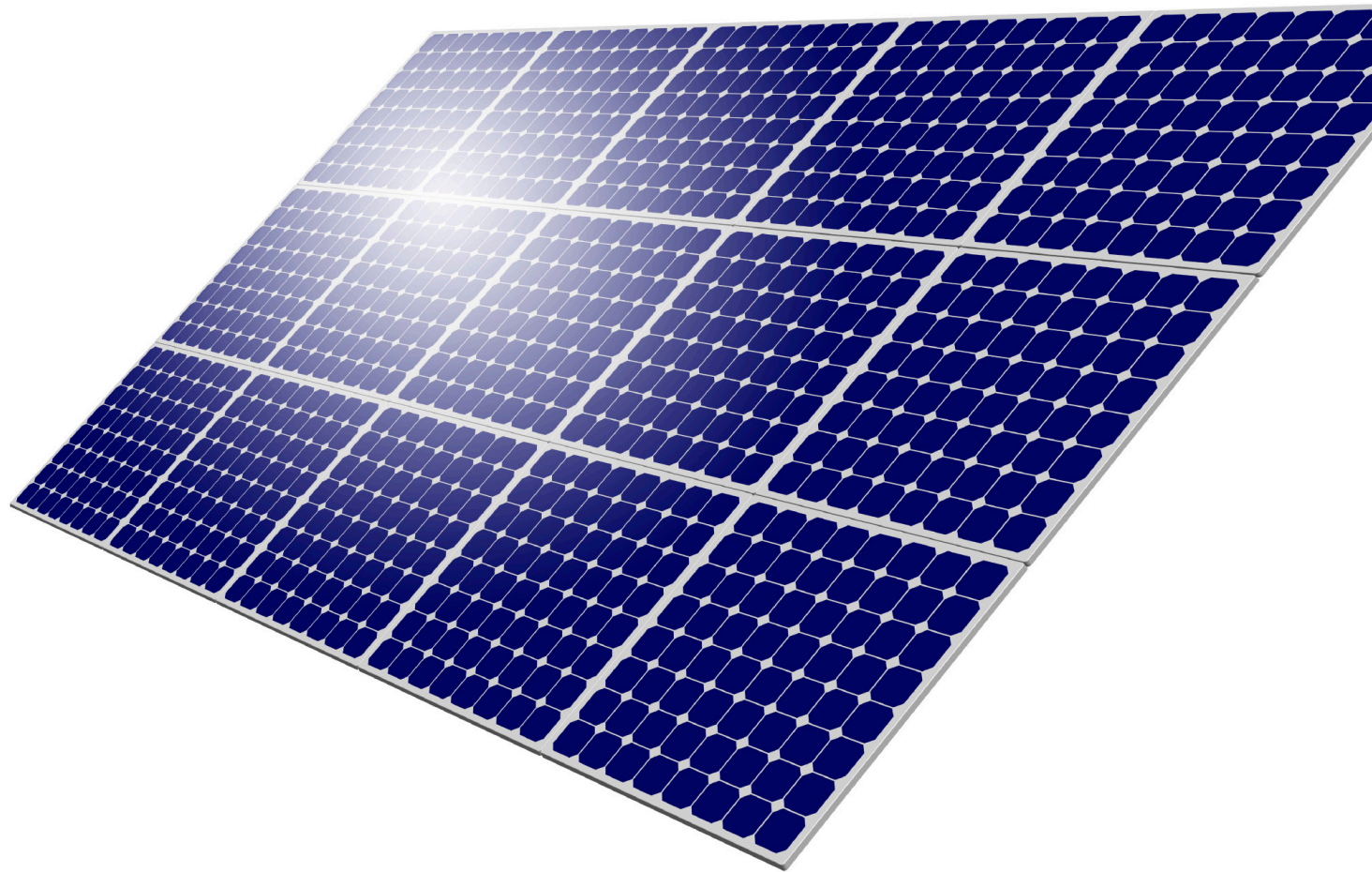




U.S. Renewable M&A Sees Warming Trend  
Deal making heats up amid rapid growth  
in distributed solar generation and strong  
wind development pipeline



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*for* Energy Solutions

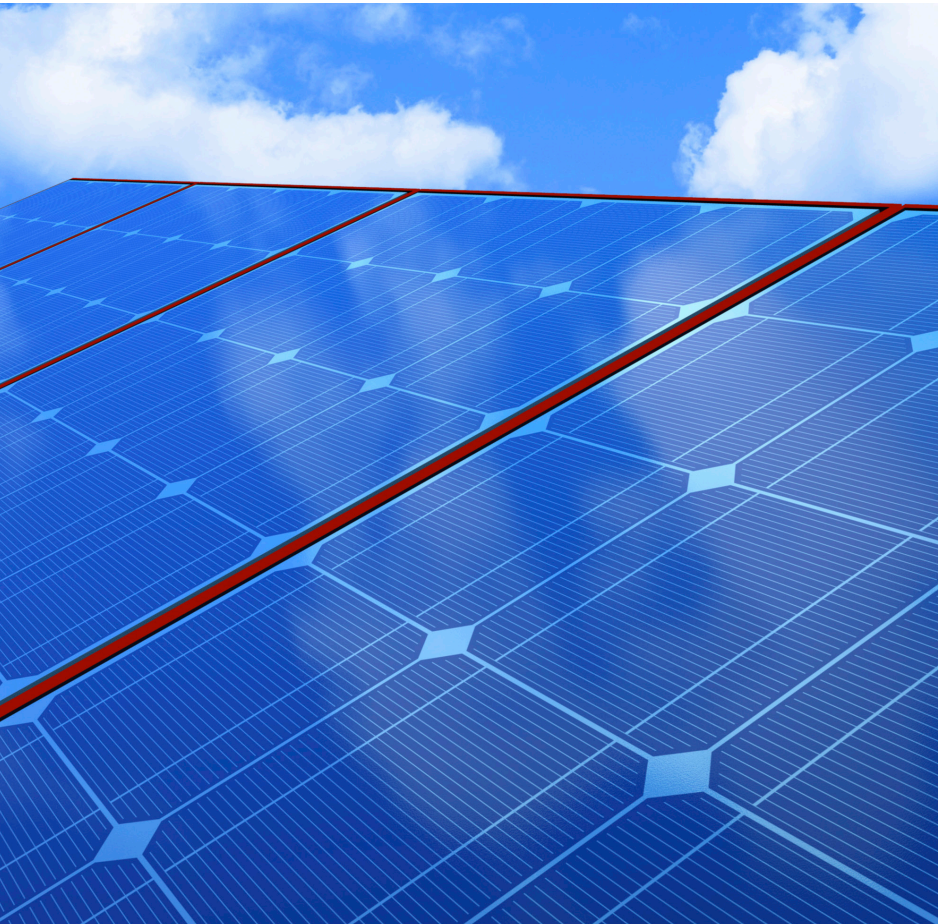
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# Introduction



What a difference a year makes in the mood and momentum of the renewable energy sector. Despite fears of a slowdown due to low power prices and competition from domestic natural gas in 2012, 2013 generally turned out to be a good year for developers and financiers. While there were only 1,084 megawatts (MW) of wind installations during 2013, extension of the production tax credit (PTC) for wind at the end of 2012, which was modified to qualify projects that began construction by December 31, 2013, created a strong development pipeline that will likely spur strong deal activity over the next two years (2014–2015).

