# Investment and Financing Opportunities in Alternative Energy 2015

*A Kaye Scholer report in association with Clean Energy Pipeline*

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# Contents



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*Investment and Financing Opportunities in Alternative Energy 2015* reports on the current trends in US renewable energy investment, M&A and regulatory activity. It also addresses the myriad considerations confronting investors as the market continues to innovate. The report is a collaboration between Kaye Scholer and Clean Energy Pipeline; transactional data have primarily been extracted from Clean Energy Pipeline's deal databases. The data collected and analyzed for this report, except where expressly noted otherwise, is from 1Q2014–2Q2015.

# Introduction

**Welcome to Kaye Scholer's update on vital trends in US renewable energy investment, M&A and regulation, produced in collaboration with Clean Energy Pipeline. This report covers five topics we believe are changing the shape of the US and European renewable energy sector: the rise of Yieldcos, the changing regulatory landscape in Europe, declining oil prices, the growing offshore wind market and the evolution of financing structures in the US.**

Section One of this report explores the rise of Yieldcos, which have significantly impacted the US renewable energy financing landscape during the past 18 months. The six Yieldcos currently listed on North American exchanges—NRG Yield, TransAlta Renewables, Pattern Energy Group, Abengoa Yield, NextEra Energy Partners and TerraForm Power—collectively acquired 3.8 GW of effective renewable energy capacity (defined as the project capacity multiplied by the stake acquired) in 2014, almost a 50 percent increase on the 2.6 GW acquired in 2013.

Yieldcos are certainly proving attractive to investors—all but one Yieldco are currently trading above their listing price, and four are currently trading above 30 percent over their listing price. The arrival of Yieldcos also creates challenges for traditional investors in renewable energy assets. The dramatic increase in available affordable capital has caused some investors to stay on the sidelines of renewable energy and focus their attention on other alternative energy or related infrastructure sectors that may not be as crowded as the renewable sector.

Section Two explores the changing regulatory landscape for renewables in Europe. Growth of Europe's renewable energy sector in the past six years has been underpinned by the 2009 Renewable Energy Directive, which calls for 20 percent of all energy consumed in the EU to come from renewable sources by 2020. Individual member states have implemented a variety of subsidies, mainly feed-in tariffs, to meet this target. Recently, the European Commission established new rules that require member states to grant subsidies on the basis of competitive tenders for most renewable energy projects by the beginning of 2017. Member states are therefore now transitioning in various ways to more market-based support programs.

Section Three analyzes the impact of the dramatic decline in oil prices on renewable energy investment. Despite much noise that cheap oil might undermine the investment case for renewable energy, there will likely not be any impact whatsoever, simply because only a tiny amount (one percent in the US, UK and Germany) of electricity is generated from oil. It is true that, because natural gas is a by-product of oil production, natural gas prices have decreased in line with oil, which has in turn resulted in a reduction in short-term electricity prices. This will not have any impact on investment in renewable energy projects though, because such projects typically sell power through long-term power purchase arrangements.

Section Four explores the growing offshore wind investment opportunity in Europe and the US. The state of Maryland is furthest ahead, having authorized an offshore wind energy certificate mechanism in August 2014. Kaye Scholer was the chief architect of these first-of-their-kind regulations for implementing Maryland's Offshore Wind Energy Act, and the mechanics of this comprehensive set of groundbreaking regulations are outlined in detail in the body of the report. The offshore wind market is much more advanced in Europe. Some 408 turbines were installed across nine offshore wind farms in 2014, a five percent decrease on the number installed in 2013. There are many challenges to further offshore wind growth in Europe, not least the move to market-based support mechanisms promoted by the European Commission.

Section Five analyzes project finance and M&A activity in the US renewable energy sector. Almost $30 billion in project financing was invested in US renewable energy projects in 2014, a four percent decrease from 2013. Meanwhile, M&A activity gathered pace. Some 144 M&A deals involving renewable energy projects, totalling $13.9 billion, were announced in 2014, a 32 percent increase on the 109 deals totalling $6.9 billion in 2013.

We hope you find this report insightful. As ever, we welcome any feedback.

**Madeleine Tan, Kaye Scholer**
Head, Project Development & Finance

# The Rise of the Yieldco

**Section one** by Gregg Benson, Sydney Unger and Madeleine Tan

**Yieldcos are without doubt the most important and innovative development in US renewable energy finance and investment to emerge during the past two years. In addition to bringing a low cost of capital to the sector—an important component in rendering renewables cost competitive with traditional forms of power generation—Yieldcos have also "monetized" the long-awaited consolidation of generation assets. This section of the report explores the growth of Yieldcos in the past 18 months, analyzes how their investment activity has changed, reviews the stock performance of Yieldcos to date and explores emerging considerations for Yieldcos in 2015 and beyond.**

## *Review of Traditional Financing Vehicles for Renewable Energy Projects*

Developers of renewable energy projects historically have sought to obtain equity financing from investors whose equity participation relied on the availability of tax subsidies such as the production tax credit (PTC) and the investment tax credit (ITC).

Traditionally, the participation of so-called "tax equity investors" has been achieved through the use of limited liability companies (LLCs) that are treated as partnerships for US income tax purposes. In the particular case of wind power projects, the developer and the tax equity investor have used a "flip partnership" structure that, in effect, permits substantially all of the PTCs from a project to be allocated to the tax equity investor until such investor has achieved some agreed-upon after-tax internal rate of return on its investment.

One limiting factor to using LLCs is that the potential income tax benefits are valuable only to potential tax equity investors who have substantial taxable income (and tax liability) from other sources. Investors who do not have a substantial "tax appetite" are not a viable source of tax equity investment and certain categories of potential investors, such as individuals or closely held corporations, generally cannot use current tax credits or losses unless such taxpayers satisfy certain tax rules regarding "passive" investments.

Thus, the renewable energy industry has been faced with the issue of whether there are alternative investment vehicles that may be used to raise equity capital and will also be attractive to a broader range of potential investors.

Initially, the renewable energy industry engaged in substantial discussions regarding the use of two tax-efficient structures: real estate investment trusts (REITs) and master limited partnerships (MLPs) which have been used as tax efficient investment structures for the real estate and oil and gas sectors respectively. A REIT is a special type of corporation formed for the purpose of holding real estate assets (including equity interests and interest in debt secured by real estate, but generally excluding renewable energy assets) and earning income thereon, which, if the requirements for REIT classification are satisfied, will not be subject to a separate corporate level of tax. Similar to a REIT, an MLP, which is a publicly traded limited partnership that generally is treated as a corporation for US tax purposes, can be exempt from a corporate level tax if at least 90 percent of the income of the MLP consists of "qualifying income" (including the type of income and gains derived by oil and gas companies, but generally including the type of income and gains derived in the renewable energy sector).

Many members of the renewable energy community hoped that legislative or IRS guidance would be forthcoming that would permit, or expand, the use of REITs and/or MLPs to renewable energy projects. However, there has also been some concern that any such "favorable" legislation or guidance would come at the cost of a permanent termination of the PTC or ITC incentives.

An increasing demand for renewable energy investments, fueled by environmentally conscious investors and a favorable yield potential, has led to the rise of Yieldcos.

## *What Is a Yieldco?*

Yieldcos are listed funds that invest in contracted renewable energy assets that earn stable cash flows which are distributed as dividends to shareholders. They are designed to provide the renewable energy industry with a financing mechanism whereby

> **"A Yieldco typically generates relatively stable cash flows by selling electricity generated by the contributed projects to utilities pursuant to power purchase agreements (PPAs)."**

investors can obtain low-risk yields through an investment in a dividend-paying, growth-oriented, public company, and renewable energy projects and their developers can raise capital cheaply because the Yieldco's earnings, if structured properly, can be subject only to a single level of tax.

### *Structuring a Yieldco*

In a typical Yieldco structure, the Sponsor of renewable energy power projects contributes operating stage projects (or, in certain cases, pre-operating stage projects to the extent there is limited risk to achieving operating status) to the Yieldco, which is organized as a taxable domestic corporation. The contribution is done pursuant to a tax-free exchange of the assets transferred by the Sponsor for shares representing control of the Yieldco. The Yieldco sells shares to the general public in a stock offering, allowing the Sponsor to obtain relatively inexpensive financing by offering the investors the ability to participate in the predictable cash flows generated by the Sponsor's operating stage projects, while retaining a majority interest, either directly or indirectly, in the contributed projects. Frequently, the Yieldco is granted for a limited period of time some sort of "right of first offer" or "ROFO" with respect to the development stage projects retained by the Sponsor, exercisable as such projects become operational.

