A WORD ABOUT WIND

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FINANCE 2016

Featuring an interview with Enel Green Power's Francesco Venturini

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EDITORIAL

by Richard Heap,
editor at A Word About Wind

"Politicians and the changes they bring can wreak havoc on the market, but they can also surprise us for the better."

It is one month since United Nations climate change talks concluded in Paris with a deal between 195 nations to limit carbon emissions. The deal's exact targets may be vague, but it should keep governments focused on developing renewables including wind.

In terms of immediate practical benefit for people working in wind, though, we have since seen another hard-won agreement that could have a huge impact, though mainly in the US.

In the week before Christmas, the US Congress passed a five-year extension of the wind Production Tax Credit until 2020. Politicians and the changes they bring can wreak havoc on the market, but Congress and COP21 both show they can still surprise us for the better.

Both of these deals are set to provide key talking points for the wind sector in 2016 — but, in this report, we do not want to focus too much on policy. That is why we will look at some of the other business stories that we will be following in the next 12 months.

At the macroeconomic level, the slowdown in China (page 5) will act as a drag on the global economy, and is set to force Chinese wind developers and manufacturers to adapt to a situation where they cannot rely on fast growth in the nation's energy demand for their new installations. It is also likely to mean more Chinese companies seek expansion overseas.

Of course, a significant challenge for Chinese firms looking to grow in new markets is that they come up against tough competition from European and North American firms, which they do not get in their home market.

One of the most ambitious of these Chinese firms is Envision, whose chief executive Lei Zhang answers our questions on emerging markets, growth in China, and wind technology trends in a wide-ranging Q&A on pages 9 and 10.

Meanwhile, away from China, we expect established wind developers and manufacturers to continue to look for returns in high-growth emerging markets in 2016.

One of these will be Enel Green Power, which is the renewables arm of Italian utility Enel. On page 11, we have an in-depth interview with Enel Green Power's chief executive Francesco Venturini, who talks about the subsidiary's planned €3.1bn reintegration into Enel, as well as its €900m sale of Portuguese arm Finerge so it can keep growing in key emerging markets in Latin America, Asia and further afield. Check it out now.

Not all firms have been as successful with their global expansion, though.

In the first half of 2015, US solar giant SunEdison announced a series of acquisitions so it could grow in new sectors including wind, as well as key emerging markets.

However, the combination of its ambitious buyout plans and problems in the US listed renewables yieldco market have forced the firm to revisit its strategy and cancel some of its deals. On page 18, we look at what all of this means for its wind plans in 2016.

SunEdison dominated the headlines in 2015 by splurging on acquisitions. It now has a more conservative strategy in place and hopes for a quieter 2016. Will it get what it wants? You will have to read the newsletters to find out.

All the best,

Rich

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BRAKING CHINA

Chinese wind firms face battles with the coal sector and overseas markets as the government seeks to slow growth

The slowdown in China's economy should not change the country's goal of growing renewables including wind.

As Chinese president Xi Jinping discussed climate change at United Nations talks in Paris last month, China's capital city was on 'red alert'. For the first time, Beijing's leaders were forced to issue the most severe smog warning due to the acrid cloud blanketing the city.

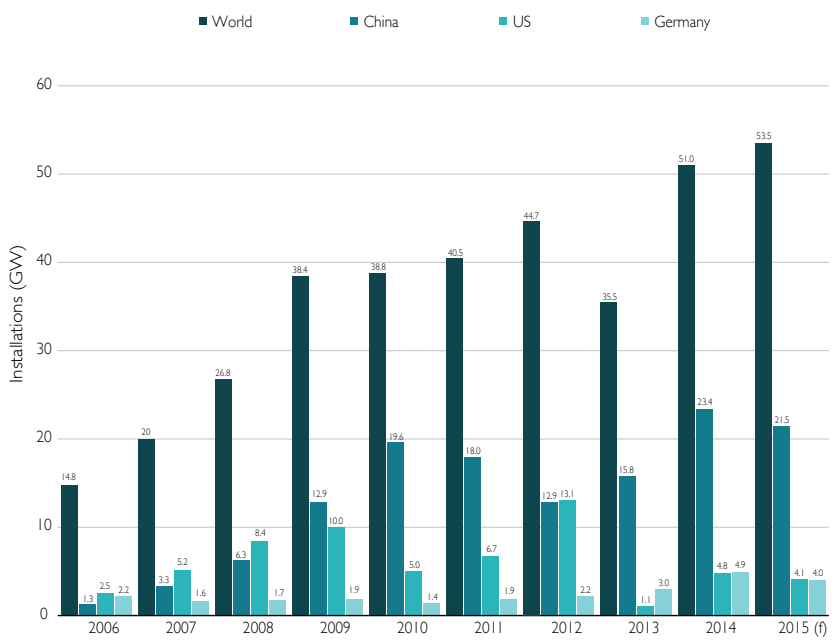
This 'red alert' has a severe impact on citizens and businesses. It effectively puts the city in lockdown with people advised to stay indoors, schools closed, and limits put on industry and other business activity. Even so, it is better than getting ill from simply going outside. This was the first of two red alerts enforced in Beijing last month.

This is why the slowdown in the Chinese economy should not provoke too much gloom in the wind sector. The slowdown is set to force China's wind industry into big battles with the coal sector and overseas markets, but it is not set to change China's goal of continuing to grow renewables

Global stage: Xi Jinping at Paris climate talks last month

Source: ConexiónCOP via Flickr

Graph 1: Annual installations in China and the rest of the world



Source: Global Wind Energy Council

In the 13th Five-Year Plan, the government said it wanted to keep expanding the wind industry, but at a slower rate than in the last two years.

including wind. China wants to cut the reliance on the coal that provides 70%-80% of its energy — and worsens the pollution that has been choking the people of Beijing.

