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Ryan Donnell for Fortune

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Will Donald Trump Blow Warren Buffett's Clean-Energy Bet Off Course?

Berkshire Hathaway is one of the biggest players in wind power, but the president-elect may strip away some of the company's financial advantages.

Bill Nobsch has four cats, two horses, a dog, and way too many corny jokes. “Why can’t the tissue stop dancing?” he asks while waiting for food at his wife’s restaurant—the Chuckwagon in Adair, Iowa, which was just ranked the No. 1 burger joint in the state by the Iowa Cattlemen’s Association. “It’s got a little boogie in it.” That one has made billionaire Warren Buffett laugh.

Nosbisch lives outside Adair, about halfway between Des Moines and Omaha. The town, with just under 800 people, is too crowded for him; he lives on eight acres of Iowa farmland, though he's not a farmer in the traditional sense. Eight years ago, Nosbisch was out of work. His job, running the Des Moines printing plant for newspaper giant Dow Jones, was swept away by the winds of change.

Shortly after he lost his job, a former colleague asked Nosbisch if he would be interested in running a wind farm. Nosbisch asked where. The colleague answered, "All around you." Within a year the landscape outside Nosbisch's front door had sprouted a forest of wind turbines, and Nosbisch had a new career as a wind farmer and a new employer—Berkshire Hathaway.

These days Nosbisch, now the manager for engineering and asset management in wind generation at MidAmerican Energy, Berkshire's Iowa utility, hops in his car for an eight-minute daily commute (he has never hit traffic). In the early morning light the 148-foot blades of many of the dozens of turbines that he passes on the way to work are already turning above him.



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His office sits inside a structure that looks like a construction-site trailer. From there, Nosbisch can monitor the output of the area's three wind farms, Eclipse, Adair, and Morning Light, and check in on other operators. If there is a problem, it's a short drive to one of 170 turbines on the site. And then a 15-minute climb up 263 rungs to the top to see

what repairs need to be made. Far below him is a green and honey-colored landscape that meets a usually blue sky (engineers are not allowed to climb the turbines in bad weather). Around him are the other winged machines that are now his flock. He still marvels at the view, every time.

Renewable energy is on the rise in America. Most of the buzz, at least among consumers, has been about solar, in rooftop panel form and, more recently, in Silicon Valley dreamer Elon Musk's plan to make solar shingles. But in Iowa you literally see clean energy on the horizon. Where silos used to top the landscape, they are now towered over by wind turbines.

What isn't well known, in Iowa or elsewhere, is that one of the biggest winds at green energy's back is coming from the world's second-richest man. Buffett and his holding company, Berkshire Hathaway, have spent more than \$17 billion on renewable energy since 2004. Two years ago at the Edison Electric Institute's annual power conference Buffett pledged to nearly double that. This year Berkshire is on track to spend almost \$1 billion on its Iowa wind facilities alone—though Buffett admits he himself has never done more than drive past a wind farm. In an interview in November, Buffett told *Fortune*, “On the subject of hamburgers, I am an expert. Wind, I know less.”

Many Berkshire loyalists could say the same about the company's renewable-energy efforts. Few Wall Street analysts have focused on it, even though energy accounted for 16% of the company's operating income in 2015, up from 11% in 2013. The biggest generator of that income is PacificCorp, Berkshire's West Coast utility. But the fastest-growing portion of Berkshire's energy business is MidAmerican, which generated \$524 million in operating income in the first nine months of 2016, up \$102 million from the same period a year ago. A third of that came from wind.

President-elect Trump has called global warming a hoax and has said he doesn't want to subsidize wind power. But Berkshire Hathaway is fully committed to remaking the landscape.

As Berkshire's wind capacity has grown, so has the profile of Greg Abel, CEO of the company's energy division, adding a wrinkle to one of the biggest succession mysteries in corporate America. In 2015, Berkshire vice chairman Charlie Munger, Buffett's longtime partner, said that either Abel, 54, or a colleague, executive Ajit Jain, would make a worthy replacement for Buffett. And Abel is certainly being paid to stay. In 2015, he earned \$1 million in salary, but also collected an \$11.5 million performance bonus, and a one-time, \$28 million payment from a long-term compensation plan.