A Yieldco typically generates relatively stable cash flows by selling electricity generated by the contributed projects to utilities pursuant to power purchase agreements (PPAs). The Yieldco aims to make periodic distributions of the cash received under the PPAs (less expenses) to both its public shareholders and the Sponsor, providing investors with stable and favorable yields (typically targeting a dividend of approximately three to five percent, with a long-term "total return" of approximately 15-20 percent). In addition to achieving its return through cash distributions from the Yieldco, the Sponsor often receives management fees for management services provided to the Yieldco.

Unlike MLPs and REITs (whose favorable tax treatment is granted by operation of law), a Yieldco, which is often referred to as a "synthetic MLP," is structured to achieve the single-level US tax benefit enjoyed by MLPs and REITs. This structured single-level US tax is achieved by generating losses from tax depreciation on the renewable energy assets contributed by the Sponsor and other tax deductible expenses that equal or exceed the Yieldco's taxable income, as well as tax credits that offset the US tax liability resulting from the positive cash flows received under the PPAs. Excess losses, if any, generally can be carried forward (subject to limitations) to offset future taxable income of the Yieldco. Moreover, because such losses reduce the Yieldco's earnings and profits, and distributions from a corporation are taxable to its shareholders as dividends only to the extent of the corporation's current and accumulated earnings and profits, distributions from a Yieldco to its shareholders may constitute tax-free returns of capital to the extent of each shareholder's investment in the Yieldco.

Typically, there will be an initial period, which can be projected, during which the Yieldco will have sufficient US tax shelter due to the above-described depreciation deductions, other deductions and tax credits to offset its US taxable income and US tax liability. As the underlying projects turn profitable, and as the depreciation period of the underlying project assets expire, however, the Yieldco can maintain its favorable tax status, only

through continued contributions and/or acquisitions of additional development stage projects that are projected, like the projects initially contributed, to provide newly depreciable assets and tax shelter. This can be achieved by the Sponsor contributing new projects to the Yieldco or by the Yieldco using its access to relatively inexpensive capital to acquire operating stage projects from other developers.

Yieldcos are considered to be very low-risk investments because they primarily own operating contracted renewable energy assets, which provide stable long-term cash flows. Given that most Yieldcos are owned in part by a major developer of renewable energy projects, there is also limited risk that they will struggle to acquire new projects. As a result Yieldcos have proven highly attractive to risk-averse investors seeking stable yields.

**$3.8 billion**

**Equity raised by Yieldcos on the public markets in 2014**

### *Yieldcos Raised $5.9 Billion in Equity to Date*

Six Yieldcos are currently listed on North American exchanges. These are NRG Yield, the first Yieldco, which listed in July 2013, TransAlta Renewables (August 2013), Pattern Energy Group (September 2013), Abengoa Yield (June 2014), NextEra Energy Partners (June 2014) and TerraForm Power (July 2014).

These Yieldcos secured $3.8 billion in equity on the public markets in 2014, more than three times the $1.1 billion secured in 2013, according to Clean Energy Pipeline. This includes $1.87 billion raised through the IPOs of Abengoa Yield, TerraForm Power and NextEra Energy Partners, and $1.96 billion through secondary offerings. To fund their ambitious acquisition plans, Yieldcos also tapped the debt markets aggressively in 2014. The six Yieldcos listed in North America secured $2.9 billion in 2014, compared with only $145 million in 2013.

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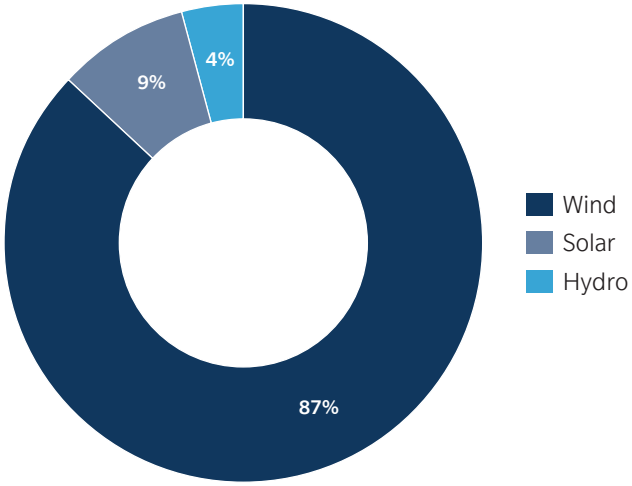
### Yieldco Investments by Sector in 2013 (Effective Capacity)

**Source: Clean Energy Pipeline**

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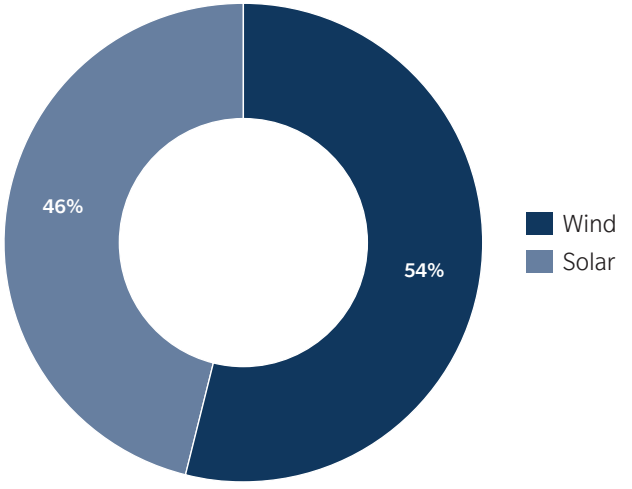
### Yieldco Investments by Sector in 2014 (Effective Capacity)

**Source: Clean Energy Pipeline**



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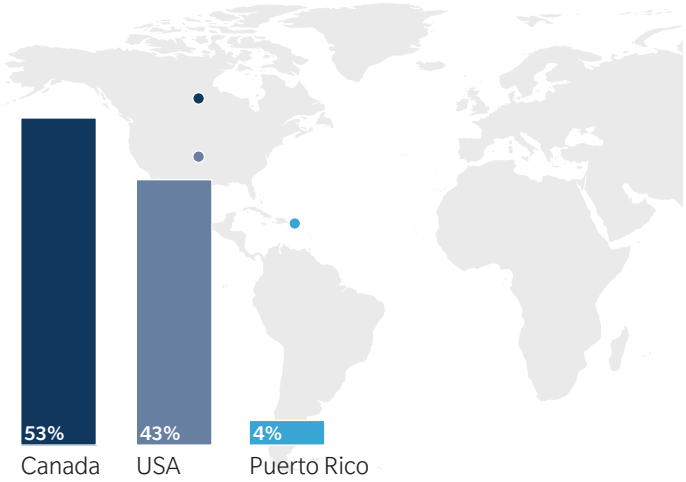
## Yieldco Investments by Country in 2013 (Effective Capacity)

**Source: Clean Energy Pipeline**

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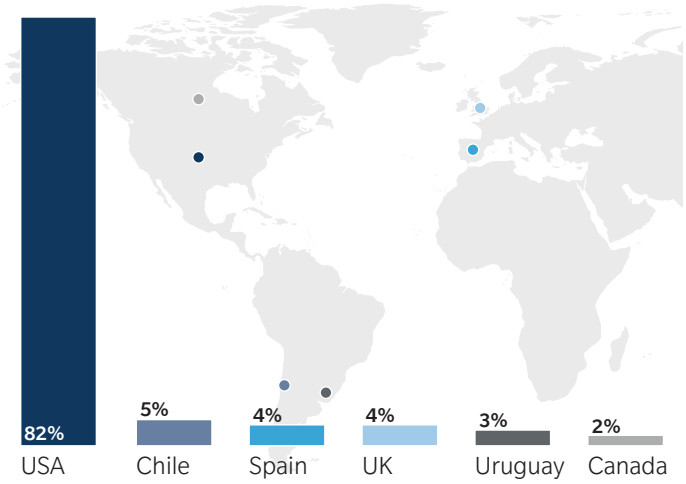
## Yieldco Investments by Country in 2014 (Effective Capacity)

**Source: Clean Energy Pipeline**




> **"The majority (82 percent) of acquired renewables capacity was located in the US in 2014, compared with only 43 percent in 2013."**

### *Yieldcos Are "Monetized" M&A Activity*

Underpinned by their low cost of capital, Yieldcos can make extremely competitive bids to acquire renewable energy projects. The six Yieldcos listed in North America collectively acquired 3.8 GW of effective renewable energy capacity (defined as the capacity of the project multiplied by the stake acquired) in 2014, a 46 percent increase on the 2.6 GW of effective capacity acquired in 2013, according to Clean Energy Pipeline data. Importantly, these figures only include acquisitions by existing listed Yieldcos. Many more IPPs are amassing portfolios of renewable energy projects through acquisition that can be consolidated into a Yieldco at a later date.

