Back To The Negotiating Table

Pending changes in tax law have forced parties to re-examine deal terms.

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Well, that didn’t take long. Less than three months into his administration, President Donald J. Trump is beginning to impact the wind industry – although not in the manner that some had envisioned shortly after the election.

No, Trump is not undoing the production tax credits – the president can’t touch the tax credit without an act of Congress. Nonetheless, it seems Trump’s plans for tax reform have spooked some lenders and financial institutions. It’s a classic case of risk allocation.

But here’s the rub: Some lenders have taken the unusual step of calling back investors and owner/operators to the bargaining table to renegotiate tax equity deal terms.

As Kevin Pearson, partner at law firm Stoel Rives, writes in this month’s cover story on page 24, “Many investors have begun negotiating (and, in some cases, re-opening for negotiation) certain provisions in tax equity financing documents relating to the allocation of risk between the investor and the developer with respect to changes in tax law.”

During the presidential campaign, Trump’s tax plan called for a reduction in the top marginal corporate income tax rate from 35% to 15%. Investors have expressed concern that, if enacted, this proposal could significantly reduce the value of some of the federal income tax incentives, such as the modified accelerated cost recovery system, available to wind energy projects.

Pearson explains that wind projects generate tax losses that result from the large depreciation deductions in the early years of operation. These tax losses can be allocated to the tax equity investor and used to offset income from other sources.

“While the tax credits offset tax liability on a dollar-for-dollar basis, the losses offset taxable income that otherwise would be subject to tax in the year in which the losses occur,” he explains. “Therefore, the value of tax losses are reduced if the tax rate that would have applied to the income that was offset by the loss is decreased.” The value of tax credits does not change, Pearson asserts, because $1 of tax credit offsets $1 of tax regardless of the rate used to calculate that tax.

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Lastly, it’s that time of the year. After a six-year hiatus, WINDPOWER 2017 returns to Anaheim, Calif., next month. Be sure to stop by North American Windpower’s booth (#2378) and say hello.
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PG&E Goes Big On Renewable Resources

Nearly 70% of the electricity Pacific Gas and Electric Co. (PG&E) delivered to its customers in 2016 came from greenhouse-gas-free resources, the San Francisco-based company has announced.

For renewable resources in particular — including wind, solar, geothermal, biomass and hydroelectric — PG&E says it delivered an average of 32.8% of its electricity from these sources. That’s more than a 3% increase in just one year and the highest percentage yet for the state’s largest combined natural gas and electric company, which delivers power to roughly 16 million people in northern and central California.

In total, 69.3% of PG&E’s electric power mix is from nuclear, large hydro and renewable sources of energy. This record level of renewable deliveries also propels PG&E toward California’s goal of 50% renewables by 2030, the company notes.

“Delivering this amount of renewable electricity strongly confirms PG&E’s continued commitment to a cleaner energy future for our customers and all of California,” says Geisha Williams, CEO and president of PG&E Corp.

Avangrid Wins N.C. Offshore Wind Lease

The U.S. Department of the Interior’s (DOI) Bureau of Ocean Energy Management (BOEM) has announced the completion of the nation’s seventh competitive lease sale for renewable wind energy in federal waters.

A wind energy area of 122,405 acres offshore Kitty Hawk, N.C., received the highest bid of $9,066,650 from Avangrid Renewables LLC, the provisional winner, after 17 rounds.

Also participating in the lease sale were Wind Future LLC, Statoil Wind US LLC and wpd offshore Alpha LLC.

Before the North Carolina auction, BOEM had held six competitive lease sales, which generated $58 million in high bids for more than 1 million acres in federal waters, including a lease sale for 79,000 acres offshore New York. That auction generated a winning bid of $42.5 million from Statoil.

BOEM says it has been working with the North Carolina Renewable Energy Task Force since 2010 to identify an area of sufficient size for offshore wind development while “avoiding ecologically sensitive areas and multiple-use conflicts.”

The North Carolina lease area, designated OCS-A 0508, begins about 24 nautical miles from shore and extends 25.7 nautical miles in a general southeast direction. Its seaward extent ranges from 13.5 nautical miles in the north to .6 of a nautical mile in the south.

According to the National Renewable Energy Laboratory’s estimates of 3 MW per square kilometer, the lease area has a potential generating capacity of 1,486 MW — enough energy to power more than 500,000 homes. The actual size of the wind energy project will be determined by the developer, notes BOEM.

“The same winds that once lifted the first powered flight above North Carolina’s Outer Banks could soon power thousands, if not millions, of American homes,” says Nancy Sopko, director of offshore wind and federal legislative affairs for the American Wind Energy Association. “Millions of dollars in private investment drawn to this new ocean energy resource will help North Carolina’s economy take flight — creating new demand for skilled jobs, factories and U.S. flagged vessels.”

The lease will have a preliminary term of one year, during which the lessee may submit a site assessment plan (SAP) to BOEM for approval. The SAP will describe the facilities (e.g., meteorological towers or buoys) a lessee plans to install or deploy for the assessment of the wind resources and ocean conditions of its commercial lease area.
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Following approval of a SAP, the lessee will then have four-and-a-half years to submit a construction and operations plan (COP) to BOEM for approval. This plan will provide a detailed proposal for the construction and operation of a wind energy project within the lease area.

Once BOEM receives a COP, it will conduct an environmental review of the proposed project and reasonable alternatives. Public input will be an important part of BOEM’s review process; if BOEM approves the COP, the lessee will then have a term of 25 years to construct and operate the project.

“The success of this lease sale reflects the continued interest of coastal communities to develop their offshore energy resources,” says Ryan Zinke, DOI secretary. “Renewable energy, like offshore wind, is one tool in the all-of-the-above energy toolbox that will help power America with domestic energy, securing energy independence and bolstering the economy. This is a big win for collaborative efforts with state, local and private-sector partners.”

James P. Torgerson, CEO of Avangrid Inc., adds, “We salute the U.S. Bureau of Ocean Energy Management and the Department of the Interior for the professional manner in which they went about the bidding process, reflected by the initial large number of parties that prequalified to bid. We are excited to undertake the enormous task before us in bringing this project to fruition and confident in its completion.”

Firm Offers Renewables Purchasing Program

Geronimo Energy LLC, a renewables developer based out of Minneapolis, has introduced a new renewable energy purchasing solution, dubbed the Renewable Energy Project Units (REP-Units) program.

According to the company, REP-Units are suited for commercial electricity customers who are looking for a low-cost solution to achieve corporate sustainability goals under shorter-term contracts.

Each REP-Unit offers 10 MW of power – equal to approximately 40,000 MWh – of a larger wind or solar project’s output. REP-Units are priced based on a portion of 100 MW of a renewable energy project and, as such, offer economies-of-scale benefits to customers who have smaller electricity needs, Geronimo Energy explains.

Furthermore, every project offered in Geronimo’s REP-Unit program is a new-build project that includes Green-e certified renewable energy credits.

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REP-Unit purchase to align with their needs, says the company, which adds that it welcomes multiple REP-Unit holders per project. In addition, volume discounts are available for customers interested in purchasing multiple REP-Units.

“While sustainability goals are no doubt important to hundreds of commercial organizations, historically, purchasing renewable energy has presented barriers and undue risk for companies,” states David Reamer, executive vice president of business development at Geronimo Energy. “Our REP-Unit program removes these barriers and risks by offering low-price, shorter-duration renewable energy contracts for projects in numerous locations across the country to align with customers’ electricity usage.”

**Jaguar Land Rover Revs Up Renewables Pledge**

Under a new agreement with EDF Energy, Jaguar Land Rover Automotive PLC, which touts itself as the U.K.’s largest car manufacturer, is buying all of its electricity from renewable sources until March 2020.

Jaguar Land Rover says its electricity supply is backed by renewable energy guarantees of origin (REGOs), meaning a proportion of EDF Energy’s renewable energy is ring-fenced specifically for the company. The REGO scheme certifies the proportion of supply that comes from renewable generation – 100% in Jaguar Land Rover’s case.

“EDF Energy is pleased to announce that we will continue to supply Jaguar Land Rover with 100 percent renewable electricity for the next three years,” comments Béatrice Bigois, managing director of customers for EDF Energy. “Jaguar Land Rover is a valued partner of EDF Energy; we share a strong focus on sustainability and are very proud to support Britain’s biggest car maker in achieving their low-carbon ambitions.”

Ian Harnett, executive director of human resources and global purchasing for Jaguar Land Rover, adds, “Our future is low-carbon, clean and efficient. Our program to reduce our burden on the national grid doesn’t end here: We seek continual improvements, both in how we can reduce energy consumption further and how to minimize our carbon emissions. Our aim is to give our customers an assurance that the company’s electricity will come from renewable sources – those being in addition to the solar array at our engine manufacturing center in Wolverhampton, one of the largest rooftop installations in Europe.”

