

Nebraska Wind A Booming Sector with Room to Grow

The Grand Prairie Wind Farm is a 400MW Wind Farm located in Holt County, Nebraska.

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Wind power is playing a leading role in the growth and diversification of Nebraska's economy, generating billions of dollars in private investment, creating thousands of good-paying jobs, and driving economic opportunity statewide. Nebraska's abundant wind energy is also providing farmers with a reliable source of revenue while generating the tax revenue and upwardly mobile career opportunities small towns and rural communities need to stay vibrant and continue growing. Wind provides the state with enough clean energy to power nearly 500,000 homes, delivering affordable electricity to households, businesses, and industrial consumers without generating any emissions or using any water.

Wind power is making a huge impact in the Cornhusker State. That's good news for Nebraska. Even better, the state has only scratched the surface of its wind energy potential.

Nebraska is a <u>national leader in wind energy potential</u>,¹ with some of the best and most abundant wind energy resources in the country. Harnessing more of Nebraska's wind power potential would further establish the state as a national wind energy powerhouse, delivering even more economic benefits, attracting new employers and new investment, and providing savings for consumers.

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Nebraska's wind power potential isn't driven solely by its access to wind resources. This positive outlook is boosted by the fact that federal, state, and local officials in Nebraska have demonstrated vision and proactive leadership when it comes to developing wind power, embracing thoughtful, pro-growth tax policy, removing regulatory barriers to wind energy development, and structuring power purchasing agreements and other details in a manner that cultivates both the generation and consumption of wind power.

Despite Nebraska's recent embrace of sound policy and its immense wind resources, the state is lagging its neighbors when it comes to wind development — and leaving considerable benefits on the table as a result. Iowa, for instance, has less productive wind resources than Nebraska. However, the Hawkeye State's early and steady commitment to wind power from both a policy and investment perspective means that <u>Iowa</u> <u>produces roughly 4.5 times more wind power than</u> <u>Nebraska</u>.²

With continued support from policymakers, investors, landowners, local communities, and other stakeholders, wind power can continue to grow, powering Nebraska's economy into the future by making the most of the state's extensive resources. This guide will provide detail on the extent of wind's direct impact on Nebraska; discuss the indirect benefits the state is realizing thanks to the emergence of the sector; and outline steps Nebraska can take to both realize these benefits today and expand them in the future, keeping pace with and even surpassing its neighbors across the Midwest.

Wind in Nebraska: The Basics

Nebraska's world-class wind resources <u>currently</u> <u>produce</u>³ 1,972 megawatts of clean, affordable powerenough electricity to power nearly 500,000 homes. The industry's output meets roughly 14 percent of Nebraska's total electricity demand, which ranks 13th in the nation.

These numbers barely scratch the surface of what's possible. According to the Department of Energy's National Renewable Energy Laboratory, Nebraska's total technical wind capacity potential is approximately <u>465,000 megawatts</u>⁴ – nearly 100 times its current output. While reaching this level of total potential capacity is more theoretical than realistic, it demonstrates how much room for growth there is.



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And Nebraska is already trending in the right direction: it's one of seven states that is on pace to double its existing wind generation capacity through projects that are either already under construction or in an advanced stage of development.

As Nebraska's wind energy output grows, so do the <u>environmental benefits</u>⁵ the state will see. By meeting more of its energy demand through wind power, Nebraska is able to rely less heavily on traditional power sources like coal and natural gas. That means less air pollution and less water consumed to generate power, delivering an improved environmental outlook for the land and water the state holds dear. In 2018 alone, the use of wind power saved Nebraska roughly 3.5 billion gallons of water – the equivalent of 26 billion bottles of water. Wind also avoided 6.4 million metric tons of carbon dioxide emissions, an outcome equal to taking 1.4 million cars off the road.

Nebraska's wind power sector is mature, robust, and in position to grow quickly. While that's an environmental boon for the state, the story of Nebraska wind is about creating a strong economy without having to make environmental sacrifices.

Powering Economic Growth

Nebraskans can feel the financial impact of wind power in their pocketbooks on a day-to-day basis — wind power is the <u>most affordable source of new</u> <u>electricity</u>⁶ in wind-rich states like Nebraska. But the economic benefits of wind go beyond utility bills. The wind industry is playing a central role in positioning Nebraska's economy for long-term growth. That means



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thousands of jobs, billions in investment, millions in tax and lease payments, and a brighter, more diverse economic outlook as the state moves into the future.