Although the oldest Yieldco has only been operating for just over 18 months, their investment strategy already appears to be shifting in terms of targeted sectors, countries and stage of asset. Indeed some 46 percent of all effective capacity acquired by Yieldcos in 2014 was solar capacity. In 2013, solar projects only accounted for nine percent of effective capacity acquired. In addition, the majority (82 percent) of acquired renewables capacity was located in the US in 2014, compared with only 43 percent in 2013. Finally, just over 70 percent of capacity acquired in 2014 was at the operating stage. In 2013, this proportion was 95 percent.

## *Yieldco Stocks Are Performing Well*

Yieldco stocks have performed well during the past two years. All but one is currently trading above its IPO price, while TransAlta Renewables, NextEra Energy Partners and Pattern Energy Group are currently trading at between 30–40 percent above their listing price. The standout performer is NRG Yield, the first North American Yieldco to list. NRG Yield's shares are currently trading at $52 per share, almost double their IPO price.

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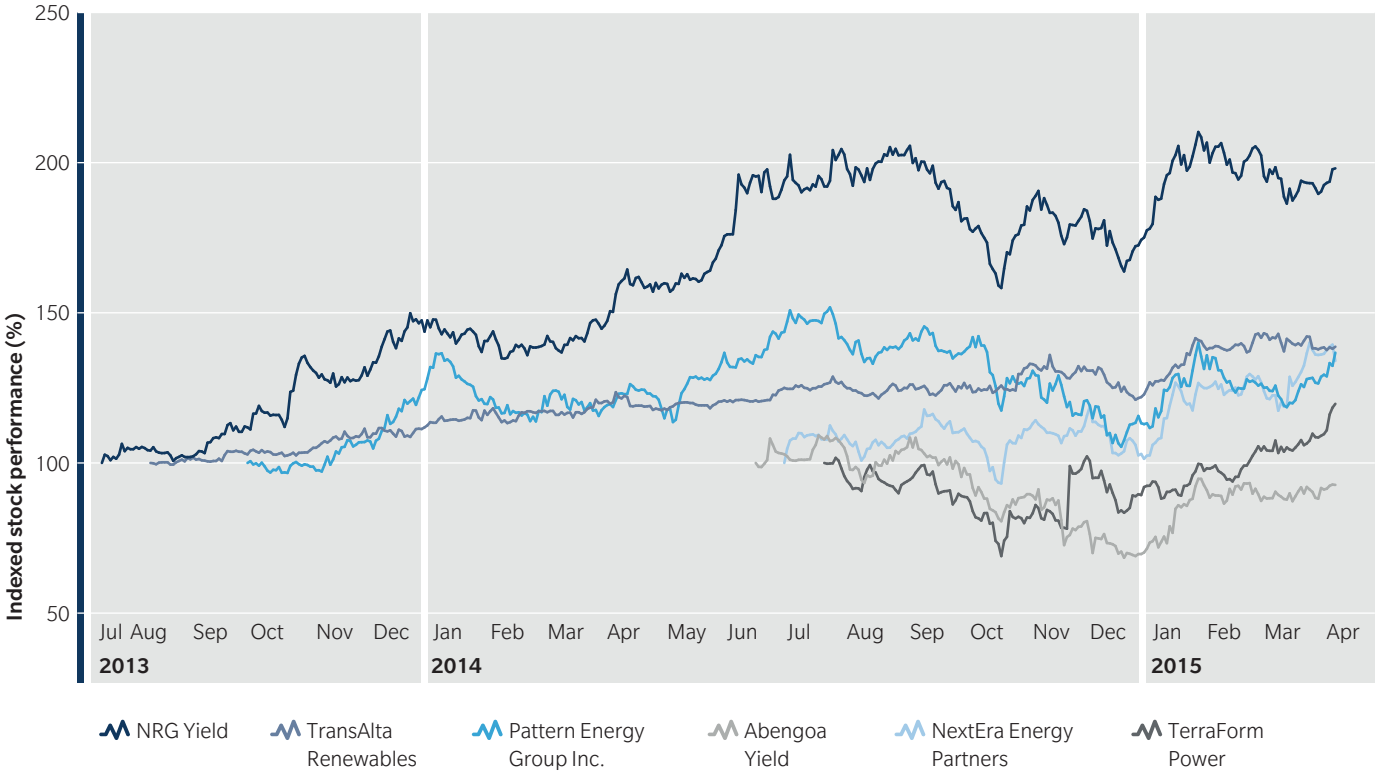
### Stock Performance of North American Yieldcos

**Source: Clean Energy Pipeline**



### *Emerging Considerations for Yieldco Investors and Sponsors*

Although Yieldco stocks have performed well in the past 18 months, investors should consider certain challenges when evaluating an investment. The three most important considerations are outlined below:

1. **Rising Interest Rates:** Thus far, the low interest rate environment has enabled Yieldcos to borrow at very cheap rates to fund acquisitions of large portfolios of renewable energy assets. For similar reasons, Yieldcos have proven particularly attractive to investors because their returns are much higher than those offered by mainstream fixed-income asset classes such as bonds. An increase in interest rates will not only raise Yieldco's borrowing costs, but also make them less attractive compared with other yield-orientated investments such as bonds.

2. **Project Availability:** Yieldcos need to expand their portfolios constantly to generate cash flows for shareholder distributions. Any slowdown in the number of new onshore wind or solar PV projects being built may impede their ability to do this. This is unlikely to be a risk in the short term. As a start, most Yieldcos are affiliated with large developers of renewable energy projects that have large project pipelines. Furthermore, renewable energy tax incentives are in place for some years to come. Solar projects can qualify for the 30% investment tax credit (ITC) as long as they are operational by the end of 2016. Wind energy projects that commenced construction by the end of 2014 can also qualify for the production tax credit (PTC).

   However, the prospects for investment in new renewable energy projects once subsidies expire are uncertain. President Obama called for a permanent extension of the ITC and PTC as part of the 2016 budget package. Approval of these measures requires the support of the Republican-led Congress, which is unlikely to be forthcoming.

3. **Financing Considerations:** Yieldcos will have to start tapping the tax equity markets much more aggressively than in 2014. Thus far, most Yieldcos have acquired projects that claimed the Treasury cash grant, which provided a cash grant equal to 30 percent of capital costs of solar PV or onshore wind farms in

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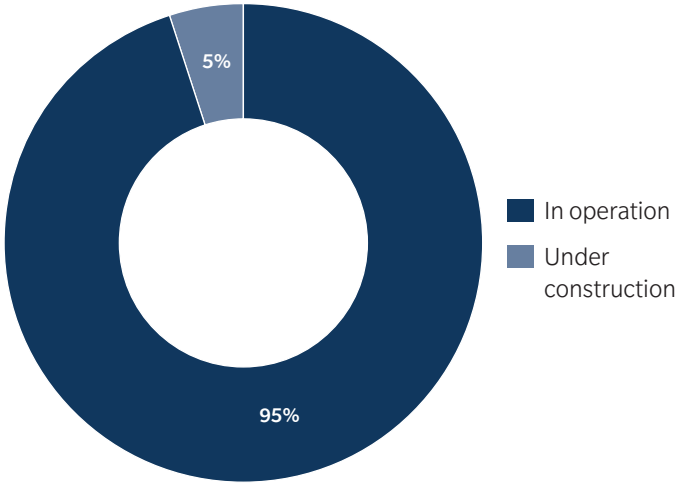
### Yieldco Investments by Stage of Asset in 2013 (Effective Capacity)

**Source: Clean Energy Pipeline**

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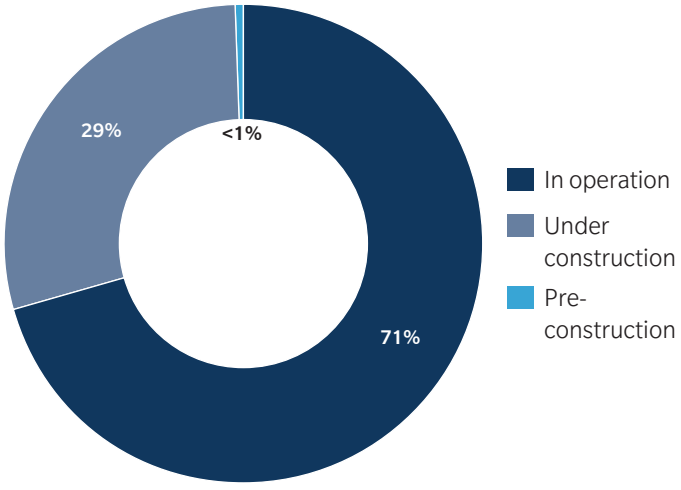
### Yieldco Investments by Stage of Asset in 2014 (Effective Capacity)

**Source: Clean Energy Pipeline**



lieu of tax credits. These projects are very attractive to Yieldcos because the tax benefits have already been monetized in the form of a grant, meaning tax equity financing was unnecessary. However, with the volume of these projects drying up, Yieldcos will increasingly be forced to engage with tax equity investors. The challenge will be structuring tax equity investments in a way that provides sufficient tax benefits to the tax equity investor while retaining enough of the tax benefits to shelter their income from corporation tax.