Environmentalists don't typically view Buffett as a climate hero. His utilities have been criticized for relying on coal, and at Berkshire's annual meeting last May he had to fend off a shareholder effort related to climate change. (A story on conservative website Daily Caller was headlined “Warren Buffett Tells Greenie Crusaders to Buzz Off.”)

Nevertheless, before long, Berkshire Hathaway—owner of everything from Dairy Queen Blizzards to Brooks running shoes to Benjamin Moore paint—will likely also be the largest producer of wind energy in America. In early 2016, Berkshire announced its largest project yet, a 2,000-megawatt wind complex in Iowa. Construction on the \$3.6 billion project begins next year. When it's done, Berkshire will have the capacity to produce 11,139 megawatts of green energy an hour, enough to power nearly eight Las Vegases or 24 Times Squares or 7.3 million homes, much of it by wind.

If Buffett's turbines are a potentially big boon for the environment, it's not clear they have delivered financially for Berkshire. By one analysis, Berkshire's energy business has the lowest returns of any division of the company. "Greg [Abel] has hit the ball," says one longtime Berkshire investor who declined to be named. "But he hasn't knocked the cover off it." What's more, Berkshire's renewable investments have largely been dependent on the infrastructure—transmission and generation grid—that has traditionally been used by utilities. That means Berkshire could find its energy investments on the wrong side of innovation.

Perhaps most important, a huge part of Berkshire's wind-energy play is pegged to tax credits, of which it recognized \$336 million in 2016. The government is set to phase those out over the next decade, and that may accelerate under President-elect Trump, who has called global warming a hoax and who has said he doesn't want to subsidize wind power. But Berkshire Hathaway is fully committed to remaking the landscape—figuratively in energy, and literally in Iowa.

Given where he lives—in Omaha, just across the Iowa-Nebraska border—it's not too much of a surprise that Buffett has fallen in love with wind energy. Iowa is the Saudi Arabia of wind. At the eastern edge of the Great Plains, Iowa has strong winds that sweep across its northern and western regions. The state's chief executive, Terry Branstad—currently the longest-serving governor in the U.S., with 21 years under his belt—has been pushing wind energy, and it has paid off. About 35% of Iowa's electricity will be generated by wind in 2016. Over 7,000 Iowans like Bill Nobsch are employed doing jobs like maintaining wind turbines, monitoring wind-farm systems, and making wind blades. All of Berkshire utility MidAmerican's turbines are in Iowa, and its new 2,000-megawatt facility will be the largest economic development project in the state's history.

Along the way, power in Iowa has become among the cheapest in the nation. For one kilowatt-hour (enough to power 10 household light bulbs for one hour) in Des Moines, MidAmerican charges corporate customers just under 5¢, well below the average nationwide. The result: An increasing number of electricity-hungry companies, particularly tech firms, are opening facilities in the state. Facebook, Google, and Microsoft have all opened data centers in Iowa in the past few years. "These companies are all about sustainability," says John Boyd, who consults with companies on corporate locations. "Wind power is a big reason they are moving to Iowa."



Greg Abel, head of Berkshire Hathaway Energy, atop one of the company's wind turbines in western Iowa. Abel has spearheaded the company's push into wind energy. Ryan Donnell for Fortune

Iowa is perhaps the most dramatic example of a nationwide trend. The amount of wind energy in the U.S. tripled between 2008 and 2013, while its average cost dropped by a third. Today 75 gigawatts are being produced by 49,000 wind turbines across the country, according to the American Wind Energy Association. The Department of Energy estimates wind could generate 10% of America's electricity by 2020, up from about 7% by the end of 2016. And according to research firm Bloomberg New Energy Finance, in a number of states it is now less expensive to generate electricity from wind than from either coal or natural gas.

Microsoft, which has contracts to purchase a total capacity of 500 megawatts of wind energy to power U.S. data centers, has seen costs drop steadily, says director of energy strategy Brian Janous. And analysts predict wind costs could come down even more, thanks in part to software and computing that make converting wind to electricity more efficient. The biggest cost reductions "will come from 'soft engineering,' like digitalization, connectivity, data, software, and automation of operations," says Bloomberg New Energy Finance analyst Daniel Shurey.