On the solar side, the impetus for continued growth came from an unexpected direction. While utility-scale development marched onward, distributed solar took off, finding legs of its own in the residential market, and to a lesser, but still notable, extent among commercial and industrial customers. Unlike utility scale solar development, this distributed solar activity was not driven by a need to fulfill state renewable portfolio standards (RPS). Instead, it was driven by the “power of the people,” many of whom now see solar as a financially and environmentally appealing alternative to the current offerings from their electricity providers. Mergers and acquisitions (M&A) activity in the renewable energy sector is expected to remain strong over the next two years due to these factors and others, particularly the advent of new funding mechanisms and financial structures.

# Deal-making trends

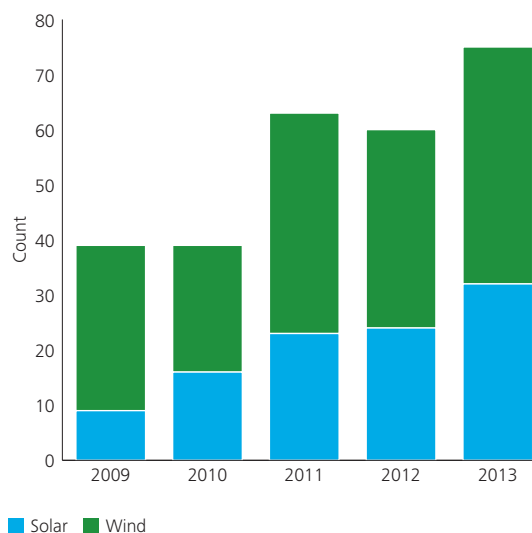
Renewable M&A activity powered on in 2013. The total number of solar and wind deals jumped sharply year-over-year (YoY) from 60 in 2012 to 75 in 2013.<sup>1</sup> Meanwhile, capacity acquired also increased but not as steeply, rising from 7.5 gigawatts (GW) in 2012 to 8.9 GW in 2013.<sup>2</sup> These statistics suggest an overall trend of broad renewable M&A activity over the last five years (2009–2013).<sup>3</sup>

Wind topped solar as the technology favored by buyers in 2013. Both deal count and capacity per deal rose again in 2013, even with only about 1 GW of new wind capacity coming online during the year (versus 13 GW in 2012).<sup>4</sup> Much of this activity was shaped by the “on again, off again” nature of federal tax policy in relation to wind development. The PTC for wind was expected to expire on December 31, 2012, but the U.S. government extended it at the eleventh hour as part of the American Taxpayer Relief Act of 2012 (the “Act”). Through this Act, Congress extended the PTC for wind through December 31, 2013, and redefined the terms for qualification so new wind projects only had to begin construction, rather than be placed “in-service” by the end of 2013. This redefinition spawned a flurry of new construction starts but left few advanced stage wind projects in the pipeline for 2013 since many had already been completed ahead of the original expiration date.

Solar deals also remained strong in 2013. Here, deal count rose significantly, while deal size fell sharply. The inclination toward smaller-sized deals may simply be related to the options that were available. Eleven utility-scale photovoltaic (PV) installations greater than 50 MW each came online in 2013, mostly toward the end of the year.<sup>5</sup> Since these “mega” projects dominated the pipeline, buyers may have turned their attention to smaller installations that were already in-service in order to obtain steady cash flows, and in the case of utilities, to meet near-term capacity and remaining RPS obligations.

The boom in distributed solar generation (i.e., residential, commercial, and industrial installations) should also be noted. While it did not broadly affect M&A volume in 2013, the growth in distributed solar took financing in a new direction as participants began to pool distributed solar installations to form the basis for debt facilities or to be sold as securitized assets. If this movement continues, it could promote greater acquisition and development activity by driving down the cost of capital and inviting a wider range of investors to participate.

**Figure 1: M&A deal count: 2009-2013 (by technology)**



Sources: SNL Energy, Company Disclosures

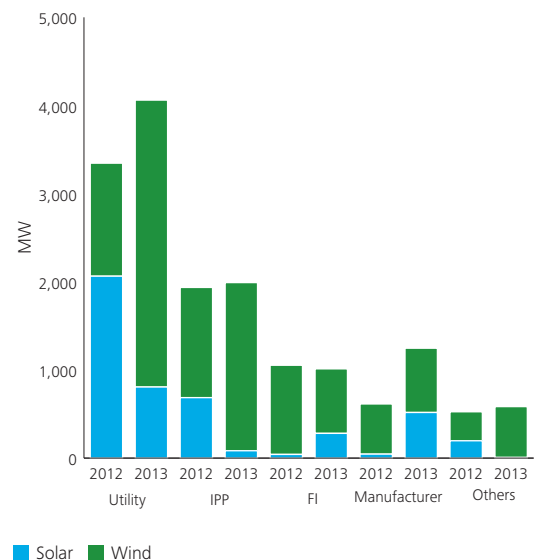
# Buyer trends

Utilities reprised their role as the main acquirers of renewable capacity in 2013. Overall, they acquired both solar and wind capacity to take advantage of tax credits, meet state RPS, replace retiring coal generation, and notably, to avoid excessive reliance on natural gas. With natural gas prices on the rise, some utilities turned to wind and solar, which generally have more predictable operating costs, as a way to mitigate fuel-price volatility. Acquiring renewable capacity, particularly wind installations, also made sense economically for some utilities since wind was already competitive with conventional sources of generation in some regions. Furthermore, many integrated utilities had the dual advantages of being able to strategically adjust their power fleets and use the tax benefits. This gave them an edge over other types of investors in terms of cost of capital, since they did not require tax equity partners, which increase transaction costs.

In second place were independent power producers (IPPs), many of whom were strengthened by rising wholesale electricity prices and were once again making strategic acquisitions in pursuit of growth and diversification objectives. These companies also invested primarily in wind assets to expand their generation portfolios and to diversify geographically, with some foreign IPPs buying assets in the United States. A few IPPs with taxable incomes also sought to take advantage of the expiring tax credits.

As in 2012, a few manufacturers did deals in 2013 to diversify into project development in an effort to offset declining margins in the manufacturing space. Financial institutions (FIs) also remained active in 2013, acquiring mainly wind projects with existing power purchase agreements (PPAs) for steady cash flows and returns. However, the amount of capacity acquired by FIs declined 37% YoY.<sup>6</sup> This drop off may have occurred because so few late-stage, large wind projects remained in the development pipeline in 2013. It may also be tied to a market shift toward more liquid and less costly forms of financing. In light of this shift, infrastructure funds and Japanese trading companies are increasingly driving FI activity in the renewables sector as they seek stable avenues for deploying the vast amount of capital they manage.