Certain additional considerations to be evaluated by Sponsors contemplating the formation of their own Yieldco include:

- Time and expense required to prepare the filings needed to publicly list the Yieldco (along with the exposure to interest rate sensitivity, discussed above, throughout the filing process);
- Structural complexity;
- Necessity of identifying a pool of assets that can serve the above purposes of providing a desirable yield vis-à-vis cash distributions and allowing for a single level of tax while providing sufficient risk diversification; and
- Potential credit risk to Sponsors resulting from moving operating stage projects into the Yieldco while retaining only pre-operating stage projects.

## *Conclusion*

Renewable energy technology continues to become more efficient and less expensive, sponsors are always on the lookout for low-cost sources of capital, and investors are still chasing high-growth, dividend-paying companies. These three factors mean Yieldcos will continue to play an important role in financing renewable energy projects for many years to come, despite the risks, costs and complex tax and legal considerations in their formation and use. However, as the pool of projects available for utilities to acquire evolves and tax incentives expire or change, the Yieldco structure too will need to adapt.

# Comparison of Renewable Energy Project Incentives

## Europe

**Section two** by Sandra Pfister and Ingrid Kalisch

**The European Union introduced a framework for the promotion of electricity produced from renewable energy sources in 2001,[1] which has subsequently been strengthened by the Renewable Energy Directive in 2009.[2] Among other things, this framework provides for a target of 20 percent of all energy consumed within the EU to come from renewable energy sources by 2020. In response to these EU-wide requirements, Member States have implemented a variety of renewable energy support schemes, the most common of which are (or at least until recently were) fixed feed-in tariffs (FITs).[3]**

While this support system has induced a significant growth of renewable energy production over recent years and put Member States on target for achieving the EU's renewable energy targets by 2020, funding has often come from energy users in the form of additional charges to energy bills (such as the German EEG Umlage or the French contribution au service public de l'électricité (CSPE)) or increased electricity prices. In recent years there has been a growing sense among consumers that FITs and other fixed support systems have been shielding electricity prices from market signals, thus causing market distortion and resulting in increasing costs to energy users.[4] As a result, the European Commission has recently adopted new rules on public support in the field of renewable energy (Guidelines) which promote a gradual move to a market-based support system for renewable energy sources.[5] More precisely, the Guidelines call for competitive tenders to be fully in place for nearly all renewable energy sources from January 1, 2017, with five percent of capacity already being subject to tendering during 2015/2016.

### *Member States*

In response to the Guidelines, a number of Member States whose renewable energy support schemes in the past have shielded project operators from market risk through FITs will have to implement, or are in the process of implementing, reforms to their renewable energy support schemes.

### France

There are a number of support schemes in place in France, ranging from specific preferential tax treatments (including accelerated tax depreciation for certain equipment used for the production of renewable energy acquired or constructed until 2011, specific partial tax exemptions for biofuels during the period from 2013 to 2015 and research tax credits on project operator's environmental investments), FITs for all renewable energy sources but offshore wind[6] and tenders for large-scale projects.

For example, since early 2013, FITs for solar installations up to 12 MW depend on the type and total nominal output of the installation.[7] Moreover, FITs have been fixed in mid-2014 for onshore wind at €0.082/kWh for the first 10 years and ranging from €0.028/kWh to €0.082/kWh for the additional five years, depending on location and hours of production and in each case subject to indexation.

There has already been controversy around the French FITs for onshore wind, especially after a December 2013 CJEU decision held that the French FITs for onshore wind constitute prohibited State aid while a March 2014 European Commission ruled that, following notification, the French FITs relating to onshore wind constitute permitted State aid and that project operators are not overcompensated by them.[8] However, this EC decision was based on the predecessor rules of the Guidelines and it remains

to be seen what, if any, changes will be forthcoming in France, including under the draft Energy Bill that was revealed in mid-2014 and is expected to be adopted in 2015.[9]

In addition to FITs, France has been using tenders for the construction of large-scale renewable energy installations of all sorts since 2011, introducing a power purchase obligation by Electricité de France (EDF) at a fixed price determined by the bidders in their submission. In its first tender for offshore wind launched in July 2011, the French tendering authority set minimum and maximum purchase prices, ranging from €0.115/kWh to €0.20/kWh depending on distance to shore and water depth. While no information is available on the actual prices tendered, as a result of the first tender, the French tendering authority expects costs for offshore wind of approx. €0.16/kWh from 2020 onward.[10] For its second tender, the tendering authority has set a maximum price of €0.22/kWh and provided that—contrary to the first tender—they would not consider any bid in excess of this cap.

## Germany

Historically, German grid operators were obligated to take off, transmit and distribute the entire available amount of renewable energy electricity, and to pay the project operator a fixed FIT for all renewable energy sources. While this system has proved very effective in creating new capacity, under the 2014 German Renewable Energies Act (Erneuerbare-Energien-Gesetz (EEG)), the German Government is looking to implement a shift away from FITs to competitive tenders from 2017 onward for most renewable energy sources (other than offshore wind, which will continue to benefit from FIT until 2019).[11]

Operators of renewable energy projects with a nominal output of 500 kW or more that have been commissioned after July 31, 2014 are already obligated to market the power generated by their projects by way of direct selling, i.e., they are obligated to sell the power directly to an electricity supplier at a negotiated (market) price under power purchase agreements. The same will apply for projects with a nominal output of more than 100 kW that have been commissioned on or after January 1, 2016. Moreover, FITs will only be granted for electricity actually taken over by the grid operator and electricity may not be consumed in the direct surrounding of the renewable energy installation and needs to be transmitted through the grid. Operators may, in addition to the negotiated prices, qualify for a market premium (i.e., a top-up payment) based on the FITs set forth in the EEG.

FITs under the EEG for onshore wind range from €0.089/kWh for at least the first five years[12] and a basic FIT of €0.0495/kWh thereafter, subject to quarterly adjustments beginning in 2016.

FITs for offshore wind are staggered: for a wind farm that has been commissioned by December 31, 2019, the project operator can choose between one of two models: (a) FIT of €0.154/kWh for a period of at least 12 years (the exact period depends on distance from shore and water depth) or (b) FIT of €0.194/kWh for a total of eight years (aka optional acceleration model) plus FIT of €0.154/kWh for an additional period of time calculated by reference to distance from shore and water depth. After expiry of the relevant period (i.e., after 12+ or 8+ years), the project operator will continue to receive a basic FIT of €0.039ct/kWh on top of merchant prices.

FITs for solar installations, on the other hand, range from €0.0923 to €0.1315 for installations in and on buildings (subject to quarterly adjustments) and €0.0923/kWh for ground-mounted installations up to a nominal capacity of 10 MW. Note that on January 28, 2015, the German Cabinet passed delegated legislation on competitive tenders for ground-mounted solar installations[13] which, if it proves successful, is intended as a pilot for other competitive tenders under the EEG.

In addition to the remuneration scheme in place in Germany under the EEG, KfW offers a number of investment/funding/financing support schemes.