**Gamesa-Siemens Merger Gets The Green Light**

The European Commission has officially cleared the acquisition of Gamesa by Siemens. Considering a number of “credible competitors” would remain in both the onshore and the offshore wind markets, the institution has found that the transaction “raises no competitive concerns.”

The transaction was notified to the commission on Feb. 6 and then examined under its normal merger-review procedure. The commission explains that it has the duty to assess mergers and acquisitions involving companies with a turnover above certain thresholds in order to “prevent concentrations that would significantly impede effective competition” in the European Economic Area.

With this unconditional clearance, the merger has now obtained anti-trust approvals in all required jurisdictions, and all of the conditions precedent for the merger have been satisfied, says Siemens. Subject to pending closing actions, Siemens and Gamesa expect to close the merger in early April (after the registration of the merged entity in the Vizcaya Companies Register).

“This approval brings us one step closer to turning our vision of creating a global leader into reality and forming a company with presence in all the important wind markets,” says Ignacio Martin, executive chairman and CEO of Gamesa.

The joint management team of the merged company will take office after being appointed at the first meeting of the new company board and will be announced to all stakeholders promptly after the appointment, says Siemens.

Gamesa, a publicly listed company in Spain, is primarily active in the supply of onshore wind turbines but also in the sale of offshore wind turbines through its wholly owned subsidiary, Adwen Offshore SL. Siemens, a publicly listed company in
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Germany, is active in a number of industrial areas, including the supply of onshore and offshore wind turbines and their components, such as generators, gearboxes and switchgears, through its wind power and renewables divisions.

The institution has investigated the potential impact of the transaction on the onshore and offshore wind turbine markets, where the activities of Siemens and Gamesa overlap. Even after the merger, it says, the onshore wind market would be “rather fragmented” with several large competitors.

In addition, with Siemens and MHI Véras as the “main competitors,” the offshore wind market is more concentrated. Gamesa is also active in the market through its Adwen subsidiary, the commission notes. However, the investigation confirms that Adwen is not a competitive constraint on Siemens; therefore, it is unlikely that the transaction would “appreciably change the competitive situation,” the commission says.

At the start of last year, Gamesa confirmed via regulatory filing that it was in negotiations with Siemens. In June, the companies signed binding agreements to combine their respective businesses. Up for grabs was Areva’s stake in Adwen, Gamesa and Areva’s 50/50 offshore wind joint venture, which was eventually sold to Gamesa for $67.5 million.

In October, Gamesa held an extraordinary general meeting at which its shareholders ratified the resolutions needed to close the merger. Specifically, they cast 99.75% of votes in favor of the deal. In December, Spain’s securities market regulator confirmed the merger.

Gamesa will absorb Siemens’ wind power assets in exchange for newly issued shares in Gamesa. In the wake of the deal, Siemens will own 59% of the new company, while Iberdrola will retain an 8% interest. At the October meeting, the company’s shareholders also approved the distribution of a special cash dividend of EUR 3.5911 per share (before withholdings), to be paid out by Gamesa after the merger closes.

According to the companies, the transaction will create a global wind giant with an installed base of 75 GW, an order book of EUR 20.9 billion and revenue of EUR 11 billion (using pro forma data for the last 12 months, as of December 2016).

Siemens will fully consolidate the merged entity in its financial statements; the merged entity will remain listed on the Spanish stock exchange.

“We have reached a milestone in our path to merge Gamesa and Siemens Wind Power and create a leading global wind player,” states Lisa David, member of the managing board of Siemens. “This merger is designed to combine the complementary strengths of both companies to benefit our customers, shareholders, employees and suppliers. I’m excited about bringing the new company to the market very soon.”

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Offshore wind costs are dropping in Europe at the technological pace of consumer electronics. Governors from Maryland to Massachusetts have enacted policies that support 5.3 GW of offshore wind. Traditional investors are divesting themselves of their fossil fuel investments. Corporate America is fueling renewable energy purchasing at a pace that has never been seen. These winds of change are creating a thriving offshore wind industry.

Lost in U.S. presidential election news, Denmark announced the winning bid of EUR 49.9/MWh for Kriegers Flak, the country’s largest offshore wind farm. The Nov. 9 announcement was historic and shattered Europe’s offshore wind industry price goal of 100 British pounds/MW by 2020 – four years ahead of schedule.

In Europe, offshore wind energy costs are dropping, and jobs are increasing. As of 2014, the European Wind Energy Association (EWEA) has determined there are approximately 2,500 wind turbines installed and connected to the electricity grid across the continent. This equates to about 5 GW of offshore wind. EWEA employment data collected and tabulated illustrates that in the span of five years, employment in offshore wind had tripled, with 75,000 full-time equivalents in 2014. Offshore wind commitments in New Jersey, Massachusetts and New York create a Northeast regional offshore wind pipeline of 5.3 GW, a similar size to Europe, so comparable job growth is expected.

States are leading

These eye-popping European jobs numbers and lower costs are easing the way for state support. In July 2016, Gov. Charlie Baker, R-Mass., signed the Massachusetts Energy Diversity Act. With the stroke of a pen, the first U.S. offshore wind pipeline – 1,600 MW – was in place. This landmark legislation establishes demand at a level required to support investment in the emerging offshore wind market, generating supply-chain opportunities and thousands of jobs.

Gov. Andrew Cuomo, D-N.Y., committed to acquiring 2.4 GW of offshore wind by 2030 in his 2017 State of the State address. This announcement follows Statoil Wind’s record-breaking winning bid of more than $42 million for the New York offshore wind energy area leasing rights. This is more than twice the price paid for the other 11 U.S. offshore wind leases combined. The lease shows strong investor confidence in U.S. offshore wind energy.

With each state’s iteration, offshore wind energy policies evolve. Policies are now better reconciling citizens’ interests with enough economic potential to spur development of an offshore wind energy market; attract investment; and bring experienced developers – such as DONG Energy, the world’s leading offshore wind developer, Statoil and other European developers – to the U.S.

In 2010, New Jersey passed the first legislation incorporating the concept of an Offshore Renewable Energy Credit (OREC) and set a floor of purchasing 1,100 MW. New Jersey’s
offshore wind legislation remains intact, even under Republican Gov. Chris Christie, and in a post-Christie era, New Jersey will advance quickly. The same is true for Maryland, its OREC in effect, with two developers – Deepwater Wind and US Wind – currently competing for financing.

The Maryland Public Service Commission will decide on May 17 to approve a project. A sense of urgency not to be left behind is being created in New Jersey and Maryland, with Massachusetts and New York aggressively making offshore wind commitments and trying to capture the majority of the 75,000-job supply chain.

Momentum continues on the West Coast. At the request of the state, the U.S. Bureau of Ocean Energy Management (BOEM) recently initiated its BOEM Taskforce. The Business Network for Offshore Wind hosted a California Offshore Wind Industry Meeting in March, at which more than 100 industry participants shared their experience with federal, state and local officials. Under a Trump administration, California is more emboldened to embrace floating offshore wind and solidify its role as a clean energy national and world leader.

The Obama administration put methodologies in place that cannot be undone – the long-term lease contracts with offshore wind developers for offshore wind energy areas being one example. Approvals for Site Assessment Plans and Construction Operations Plans will continue to move through the BOEM regulatory process, managed by career government employees.

Changing market dynamics
The global market for renewable energy has dramatically changed over the last 16 years since the U.S. elected its last Republican president. According to the Guardian, “The shift to a low-carbon economy already has its own momentum; however, with the cost of solar and wind power tumbling in recent years, nearly 100 coal power plants were retired in 2015, with renewables accounting for two-thirds of all new electricity generation.”

Two of the nation’s biggest coal-fired power plants announced plans to close due to economic reasons. The closing of the Navajo Generating Station in Arizona and the Killen and Stuart coal-fired power plants in Ohio follows the announcement of the shuttering of New York’s Indian Point nuclear plant, which is expected to be replaced by offshore wind. Pacific Gas & Electric Co. is closing its Diablo Canyon nuclear plant, creating an electricity-generation hole that could be filled by an offshore wind project.

In the current climate-conscious global community, the commitment to divest interest in fossil fuels and fund clean energy is strengthening. Societe Generale, the French multinational banking and financial services company, says in an announcement that it will stop dedicated coal financing and step up its commitment to renewable energies effective Jan. 1.

A December 2016 report on The Global Fossil Fuel Divestment and Clean Energy Investment Movement states, “On the one-year anniversary of the Paris climate agreement, the value of assets represented by institutions and individuals committing to some sort of divestment from fossil fuel companies has reached $5 trillion.” The clean energy funding trend is supported by many countries, institutions, corporations and individuals.

Many large U.S. power consumers have clearly demonstrated that, with or without their local utilities, they are moving toward a renewable future. As of September, 62 of the country’s largest corporations had indicated their energy priorities by endorsing the Corporate Renewable Energy Buyers Principles. A Price Waterhouse Cooper survey on corporate renewable
energy procurement finds that corporations’ commitment to purchase is driven by a desire to meet sustainability goals and reduce greenhouse-gas emissions, generate an attractive return on investment, and limit exposure to energy price variability.