**Figure 2: Capacity acquired in 2012-2013 (by type of buyer)**



Sources: SNL Energy, Company Disclosures

# M&A outlook

With deal counts hitting record highs in 2013, market participants have begun to wonder what is next. In our view, positive momentum is likely to continue in 2014–2015 due to several broad policy and market conditions as well as some specific drivers within the wind and solar subsectors. Some of these developments were anticipated as evolutionary steps in a maturing market. What's intriguing, however, is that many of them differ from what was experienced or expected one year ago.



# Policy developments

Developments in federal tax policy over the last two years (2012–2013) have contained their fair share of surprises. Since the PTC for wind was set to expire on December 31, 2012, the market was bracing for a drop off in development activity in 2013. This expectation did not come to pass. As part of the American Taxpayer Relief Act of 2012, the U.S. government not only extended the PTC for wind through December 31, 2013, but also redefined the terms for qualification. Rather than having to be “in-service,” wind projects needed only to begin construction by the end of 2013. While some anticipated the extension, few foresaw the changes in qualification rules. This new policy created a rush to begin construction in the fourth quarter of 2013, which resulted in an historic amount of U.S. wind power under construction before the end of the fourth quarter of 2013. Over 12 GW of new generating capacity was under construction, with a record-breaking 10.9 GW starting construction activity during the fourth quarter.<sup>7</sup>

Many of these projects still need financing. M&A deal activity will likely be strong over the next two years (2014-2015), as these wind construction starts work their way through the development pipeline, seeking additional construction capital and eventually coming online. The tax benefits should facilitate this process. For wind projects, guidance issued by the Internal Revenue Service (IRS) related to safe harbor<sup>(1)</sup> under the PTC “begun construction” rules may incentivize developers to complete their projects by the end of 2015.<sup>(2)</sup> The projects will likely appeal to a host of buyers, including utilities, tax equity investors, and IPPs, an increasing number of whom will be looking for ways to offset income as power prices rebound and market conditions improve.

While the short-term outlook for wind M&A is decidedly bullish, many questions remain about what will happen after the over 12 GW presently under construction obtains financing and comes online. The PTC for wind, which expired for projects that did not begin construction by December 31, 2013, is caught in a broader Congressional debate over tax reform and tax policy, so it may not be reinstated for 2014 and beyond until later this year if at all. Could this lead to a dramatic decline in M&A activity after projects initiated before the end of 2013 are placed

in service? While this scenario is feasible, it seems doubtful. In terms of M&A, a dip in development activity may be countered by a trend of companies flipping assets that are more than five years old — the point at which certain tax limitations expire related to accelerated depreciation and the ability to claim tax credits.

Over the past few years, the population of assets that is eligible to change hands without significant tax consequences has grown in accordance with the significant development activity that occurred between 2003 and 2008. More than 20.5 GW of wind capacity was installed in the United States during this time.<sup>8</sup> While the assets generated significant tax benefits for a certain period of time, many of these assets may now be more valuable in someone else’s hands. This concept bodes well for increased deal activity. It is also in line with a general trend in the marketplace toward strategic buying and selling to rebalance generation portfolios, concentrate on core strengths, and diversify into select geographies.

As wind rode the roller coaster of Congressional decision-making, solar continued to benefit from stable federal tax policy. As a result, the ITC remains a strong incentive for solar development, with solar projects still having to be in service before the end of 2016 in order to be eligible for a 30 percent credit, which is scheduled to step down to 10 percent in 2017.

Several policy developments at the state level also suggest a favorable M&A outlook. State RPS remained a motivating factor for renewable capacity additions, although to a lesser degree as more and more states get closer to hitting their original program targets (see p. 18, Revisiting RPS). Nonetheless, states have generally remained steadfast in their support of clean energy in 2013, increasingly going beyond RPS to incentivize renewable development through an expanding collection of policy tools. For instance, clean energy funds, also known as “green banks,” are growing in popularity as a state-level stimulus. States across the country are moving forward with green banks to fund a variety of clean energy pursuits, with revenues often derived from small public benefit surcharges on electric bills. Following the lead of Connecticut and New York, Vermont was among the latest to employ such a

<sup>(1)</sup> A safe harbor is a provision in an agreement, law, or regulation that affords protection from liability or penalty under specified circumstances if certain conditions are met.

<sup>(2)</sup> Pursuant to IRS Notice 2013-60, taxpayers who complete their projects by the end of 2015 will be deemed to have met the “continuous efforts” or “continuous construction” requirements of the guidance.

mechanism to augment its capacity to finance renewable energy and energy efficiency projects. In June 2013, it created the Vermont Sustainable Energy Loan Fund, which allows the Vermont Economic Development Authority to borrow up to \$10 million from the State Treasury for several sustainable energy loan programs.<sup>9</sup> Hawaii also established a green infrastructure finance program in 2013, called the Green Energy Market Securitization program.<sup>10</sup> This legislation authorized a novel combination of bonds and on-bill repayment to finance clean energy infrastructure, including distributed solar PV systems. Other states, including California, Illinois, and Maryland, are also in the process of proposing and approving legislation for green banks, and several have joined the Green Bank Academy,<sup>11</sup> launched by the Coalition for Green Capital, to learn how to move toward the green bank model.<sup>12</sup> On the federal level, Congressman Van Hollen (D-MD) plans to introduce a federal Green Bank bill in Congress this year.<sup>13</sup>

Feed-in-tariffs, or FITs, are another state-level policy tool that gained traction in 2013. FITs allow anyone who generates power from a renewable source — whether a homeowner, a business, or a large utility — to sell it into the grid for an established rate, which is often over what the market would normally pay. Commonly deployed in Europe, FITs are starting to be used more widely in the United States. While FITs are typically associated with the German model in which the government mandates that utilities enter into long-term contracts with electricity

generators, FITs in the United States are sometimes mandated by state or municipal governments and sometimes voluntarily established by utilities, with the “voluntary utility model” being embraced more readily. For instance, Dominion Virginia Power established a voluntary FIT program in 2013 for residential and commercial solar PV generators. Through the program, participants will receive 15 cents/kilowatt hour (kWh) for a contract term of five years for PV-generated electricity provided to the grid, and will pay the retail rate for electricity they consume.<sup>14</sup> In 2013, Georgia Power and the Los Angeles Department of Water and Power initiated similar voluntary programs.<sup>15</sup>

As these examples illustrate, many states across the United States have been active in proposing and approving measures for renewable energy. Among these efforts, California’s recent energy storage bill stands out as a groundbreaking development. In October 2013, California adopted the nation’s first energy storage mandate. This policy requires the state’s three investor-owned utilities to collectively purchase 1.3 GW of energy storage capacity by the end of 2020.<sup>16</sup> Being closely watched by utilities throughout the United States, this mandate could help to spur technological advances and drive down the costs of energy storage technologies. By proxy, improved, less-costly energy storage mechanisms could boost renewable development by enabling utilities to better manage the variability associated with wind and solar generation, which is often cited as a roadblock to more extensive adoption.