## Spain

The regulatory regime relating to the Spanish renewable energy support schemes has undergone significant change in recent years. In particular, in 2013, the Spanish price regulation system, which allowed project operators to choose between a guaranteed FIT and a guaranteed bonus (or premium) paid on top of the electricity price achieved in the wholesale market, was phased out.[14] Moreover, in June 2014, Spain introduced a system that caps earnings of all existing renewable power plants. The new rules come in response to the massive Spanish electricity tariff deficit,[15] and provide that project operators will earn a rate of return of approx. 7.5 percent over the lifetime of the project; payouts under the new rules will be calculated for each project and will take into account hundreds of parameters.[16]

## UK

In the UK, renewable energy sources are supported through FITs for projects up to 5 MW, a renewable obligation (RO) or quota/certificate scheme for projects larger than 5 MW (although projects between 50 kW and 5 MW may choose between FIT and RO), a tax regulation mechanism and Contracts for Difference (CFD) for projects larger than 5 MW. CFDs will replace ROs and be the only support scheme available for projects over 5 MW from April 2017 onward (and from April 2015 onward for utility-scale solar PV projects).[17]

The new CFD scheme provides for a guaranteed premium over a reference wholesale price for a fixed period of time. After a key part of the UK government's electricity market reform (EMR) program received EU State aid approval in mid-2014, approx. £50 million will be available to pay for CFDs with "established" renewable energy sources commissioned in 2015/16 (£65 million for later years), including wind, solar, CHP, hydro, landfill and sewage gas, with £155 million having been budgeted for projects commissioned in 2016/17 (£235 million for later years) with less mature technologies, including tidal stream, offshore wind, geothermal and dedicated biomass.[18]

> **"In contrast to the Renewable Energy Directive, however, the new EU level target for increasing the share of renewable energy to at least 27 percent is not legally binding at the national level and will be reviewed in 2020."**

Contracts will be allocated within each technology group. The proposed CFD wholesale (or strike) prices are set out in the Budget Notice for CFD Allocation Round 1 of October 2, 2014, as revised on January 27, 2005.[19] In February 2015, contracts were offered to 27 renewable electricity projects with a total value of some £315 million, which include two offshore wind farms with a total planned capacity of more than 1.1 GW, 15 onshore wind projects and five solar projects. The two approved offshore wind projects—East Anglia Phase 1 and Neart na Gaoithe—offered strike prices varying between £114.39 and £119.89 per MWh, while the onshore wind farms contracts equated to more than 748 MW of capacity, with average strike prices for each year varying between £79.23 and £82.50 per MWh.[20]

While the UK government maintains that the CFD regime will successfully lower the prices of most renewable energy sources and increase capacity, critics question its favoritism and overreaching UK energy policy. [21]

## *Outlook—the EU's 2030 Framework for Climate and Energy Policies*

While the EU is making good progress towards meeting its climate and energy targets for 2020, the Commission felt that an integrated policy framework for the period up to 2030 is needed to ensure regulatory certainty for investors and a coordinated approach among Member States. In late October 2014, EU leaders therefore agreed on the main building blocks of the 2030 policy framework for climate and energy, which aims to make the EU's economy and energy system more competitive, secure and sustainable.[22]

In contrast to the Renewable Energy Directive, however, the new EU level target for increasing the share of renewable energy to at least 27 percent is not legally binding at the national level and will be reviewed in 2020 "having in mind" the originally aimed-for 30 percent EU level target.

# Impact of the Current Dramatic Decline in Oil Prices on Renewable Energy Project Investment

## North America and Europe

**Section three** by Irv Hepner and Kate Gracia

**The price per barrel of Brent crude oil was $114.29 in June 2014 and fell to $46.44 in January 2015 (rebounding slightly to $60.57 in February 2015 as shown in the graph below). The dramatic decline in oil prices is generally attributed to the relative weakness of demand (based primarily on slower growth in China and other Asian countries), coupled with the announcement by the Organization of Petroleum Exporting Countries (OPEC) not to reduce their crude oil production and sales in the near term. Yet, industry analysts surveyed for this article do not expect the decline in price to have any material effect on investment in renewable energy projects in North America or Europe since these regions do not rely on oil to produce electricity.**

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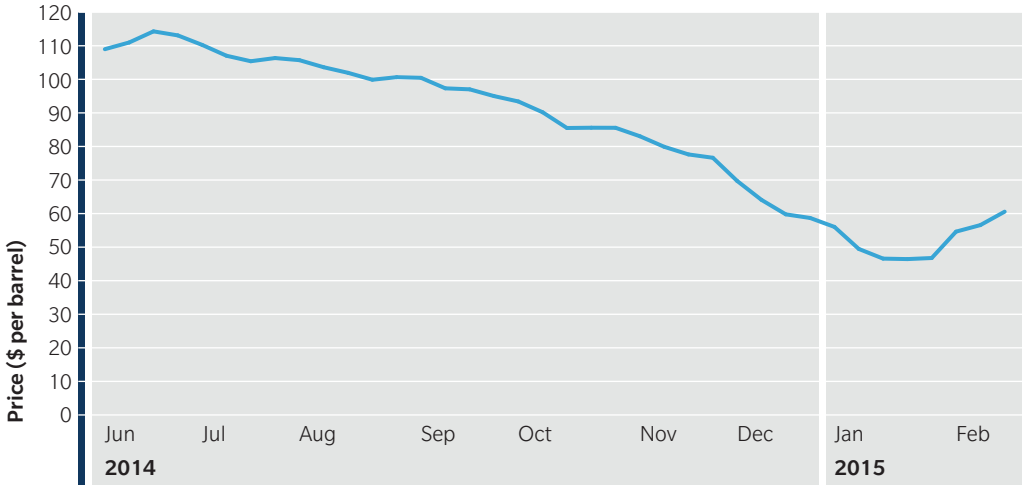
**Brent Crude Oil Prices Since June 2014 ($/per barrel)**

**Source: US Energy Information Administration**




### *Analysts' Forecasts*

Industry sources indicate that in the US, UK and Germany, oil is only used to generate approximately one percent of electricity while renewables generate almost 15 percent of the electricity supply in the US and UK, respectively, and as much as 24 percent in Germany. Nevertheless, there seems to be a perception in the market that the price of oil and electricity are directly correlated.

For example, a Bank of America Merrill Lynch report published January 14, 2015 (2015 Solar YA: oil stains solar sentiment, but demand strong) indicated that this perception may be implicated in the recent decline in solar stocks but that this sell-off may create opportunities for investors.

## *What We Hear From the Market*

A quick survey of Kaye Scholer clients confirmed that there has not been any direct connection between the decline in oil prices and the cost of electricity but did note that there are indirect connections through the recent decline in the price of natural gas, which is used in the US and Europe to generate electrical power. A German industry source went on to comment that, as a result of the EU's renewable energy regime, there are almost no countries in Europe that do not operate under a renewable energy support scheme. Therefore, given the abundance of such programs, there is no room for any direct link between fossil fuel prices and the cost of electricity from renewable energy sources.

The US Energy Information Administration recently reported that in the US, 27 percent of electricity is generated by natural gas. In Europe, about 18 percent of electricity is generated by natural gas, as reported by the European Commission in a January 31, 2015 report on electricity and heat statistics. Because natural gas is a frequent byproduct of oil production, the price of natural gas has declined in step with the recent decline in the price of oil. As a result, declines in natural gas prices have led to declines in prices in short-term electrical sales in the US. To the extent sales of electrical power are short-term merchant sales, they reflect declines in natural gas prices. However, in the near term, these fluctuations should not have any significant effect on long-term prices and should not be expected to have long-term effects on investments in renewable energy projects because long-term energy sales from renewable energy projects are frequently based on long-term purchase agreements or other long-term arrangements.

Another short-term effect of declining oil prices is a potential disruption in fracking. A possible countervailing trend, however, could be that if investment in US oil production (particularly fracking) is disrupted by lower current oil prices, some natural gas production will also be disrupted, in turn putting upward pressure on short-term prices for electricity.

## *Issues to Consider*

Although many analysts currently predict that crude oil prices will begin to rise in the second half of 2015, investors in all energy industries must consider the possibility that political or other forces in the major oil producing countries may encourage sufficient oil production to keep oil prices low for a more sustained period. If that perception were to become the consensus view, some argue that investments in renewables might be adversely affected, including by an erosion of support for direct and indirect subsidies from governments for the renewables sector.[23]

Against these possible effects of the fluctuations in the fossil fuels markets, there are also some long-term trends favoring continuing investment in renewable energy projects. Beyond the obvious issues (political pressure relating to the threat of global warming, environmental damage resulting from fossil fuel production and the inherently finite nature of nonrenewable resources with inevitably increasing costs of production), long-term investors will also have to consider at least the following additional factors:

- A long-term trend of increasing pressure on water resources favors wind and solar energy production. Bank of America Merrill Lynch reports that 90 percent of global power generation, from conventional sources, is water-intensive, creating a structural advantage for production of wind and solar power, which use insignificant amounts of water.[24]
- A long-term trend of increasing efficiencies in renewable technologies, which are generally predicted to result in progressively lower costs of electricity from renewable sources, relative to production costs from conventional projects. This happens earlier in high-price regions, e.g., in Germany, where retail customers pay considerably more for electric power than industrial customers, electricity from home photovoltaic solar systems is cheaper than outside electricity even today.