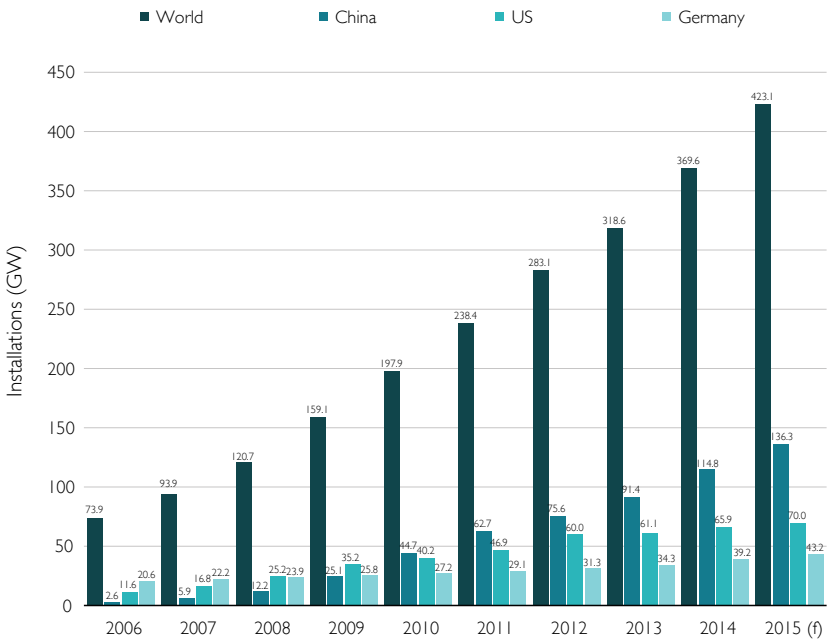
There is still great potential for wind as long as China is serious about tackling its smog.

POLICIES UNTIL 2020

This year, the ruling Communist Party is to start implementing the 13th Five-Year Plan, which was unveiled in November and sets China's development goals through to 2020. In this, the government said it wanted to keep expanding the wind industry, and it is set to release more detail on exactly what this means in a renewable energy plan in the second half of 2016.

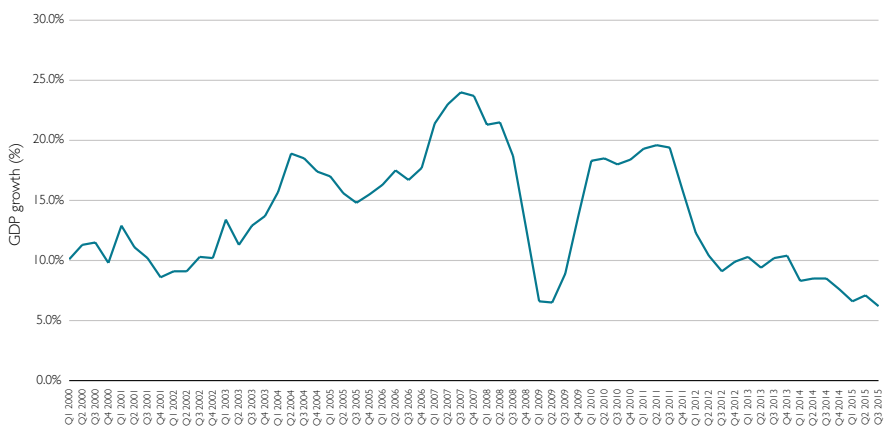
However, this growth is set to happen at a slower rate than it has in the last two years. In January 2015, the government announced cuts to feed-in tariffs (FITs) for

Graph 2: Total wind capacity in China and the rest of the world



Source: Global Wind Energy Council

Graph 3: China's quarterly GDP growth rate (%)



Source: World Bank

"There are lots of vested interests and political struggles… but, over the long-term, we're definitely looking at more wind, less coal."

onshore wind, which sparked a rush of development from those keen to build schemes before the new FITs came into force on 1 January 2016. This change helped to increase wind installations in 2015 to around 21.5GW (see graph 1, p. 6), which is around 40% of total installations globally.

This meant China could grow total wind capacity to 136GW in 2015 (see graph 2, p.6), which is almost one third of the global total. But now this short-term boom is over and China's wind companies will be forced to cope in an era of slower growth.

Shane Sun, the China-based head of Asia-Pacific and senior analyst at Make Consulting, says one big shift for those working in the wind sector will be taking market share from the coal industry. They cannot rely on growth in energy demand as in previous years as GDP growth in the third quarter of 2015 was even slower than at the nadir of the global financial crisis in 2009 (see graph 3, opposite). Slowing GDP growth will constrain growth in energy demand.

But Sun adds that it will not be easy for wind to take on coal. The wind sector may enjoy strong support at national level, but it is regional governments that end up having to implement the pro-wind policies. The national government can face resistance if its policies conflict with local concerns.

"There are a lot of vested interests and political struggles… but the long-term trend is that wind will definitely continue to grow over the medium- and long-term, even if not over the short-term," he says. "Over the long-term we're definitely looking at more wind, less coal."

This long-term aim tallies with the high-profile pledges China made about green energy around last month's United Nations climate change talks in Paris, where it committed to grow non-fossil fuels to around 20% of its primary energy consumption by 2030. It set out this goal in its Intended Nationally Determined Contribution document before Paris.

And, even if there is a return of the major instability in the Chinese stock market, where values fell by one-third between June and September (see graph 4, below), then this should also have little effect on the wind sector. Most large wind developers and manufacturers in China are state-backed and win projects based on their good relationships with local politicians.

Graph 4: Closing price of Shanghai Composite Index in yuan (CNY)

Source: Shanghai Composite Index

"There is over-capacity of production in China... so going overseas will naturally happen."

SLOWER GROWTH AT HOME

The change that will have the biggest impact on the market is the FIT cuts that came into force on 1 January. The National Development & Reform Commission has reduced the onshore FIT by 0.02 yuan to 0.49 yuan/kWh in northern China, to 0.52 yuan/KWh in the northwest, and to 0.56 yuan/kWh in the northeast. This has caused a short-term rush of development keen to get the higher rates, and activity is set to slow this year.