# Market conditions

In light of limited availability and additional costs associated with traditional tax equity financing, participants in the renewable energy industry have long called for new financing mechanisms as a means of simplifying deal structures and reducing the cost of capital. The discussion in early 2013 focused mainly on Real Estate Investment Trusts (REITs) and Master Limited Partnerships (MLPs) as potential alternatives. Since then, these proposals have made minimal progress, prompting the industry to move forward with other innovations for tapping the public markets or appealing directly to new types of investors. The “YieldCo” is one such innovation that is garnering much attention.

A YieldCo is a publicly traded company formed to own operating assets that produce cash flows, which are then distributed to investors as dividends. YieldCos have multifaceted appeal. They let renewable developers access public markets by shifting their assets into a pure-play, dividend-oriented company. Furthermore, because YieldCos are not bound by the investment and income rules of MLPs or REITs, developers need no new governmental actions to form them.

YieldCos can be particularly attractive to integrated utilities and IPPs. These companies can use YieldCos to segregate their traditional, fossil-fuel assets from their “clean” ones (frequently defined as renewables and gas-fired generation), which may be more valuable to certain types of investors. NRG Energy (NYSE:NRG), the largest IPP in the United States, pursued this approach in forming NRG Yield Inc. (NYSE:NYLD), the shares of which were offered in an initial public offering (IPO) in July 2013.<sup>17</sup> At the time of the IPO, NYLD owned three natural gas or dual-fired facilities, seven utility-scale solar power plants, one wind farm, and two portfolios of distributed solar energy systems, for a total of 1,324 MW of capacity.<sup>18</sup> The IPO raised approximately \$430 million, and NYLD plans to use a portion of the proceeds to acquire and/or fund construction of additional clean energy assets.<sup>19</sup> Pattern Energy Group Inc. (NASDAQ:PEGI) also completed a public offering in 2013, becoming the first pure-play wind developer to pursue the YieldCo model.<sup>20</sup> Following these initial successes, several other renewable energy companies have announced their intentions to raise capital via this mechanism.

The continuing effectiveness of the YieldCo model, however, isn’t guaranteed. One potential hurdle is lack of taxable income, since pure-play renewable portfolios may not produce enough of it to fully take advantage of tax benefits such as the accelerated depreciation or the PTC for wind and the ITC for solar. One potential solution is to create a YieldCo portfolio that combines newer renewable installations that have significant tax benefits with older ones that have aged past the benefit eligibility period. Another is to create a mixed generation portfolio that balances fossil-fuel assets, which tend to have heavier tax liabilities, with renewable ones, which tend to have greater tax benefits. These approaches, in essence, create a built-in tax equity play, whereby a YieldCo would not have to seek an outside tax equity partner.

While YieldCos are not a new concept, a rebound in the U.S. stock market has brought about their recent resurgence. Indeed, the strength of the U.S. stock market in 2013, along with investor enthusiasm for green energy, allowed First Solar, Inc. (NASDAQ:FSLR), a publicly traded solar-panel manufacturer, to raise approximately \$428 million in a secondary offering.<sup>21</sup>

Hot U.S. securities markets also contributed to another major financing development in the renewables space. SolarCity Corp. (NASDAQ:SCTY) completed the first securitization of distributed solar energy assets on November 1, 2013.<sup>22</sup> Securitization is generally described as the practice of pooling small, illiquid assets and repackaging them into interest-bearing securities, which are typically sold to institutional investors. In the case of renewables, the notes are payable from the cash flows from the leases and PPAs a wind or solar developer has with its customers. SolarCity, for example, raised \$54 million in a private placement of its asset-backed notes, which offer a 4.8 percent rate of return and mature in 2026.<sup>23</sup> Importantly, the company’s pool of solar contracts received an investment grade rating of BBB+ from Standard & Poor’s,<sup>24</sup> making distributed solar one of the first new asset classes to achieve an investment grade rating in the asset-backed securities markets in the past several years.

Some see solar securitization as a new frontier. Not only does it provide the sector with a means of lowering its cost of capital by efficiently appealing to large, institutional investors but it also elevates the sector’s overall credibility. This, in turn, could pave the way for further financing innovations, such as crowd funding, creating new loan facilities through public/private partnerships, and selling securities directly to individuals — which have recently been proposed or initiated.

These financing innovations come as welcome news to many in the renewables industry. Non-utility renewable developers have long searched for greater access to capital to help renewable sources achieve cost competitiveness with traditional sources of generation. Collectively these new, more-efficient financing mechanisms represent a milestone in renewable energy’s march toward grid parity. Recent movements in natural gas prices, and their subsequent effect on the wholesale price of electricity, could further aid this march. In 2012, natural gas prices hit a 10-year low.<sup>25</sup> This in turn put pressure on the price of PPAs, which squeezed returns for renewable developers and made investment in renewable projects less attractive for investors. Indeed, some IPPs were purported to be “hanging on for dear life” as their profits evaporated. Nearly everyone agreed that gas prices would eventually rise enough to provide some relief, with the main question being when. The answer arrived in 2013.

Henry Hub natural gas prices increased 35 percent YoY in 2013, which accordingly boosted power prices. In 2013, average peak power prices<sup>26</sup> in major power hubs ranged from \$35-\$50 per megawatt hour (MWh), which is approximately 24 percent above 2012 levels.<sup>27</sup> According to projections derived from Deloitte MarketPoint’s World Gas Model, the Henry Hub spot price for natural gas may continue to increase at a compound annual growth rate (CAGR) of 4.46 percent from 2014-2020. If this price strength comes to pass, it will help renewables compete with — or perhaps work in conjunction with — natural gas. In 2012, some predicted a movement toward co-location, where natural gas and renewables could work together as “frenemies.” This concept has yet to gain much traction. Rising natural gas prices, however, may give it a jumpstart, with power producers increasingly looking for ways to offset the intermittency of renewables and counter fuel price volatility.