A Power Forward 2.0 study for Calvert Investments found that Fortune 100 companies, such as General Electric, General Motors and Walmart, are saving $1 billion annually and us-

As the jobs emerge, especially in the manufacturing sector, it will be difficult to impede offshore progress at the federal level.

There is no doubt that President Trump will be fossil-fuel friendly. The offshore wind industry may see a slowdown in the BOEM permitting process, and a second round of offshore wind energy leases could be delayed. However, Republicans generally support eliminating regulatory processes and barriers. As the jobs emerge, especially in the manufacturing sector, it will be difficult to impede offshore progress at the federal level.

The cost reduction trajectory has offshore wind on a similar growth pattern to onshore wind and solar. It is the low-cost economics of these renewables that are fueling their growth. According to the 2016 Energy Information Administration International Energy Outlook, coal is the slowest-growing energy source, and consumption is projected to decrease in every region of the world through 2040. Consumption trends are being altered as technology develops for renewable energy. The Invest movement is moving the energy sector away from fossil fuels. Global macroeconomics are shifting and are difficult to alter.

The confluence of falling costs, state policy, the divestment of fossil fuels and corporate commitments is a perfect storm for U.S. offshore wind.

Liz Burdock is executive director for the Business Network for Offshore Wind. She can be reached at liz@bizmdosw.org.

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Face It – Faults Happen; Here’s How To Deal With Them

By Neal Gyngard

A thousand things have to go right for a wind turbine to run, but only one thing has to go wrong to bring it down. This might paint a grim picture for some, but not for me. You see, I work on a wind farm with 167 wind turbines. If I wake up from a night’s sleep and find only two turbines are faulted, that means only a couple of things went wrong and at least 100,000 things went right.

The work is fun, but the days can be long. We’re talking only a couple of things went wrong and at least 100,000 things went right.

The first troubleshooting method that I like to use is the sensory method. Take the time to look, listen, feel and smell what is around you. Most of the time, if an electrical component failed, you can smell it. If you have a mechanical problem with the drivetrain, you can hear it. Some of the more obvious faults are the ones you can see, such as a set of step-down transformers that have caused a small arc blast due to their inability to stay bolted down to the back of an axis cabinet in the hub. This method is simple and might seem silly to even mention, but it’s useful and practical, as long as you follow the proper lockout/tagout procedures to protect yourself.

Navigating electrical faults. Some of the most difficult faults that can occur in a wind turbine revolve around electrical circuits.

An example would be the use of electrical circuits in an electric pitch system that uses low-voltage communication to control higher-voltage and current pitch operations. In a system like this, you have a lot of digital input and output signals that have to be present before the higher-voltage system even thinks about doing any work.

Recently, I had a group of techs go up to find the situation I previously described with the step-down transformers braking loose and shorting themselves out. They had seen this happen in the past, so they changed out the transformers and all of the fuses that had blown and cleaned up the area; all of the faults cleared, allowing the turbine to be returned to service.

When they returned down-tower and ran the turbine up, it went online, as to be expected, but it didn’t last long. The turbine faulted on an axis-specific fault that had been misleading, causing them to troubleshoot an area of the turbine that was really not the source of the issue. Eventually, the techs found the source of the problem in another cabinet.
They found that the safety loop had dropped out to all of the axis control boxes, but the source of the 24 V supply was still intact. At this point, it came down to looking at the entire circuit from beginning to end and cutting the circuit in order to find where it had been broken. They determined that the power was going into the control card that distributed the power to the rest of the three axis controllers but was not coming out. Just change out the card where the voltage stops. A simple fix, right? Well, they did that, and the same thing occurred.

When I decided to go up, the first thing I did was gather the team together to discuss all paths that had already been taken and come up with a path going forward. We knew where the safety chain was stopping, but we didn’t know why. The first thing we did was measure the source of power, then the resistance of the conductors where the power was flowing on both sides of the break. When I went to go measure the current being drawn between the card that was expected to be bad and that had been previously changed out, the hub came alive, and the fault was clearable. Knowing I had just completed the circuit with my meter by giving the voltage another path to take, we decided to test the resistance of the card in question. Sure enough, the card’s resistance readings were extremely high. We replaced the card that was just installed the day prior with a new card, and the fault cleared.

Never assume. I don’t know how many times we see a fault and jump to the conclusion that it is a particular part that has failed because it has done so in the past many times before. Field technicians must go into each situation with an open mind, or we can find ourselves following a rabbit hole that leads further away from the fix. Remember the acronym SLC: source, load, conductor. Identify the source of the power, the load that is drawing the current and the conductor the current is passing through. You will find the source of the problem if you understand your system and what it is intended to do.

There is nothing better than that feeling you get when you fix a turbine that has been down for a while. Using basic electrical theory, cutting the circuit, trusting but verifying, communicating with everyone involved, looking at the most obvious solution, and not being afraid to try the same thing twice all helps to get a turbine back online.

Unfortunately, sometimes you get parts that are bad out of the box, and they can cause some unnecessary headache, but it’s part of the game we play. Always be open to suggestions from your fellow techs, and don’t be afraid to ask for help. A fresh set of eyes on a fault can go a long way. Stay safe out there, and stay positive.

Neal Gyngard is an experienced wind turbine technician and founder of Tower Climbing Grease Monkeys, a user group for wind turbine technicians. He can be reached at neal@tcgm.us.
We empower trust by providing sound technical advice for renewable energy projects as they evolve from concept to durable operating assets. True to our roots, we remain keenly responsive to the needs of our clients, helping them build projects that reduce humanity’s global carbon footprint and generate healthy financial returns.
Potential changes to tax policy are expected to have a big impact on tax equity financing.

By Kevin Pearson

The recent presidential election has caused significant uncertainty in the wind energy sector. This includes uncertainty not only with respect to energy policy, but also with respect to potential changes in tax policy and the impact those changes might have on tax equity financing transactions.

In response to this uncertainty, many investors have begun negotiating (and, in some cases, re-opening for negotiation) certain provisions in tax equity financing documents relating to the allocation of risk between the investor and the developer with respect to changes in tax law.

The principal concern among investors relates to President Donald Trump’s campaign proposals to significantly reduce the corporate federal income tax rates. Part of the tax plan described in the presidential campaign was to reduce the top marginal corporate income tax rate from 35% to 15%. Investors have expressed concern that, if enacted, this proposal could significantly reduce the value of some of the federal income tax incentives available with respect to wind energy projects.

There are two primary federal income tax incentives for qualified renewable energy projects: income tax credits and tax losses created by accelerated depreciation deductions. Tax credits applicable to qualified projects include the production tax credit (PTC) and the investment tax credit (ITC). Most qualified projects also are eligible, under the modified accelerated cost recovery system (MACRS), for dramatically accelerated depreciation deductions.

The bulk of assets in many projects may be depreciated over five years using a double declining balance method of calculating tax depreciation deductions. In addition, certain projects qualify for bonus depreciation in the year the project is placed in service. These depreciation deductions can create significant tax losses that an investor may be able to use to offset income from other sources, resulting in meaningful tax savings in the early years after a project is placed in service.

The primary concern regarding a potential reduction in the top marginal corporate income tax rate is that the tax losses created by MACRS and bonus depreciation deductions would be less valuable than under current law because they would offset income that would be taxed at a lower rate.

The value of the ITC and the PTC generally would not change if the tax rate is reduced because the credits apply to reduce tax liability on a dollar-for-dollar basis. In other words, $1 of tax credit offsets $1 of tax liability regardless of what rate was used to arrive at that tax liability.

Tax losses, on the other hand, are applied as a deduction to arrive at net income that is subject to federal income tax. A $1 tax loss that is used to reduce income that otherwise would have been taxed at 35% generally results in a tax savings of $0.35. A $1 tax loss that is used to reduce income that would have been taxed at 15% generally results in a tax savings of only $0.15. Although this example is oversimplified, it is apparent that tax losses generally are less valuable if the marginal corporate income tax rate is reduced.

Tax equity financing investments, regardless of the structure used, are priced to take into account the value of tax credits and any tax losses expected to be generated and made available to the investor. Prior to the presidential election in November 2016, most tax equity investments were sized based on an assumption that the investor would be subject to tax at the highest marginal income tax rate in effect on the date of funding (which generally was assumed to be 35%).

Although many investors had protection in the form of additional cash returns if the tax rate subsequently changed (thereby delaying the flip date in a partnership flip transaction, for example), the investments in those transactions still would be sized based on the current rate even if the parties anticipated that the tax rate would be reduced shortly after closing. In light of the election results, many investors became concerned that they would be required to fund transactions based on the higher income tax rate existing on the funding date and then would hope to be made whole over the life of the project.