And more cuts are on the way. In November, the NRDC published a draft plan to make big cuts to onshore wind FITs by 2020, which would make the rates in 2020 around 19% lower than they are at present. The Chinese government wants to give clarity to investors now to avoid the type of uncertainty around FIT changes in nations like Germany.

This is also likely to curtail wind activity, but final details of those cuts are not yet available.

Liming Qiao, China director at the Global Wind Energy Council, says a slowdown in China may force more of its companies to seek opportunities overseas, including in new markets such as Africa and Latin America. The government will support firms in doing this as it helps the Chinese government achieve its goal of investing on the global stage.

The largest Chinese firms that have been looking to grow outside of their home market are Envision, (see Q&A with Lei Zhang, p.9) Goldwind and Ming Yang, but companies from China have generally found it tough to compete in markets where they experience more competition and lack state support. Overseas markets have also tended to offer lower returns than their home nation.

"There is over-capacity of production in China because there are so many players and the production capacity is bigger than can be contained in this market, so going overseas will naturally happen. Plus, the government wants to build high-technology industries and support some of the really good industries to go overseas," says Qiao.

But, for now, the government's priority will be cleaning the air of its big cities. It is of little benefit to win plaudits overseas but lose the support of those forced by acrid smog to take shelter in their own homes. ■

Q&A: LEI ZHANG, ENVISION ENERGY

Envision Energy is one of China's largest turbine manufacturers, and develops software to improve financial returns from wind farms. Richard Heap met chief executive Lei Zhang to discuss his views on expansion and the wider industry in 2016.

Are you confident in the prospects for wind energy in China in 2016?

Yes. It remains very strong. China needs clean energy and is very committed. In terms of wind and solar, China accounts for 50% of new global wind installations, although it is still lacking in green energy.

And the rest of the world?

I'm quite optimistic. The cost of energy has become very competitive so, actually, we are going to be on a very fast-moving lane on cost reduction.

What are the big challenges for 2016?

For the sector, the biggest challenge is the regulation. We still have regulatory support so any disruptions on the regulatory support is going to have some unwanted effects. We need a stable environment in China, the US, Europe, and everywhere.

How are your sales split between your home market and overseas?

We expect that, in three years, 30% of sales will come from international. We believe small and medium developers will be the major forces for renewable energy transformation globally. We want to help them succeed by providing comprehensive solution including hardware, software and financial services.

Envision bought a 600MW portfolio of development projects in Mexico from Vive Energia in October. What is your strategy for opening in new markets?

We are looking for countries that have big potential to grow and have real energy demand, so we are solving an energy issue. Places like Mexico and Turkey have large economies and they need clean, affordable energy to support their growth. We are carefully planning the market entry in India.

How do you enter overseas markets?

We work with top-tier developers, but on their software side, not on the product side. We do not just see this as a relationship for selling turbines. We are more likely to partner with the developer. We like to equip them. We like to provide them with hardware, software, solutions, financial, all kinds of packages to make them grow.

What kind of financial solutions?

We participate in project ownership because our software is a de-risking platform. We can offer guarantees of output of the wind farm at fixed amounts; and facilitate project debt.

What will be the big technology shifts in wind over the next decade?

We really need to think about the cost of energy. Nowadays, we only see the

two sectors. One is the turbine manufacturer, one is developer or asset owner. Actually, there should be some company like Envision, positioned as a technology innovator, offering something more than turbines. We are covering the entire wind farm system engineering innovations.

Then we really can customise wind farms to maximise output and minimise capex; and provide financial solutions to bring down the cost of funding. This is not about something that can fix all. This is about system level optimisation. There are some bits here, some bits over there. Between this we can achieve significant reductions in the cost of energy.

> "Wind is still very young. It's early days. It's very promising. We're a young child."

So marginal gains across a project?

Yes, so maybe large rotors, or maybe flexible rotors; or you have a very wind-specific site-specific foundation and tower; and you have innovation on drivetrains. This is not about just one thing can solve all of the problem. Everywhere, we should be able to improve.

What can other sectors teach us?

Industrialisation. We can learn something from automotive, we can learn something from the software industry, from aerospace. We have lots to learn. Wind is still very young. It's early days. It's very promising. We're a young child.

We have seen large tech companies like Google getting into wind. How much can they help with cutting costs?

They need the IT, but they also need the OT — operational technology — with industrial deep knowhow, and they don't have this second part.

Would Envision get involved in the battery storage sector?

Yes, possibly, as long as it can bring down the cost of energy. Whatever we can do, our vision in 2025 is to make wind and solar be the major source of energy.

How are you investing in research?

We're aggressively investing in research and development. We have a research centre in Denmark. We have just opened an engineering centre in Hamburg. We have an innovation office and venture fund in Silicon Valley. We have a Houston office. We are building blade innovation centre in Boulder, Colorado, where we already have an office. We are very aggressively investing in technology.

Do you invest in other renewables alongside wind and solar?

We're looking for all kinds of renewable energies as long as it can help to make renewable energy cost competitive, and to improve the weight of renewable energy.

What do you enjoy most about working in wind?

We are doing very meaningful things for human beings, for our own lives. ■

VENTURING OVERSEAS

Enel Green Power's Francesco Venturini talks to Richard Heap about the firm's planned €3.1bn reintegration into Enel and funding in the wind sector in 2016

Romance and Italy go together like spaghetti and carbonara sauce. From the gondoliers serenading lovers on the canals of Venice to the beauty of the Amalfi Coast, it looks like love is everywhere in Italy. It is even driving the strategy of the nation's largest utility.

"I'm going to tell you, I am in love with markets that are buyers' markets," says Francesco Venturini, chief executive and general manager of Enel Green Power. "If you really believe that economic crises are cyclical then you are going to be able to survive in difficult waters for a while because you know that, sooner or later, things are going to turn out for the better."