#### Innovations in Renewable Financing (2013)

Financing Mode	Definition	Examples
Increase public market access	Taking companies public to secure a lower cost of capital at the corporate level	<ul style="list-style-type: none"> <li>Wind based IPP Pattern Energy went public in 2013, raising \$352 million. The company is planning to invest in solar and is looking for projects.<sup>28</sup></li> </ul>
Securitization	Convert a portfolio of solar assets into marketable securities to access the public markets.	<ul style="list-style-type: none"> <li>SolarCity created a \$54 million debt portfolio for distributed solar generation assets.<sup>29</sup></li> </ul>
Yieldco	A publicly-traded company that is formed to own operating assets that produce cash flow. The cash is distributed to investors as dividends.	<ul style="list-style-type: none"> <li>NRG created NRG Yield, a Yieldco that holds conventional and renewable energy assets. SunEdison created Everstream with solar assets.<sup>30</sup></li> </ul>
MLP, REIT, and crowd funding vehicles	<ul style="list-style-type: none"> <li><b>Master Limited Partnership</b> – a limited partnership that is publicly traded on a securities exchange. An MLP combines tax benefits of a limited partnership with the liquidity of publicly traded securities.</li> <li><b>Real Estate Investment Trust</b> – a company that owns, and in most cases, operates income-producing real estate.</li> <li><b>Crowd funding</b> – the practice of funding a project or venture by raising small amounts of money from a large number of people, typically via the Internet</li> </ul>	<ul style="list-style-type: none"> <li>In April 2013, Hannon Armstrong obtained IRS approval for its clean energy REIT. The company got the favorable “private letter ruling” (PLR) because the renewable energy assets in its portfolio were bundled with energy efficiency assets, which are considered “building components” and therefore eligible for REIT inclusion. The bulk of a portfolio must be “real assets” for REIT status and “electricity generating assets” like renewables usually do not qualify by themselves.<sup>31</sup></li> <li>In January 2013, the online solar financing marketplace, Mosaic, introduced a crowd-funding platform that makes it possible for small, non-accredited investors to earn interest financing clean energy projects.<sup>32</sup></li> </ul>
Creation of new debt facilities	Creating new loan facilities that will increase retail ownership of rooftop solar.	<ul style="list-style-type: none"> <li>Solar leasing company Sungevity partnered with Admirals Bank on a loan, and Clean Power Finance, an online platform that connects investors to solar projects, is preparing to roll out its first loan.<sup>33</sup></li> <li>In March 2013, solar service firm Sungage partnered with Connecticut’s green energy bank to introduce a 15-year, 6.49 percent fixed-interest loan in the state.<sup>34</sup></li> </ul>

# Subsector analysis

In addition to these overarching policy and market conditions, several micro-factors specific to the subsectors of wind and solar also point to continuing deal volume.

## Solar

According to the Solar Energy Industry Association, 4,751 MW of new solar PV capacity and 410 MW of concentrating solar power (CSP) capacity were installed in the United States in 2013.<sup>35</sup> This represented a 41 percent increase in deployment over installation levels in 2012.<sup>36</sup> It also marked the biggest year on record for the U.S. solar industry, which is both quickly growing and rapidly maturing. Of this capacity, utilities led the charge, accounting for 2,847 MW of PV and all of the CSP additions in 2013.<sup>37</sup>

Declining technology and installation costs are fueling this roaring market. The average price of a solar panel declined by 60 percent since the beginning of 2011.<sup>38</sup> In addition to developing high-performing, lower-cost modules, the industry has also been making progress on decreasing overall system costs by streamlining permitting, installation and interconnection processes. These developments, along with financing innovations, are putting rooftop solar PV systems within reach of average Americans as well as making utility-scale, ground-mounted installations cost-competitive with natural gas power plants and other traditional forms of electricity generation. According to statistics released by the U.S. Department of Energy (DOE), the U.S. solar industry is more than 60 percent of the way to achieving the target set forth in its SunShot program of \$0.06 per kWh, with the average price for an installed utility-scale PV project dropping from about \$0.21 per kWh in 2010 to \$0.11 per kWh at the end of 2013.<sup>39</sup> To continue this progress, the DOE has made \$25 million in funding available to support innovative projects that help solar manufacturers to streamline processes and address specific cost-contributors across the hardware supply chain.

Interestingly, the DOE launched SunShot in 2011 with the objective of making solar energy cost-competitive with traditional energy sources by the end of the decade. It seems the massive improvements in solar cost parity — whether related to SunShot or not — are happening

well ahead of schedule. This is boosting adoption of solar technologies not only in the utility arena but also in residential, commercial, and industrial segments. This growth, in our opinion, was the big story in 2013.

Distributed solar installations took off in 2013 driven by falling system costs, attractive financing options, and a grass-roots movement among consumers to become more self-reliant and to lower their energy bills. These converging factors spawned a revolution in residential “rooftop solar,” whereby many installations are occurring not within wealthy ZIP codes, but instead within middle-class neighborhoods with median incomes ranging from \$40,000 to \$90,000.<sup>40</sup> Furthermore, new financing mechanisms, such as solar securitization, have made it possible for financial investors to participate in the residential segment, further driving its momentum and likely contributing to future M&A activity.

Non-residential, grid-connected PV systems were also installed in record numbers, accounting for 1,112 MW of capacity additions in 2013, up slightly over 2012 (1,072 MW) and more than triple the amount (339 MW) installed in 2010.<sup>41</sup> As defined here, non-residential systems are those systems installed on the customer (rather than utility) side of the meter at commercial, institutional, non-profit, or governmental properties. These types of projects, which aren’t quite big enough to attract the attention of traditional tax equity players, have historically faced financing hurdles. Additionally, non-residential solar assets can rarely be pooled because they lack standardized contracts, and many businesses lease the buildings they operate from, which adds another level of complexity to the development process.

These factors could explain why the non-residential segment is growing, but more slowly than its utility and residential counterparts. Nonetheless, the pipeline in this segment remains broad throughout 2014 and beyond. Why? One possible reason is that developers are shifting their focus to smaller projects that can be completed ahead of the scheduled step down in the solar ITC incentive in 2017. Another is that new financing avenues are opening up. For instance, Connecticut’s Clean Energy Finance and Investment Authority launched

the Commercial and Industrial Property Assessed Clean Energy (C-PACE) program in January 2013.<sup>42</sup> This program is designed to help building owners obtain financing for clean energy upgrades, including the installation of commercial solar power systems.<sup>43</sup> The program, which is targeting 50 MW to 300 MW systems, obtains its funding from a syndicate of four regional lenders with a larger bank serving as the tax equity partner.<sup>44</sup> Participants in the program repay their loans over time through assessments that are added to their tax bills. Similar commercial PACE programs are now available in California, and other states may soon follow suit.<sup>45</sup> In addition to public/private partnerships such as C-PACE, local and national banks, specialty finance companies, credit unions, and utilities are also teaming up in a variety of combinations to offer third-party financing for the non-residential segment. As in the residential market, growth in commercial installations could boost small M&A in the solar downstream sector, focusing on consolidation, vertical integration and reducing soft costs, i.e., those related to installation, labor, permitting, inspection and interconnections, customer acquisition, and financing.

## Wind

Wind deal growth is expected to be moderate-to-high over the short-term (2014-2015), as developers complete construction on the more than 12 GW of projects under construction at the end of 2013. Additionally, manufacturing over-capacity points to likely consolidation within the industry value chain, especially if the PTC is not reinstated as part of tax reform. Further declines in the levelized cost of energy for wind could also contribute to future deal activity. In many instances, wind is already competitive with conventional sources of electricity, even without the PTC. This situation should improve further as manufacturers continue to drive down costs through technological advancements and operational improvements such as advanced analytics platforms, smart controls and integrated battery storage solutions.

