

A WORD
ABOUT WIND

NORTH AMERICAN POWER LIST

Our guide to wind's top people in the US and Canada



Featuring interviews with Ray Wood from Bank of America
Merrill Lynch, MUFG's Beth Waters, and Enel's Rafael Gonzalez

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Taxing times:

Beth Waters talks about why MUFG is still keen on tax equity deals despite Trump tax reforms



EDITORIAL



By Richard Heap
Editor-in-Chief, A Word About Wind

Welcome to our inaugural North American Power List.

Every November, we publish our Top 100 Power People report. This is our guide to the 100 most influential people in wind globally. But sometimes we see an area to research in more depth.

In 2016, we released our debut Legal Power List about wind's best lawyers. That is returning in August – and so, if you're wondering why there aren't any lawyers in this report, that's the reason.

In 2017, we put out our Women's Power List for International Women's Day. And now, we've decided to take a more in-depth look at the US and Canada, in our first North American Power List.

The US market is growing well despite President Trump's pro-coal agenda, and now is the right time to look at the 100 most influential people in the North American wind industry.

There are fascinating trends here too. This list shows the impact regulated utilities are having on US wind as they build and own more wind farms.

And they aren't the only players cutting out the middle man. Consolidation is rife as utilities and large institutions



Firms are looking to rationalise and cut costs, to drive down the price of wind as the end of the production tax credit looms.



seek to grow their own development platforms; and corporates keep signing PPAs directly with wind farm owners.

In short, firms are looking to rationalise so they can keep cutting costs as the end of the production tax credit looms.

And this report is not solely based on our views. We have brought in the American Wind Energy Association and the American Council on Renewable Energy to help us judge our final 100; and secured commentary with five North American wind heavyweights.

On page 8, Bank of America Merrill Lynch's Ray Wood shares his insights on topics including consolidation and tax equity; and Declan Flanagan from Lincoln Clean Energy weighs in with his views on page 11.

Meanwhile, Enel's Rafa Gonzalez has shared his views on page 16 about how firms in the wind sector can unlock more PPAs; and Dan Balaban from Canada's Greengate talks about the Canadian hotspot Alberta on page 23.

And MUFG's Beth Waters tells us on page 28 about the new types of energy buyers and US offshore wind potential.

Thanks to all of our interviewees, and especially to our sponsor Lincoln Clean Energy. If you're keen then we might just repeat it in 2019! ■

A WORD ABOUT WIND

www.awordaboutwind.com
editorial@awordaboutwind.com
US: +1 (917) 3103 307
US: +1 512 216 7117
UK: +44 (0)20 7100 1616

Editor-in-Chief: Richard Heap
Associate Editor: Ilaria Valtimora
Designer: Mike Ward
Client Services: Matt Rollason
Membership: Zoe Wicker
Marketing: Frances Salter
Publisher: Adam Barber

Registered office: 2nd Floor,
167-169 Great Portland Street,
London, W1W 5PF

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THANKS TO ALL OUR MEMBERS

On behalf of the team at A Word About Wind, I want to thank all our members for your support this year so far.

In particular, we would like to thank everyone in North America who has supported us, both with the launch of this report and our first Financing Wind New York conference on 30th May.

We are running this conference in partnership with GCube Insurance Services, and plan to make it an annual event. We are also launching quarterly networking events in New York too.

If you are not yet part of the A Word About Wind community, we would love to discuss the benefits of membership. You can find out your options here: www.awordaboutwind.com/subscribe

Our most popular packages are:

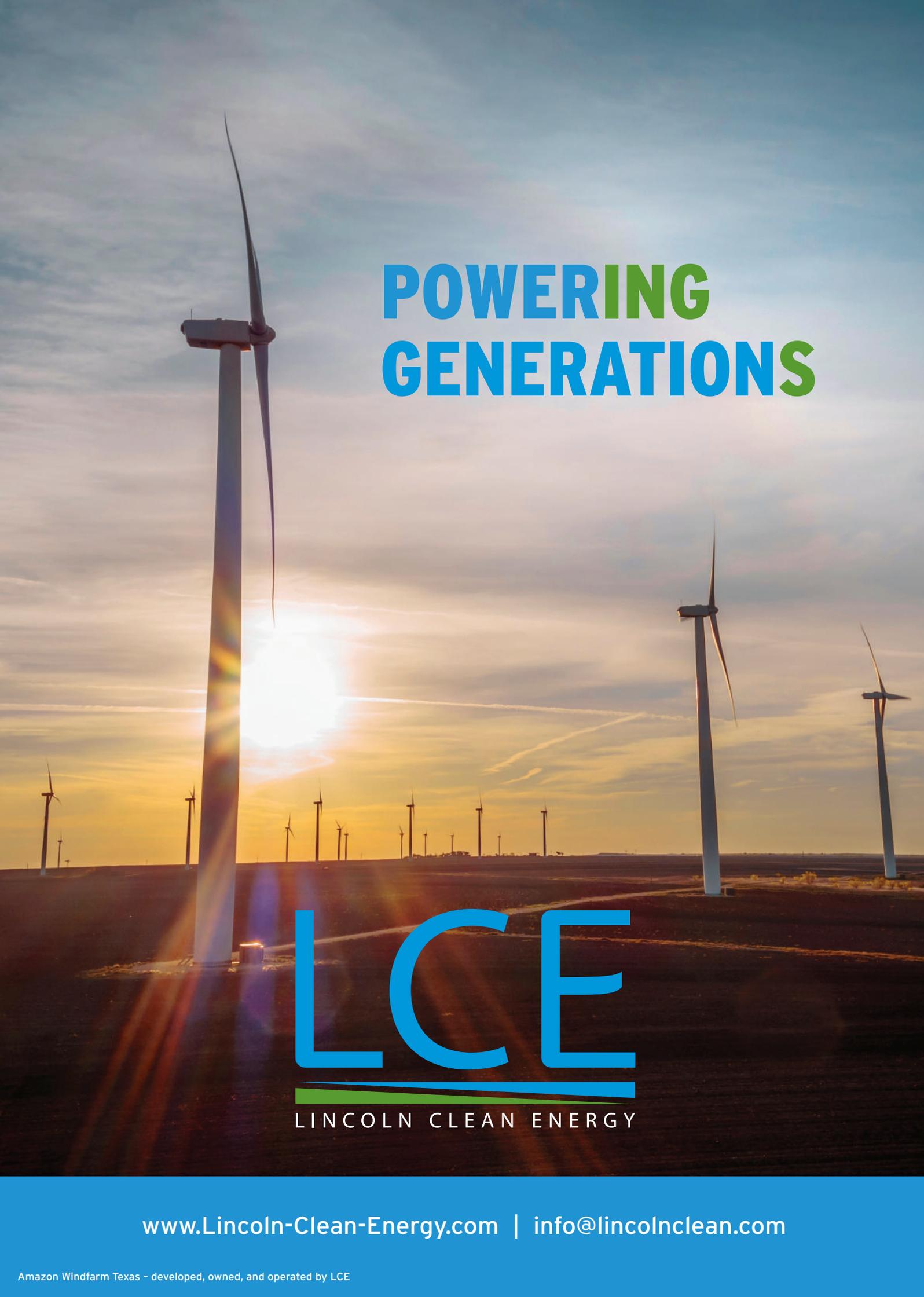
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We want to help grow your business, and to propel the North American wind sector to further success. ■



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THE JUDGES

To help select the North American Power List, we worked with a senior advisory panel to provide an outside perspective

Richard Heap

Editor-in-Chief
A Word About Wind



Richard started at A Word About Wind in 2014, and has tracked activity in the wind industry and commented upon it ever since. His role as editor-in-chief involves leading the development of four weekly email briefings, and reports including the Top 100 Power People.

In his four years, Richard has launched high-profile firsts for the wind sector including AWAW's Legal Power List and Women's Power List. He is also heavily involved in developing the company's business and marketing strategies.

Richard started his career in 2005 as a trainee at United Business Media. He joined Property Week in 2006, and rose to assistant editor heading its legal and professional coverage. In 2011, he went to the Sunday Times Fast Track, where he managed league tables on the UK's fastest-growing private businesses. He also spent one year working for a New York website focused on smart city technology before joining AWAW.

Tom Kiernan

Chief Executive
AWEA



Tom joined the American Wind Energy Association as chief executive in 2013. AWEA represents firms in the US wind industry, and Tom joined our Top 100 Power People judging panel in 2016 to give his perspective on the biggest names in the North American market.

Before AWEA, Tom worked for 15 years as president of the National Parks Conservation Association; and has been deputy assistant administrator of the US Environmental Protection Agency's Office of Air & Radiation, where he assisted in leading the implementation of the 1990 Clean Air Act Amendments. He has also been president of the Audubon Society of New Hampshire; and a senior consultant at Arthur Andersen & Co.

Tom is a native of Arlington, Virginia; has an undergraduate degree from Dartmouth College in Environmental Computer Modeling; and an MBA from Stanford's Graduate School of Business.

Greg Wetstone

President & Chief Executive
ACORE



Greg is president and chief executive of the American Council on Renewable Energy, a national non-profit that seeks to unite finance, policy and technology to accelerate the transition to a renewable energy economy. He assumed this role in January of 2016.

Before joining ACORE, Greg served as vice president for Terra-Gen Power LLC, a renewable energy company with utility-scale wind, solar and geothermal energy facilities.

Prior to his six-year term with Terra-Gen, he was a senior director focused on government and public affairs at AWEA; and director of programs at the Natural Resources Defense Council.

Earlier in his career, Greg was senior counsel to the House Energy & Commerce Committee, and played an important role in crafting a number of important laws, including the 1990 Clean Air Act Amendments.



MUFG is proud to sponsor A Word About Wind's Inaugural North American Power List

Beth Waters, Managing Director
212-782-4501 | EWaters@us.mufg.jp



THE RANKING PROCESS

To make the rankings in the North American Power List as credible as possible, and to reduce the level of editorial subjectivity in the process, we went through the following process:

1 August 2017

Started accepting industry nominations.

10 November

Started desk-based research after Financing Wind London.

10 January 2018

Started promotion to attract wide range of nominations.

14 February

Closed to nominations.

20 March

Finalised shortlist and sent to judges for feedback and rankings.

4 May

Made final cuts and started ranking. The positions and views in this report are those of our editorial staff, and not necessarily those of the judging panel. Our decisions are final.

11 May

Finalised rankings and started report production.

24 May

Finalised report ahead of Financing Wind New York conference.

29 May: North American Power List published.

We have made every effort to be comprehensive, and to ensure that profiles are accurate and up-to-date at the time of publication. However, if there are important factual inaccuracies that you feel need correction, please get in touch with Richard at editorial@awordaboutwind.com

OUR NORTH AMERICAN INDUSTRY SPECIALISTS



Adam Barber

*Managing Director,
The Tamarindo Group*

Adam is managing director of the Tamarindo Group, a director of Tamarindo Communications and publisher of A Word About Wind. For the past 14 years he has worked in the financial services and energy investment space, enabling individuals and companies to build and protect their business and brands. Adam has worked in the City across a range of specialisms, including reputation management and PR.



Matt Rollason

*Client Services Director,
A Word About Wind*

Matt joined A Word About Wind in early 2017 to focus on developing commercial partnerships, and started building out the US operation full-time at the start of 2018. This has involved putting together the inaugural Financing Wind New York conference on 30th May, and our New York-based Quarterly Drinks evenings. Matt leads our client services team. Previously, he was lead strategist at tech start-up MeVita; and founder of New Zealand's Endeavour Property Services.



Ilaria Valtimora

*Associate Editor,
A Word About Wind*

Ilaria started her career working for large Italian banks. After moving to the UK, she spent three years at forex broker Fidelis, where she analysed foreign exchange markets for private clients and media groups including Bloomberg. She joined A Word About Wind as an analyst in late 2016, and produces news and analysis for newsletters and reports, as well as heading our deals and data operation.



Getting in early: Ray Wood started working with independent power producers in the mid-1990s

Source: Getty Images

BUYING POWER

Bank of America Merrill Lynch's Ray Wood talks to Richard Heap about corporate M&A, tax equity, and life for wind after 2020

In the last two decades, renewable energy has gone from being an alternative investment class to a mainstream choice for investors.

Governments and businesses have embraced wind, both for the planet and their own needs; and public support for wind is as high as ever. This has enabled those in the wind sector to keep driving down the levelised cost of energy.

Ray Wood, managing director and head of global power and renewables at Bank of America Merrill Lynch, has enjoyed a front row seat for this shift. He has spent three decades in banking including 25 years dedicated to the power industry and so, when he says wind is gaining unprecedented investor interest, it's worth paying attention.

"Everyone realises the importance of carbon-free power and, because it's not

any more expensive than gas and it's much cheaper than nuclear, it's been rampant," he says.

A Word About Wind caught up with Wood in his New York office to discuss the key financial trends that are set to affect the wind industry in the US and worldwide. These include the current wave of corporate M&A activity; the impacts of the Trump administration's recent tax reforms; and the prospects for US wind firms when the production tax credit expires in 2020.

Wood says the change in the financial performance and public recognition of wind and solar in recent years has been "dramatic", and that both sectors are now "very competitive globally".

This has helped put pressure on the US coal sector, which has led to pro-coal policies from President Trump. But

Wood says renewables' role in US coal's problems is often overstated: "The reality is that low natural gas prices have had more of an impact on fossil fuel operators than renewable energy."

Even so, the growth of wind and solar have helped to galvanise the opponents of renewables: "As wind installations have grown, several coal and nuclear generators have fought back through requests for subsidies and claims about the reliability of transmission," he says. Wind may have gone mainstream, but the sector is facing new challenges.

Wind at his back

Wood started as an associate at the New York-headquartered Chemical Bank in 1984, and left in 1988 to study for his MBA in finance at Massachusetts Institute of Technology's Sloan School of Management. After graduation he started working for The First Boston



They don't just want to buy assets any more. They may, but they really want to create their own ability to grow, so they're looking at platforms.



On the hunt: Investors are flocking to secure deals for wind developers

Source: Pexels

Corporation, part of Credit Suisse, in 1990; and focused on independent power producers from the mid-1990s.

“When I got out of grad school, I was not an expert on power. Many of my clients would say I’m still not,” he laughs. “I was really lucky early in my career to be able to be part of a platform that worked quite a bit with the independent power producers, who were really transforming the industry at the time with new gas generation.”