He is talking about its strategy of investing in emerging markets including Latin America, which is experiencing its slowest rate of economic growth since the global financial crisis of 2009 and is arguably the worst-performing of the world's develop-

Source: RES4MED via Flickr

Vital statistics

Name: Francesco Venturini
Date of birth: 2 November 1968
Born: New York, US
Educated: University of Rome; London Business School; Massachusetts Institute of Technology
Lives: Rome, Italy

Career: CFO of firms in the Elsag Bailey Process Automation and Hartmann Braun groups before joining Enel in 1997. Moved to Enel Green Power as head of finance in 2009. Became president and CEO of Enel Green Power North America in 2011. Promoted to CEO and general manager of Enel Green Power in May 2014.

Personal interests:
Swimming, sailing, cycling, family

"Enel Green Power has been able to show the rest of the group to a market that is really changing rapidly."

ing regions. Venturini says this means his team can buy operating energy assets as other firms exit the region.

Its parent company certainly loves the strategy. In November, Enel announced a plan to buy back the 31% of Enel Green Power that it does not own for €3.1bn, by issuing shares in Enel in exchange for shares in Enel Green Power. It said this would enable Enel to put renewables at the heart of the parent company's growth. Enel Green Power shareholders voted to back the plan on 11 January, and Enel is hoping to complete the deal in March.

In an interview with A Word About Wind, Venturini talks about the logic behind this deal; and its other big recent deals, including the €900m sale of Portuguese subsidiary Finerge in September to an arm of global asset manager First State Investments. He also gives his views on emerging markets, ailing yieldcos and the prospects for wind investment in 2016.

Enel has pledged to make renewables account for more than 50% of new growth capital expenditure in the next four years, and make Enel Green Power the engine of the firm's growth. One of the main reasons behind the planned reintegration is to help spread the subsidiary's entrepreneurial spirit throughout the rest of the company.

"I see it as much more of a reverse merger. Enel Green Power has been able to show the rest of the group how to adapt to a market that is really changing rapidly. We are extremely competitive from an operational point of view and from a financial point of view," he says.

The relationship with Enel chief executive Francesco Starace is key. Venturini and Starace have both spent more than 15 years at Enel. They have worked closely for more than ten years in the company's renewables division and, previously, in its energy retail arm.

Starace joined Enel in 2000 and held a series of executive positions, including managing director of the market division, before becoming chief executive of Enel Green Power in 2008. He started the arm's transformation into a serious player in the global renewables market; and led its listing on the Madrid and Milan stock exchanges in 2010 in a deal that valued the subsidiary at €8bn. He then became chief executive of Enel in May 2014.

Venturini joined Enel in 1997 and held senior roles in the distribution and market division, where he worked with Starace. He was appointed head of finance for Enel Green Power in 2009 before taking on senior roles in its North American arm;

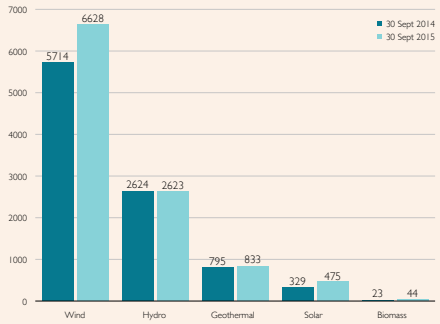
Wind and Latin America driving growth

In November, Enel Green Power put out its interim report for the nine months to 30 September 2015, which shows that wind was central to its growth in 2015. It added wind capacity of 914MW in 13 projects in the year to 30 September (see graph 1), which accounted for 82% of capacity added in that period.

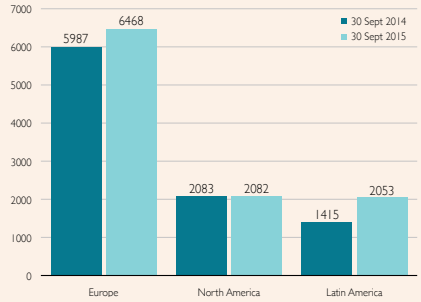
The report also shows the importance of Latin America. Enel Green Power added 638MW in 15 renewables projects in Latin America in the year (see graph 2), or 57% of new capacity.

And it has wind farms totalling 893MW in its development pipeline in Latin America (see table 3). Its other schemes in emerging markets include two wind farms totalling 199MW in South Africa, which it includes in its Europe statistics, and a 154MW project in Greece.

(1) Total installed capacity (MW) by sector in 2014 and 2015



(2) Total installed capacity (MW) by region in 2014 and 2015



(3) New wind farms under construction and authorised (as of Sept 2015)

Country	Project Name	MWI	Status
Brazil	Dois Riachos (Serra Azul complex)	30	Commissioned (Nov)
Brazil	Damascena (Serra Azul complex)	30	Under construction
Brazil	Esperanca (Serra Azul complex)	28	Under construction
Brazil	Manicoba (Serra Azul complex)	30	Under construction
Chile	Los Buenos Aires	24	Under construction
Chile	Renaico	88	Under construction
Italy	Barile Venosa	8	Under construction
Mexico	Vientos del Altiplano	100	Under construction
South Africa	Gibson Bay	111	Under construction
South Africa	Nojoli	88	Under construction
US	Goodwell	200	Under construction
US	Little Elk	74	Under construction
Brazil	Delfina	180	Authorised
Brazil	Morro do Chapeu	172	Authorised
Chile	Sierra Gorda	112	Authorised
Greece	Kafireas	154	Authorised
Mexico	Palo Alto	129	Authorised

and succeeded Starace as chief executive in 2014. Venturini says they share the same vision for Enel: "Probably there is a touch of Starace and a touch of Venturini in Enel Green Power."

Both men have played key roles in building Enel Green Power, and this explains why they share a vision where renewables are key to Enel's growth in the next four years.

It is also the reason the company is looking to sell out of existing assets in developed markets, which was manifested most recently in the €900m sale of Finerge in Portugal. They want to raise funds to invest in markets offering higher risks and returns.