The maturity of the market and the technology's cost-competitiveness already make wind power the "go to" choice for many utilities seeking to add "clean" capacity quickly. Ongoing implementation of U.S. Environmental Protection Agency (EPA) clean air regulations, especially the Mercury and Air Toxics Standards, should continue to force the retirement of coal-fired plants, thus creating a "megawatts" void that will need to be filled with environmentally friendly forms of generation. Wind is a likely possibility for replacing a good portion of this capacity.

While much happened on the ground in 2013, developers also saw movement at sea, with prospects improving for offshore wind development in the United States. Cape Wind, which is expected to be the nation's first commercial offshore wind development, recently secured a major portion of the financing needed to build its \$2.5 billion project in the middle of Nantucket Sound.<sup>46</sup> Meanwhile, Maryland recently passed the Maryland Offshore Wind Energy Act of 2013. This Act creates a carve-out within the state's RPS program, mandating that a certain percentage of total electricity generated comes from offshore wind.<sup>47</sup> The carve-out will be implemented through Offshore Renewable Energy Certificates. The Maryland legislation is important because it implies that more states are starting to take offshore wind development seriously — especially since similar solar carve-outs elsewhere have succeeded in spurring solar development. While it's far too soon to tell if offshore wind development will sink or swim in the face of ongoing public debate, these advances suggest developers may have new room in the future to serve the densely populated U.S. coasts.

# Headwinds and game-changers

By many accounts, the renewable sector made great strides in 2013 and it is poised to make even greater leaps in the next two years. Is this bullishness truly warranted? Or, is it linked to the contagious enthusiasm that emerges when achievements are had after a long period of struggle? While several policy and market conditions favor renewable M&A, the sector is not without its challenges. At a minimum, participants will need to navigate the following “headwinds,” which could impede growth.

RPS fulfillment is one of these countervailing forces. While much of the renewable capacity development over the last five years was driven by state RPS, planned new capacity in the United States now exceeds RPS obligations. This suggests state RPS may be losing steam as a motivating factor for renewable development. Another troubling aspect of this trend is that financing for renewable development relies on PPAs and their promise of steady, stable cash flows. As PPAs become harder to come by, it could discourage investment from infrastructure funds, hedge funds and private equity firms, which are often willing to accept lower returns than afforded by other investment options in exchange for stability over longer time horizons.

Policy uncertainty is another “headwind” that could also discourage investment. As in our 2012 analysis, the future of temporary tax incentives still remains unclear. The consensus view continues to hold that extension of the wind PTC is not likely to occur before late 2014, if at all. Similarly, the bonus depreciation tax incentive for renewable assets also ended in 2013, and few expect it to be revived. While still a few years off, the solar ITC is set to decline from 30 percent to 10 percent in 2017.

The December 2013, Senate Finance Committee staff-level discussion draft on energy tax incentives offers a potentially dramatic change in this area of federal tax policy. In the discussion draft, then-Senate Finance Committee Chairman Max Baucus (D-MT), proposed streamlining energy tax incentives in a technology-neutral manner as part of his overall tax reform effort (see p. 14, Baucus v. Camp: Key Renewable Energy Tax Reform Proposals). While prospects for passage of a comprehensive tax reform proposal are dim in 2014 in

the wake of Baucus’s departure from the Senate (he was confirmed by the Senate to be the U.S. Ambassador to China earlier this year) and Congressional preoccupation with other issues leading up to the November mid-term elections, the Finance Committee discussion draft endorses the “technology neutral” concept that is generally favored within the sector, and it could facilitate movement toward a more straightforward, stable federal energy policy. The possible reinstatement of the DOE’s renewable energy loan guarantee program also offers some hope that the renewables sector will have other avenues of support should federal tax incentives be allowed to lapse. After a hiatus, the DOE has announced intentions to ramp up its renewable energy loan guarantee program in 2014, targeting between \$1.5 to as much as \$4 billion for renewable energy projects.<sup>48</sup>

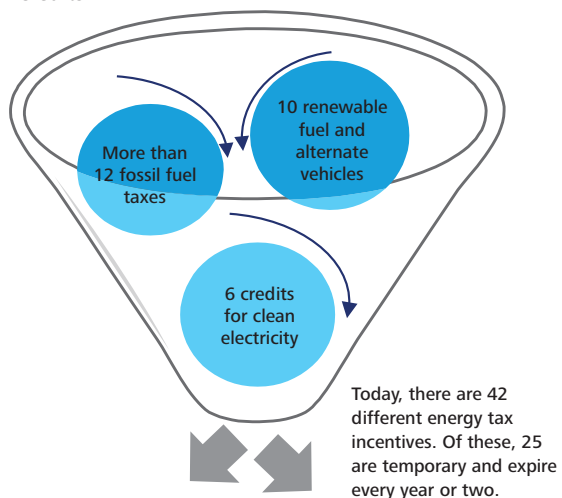
While federal tax incentives play a huge role in attracting financing to the renewables sector, utilities play an equally important role in supporting the adoption of emerging renewable technologies. In considering “headwinds,” utility opposition to distributed generation could be a powerful force to counter. Nevertheless, scattered gusts are starting to blow.

A big question in the move toward distributed generation is: Who will pay for the shared infrastructure necessary for customers with solar panels to connect to the grid? Some utilities contend that current solar incentives in some states, such as net-metering programs and FITs, ignore infrastructure costs, thus unjustly rewarding customers for installing solar PV. They also argue that programs such as these shift the infrastructure costs onto non-solar utility customers, forcing them to pay higher rates to cover the costs of maintaining the electrical grid that customers use. Utilities’ perspectives on distributed solar vary considerably, and some see it as an opportunity. But these issues have prompted many to petition regulators to repeal net-metering programs and/or to impose surcharges on solar PV customers to recover their system costs. In California, such a petition resulted in a compromise, where the state government preserved net metering for now, but directed the Public Utility Commission to devise a new program by 2017 that would ensure non-solar customers are not stuck with an inordinate share of grid costs.<sup>49</sup>

## Baucus v. Camp: Key Renewable Energy Tax Reform Proposals

In December 2013, then-Senate Finance Committee Chairman Max Baucus (D-MT) released a discussion draft to streamline energy tax incentives as part of his overall tax reform effort. In February 2014, House Ways and Means Committee Chairman Dave Camp (R-MI) released his comprehensive tax reform discussion draft, which would repeal most renewable energy tax credits.

**Baucus proposal would consolidate existing energy tax credits<sup>50</sup>**



### Technology-neutral tax credit for domestic production of clean electricity

- Any facility producing electricity that is about 25 percent cleaner than the average for all electricity production facilities in 2013 would receive a tax credit.
- The cleaner the facility, the larger the credit.
- Available as either a production tax credit of up to 2.3 cents/kwh or an investment tax credit of up to 20 percent.
- The credit phases out over four years once GHG intensity of U.S. electricity generation declines to 25 percent cleaner than 2013.