To address this potential reduction in value, many investors, at the end of 2016, began negotiating terms to reduce the amount of their investments based on concern regarding potential tax rate changes. The terms of these provisions have varied widely by investor, developer and transaction. Some terms are quite specific and mathematical, and others are more general and conceptual. Generally speaking, however, the range of possibilities has fallen into three broad categories:

• Most Investor-Favorable Approach: Some investors negotiated very investor-favorable terms under which, in the event a legislative proposal is made before funding to reduce the federal income tax rate, the investment would be sized based on an assumption that the legislative proposal would be enacted. Many investors drafted the applicable language to include not only proposed reductions in the tax rate, but also proposed changes to the law regarding depreciation deductions and other legislative or regulatory changes that would have the effect of reducing the benefit of tax losses to the investor. These transactions typically included terms providing for additional funding by the investor if the proposed legislative or other changes did not take effect within a specified amount of time after funding.
Trump’s tax reform plans have caused some financial lenders to revisit loan provisions.
er agreements are drafted very narrowly to limit "proposals" to legislative proposal under some versions of this language. Other agreements include language that would include almost any written description of a plan for legislation. Indeed, the Trump campaign proposals might constitute a proposal or communication that would implicate the new provisions.

Some agreements include very broad language in this regard that would include any written description of a plan for legislation.

Regardless of the language used to address potential changes in federal income tax rates, investors and developers negotiating these provisions should be cognizant of a number of different considerations.

For example, if language is drafted to include legislative proposals, the parties should think very carefully about how a "proposal" is defined (frequently using the term "Proposed Tax Law Change"). Some agreements include very broad language in this regard that would include almost any written description of a plan for legislation.

Indeed, the Trump campaign proposals might constitute a legislative proposal under some versions of this language. Other agreements are drafted very narrowly to limit "proposals" to include bills that have been introduced in Congress, assigned to a specified committee or even enacted by one house of Congress. In addition, some agreements address not only proposed changes to the income tax rate, but also legislative, regulatory or other changes to depreciation that would reduce the benefit of losses to the investor. This language also should be reviewed very carefully so that the parties understand what types of IRS pronouncements or other communications might constitute a proposed change in tax law.

Developers also may want to consider negotiating parameters around what changes in tax rates or other changes are to be taken into account in resizing the investor’s investment.

For example, some developers negotiated terms under which only legislative changes or proposals within a specified number of years after the signing date would be taken into account under the newly negotiated language. Others have negotiated thresholds under which only certain incremental changes in the income tax rates (e.g., a reduction of 10 percentage points) would implicate the new provisions.

Some investors accepted these proposals, and others did not, but the concept is that, if the investors are specifically concerned about President Trump’s tax rate proposals, the newly negotiated terms should only relate to changes that arise from those proposals, not to changes that occur later without regard to any specific proposal by President Trump. Another consideration is whether and how investor-favorable changes should be taken into account in adjusting the investment. Obviously, any legislative or other change that reduces the tax rate also could provide additional incentives for the investor, and developers should consider proposing language that would take those favorable changes into account, as well as any reduction in the tax rate.

These newly negotiated provisions have created a number of ancillary issues.

For example, in many partnership flip transactions, the investor must undertake a capital account deficit restoration obligation (DRO) to help ensure that all of the tax credits will be made. The investor’s DRO may need to be increased to reflect the adjustment to the size of the investment. If the size of an investment is reduced to take into account a reduction in the income tax rate, the investor will essentially have paid less for the same amount of tax losses. This means that the investor’s DRO may need to be increased to reflect the adjustment to the size of the investment.

Most investors are very sensitive to DRO issues, however, and some have refused to increase their DROs to address this issue. A number of alternative approaches have been explored, some with more potential merit than others. These and numerous other issues are still largely unresolved and remain to be worked out over the coming months as the investment community understands more about any tax reform proposals that may be made.

Kevin Pearson is tax partner and head of the tax practice at law firm Stoel Rives. For nearly the past 20 years, a significant portion of his practice has been devoted to renewable energy finance transactions, including partnership flip transactions, various forms of leasing transactions, and other forms of tax-motivated project finance arrangements. He can be reached at kevin.pearson@stoel.com.
Why has advanced manufacturing grown to be Iowa’s largest industry? Why have more than 6,000 manufacturers located here? Why have our exports grown 152%? It’s simple. Iowa has built an economy where manufacturing thrives. We have lower costs across the board—utility prices, workers comp rates, real estate costs. We graduate the engineers you need. Iowa is a right-to-work state with a will to work. A work ethic that’s balanced by a life ethic. So we’re the perfect place to build a product. And a life. Check out our website. Learn why Iowa is where manufacturing lives.

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* 2003-2015 SOURCE: U.S. Census Bureau
With two aggressive renewable energy procurement strategies in place, Alberta and Saskatchewan are currently the go-to Canadian markets for wind development projects.

By Ashley Rieseberg, Gabriel Constantin & Ellen Crivella

Five years ago, it would have taken some imagination to think that the western Canadian provinces of Alberta and Saskatchewan would become the dominant markets for wind development. These two bordering provinces, which are sandwiched between British Columbia (BC) and Manitoba, have not been widely acknowledged for their green energy policies in the past. In fact, the bulk of the power production in these regions has traditionally been derived from natural gas and coal, two resource reserves that both prairie provinces are abundant in.

However, in 2015, the provincial governments of Alberta and Saskatchewan announced ambitious renewable energy supply goals to be achieved by 2030 through competitive procurements. Alberta’s existing renewable generation capacity is to jump from 10% to 30% and Saskatchewan’s from 25% to 50%. Throughout 2016, details regarding the implementation of these power supply changes slowly trickled in at a time when renewable generation opportunities in two of Canada’s other promising markets appeared to be drying up.

In BC, construction of the 1,100 MW Site C Dam project in the Peace River Region continued despite increasing opposition from First Nations, as well as the public. In parallel to this, construction of the proposed, anticipated fleet of liquefied natural gas projects that could have potentially increased the level of electricity demand for power beyond BC’s current power supply came to a standstill, due largely to the decreased price of natural gas.

In Ontario, the much-anticipated Large Renewable Procurement II was shelved amidst rising public concerns about energy pricing, as well as a general lack of acceptance of renewable energy development. Although a call for renewable generation may surface in the near future, the Ontario Independent Electricity System Operator has given no clear indication as to when the program may be reinstated.

Given these changes, combined with the reinforcement of Canada’s overall commitment to reducing climate change through ratification of the Paris Agreement in 2016, it is not surprising that renewable energy developers have shifted their interests to greenfield prospecting and project acquisitions in Alberta and Saskatchewan.

**Alberta**

The election of the left-leaning New Democratic Party (NDP) to a majority government in May 2015 in what is arguably Canada’s most politically conservative province came as a shock to many, as the Progressive Conservative Party was forced to step down after nearly four decades of power. Policies put in place since then by the newly elected NDP have created significant opportunities for renewable energy developers, thus shifting the current power supply structure over the next decade.

In November 2015, the Alberta government released its Climate Leadership Plan, which contains several initiatives, including the establishment of a goal to achieve an energy supply mix of 30% renewables and 70% natural gas by 2030. In support of the “30 by 30” goal and transition, the Alberta Electric Supply Operator (AESO) was tasked with leading the competitive procurement of up to 5,000 MW of additional renewable electricity through the Renewable Electricity Program (REP). There are four key items for consideration in accomplishing the initiatives of the Climate Leadership Plan.

**Renewable Electricity Program.** The first REP competition and contract award for 400 MW out of a total of 5,000 MW of renewable electricity is scheduled to take place this year, with subsequent procurements anticipated to be launched on an annual basis through to 2030. Currently, the AESO anticipates
releasing a request for expressions of interest in late March, a request for qualifications (RFQ) in late April, and a request for proposals (RFP) in September, with the announcement of successful bidders by the end of this year.

The first competition is “fuel-neutral,” which means that it is open to all renewable technologies that fall within Natural Resources Canada’s definition of renewable energy and, therefore, can include wind, solar, hydro, geothermal and, in some cases, biomass. A 20-year contract-for-differences model, also known as indexed renewable energy credits, was chosen to be utilized as the payment mechanism for this first competition based on the premise that it would minimize costs by attracting many competitive bidders. The pool price will be subtracted by the bid price to determine the amount of support that will be provided. Although few details beyond 2017 have been provided, it is possible that subsequent competitions may incorporate other key features, such as regional considerations, renewable technology preferences, socioeconomic considerations and First Nations involvement. For this first competition, however, winning bids will be based on price alone.

Deregulated market changes. Alberta’s fully deregulated electricity market has often been cited as one of the major barriers to entry for renewable energy developers. Most operating wind farms in Alberta have leaned heavily on federal financial incentives or subsidies during development, and thus, it was difficult and risky for developers of capital-intensive renewable energy projects to compete in a deregulated electricity market. To further compound these challenges, fluctuating equilibrium prices created an additional lack of revenue certainty.