This gave an invaluable opportunity for Wood to learn about capital formation and valuations in the public and private sectors. Then, in 2001, the US banking world was rocked twice: “After 9/11 and the dislocation of the market with the Enron collapse, the merchant business really came under attack. It wasn’t well enough capitalised, and this was just when wind was growing,” he says.

This opened opportunities for banks to get involved in backing wind farms. Wood says those who worked with unregulated power businesses in the 1990s and 2000s could re-deploy the structures they had used in gas projects.

Wood was at Credit Suisse for 22 years, before moving to Bank of America Merrill Lynch in 2012 to head its US power and renewables arm. In 2015, he was elevated to head BAML’s global power arm. Outside New York, it is strong in London, as well as the Asia-Pacific and Latin America regions.

While BAML’s global power team gets involved in a wide range of work, Wood

says he is being kept busiest at present by consolidation among utilities and renewables developers.

Consolidate to accumulate

The bank has been active in the power, utilities and renewables space, first with the wave of equity offerings in 2014 and 2015; and now with the significant consolidation in the US, Europe and globally.

He says: “This consolidation and race for efficient capital has kept us busy working with renewables developers globally, with several active mandates in LatAm, India and in OECD markets.”

Wood says that there are large numbers of buyers looking at wind developers, including infrastructure funds, pension funds, insurers and large corporates. These firms are eyeing deals for wind developers to help them both achieve their green goals and increase profits.

For example, in the last six months the US has seen deals including the \$1.4bn buyout of three parts of NRG Energy by Global Infrastructure Partners; the purchase of Leeward Renewable Energy by Ontario Municipal Employees’ Retirement System; Engie’s acquisition of Infinity Renewables; and Innogy’s buyout of a 2GW development portfolio from EverPower.

Wood says this shows that wind is a competitive sector where more buyers are comfortable with development risk. Many have become accustomed with the risks of building wind farms after joint ventures and other tie-ups.

“They don’t just want to buy assets any more. They may, but they really want to create their own ability to grow, so they’re looking at platforms. They’re looking at them because of the money they’ve made over the last three of our years, and the amount of megawatts they’ve been able to do,” he says.

These transactions also offer a good opportunity for developers to exit at a time when margins are getting slimmer as a result of development becoming more capital-intensive; and as more utilities are looking to develop and own their own wind farms rather than buy power from other people’s projects.

The pressure on developers is forcing them to adapt their business models, and bring in more capital so they can secure sites. This also positions them to attract power purchase agreements.

“You have seen several recent M&A transactions where developers are marketing their recent track records, potential current pipelines and attracting capital at better terms than in the past,” Wood explains. This is also occurring with the end of the PTC looming in the next few years.

Meanwhile, pension fund managers such as BlackRock, and insurers with long-term liabilities, are continuing to buy working wind and solar farms so they can continue to offer stable returns to their investors. Wood says these investors are “broadly comfortable” with the operating parameters of wind and solar portfolios; and after-tax returns of about 7%-8%.



There will be pure plays, and there will be platforms that do wind and solar... It's exciting to see where this transition's going to take us.



Financing Wind: Wood spoke at our conference in London in November 2017

Tax overhaul in the US

Tax has been a thorny topic in the US wind market for the last six months, following moves by President Trump's administration in December that put tax equity and the PTC under threat.

In the end, the tax reforms have not been nearly as damaging as businesses feared. This is despite the fact that US corporate tax was reduced from 35% to 21%, and so means that corporations have lower tax bills – and less need to mitigate them with tax equity deals.

Wood says some tax equity investors put deals on hold to assess the impact of the reforms on their plans immediately after the tax reform vote, but that the market has continued strongly.

He says: "While some global players may have been negatively impacted, the tax equity market remains vibrant and deals continue to get done on attractive terms for the issuers. Fears of a market dislocation were unwarranted."

Another risk for the wind industry is rising interest rates. Wind farms have been attractive investments over the last 5-10 years because they offer steady returns at higher rates than assets such as government bonds. However, the

situation is changing in the US as the Federal Reserve raised its benchmark interest rate to 1.75% in March.

Wood says he does not have short-term concerns about the impact of rising rates on appetite for wind deals: "There will still be a feeding frenzy for this asset class because it's not clear that the long-term rates are going to go up," he says, but adds that rising rates are more likely to affect development.

"Rising interest rates could pose future risks for this capital-intensive sector, though absolute long-term rates remain low and credit spreads remain tight," he says.

However, the phaseout of the PTC could be the biggest concern for the industry if companies cannot continue to deliver reductions in the cost of wind technology at levels of 8%-10% a year.

Wood says that, at present, the PTC helps to cover around 35%-40% of the full capital cost of a wind scheme, which is a "pretty big hole to fill", and innovation is needed. He adds that the phased reduction, state incentives and fossil fuel prices could help.

"All that would very much fill the gap

or more," he says. "It's not all doom and gloom, but I would say there's a fair amount of uncertainty about exactly what will transpire by 2020."

These cost reductions have been key to establishing wind as the fast-growing sector it is now, and the competition with solar, which has been delivering technology cost falls of its own.

Wood says the two technologies should be regarded as complementary: wind is more centralised and solar can be either centralised or distributed generation. This is an opportunity for firms, as is the growth of storage, which could also shake up business models.

"There will be pure plays, and there will be platforms that do both.... And, more and more, customers are getting more sophisticated procurement, and are going to see energy as a service. The whole model's going to migrate. If you want to call it a 21st century utility, or whatever the buzzword is, it's exciting to see where this transition's going to take us," he says.

Wood has witnessed big changes over the last two decades – and, with plenty more changes yet to come, he isn't giving up his front row seat yet. ■

THE CRUCIAL LINK

Institutional investors and utilities are buying up US developers like never before. Declan Flanagan tells us why this opens up new opportunities



Wind and solar developers may be flavour of the month with institutional and utility buyers. But as Declan Flanagan, chief executive of Lincoln Clean Energy points out, this has not always been the case.

“There’s always been capital for well-put-together projects, but there were periods where the devco part of the mix was seen as where cash got burned,” he says. “Now it’s turned around. People appreciate that’s where the value is.”

A Word About Wind talked to Flanagan about what the wave of consolidation in the wind development sector means for the industry in the US. He also gave his views on new sectors and the changing nature of corporate electricity buyers.

Lincoln went through its own buyout two-and-a-half years ago. Flanagan set up the firm in 2009, and it was bought in late 2015 by I Squared Capital. This gave Lincoln the financial clout to hold onto the projects that it operates.

Flanagan says the current interest from institutions and utilities to acquire wind developers is a sign that these buyers want the higher returns that come with taking more development risk: “We’ve seen a shift in recent years that what you really want to be best at is the development part of the value chain.”

But will consolidation help the wind industry by giving good development teams more financial firepower; or hinder it by removing vital competition?

Flanagan has seen similar cycles before. He first came to the US in 2003 to set up Airtricity’s North American business, which E.On bought for \$1.4bn in 2007. He was then chief executive of E.On’s North American arm, and helped build it to a top five wind owner in the US, before setting up Lincoln in 2009.

He says the current consolidation in the market is an opportunity for Lincoln: “I think this will potentially open up the market, in terms of there being less developers. Will they remain as nimble and as good? Or will the pitch be more open for us? I tend to view that as less competition in the medium term.”

Even so, Lincoln has kept progressing its projects in a competitive market. In January, it completed project financing for its 300MW Tahoka development in Texas after winning deals with Morgan Stanley and BHE Renewables.

The company now has over 800MW of wind and solar power in operation or under construction; and has completed 600MW on average a year since 2015. Its highest-profile scheme completed last year was the 253MW project for Amazon in Texas in October.

Flanagan adds that Lincoln is looking to secure financial backing for a further 1GW between October and next June. This should be fairly straightforward in a highly liquid funding market.

And there should be plenty of demand from electricity buyers too, including

traditional utilities; financial players that regard long-term power purchase deals as a hedge to help manage risks around energy costs; and corporate and industrial firms, including Amazon.

Flanagan says the range of firms that are looking to buy wind power is a good sign for the market, and adds that wind farm owners are increasingly having to offer smaller deals: “2018 is going to be a big year for C&I deals, and we plan to get more than our fair share,” he says.

This isn’t the only area where Flanagan is bullish. He says he is confident that the industry will be able to cut costs fast enough to thrive after the PTC.

He is also looking at the potential in the offshore sector, which he says has “shifted gears in the last year”. But can smaller firms compete with giant utilities? Flanagan says they can, and points to the vital role that smaller developers have played in Europe.

And finally, he expects to see steep falls in the cost of storage as firms work out which business models work best.

Flanagan says he has good reason to be bullish on wind: “The momentum is unstoppable now... and the amount of capital that’s chasing this kind of infrastructure. You have to be strong in development or your return on capital is going to get pushed down and down.”

While that interest remains, developers will stay flavour of the month. ■

Our Purpose

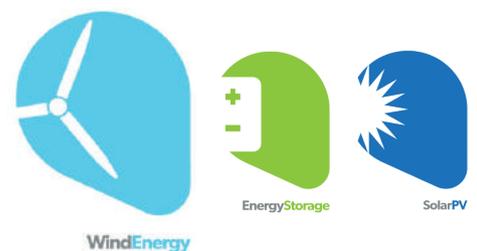
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ANALYSING THE TOP 100

Utilities and developers are leading wind's growth in North America – and means we can expect more consolidation. Ilaria Valtimora reports

Over half of the North American wind industry's most influential people work for developers and utilities. These are the individuals who are leading the transition from fossil fuels to wind, despite tepid support from federal governments in the US and Canada.

In total, 55 of the top 100 in the North American Power List are from these two groups (see left graph). This shows that there is a host of developers and utilities looking to grow in wind in North America, and means we can expect more developer buyouts in the year ahead – including by major European players.

In late 2017, we saw German utility Innogy agree to buy EverPower's 2GW onshore wind development pipeline; and French utility Engie hoovered up

Infinity Renewables in February. These giants want to establish themselves in the US alongside established European rivals such as EDF, EDPR and Iberdrola.

On the manufacturing side, we can see that the North American market is more concentrated on a small number of key manufacturers than the industry globally. However, these firms are still ensuring that the industry in North America can stay competitive, with cuts to the US wind production tax credit looming from the early 2020s.

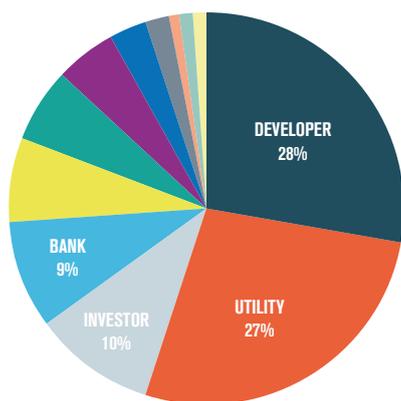
Predictably, most of the top 100 focus exclusively on onshore wind (see right graph), but it is notable that 14 have some interest in offshore wind. This shows the offshore sector is gaining momentum in the US, and we expect more projects in the coming years.

Our power list also shows that 23 of the top 100 are based in and around New York. This reflects the importance that New York-based investors, including banks, have on the sector; and the strategic importance of the city as US offshore wind starts to expand.

Finally, 23 of the final 100 are women, compared to 15 in our global Top 100 Power People in November. The higher concentration of women in this report is arguably a result of the paucity of women in the very top roles in Europe, but the fact is that we also see a strong representation of women heading US utilities with ambitious wind plans.

And, like the rest of this top 100, they will be key as the wind industry keeps cementing its position as a mainstream energy source. ■

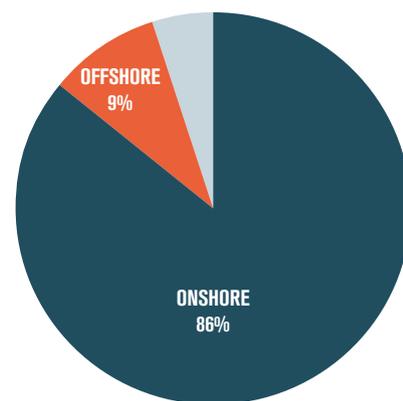
DEVELOPER ACTIVITY SHOWS A MARKET RIPE FOR CONSOLIDATION



TYPE OF COMPANY

● DEVELOPER	28%	● ADVISER	5%
● UTILITY	27%	● CONTRACTOR	3%
● INVESTOR	10%	● DIGITAL SERVICES	2%
● BANK	9%	● PRIVATE EQUITY	1%
● MANUFACTURER	7%	● STATE-BACKED INVESTOR	1%
● CORPORATE	6%	● YIELDCO	1%

OFFSHORE PLAYERS ARE MAKING THEIR MARK



ONSHORE/OFFSHORE FOCUS

● ONSHORE	86%
● OFFSHORE	9%
● BOTH	5%

100


Michael Olsen *Senior Director, Business Development, Equinor (formerly Statoil)*

Olsen is among those leading Norwegian utility Equinor (formerly Statoil) into the US offshore wind market, and specifically the planned 1GW Empire Wind scheme off the coast of New York. As the sector takes off, Olsen's focus on areas including regulatory affairs will be key, both for advancing schemes off the eastern seaboard and for floating wind farms off the coasts of California and Hawaii. He has been with the firm since 2012, and previously spent three years at Bracewell & Giuliani as an advisor to offshore developers. He also spent five years at the Department of the Interior.

99


David Halligan *Founder, Datawatt Energy*

Halligan was a key player in helping to establish Chinese turbine maker Goldwind in the US in 2010, and he led the company in North America until this January, when he left to set up Datawatt Energy. In this new guise, he is looking to develop distributed and digital energy technology as manufacturers increase their focus on software innovations. At Goldwind, his key deals over the last 12 months included the financial close of the 160MW Rattlesnake wind farm in Texas, and the acquisition of the 160MW Heart of Texas wind farm from RES Americas.

98


Michael Rucker *CEO & Founder, Scout Clean Energy*

Rucker has over 15 years' experience in the wind sector and founded US developer Scout Clean Energy in 2011. Scout has so far developed 649MW of wind farms across North America and has a 1.6GW wind pipeline, which represents around \$1.7bn in total capital investment. Last year, Scout was acquired by investment manager Quinbrook Infrastructure Partners for an undisclosed amount. In 2014, Rucker also co-founded Harvest Energy Services, an independent wind energy service provider for construction management and O&M services.