That said, there may be limits to how far wind power can scale up in the U.S. Few states can rely on the ample gusts that Iowa gets, for example. It's difficult to find open space for sprawling turbine farms in places where land is more expensive and population dense,

and state tax incentives matter, too. Today there are almost no wind farms in the Southeast and very few in the Northeast.

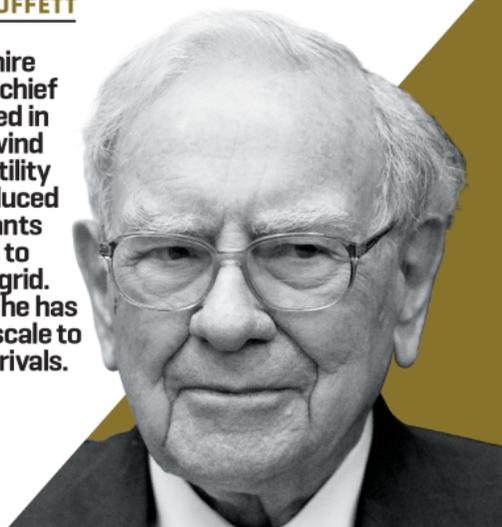
GREEN POWER'S DUELING BILLIONAIRES

Two of renewable energy's biggest backers have often wound up as adversaries.



WARREN BUFFETT

The Berkshire Hathaway chief has invested in solar and wind power at utility scale, produced at large plants connected to the power grid. Critics say he has used that scale to crowd out rivals.



ELON MUSK

The Tesla founder and solar investor favors a "distributed network" model, in which homeowners and companies generate their own energy. That threatens utility giants' revenue.



. Warren Buffett: Daniel Acker — Bloomberg/Getty Images, Elon Musk: Hector Guerrero — AFP/Getty Images

The biggest wild card in wind's future may be federal tax credits. A utility like Berkshire's MidAmerican can lower its tax liability through production credits for 10 years for each project. The federal government offers a tax credit of 2.3¢ for every kilowatt-hour produced. MidAmerican's new Iowa project alone, once finished, will generate over \$29 million a year in tax credits for Berkshire. And Berkshire can use its credits for its entire company, which made \$28 billion in operating income in 2015. Buffett freely admits that without the tax credit his desire to get into wind energy would have been greatly diminished.

The federal credit, first enacted in the 1990s and extended half a dozen times over the years, has helped trigger a long boom in wind energy. Conversely, its absence tends to make utilities and their investors nervous, and Congress's tendency to reauthorize it for as little as a year at a time just aggravates that angst.

As of now, wind credits are set to begin phasing out in 2017—similar credits for solar will do the same starting in 2019—and President-elect Trump may announce plans to speed up the process. In an interview with the *New York Times* in November, Trump said of wind-power projects, "We're subsidizing windmills all over this country [and] for the most part they don't work...I wouldn't want to subsidize it." Trump's closest energy advisers, like Carl Icahn and Harold Hamm (who each own oil companies), have been

calling for an end to subsidies. But even the elimination of the credits could give the industry some clarity—and a chance to prove whether wind can be economical on its own.

Buffett isn't the only billionaire betting on a particular future for renewable energy. And the path to that future hasn't been frictionless.

Berkshire and its subsidiary energy companies have largely focused on what the industry calls “centralized” clean energy, in both wind and solar. The idea is that utilities generate large amounts of clean power in remote, large power plants in much the same way that natural gas, coal, and nuclear power are generated today. This plays to Berkshire's other strengths: Along with the biggest utilities in Iowa and Nevada, Berkshire owns a ton of so-called power transmission assets—the lines that carry power from the plant to the user. Its wind turbines and solar farms hook right into the grid.

It's been a safe bet so far—utility solar and wind farms represent the bulk of the clean power in the U.S. But an alternative vision has been gathering momentum, and it's one backed by another billionaire—Tesla and SpaceX CEO Elon Musk. Musk has mostly favored so-called distributed networks—in which homeowners and companies put solar panels on their own rooftops, becoming their own power providers and sending excess energy back to the grid. That's a vision that plays to the strengths of Musk—a disrupter by nature, an upstart, and an energy outsider—and he has been betting on it for a while. Musk helped launch solar-panel installer SolarCity over a decade ago, and his cousins Lyndon and Peter Rive have since built the company into the largest solar installer in the U.S., with 300,000 solar customers. Tesla recently bought SolarCity for \$2.6 billion.