The wind energy industry directly employs over 114,000 workers nationwide — a source of more direct jobs than either coal or natural gas. In the <u>last five</u> <u>years, the country has added over 64,000⁷</u> wind jobs, and wind energy technician is currently the <u>secondfastest-growing job</u>⁸ in the country <u>according to the</u> <u>U.S. Bureau of Labor Statistics.⁹</u>

Nebraska, as an emerging national wind leader, is reaping the benefits of this growth. The Cornhusker State is currently home to up to <u>4,000 direct wind</u> <u>energy jobs</u>,¹⁰ with positions ranging from field technician to planning and compliance. These are good-paying jobs that provide workers with the salary, benefits, and stability they need to support a family and give back to the community they call home. Fast-growing wind energy technician jobs pay an average salary of close to \$55,000, according to the <u>U.S. Bureau of Labor Statistics</u>.¹¹ And because aspiring wind workers can prepare for their career at local community colleges like <u>Northeast Community</u> <u>College</u>,¹² the opportunity to learn the trade and quickly begin to make good money is difficult to match.

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The wind industry also employs veterans at a rate nearly <u>67 percent higher¹³</u> than the national average. This is good for veterans because it provides ready access to the type of high-paying jobs, opportunity, and stability that can put servicemembers on a path to a lucrative career when they return to civilian life. And as a dynamic, rapidly evolving industry, employing veterans is also good for the wind sector. Veterans develop skills that prepare them to excel when they go to work in the wind sector, from work ethic and teamwork to proficiency operating heavy machinery and working in challenging, high-stakes environments.

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Every year, the use of wind energy results in water consumption savings in Nebraska of more than 3.5 billion gallons relative to traditional electricity generation. That's the equivalent of 26 billion bottles of water.

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development activity in today's economy happens in or around urban areas, that's not the case with wind. The benefits of wind are felt most profoundly where the wind blows hardest: in the wide open, rural spaces that are too often left behind as economies evolve and diversify.

Rural Power with Rural Benefits

Nebraska today, as it has been for generations, is a state built on an agricultural foundation. But Nebraska's farmers know how challenging and unpredictable it can be to earn a living off the land. Wildly fluctuating commodity prices, unpredictable trade disputes, drought, flooding, and countless other dynamics loom over each year's harvest, and that means uncertainty not just for individual farmers, but for entire communities.

Wind is a guard against these uncertainties, providing farmers with a reliable source of income that can be counted on in good times and bad. Lease payments made to Nebraska farmers by wind developers totaled close to \$10 million in 2018 alone. This money can be used to insulate the farm¹⁵ from challenges like low prices or poor yields, and in better times, can put farmers in position to reinvest in their operation, purchasing new equipment, buying more land, adding irrigation or tiling, or making other improvements. In fact, some farmers have compared a single lease payment from a wind turbine to the equivalent of the financial boost of having an additional part-time job.

Case Study

"We'll be building three state-of-the-art science classrooms...a new middle/junior high."

Amy Shane
O'Neill Public Schools

Holt County: Wind at Work

The macroeconomic impact of these tax payments is clear — it's serious money that delivers serious impact. But the real story of wind's contributions to the state of Nebraska isn't told on the ledgers of county treasurers. The impact can be seen most readily in places like Holt County, where wind power has injected new life into a rural community, helping residents earn a living and helping children receive the world-class education they need to thrive.

Holt County — along with Antelope County — is Nebraska's leading wind energy producer. Together, these counties host nearly 1,000 megawatts of wind energy capacity, and that capacity has delivered a tremendous economic boost. Since 2014, wind energy production has infused more than \$247 million into the counties' local economies, local landowners and farmers have collected nearly \$5 million in lease payments from wind energy companies, and local schools and county governments have received nearly \$10.5 million in the nameplate capacity and property tax revenues generated from the wind farms. In the O'Neill Public School district, revenue from the Grande Prairie Wind Farm is helping to fund a \$13 million project that will upgrade the district's juniorsenior high school facilities. The project will add a new science wing, a Center for Teaching and Learning, special education rooms, a new student entrance, and junior-senior high school administration offices to the district's facilities, helping ensure that the community can educate its children the way they deserve to be educated. "We are so excited," said O'Neill Public Schools Superintendent Amy Shane. "There are so many benefits that will come from this project for both the community and the students."