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Dana Claburn *SVP & Senior Production Officer, Southern Power*

Claburn has become the most influential person working in wind at Southern Power following the retirement of CEO Buzz Miller. In her role, Claburn oversees the operations the company's 12.8GW generating portfolio, which includes nine wind farms with total capacity of 1.6GW. This is set to double in the next three years as, last January, Southern signed a pact with RES to develop ten more wind projects totalling 3GW by 2020. Key deals over the last year include the acquisition of the 174MW Salt Fork and 126MW Tyler Bluff projects from EDF Renewable Energy, and of the 148MW Cactus Flats from RES Americas.

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Michael Weidemann *EVP, Enercon Canada*

Weidemann joined Enercon in 1997 and currently serves as executive vice president and regional director for its North American operations, with a particular focus on Canada. Enercon has installed over 2.2GW of wind turbines throughout seven Canadian provinces since 2001. One of the company's key deals in the region involved supplying machines to the 230MW Niagara Region wind farm, which is owned by Boralex, Enercon and the Six Nations of the Grand River Development Corporation; and was commissioned in June 2017.

95


Geisha Williams *President & CEO, Pacific Gas & Electric*

Williams took over as president and CEO of Pacific Gas & Electric Company in 2017 and, under her leadership, the company reached its target of generating a third of its electricity from renewables by 2020, three years early. PG&E is California's largest utility, and Williams has been with the firm since 2007. She previously spent over 20 years at Florida Power & Light Company after she took a summer job at the company and stayed. Wind represents about 8% of the total energy mix of PG&E, which is aiming to achieve 55% of its electricity generation from renewables by 2031.

94


Jatin Sharma *President, GCube Insurance Services*

Sharma joined renewables insurer GCube Insurance Services in 2010, and this January was named president of the company's growing North American operation. Globally, GCube has insured more than 85GW of renewable energy projects in the last 25 years, and so plays a key role in helping companies to manage project risk – including in 'riskier' projects located in remote or politically-volatile regions. Sharma is a key commentator on insurance matters in US wind, and has led the development of a series of in-depth data-led reports.

93


Blake Nixon *CEO, Geronimo Energy*

Since becoming CEO of Geronimo Energy in 2008, Nixon has grown the business into a well-known renewables-focused developer. Headquartered in Minneapolis, the company has worked on 1.8GW of wind and solar projects that are either operational or in construction; and has a multi-gigawatt development pipeline. The company's highlights of the last year included its agreement in April of a 150MW power purchase agreement with Walmart at its up-to-400MW Crocker project in South Dakota; and developing the Blazing 1 and 2 schemes, of 200MW each, for Xcel Energy.

92


Dan Balaban *President, CEO & Founder, Greengate Power Corporation*

Alberta-based Balaban founded wind and solar developer Greengate in 2007 after selling his previous business – oil and gas software company Roughneck.ca – for C\$5m in 2005. So far, Greengate has developed projects totalling 480MW in the Canadian provinces of Alberta and Ontario, including the 300MW Blackspring Ridge, which it sold to Enbridge and EDF. In April, Greengate raised C\$100m (\$78m) from Fengate Real Asset Investments, so that it could build 1GW of wind and solar projects in Alberta, and expand into the US. *Read more in our interview with Balaban on page 23.*

91


Graham Reid *CEO, RES Americas*

Reid became CEO at RES Americas last August, having previously been at design consultancy Arcadis and, before that, at Hyder Consulting – with the latter also being the previous employer of RES Group's CEO Ivor Catto. As head of RES's North American arm, Reid now leads part of the company with more than 8GW of installed renewables projects and a further 5.3GW in development. The company is active in sectors including wind, solar, transmission and energy storage; and offers service throughout projects' life cycles, from development to operations.

90


Mike Bergey *President, Bergey Windpower*

Bergey co-founded small turbine manufacturer Bergey Windpower Company with his father Karl in 1970, and has been its president since 1987. During his career, which spans five decades, he has been president of the American Wind Energy Association twice, and was on its board from 1981 to 2007. He is now helping to raise awareness of the small turbines market among businesses and homeowners through Bergey's deals with distributed wind pioneer United Wind in the last 18 months, and is also on the board of the Distributed Wind Energy Association.

89


Stephanie McClellan *Director, Special Initiative on Offshore Wind*

McClellan leads the Special Initiative on Offshore Wind at the University of Delaware, which is focused on supporting the development of offshore wind in US waters. She has experience in offshore wind from both the private and public sectors, having previously served as head of strategic initiatives and outreach at the Google-backed Atlantic Wind Corporation. She chose to focus on supporting offshore wind after working as policy director for Delaware Governor Jack Markell, where she experienced first-hand the struggle of building wind farms to take advantage of wind resources.

88


Guy Amato *MD & Head of Project & Structured Finance, Bank of Montreal*

During his 33 years at Bank of Montreal, Amato has structured major project finance deals in a wide range of sectors including gas processing, power generation and pipelines. His notable non-recourse project finance deals in the wind sector have included the 179MW Armow Wind, 270MW K2 Wind and 270MW South Kent Wind developed by Pattern Energy and Samsung in Ontario. In addition, his experience working alongside Northland Power at the 600MW Gemini in Europe's North Sea will give him good insights as North American offshore wind takes off.

87


Connie Lau *President & CEO, Hawaiian Electric Industries*

Lau became president and CEO of Hawaiian Electric Industries in 2006, and also chairs Hawaiian Electric Company and the American Savings Bank. She joined the Honolulu-headquartered HEI group in 1984, and the firm now provides electricity for 95% of residents of Hawaii state – of which over half on the island of Hawaii comes from renewables. The group operates 935MW of renewables, and last year took the initial steps to install 2.7GW utility-scale commercial energy storage by 2030 as part of a plan to move to 100% green energy by 2045.

86


Patricia Kampling *Chairman & CEO, Alliant Energy*

Alliant Energy owns and operates four wind farms in Iowa, Minnesota and Wisconsin, with total headline capacity of 567MW, but is set to add an extra 1.2GW by the end of 2020. Kampling has been with Alliant since 2005, and became its chairman, president and CEO in 2012. Under her leadership, the company has concluded a series of significant purchases to grow its portfolio in the last 12 months, including the 300MW Upland Prairie from Apex Clean Energy; the 170MW English Farms from Tradewind Energy; and half of EDF's 225MW Great Western Wind.

85


Jayshree Desai *COO, Clean Line Energy Partners*

Desai is COO at Clean Line Energy Partners, which seeks to develop transmission lines in the US to give cities and communities access to low-cost renewable power, including wind. Its current projects including the \$2.5bn Plains & Eastern Clean Line. In this role, Desai oversees all of the firm's operations and, in addition, serves on the board of TPI Composites and the Wind Energy Foundation. Before Clean Line, she was CFO at Horizon Wind Energy, which she led through its sale to Goldman Sachs in 2005.

84


Heather Kreager *CEO, Sammons Enterprises*

Kreager joined Sammons Enterprises in 1985, and became CEO in 2014. Sammons Enterprises is the ultimate parent group of Sammons Renewable Energy which, under Kreager's leadership, has been expanding its wind portfolio over the last 12 months. In January, the company bought the 163MW Midway project in Texas from Apex Clean Energy; and owns a 602MW portfolio of operating, in-construction or development-stage projects. The company said buying Midway demonstrated its long-term vision of being a leading investor in North American renewables.

83


Russell Tencer *CEO & Co-Founder, United Wind*

Tencer set up developer United Wind in 2013 to roll out a business model that has been used widely in solar but not wind. In short, United Wind installs wind turbines on a building for no upfront cost, and then receives a regular fee over the lifespan of the deal – while the customer has 50%-100% of their property's energy need covered. The firm has so far secured investments of over \$750m from backers including Forum Equity Partners, Tepco and the New York Green Bank. Tencer also founded software firm Wind Analytics and investment bank Parker Boston.

82


Ed Duggan *President, Alton Energy*

Duggan has over 35 years' experience in developing wind projects and is currently president of developer Alton Energy and executive vice president of developer Oak Creek Energy. Duggan has spent over 25 years focusing on the development of wind projects in the Tehachapi area and is also a manager of ZCF Wind Wall, which in December 2016 partnered with Eolus North America to repower the 36MW Tehachapi Wind Wall project. For Alton, Duggan is focusing its efforts in developing renewable energy storage projects in the states of California and Nevada.

81


Tim Maag *VP & General Manager of Wind, Mortenson Construction*

Maag leads the wind arm of this US-based, family-owned construction company. He has over 36 years' experience in the construction business and has led work on more than 75 wind projects totalling over 11GW. Maag last year led the expansion of Mortenson in the repowering market, as the company repowered over 270 wind turbines in the upper Midwest region. Key deals in the last year include a partnership with Xcel Energy to build projects totalling 1GW; and a tie-up with MidAmerican Energy to build 340MW of the 2GW Wind XI project. Mortenson has already built more than 15 projects for MidAmerican.

CEO Q&A: RAFAEL GONZALEZ



Enel Green Power North America's CEO Rafael Gonzalez talks to Richard Heap about dealing with corporates, expansion plans and key trends in O&M

How long have you been at Enel?

I've been with Enel since 2003. I started in Spain in a joint venture between Enel and a local utility, and then I moved to Rome to run Enel Green Power's O&M activity worldwide. In 2014, I moved to Head of EGP for the US and Canada, which is integrated into the global strategy of Enel Group to continue to have green power as the engine of growth as we work towards becoming carbon neutral by 2050.

How important is North America to that growth?

The US has been one of the most important pillars of that growth. We started here with a portfolio of hydro plants in 2000, and have now created a diversified renewables platform.

In 2014, we achieved 2GW total installed capacity, and we've now grown to over 4.2GW of operational capacity with a presence in 24 US states and two Canadian provinces. We had a company record 1.2GW installed capacity last year, of which 1.1GW was wind, and we plan to grow at this pace in the coming three years. This means

total investment of around \$4bn over the next three years.

How key is your partnership with Tradewind Energy?

We've been working with Tradewind for many years. We co-develop projects and then Enel Green Power builds and operates them. In this partnership we've built about 3GW of capacity, and we have partnerships with other local developers too. For example, we just entered Illinois with our Hill Topper project with Swift Current Energy.

The other notable part of your strategy is corporate power purchase agreements, where you have deals totalling 1.2GW currently in place. Why are these so important?

We started in this market with Google, and we have now signed nine deals (see box, opposite page). What are we offering to these customers?

First, competitive pricing so they consider that this makes economic sense to them while contributing to the sustainability goals achievement. We also offer customised solutions:

we have signed now with some very diverse customers with different needs. And we are offering stability in terms of the cost of energy, so no volatility. It's a kind of hedge for them.

How can you open the PPAs market to smaller firms?

It is about the flexibility, and adapting to the smaller volume for customers that do not have big data centres. One example is our Rattlesnake Creek scheme in Nebraska, where we have two customers: one is Facebook, for two deals totalling 320MW; the other is Adobe, which has entered a deal for 10MW. It's not only about pricing, it's also about risk management.

Which other wind projects are you focused on?

We have more than 800MW under construction; and our plan is to start commercial operations of these plants worth \$1.2bn by the end of 2018. We're also entering Nebraska; we have another project in Kansas; and in Illinois – a newer state for us – with new customers: General Motors and Bloomberg. And we have been awarded

another 146MW of capacity in Alberta.

Other projects will come for 2019. We are working with our co-developers and making real progress with customers to buy energy from these projects; with the grid connections; and also to find financial partners for tax equity financing, and in cash equity and we have an escrow facility.

Are you facing any challenges with securing funding?

After the tax reform we had in the last year, we continue to see appetite from existing traditional participants, and also new entrants. We are closing deals for the projects in 2018 and we are confident that there is liquidity.

You discussed Alberta earlier. How important is Canada in your plans?

We have had a presence in Canada for almost ten years, and we are prepared to take more opportunities that are coming – particularly in Alberta, which is planning for 5GW installed capacity in the coming years.

We won in the first tender in the past year with 146MW – the 115MW Riverview and 30.6MW Castle Rock 2 – and will participate in tenders in the fall. We have also announced a partnership with cash equity partner AIMCo, where we've sold 49% stakes in those two projects. It is important to have local partners to develop and to finance the projects.

How can the US fix its transmission problems?

There is a plan for transmission operators to continue to invest in infrastructure to integrate more renewables in the coming years.

At the same time, we also have to consider the new technologies: batteries and storage. It's not only about the new transmission assets or new technologies that could facilitate the integration of renewables into the grid. It's also about the way this energy is managed, which will be important for growth in the coming years.

Are you working with Enel X – Enel's e-mobility and digital arm – on matching renewable generation with electric vehicles?

Yes. It is important for us because the business we are doing with Enel X is

ENEL HAS WIND PPAS IN THE US TOTALLING 1.2GW

Adobe	Rattlesnake Creek (Nebraska)	10 MW
Anheuser-Busch	Thunder Ranch (Oklahoma)	152.5 MW
Bloomberg	Hill Topper (Illinois)	17 MW
Facebook	Rattlesnake Creek (Nebraska)	320 MW
General Motors	Hill Topper (Illinois)	100 MW
Google	Cimarron Bend (Kansas)	200 MW
Google	Red Dirt through GRDA (Oklahoma)	140 MW
Kohler	Diamond Vista (Kansas)	100 MW
T-Mobile	Red Dirt (Oklahoma)	160 MW

complementary to our renewables proposal; and Enel acquired in the US in the past year three companies that are focused on these new solutions for customers. One is Demand Energy, which is focused on the storage smart solutions behind the meter; and EnerNOC, which is the leader in demand response and is offering flexibility solutions to the customers. And there's also eMotorWerks, which specialises in smart charging stations in the e-mobility technologies.

This is important to the transformation of Enel and, related to e-mobility, you know that we have a global target of the installation of about 300,000 charging infrastructure by 2020.

Given your O&M background, what are the biggest ways to make O&M more efficient?

There is a huge opportunity to create value by operating our assets efficiently. We will have more than 2,000 turbines here in the US, and all the information we are receiving in real time on each single turbine is giving us insights, continuously, about the performance and efficiency. We are talking about big data analytics.