In April, Enel Green Power started to look for potential buyers in Finerge, which has a wind portfolio of 642MW. Venturini says it was a quick sale process because there were a lot of institutions interested in buying operational assets in an established market. This should be heartening for the wind sector because it shows that finance is widely available.

He says: "A lot of financial investors are becoming extremely comfortable with this sector and the technology we are using. I remember that, four or five years ago, pension funds and investment funds were sceptical about the real future of renewables. Now they are comfortable with the cost, the operations and the technologies."

For investors like First State Investments, these types of deals are a more attractive way to gain a foothold in an established wind market than buying a series of individual projects. In this deal, the main challenge was that 445MW of Finerge's Portuguese wind assets were tied up in the Eolicas de Portugal consortium, in which it owned a 36% stake. This meant that Finerge's assets in this tie-up had to be spun out into special purpose vehicles.

Horsepower: Venturini (far left) and Starace (middle) are driving Enel's green shift

Source: Enel

"It is a good time to stay in Latin America because it is a buyers' market. A lot of people want to sell... and that is perfect conditions for a long-term investor like us."

In September, First State agreed to buy Finerge and its stakes totalling 642MW in projects with a combined capacity of 863MW. The transaction was completed in November. This gives Enel Green Power a €900m war chest to invest in fast-growing emerging markets, and the company is considering making similar sales over the coming years.

He says: "If you believe you can sell it at a good price at a good moment then you do it on an opportunistic basis. It makes a lot of sense and is very value-creative for shareholders. If we can find other opportunities like that one then we will move forward and do it."

This focus on emerging markets is central to Enel's strategy for the next five years. In the company's 2015-2019 business plan, published in May 2015, it said it would spend €8.8bn growing its emerging markets portfolio in the five-year period.

The firm is looking to build energy projects to power the economic growth, urbanisation and electrification being planned in nations across Latin America, Africa and Asia. Latin America has been the most significant of these regions for Enel in 2015 (see box, p.13), even though its economy performed badly in the year, due to falls in the prices of commodities linked to the slowdown in the Chinese economy, and is set to be similarly sluggish in 2016.

Venturini does not find this off-putting: "It is a good time to stay in Latin America because it is a buyers' market. A lot of people want to sell, they want to de-risk their portfolio, they want to get out, and that is perfect conditions for someone who is a long-term investor like us. We are more than willing to pay the right price that goes with the potential risk."

He also wants to expand in Asia. In another key deal in 2015, Enel Green Power bought a majority stake in Indian wind and solar developer BLP Energy, a subsidiary of Bharat Light & Power, for €30m in September. It was not big in financial terms, but it represents the first move of Venturini and his team into the Asia-Pacific region.

It is a change from Enel Green Power's usual approach to overseas expansion. Typically, the firm would send a couple of staff to set up a small office in a new market, from which they would assess opportunities, and learn about the local culture and energy market. However, Venturini says that would not have worked in this case because India is too large.

"In India, we realised that was not possible as it would have taken us probably ten years to get that understanding, so we looked for a small acquisition. We didn't buy [BLP Energy] because of their operating assets. We bought it for its management team, for the fact that we want to be submerged in the Indian culture, and that's going to cut out time to market by many years," he says. Enel is set to build its first Indian wind farms in the next two years.

Along with acquisitions, Enel Green Power looks to expand through its relationships with local developers, off-takers and financiers, as well as global turbine makers.

For example, it has a partnership with Japanese conglomerate Marubeni to look at investment opportunities in the Asian

"We have looked at offshore, but I don't believe it is our turf. We don't feel like going and competing with the other big guys up north."

nation. Marubeni is a major investor in European offshore, but Venturini says this sector is currently of little interest to Enel.

"We have looked at offshore with a lot of interest, but I don't believe it is our turf. There is not much wind in the Mediterranean Sea to justify that kind of investment. We don't feel like going and competing with the other big guys up north. It is already a very crowded space, and I don't see a lot of offshore being developed other than in northern Europe."

But it is not all about emerging markets. In March, Venturini and his US team linked up with General Electric arm GE Energy Financial Services in North America when it sold 49% of its new US yieldco, EGPNA Renewable Energy Partners, for $440m.

The firm has a 760MW renewables portfolio in the US, and is targeting growth in North America. However, Enel has always stressed that the vehicle is a joint venture and does not follow the yieldco model.

Indeed, Francesco Starace said in February that publicly-listed yieldcos are a "monster that you have to feed", because they constantly need new assets to generate returns for shareholders. This is why the publicly-listed yieldco model used by the likes of NextEra, NRG and SunEdison has suffered, as firms have competed hard and overpaid for assets.

Venturini says the shift was predictable and that he does not expect a substantial recovery in that part of the sector: "I am not surprised the way things have gone, but I'm a little bit surprised that it look less time than I originally forecast," he says. "Some analysts for some strange reason were making money saying these were growth stocks when there was no growth. They were just buying operating assets and then paying out big dividends."

In general, though, Venturini is bullish about the prospects for wind investment this year. He says that if developers struggle to get funding for a project then it is because the development is "not good enough"; and has no doubts that Enel will be able to keep pursuing its sale-and-reinvestment strategy focused on emerging markets.

"I don't think funding is going to be a problem. We've never had a problem getting funding," he says. His shareholders will love the sound of that. ■

UK CUTS MEAN STRONG HEADWINDS OFFSHORE

Dominic Szanto is director at JLL Renewable Energy Capital

www.jll.eu

Aggressive offshore cost reduction targets from the UK government might render schemes and the sector unviable

In the last two years we have seen offshore wind approach true financial maturity as an asset class. Until recently, it was seen as the preserve of utilities with big balance sheets, private equity and a few pathfinding banks, but there are now unprecedented levels of interest from banks and institutional investors.

We see no let-up in the desire of banks and equity investors for good projects, which in the UK means those with well-priced Contracts for Difference (CfDs) or those on track to win renewable obligation certificates (ROCs). In 2015, three huge projects reached financial close — including E.On's 400MW Rampion in November — and we expect to see similar interest from this year from both old investors and new.

