are set to be commissioned is 2020 or 2021.

New direction

The early signs of Macron's presidency are that he could boost the economy. In

May, the Bank of France, the nation's central bank, forecast that the centrist president could lead the country back up to around 2% annual GDP growth.

In addition, since the start of 2017 business sentiment picked up in every sector according to French statistics body INSEE, which said it is now near a six-year high.

Renewables stand to benefit too. During his campaign, Macron stood by a pledge previously made by Hollande to close all coal power plants in France by 2022, and announced that he would launch tenders for 26GW of renewable energy capacity during his term, to cut the share of nuclear in the energy mix from the current 75% to 50% by 2025. This is part of a five-year €50bn infrastructure investment plan.

Guy Auger, chief executive at French asset management firm Greensolver, says wind in France has been a "hot market" for the last few years despite the bureaucratic headaches, and Macron could help cement France as "the best

market for investors in Europe today".

Neven Bernard, head of project engineering for DNV GL, is more cautious. He says that the election had increased investors' confidence, but that this does not address the challenges for the wind market caused by complex rules and bureaucracy.

"The most important thing was to give investors some comfort," he says. "We have seen some improvements already, but we expect more changes to come."

Indeed, French ecology minister Nicolas Hulot pledged earlier this month that the government would accelerate the growth of wind and solar by reducing administrative hurdles and addressing issues with land tenure. This is key to Macron's 26GW tenders plan.

The growth of wind in France in recent years has been in spite of the regulatory and political situation, not because of it.

With a business-focused president, that momentum looks set to pick up. ■

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MEMBER Q&A: DECLAN FLANAGAN

Each edition we interview a member of the A Word About Wind community. Today, Richard Heap talks to Declan Flanagan, CEO of Lincoln Clean Energy.



What are you doing in the US?

I came here in 2003 to set up Airtricity's North American business, which we sold to E.On for \$1.4bn in 2007. I then was CEO of E.On's North American business from 2007 to 2009 and, at the end of 2009, set up Lincoln Clean Energy. For the first five years, Lincoln was a straight-up developer of large-scale wind and solar, but now we develop, own and operate.

Why did you change strategy?

At the end of 2015 we did a deal with I Squared Capital, which acquired the business. There is more value for us in staying in our projects for longer, and this deal means we can build, own and operate. We currently have 500MW under construction where we are 100% equity owner.

We also announced at the time a plan to deploy \$250m in equity by 2018, and

we're on track to do that. We're looking to build around 500MW per annum. Our next projects coming up in Texas and SPP are 300MW and 220MW, which will be in the market in the next six to 12 months.

Which are your current projects?

We've got the 250MW Willow Springs in Texas, which achieved its \$330m financial close in April, and the Amazon Wind Farm Texas, which is 253MW.

These are typical of what we've been doing for the last four years, totalling a little over 1.5GW. In the future, the core of our business will be wind farms of 250MW or more in the 'wind corridor', from Texas through SPP.

Are you concerned about the end of the wind production tax credit [PTC] from 2020?

No and yes. No, in so far as this

business has always been about near-term execution, in the face of a 12- or 24-month PTC window, which is far from ideal. With the five-year window, the attention from the industry should be to build as many projects as we can in that time.

That said, there is a lot of focus at the national associations on the policy framework beyond the PTC, while bearing in mind that the US market is much more driven by state policy than federal policy.

So you are confident?

I've been in this industry a long time and a lot of people thought it might plateau in terms of the efficiency of the technology, but in the last four years we've still seen huge gains. That's amazing. Continuing with that is the most important thing we can do as an industry. There's a lot of potential to continue to drive efficiencies.

We are also seeing a lot more capital seeking development risk as a way to enhance returns, because an operating project is commanding very low costs of capital in today's market.

How big is your team?

We have 18 people and have been about that level for five years. We have a very heavily outsourced execution model where, in a mature market, we can complement our own expertise with skills in construction management, in operations, and in asset management.

We're not planning any big step changes. We might see some solar come through, but it will always be a smaller part of our business than wind. ■

KEY DATES

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

If you are not part of the A Word About Wind community, you can take advantage of our membership and subscription services, and join over 2,500 other senior industry executives, by signing up for the service today. To register for a free 30-day newsletter trial please visit: www.awordaboutwind.com

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 in the box to the right.

Our members are now able to sign up to attend our Q3 Quarterly Drinks, where our guest speaker will be Olivia Breese from Dong Energy, and our Financing Wind conference, which we are hosting in partnership with law firm Jones Day. For details about Financing Wind 2017, please visit: www.financingwind.com

EVENTS

7th September
Quarterly Drinks Q3

9th November
Annual Conference

16th November
Quarterly Drinks Q4

REPORTS

10th October
Finance Quarterly Q4

7th November
Top 100 Power People

9th January '18
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A WORD ABOUT WIND