These benefits — taken alongside the job creation and direct investment fueled by the Grande Prairie Wind Farm — made Holt County a better place to make a living and raise children. As Nebraska wind power grows into the future, more stories like Holt County will be told – and more communities will see their futures become even more promising.



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That's because <u>turbines don't interfere with farming</u> <u>operations</u>.¹⁶ Wind sites leave the majority of the land – 98 percent, to be exact – undisturbed, allowing the landowners who lease their property to wind developers to continue farming right up to the base of the turbine. All told, a large-scale wind turbine removes only around a quarter of an acre from production. And beyond the footprint itself, developers work closely with landowners during planning, construction, and operation to minimize the impact on irrigation systems or crops. If an issue does arise, developers are on the hook to remedy the problem. Landowners can also tailor the terms of their lease with wind farm developers, building in accommodations that apply to their operations, like provisions that ensure that crop dusters can continue to fly.

Farmers and wind developers are natural partners. Wind represents the rare opportunity to continue to reap the benefits of some of the best farmland in the nation while simultaneously producing the advanced clean energy that will power the nation's future. Wind adds to farmers' earning potential and builds a more sustainable future for the agricultural heritage Nebraskans hold dear.

Building a Vibrant Future for Nebraska's Small Towns

Beyond helping Nebraska's farmers improve their bottom line, wind power is also providing a significant economic boost to small towns across the state in the form of good-paying jobs, local investment, and badly needed tax revenue. According to the <u>Omaha World</u> <u>Herald</u>,¹⁷ "Wind energy, the fastest-growing source of "The job opportunities are endless. Being able to stay where I grew up and where my family still lives is amazing." – Sam Becker

Northeast Community College, Wind Energy Program Graduate

electricity in the U.S., is transforming low-income rural areas in ways not seen since the federal government gave land to homesteaders 150 years ago."

Facebook's \$1 billion investment in a new data center near Omaha, for example, was made possible by the company's purchase of 320 megawatts of new energy produced at the Rattlesnake Creek Wind Project.

Nebraska, like most states in the Midwest, has struggled for generations with "<u>brain drain</u>"¹⁸ — a phenomenon that sees young, college-educated workers leave the state after graduation. Recent research from the University of Nebraska at Omaha attributes the state's "brain drain," in part, to a lack of challenging, fulfilling, and high-paying jobs available to attract and retain these Nebraskans after education. Past studies ranked Nebraska 40th in "<u>advanced industries</u>"¹⁹ that rely on things like research and development, science, technology, engineering, and math.

As wind power grows in Nebraska, more opportunities in these advanced industries will emerge for young Nebraskans. In turn, fewer of these members of the community will choose to leave their small towns and rural communities that make Nebraska special, choosing instead to stay in our state to start careers, raise families, and invest in the communities they've opted to call home.

Addressing the brain drain is important because the departure of young workers creates serious strain for small towns. The challenges that emerge are diverse, but the erosion of the local tax base is among the most significant and wide-reaching of the resulting issues. As revenue and tax payments fall, the public services those payments support suffer. That means services like police and fire departments have less funding to work with. Hospitals have less opportunity to expand the care they offer. And the public schools relied upon to educate the next generation of Nebraskans face constrained budgets that impact teachers, students, and the community at large.

The tax revenue generated by wind energy developments like <u>GE's Kimball Wind Project</u>²⁰ help rural communities and schools manage decreasing budgets, providing long-term revenue streams that support government services and help children get a better education.

Non-Utility Wind Power Purchases, by Year



Note: Data include publicly announced physical and virtual power purchase agreements (PPA), direct ownership of onsite or offsite wind projects, and large-scale REC purchases associated with specific wind projects. Data is recorded at the time of announcement and does not indicate when the associated wind project is placed into operation.



Wind power generated \$8.5 million in state and local tax revenue in 2018 alone, and it's poised to bring even greater impact in the years to come as the state's generation capacity grows. This funding helps small towns confront the challenges they face head on, bringing new growth to previously eroding tax bases and delivering a revenue stream capable of changing a town's fortune.

Diversifying for the Future: Wind's Role in Attracting New Investment

Wind's impact on Nebraska isn't confined to wind farms. As the state produces more clean, affordable, reliable wind energy, it becomes a more appealing location for corporate investment on the part of companies seeking to reduce their carbon footprint while also delivering exceptional returns to their shareholders. Wind, in other words, is shaping and diversifying the future of the state's economy by attracting job creators whose very presence makes headlines.