However, in November 2016, it was announced that Alberta would be transitioning from a fully deregulated electricity market to a capacity market by 2021. Electricity will still be sold within a spot market, but generators will also be given the opportunity to bid on five-year contracts that provide financial compensation for the capacity they could offer the market.

Crown land moratorium. A moratorium that prohibits the development of wind energy projects on Crown land was put in place in August 2005 by the Alberta government. The purpose of this decision was to provide time for the regulatory agencies to develop a comprehensive strategy and implement policies specific to future wind project developments on Crown land. Although consideration toward the lifting of this moratorium is currently under way, details are few and far between, and no timeline has been given. Because approximately 60% of the land in Alberta is designated as Crown, developers are understandably anxious to see movement on this front, as this represents a significant portion of potential buildable land area for wind developments.

Regulatory updates. To ensure proper project siting occurs as more renewable energy projects become operational, the major regulatory bodies such as the Alberta Utility Commission (AUC) and Alberta Environment and Parks (AEP) have been developing legislation and integrating renewable energy-specific policies into the existing regulatory frameworks. The Wildlife Directive for Alberta Wind Energy Projects was released in January of this year by AEP to help project proponents identify and minimize risks to wildlife from various phases of wind energy development. Although these are considered development guidelines, it is likely that AEP will request conformance by any new development projects prior to obtaining AEP sign-off. Additionally, best management practices for minimizing renewable energy project impacts to native grasslands are currently being developed.

There is also talk of the possibility of renewable energy projects being added to the list of designated activities under the Environmental Protection and Enhancement Act. As these discussions are in preliminary stages, it is difficult to ascertain or speculate how this would impact the current environmental approval process in place for wind projects. However, it is likely that the breadth of environmental factors requiring consideration would increase, and non-wildlife factors, such as soil and groundwater impacts, would require study and assessment.
Lastly, the noise guidelines contained within AUC Rule 012 are possibly some of the most complex and stringent in Canada. As a result of this, these noise guidelines require careful consideration during project development, as they can significantly impact project layouts. To add further complexity, the abundance of oil and gas structures can play an important role here because cumulative noise impacts are a key requirement of Rule 012.

**Saskatchewan**
The Saskatchewan Party has been in power since 2007, under the leadership of Brad Wall, a former Progressive Conservative party member. In October 2016, the Saskatchewan government released Saskatchewan’s White Paper on Climate Change, which reaffirmed the province’s 2015 commitment to be supported by 50% renewables by 2030. Currently, wind power contributes to 3% of Saskatchewan’s power supply mix, with most renewable power for the province being derived from hydroelectric sources (15%). In contrast to Alberta, Saskatchewan’s electricity market is not deregulated but, instead, is overseen by SaskPower, a government-owned public utility. SaskPower has been tasked with leading the procurement of up to 1,600 MW of renewable power for projects that are to be developed between 2019-2030. The first RFQ for 200 MW of wind power is currently under way, with power contracts to be awarded at the end of 2017. A solar RFQ and RFP process is also taking place concurrently with the wind RFQ, with 10 MW to be awarded in 2017 and a total of 120 MW of solar energy to be procured by 2025. To date, a high level of interest has been shown toward both the wind and the solar procurements, which suggests that there will be significant competition for these power contracts. SaskPower has indicated that although pricing will have the heaviest weighting during the evaluation process, factors such as environmental impacts, community engagement and First Nations consultation will all play important roles.

Although there have been few major or notable changes with respect to energy policy in Saskatchewan, the two main points of interest for wind developers are discussed below.

**Regulatory uncertainty.** In September 2016, the Chaplin Energy Project’s Environmental Impact Statement (EIS) was rejected by the Saskatchewan Ministry of Environment (MOE), due largely to migratory bird concerns. To give a brief background of the significance of this decision, the project began public consultation in 2010 and was awarded a power contract from SaskPower in 2012. A technical proposal was submitted to the MOE in April 2013 as part of the...
Environmental Assessment process. In March 2014, the MOE designated the project as a “development,” thus requiring it to participate in the full Environmental Impact Assessment process. In September 2014, the MOE approved the Terms of Reference proposed for the project, and an EIS was submitted by the project proponent in March 2015.

Given the sequence of these events, the ministerial decision to reject the project nearly four years later undoubtedly has created some uncertainty among developers with respect to environmental approval risks and regulatory approval timelines. Perhaps in an attempt to soften these concerns, the MOE released new siting guidelines for wind projects on the same day that the decision to reject the Chaplin project was made.

**Guidelines.** The Saskatchewan MOE released the first version of the Wildlife Siting Guidelines for Saskatchewan Wind Energy Projects in September 2016. The intent of these guidelines is to provide a framework for acceptable development practices in the province to lessen impacts to biodiversity.

However, absent from the guidelines is information on two key pieces that could significantly impact site selection and the overall layout determination of wind project development: noise and post-construction monitoring requirements. Although the MOE has indicated that these will be addressed in future versions of the guidelines, the current information gap has added to the uncertainty in acceptable siting practices.

With two aggressive renewable energy procurement strategies in place, Alberta and Saskatchewan are currently the go-to Canadian markets for wind development projects. These two provinces have historically been dominated by other industries and now are playing regulatory catch-up; thus, the ensuing lack of regulatory precedent in both provinces, although exciting in terms of the opportunity to pave the future for new developments, also fosters an environment for risk. As can be seen by the election of the NDP in 2015, significant policy changes can be implemented within a relatively short period. It is not entirely unlikely that the political parties currently in power in these provinces will change in the next five years, and this could very well have an impact on the current policies and plans in place.

However, other factors, such as the increasingly competitive costs of renewable power and the global commitments made to reduce greenhouse gases, will also play contributing roles in future political and industry decisions. Only time will tell what the future holds for wind power in both provinces, but one thing is known for sure – it will certainly not be devoid of excitement!

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Neighboring Iowa Counties Preparing For Windfall

MidAmerican Energy Co. (MEC) recently reported to the assessor’s office the final net acquisition cost figure for the recently completed and commissioned O’Brien Wind Energy Project, located in northern O’Brien County, Iowa, along Highway 18 near Sanborn.

In its Dec. 29, 2016, news release, MEC said that with the completion of the Ida Grove wind farm in Ida County and the O’Brien Wind Energy Project, MEC wrapped up work on two major projects in its Wind X Expansion Program that added 551 MW of wind generation capacity for customers. Two wind farms are included in the Wind X project – one in O’Brien County and the other in Ida County. Both wind farms in the Wind X project were developed by Chicago-based Invenergy LLC.

“We are proud to do business in a state that leads the nation in the percentage of energy generated from wind,” says Michael Fehr, vice president of resource development for MEC. “Wind is a key element of our balanced approach to energy generation because it’s a renewable and clean source of energy.”

As part of MEC’s Wind X expansion program, which the Iowa Utilities Board (IUB) approved on Aug. 21, 2015, 104 turbines power the O’Brien Wind Energy Project, generating 250 MW of wind energy, while 134 turbines spin at the Ida Grove project, generating 301 MW of wind energy.

In its written order approving Wind X, the IUB set a cost cap at $1.61 million per megawatt for the completed project as a whole. This per-megawatt cost figure was lower than the cost figure of $1.638 million per megawatt that MEC had proposed. MEC added into that net acquisition cost figure, this shows that the per-megawatt cost of the wind farm was $1.46 million, well under the IUB cost cap of $1.62 million.

So, the recent report from MEC indicates that the per-megawatt cost of building new wind energy is still coming down, according to what MEC is experiencing. In 2007, the American Wind Energy Association pegged the cost of building new wind energy at $2 million per megawatt. By 2014, the cost had fallen to $1.8 million per megawatt.

The recently commissioned wind farm has 104 Siemens wind turbines spread out over three townships. By dividing 104 into the net acquisition cost figure, this shows that the installed cost of each Siemens SWT 108 model wind turbine is $3,399,382. MEC said the cost for the wind farm interconnection substation in Lincoln Township came to $12,756,250.

Therefore, with the third-year property tax rate figured at 10%, Dykstra calculated that the property tax revenue from the wind farm will bring in $824,395 to the county’s tax coffers. In fall 2024, when the wind farm will be fully assessed at 30%, MEC’s property tax payment to the county will total $2,473,184. The 30% rate is then capped for the balance of the wind farm’s useful life, perhaps another 20 years.

The school districts in which turbines are located stand to benefit the most from the property tax revenues from the wind farm.

However, this also means that what the school districts receive in state aid for education could be reduced due to the
substantial wind farm property tax revenues going toward local education funding, Dykstra explains.

The three townships of Center, Lincoln and Franklin will also receive funds due to the property tax revenues from the wind farm. Northwest Iowa Community College will also benefit financially due to the property tax revenues that will be allocated toward the college.