# Offshore Wind Update

## US and Europe

**Section four** by Madeleine Tan and Sandra Pfister

**In August 2014, the State of Maryland authorized groundbreaking regulations that implemented a first-of-its-kind program of offshore renewable energy certificates (ORECs) whereby sales of ORECs would provide a long-term, reliable revenue stream to finance the development of offshore wind (OSW) projects. The future of OSW projects in the United States depends on reliable financing mechanisms for current and future projects. While the US Energy Information Administration reports that a majority of US states have adopted renewable portfolio standards (RPS) that require utilities to source a minimum portion of their generation from renewable sources, including wind, RPS requirements alone have not typically guaranteed the reliable stream of payments that developers require in order to obtain financing for their projects. Developers of renewable energy projects have benefitted from long-term power purchase agreements (PPAs) entered into with utilities, providing them with these reliable streams of revenue. With Maryland's ORECs program, we now have an alternative source of long-term revenue to service OSW projects.**

### *ORECs in the State of Maryland*

On March 18, 2013, the Maryland General Assembly passed the Offshore Wind Energy Act of 2013 (OWEA), and Governor Martin O'Malley signed the bill into law the following day. OWEA requires the state's electricity suppliers to obtain a minimum of 2.5 percent of their power from OSW as early as 2017, while also limiting the monthly cost to residential ratepayers to no more than $1.50 and the annual cost to nonresidential ratepayers to no more than 1.5 percent.[25] The law called for the Maryland Public Service Commission to determine the OSW component of Maryland's RPS "based on the projected annual creation of ORECs by qualified offshore wind projects" that have been approved under the Act. The Commission was also required to implement regulations that would establish an escrow account into which projects would deposit ORECs for purchase.

On August 26, 2014, the Commission authorized final regulations that would govern the purchase and sale of ORECs in Maryland and provide long-term financing for developers seeking to build these projects off Maryland's coast. The regulations provided critical details about utilities' obligation to purchase ORECs and shaped the mechanism by which projects deliver ORECs into an escrow account and receive payments in return. The Commission must set the OREC purchase obligation for utilities on a forward-looking basis and at least three years in advance of the year in which the obligation takes effect, and utilities are required to meet their OREC purchase obligations by buying them from an escrow account. The primary benefit of the OREC system is that it puts in place a reliable and sustainable funding mechanism driven by payments from OREC-purchasing electricity suppliers.

#### OREC Mechanics

Maryland's regulations provide stability and certainty for both OSW developers and utilities by establishing a mechanism that at once funds OSW projects and electricity suppliers in Maryland to satisfy the OSW component of their RPS. The electricity suppliers are given three years advance notice of their OREC purchase obligation to enable them to make necessary price adjustments to their electricity supply contracts. An independent third party administrator collects payments from all electricity suppliers in the state that have an RPS obligation. All of the ORECs that a project creates are deposited into a PJM GATs account that is managed by the administrator. OSW projects send monthly invoices to the administrator based on the number of ORECs the project creates during the applicable period. The administrator verifies the accuracy of each invoice and pays the relevant project and ensures that the correct amounts of ORECs are delivered to the relevant electricity supplier from whom it received payment. In addition, the payments received by the administrator from the electricity suppliers are used to fund a reserve account with up to six months of OREC-projected revenues. Any excess funds after topping up such reserve are paid to the utilities for subsequent

rebate to the ratepayers, as required by OWEA. The regulations create a unique mechanism that enables a project to look to one party, the administrator, for payment and ensures that the ORECs are delivered to the relevant purchasers. The reserve held by the administrator provides potential financiers a degree of comfort that there is a reasonable cash "buffer" available to enable the administrator to pay the projects, even during periods when the generation of electricity and hence the number of ORECs generated may exceed the forecast.

The rollout of Maryland's OREC program is currently continuing. In December 2014, the Commission completed a "soft" launch of a website for OSW developers that contains regulatory and developer application materials and a timeline for applications.

## *Short-term Outlook for OSW in the US*

The future of OSW capacity in the United States will be shaped not only by the availability and success of state-based financing measures like Maryland's OREC program, but also by larger, structural support in the form of federal and state production tax credits (PTCs). While ORECs and PPAs provide the stable stream of the payments that investors need in place before extending credit to projects, PTCs encourage new-build by enhancing the economic viability of OSW projects. Congress extended the federal PTC in the last weeks of 2014, but the retroactive extension from January 1, 2014 through the end of the year only provided wind developers with a couple of weeks to start construction that qualified for PTCs.[26] This may be an opportunity for the states to expand their own statewide incentives to mitigate potentially adverse impacts of expiration of the PTCs at the end of 2014. Iowa and Oklahoma currently have state-level PTCs for wind projects, and Nebraska is currently discussing a similar proposal.[27]

The pace of OSW development in the United States has continued in 2014. Deepwater Wind recently gave formal notice to Alstom to begin construction of the first OSW project in the United States, the five-turbine, 30 MW Block Island Wind Farm. A dozen projects are currently in advanced development, representing more than 4,500 MW of generation:

| Project Name | Owner | State | Planned Capacity (MW) | Number of Turbines |
|---|---|---|---|---|
| Aqua Ventus | University of Maine<br>Cianbro Corp.<br>Emera Inc. | MA | 13 | 2 |
| Block Island Offshore Wind | Deepwater Wind LLC | RI | 30 | 5 |
| Bluewater Mid-Atlantic Wind Park | NRG Bluewater Wind | DE | 450 | 150 |
| Cape Wind Offshore | Energy Management Inc. | MA | 468 | 130 |
| Deepwater ONE | Deepwater Wind LLC | RI<br>MA | 1000 | 150-200 |
| Fisherman's Energy Atlantic City Wind Farm | Fisherman's Energy | NJ | 25 | 5 |
| Fisherman's Energy (Phase II) | Fisherman's Energy | NJ | 330 | 66 |
| Galveston Offshore Wind | Coastal Point Energy LLC | TX | 150 | 75 |
| Lake Erie Offshore Wind Project (Great Lakes) | Fresh Water Wind | OH | 27 | 7 |
| Virginia Offshore Wind Technology Advancement Project | Dominion Virginia Power Company | VA | 12 | 2 |
| Virginia WEA Lease Project | Dominion Virginia Power Company | VA | 2000 | -- |
| Windfloat Pacific | Principle Power | OR | 30 | 5 |

| Lease | State | Developer |
|---|---|---|
| OCS-A 0500 | MA | RES America Developments, Inc. |
| OCS-A 0501 | MA | Offshore MW LLC |
| OCS-A 0486 | RI/MA | Deepwater Wind New England, LLC |
| OCS-A 0487 | RI/MA | Deepwater Wind New England, LLC |
| OCS-A 0483 | VA | Dominion Virginia Power |
| OCS-A 0478 | MA | Cape Wind Project |
| OCS-A 0482 | DE | Bluewater Wind Delaware LLC |
| OCS-A 0472 | NJ | Deepwater Wind LLC |
| OCS-A 0473 | NJ | Fishermen's Energy of New Jersey LLC |
| OCS-A 0489 | MD | US Wind Inc. |
| OCS-A 0490 | MD | US Wind Inc. |

| Project Name | Owner | Location | Planned Capacity (MW) | Number of Turbines |
|---|---|---|---|---|
| **Fully Grid Connected** | | | | |
| Meerwind Sud/Ost | Blackstone Group LP; Windland Energieerzeugungs GmbH | Germany | 288 | 80 |
| Methil Demo (Energy Park Fife) | Samsung Heavy Industries | UK | 7 | 1 |
| Northwind | Aspiravi Holding NV; Parkwind NV; Sumitomo Corp. | Belgium | 216 | 72 |
| Riffgat | ENOVA Energieanlagen GmbH; EWE AG | Germany | 108 | 30 |
| West of Duddon Sands | Scottish Power Renewables; DONG Energy | UK | 389 | 108 |
| **Turbines Installed** | | | | |
| Baltic 2 | EnBW Energie Baden-Wurttemberg AG; Macquarie Capital Group Ltd | Germany | 288 | 80 |
| Borkum Riffgrund I | DONG Energy; Kirkbi A/S; The Oticon Foundation | Germany | 312 | 78 |
| Butendiek | WPD AG; Siemens Financial Services Ltd.; PKA A/S; Elektrizitaetswerk der Stadt Zuerich (EWZ); Marguerite Fund; CDC Infrastructure, Industriens Pensionsforsikring A/S | Germany | 288 | 80 |
| Humber Gateway | E.ON Climate & Renewables | UK | 219 | 73 |
| Trianel Windpark Borkum | Trianel GmbH | Germany | 200 | 40 |
| **Foundations Installed** | | | | |
| Amrumbank West | E.ON Climate & Renewables | Germany | 288 | 80 |
| Luchterduinen | Eneco; Mitsubishi | Netherlands | | |
| **Partially Completed** | | | | |
| DanTysk | | Germany | 288 | 80 |
| Global Tech 1 | Stadtwerke Munchen GmbH; HSE AG (Darmstadt) and Axpo Holding AG; Esportes Offshore Beteiligungs GmbH; Norderland Projekt GmbH and Windreich GmbH; FC Wind 1 GmbH; FC Wind 2 GmbH; GTU I GmbH; GTU II GmbH | Germany | 400 | 80 |
| Gwynt y Mor | --- | UK | 576 | 160 |
| Nordsee Ost | RWE Innogy GmbH | Germany | 295.2 | 48 |
| Westermost Rough | DONG Energy | UK | 210 | 35 |

> **"While incentives are stable for another four years, OSW farms take longer to develop (generally six to eight years), meaning that investment decisions taken today may not be safe after all."**

Added wind capacity in the United States during the first three quarters of 2014 totaled only two GW, but developers indicated to the US Energy Information Administration that three GW were planned for the fourth quarter, and an additional 11 GW are planned to be completed in 2015, although primarily inland in Texas, Oklahoma, Iowa and Minnesota.[28]

Meanwhile, the auction of lease sites for the development of OSW in the US continues, with higher-than-ever prices being offered for sites.