### Technology-neutral tax credit for domestic production of clean transportation fuel

- Any fuel that is about 25 percent cleaner than conventional gasoline would generally receive a credit.
- The cleaner the facility, the larger the credit.
- Available either as a production tax credit of up to \$1/gallon or an investment tax credit of up to 20 percent.
- The credit phases out over four years once the GHG intensity of all transportation fuels declines to 25 percent cleaner than conventional gasoline.

**Camp proposal would phase out and repeal key alternative energy tax credits<sup>51</sup>**

**Sec. 3206. Phase out and repeal of credit for electricity produced from certain renewable resources:** The production tax credit (PTC) for qualified wind, biomass, geothermal, solar, hydropower and other renewable energy sources would be phased out and repealed. The inflation adjustment would be repealed, effective after 2014 and the entire production tax credit would be repealed, effective after 2024.

**Sec. 3224. Repeal of energy credit:** The credit for the cost of solar and geothermal electricity generation equipment (ITC) would be repealed. This would be effective for property placed in service after 2016.

**Sec. 3227. Repeal of qualifying advanced energy project credit.** Credit for investments in certain property used in qualified energy manufacturing projects for specified green energy uses would be repealed. This would be effective for allocations and reallocations after 2014.

**Sec. 1304. Repeal of credit for residential energy efficient property:** The credit for qualified residential solar electric and solar water heating property, as well as geothermal heat pumps, small wind energy, and fuel cell power plants would be repealed. This provision would be effective for property placed in service after 2014.

### Baucus and Camp Proposal Commonalities<sup>52</sup>

Both proposals aim to:

- Simplify the tax code and broaden the tax base.
- Eliminate a range of tax credits, but the Baucus plan proposes two simplified credits to replace them, while the Camp plan does not.
- Change the current depreciation rules to more accurately reflect the economic life of assets, which would generally reduce tax deductions and increase tax liabilities.

Other energy related sections in Camp proposal include: 1303: Repeal of credit for non-business energy property; 3113: Repeal of EE for commercial buildings, 3217 Repeal of new energy efficient home credit; and 3218: Repeal of energy efficient appliance credit.

Meanwhile, Arizona's largest utility petitioned regulators to allow it to add a monthly infrastructure surcharge for solar PV customers. Regulators allowed the utility a monthly surcharge of about \$5, which was far less than the \$50 per month it originally sought.<sup>53</sup>

If this headwind picks up speed, some developers worry it could have profound implications. Since their business models often operate on thin margins, they maintain surcharges and/or the absence of net metering could upset the economics of the subsector.

Headwinds aside, it is also wise to consider if there are developments on the horizon that could fundamentally alter the playing field — for better or worse. Two “game-changing” scenarios come to mind in the renewable realm. The first is comprehensive federal tax reform (see p. 14, *Baucus v. Camp: Key Renewable Energy Tax Reform Proposals*). If something similar to the discussion draft released by Baucus is eventually enacted, the renewable sector could have the sort of stable investment framework it has sought for so long. Indeed, such a policy could be the closest thing to a national energy policy the United States has ever had and could accelerate development within the sector well beyond present projections.

On the other hand, if tax reform as envisioned by House Ways and Means Committee Chairman Dave Camp (R-MI) is enacted, it could have the opposite effect. As described by several media outlets, “renewable firms appear to be big losers under the proposal” unveiled by the Chairman at the end of February. Not only would clean energy incentives not be reinstated, or in the case of the solar ITC be allowed to expire, but also payments to companies still eligible for the credit would be dramatically reduced.<sup>54</sup> While Baucus's proposal also would have eliminated resource-specific credits, he would have replaced them with technology-neutral ones for promoting the development of clean energy. The Camp discussion draft makes no such provision. The dramatic contrast in these proposals demonstrates the broad range of opinions on Capitol Hill regarding the need for these subsidies and is an important reminder that future Congressional decisions

regarding tax policy can and will dramatically affect the attractiveness of investments in renewable and alternative energy projects.

While Baucus's discussion draft is significant in its own right, the recent change in leadership of the Senate Finance Committee could also affect the direction of tax reform. New Committee Chairman Wyden has long supported the renewable and alternative energy sector. However, his views on energy tax policy in the context of comprehensive tax reform still need to be clarified. When Wyden eventually translates his views into legislative proposals, the energy sector may hold a different perspective on tax reform than it did when only considering the differences between the Baucus and Camp approaches.

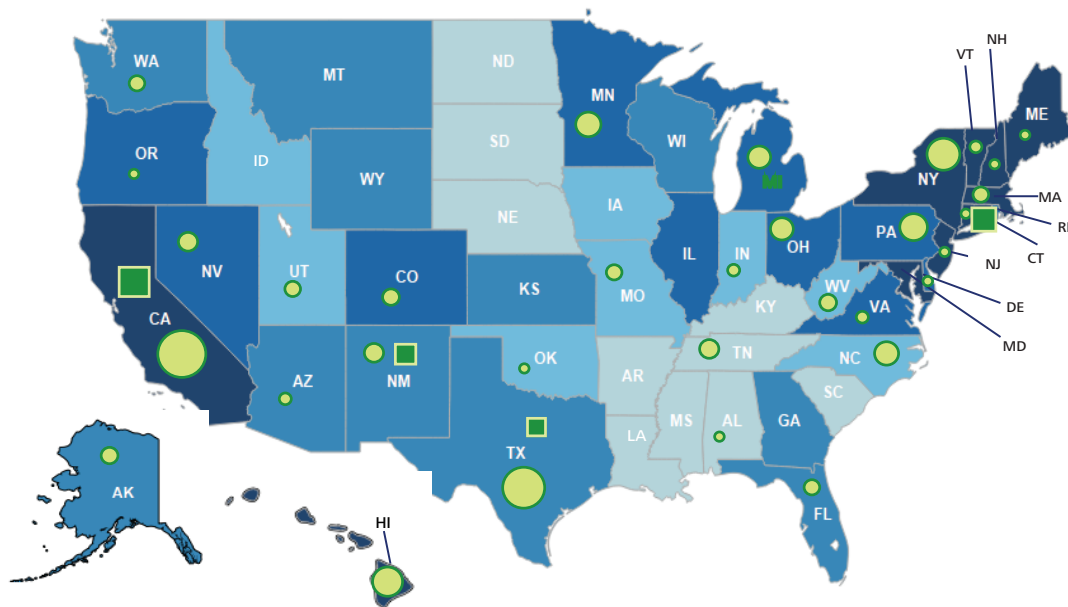
The second potential game-changer pertains to advances in microgrids and electricity storage technology. In pursuit of greater system resiliency, some states are promoting the development of microgrids and the concurrent installation of storage technologies, including customer-sited batteries and utility-scale compressed air, battery, and flywheel systems. Much activity has occurred in these areas over the last couple of years.