We are already doing this and we have a goal that, by 2020, more than 85% of

our activities for maintenance will be predictive. With predictive analytics, you can better manage costs and the efficiency of the turbines.

We started this eight years ago when I was responsible for global EGP O&M, and now we are using this on a daily basis to extract value.

This is also an area where you work with turbine makers. There is a limited number of large players in the US, so are you seeing enough competition between them?

Yes, we are seeing competition. The US is extremely competitive, and the average cost in the US for a single turbine per MW is lower than the global average. The manufacturers are working on new platforms and new turbines that are higher, with bigger rotors, higher efficiency, new technologies – and that is reducing costs by more than 10% year-on-year.

Now the manufacturers are working on products for 2020 and 2021 that could be extremely competitive, and help to cope with the phasedown of the production tax credit.

While the PTC will expire, we're confident that the technology will continue to be competitive. ■

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80


Paula Gold-Williams *President & CEO, CPS Energy*

Gold-Williams serves as president and CEO at municipally-owned utility CPS Energy in the state of Texas. CPS is among the largest municipal wind buyers in the US and, under the leadership of Gold-Williams, has signed wind power purchase agreements totalling over 1GW at wind farms located mainly in the west of the state and its coastal region. CPS aims to source 20% of its total energy generation capacity from renewables by 2020. Gold-Williams has worked for CPS for 14 years.

79


Alla Weinstein *Founder, Trident Winds*

Weinstein is a well-known figure among those with ambitions to develop the floating wind sector. She left her role as CEO and founder of floating foundation developer Principle Power after eight years in 2015 to set up Trident Winds, which is planning to develop an up-to-1GW floating wind farm off the coast of California. Weinstein chose California because of a law signed in late 2015 that committed the state to produce half of its electricity from renewables by 2030, but progress has been slow as state regulations take shape.

78


Jim King *MD & Head of Project Finance & Infrastructure, CIBC Capital Markets*

King joined Toronto-headquartered CIBC Capital Markets last year after 17 years at Bayerische Landesbank, and his profile as a significant commentator on the financial side of the US wind industry is growing. His specialities include project finance deals in the Americas and export finance transactions. Over the last year, CIBC has worked on significant deals including as joint bookrunner on a \$250m share offering for Brookfield Renewable Partners; a \$500m raise for Enbridge; and a \$500m notes offer for NextEra Energy.

77


Bobby Hollis *Director of Global Energy, Facebook*

Hollis has joined Facebook as director of global energy in 2015, and has also served as senior renewable energy manager at Apple and as vice president of renewable energy at US utility NV Energy. Last year, Facebook completed a \$1bn data centre in Texas that is 100% powered by energy from Alterra Power's 200MW Shannon wind farm. In addition, over the last 12 months, the company has signed a 200MW PPA at Enel Green Power's 320MW Rattlesnake Creek wind farm; and it has also agreed to buy the energy produced by two wind farms totalling 216MW for its data centre in New Mexico. These two projects will be developed by Avangrid and NextEra.

76


Lars Thaaning Pedersen *Co-CEO, Copenhagen Offshore Partners*

Pedersen is co-CEO of Copenhagen Offshore Partners, the offshore wind development arm of Danish investment giant Copenhagen Infrastructure Partners. Pedersen joined COP in 2015 as senior advisor for offshore wind, after working for about ten years at Danish utility Ørsted in several management positions. He now leads the development of the 800MW Vineyard Wind project, off the coast of Massachusetts; and is also responsible for the development of the 180MW St. George's Bay project, off the Canadian coast, together with local developer Beothuk. Pedersen has so far led the development and operation of offshore projects totalling 2.9GW in Europe.

75


Karen Conover *VP, DNV GL*

Conover has been working in the wind industry for more than 25 years. In 1994, she set up and served as CEO of Global Energy Concepts, an engineering and technology consultancy that acted for clients involved in the wind sector. GEC was acquired by DNV in 2008 and she became the director of its wind energy operations, before becoming vice president of DNV GL in 2012. Conover has been a member of the American Wind Energy Association's board of directors since 1997. She is also on the board of Women of Renewable Industries & Sustainable Energy.

74


Thomas F. Farrell II *Chairman, President & CEO, Dominion Energy*

Farrell has been chairman, president and CEO of US utility Dominion Energy since April 2007 and has been with the company for 23 years. Dominion has attracted our attention in the last year after it signed an agreement with Danish utility Ørsted last July to kickstart its stalled 12MW offshore wind project off the US state of Virginia. The project was approved in 2014, but in early 2015 Dominion put it on hold over concerns about rising costs. The two-turbine wind farm is now set to complete by the end of 2020 – and, while that makes it tiny compared to many planned in US waters, it is nonetheless a show of support for offshore wind by Dominion.

73


Bill Miller *CEO, Power Company of Wyoming*

Miller serves as CEO of two companies owned by billionaire Philip Anschutz: Power Company of Wyoming and TransWest Express. At PCW, he oversees the development of the up-to-3GW Chokecherry and Sierra Madre wind farm in the Wyoming; and, for TransWest Energy, he is responsible of the TransWest Express Transmission Project that is looking to deliver 3GW of wind power produced in Wyoming to the Desert Southwest region. The latter project has been in development since 2005; and Miller has been at the Anschutz Corporation for 20 years.

72


Greg Wolf *CEO, Leeward Renewable Energy*

Wolf joined Leeward Renewable Energy in July 2016, after serving as president of Duke Energy Renewables. Wolf has over 20 years' experience in renewables and, at Leeward, oversees a portfolio of 1.7GW of wind capacity and its growth plans in wind, solar and battery storage. The company has recently completed the repowering of two wind farms in Texas totalling 136MW, and in December it agreed to supply 276GWh of wind power to Digital Realty. In March 2018, pension fund Ontario Municipal Employees Retirement System agreed to acquire Leeward from ArcLight Capital Partners for an undisclosed sum. The deal is due to complete in September.

71


Pablo Pulpeiro *CEO of North America, Nordex*

Pulpeiro was appointed CEO of the North American division of German turbine maker Nordex in July 2017, after leading its Brazilian unit for two years. Last year, Nordex faced weak demand in its European core markets, including Germany, as a consequence of falling prices for wind energy. The firm expects this contraction to continue, which makes its North American arm all the more important: Nordex is planning to compensate for the slump elsewhere by increasing its orders in North America by 19% by the end of 2020. Key deals over the last year in the region include turbine orders for three wind farms totalling 820MW, secured in December 2017.

70


Paul Gaynor *CEO & Co-Founder, Longroad Energy Partners*

Gaynor founded Longroad Energy Partners in 2016, together with COO Michael Alvarez, CFO Peter Keel, and CIO Charles Spiliotis. He has over 25 years' experience in the energy sector and co-founded US developer First Wind in 2004 before growing it to a business with an equity value of \$1.5bn. SunEdison bought First Wind for \$2.4bn in 2015 and made Gaynor an executive vice president – but he left in early 2016 before SunEdison filed for chapter 11 bankruptcy protection. This year, the company has partnered with Vestas North America to purchase wind turbine components that would qualify for over 600MW of wind projects.

69


Patrick Lemaire *CEO & President, Boralex*

Under Lemaire's leadership, Canadian developer Boralex has had a busy couple of years as it has completed its 230MW Niagara Region wind farm, and pushed other schemes forward. It also sold a 17.3% stake in the business to La Caisse de Depot et Placement du Quebec in July 2017 for \$230m. Boralex is a leader in the Canadian market and has a major presence in France, that it strengthened in April by acquiring French wind developer Kallista Energy Investment. Boralex also formed a 325MW onshore wind joint venture in the UK with Infinergy in October last year.

68


Shannon Kellogg *Director of Public Policy, Amazon*

Kellogg has spent two decades working in the IT industry, and joined online retail giant Amazon in 2012, where he focuses on areas including wind deals. This means that, while it was Amazon CEO Jeff Bezos who proudly stood on a turbine at the 253MW Amazon Wind Farm Texas project last October, he was there because of the work of colleagues including Kellogg. The company now has more than 50 wind and solar projects in operation or development in the US as it aims to use 100% renewable power. Previously, he spent nine years at EMC Corporation.

67


James Spencer *President & CEO, EverPower Wind Holdings*

Spencer founded Pittsburgh-headquartered developer EverPower in 2002, and sold it to British private equity investor Terra Firma in 2009. He has over 25 years' experience in the renewable energy sector and, prior to 2002, he served as a director and advisor at RES. EverPower owns a portfolio of seven operational wind farms totalling 752MW, and a 2GW wind project pipeline in seven US states, of which 1GW is in advanced development. In December, German utility Innogy agreed to buy all shares in EverPower's onshore wind development arm from UK private equity Terra Firma. The deal is due to conclude by the end of the second quarter of 2018.

66


Shalini Ramanathan *VP of Origination, RES Americas*

RES Americas is now led by Graham Reid, but we cannot ignore the influence of vice president Shalini Ramanathan who is a major presence in US wind. She joined the US subsidiary of RES in 2007 as a project developer and moved into her current role as vice president of origination in 2014. During her career she has closed 1.4GW of deals worth over \$2.5bn; and negotiated off-take agreements with corporates including Google, General Motors and Microsoft, as well as utilities including Xcel Energy. Before RES, she spent three years at Camco Clean Energy.

65


Frank Demaille *President & CEO, Engie North America*

Demaille was an advisor to French Prime Minister François Fillon from 2007 to 2009 before he joined Engie. Since then, he has worked for the utility in the United Arab Emirates and Chile, before becoming executive vice president of its international division in 2014. He was elevated to CEO of the company's North American business, which manages a range of electricity and natural gas operations across the US and in Canada, in 2016. In February 2018, Engie took another big step in US wind by acquiring Infinity Renewables, which has an 8GW wind development pipeline.

64


Rafael Esteban *CEO, Acciona Energy USA Global LLC*

Esteban joined Acciona in 2010 after working in management positions at Ernst & Young and American Appraisal Associates. He has served as MD for Acciona in Italy and CEO for Acciona in South Africa, where he led the development and construction of the 138MW Gouda wind farm. He was appointed CEO for the North American region in July 2017. Acciona currently owns over 1.5GW of renewable energy capacity in North America, of which 721MW is made up of wind projects. In April, the company announced plans to invest \$200m in building the 145MW Palmas Altas wind farm in Texas.

63


Christopher Sotos *President & CEO, NRG Yield*

Sotos became president and CEO of NRG Energy's yieldco arm in 2016 after serving at NRG since 2004, when he joined as a senior financial analyst after working for firms including Koch Capital Markets, Entergy Wholesale Operations and Service Corporation International. NRG Yield is one of three NRG arms that are currently being acquired by US investment giant Global Infrastructure Partners, in a deal that is due to reach financial close in the second half of 2018. NRG Yield operates a 2.4GW portfolio of renewables across 17 states.

62


Kirk Edelman *President & CEO, Siemens Financial Services*

Edelman is CEO of the global energy finance business at Siemens Financial Services, where he manages the team that provides debt and equity throughout the energy industry, including the wind sector. This includes the 600MW Gemini, the 353MW Galloper and the 288MW Butendiek offshore wind farms in Europe; and this expertise will no doubt be vital as US offshore wind takes off. Edelman joined Siemens Financial Services as senior vice president and general manager in 2007; and has spent over 25 years in energy finance at firms including Dresdner Kleinwort Wasserstein and Bank of Tokyo Mitsubishi.

61


Doug Fredrickson *VP of Operations, Blattner Energy*

Fredrickson heads all operational activities at power generation construction business Blattner Energy, including business development, client engagement, project procurement and financial performance. He has 35 years' experience in building large infrastructure projects, including wind farms, and Blattner has built over 250 wind projects in the US and in Canada since 2001, totalling around 32.5GW. Recent deals include the contract to build Alterra Power's 200MW Flat Top wind farm in Texas.

60


Adil Rahmathulla *Partner & Co-Founder, I Squared Capital*

Rahmathulla worked at Morgan Stanley before co-founding US-headquartered private equity investor I Squared Capital in 2012. I Squared focuses on infrastructure, including renewables, in North America, Europe and key emerging markets, with an energy portfolio of 4.3GW in 13 countries. In 2015, it invested in Lincoln Clean Energy, and in 2016 paid €1bn for Irish utility Viridian, which has a 1GW wind portfolio. In January, the firm completed the acquisition of the Latin American and Caribbean businesses of Peru-based utility IC Power, which owns 3.4GW of renewable energy assets including wind farms.

59


Kirby Mercer *President & CEO, Beothuk Energy*

The offshore wind sector is gaining momentum in the US, and Beothuk's Mercer is looking to take the industry into Canada too. Mercer set up Beothuk in 2011 to specialise in the offshore wind sector, and two years ago it joined forces with Copenhagen Infrastructure Partners on the 180MW St. George's Bay project off the coast of Newfoundland. The pair are making progress on the project through a joint venture called Atlantic Canada Offshore Developments, but their plans for an up-to-1GW scheme off the coast of Nova Scotia have been put on hold.

58


Laszlo Varsanyi *VP of New Ventures (Power), Enbridge*

Varsanyi has spent two decades at Canada's Enbridge, and became vice president of new ventures in power last year. This means he is in charge of growing the firm's portfolio in sectors including offshore and onshore wind. Since 2002, Enbridge has committed around \$5.9bn capital to renewables and transmission; and, last year, it bought 49.9% of EnBW's 497MW Hohe See and 112MW Albatros in Europe. In May 2018, Enbridge agreed a C\$1.75bn (\$1.35bn) tie-up with the Canada Pension Plan Investment Board, where Enbridge sold a 49% stake in 1.3GW of North American renewables; and set up a joint venture to do more deals in European offshore wind.

57


Ja Kao *President, Onyx Renewable Partners*

Kao has over 15 years' finance and legal experience, during which she has structured and executed M&A transactions across a wide range of energy sectors. Before joining Onyx, she worked at Blackstone as managing director of the structured solutions team, leading the renewable energy investment banking practice with a focus on solar and wind. In 2015, she joined Onyx Renewable Partners, which is managed by Blackstone Energy Partners and focused on the development of wind and solar projects in North America.