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Of course, clean energy isn't a zero-sum game. Solar and wind are likely to coexist, with each having advantages in different parts of the country. But the distributed-power model that Musk favors is a financial threat to utilities like the ones Berkshire owns. And Buffett and Musk have butted heads, most notably in Nevada, where Berkshire-owned NV Energy provides utility-scale solar energy and where SolarCity was previously selling solar roofs. In 2015, Nevada's public utility commission changed the favorable rates that were crucial for the rooftop solar industry in the state. Solar backers accused the commission of being in the pocket of NV Energy lobbyists, an accusation the commission denied. Buffett has argued that NV Energy generates power from utility-scale solar farms far more cheaply than rooftop solar panels can (which is true) and that nonsolar customers in Nevada were subsidizing rooftop solar customers, which SolarCity and others dispute.

Nevada isn't the only front where Musk and Buffett have come into competition. Many proponents of clean energy expect that if or when batteries get cheaper, they'll play a crucial role in clean energy, storing solar and wind power for days when the sun isn't out or the wind isn't blowing. The average wind turbine rotates fast enough to produce energy only about a third of the time, and solar cells can similarly underperform in cloudy conditions.

Musk's Tesla, which has been packaging batteries to power its cars for years, more recently started selling those batteries to utilities for the power grid and for companies and homeowners to use for storage. Working with Panasonic, Tesla is building a huge battery factory outside Reno—the Gigafactory—which eventually will be able to make 35 gigawatt-hours of batteries per year.

Buffett has made a sizable bet on energy storage as well. In 2008, MidAmerican bought 10% of Chinese electric-car and battery maker BYD for \$230 million. In 2015, BYD had revenue of \$11.3 billion, and today MidAmerican's shares are worth \$1.35 billion. BYD already has 295 megawatts of batteries plugged into the power grid globally and is currently making 11 gigawatt-hours' worth of batteries a year for both electric cars and the power grid. The company plans to boost that battery production by another four gigawatt-hours before the end of 2016.

Still, while Tesla's and BYD's batteries are already capable of storing wind or solar power, they need to be cheaper to be deployed more widely. Today they're mostly being bought for solar farms in regions where other sources of power are very expensive—on the Hawaiian island of Kauai, for example, and the island of Ta'u in American Samoa. Installing enough batteries to make most electrical grids fully reliant on wind power or even to take older natural-gas or coal plants off-line isn't cost effective yet in many regions. For now, in the clean-energy world, Buffett's follow-the-money pragmatism has the upper hand.

Berkshire Hathaway Energy has been able to tap into wind tax credits like almost no other company because of its sheer size and integration. And for that, Buffett has Greg Abel to thank.

If Abel ends up one day being the CEO of Berkshire, it will go down as one of the best “acqui-hires” in history. Abel joined Berkshire in 2000, when it acquired MidAmerican, where he was chief executive. Abel has grown Berkshire's energy division from just under \$6 billion in sales in 2003 to \$17.8 billion in annual sales, according to its most recent financial filings. While Abel doesn't quite get sole credit for coming up with the idea to launch Berkshire's wind-power operations—departed Berkshire executive David Sokol and Berkshire board member and billionaire Walter Scott Jr. also played roles—he certainly gets credit for executing the idea. Buffett praises Abel for being able to invest billions into wind energy without having to raise prices on consumers. “He never fails to deliver on anything he commits himself to,” says Buffett. “Our utility 10 or 20 years from now is going to be a whole lot bigger than it is today.”

After graduating from the University of Alberta, Abel got his start as an accountant. And he still acts like it. People who have worked with Abel say he is both mild-mannered and micro-detail-oriented. Back in 2002 Berkshire bought a pipeline from troubled energy company Enron at a bargain price. But the pipeline had been neglected and posed safety problems. Abel, then co-CEO of Berkshire's energy division, took on the pipeline-repair project himself and had it back up to code in a matter of months. “How could he not come

to our attention? I couldn't believe what he did," says Charlie Munger. "He's the best utility executive in the United States."