> "We see no let-up in the desire of banks or equity investors for good projects."

In the first quarter of 2016, for example, we expect to see the 644MW Beatrice reach financial close on time. With a FID-enabling investment contract, Siemens turbines and an experienced shareholder group, bank interest is likely to remain high.

Dong Energy is also likely to make a final investment decision on its 120-turbine Hornsea One project in 2016

However, other projects with a lower CfD price, such as Mainstream's 450MW Neart Na Gaoithe, face a much more uncertain future as equity returns, debt pricing and supplier margins are pushed as low as possible. It is this focus on driving down costs offshore that is set to cause problems for other projects in the coming years.

This pressure is coming from the UK government. UK energy secretary Amber Rudd has made it clear that continued support for offshore wind is conditional upon the industry reducing its dependency upon subsidy.

We interpret this as meaning that the CfD round promised for 2016 will set a maximum strike price of £100/MWh. The results of the Dutch offshore wind auction, which already has a maximum bid price approximately the same level, may encourage DECC to drive this even lower.

> "Amber Rudd has made it clear that continued support for offshore is conditional upon the industry reducing its dependency on subsidy."

The likely bidders for these CfDs, such as Repsol's Inch Cape, EDPR's Moray Firth and Triton Knoll, owned by RWE and Statkraft, all have large sunk costs and little to lose in bidding as aggressively as possible.

It is in the face of this strong push to reduce the cost of energy that offshore wind faces its biggest financing challenge. Debt costs are already at an historic low, and we see only a slow rise in interest rates over the short term, whilst the strength of the pound against the euro has been a strong driver in the effective reduction of costs. There appears little room for further cost reductions in either case. Equity returns have reduced significantly as financial investors with efficient capital, who would previously only invest in operating assets, are forced to accept construction risks.

There is probably scope to cut costs in the supply chain, but we expect that this will push further risk across to the developer and, at best, this will raise investor return requirements. At worst, it will render projects unbankable.

We are uncertain as to whether there is enough 'cash on the table' to establish an economically-viable construction project at sub-£100/MWh pricing but clearly, without meeting this target, we are unlikely to see more offshore wind farms in the UK. ■

CLOUDY OUTLOOK FOR SUNEDISON IN WIND

US solar giant SunEdison went big on wind in the first half of 2015 and scaled back in the second. What does 2016 hold?

Little did we know that the First Wind buyout was the start of a rollercoaster year for SunEdison.

A cloudy outlook with a low chance of high wind activity. That is our weather forecast on SunEdison's plans for the wind industry this year. It is a big turnaround.

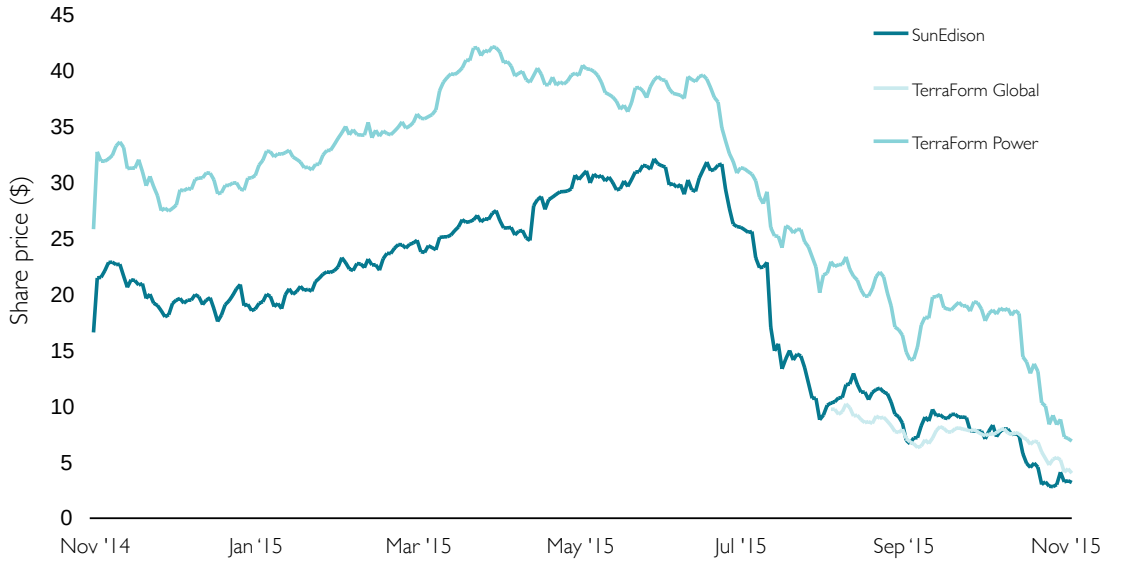
One year ago, the US solar giant made its first move into wind when, along with its yieldco TerraForm Power, it bought US developer First Wind for $2.4bn. At the time, SunEdison chief executive Ahmad Chatila was bullish. He said the deal would make the solar firm into the "leading renewable power plant developer in the world". It was a big statement of intent.

Little did those in the renewables sector know it was just the start of a rollercoaster year for the business. In the following six months, SunEdison announced a series of big deals (see timeline, p.20) to drive aggressive growth in sectors including wind, and emerging markets. This helped the firm to almost double its share price, to $32.13 in June (see graph 1, p.19).

Bullish: SunEdison chief Ahmad Chatila is behind the company's bold growth plans

Source: SunEdison

Graph 1: SunEdison and TerraForm share prices in the year to November 2015



Source: Nasdaq

The firm's current challenges took root in 2013 when it changed its name from MEMC and set about aggressively building a global brand, both by organic growth and acquisitions.

But the fall since then has been equally spectacular. At the end of November, SunEdison's share price was 90% below the high point in June. The firm has been hit hard by the downturn in the US listed renewables yieldco market and its overly aggressive expansion plans, which have forced it to terminate three of its key deals in emerging markets and announce more than 1,000 job cuts.