By adding both the net acquisition costs for the $820,195,459, 500 MW Highland Wind Farm and the $366,397,678, 250 MW O’Brien wind farm together, MEC’s investment to harvest 750 MW of O’Brien County wind energy is approximately $1,186,593,137 since August 2013.

In fall 2024, when all 318 wind turbines will be fully assessed at 30%, MEC’s yearly property tax payment could approach a staggering $8,173,378 per year. According to the auditor’s office, the Valero Renewable Fuels Co. ethanol production facility at Hartley is the next-largest property tax-paying entity in the county after the two wind farms, at $645,280.

When MEC purchased the 104 Siemens wind turbines, the purchase agreement also included a maintenance and support agreement with Siemens to provide the technicians performing day-to-day maintenance on the turbines. The new jobs that the two wind farms brought into the county are another significant impact.

Lawrence Lewis, supervisor of wind generation at MEC, was recently questioned about the number of wind turbine technicians he has that perform day-to-day maintenance of the 318 wind turbines MEC now has operational in O’Brien County. Lewis reports he currently has 27 to 28 wind turbine technicians that maintain MEC’s wind turbine infrastructure. He says his workforce has now peaked, and employment levels are not expected to increase.

In an early 2016 Chronicle Times story published after the final cost figures for MEC’s 500 MW Highland Wind Farm Project were reported to the county assessor’s office, O’Brien County Auditor Barb Rohwer spoke to the potential benefit from the property tax revenues that flow into county coffers from the construction of a wind farm.

Rohwer said, “Building a wind farm cannot guarantee there will be property tax reduction, but it will mean property tax relief. What this will do for other people’s property taxes, to relieve their taxes – this is going to be quite an impact. What we can do for repairing roads and bridges and other stuff is going to be phenomenal.”

On Jan. 24, during the O’Brien County supervisor’s discussion related to future wind farm property tax revenues, current Board Chair Tom Farnsworth updated the other supervisors on the substance of an idea being kicked around at recent O’Brien County Economic Development Corp. (OCEDC) meetings.

Farnsworth said, “One of the ideas that was brought up over at a recent OCEDC meeting the other night was that with all these windmills in the county – when all is said and done – is that we are going to have quite a bit of taxation revenues from the windmills.

“It was suggested that a committee be set up made up of representatives from rural, city and maybe someone from the board of supervisors to see if there’s anything else we could do with the wind farm revenues within the county to help, besides using it for reducing property taxes. I don’t think setting up a committee is a bad idea. It’s not binding or locked in or anything.”

Farnsworth went on to say this idea was also brought up at a recent Farm Bureau meeting, and they would like to have some representation on any committee. “I don’t think it’s a bad deal,” Farnsworth added.

Speculation over several suggestions of different services and entities where specific funds could be targeted was voiced. One idea mentioned was to use future wind farm property tax revenues to improve EMT and ambulance services within the county. No one spoke up in total opposition to the OCEDC suggestion of forming such a committee.

Loren G. Flaugh is a freelance writer living in Iowa. He can be reached at seabees_loren@yahoo.com.
How No. 1 Plans To Stay The Leader

When it comes to wind energy, Iowa is a national leader – and it has no plans to relinquish the ranking.

By Kim Reynolds

When you imagine a future for wind energy nationwide, look no further than my home state of Iowa as a shining example of what could be.

Iowa has a goal – and a plan to achieve it – to be the first state in the nation to meet 40% of our electricity needs from wind power by 2020. And we are well on our way.

In December of last year, I oversaw the creation of the new Iowa Energy Plan. This plan assesses our state’s current and future energy supply and demand, examines existing energy policies and programs, and identifies emerging energy challenges and opportunities. The plan also synthesizes the existing state energy goals and strategies that are beneficial for the state and outlines new goals and strategies to position Iowa for the future.

This plan reaffirms the state’s commitment to reaching our 40% renewable goal. To reach that goal, it recommends the state continue to support an increase in both utility-scale and dispersed renewable energy generation – recommendations we are committed to fulfilling.

Utility buy-in

Thankfully, Iowa is home to electrical utilities that are equally committed to wind power. Last year, MidAmerican Energy Co., the state’s largest energy provider, announced plans to invest a combined $3.6 billion for 1,000 new wind turbines and 2,000 MW of additional wind capacity. The first phase of this project is slated to begin construction this month. When completed, this wind initiative will be a significant step toward the company’s vision of providing 100% renewable energy for its customers.

MidAmerican’s project is also the single-largest economic development investment in Iowa history. It has the potential to create $12.5 million per year in property tax payments, $18 million per year in payments to landowners, and $48 million per year in state and local expenditures. It is a shining example of the multitude of stakeholders who benefit from investment in wind energy.

Last year, Alliant Energy, our state’s second-largest energy utility, also announced an additional $1 billion investment to add 500 MW of wind capacity. Together, these investments put our state on pace to reach and surpass that 40% goal by 2020.

Today, even before these new projects begin construction, Iowa is leading the pack in wind power. Wind currently generates more than 35% of Iowa’s electricity – the largest share of any state. A January report, co-funded by the Retail Industry Leaders Association and the Information Technology Industry Council, says Iowa is the easiest state for companies to directly purchase renewable energy. Spinning wind turbines dot our rolling fields, each one generating clean energy and providing income for farmers, revenue for local governments and jobs for Iowa families.

Iowa’s central location, positive business climate and transportation infra-
structure have made the state an attractive location for global turbine manufacturers. Today, almost the entire turbine lifecycle – from manufacturing, to assembly, to erection – is occurring within Iowa’s borders.

The people of Iowa have also been instrumental in the success of the industry. The entrepreneurism and ingenuity of our state’s small business owners have had an immeasurably positive effect on wind energy as a whole. As wind turbine manufacturing has scaled, Iowa companies have become pioneers. They have overcome obstacles and piloted solutions later put into practice globally.

An example of such a company is KPI Concepts in Burlington, located in southeastern Iowa on the Mississippi River. KPI Concepts manufactures wooden components for turbine blades. Its founder, Craig Upton, was manufacturing shelving for retail stores when, in 2008, an executive from Siemens contacted him and asked if he could also make blade components. Today, Upton manufactures components for both Siemens and TPI Composites, making use of machines that he designed.

Iowa’s public universities and their excellent engineering colleges have also embraced the state’s leadership in wind energy, undertaking academic research to further the industry and developing specialized programs to educate the next generation of wind energy engineers and policymakers. The state’s extensive network of community colleges has taken on the challenge of developing the industry’s on-the-ground workforce and has created specialized programs that are educating technicians who install, maintain and service modern wind turbines.

**Wind attracts tech giants**

The leadership in clean energy generation has also drawn large, socially minded companies from outside of the wind industry to Iowa. Google and Facebook were attracted to Iowa, in part, because of the state’s abundance of renewable energy and reliable electricity infrastructure, with both companies partnering with local utilities to directly purchase wind-generated power.

The state of Iowa is a leader in renewable energy today because of the commitment from stakeholders statewide. It was a journey that began in 1983, when Iowa passed the nation’s first renewable electricity standard, under the leadership of Gov. Terry Branstad.

At that time, the state was almost entirely dependent on coal for electricity. That first law required investor-owned utilities in Iowa to own or contract for a combined 105 MW of renewable generating capacity.

Today, the state’s utilities generate more than 6.2 GW of wind electricity – a figure that will continue to steadily grow. The businesses and residents also have some of the lowest energy costs in the country, which is an important factor in Iowa, where advanced manufacturing is our leading industry.

Wind power manufacturing, itself, supports 7,000 jobs in Iowa, and turbine operators provide millions of dollars annually in lease payments to farmers. This economic impact cannot be overlooked, which is why our administration has supported, and continues to support, our state-level wind energy incentives, as well as the federal government’s renewable electricity production tax credit (PTC). Particular credit goes to the work done by members of Congress from both political parties who voted to extend the PTC in December 2015, which has restored a necessary level of predictability to the market.

The reasons behind Iowa’s current leadership in wind generation extend beyond the fact that the wind blows strong and steady here. It started with forward-thinking policy, was augmented by the state’s business-friendly approach, and has succeeded because of an all-in, collective effort. The entire state is justifiably proud of where it is today, but it has not chilled its ambition. The state will continue to create an environment in which businesses in the wind industry and many others can succeed.

Kim Reynolds is lieutenant governor for the state of Iowa. To reach her, visit ltgovernor.iowa.gov.

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**WEPP**
Trump Proposes Big Cuts; Environmental Groups React

Clean energy and environmental advocacy groups are speaking out against the Trump administration’s newly released 2018 budget proposals for discretionary spending – which, among other things, would cut U.S. Environmental Protection Agency (EPA) spending by one-third.

Among the proposals, President Donald Trump has “called for attacks” that would dismantle both the EPA and the U.S. Department of the Interior (DOI), according to the Sierra Club. The plans for the EPA’s budget include “decimating its staff and lifesaving programs,” and the DOI proposals would “sharply reduce the budget to protect America’s parks, public lands and wildlife,” the group says.