### *OSW in Europe*

Europe saw continued development of OSW projects in 2014, with developers installing 408 new turbines on nine farms, although the European Wind Energy Association reported new capacity totaled 5.34 percent less than in 2013. There were other encouraging signs that the industry is making progress, with Germany's OSW capacity doubling in 2014 from 915 MW to 2.35 GW, 1.05 GW of which is currently connected to the grid, with three GW expected to be connected by the end of 2015.[29]

Challenges remain for OSW in Europe in light of the move to a market-based support system for renewable energy sources promoted by the European Commission,[30] particularly in the UK, where the continued progress of renewables will also significantly depend on the upcoming general elections in May 2015.

Between 2014 and 2017, as part of a series of market-based reforms, the UK will replace its system of renewable obligations (RO) with contracts for difference (CFD), a system of swaps whereby a renewable electricity generator and the Low Carbon Contracts Company, a private company owned by the Department of Energy and Climate Change, agree to pay the other the difference between a fixed notional amount and the price at which electricity is sold.[31] At the moment, there is a "significant gap between developers' approved plans and available support under the new CFD scheme—about 5.1 GW of so-far unsubsidized projects are competing for 800 MW of funding."[32] And, whereas from January 1, 2017 onward, the German Renewable Energies Act (EEG) will have to be revised to provide for tenders as the general means of determining the level of support and allocations of the aid between the participants to the tender,[33] the current version of the EEG provides for feed-in tariffs fixed through 2019 for OSW.

Thus, while incentives are stable for another four years, OSW farms take longer to develop (generally six to eight years), meaning that investment decisions taken today may not be safe after all. Irrespective of the record highs reported in 2014 for OSW capacity in Germany, there is some reluctance in the market to further invest in such projects.[34]

# Renewable Energy Project Update

**Section five** by Thomas Sturge and Madeleine Tan

**This section provides an update on renewable energy projects in the US during 2014. It outlines the volume of new capacity installed in 2014, the level of project financing activity and also the quantum of project-level M&A.**

## *Solar Installation Hits New Heights; Wind Stutters*

**Solar:** Some 6.2 GW of solar capacity was installed in 2014, a 30 percent increase on the 4.8 GW brought online in 2013, according to data compiled by the US Solar Energy Industries Association (SEIA) in collaboration with GTM Research. 2014 was in fact another record year for solar installations and the fourth consecutive year for growth in solar PV installation. The US solar PV market has grown at a steady pace due to the long-term certainty provided by the solar energy investment tax credit, which projects can qualify for as long as they are operating by the end of 2016.

Making predictions is hard, but continuing falling solar costs, coupled with the stability provided by the continuance of the solar Investment Tax Credit (ITC) through 2016, means 2015 could be another record year for solar PV installations. Indeed, GTM Research predicts some 8.1 GW of solar PV capacity could be installed during 2015, which would represent a 31 percent annual increase.

**Onshore Wind:** Some 4,854 MW of onshore wind capacity came online in the US during 2014, over four times the volume installed in 2013, according to the American Wind Energy Association. This brought cumulative installed capacity to 65,879 MW. Despite the significant annual increase, the volume installed last year was significantly below the record 13,000 MW brought online in 2012.

The sizeable fluctuation in installation volumes is directly linked to changes in Federal tax policy. The surge in installations in 2012 was caused by the expiry of the production tax credit at the end of 2012. Importantly, projects had to be operating by the end of 2012 to qualify. There was no certainty that the PTC would be renewed, meaning many projects were built during 2012 as it was potentially the last year that projects could qualify.

The PTC was in fact extended for one year right at the end of 2012 with an important proviso that projects need only have commenced construction by the end of 2013 to qualify. But because the pipeline of projects had been decimated, very few projects were brought online in 2013. The upswing in 2014 is a consequence of projects coming online that qualified for the PTC by commencing construction by the end of 2013.

A near-record 12,700 MW of onshore wind projects were at various stages of construction at the beginning of 2015, according to AWEA. This indicates that installation volumes will remain robust in 2015 and 2016. Notably, new wind projects are concentrated in Texas—over a third (37 percent) of wind capacity brought online in 2014 was installed in Texas while approximately 60 percent of capacity under construction at the end of 2014 is located in Texas.

## *Project Finance Volume Decreases; Securitization Gains Traction*

Some $29.3 billion of project financing was invested in US renewable energy projects in 2014, a four percent decrease on the $30.5 billion invested in 2013, according to data compiled by Clean Energy Pipeline. Some $14.8 billion (51 percent) was invested in solar projects while $11.0 billion (38 percent) was invested in wind, $800 million (three percent) in biomass and $2.8 billion (eight percent) in other renewables projects, including geothermal, hydro and biofuels.

As outlined in the tables below, Morgan Stanley arranged the most project debt finance for US renewable energy projects in 2014, while Rabobank arranged project debt finance for the most assets.

## Top 10 Renewable Energy Project Finance Debt Arrangers (by Volume of Debt, 2014)

**Source: Clean Energy Pipeline**

| Rank | Organization | Number of deals | Deal Credit ($m) |
|---|---|---|---|
| **1** | Morgan Stanley | 5 | 776 |
| **2** | Banco Santander | 10 | 767 |
| **3** | Mitsubishi UFJ Financial | 10 | 632 |
| **4** | Keybank | 8 | 606 |
| **5** | Citigroup Inc | 5 | 564 |
| **6** | Mizuho Bank | 5 | 505 |
| **7** | Rabobank | 12 | 449 |
| **8** | Bayern LB | 4 | 348 |
| **9** | Helaba | 5 | 302 |
| **10** | Barclays | 1 | 300 |

## Top 10 Renewable Energy Project Finance Debt Arrangers (by Number of Deals, 2014)

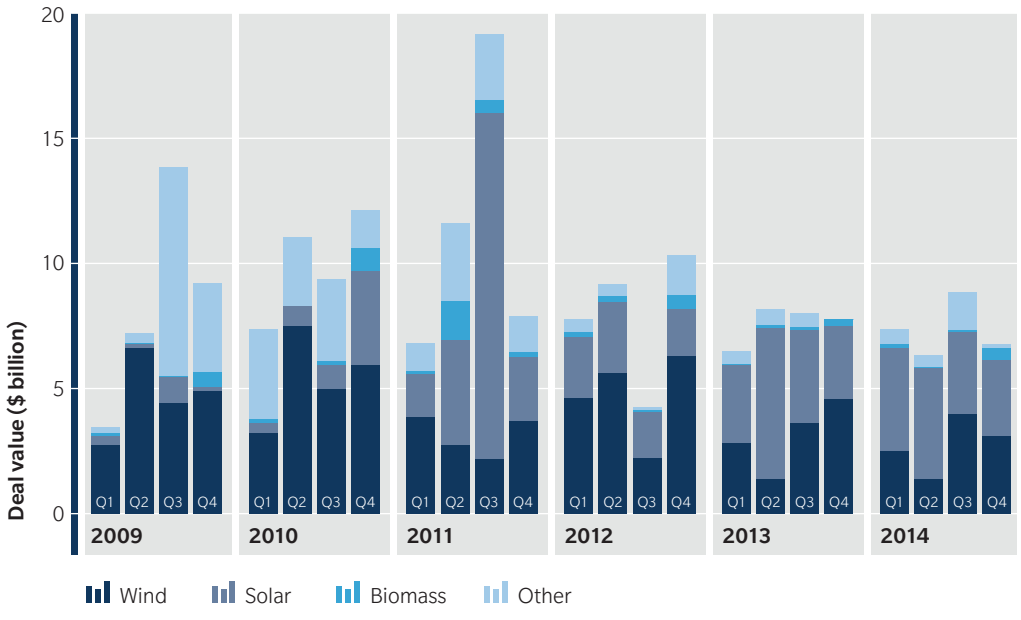
**Source: Clean Energy Pipeline**

| Rank | Organization | Number of deals | Deal Credit ($m) |
|---|---|---|---|
| **1** | Rabobank | 12 | 449 |
| **2** | Banco Santander | 10 | 767 |
| **3** | Mitsubishi UFJ Financial | 10 | 632 |
| **4** | Keybank | 8 | 606 |
| **5** | Morgan Stanley | 5 | 776 |
| **6** | Citigroup Inc | 5 | 564 |
| **7** | Mizuho Bank | 5 | 505 |
| **8** | Helaba | 5 | 302 |
| **9** | IGN Group | 5 | 142 |
| **10** | Bayern LB | 4 | 348 |