You always make a leap of faith when it comes to investing in Warren Buffett.—Jack Ciesielski, *Accounting Observer*

If he did rise to the top at Berkshire, Abel would offer a contrast to Buffett. Buffett has a reputation for leaving his managers alone and keeping intact the executive teams of the companies he acquires. Abel, though low-key, is said to be very hands-on in everything he does. And he has a history of jettisoning most managers at the companies that his division has acquired. When CalEnergy, his employer at the time, bought a U.K. power producer in the mid-1990s, Abel moved his family overseas to run the newly acquired division himself.

Abel, the nephew of hockey legend Sid Abel, has four kids. He won a hockey title playing on an amateur team after college, and he remains a very good golfer, with a number of holes in one, including at least one on a pro-tour-level course. Compared with Buffett, Abel is relatively private. Berkshire cooperated with this article, but Abel was willing to do only one interview. At 38 minutes, with questions still coming, Abel was out the door. When asked for a follow-up, Abel responded through a spokesperson, "What else would you have to ask?"

He's most effusive when he's talking about his energy business and its physical legacy. "When I look at the wind farms and all of these huge turbines, I'm just so proud of what our team has accomplished," says Abel. "And we've done it with passion, and we've done it without impacting our customers' rates, and we've done it knowing it's the right thing to do." On Berkshire succession, all Abel would say, with a laugh, is that if he were on a boat with Buffett and Jain and it capsized, he would try to save them both.

Buffett is 86, but there's no sign that he's going anywhere soon. That means he's around to weather criticism from some who are questioning his love affair with wind power. Berkshire devoted 37% of its capital expenditures budget to its energy division last year. That made 2015 the third year in a row that Buffett invested more in Berkshire's energy business than in any other division.

Yet at least by one measure, Berkshire's investments in its energy business are lagging. For instance, over the past three years Berkshire had an average return of 8.2% on the cash it invested in its energy business. That's certainly a respectable return, but it's lower than the 11.7% return Berkshire got on its investments in its railroad business, Burlington Northern Santa Fe (BNSF). Or the 13.4% return it got from its retailing and services businesses, including See's Candy and ice cream giant Dairy Queen. What's more, by another measure of its business—so-called free cash flow, which factors in depreciation

and interest costs on borrowing—Berkshire Hathaway Energy has lost cash every year since 2013, including \$574 million in 2015 alone.



Ryan Donnell for Fortune

“You always make a leap of faith when it comes to investing in Warren Buffett,” says Jack Ciesielski, an accounting expert and author of the *Accounting Observer* newsletter, who has recently analyzed Berkshire’s financials. “But when it comes to the energy investments, because the returns haven’t been as good as the rest of his businesses, the leap is harder to make.”

Buffett refutes the grimness of the numbers. First of all, he points out, they don’t factor in the tax credits Buffett gets from his wind business, which are significant. On top of the credits for the wind power it’s generating, Berkshire also gets long-term tax benefits from the depreciation of the billions of dollars’ worth of capital expenditures it has put into building out its wind operations.

What’s more, as Buffett points out, he’s a long-term investor, so looking at the year-to-year investment and return on a given business doesn’t make a lot of sense. He prefers to compare what he paid for businesses and the earnings they are now generating. On that score, Berkshire Hathaway Energy has been a windfall. Berkshire paid just over \$2 billion

for MidAmerican. In 2016 alone, its energy business is on track to earn around \$3 billion before taxes. BNSF, on the other hand, cost Berkshire \$34 billion, and it has brought in \$5.9 billion in earnings in the past 12 months. "It's not a great business; it's a good business," Buffett says of his utilities. "And the more money we can put in good businesses, the better I like it. Particularly when they have good management."

Either way, Buffett is moving ahead with green energy. He says that's not just because it is the right thing to do from an environmental perspective, but because, as always, he's focused on getting the biggest return for his shareholders. Berkshire has pledged to reduce coal-power generation by 76% in its Nevada utility company. The company has spent more than \$4 billion on building out its solar-power generation. And it has pledged to make its operations in Iowa 100% wind powered.

How does he look at his clean-energy bet in total? "It's a government-induced result, which I think makes sense for society and makes sense for our consumers, and it makes sense for Berkshire as an investor," says Buffett. That's a stem-winding way of saying that clean energy lets Berkshire do well while doing good. And the company seems likely to stay on that course even when Buffett is no longer at the wheel.