Those in the wind sector now question whether SunEdison will become the major wind player that it promised one year ago, and what its issues in the last year tell us about the prospects for listed US yieldcos.

SUN RISE AND FALL

The company's current challenges took root in 2013 when the firm changed its name from MEMC Electronic Materials to SunEdison. Chatila said this would help it become an "elite, global brand that builds on a more than 50-year tradition of innovation and growth", and set the aim for the firm to aggressively build a global brand in solar. This included both organic growth and by acquisitions.

In 2014, this push expanded into wind. The company announced its acquisition of First Wind in November 2014, which it completed in January 2015, and it followed this with deals worth more than $6.5bn in both established and emerging markets on five continents.

In addition to the $2.4bn for First Wind, it revealed two US wind portfolio deals with Invenergy and Atlantic Power for a combined $2.4bn; purchases of four portfolios totalling 621MW, mainly wind, in emerging markets for undisclosed sums; the buyout of India's Continuum Wind for $650m; and a trio of corporate deals in South and Central America worth over $1bn.

It also made a move into domestic solar by announcing the takeover of Vivint Solar for $2.2bn in July, where it agreed a $123m cut to the price in December; and UK installer Mark Group, which went into administration in October and has since merged with engineering group Solgen.

Big money and lots of deals, but the idea behind this growth plan is simple. SunEdison wanted to diversify into new sectors and markets to reduce its exposure to solar and be a truly global player. This would also help it to build a pipeline of projects that, on completion, it could sell to TerraForm Power, which was at the time benefiting from growth in the US listed renewables yieldco market.

SunEdison has not responded to our questions for this article, but Chatila spelled out this ambition when the firm completed the buyout of First Wind on 29 January 2015. He said: "This transformative transaction increases our scale and further establishes TerraForm Power's leadership in renewable energy. It diversifies our port-

SunEdison's march into wind — and its retreat

JANUARY
- Entered wind sector by buying US developer First Wind for $2.4bn.

FEBRUARY
- Published 2014 annual report. Chief executive Ahmad Chatila said the First Wind deal made SunEdison the "leading renewable renewable power plant developer in the world".

MARCH
- Bought start-up Solar Grid Storage to support wind and solar operations.

APRIL
- Paid $350m for 521MW US wind portfolio from Atlantic Power.

MAY
- Bought four portfolios totalling 621MW, mainly wind, in South America, Asia and Africa.
- Agreed to buy Latin American Power for $700m.
- Agreed to buy 16% stake in Brazil's Renova for $250m.

JUNE
- Agreed to buy India's Continuum Wind for $650m.
- Agreed to buy Central American firm Globeleq Mesoamerica Energy.
- In the residential solar sector, agreed to buy US firm Vivint Solar for $2.2bn; and bought UK installer Mark Group.

JULY
- Agreed to pay $2bn for 930MW US wind portfolio from Invenergy.
- Signed joint venture with Gamesa to build 1GW of wind globally by 2019.
- TerraForm Global revealed plans to issue $800m 'green bonds' to fund deals.

AUGUST
- SunEdison saw its share price drop 25% after a $263m second-quarter loss.

SEPTEMBER
- Bought two wind farms totalling 294MW in Brazil from Renova.

OCTOBER
- Reversed growth plans after seeing share price drop 70% in three months. New strategy included cutting 1,000 jobs, focusing on high-growth markets, and stopping selling projects to yieldcos.
- Terminated $700m Latin American Power deal, which also casts doubts on its planned Globeleq Mesoamerica Energy takeover.
- Mark Group went into administration.
- Investment analysts raise concerns about $2.2bn Vivint deal.

NOVEMBER
- Terminated $650m Continuum Wind acquisition.

DECEMBER
- Axed deal to buy 16% in Renova for $250m, and a 1GW solar joint venture by the pair.
- US hedge fund Appaloosa Management goes public on doubts about $2.2bn Vivint deal over concerns that residential solar is an "unfortunate departure" from TerraForm's business model. However, SunEdison and Vivint have since agreed a deal where SunEdison would pay $123m less.
- SunEdison sold two US wind farms totalling 333MW to Terra Nova Renewable Partners, its partnership with investors advised by JP Morgan Asset Management, for $209m.
- TerraForm Power concluded acquisition of 832MW from Invenergy, with the remaining 98MW due to close in April 2016. The total deal is set to be worth $1.9bn.

folio to include contracted wind assets, increases our drop down inventory by 93% to 3.3 GW, and demonstrates our ability to acquire large high-quality, long-term, contracted portfolios from third parties."

Indeed, this strategy worked fine until June, when share prices in the largest listed US renewable energy yieldcos started to drop.

Many of these yieldcos pursued aggressive growth strategies that relied on continually growing their portfolios of wind and solar assets to generate dividends for investors. This approach meant they had to keep buying assets, and that increased the risk that they would end up overpaying for projects and harm returns. Eventually, this reduced appetite from investors.