According to the White House proposal, the president’s 2018 budget requests $5.7 billion for the EPA – representing a reduction of $2.6 billion, or 31%, from 2017.

In addition, according to a press release from the DOI, Trump’s $11.6 billion proposed budget would save taxpayers $1.5 billion (a 12% reduction over 2017). Specifically, the agency says it “prioritizes strengthening America’s energy security” by increasing funding for programs that support the responsible development of oil, gas and coal.

Policy Watch
natural gas, coal, and renewable energy on public lands and offshore waters.

However, the Sierra Club claims the budgets would strip funding that enables the U.S. to meet its commitment to the Green Climate Fund, as well as slash funding for clean energy research efforts at the Advanced Research Projects Agency-Energy.

"Money talks, and Trump’s budget proposal screams that the only thing that matters in his America is corporate polluters’ profits and Wall Street billionaires," states Michael Brune, executive director of the Sierra Club. "If Trump refuses to be serious about protecting our health and climate or our publicly owned lands, then Congress must act, do its job and reject this rigged budget."

Furthermore, Paul Getsos, national coordinator of the People’s Climate Movement, which is holding a march in Washington, D.C., this month, says, “Massive cuts in the Environmental Protection Agency will make it easier for corporations to pollute our lakes and rivers that we rely on for clean water and recreation. Cuts to economic development programs in urban and rural areas will hurt low-wage workers, especially struggling communities across the country."

However, Thomas Pyle, president of American Energy Alliance, maintains that the budget would provide a “much-needed resetting of the relationship between the federal government, the states and the American people.” The cuts to the EPA and DOI, in addition to other federal agency cuts, “eliminate the architecture of President Obama’s politically motivated climate action plan,” he claims.

“While this is just an early step in the budget process,” he says, “President Trump’s plan sets the tone for reining in wasteful spending and costly, duplicative regulations. Let’s just hope that Congress follows the president’s lead and enacts these much-needed reforms.”

Speaking specifically on the EPA budget cuts, Pyle adds, “President Trump is sending a clear message that the EPA will no longer waste taxpayer dollars to carry out the previous administration’s climate action plan. The argument that this proposal would keep EPA from doing its job holds no water.”

In addition, under the Obama administration, he says, the DOI “adopted a ‘keep-it-in-the-ground’ approach that prevented the responsible development of our energy resources, especially natural gas, oil and coal.”

However, Margie Alt, executive director of Environment America, calls the budget proposal “dirty and dangerous.”

“Slashing EPA’s overall budget by more than a third means the agency cannot adequately enforce our clean air and clean water safeguards,” she says. “It is basically a ‘get-out-of-jail-free card’ for polluters. In addition, Trump’s proposed budget underfunds environmental issues that matter to millions of Americans – like climate action, clean energy and our national parks.”

**Oklahoma’s Early Tax Credit Phaseout**

On March 9, Oklahoma’s House of Representatives passed H.B.2298, which would end the state’s production tax credit for wind energy production three-and-a-half years earlier than current law.
This measure was first proposed in Gov. Mary Fallin’s 2018 executive budget.

The bill provides a July 1, 2017, sunset date for wind facilities to be eligible for the zero-emission tax credits. Wind facilities must be placed in operation prior to that date to be eligible for the tax credits. The rate of the tax credit is unchanged at 0.5 cents per kilowatt-hour.

Interestingly, the early deadline only applies with respect to electricity generated by wind. The bill retains the original Jan. 1, 2021, deadline for other zero-emission facilities, such as solar or geothermal facilities. However, the vast majority of zero-emission energy production in Oklahoma is from wind.

With the deadline to be placed in operation just three-and-a-half months away, should this bill become law, Oklahoma wind projects that are already in construction – and are relying on the tax credits – may not be able to be placed in operation in time to qualify for the state tax credits.

The bill passed the House by a 74-26 vote and now goes to the Oklahoma Senate, where the Republicans hold a 42-6 seat advantage.

Fallin also proposed in her budget a new production tax of 0.5 cents per kilowatt-hour on electricity generated by wind. This bill does not include the proposed production tax. As noted in previous coverage, the new production tax may be more difficult to enact because it would require a three-quarters majority to pass through the Oklahoma legislature.

– David Burton & Binyomin Koff

David Burton is a partner and Binyomin Koff is an associate at law firm Mayer Brown LLP. This blog was reposted with permission from the firm’s Tax Equity Times.

Raimondo Plots Whopping Renewables Increase

The governor of Rhode Island, home to the U.S.’ first operating offshore wind farm, has set forth an ambitious goal to grow renewable energy in the state. Specifically, Gina Raimondo is seeking to increase this sector by a whopping 1,000%.

As explained in a March 1 tweet from Raimondo, the Democratic governor announced the goal at the North Kingstown, R.I.-based Quonset Development Corp., a Rhode Island Commerce Corp. subsidiary:

According to local coverage from Providence Business News, the governor’s goal calls for 1 GW of renewable energy by 2020—a tenfold increase over the state’s current levels.

The report cites a speech from Raimondo: “Every step we take toward a clean energy future is a step toward a stronger, more sustainable environment and economy.”

In 2016—the baseline year for the new goal—the state had roughly 100 MW of clean energy, according to a press release from the governor’s office.

“The goal will include energy from a broad portfolio of clean energy resources, including offshore and onshore wind and solar,” the release explains. “Homeowners, municipalities, institutions, and private commercial and industrial enterprises can contribute to the goal with smart investments in clean energy.”

However, the Providence Business News article brings up a notable point: There is not yet any legislation to go along with the governor’s goal. Rhode Island Congressman Aaron Regunberg reportedly said, “We need to actually do some things to reach that goal and get on pace,” considering the state is not currently on track to “take renewable generation to that scale.”

Notably, last summer, Rhode Island’s neighbor to the north enacted legislation to cement its renewable energy ambitions. Gov. Charlie Baker, R-Mass., signed into law “An Act Relative to Energy Diversity,” which, among other provisions, requires Massachusetts to generate 1.6 GW of power from offshore wind over the next 10 years.

As of June 2016, approximately 95% of Rhode Island’s net electricity generation was derived from natural gas, according to figures from the U.S. Energy Information Administration.

However, according to the “2016 Rhode Island Clean Energy Jobs Report,” clean energy employment, accounting for 13,776 jobs, spiked 40% in 2016 over 2015. (Besides renewables, “clean energy” also includes energy efficiency, renewable heating and cooling, and alternative forms of transportation.)

Although energy-efficiency employment comprised the majority of these jobs (eight out of 10), and renewables accounted for 14%, renewables employment did, however, nearly double its numbers over 2015. Specifically, the report says, this workforce experienced an 84% increase in 12 months with the addition of 907 new jobs.

“While [renewable energy] remains a smaller portion of the clean energy economy, optimism regarding the state’s current offshore wind energy project, as well as third-party ownership and financing of solar projects, may signal that renewable generation is on pace to continue this growth in the short term,” the report says.

Along with Gov. Sam Brownback, R-Kan., Raimondo is head of the Governors’ Wind & Solar Energy Coalition, a renewable energy advocacy group, which recently sent a letter to the Trump administration to emphasize the “boons of renewable energy.”

In December, a big renewables boost came to Rhode Island when Deepwater Wind finished up the 30 MW Block Island Wind Farm, the first offshore project in the U.S. Raimondo noted that she was proud to be governor of the only state with “steel in the water and blades spinning over the ocean.”

Now, Raimondo says in the latest press release, “Our commitment to expand our clean energy portfolio will help lower energy costs, create jobs and protect the beauty of our state for future generations.

“As the technology advances, an affordable, clean energy future is no longer simply a dream. Because of the investments we’ve made and with partnerships across the state, we will increase the amount of clean energy in Rhode Island by 1,000 percent, and we’ll double our green economy workforce,” she says.
ALLETE Bringing Wind Farm To North Dakota

Allete Clean Energy, a wholly owned subsidiary of Allete Inc., is further highlighting the 100 MW wind farm it plans to build in North Dakota as part of Xcel Energy’s newly announced plans to bring more wind energy to the upper Midwest.

Under development since 2011, the Clean Energy 1 project, located north of Glen Ullin in Morton and Mercer counties, has been permitted by the North Dakota Public Service Commission and has landowner agreements in place. Construction and completion of the project are expected to take place in 2018 and 2019, respectively.

Allette Clean Energy and Xcel Energy have signed a 20-year power purchase agreement, which is still subject to regulatory approval.

To qualify for federal renewable energy production tax credits (PTCs), the project may use a share of wind turbines Allette Clean Energy purchased in 2016 in order to meet safe harbor standards. The $100 million investment in safe harbor turbines allows the company to pursue its three-pronged PTC strategy, which includes building and operating new wind farms based on long-term PPAs, building wind farms for other companies for a development fee or a sale price, and refurbishing its existing wind farms while extending PPAs.