56


Bryan Martin *MD, DE Shaw & Co. and CEO & Founder, DESRI*

Martin is head of US private equity at \$30bn asset manager DE Shaw & Co., and founder and chief executive of DESRI, which owns and operates renewables facilities in North America. He is also chairman at Deepwater Wind; and was on the board of First Wind until its \$2.4bn takeover by SunEdison in early 2015. At Deepwater, he has played a key role in helping establish the US offshore wind sector by bringing CEO Jeffrey Grybowski into the firm back in 2007 and driving the delivery of the 30MW Block Island. Deepwater has also won backing to build its 400MW Revolution scheme off Rhode Island. Martin has previously worked for JP Morgan and The Beacon Group.

55


Laura Folsie *CEO, BP Wind Energy*

Folsie heads the wind operations of global oil and gas company BP, where she leads a team that operates 14 wind farms in the US with total headline capacity of 2.6GW. She took up the role in early 2016 but her experience at BP stretches back to 1998, and she spent the 16 years before that at US oil company Amoco. Folsie is tasked with leading BP's plans to grow in wind after it looked to exit the sector on two occasions, and is still considering its opportunities in the US. This includes a potential to re-engineer its 2,000 turbines to add capacity of 400MW.

54


Michael Skelly *President & Founder, Clean Line Energy Partners*

Skelly is the founder and president of transmission line developer Clean Line Energy Partners, which aims to develop interstate transmission lines to connect wind farms across the US. Since 2011, the company has been planning its \$2.5bn Grain Belt Express Clean Line, which would carry around 4GW of wind power from western Kansas to Illinois, Indiana, Missouri and neighbouring states. However, since it was unveiled, the project has generated controversy and faced opposition from some states, including Missouri, Arkansas and Tennessee. In December, Clean Line Energy sold the Oklahoma portion of the project to NextEra Energy Resources.

53


Jim Gordon *CEO, Energy Management Inc.*

No list on the most influential figures in the US wind industry would be complete without Jim Gordon. In December, he finally had to admit defeat over his plan to develop his 468MW Cape Wind project, which could have been the first utility-scale offshore wind farm in US waters but became tied up in legal battles by well-funded backers including the Koch brothers. However, after winning 26 legal fights, facing ten years of scrutiny, and securing major investor commitments, Gordon fought many of the battles that are opening the way for US offshore wind now.

52


Pooja Goyal *MD & Head of Alternative Energy Investing, Goldman Sachs*

Goyal has worked for Goldman Sachs for the last 15 years. She joined as an analyst in the investment banking division, and rose to managing director in 2012. Goyal now heads the team investing in companies and projects in the power sector, including wind. These deals include equity, debt and structured project finance. Goldman Sachs has a target of investing \$150bn in renewables by 2025 and, though it has kept a relatively low profile in North American wind in recent years, took part in a \$330m tax equity deal at Enel's 298MW Thunder Ranch in October.

51


Patrick Woodson *Chairman, E.On North America*

Former Aircrity vice president Woodson has been with the North American arm of E.On since 2008. He became its CEO in 2013, and was elevated to chairman in 2015. Under his leadership, the utility has launched a third-party services arm in the US, E.On Energy Services; and completed major onshore wind farms including the 278MW Radford's Run in Illinois and the 228MW Bruening's Breeze. E.On's 2.9GW North America portfolio also includes the 782MW Roscoe wind farm, which is one of the world's largest onshore wind schemes.



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ALBERTA AWAKENS

Canadian developer Greengate is looking to build a C\$1bn wind and solar portfolio over the next five years. We spoke to its founder Dan Balaban



Source: Greengate

“It’s very similar dynamics to Texas. We’re probably just a decade behind them in terms of the widescale adoption of renewables. That’s not to say we haven’t seen renewables – we have – but we’ve got a long way to go.”

Dan Balaban is in Greengate Power Corporation’s headquarters in Calgary in the Canadian province of Alberta – or the ‘Texas of Canada’ to use its nickname. He is talking about the developer’s plan to expand its 450MW wind portfolio in the state with 1GW of new wind and solar, and benefit from Alberta’s move into renewables. The state currently has 1.5GW of wind capacity and just 37MW of solar, but is looking to grow.

In late 2015, the province published its Climate Leadership Plan, in which it set out its goal to reduce pollution and cut carbon emissions. Fossil fuels represent 87% of Alberta’s electricity mix, but it is looking to reduce this: “Alberta’s become a real bright star in the renewable energy world,” says Balaban. “We’re phasing out all of our coal-fired electricity by 2030 and replacing it with 5,000MW of renewables.”

This is an opportunity for Greengate, which Alberta native Balaban – the firm’s founder, president and CEO – set up in 2007 after successfully exiting his oil and gas software company Roughneck.ca. He spoke to A Word About Wind about the recent equity investment in the business by Fengate

Real Asset Investments, and how it can help Greengate deliver C\$1bn (\$780m) of renewables schemes by 2023.

Balaban says he set up Greengate in 2007 because of his desire to fix environmental issues, of which Alberta has no shortage. The province produced 38% of Canada’s greenhouse gas emissions in 2015.

In the last 11 years, Greengate has developed the two largest wind farms in Alberta: the 300MW Blackspring Ridge, which it sold at the start of construction to a tie-up between EDF and Enbridge; and the 150MW Halkirk, which it sold at the start of construction to Capital Power.

Balaban wants to move the company from being a developer that sells projects at the start of construction, to a firm that can develop, build, own and operate long-term. It is looking at schemes in Alberta and Ontario, and is seeking to expand in the US too.

In April, the company secured a funding deal with Fengate Real Asset Investments that he says will enable it to do so. Fengate made a C\$100m (\$78m) equity commitment, in exchange for an undisclosed stake, that will enable Greengate to fund the development and buildout of 1GW of late-stage wind and solar projects in Alberta.

These include a 400MW solar scheme that Balaban says he is looking to bring online in 2020 or 2021. However, the

firm predominantly pursues projects in the 100MW-150MW range, with some distributed generation schemes between 10MW and 15MW.

“Over the last 11 years, we’ve been primarily focused on wind because wind has been the most cost-effective of the renewable technologies... but we’ve seen that there’s a narrowing between the technologies in terms of cost. Wind and solar are now cost-competitive with each other. We don’t really favour one over the other,” he says.

As well as strong resources, he says that the company is looking for sites with convenient grid access and supportive communities – and the emerging regulatory framework to support renewables in Alberta will be vital. Canada does not have a federal production tax credit like the US, and so most of the onus falls on state government policies.

“Alberta has traditionally been a bit of a laggard compared to the other provinces,” he says. “We’re more heavily dependent on coal today than any other province in Canada, so you know the route to renewables is something that makes sense.”

Balaban adds more corporates are expressing an interest in signing renewable energy power purchase agreements in Alberta. When combined with supportive legislation, this can only attract more rival businesses to Greengate’s home turf. ■

50


Kimberly Harris *President & CEO, Puget Sound Energy*

Harris is president and CEO at Puget Sound, the largest investor-owned utility in Washington state with more than 1 million electricity customers. The company does not have a large wind portfolio – three wind farms with total capacity of 773MW – but Harris has secured a place on the North American Power List because, under her tenure, the company has been a pioneer in offering green energy tariffs to commercial and municipal customers. The programme's first subscribers include well-known brands including Starbucks and Target, and could be a model for other utilities seeking to sell wind power nationwide.

49


Rob Threlkeld *Global Manager of Renewable Energy, General Motors*

Threlkeld heads the renewables strategy of car maker General Motors, which has committed to power its global operations entirely from renewables by 2050, and advises the American Wind Energy Association on corporate energy strategies. In April, GM signed a power purchase agreement with Italian utility Enel to buy 100MW of the 185MW Hill Topper wind farm. This followed its commitment to buy all of the output from Starwood Energy's 100MW Northwest Ohio wind project in September; and one-third of the output from RES's 150MW Cactus Flats scheme in Texas in 2016. Threlkeld has been with GM for 18 years.

48


Ward Thomas *President & CEO, Sentient Science*

Thomas set up Sentient Science in 2001 and has pioneered the use of its systems in the wind sector. He launched the firm with US Government backing to use materials science to predict machinery failure rates, and its systems took ten years to develop. It went commercial in 2014, and now works with the likes of Acciona, Duke Energy, EDF, Longyuan and NextEra. To date, its systems are used on 20,000 turbines in 200 wind farms totalling 25GW. Last July, it raised \$22.5m from Georgian Partners; and has been eyeing an initial public offering this year.

47


Alicia Barton *President & CEO, NYSERDA*

New York State Research & Development Authority was set up in 1975 to support on New York State's energy strategy. Its mandate now includes supporting renewable energy schemes, which is doing by providing \$1.4bn backing for renewables and leading the state's offshore wind masterplan. Barton was appointed president and CEO of NYSERDA in June 2017, having previously been co-chair of the energy and cleantech practice at law firm Foley Hoag; and CEO of Massachusetts Clean Energy Center, which sought to use public funds to support the growth of clean energy.

46


Brian Janous *Director of Energy Strategy, Microsoft*

Janous leads the global data centre energy strategy of software giant Microsoft, and his key responsibilities include overseeing all energy supply and renewables deals. Last year, Microsoft signed a power purchase agreement with Vattenfall to buy the output produced by the 180MW first phase of the up-to-400MW Wieringermeer wind farm in the Netherlands and a 37MW PPA with General Electric to purchase the output produced by the Tullahennel wind farm in Ireland. These global moves are in line with the company's plans in North America, where it committed to buy the electricity from three wind projects totalling 237MW in two US states in late 2016.

45


Jacqueline Sargent *General Manager, Austin Energy*

Sargent has been general manager at Texas-based utility Austin Energy since 2016, and looks after various aspects of the power generation process, including the development of renewable energy projects. At present, around 47% of Austin Energy's 470,000 customers are supplied with energy from renewable sources, including wind farms; and, so far, Austin Energy has signed wind power purchase agreements totalling over 1.3GW. This includes a deal signed with Avangrid Renewables in August 2017 to buy the entire output of a 200MW wind farm in Texas.

44


Nick Knapp *President, CohnReznick Capital*

Based in CohnReznick Capital's New York office, Knapp primarily focuses on M&A transactions and tax equity investments in utility-scale wind and solar farms. He has served as lead financial advisor on more than 30 structured equity and lease transaction closings, and his team's recent wind highlights included acting for New York Life on the acquisition of a 150MW wind portfolio; and advising firms including Apex Clean Energy, Capital Power, Foresight Group, Gestamp Wind and Macquarie. He previously worked in structured finance at GE Energy Financial Services.

43


Kevin Walsh *MD of Renewable Energy, GE Energy Financial Services*

Walsh heads the renewable energy group at GE Energy Financial Services, which owns equity and debt investments in more than 200 projects – primarily wind and solar farms – with total headline capacity of 16GW. GE Energy Financial Services looks to invest more than \$1.5bn each year in renewable energy, which has been a growth priority since 2004, and since then it has committed a total of \$15bn in renewables. Walsh has been with the company since 1990. He is also a member of the leadership council of the American Council on Renewable Energy.

42


Armando Pimentel *President & CEO, NextEra Energy Resources*

Pimentel is a key part of the NextEra empire, having held the position of president and CEO at NextEra Energy Resources since 2011. This is the part of the group that owns 19.9GW of power generating capacity, including almost 14GW of wind farms and over 2GW of solar. He is also president and a member of the board of NextEra Energy Partners. Previously, he served as EVP and CFO at NextEra Energy, which is parent company of NextEra Energy Resources. Before he joined the group, he was a partner at Deloitte & Touche, and has held other positions in energy and financial services.

41


José Antonio Miranda *CEO of Onshore (Americas), Siemens Gamesa*

Miranda joined Spanish turbine maker and developer Gamesa in 2007, and worked in leadership roles including head of China and then Latin America. Following the merger between Siemens and Gamesa last year, he was elevated to the position of Siemens Gamesa's CEO of onshore wind in the Americas in November. This means he is now in charge of the third-largest turbine supplier in the US when ranked by installations in 2017, with a 24% market share. This is behind only Vestas and GE. He originally trained as an engineer in Oviedo in Spain.

40


Neha Palmer *Head of Energy Strategy, Google*

Palmer has worked in the energy sector for two decades, and is now in charge of Google's team that buys power and electric infrastructure. Under her leadership, the firm last year achieved its goal of buying all of its electricity from renewables including wind – and went beyond it. Google announced power purchase agreements totalling 536MW in December for electricity produced by four US wind farms, owned by Avangrid, EDF and Enel. She has been with Google since 2012, and was previously at Pacific Gas & Electric Company.

39


Ted Brandt *CEO & Co-Founder, Marathon Capital*

Brandt co-founded Marathon Capital in 1999 to provide independent investment banking and financial advisory services in the North American wind industry. In those 19 years it has advised on more than 100 projects, with highlights of the last 12 months including advising Fiera Infrastructure on the purchase of equity interests in 11 wind and solar farms totalling 921MW; advising PRC on the disposal of its 470MW wind development portfolio to Tenaska; acting for Lincoln Clean Energy on a sale of two projects totalling 460MW to Starwood; and assisting Innogy with the acquisition of EverPower's 2GW onshore business.

38


Michel Letellier *President & CEO, Innergex*

Letellier joined Canadian developer Innergex in 1997 as VP of finance, and in 2007 replaced the company's founder Gilles Lefrançois as president and CEO. Innergex owns a renewable energy portfolio of 1.8GW in operation, of which 1GW is wind projects, and over 3.5GW under construction, mainly in North America and France. In February, Innergex completed the acquisition of Vancouver-based renewable energy firm Alterra Power, which is set to enable the developer to expand geographically as well as in other sectors, including geothermal.

37


Tom Carbone *President of Wind Division & Director, Tri Global Energy*

Carbone joined renewables developer Tri Global in 2011, and focuses on project origination and securing development funding. Previously, he worked at turbine manufacturers and held senior roles at businesses including Vestas Americas, Nordic Windpower and Reliablenergy. Since it was founded in 2009, Tri Global has initiated wind developments totalling 6GW, and focuses on Texas and New Mexico. Key projects in the last year included completing the 198MW Bearkat and hitting financial close on the 148MW Blue Cloud with Copenhagen Infrastructure Partners.