A microgrid is typically defined as a small electrical system incorporating multiple loads and distributed energy resources that can operate on its own or be tied into the broader utility grid. Universities and the U.S. military have largely pioneered the microgrid concept, but now these “electrical islands” are finally gaining favor with states and municipalities. In July 2013, Connecticut launched the nation's first statewide microgrid project designed to modernize and improve its infrastructure to withstand severe weather. The proposed microgrids will employ a combination of technologies, including natural gas, fuel cells, and renewables.<sup>55</sup> On the heels of Superstorm Sandy and Hurricane Irene, New York and New Jersey are also considering major microgrid projects, with the main barrier being state laws that have not yet caught up with the proliferation of distributed generation.<sup>56</sup>

Advances in energy storage technologies are not only making microgrids more feasible but they are also enabling grid operators to safely integrate more utility-scale renewables into the system — both of which tacitly support wind and solar development and associated deal activity. For instance, customer-sited storage firms, such as GreenCharge Networks and Stem, are making inroads in the commercial market by enabling large retail customers to shed load at peak times, thus allowing them to avoid hefty “demand charges” from their utilities.<sup>57</sup> Meanwhile, from the utility side, the viability of grid-scale battery and flywheel energy storage facilities for providing frequency

regulation service has been effectively demonstrated in the ancillary services markets run by the New York Independent System Operator and PJM Interconnection LLC.<sup>58</sup> California’s recent energy storage mandate has captured the industry’s attention as a policy that could potentially accelerate development of these types of technologies by creating a market for them, thus making microgrids and storage projects easier to finance. If other states follow suit with similar mandates and/or expanded microgrid programs, they could collectively change the game by driving adoption of distributed generation and challenging the traditional utility operating model.

### Microgrid and electricity storage projects in the United States



■ Number of microgrid projects    ● Number of energy storage projects (excluding pumped hydro)

Larger icons indicate a greater number of projects

Microgrid projects – “U.S. Microgrids, Operational and Planned,” GTM Research, a Greentech Media company, March 2014

Energy storage projects – U.S. Department of Energy, “DOE Global Energy Storage Database,” accessed February 2014, <http://www.energystorageexchange.org/>



# Buyers likely to be diverse

Despite the presence of headwinds and the ubiquitous possibility of a game-changing development, overall policy and market factors suggest that renewable M&A activity will be brisk over the next two years, with capital remaining widely available. Utilities will likely continue to lead this charge driven by a desire to strategically focus on core strengths and geographies, rebalance their generation portfolios, take advantage of tax credits, and explore new revenue streams, as the disruptive force of distributed generation begins to be felt. Some will pursue their goals by adding to their core regulated operations; others by investing through their non-regulated divisions.

IPPs are also expected to remain active as power prices continue to rebound in accordance with stronger natural gas prices. In addition, YieldCos could be a boon for IPP deal activity if the first few are successful. FIs may also pick up their pace since they still have an enormous amount of capital to deploy. Infrastructure funds, in particular, should play a large role since renewables fit their investment criteria well. Often charged with meeting pension obligations, these conservative funds are typically willing to accept lower returns in exchange for the long-term stable cash flows provided by renewable assets. In pursuit of this stability, infrastructure fund activity will likely center upon acquiring existing projects as opposed to financing new ones. Hedge funds and private equity firms may pick up this slack. After pulling back over the last couple of years, they are showing renewed interest in wind and solar. The main driver is projections of stable yields of 8-10 percent over the next few years, which are better than many high-grade corporate bonds.<sup>59</sup> KKR (NYSE:KKR) and D.E. Shaw, for example, are reported to be ramping up their investments in renewable energy projects.<sup>60</sup>



# Warming trend in effect

Last year's conversation primarily focused on the U.S. EPA and the retirement of coal plants and what fuel source would be used to replace this capacity. Some speculated the future would be largely owned by low-priced, domestic natural gas, against which renewables would not be able to compete. Others, however, asserted that utilities, regulators, and the general public would all opt for a more balanced future. This presently appears to be the case: The answer is not renewables or natural gas, but both — with the door wide open for other clean technologies, such as demand response and electricity storage, to supplement these sources of utility-scale generation. Furthermore, a grass-roots movement toward distributed generation appears to be wholly underway as microgrids proliferate and residential, commercial and industrial customers take action on their own to achieve their financial goals as well as their objectives related to system resiliency and the environment.

Despite some significant policy headwinds and the ever-present possibility of disruptive innovation, the sector appears to be on a growth trajectory that few foresaw even a couple of years ago. Accordingly, M&A activity could see a warming trend: Transactions should heat up through 2015 as new wind projects come online, older ones become eligible for sale, solar adopts new financing mechanisms, and state support for renewable energy generally remains strong.

## Revisiting RPS

According to the U.S. Energy Information Administration, about 30 states have mandated RPS, while approximately eight have voluntary renewable energy goals.<sup>61</sup> And they appear to be working, perhaps too well depending on one's view. From 1998-2012, more than two-thirds (67 percent) of total renewable (non-hydro) capacity additions occurred in states with active or impending RPS compliance obligations.<sup>62</sup> Existing state RPS programs will require average annual renewable capacity additions of roughly 3-5 GW per year between 2013 and 2020.<sup>63</sup> The current project pipeline (i.e., those already under construction or in advanced development) is about 8 GW per year from 2014-2016, which is more than sufficient to meet the annual capacity required to meet these targets.<sup>64</sup>

While much of the renewable capacity development over the last five years was driven by state RPS, planned new capacity in the United States for the next few years now exceeds RPS obligations. This suggests state RPS may be losing steam as a motivating factor for renewable development. As the power of RPS wanes as an impetus for utility buyers, developers will likely find it harder to obtain long-term PPAs. Much of the financing for renewable development relies on PPAs and their promise of steady, stable cash flows. Some wonder if this shift will discourage investment from infrastructure funds, hedge funds and private equity players, which are often willing to accept lower returns than afforded by other investment options in exchange for steady, contracted cash flows.

Despite the fact that many RPS requirements will soon be met, more and more states are starting to think of them as a floor as opposed to a ceiling. In their 2013 state legislative sessions, several states defended their RPS policies from legal challenges or modified them to include emerging technologies such as energy storage or offshore wind.<sup>65</sup> Indeed, Colorado, Minnesota and Nevada went so far as to increase their RPS requirements.<sup>66</sup> Meanwhile, many other states chose to keep their RPS programs in force "as is" while simultaneously developing new policies and tools to support renewable energy development in other ways, i.e., FITs, REC programs, green banks, etc. Renewables also have another factor in their favor that could help to counter future difficulties in obtaining PPAs: Solar and wind installations can often be developed and brought online faster than natural gas, nuclear and coal facilities. This factor, along with the increasing cost parity of renewables, is already contributing to a strong development pipeline that appears to be growing well beyond what has been mandated by state policy.

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# Save the date

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