Allette Clean Energy also has PPAs with Xcel Energy through its Chanarambie/Viking and Lake Benton wind farms in Minnesota.

When Clean Energy 1 is complete, Allette Clean Energy will own and operate roughly 640 MW of wind generation capacity in five states.

DONG To De-Commission Offshore Landmark

After more than 25 years of operation, DONG Energy has decided to retire Vindeby, the world’s first offshore wind farm.

Vindeby Offshore Wind Farm, consisting of 11 wind turbines, was connected to the grid in 1991. The Danish wind farm is situated close to shore in the low waters off Vindeby near Lolland.

Even though the wind farm is being decommissioned — and the turbines are small compared with current standards — the project has been of “vital importance” to the offshore wind industry, according to Leif Winther, who is responsible for DONG Energy’s Danish offshore wind farms.
During its entire lifetime, Vindeby Offshore Wind Farm was born. “But without the experience gained from the world’s first offshore wind farm, we wouldn’t be where we are today. It’s fair to say that Vindeby is the cradle of the offshore wind industry and that this is where the industry was born.”

During its entire lifetime, Vindeby Offshore Wind Farm produced 243 GWh of power; this corresponds to what seven of the largest offshore wind turbines today can produce in a single year, says DONG Energy. The turbines for Vindeby were supplied by Bonus Energi – now Siemens Wind Power – and the foundations were produced by MT Højgaard.

DONG Energy says Vindeby also covered the annual power consumption of around 2,200 households. In comparison, DONG Energy’s future offshore wind farm off the east coast of England – Hornsea Project One, which, when ready for commissioning in a few years, will be the world’s largest offshore wind farm – will be able to supply green energy to approximately 1 million households, the developer says.

Furthermore, the offshore wind turbines at Vindeby are located 1.5 kilometers to 3 kilometers offshore. Today, offshore wind turbines are typically located much farther away from shore. In addition, when the wind turbines at Vindeby were installed in 1991, they were lifted into place in one piece, but when decommissioning begins, the blades, nacelle and tower will be dismantled and taken down individually by a mobile crane on board a jack-up vessel. The concrete foundations will be broken down on-site, mainly by hydraulic demolition shears, and collected afterward, DONG Energy says.

All turbine components and foundations will be sent on-shore to Nyborg Harbour, where the components will be reused as much as possible as spare parts for other wind turbines. Some of the blades will become part of a research project at DTU Risø, and others will be reused in a noise-barrier concept. One wind turbine will also become part of the exhibition at “Energimuseet” (the Danish Museum of Energy). Components that are not immediately reusable will be transported to a certified recovery company.

“Vindeby Offshore Wind Farm has played a decisive role in setting up the technology and reducing the costs to a level that makes offshore wind attractive to many countries facing replacement of end-of-life coal-fired power plants with new green energy sources,” adds Winther.

**Xcel Energy’s Big Midwestern Plans**

Minneapolis-based Xcel Energy has rolled out a proposal to add seven wind farms in the upper Midwest. Totaling 1,500 MW of wind energy and increasing the utility’s upper Midwest wind fleet by 60%, the projects would be situated in Minnesota, North Dakota, South Dakota and Iowa.

Xcel Energy is proposing a combination of owned projects and power purchase agreements; in total, these represent more than $2.5 billion in capital investments. The company says it is taking advantage of federal production tax credits to secure lower prices.

Advances in turbine technology, improved wind forecasting and an expanded transmission system are expected to play a role in the ability to build the new wind farms, the utility adds.

“We’re significantly increasing the amount of wind generation on our system – in part due to the recent completion of Midwest transmission projects that connect wind-rich areas to our customers,” explains Chris Clark, president of Xcel Energy-Minnesota.

Over their expected life spans, the proposed wind farms are projected to generate nearly $200 million in property taxes and $150 million in landowner payments. In addition, the projects, when operational, are estimated to create approximately 1,500 construction jobs and about 80 full-time jobs.

“This investment in renewable energy keeps bills low for customers while giving them the clean energy they want and helping us achieve 63 percent carbon-free energy by 2030,” adds Clark. “Wind energy is at historically low prices right now, so we’re able to reduce emissions while securing long-term cost savings for our customers.”

Proposed in October of last year, the 750 MW of self-build projects are the following:

- Freeborn Wind Energy, a 200 MW, Invenergy-developed project located in Freeborn County, Minn., and Worth and Mitchell counties, Iowa;
- Foxtail Wind, a 150 MW wind farm located in Dickey County, N.D., and developed by NextEra Energy Resources;
- Blazing Star 1, a 200 MW project located in Lincoln County, Minn., and developed by Geronimo Energy; and
- Blazing Star 2, a 200 MW wind project located in Lincoln County, Minn., and developed by Geronimo Energy.

The 800 MW of newly proposed projects are the following:

- Crowned Ridge Wind Project, a 300 MW build-transfer project and a 300 MW power purchase agreement. The wind farm will be located in Codington, Deuel and Grant counties, S.D., and developed by a subsidiary of NextEra Energy;
- Lake Benton Wind Project, a 100 MW build-transfer project in Pipestone County, Minn., and developed by a subsidiary of NextEra Energy; and
- Clean Energy 1, a 100 MW power purchase agreement project in Morton and Mercer counties, N.D., and developed by ALLETE Clean Energy.

All projects are subject to state and local regulatory approval. If accepted, they will be in service by 2020, says Xcel Energy.
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Managing Risk In Four O&M Strategies

The marketplace has developed several strategies for the operation and maintenance (O&M) of wind turbines. The O&M programs available cover scheduled maintenance, which includes routine, semi-annual maintenance activities. The programs can also cover unscheduled maintenance, which is usually related to drivetrain component failures and blade failures.

The management of risk related to maintenance costs is the driving force in selecting the O&M program that best fits the needs of the owner. The average gearbox life is approximately seven years. The other major components—main shaft bearings, generators and blades—also have average life expectancies below the original 20- to 30-year service life given to wind turbines. So, the inevitable risk is not if, but when the failure occurs, who is going to pay? Therefore, you will see a shift in risk as you look at the available O&M strategies. I will focus on four popular variations of the O&M strategies available at this time.

OEMs. Original equipment manufacturers (OEMs) provide a full-service program, including both scheduled and unscheduled maintenance activities. This allows the OEM to employ permanent technicians at the site for ongoing, continuous services. This is usually the most expensive option, as it shifts all of the risk onto the OEM and allows the owner to have a very stable expected cashflow.

ISPs. Independent service providers (ISPs) provide a similar service to what was previously described in the OEM choice, with one main exception: Major component parts are charged additionally when needed. Although some ISP programs include a minimum of major components, this can also be expensive but does shift some of the risk back to the owner, as there would not be an unlimited supply of spare parts included.

Self-performers. The owner provides all services, as it self-performs all scheduled and unscheduled maintenance activities. This is, on the surface, the lowest-cost solution, as the cost does not reflect the risk that must be budgeted for major component failures. Basically, this strategy puts 100% of the risk on the owner. This can be offset by the purchase of an insurance program but would drive the cost for this strategy up because it would shift the risk from the owner to the insurance company.

Hybrid strategy. A popular strategy, a hybrid, involves the owner either self-performing or hiring an ISP to perform the scheduled semi-annual maintenance, but it has the option of utilizing the OEM or the ISP to perform the major maintenance, including drivetrain and blade maintenance and replacements. This cost is sensibly in the middle of the choices, as this becomes a shared risk between the owner and the third party.

Each owner has to manage its risk as it relates to the possibility of major component failures. The urban legend that began in this industry that wind turbines last 20 years without maintenance has proven to be false. The owners are now faced with the harsh reality that major failures are real and do happen.

Some owners can mitigate their risk by installing aftermarket equipment that will monitor the conditions of wind turbines. The monitoring systems provide feedback and can indicate when a component is reaching the end of its useful life. The result can give the owner the opportunity to make lower-cost repairs to its turbines and avoid the larger catastrophic component failures. Examples of these systems are vibration monitoring and real-time oil monitoring.

Additionally, when replacement components are installed, the owner can limit its risk by utilizing improved materials in the gears and bearings. The owner can implement improved lubrication programs. These aftermarket improvements extend component life and further limit the risk.

There are many choices in the marketplace. You cannot simply run a wind farm like driving a modern automobile—just put gas in it and occasionally remember to change the oil and forget about it. Maybe wind turbines will get there someday, but for now, the owner needs to be smart about it. You must have an understanding of O&M costs and major component failure costs to guide you in your strategy selection. You must pay attention to innovations in the market, always looking for that better mouse-trap that limits your risk and improves your production.

Unfortunately, this industry was described as a 20- to 30-year maintenance-free system. This is wrong. It’s just the opposite. It will take continuous improvements, just like in the auto industry. One day, wind turbines may be maintenance-free, but until then, pay attention, and manage your risk. – Judah Moseson  

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