36


Thomas Brostrøm *President of North America, Ørsted*

Brostrøm has helped to guide the nascent US offshore wind sector through a key stage in its evolution. Ørsted entered the market under Brostrøm's guidance in April 2015, in what was a vital show of support for a market reeling after the collapse of the 468MW Cape Wind. Ørsted is now pushing on with projects including its 1GW Ocean Wind scheme in waters off the coast of New Jersey; and the planned 800MW Bay State Wind off Massachusetts, although the latter project didn't secure backing from Massachusetts in the state's bidding process in May 2018. Brostrøm has been with Ørsted since 2009.

35


Mark Vanderhelm *VP of Energy & Waste, Walmart*

Vanderhelm joined retail giant Walmart in 2015 to lead its energy strategy, spearheading its move towards using more renewables, including wind power. Under his leadership, the retail group has agreed a power purchase agreement at American Electric Power and Invenery's planned \$4.5bn Wind Catcher scheme, which is set to have total headline capacity of 2GW if its developers can win regulatory approval. Before joining Walmart, Vanderhelm spent over a decade at US energy company Exelon, where he focused on developing generation projects.

34


Susan Nickey *MD, Hannon Armstrong*

Nickey has worked in energy and finance for over 25 years, and joined Hannon Armstrong in 2014 to lead its investment strategy in wind. The Maryland-headquartered business provides debt and equity financing for wind and solar developers, with around \$560m invested in wind. Before joining Hannon Armstrong, she was founder and chief executive of Threshold Energy; and CFO at Acciona Energy North America. She is also on the board of the American Wind Energy Association.

33


Himanshu Saxena *CEO, Starwood Energy*

Saxena joined investor Starwood Energy in 2008 and was appointed CEO in last November. He is responsible for the firm's investment strategy and, since being at the company, has led on the acquisition and development of 4.5GW of renewables and transmission developments in North America totalling \$5bn. Starwood's key deals in the last year included signing a power purchase agreement with General Motors for the entire output of its 100MW Northwest Ohio wind farm, which was commissioned in April. Before Starwood, Saxena served as investment banker at JP Morgan's global energy and utilities group, where he advised on over \$10bn in transactions.

32


Steve Doyon *CEO, Novatus Energy*

Novatus Energy is owned by institutional investors advised by JP Morgan Asset Management, and is responsible for managing a 1.8GW portfolio of operational wind and solar schemes, of which over 1GW is in ten wind projects. Headquartered in New York, Novatus has since late 2015 been led by Doyon, who has a track record at firms including Terra-Gen Power, where he was responsible for development, construction and operation of the 1.5GW Alta Wind project. Over the last couple of years, Novatus has concluded deals to buy assets from vendors including troubled solar developer SunEdison.

31


Matt Riley *CEO & Co-Founder, Infinity Renewables*

Riley founded Infinity Wind Power together with Derek Harding in April 2008, with the intent to develop a portfolio of wind farms across the US. However, the growth of solar forced the pair to include a solar platform in the company as well, and Infinity Renewables was born. In February, the firm went through an even more significant change as it was bought by French utility Engie, which is eyeing major expansion in North American wind. This means that Riley now also serves as Engie's head of wind in North America. Infinity has developed and sold projects with capacity of over 1.6GW; and has an 8GW development pipeline.

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Marshal Salant *MD & Global Head of Alternative Energy Finance, Citi*

Salant is managing director at US-headquartered banking group Citi and global head of its alternative energy finance group in the capital markets origination division. In this role, he focuses on the development of financial solutions for industries including wind, such as construction financing, project equity and tax equity. Under his guidance, Citi has backed the first US offshore wind farm, the 30MW Block Island, and has helped Goldwind to reach financial close on its 160MW Rattlesnake scheme in Texas last year.

29


John Brace *CEO, Northland Power*

Brace joined this Canadian developer in 1988, and has served as CEO from 2005 until May 2018, when he announced his retirement. Northland owns stakes of 1.3GW in operational wind projects and a further 252MW under construction. These include the Deutsche Bucht offshore wind farm in the German Sea, which reached a €1.3bn financial close last year. Over the last 12 months, Northland has formed a joint venture with Singapore's Yushan Energy to develop two offshore wind farms totalling up to 1.2GW in Taiwan; and, together with German utility Innogy, it has commissioned the 332MW Nordsee One project and concluded an €840m refinancing.

28


Mit Buchanan *MD of Energy Investments, JP Morgan*

Buchanan is one of 20 professionals who originate, structure and execute energy deals at JP Morgan. The team has been responsible for around \$17bn of renewable energy tax equity funding deals for more than 17GW of power from 145 wind farms; and she has been with JP Morgan and its predecessor companies Bank One and First Chicago since 1987. Buchanan is a respected voice on trends in the US renewables tax equity market, and her profile will surely grow with the recent retirement of her highly-regarded fellow MD, John Eber.

27


Nicholas Akins *Chairman, President & CEO, American Electric Power*

American Electric Power concluded one of the most stunning project finance deals of 2017 last June when it committed to buy the 2GW Wind Catcher project, which Invenergy is building in Oklahoma, for \$4.5bn including transmission. Akins said at the time that the deal matched with AEP's strategy of "investing in energy resources of the future", and would lead to \$7bn savings for its customers over 25 years compared to other sources, as long as it wins regulatory approval. Akins started his engineering career in 1982 and worked his way up through AEP and associated firms, becoming president in 2010.

26


Miguel Angel Prado Balboa *CEO, EDP Renewables North America*

Prado Balboa has worked with EDP Renovaveis since 2003 and is now its corporate global head of investments and M&A, leading its asset rotation strategy since 2012. In this role, he helped to raise more than €2bn by divesting minority stakes in over 3GW of wind and solar assets in North America, Europe and Brazil; and supported on the raising of over €1.3bn through the initial public offering of EDPR. In October, he also became chief executive of EDPR's North American arm, which has grown rapidly and now holds a 5.2GW wind portfolio across the US.

25


Mike Garland *President & CEO, Pattern Energy Group*

Garland is president and CEO of Pattern Energy, and also CEO of group company Pattern Development. Last year, Pattern raised \$724m from institutions for a \$1bn plan that aims to double the size of its renewable energy portfolio to 5GW by 2020. As part of this plan, Pattern Development acquired the 103MW Willow Creek wind project in South Dakota and the 80MW Vivaldi Springtime wind scheme in Montana. Key transactions over the last year include the financial close of the 300MW Henvey Inlet wind farm in Canada for C\$1bn (\$790m), in partnership with Canadian firm Nigig Power. It is also expanding in Japan.

24


Andrew Young *CEO, Innogy Renewables US*

Young has been CEO of German utility Innogy's US operation since its launch in August 2016. Before joining Innogy Renewables US, he fulfilled several managerial roles at EDP Renewables for 15 years; and, under his leadership, Innogy has made its first major wind acquisition in the country as it agreed to acquire all of the shares in EverPower Wind Holdings from UK private equity firm Terra Firma. The deal would make Innogy the sole owner of 2GW of onshore wind projects in various stage of development across the US.

23


Jeffrey Grybowski *CEO, Deepwater Wind*

Grybowski is a leading figure in the nascent US offshore sector having completed the first project in US waters, the 30MW Block Island, in January. The firm is now seeking to prove that it is not a 'one-hit wonder': it won backing from Rhode Island to develop its 400MW Revolution project in May 2018; and won backing from New York Governor Andrew Cuomo for its 90MW South Fork scheme off Long Island last year. Grybowski is also looking to develop 1GW of offshore wind for New York and New England.

22


Rob Caldwell *President, Duke Energy Renewables*

Caldwell has led Duke Energy's commercial portfolio business since July 2016, which consists of the company's renewable energy and electric transmission businesses. He is responsible for developing policies and strategies related to renewable energy resources, including wind and solar. Duke Energy Renewables owns or manages a portfolio of over 4GW of wind energy, and last September it partnered with tech firm Sentience Science to help reduce maintenance costs of its fleet. Duke Energy is one of the largest electric power company in the US and supplies around 7million customers in the Southeast and Midwest.

21


Laura Beane *CEO, Avangrid Renewables*

Beane became CEO of Iberdrola arm Avangrid Renewables in 2017. In total, Avangrid owns assets worth \$10bn, including wind farms with total capacity of 6GW in 22 US states. The company's highlights over the last 18 months include winning the rights to build the up-to-1.5GW Kitty Hawk offshore wind farm off the US coast; winning support to develop the 800MW Vineyard Wind project off the coast of Massachusetts in May 2018; signing power purchase agreements with Google for 196MW of wind power; and building a 166MW wind farm in New Mexico to power Facebook's data centre.

DISTILLED WATERS

MUFG's Beth Waters spoke to Richard Heap about tax reforms, emerging markets and new types of electricity buyers



“When I first came to MUFG, I felt like a kid in a candy store. It’s this giant bank, we have huge relationships around the world – particularly in the US – and all we needed to say was: ‘We’d like an opportunity to bid on your deals.’”

That was 2008. Since then, Beth Waters has helped to drive the origination of 62 wind project finance deals in the US and Canada, which represent total capacity of 13.2GW and account for \$19.6bn of non-recourse debt. She is a managing director and deal team leader at MUFG, and previously worked for Australia’s ANZ Bank.

A Word About Wind spoke to Waters about the most important issues in the US wind industry today, including the impact of tax reforms; the expiry of the PTC; new types of electricity buyers that are changing utilities’ strategies; and the potential of US offshore wind.

She says her move from ANZ in 2008 came at an important time for MUFG’s

wind ambitions: “I joined MUFG right before the financial crisis and, when the crisis was happening, we were open for business when almost everyone else was shutting down. That’s really when we took off in the project finance business – especially in renewables – and we haven’t stopped since.”

Over the last two years, Bloomberg New Energy Finance has ranked MUFG as the number one lead arranger for financing clean energy and energy-efficient schemes. The bank financed 63 schemes in 2017 totalling \$4.3bn, up 19% year-on-year, including the C\$945m funding of the 300MW Henvey Inlet scheme in Canada. The team has more than 300 people working on project deals around the world.

Taxing changes

Waters started in banking in the late 1990s at Chemical Bank, before joining ANZ, where she focused on originating power deals and some project finance.

She says this was a good place to learn about funding renewable energy:

“We probably were the first large traditional project finance lender in the US to start doing long term wind financings.”

Then, in 2008, she moved to MUFG to focus on project finance full-time. Nowadays, between 90% and 95% of her work is in renewables; and she acts for clients such as Duke Energy, Engie, NextEra, Pattern Energy, Samsung and Starwood Energy.

In total, power deals currently account for around 50% of MUFG’s project finance portfolio, and there is no sign of a change in this appetite – despite recent tax changes.

The Trump administration introduced tax reforms in January that reduced corporate tax from 35% to 21%, which could reduce the need for tax equity deals by large corporates, and brought in the base anti-erosion tax. This was meant to limit multinationals’ abilities to cut their US tax bills, particularly by cross-border investors.



I have clients that are looking for every which way to cut costs, because they are preparing themselves for when PTCs are gone.



Despite this, Waters says that Japanese bank MUFG's appetite for tax equity deals in wind is as strong as ever.

She says: "It is not negatively impacting our project finance business. I was in the middle of a couple of transactions at the time when the tax law change happened. Everyone in the sector was taken off-guard, but ultimately what was required was a structuring change to the back levered loan docs, to work around the impact the new tax laws had on tax equity."

The concern in the market was that these changes would negatively affect tax equity deals and mean there was not enough tax equity available for project sponsors. This has not proved to be the case as most of the large institutions have coped well. She argues "perhaps one or two tax equity providers have been negatively impacted by the change in tax law, but I don't expect this to hurt the [wind] business".

There appears to be plenty of tax equity still out there, but she observes that there is a bit question about what will happen to tax equity when wind production tax credits finally expire.

Tax equity deals help project sponsors to monetise PTCs and, as PTCs reduce over the next few years and ultimately expire, this means there will be less demand for tax equity. She believes this will push firms back to entering

into more traditional long-term project finance transactions – in other words, not back-levered transactions – either in the bank or the bond market.

Waters explains: "One of my clients was already recently talking to me on the subject and advised that they expect to start ramping up again on needing more bank debt because of the PTCs expiring. So I'm expecting to get more long-term project finance business in a couple of years as a result. Many of my clients weren't even bothering to get long term bank debt. Instead, they have just been doing construction loans taken out by tax equity."

In terms of the health of the sector, Waters says that wind developers are making good progress to make wind cost-competitive with fossil fuels after the PTC expires.

"If they're not currently able to survive without PTCs, they will have to be by the time the PTCs expire. I have clients that are looking for every which way to cut costs, because they are preparing themselves for when PTCs are gone."

However, she adds that this would not be the case for everyone: "I could see some smaller players having difficulty in a few years as they perhaps don't have the economies of scale like the big guys. That could be a possibility."

But even for smaller developers that

cannot be competitive, she says there are plenty of opportunities for them to sell their portfolios to larger players.

"The bank market is so liquid and, in the capital markets, there are so many people who are buying in," she says

This means that, while some firms will be concerned, Waters believes that the market is in good shape for smaller developers: "Even though they might not be able to survive on their own/be competitive without PTCs, they're in a position to getting a windfall from strategics as well as financial sponsors looking to buy their development pipeline as there is tremendous demand by large players in the market for development pipelines."

This competition in the US is also focusing more US developers to look at building wind farms overseas. One of her clients, Pattern Energy, has been working on wind projects in Japan and Latin America; and Waters says she is seeing more firms look at the emerging market of Mexico because of the higher returns available: "Latin America, outside of Mexico, has definitely become a target market for more US developers in recent years."

Community choice

Competition for renewables is not simply an issue for companies looking to develop or buy wind projects. There is strong competition from companies



Ocean no-going: Waters says NIMBYs have hindered US offshore wind so far

Source: Pexels

looking to buy the power from these schemes too, including corporates, utilities and community groups.

Waters says this latter group – called ‘community choice aggregators’ – could have a big impact on the market.

CCAs are set up on behalf of individuals in a geographical area to buy electricity directly from generators, and cut out utilities from the process. There are CCAs in operation in California, Illinois, Massachusetts, New Jersey, New York, Ohio and Rhode Island, and a “massive movement” to create more.

She argues that this should be a “wake-up call for utilities”. As with corporate power purchase agreements, CCAs give communities a chance to ‘cut out the middle-man’.