This is because, as wind energy continues to become even more efficient, affordable, and accessible, more and more corporate and non-utility customers are choosing to power their operations with wind. It's a win-win proposition for them to do so. By using wind power, companies can both reduce their emissions and improve their bottom line, securing low-cost energy that isn't vulnerable to the price variability that comes along with fuels like coal or natural gas. It's a sensible move for corporate America, and one that carries increasing importance as shareholders insist upon sustainability at an increasing rate.



Sixty-three percent of Fortune 100 companies and 48 percent of Fortune 500 companies²¹ have goals related to emissions reduction, energy efficiency, or the use of renewable energy. A growing number of Fortune 500 companies, including industry leaders like Wal-Mart, IKEA, Google, and General Motors <u>have committed to</u> 100% renewable energy targets,²² and these companies are procuring more and more wind power to meet their sustainability goals and secure long-term electricity price stability.

For big companies, targets like these show a commitment to balancing smart economics with a sound environment. They answer to shareholders who prioritize sustainability and corporate citizenship while also demonstrating the kind of fiscal prudence that helps maximize traditional measures of return. And since Nebraska is emerging as one of the nation's most prolific wind producers, this trend has positive implications for the state.

Wind power and smart policy are already combining to strengthen and diversify Nebraska's economy.

Facebook's \$1 billion investment in a new data center near Omaha,²³ for example, was made possible by the company's purchase of 320 megawatts of new energy produced at Enel Green Power's Rattlesnake Creek Wind Project in Dixon County. Boosted by a rate structure developed by the Omaha Public Power District,²⁴ Facebook is able to power its data center with 100 percent renewable energy, putting Nebraska's wind resources to work in a big way. And while winning the business of a company of Facebook's scale speaks volumes about the trajectory of Nebraska's economy, the impact is more than rhetorical. Construction of the data center created more than 1,000 jobs, and the facility will support up to 150 permanent jobs throughout its operation.

And, as outlined recently in the <u>Omaha World Herald</u>,²⁵ Big Tech isn't the only sector choosing to power growth with Nebraska wind: "The J. M. Smucker Co., known for its jellies and jams, announced [in August 2018] that beginning in 2020, wind energy produced by the Plum Creek Wind Project in Wayne County will provide about 50% of its electricity use. [...] Hormel Foods Corp. said it plans to partner with a wind farm expected to open in Milligan next year."

Economic development is a priority for Nebraska's policymakers, and the efforts on the part of Governor Ricketts and the legislature are paying dividends. <u>Nebraska won 118 new economic development projects</u>

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in 2018,²⁶ each of which brought at least \$1 million in investment, created 20 or more new jobs, or added 20,000 square feet or more of new space. These results were enough to <u>earn Governor Ricketts the</u> <u>"Governor's Cup"</u>²⁷ for the third consecutive year — a recognition awarded to the governor whose state earns the most total economic development projects per capita.

Wind resources — paired with continued support from Governor Ricketts, the legislature, the regulatory community, and other stakeholders — put Nebraska in position to continue to win new investment, and to do so at a very high level. That means jobs, opportunity, revenue, and more for the Cornhusker state.

Working Together for a Bright Future

As this guide has outlined, the ongoing emergence of Nebraska's wind power sector has helped put the state of Nebraska on a path to a bright future. With ongoing cooperation, innovation, and investment, the industry can and will continue to expand to meet its full potential.

The current trajectory is strong, but more can always be done to ensure that Nebraska makes the most of the opportunity with which it is presented. For example, the expansion of wind power is currently limited by lagging transmission infrastructure. Upgrading transmission infrastructure via projects like the <u>Nebraska Public Power District's R-Project</u>²⁸ can better connect rural Nebraska's wind resources to cities across the state and even to buyers across state lines. Such projects would also bring economic benefits of their own, creating jobs and raising revenue throughout construction and operation.

Few states — if any — are as well-positioned to grow their wind power sector as Nebraska. With supportive, effective leadership, broad public support, and unparalleled wind resources, the key ingredients needed to power growth are all in place.

Wind is making a difference in Nebraska today, and as the industry grows, it will make an even bigger difference in Nebraska tomorrow.

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