*f*-9

## Project Finance in the US (by Sector)

**Source: Clean Energy Pipeline**



Despite the overall decrease in project finance, tax equity finance increased 33 percent yearly to $2.8 billion in 2014. As shown in the table below, the most active providers of tax equity finance were Bank of America, Google, Mitsubishi UFJ Financial and JP Morgan.

## Top 10 Renewable Energy Tax Equity Investors (by Deal Credit, 2014)

**Source: Clean Energy Pipeline**

| Rank | Organization | Number of deals | Deal Credit ($m) |
|---|---|---|---|
| **1** | Bank of America | 4 | 837 |
| **2** | Google | 5 | 378 |
| **3** | Mitsubishi UFJ Financial | 3 | 359 |
| **4** | JP Morgan | 3 | 275 |
| **5** | Citigroup | 5 | 211 |
| **6** | Credit Suisse | 1 | 200 |
| **7** | Wells Fargo | 2 | 187 |
| **8** | Barclays | 2 | 139 |
| **9** | Banco Santander | 2 | 91 |
| **10** | Morgan Stanley | 2 | 86 |

One of the most notable developments in renewable energy financing in the US during the past 12 months is the emergence of securitization, which involves the packaging of cash flows from a number of residential or distributed assets together and selling them to investors as bonds or securities. Securitization of solar assets has become more popular in the US during the past 18 months. SolarCity completed the first securitization of solar energy assets in November 2013, with the private placement of $54.4 million in asset-backed notes. In July 2014, SolarCity completed its third securitization, securing $201 million through the issuance of asset-backed securities on a 118 MW portfolio.

However, securitizing solar PV assets is very challenging for a number of reasons. Firstly, structuring a rated senior secured notes transaction can be challenging with tax equity financing in place because the tax equity financing party will typically want to receive priority distribution of the cash flows whereas, in general, rating agencies will expect that cash flow be distributed to service the senior notes first prior to any distribution to equity investors. Secondly, for securitization to work, the asset pool must be sufficiently large and diversified enough to diversify risk. This may be challenging for some sponsors. As the solar market matures, warehouse financings and back-leverage of portfolios of solar assets collateralized by cash flow payable to the sponsor will likely be used more widely.

### *Renewable Energy Project Consolidation Gathers Pace in 2014*

Renewable energy projects continued to change ownership during 2014. Some 144 M&A transactions involving renewable energy projects totaling $13.9 billion were announced in 2014, a 32 percent increase in volume on the 109 deals totaling $6.9 billion in 2013.

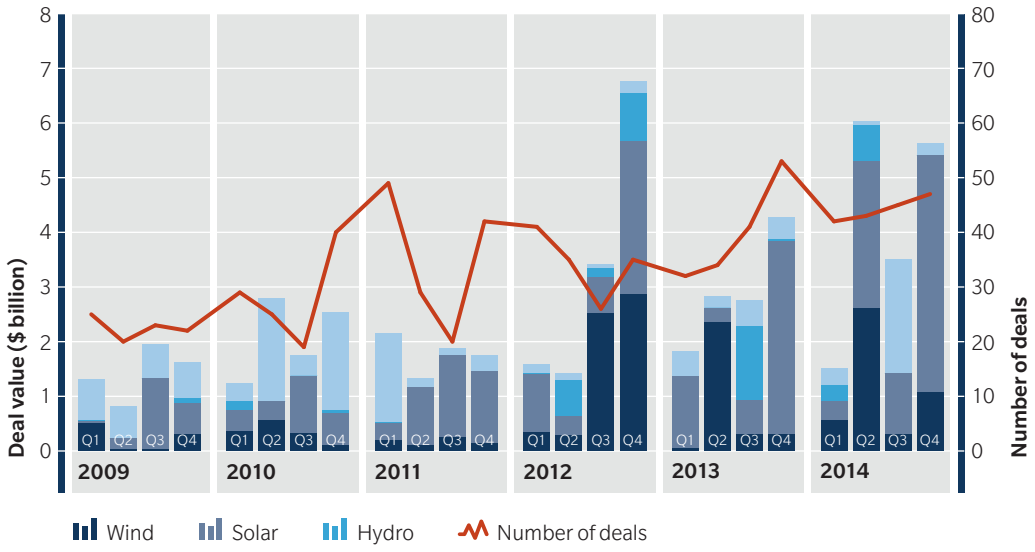
The increase in M&A activity is a direct result of the emergence of Yieldcos as strong acquirers of renewable energy projects. As outlined in Section 1 of this report, Yieldcos acquired 3.8 GW of effective renewable energy capacity (defined as the capacity of the project multiplied by the stake acquired) in 2014, a 46 percent increase on the 2.6 GW of effective capacity acquired in 2013. The price paid for renewable energy assets is rarely disclosed, although anecdotal evidence indicates that the competition amongst Yieldcos to acquire renewables assets has caused prices of operating assets to rise considerably during the past 12 months.

Long-term institutional investors such as pension funds and insurance companies have also become more active in acquiring US renewable energy assets. For example, reinsurance firm Munich Re completed its first infrastructure investment in the US in December 2014 with its acquisition of a stake in the operating 288.6 MW Miami wind farm in Texas. Other institutional investors in US renewables in 2014 include Ontario Teachers Pension Plan, Public Sector Pension Investment Board and TIAA-CREF.

*f*-10

## Clean Energy Project M&A Activity in the USA (1Q09 to 4Q14)

**Source: Clean Energy Pipeline**




### *Financing the Next Generation of Projects*

The maturation of new types of cleantech and renewable energy technology coupled with government targets will result in new types of infrastructure (energy storage, electric vehicle charging, etc.) being built during the next five years. The limited track record of financing these new types of projects means sponsors, investors and the advisory community will need to work together to create financing structures that are palatable to all parties.

Energy Storage: California is furthest ahead in instigating the rollout of energy storage projects. In October 2013, the California Public Utilities Commission issued a decision requiring the three California investor-owned utilities (IOUs—SCE, PG&E and SDG&E—to procure 1,325 MW of energy storage by the end of 2020. All three IOUs have since issued storage solicitations for 119 MW of storage projects.

Importantly, the contracts that will govern the relationship between the provider of the storage capacity and the offtaker obligate the offtaker to take or pay for the storage being provided. Therefore, these projects should be able to be financed via project finance structures that have been used so widely in the onshore wind and solar PV industry. However, given the shorter track record of storage technologies compared with wind and solar PV equipment, long-term equipment warranties backed by strong credits will need to be provided to attract debt financing.

Electric Vehicles: Over 570,000 electric-drive vehicles were sold in the US in 2014 (including hybrid electric vehicles, plug-in hybrid electric vehicles, extended range electric vehicles and battery electric vehicles), double the 284,000 sold in 2011, according to the Electric Drive Transportation Association. However, for sales to increase significantly, electric vehicle charging infrastructure needs to be rolled out at scale. Thus far, this has been prevented due to a lack of private sector financing. Often, private investors are put off by the high upfront capital costs and uncertain usage. Therefore, this might be one sector in which clean energy banks will play a role in unlocking investment.

Energy storage and electric charging infrastructure are only two new types of energy infrastructure for which new financing solutions will need to be identified in the next five years. Whether it be electric vehicles, energy efficiency solutions or smart meters, it will be imperative for banks, equity investors and the advisory community to collaborate in creating workable financing structures.

# Endnotes

1 Cf. http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0077&from=en.

2 Cf. http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0028&from=en.

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5 Guidelines on State aid for environmental protection and energy 2014-2020; available for download at http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0628(01)&from=EN.

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