“Corporates, historically, have been buying through their local utility, and I believe they were not happy with how things were going. Maybe pricing wasn’t attractive/competitive enough, or they wanted more renewables and utilities weren’t providing it for them, so they circumvented [regulated utilities] and went direct to these developers.

“Now the regulated utilities are waking up and saying: ‘Whoa, we’re losing business.’ They’re now scrambling to get back into the game and to play an important role in renewables going forward,” she says.

One response from regulated utilities is to put more focus on building and operating their own wind farms, rather than simply procuring wind power from others. Berkshire Hathaway Energy and Xcel Energy are two of the most high-profile examples; and so is the 2GW Wind Catcher project by American Electric Power and Invenergy.

Emerging markets

One of the other big changes in the US wind industry is the growth of offshore wind, where projects totalling 8GW are currently being planned off the east coast. This is giving European players such as Equinor (formerly Statoil) and Orsted the chance to enter the US, alongside established US player such as Avangrid Renewables.

MUFG has been a significant backer of offshore wind projects in European waters, including a \$174.9m financing deal for the 588MW Beatrice project, \$162.2m for the 573MW Race Bank deal, and a \$60m refinancing for the 288MW Butendiek project.

Waters says she is enthusiastic about the prospects for building and backing wind farms in US waters.

However, some major US players are less keen. For example, in April, NextEra’s chairman and CEO called offshore wind “terrible” business during an earnings call because it is more expensive and riskier than building onshore.

MUFG has seen some of these problems first-hand in the US, as it was involved in funding the 468MW offshore wind project Cape Wind. The project ran into repeated legal challenges before Energy Management Inc. finally cancelled it.

“Some US developers think offshore wind is too expensive and, with the opponents, that there might be more lawsuits like we saw at Cape Wind. That was under development for ten-plus years, and at the end of the day they couldn’t move ahead,” she says.

Waters also highlights a cultural difference between Europe and the US, with US coastal communities proving more resistant with the Not in My Back Yard (NIMBY) issue arising.

“We’re not necessarily like Europe, where governments have been very supportive of expanding into offshore wind. Many European governments are keen to be less dependent on gas-fired projects, for instance, which require the importation of gas from the likes of Russia and others. Thus, they looked to diversify their power generation resources to include clean energy – primarily wind and solar, with offshore wind being a key area of development in more recent years. In the US, there have been a lot of people who don’t want to look at wind farms on the waters,” she says.

But she adds that she believes the sector “will move ahead” as more people recognise the economic benefits and energy diversification that a thriving offshore wind industry can bring to local communities and economies.

Financing US offshore wind farms would undoubtedly be a challenge for banks such as MUFG, but it is one that Waters relishes.

“I always say I’m a power project finance banker, but I’m primarily renewables,” she says. “I love renewables, and not just professionally but also personally. So it’s very rewarding for me and I’m very passionate about what I do... I wouldn’t want to move to another sector. I want to continue to do more interesting transactions in renewables.”

With strong investor appetite and big changes looming, we should see plenty of interesting work to go around. ■

A WORD ABOUT WIND

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29th November, London

GUEST SPEAKERS

For each event, we'll be hearing from an industry expert for an interview and audience Q&A. Upcoming speakers include Joost Bergsma, CEO and Managing Partner at Glennmont Partners, and Emma Tinker, co-founder and CIO of Asper Investment Management.

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Skip Grow *MD & Head of Clean Technology Group, Morgan Stanley*

Grow joined Morgan Stanley in 2010 as managing director in its power and utility group with responsibility for renewable energy. He has a broad range of industry experience in wind and solar, having managed deals for firms including EnerNOC, Lincoln Clean Energy and TerraForm. Before joining Morgan Stanley, he was a managing director and head of alternative energy at Lazard Freres & Co. His experience includes public and private equity financing, restructuring, and advising on mergers and acquisitions, and he is a well-respected name in the sector.
- 19



Steve Lockard *President, CEO & Director, TPI Composites*

TPI Composites became the world's largest independent blade manufacturer last April as GE concluded its buyout of LM Wind Power. Lockard joined TPI in 1999 from GPS supplier Satloc, and became its president and CEO in 2004. TPI is headquartered in Arizona and, last November, announced plans to set up an advanced technology centre in Kolding in Denmark. The company has secured key overseas transactions in the last 18 months, including with Siemens Gamesa in Turkey; with Vestas in Latin America; and with Senvion in Asia-Pacific and Latin America. He is also chairman of the American Wind Energy Association's board of directors.
- 18



Declan Flanagan *CEO, Lincoln Clean Energy*

Flanagan set up Chicago-based developer Lincoln Clean Energy in 2009, and led it as it first raised \$250m from investor I Squared and was then acquired by the firm in late 2015. Lincoln has already developed a renewables portfolio of over 2GW involving more than \$2bn in capital investment, and currently has 1GW of advanced-stage development wind and solar projects. In the last year, Lincoln has secured construction financing from Morgan Stanley for the 300MW Tahoka project and closed a \$330m financing for the 250MW Willow Springs wind farm, which began operations in November 2017. It also completed a 255MW project for Amazon.
- 17



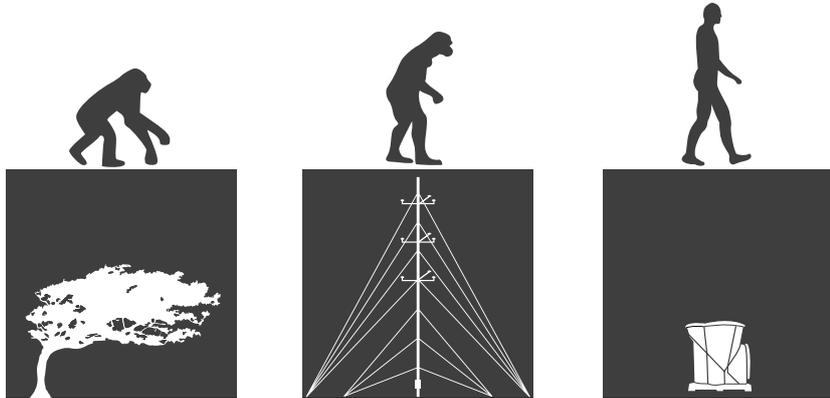
Beth Waters *MD of Project Finance in the Americas, MUFG*

Waters joined MUFG in 2008, and is currently a managing director and deal team leader in the Japanese bank's project finance team in North America. In this role she originates, structures and negotiates transactions in the power sector with a primary focus on renewables; and, in her ten years at MUFG, she has helped drive the origination and structuring of 62 wind projects totalling 13.2GW in the US and Canada. These account for \$19.6bn in non-recourse debt, and her most notable deals include C2C3 Power, the 300MW Henvey Inlet and 230MW Niagara. *Read more in our interview on page 28.*
- 16



Sachin Shah *CEO, Brookfield Renewable*

Shah joined Canadian investment group Brookfield Asset Management in 2002 and is now senior managing partner at the company, as well as CEO of its renewables investment arm. Last year, the firm finalised the acquisition of 51% of SunEdison's yieldco TerraForm Power's outstanding common shares for \$656m; and it closed its buyout of 100% of TerraForm Global for \$750m. Key deals of 2018 include the launch of a \$1.2bn takeover bid for Spain's Saeta Yield.



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15



Mark Goodwin *President & CEO, Apex Clean Energy*

Goodwin was a director at Horizon Wind Energy for four years before joining wind and solar developer Apex Clean Energy in 2009, where he served as president and COO before being elevated to president and CEO in 2016. Goodwin now leads the day-to-day operations at Apex, which has developed clean energy projects worth \$4bn over the last decade and now has 2.2GW of operational projects, of which it manages 912MW. Apex is currently carrying out a strategic review that could lead to its sale. Goodwin has also previously worked for Vestas.

14



Adebayo Ogunlesi *Chairman & Managing Partner, Global Infrastructure Partners*

Ogunlesi is chairman and managing partner at fund management firm Global Infrastructure Partners, which manages over \$45bn for its investors, of which \$9bn in renewables. This includes a 24% stake in Spanish investor Saeta Yield; and a \$1.4bn investment in NRG Energy's development and O&M arms, and its 46% stake in NRG Yield. Key deals over the last 12 months include a \$5bn buyout of Asia-Pacific specialist Equis Energy and the acquisition of a 50% stake of the 450MW Borkum Riffgrund 2 offshore project from Ørsted for €1.2bn. Ogunlesi was also a member of one of President Trump's short-lived business councils.

13



Rafael Antonio Gonzalez Sanchez *CEO, Enel Green Power North America*

Enel Green Power North America operates renewable energy projects in 23 US states and two Canadian provinces, with a total headline capacity of over 4.2GW – including over 2.7GW of operational wind projects on which it has worked with Tradewind Energy. Gonzalez has been chief executive of EGP NA since December 2014, and before that he spent four years in Enel Green Power's O&M department overseeing 750 renewables projects in 16 countries. He previously worked for a joint venture between Enel and Union Fenosa Energias Renovaveis. *Read more in our interview on page 16.*

12



David Giordano *Head of Renewable Power Americas & APAC, BlackRock Real Assets*

Giordano has two decades' experience in energy and joined BlackRock, where he is head of the North American investment team, in 2011. The company made headlines last July as BlackRock completed a final close for its Global Renewable Power II fund, after gaining financial commitments of \$1.65bn from 67 institutions. Giordano is portfolio manager of GRP II, of which 20% is invested in five wind and solar farms in the US, Norway and Japan. Last year, he led BlackRock in the acquisition of EverPower's 752MW operational wind portfolio from Terra Firma. He is set to become board chair of the American Council on Renewable Energy in June.

11



Tristan Grimbert *President & CEO, EDF Renewables*

Grimbert leads EDF Renewables in North America, which includes EDF Renewable Energy, EDF EN Canada and EDF EN Mexico. His tenure at the firm started in 2004, and he was elevated to CEO in 2008. EDF is one of the largest developers in North America after working on 10GW of renewables projects in the US, Canada and Mexico, with 10GW more under service. Of this, 7.8GW of wind projects have been commissioned, putting it in the top ten US wind owners and developers. Grimbert is the immediate past chair of the American Wind Energy Association, where his one-year term concluded in May 2018.

10



John Eber *Formerly MD of Energy Investments, JP Morgan*

Eber was with JP Morgan from 1988 until his recent retirement and, during the last 30 years, he established himself as a key financier in the wind sector. At JP Morgan, he managed the firm's tax equity deals, which are worth an estimated \$12.8bn since 2003, and include the financing of more than 14GW of wind farms in 122 projects in 22 US states. He has also been a member of the American Wind Energy Association's board of directors since 2007, a board member of the American Council on Renewable Energy since January, and – despite his retirement – we expect him to remain a key commentator on the financial side of the US wind industry.

9



Rob Freeman *CEO & Co-Founder, Tradewind Energy*

Freeman is CEO and a founding member of US developer Tradewind, which he set up in Kansas City in 2003 with backing from local angel investors. In 2006, he led the formation of a partnership with Italian utility Enel, and they have since completed wind and solar projects worth over \$5bn in the US – with plans to double that in the next three years. Highlights of the last 12 months included the sale of the 320MW Rattlesnake Creek wind farm to its long-term partner Enel for \$430m, and the sale of the 170MW English Farms to Alliant Energy.

8



Ray Wood *MD & Global Head of Power & Renewables, Bank of America Merrill Lynch*

Wood has built a reputation as a big dealmaker in US wind thanks to his 28 years of working in investment banking, including over 20 years focused on energy. He spent 22 years at Credit Suisse before joining Bank of America Merrill Lynch in 2012, where he heads global renewables and is now focused on deals including project financings and corporate M&A. Over the last 12 months, his team participated in a \$365m tax equity deal for the 300MW Rock Creek wind farm and provided tax equity financing to E.On's 306MW Radford's Run, together with Allianz Renewable Energy Partners. *Read more in our interview on page 8.*

7



Chris Brown *President of Sales & Service, Vestas Americas*

Brown joined Vestas in 2012 and, under his leadership, the business has reinforced its status as a key player in the US, maintaining its leadership position in the market for the second year in a row. North American sales accounted for almost a third of total Vestas orders in 2017, with 3GW of its turbines installed in North America out of a total of 11.2GW globally. Prior to Vestas, he served as COO for the City of Detroit for two years; and was also founder and CEO of pioneering US offshore developer Deepwater Wind.

6



Philip Anschutz *Owner, Power Company of Wyoming*

Anschutz topped our Top 100 Power People report in November 2017, and with good reason. He is one of the richest people in the US, with an estimated net worth of \$12bn, and a huge business empire. He also makes a habit of getting into sectors that are on the cusp of major change, and so the move by his Power Company of Wyoming in April 2017 to start building the up-to-3GW Chokecherry and Sierra Madre wind farm in the US state is a huge show of support for the wind sector. This is an important contribution with President Trump in the White House.

5



Pete McCabe *President & CEO (Onshore), GE Renewable Energy*

McCabe took over from Anne McEntee as president and CEO of onshore wind at GE Renewable Energy in early 2017 – and he has taken the reins at a tough time for the GE empire. The group has seen its share price drop 55% in the last 18 months, while facing speculation that divisions including renewables could be spun off into separate vehicles.

Despite this, GE Renewable Energy has been a bright spot for GE. The business may have been runner-up to Vestas in terms of total US installations for a second year running in 2017, with 2.1GW installed in 2017 compared to Vestas’s 3GW. However, it saw sales rise 14% year-on-year to \$10.5bn in 2017 based on higher orders, and profits rise 26% to

\$727m over the same period. The firm also reported its onshore wind servicing orders increased 58% in 2017 based on growing activity in the repowering market. This gives McCabe a key role in keeping this industrial giant steady in a tumultuous market.

The company is also in line for a transformational deal too. It is due to supply its turbines to the largest US wind scheme – Invenergy and American Electric Power’s 2GW Wind Catcher scheme in Oklahoma – although this relies on the project winning regulatory approval.

GE has always been in the big leagues but that would be a high-profile win at an important time.

4



Michael Polsky *President & CEO, Invenergy*

Polsky founded Invenergy in 2001 and has grown it into the largest independent wind farm operator and developer in North America. Over this time, the firm has developed more than 16GW of renewables projects, including 77 totalling 10GW in the wind. It is no mean feat to keep up such momentum in a fast-changing market over 18 years.