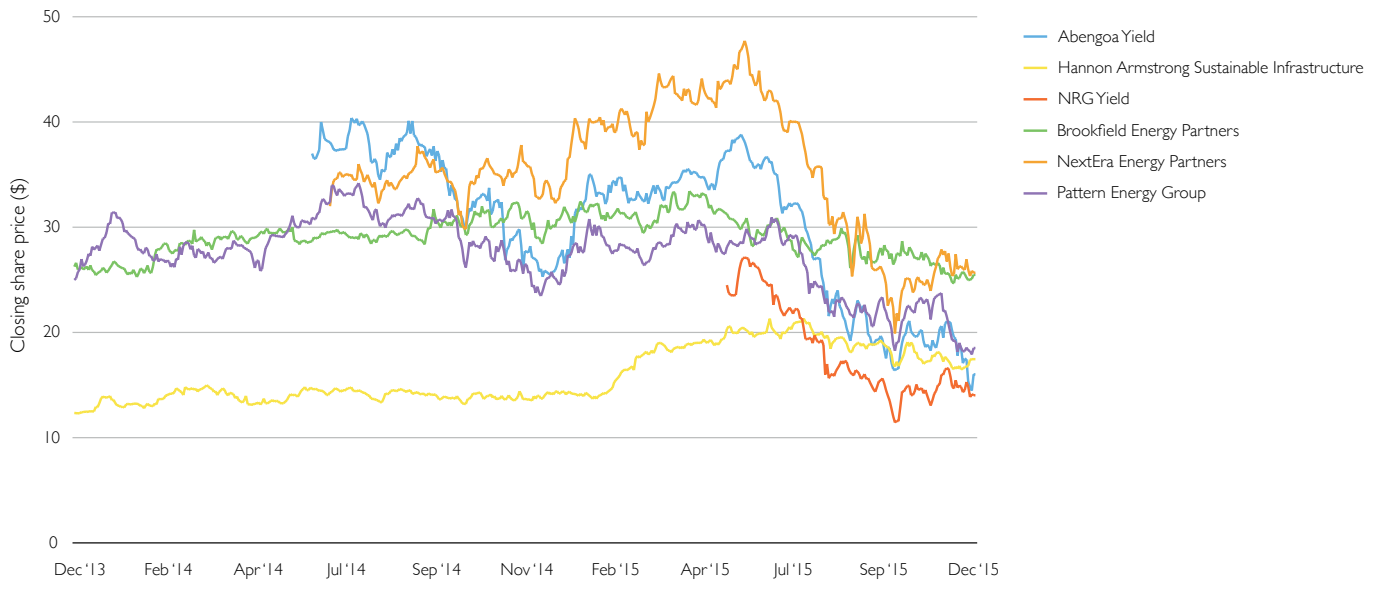
TerraForm's share price fell by more than 80%, from almost $40 a share in June to $6.90 at the end of November (see graph 1, p.19). This compares to a 64% drop for Abengoa Yield over the same period, and a 58% fall for NextEra Energy Partners from June to September, although there has been a slight rebound (see graph 2, p.21). This drop means that TerraForm did not have the money it was expecting to buy completed projects, and made some of SunEdison's deals unviable.

This is why SunEdison has recently axed acquisitions of Continuum Wind, Latin American Power and a 16% stake in Brazil's Renova; and renegotiated its acquisition of Vivint Solar to cut $123m from the $2.2bn acquisition price. In October, it also announced a programme of cuts, including 1,000 redundancies, and says it would re-focus on high-margin markets in the Americas and Asia.

PROSPECTS FOR 2016

In 2016, SunEdison has committed to pursuing a more conservative strategy, where it focuses its development activities on the US, South America, India and China. The firm has terminated its wind-focused takeovers in Asia and Latin America, so its focus in wind is set to be on the US.

Graph 2: Share prices of US listed yieldcos over the last two years



Source: Nasdaq

SunEdison is now in the position of requiring large amounts of capital to complete projects, and then having to sell them to external buyers.

Ted Brandt, co-founder and chief executive at US investment adviser Marathon Capital, which advised First Wind on its $2.4bn takeover, expects SunEdison to look at selling wind and solar assets.

Indeed, SunEdison announced in December that it has sold two wind farms totalling 333MW to Terra Nova Renewable Partners for $209m, and it should be able to do more with an operational portfolio that is now around 2.4GW, after it completed the acquisition in December of 832MW wind farms from Invenergy. It is due to close on a further 98MW in April.

"Their business strategy has been to use the capital in SunEdison as an acquisition vehicle, and move the assets down into TerraForm through a series of secondary offerings. That market has completely shut down," he says.

This leaves SunEdison in the position of requiring large amounts of capital to complete projects, and then having to sell them to external buyers.

Brandt says that problems in the US yieldco market would force renewables developers to question whether the

Solar power: SunEdison is likely to focus on its strengths in the solar sector

public markets are a reliable way of bringing in funding; and force yieldcos to be more conservative on the prices they pay. He expects prices paid by these yieldcos for wind and solar projects to come down to levels similar to 2013, when the yieldcos came onto the scene.

Meanwhile, another adviser who did not want to be named, said that any re-pricing would be to reflect the fact that wind and solar farms are not growth assets. Rather, they are reliable assets to buy and hold, which generate steady returns of 5%-6% a year based on the power they produce.

He says that SunEdison's decision to move away from aggressive expansion in wind makes good business sense, as the alternative would be to keep ploughing in more money into further deals.

"The logical thing to do is to pull back and focus on your strengths. This is a natural approach for people to take," he says. Therefore, it would make sense for the company to sell wind portfolios to other buyers, including the yieldcos who are looking to add more wind assets, so it can focus on solar. This does not mean an exit from wind, but it will be less of a focus.

"The logical thing to do is pull back and focus on your strengths. That is a natural approach for people to take."

Meanwhile, other US listed renewables yieldcos are set to adopt similar conservative strategies and offer lower returns to investors. We do not expect developers to turn their backs on this model as it would mean that they lost the public markets as a way to raise capital to invest in schemes.

There will be restructuring too. For example, the resignation of David Crane as chief executive of NRG Energy is a strong indication that investors in the public markets are becoming less confident in listed yieldcos as a way to invest in renewables. He left his role last month after 12 years, which reflects concern from NRG shareholders about the company's renewables investment plans. We expect other high-profile names to follow him out of this part of the sector during 2016.

At SunEdison, Chatila has told shareholders to keep faith in his strategy until later this year, when projects in the company's development pipeline are due to complete and boost the firm's revenues.

Whether shareholders will, though, is another matter. Chatila would be well advised to prepare for stormy weather. ■

KEY DATES

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Events

17th March	Quarterly Drinks Q1
24th May	US Drinks
16th June	Quarterly Drinks Q2
8th September	Quarterly Drinks Q3
October	Annual Conference
24th November	Quarterly Drinks Q4

Reports

March	Emerging Markets
June	Legal
September	Deals
November	Top 100 Power People

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