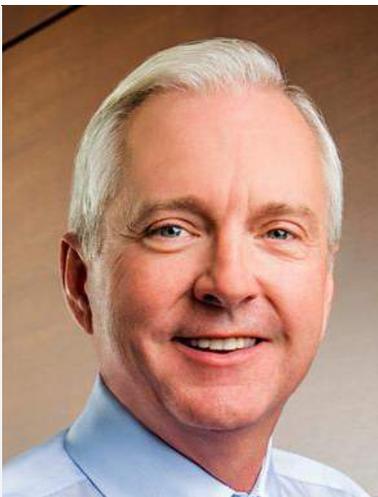
Last year, the company set out plans for arguably its most ambitious wind project of all: the 2GW Wind Catcher in Oklahoma with General Electric, where the company also last year closed a \$4.5bn deal with American Electric Power to fund construction of the wind farm and an associated transmission line spanning Arkansas, Louisiana, Oklahoma and Texas. The project has won support from regulators

in Arkansas, but still requires backing in Louisiana, Oklahoma and Texas; and the Federal Energy Regulatory Commission. If this is successful, then it could propel Polsky higher up our North American Power List in future years.

But this is not Invenergy’s only eye-catching deal. In the last 12 months, it has also backed cybersecurity company Nozomi Networks; secured construction financing for its 202MW Upstream and 132MW Bishop Hill 3 wind farms; and won eye-catching power deals with Walmart and Grupo Bimbo.

Finally, it started a legal fight against Poland’s government over claims that it and other wind farm owners and operators have been treated unfairly.

3



Ben Fowke *Chairman, President & CEO, Xcel Energy*

Xcel chairman, president and CEO Ben Fowke has been leading the US regulated utility’s shift from its traditional focus on coal-fired generation towards its expansion in wind.

For the last decade, Xcel has usually led the way for being the utility with the most wind farms in its portfolio – 6.7GW now – of which most is procured with power purchase agreements. However, recent figures from the American Wind Energy Association show that Xcel was beaten into second place by Berkshire Hathaway Energy in 2017.

Fowke joined Xcel in 1997 after spending ten years at the FPL Group and, before that, positions outside the energy industry with DWG Corporation

and KPMG. He joined Xcel when the company was New Century Energies – it became Xcel in 2000 in a merger with Northern States Power Corporation – and worked in various roles before becoming CFO in 2003, COO in 2009 and then CEO in 2011.

While most of the company’s 6.7GW of wind capacity is procured through PPAs, it also now owns five wind farms totalling 850MW and is looking to increase this.

Last year, Xcel announced its plan to add 3.7GW to its portfolio by 2021, including the development of eight wind farms totalling 2.7GW and PPAs for 1GW more. This has made it a regular feature in wind news headlines over the last year.

2



Jim Robo *Chairman & CEO, NextEra Energy*

The upper echelons of the North American Power List wouldn’t be complete if it didn’t include Robo and NextEra. Headquartered in Florida, the group owns around 46.8GW of net generating capacity via its main subsidiaries NextEra Energy Resources, which is one of the world’s largest wind and solar power generator, and Florida Light & Power. Of this, around 13.9GW of this is wind farms, which make it the largest US wind energy owner.

Robo became president and CEO of NextEra Energy in 2012 and was elevated to the role of chairman in late 2013; and is a key voice lobbying for the wind industry – except offshore wind, which he labelled as “terrible” business and energy policy

in a quarterly earnings call in April. However, in onshore wind he expects costs to continue to fall into the early 2020s and beyond, and is bullish about the prospects for storage.

Under Robo’s leadership, NextEra is looking to commission up to 5.4GW of wind and solar capacity in North America in 2017 and 2018; and has agreed to develop 750MW of wind farms for Xcel Energy.

In addition, it is working on major repowering projects, and signed a 508MW deal with Siemens Gamesa in April for three wind farms in Texas. Robo will surely remain an influential persona – just don’t tell the offshore wind fans!



Bill Fehrman *President & CEO, Berkshire Hathaway Energy*

Multi-billionaire investor Warren Buffett said last year that Berkshire Hathaway had got a “big appetite” for deals in the wind and solar sector. The responsibility for delivering on that strategy falls to senior figures in Berkshire’s energy empire, and most notably Bill Fehrman.

Fehrman started at Berkshire Hathaway Energy in 2006 to lead the integration of PacifiCorp into the firm after a \$5.1bn buyout; and then became president and CEO of MidAmerican Energy and BHE Renewables. In January, he became president and CEO of Berkshire Hathaway Energy in a series of management changes designed to give certainty over Berkshire Hathaway’s plans after Buffett. This means he is responsible for the strategies of regulated utilities including MidAmerican Energy, NV Energy and PacifiCorp, and their ambitious wind plans.

It is also a cause for celebration at Berkshire Hathaway that it became the utility with most wind in its portfolio (more than 6.7GW) in 2017, overhauling long-time leader Xcel Energy. It was a close-run thing but, given the long-running battle between the two firms to demonstrate their strong wind credentials, those at the company will surely take that.

MidAmerican, for example, has established itself as a key player in wind over recent years, and demonstrates the desire of forward-thinking regulated utilities to buy and own their own wind farms rather than buy wind power from elsewhere. It already has more than 2,000 turbines spinning in Iowa, and is hoping to add an extra 1,000 in the next couple

of years with developments including its multi-phase 2GW Wind XI. Meanwhile, PacifiCorp subsidiary Rocky Mountain Power has also set out plans to significantly increase the amount of wind in its portfolio and gave backing to projects totalling 1.3GW last September. This will help it deliver its Energy Vision 2020. And, for the wider empire, there should be no lack of wind with green fan Fehrman in charge.

This puts Berkshire Hathaway at the heart of some key trends changing US wind, to the chagrin of developers and unregulated utilities that feel regulated utilities have an unfair advantage.

For instance, increased desire from regulated utilities to own and run their own wind farms is one of the biggest issues in US wind today. It shows regulated utilities see that the cost and the risk of wind energy is going down, and are therefore more confident to develop schemes themselves rather than leaving it to others. But it means that developers will come under greater pressure to find promising sites and build them out; and that non-utilities will find it tougher to win PPAs with regulated utilities, which will raise their need to unlock corporate PPAs. It’s a challenge that others in the industry are seeking to respond to.

This is not just down to Berkshire Hathaway and MidAmerican, but it gives the newly-promoted Fehrman an important role in both delivering the strategy – and also being a visible presence to help guide others. We can’t always be looking at Warren Buffett.

1

Top 100 list

2018 position	Name	Company	Title
1	Bill Fehrman	Berkshire Hathaway Energy	President & CEO
2	Jim Robo	NextEra Energy	Chairman & CEO
3	Ben Fowke	Xcel Energy	Chairman, President & CEO
4	Michael Polsky	Invenergy	President & CEO
5	Pete McCabe	GE Renewable Energy	President & CEO (Onshore)
6	Philip Anschutz	Power Company of Wyoming	Owner
7	Chris Brown	Vestas Americas	President of Sales & Service
8	Ray Wood	Bank of America Merrill Lynch	MD & Global Head of Power & Renewables
9	Rob Freeman	Tradewind Energy	CEO & Co-Founder
10	John Eber	JP Morgan	Formerly MD of Energy Investments
11	Tristan Grimbert	EDF Renewables	President & CEO
12	David Giordano	BlackRock Real Assets	Head of Renewable Power Americas & APAC
13	Rafael Antonio Gonzalez Sanchez	Enel Green Power North America	CEO
14	Adebayo Ogunlesi	Global Infrastructure Partners	Chairman & Managing Partner
15	Mark Goodwin	Apex Clean Energy	President & CEO
16	Sachin Shah	Brookfield Renewable	CEO
17	Beth Waters	MUFG	MD of Project Finance in the Americas
18	Declan Flanagan	Lincoln Clean Energy	CEO
19	Steve Lockard	TPI Composites	President, CEO & Director
20	Skip Grow	Morgan Stanley	MD & Head of Clean Technology Group
21	Laura Beane	Avangrid Renewables	CEO
22	Rob Caldwell	Duke Energy Renewables	President
23	Jeffrey Grybowski	Deepwater Wind	CEO
24	Andrew Young	Innogy Renewables US	CEO
25	Mike Garland	Pattern Energy Group.	President & CEO
26	Miguel Angel Prado Balboa	EDP Renewables North America	CEO
27	Nicholas Akins	American Electric Power	Chairman, President & CEO
28	Mit Buchanan	JP Morgan	MD of Energy Investments
29	John Brace	Northland Power	CEO
30	Marshal Salant	Citi	MD & Global Head of Alternative Energy Finance
31	Matt Riley	Infinity Renewables	CEO & Co-Founder
32	Steve Doyon	Novatus Energy	CEO
33	Himanshu Saxena	Starwood Energy Group	CEO
34	Susan Nickey	Hannon Armstrong	MD
35	Mark Vanderhelm	Walmart	VP of Energy & Waste
36	Thomas Brostrøm	Ørsted	President of North America
37	Tom Carbone	Tri Global Energy	President of Wind Division & Director
38	Michel Letellier	Innergex	President & CEO
39	Ted Brandt	Marathon Capital	CEO & Co-Founder
40	Neha Palmer	Google	Head of Energy Strategy
41	José Antonio Miranda	Siemens Gamesa	CEO of Onshore (Americas)
42	Armando Pimentel	NextEra Energy Resources	President & CEO
43	Kevin Walsh	GE Energy Financial Services	MD of Renewable Energy
44	Nick Knapp	CohnReznick Capital	President
45	Jacqueline Sargent	Austin Energy	General Manager
46	Brian Janous	Microsoft	Director of Energy Strategy
47	Alicia Barton	NYSERDA	President & CEO
48	Ward Thomas	Sentient Science	President & CEO
49	Rob Threlkeld	General Motors	Global Manager of Renewable Energy
50	Kimberly Harris	Puget Sound Energy	President & CEO

Top 100 list

2018 position	Name	Company	Title
51	Patrick Woodson	E.On North America	Chairman
52	Pooja Goyal	Goldman Sachs	MD & Head of Alternative Energy Investing
53	Jim Gordon	Energy Management Inc.	CEO
54	Michael Skelly	Clean Line Energy Partners	President & Founder
55	Laura Folse	BP Wind Energy	CEO
56	Bryan Martin	DE Shaw & Co.	MD
57	Ja Kao	Onyx Renewable Partners	President
58	Laszlo Varsanyi	Enbridge	VP of New Ventures (Power)
59	Kirby Mercer	Beothuk Energy	President & CEO
60	Adil Rahmathulla	I Squared Capital	Partner & Co-Founder
61	Doug Fredrickson	Blattner Energy	VP of Operations
62	Kirk Edelman	Siemens Financial Services	President & CEO
63	Christopher Sotos	NRG Yield	President & CEO
64	Rafael Esteban	Acciona Energy USA Global LLC	CEO
65	Frank Demaille	Engie North America	President & CEO
66	Shalini Ramanathan	RES Americas	VP of Origination
67	James Spencer	Everpower Wind Holdings	President & CEO
68	Shannon Kellogg	Amazon	Director of Public Policy
69	Patrick Lemaire	Boralex	CEO & President
70	Paul Gaynor	Longroad Energy	CEO & Co-Founder
71	Pablo Pulpeiro	Nordex	CEO of North America
72	Greg Wolf	Leeward Renewable Energy	CEO
73	Bill Miller	Power Company of Wyoming	CEO
74	Thomas F. Farrell II	Dominion Energy	Chairman, President & CEO
75	Karen Conover	DNV GL	VP
76	Lars Thaaning Pedersen	Copenhagen Offshore Partners	Co-CEO
77	Bobby Hollis	Facebook	Director of Global Energy
78	Jim King	CIBC Capital Markets	MD & Head of Project Finance & Infrastructure
79	Alla Weinstein	Trident Winds	Founder
80	Paula Gold-Williams	CPS Energy	President & CEO
81	Tim Maag	Mortenson Construction	VP & General Manager of Wind
82	Ed Duggan	Alton Energy	President
83	Russell Tencer	United Wind	CEO & Co-Founder
84	Heather Kreager	Sammons Enterprises	CEO
85	Jayshree Desai	Clean Line Energy Partners	COO
86	Patricia Kampling	Alliant Energy	Chairman & CEO
87	Connie Lau	Hawaiian Electric Industries	President & CEO
88	Guy Amato	Bank of Montreal	MD & Head of Project & Structured Finance
89	Stephanie McClellan	Special Initiative on Offshore Wind	Director
90	Mike Bergey	Bergey Windpower	President
91	Graham Reid	RES Americas	CEO
92	Dan Balaban	Greengate Power	President, CEO & Founder
93	Blake Nixon	Geronimo Energy	CEO
94	Jatin Sharma	GCube Insurance Services	President
95	Geisha Williams	Pacific Gas & Electric	President & CEO
96	Michael Weidemann	Enercon Canada	EVP
97	Dana Claburn	Southern Power	SVP & Senior Production Officer
98	Michael Rucker	Scout Clean Energy	CEO & Founder
99	David Halligan	Datawatt Energy	Founder
100	Michael Olsen	Equinor (formerly Statoil)	Senior Director, Business Development

COMING UP

The North American Power List is our flagship publication for the first half of 2018, and supports our growth in the US, including with the Financing Wind New York event.

We're also due to launch our Quarterly Drinks evenings in New York later this year; and will have a significant focus in our upcoming Legal Power List and Top 100 Power People reports.

If you are not yet a member, we would love to talk to you about the benefits of membership. And you can register for a free 30-day newsletter trial at: www.awordaboutwind.com

EVENTS

- 6th September**
Quarterly Drinks - London
- 13th September**
Quarterly Drinks - New York
- 1st November**
Financing Wind London
- 13th November**
Quarterly Drinks - New York
- 29th November**
Quarterly Drinks - London

REPORTS

- 10th July**
Finance Quarterly Q3
- 14th August**
Legal Power List
- 9th October**
Finance Quarterly Q4
- 13th November**
Top 100 Power People
- 15th January 2019**
Finance Quarterly Q1



The newsletters and analysis are excellent. Concise, easy to read and the best way of staying on top of the market.



Henrik Stamer, CEO, K2 Management



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