

Caught in the Crosswinds:
Rural America could be renewable energy's nemesis—or its savior

by

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Submitted to the
Program in Comparative Media Studies/Writing
in Partial Fulfillment of the Requirements for the Degree of

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ABSTRACT

Fighting climate change will require a fundamental shift away from the fossil fuels that still provide most of America's electricity. In most states, county and local boards have to approve renewable energy projects. But despite the local economic benefits that renewable energy projects can bring, communities around the country have started saying no to wind and solar farms. Political leanings alone do not explain opposition to renewable energy projects, as most wind farms have been built in rural, red areas.

My mom's family is from Logan County, Illinois—a conservative area with some of the most wind turbines in the state. A few miles down the road, officials in another Republican farming area, Christian County, have effectively banned any wind farms from being built. Looking at why residents and officials in these central Illinois counties took drastically different stances toward wind can shed light on the locally-driven economic, social, and regulatory factors that will determine the future of U.S. renewable energy.

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I. The wave of the future

While visiting her hometown in central Illinois, my mother would usually ferry my grandfather around to visit neighbors and go out to eat at the Elks Club. On a late summer day in 2008, she found herself doing something different: trespassing in a cornfield to marvel at a 262-foot-tall wind turbine.

That morning, my 87-year-old grandfather told her he wanted to go look at the new wind farm being built thirty minutes to the north. They got in his Lexus and drove to the county seat of Lincoln, a 15,000-person town named for the president who had once practiced law there, before heading northwest on an unwaveringly straight country road.

While my mom had heard about the massive wind farms out in far-off places like the California desert, no one in her family had seen one up close. Cruising past square tracts of corn and soybean fields, they could see the turbines, brilliant white against the otherwise unbroken prairie sky, from miles away. As they approached the first one, they spotted a gravel road heading into a cornfield. My grandfather, a lawyer with a flexible interpretation of trespassing as it applied to his comings and goings, told my mom to drive up to the base. After stopping the car and getting out, my family stood in silence staring up at it. "I was just awed by it, frankly," my mom recalled. "It was so large." On the way home, my grandfather kept repeating that this was the "wave of the future."

At the time, my grandfather was in the process of signing a lease with a renewable energy company that was hoping to put a couple of turbines on farmland he owned in a neighboring county. A stalwart Republican, my grandfather was not interested in wind farms for environmental reasons. Rather, he thought they could bring in tax revenue and extra income for landowners in cash-strapped Logan County, the farming community of just under 30,000 people where he lived for almost 90 years.

My grandfather was not the only one with that mindset. Logan County now has more than 175 turbines, each of which generates roughly enough electricity to power more than 460 homes. Collectively, these wind farms span 29,000 acres and have brought in more than \$5.5 million in taxes since 2003, positioning Logan County as a leader in wind energy development in Illinois. In addition to the four wind farms that already exist, a 68-turbine project is slated to be built next year. This spring, the developer of that new wind farm reached out to my family about putting a turbine on our farmland in the northeastern corner of the county.

Meanwhile, eight miles south in Christian County—another farming region almost identical in population, income, and political leanings—wind energy has taken a markedly different path. For over a decade, developers have sought county approval for two separate wind farms. But, despite estimates that these projects would bring in \$140 million in local taxes, the wind farms ultimately

failed.

The fate of U.S. climate policy hinges in part on understanding why the pendulum swings in favor of wind energy in some counties and against it in nearly indistinguishable neighboring areas. Limiting the widespread ecosystem collapse, food and resource scarcities, and extreme weather disasters endemic to rising global temperatures requires a fundamental shift away from the fossil fuels that still provide most of our electricity. President Joe Biden even campaigned on a promise to achieve net-zero energy in the U.S. by "no later" than 2050.

But getting there will require building up to 100,000 Megawatts of new renewables — the equivalent of 45,000 turbines—each year for decades to come, according to a [Princeton study](#) out last year. Even with a nationwide [push for offshore wind](#) and solar, energy analysts expect that land-based wind will remain our country's largest source of renewable power for the foreseeable future.

To build all these wind farms, communities across the country need to say yes to turbines going up in their backyards, and while political views and support for climate action intuitively seem like key factors in determining wind energy acceptance, experts say they're not. In fact, most wind farms have been built in rural, [red areas where climate denialism tends to be higher](#).

Decisions about wind development generally fall on the shoulders of county boards and local governments, which means that the future of onshore wind energy, and how well the U.S. will be able to harness this energy resource to mitigate climate change, comes down to a small number of key players in counties and towns throughout the country. Looking at why residents and officials in Republican-dominated Logan and Christian counties took drastically different stances toward wind can shed light on the locally-driven economic, social, and regulatory factors that will determine the future of U.S. renewable energy.

II. America's fitful flirtation with renewables

Midwesterners have harnessed the kinetic energy of prairie wind for centuries. But they've done so in fits and bursts, mirroring America's on-again, off-again relationship with renewable power.

In the 1850s, Vermont engineer Daniel Halladay brought his "self-governing" wind pump—so named because it had a tail vane that turned the machine to face the direction of the wind and could pitch its blades to slow itself down if the wind was blowing too fast—to Illinois. Farmers and ranchers bought Halladay's invention to pump water for livestock and crops. The many-bladed spindly metal derricks soon became a homestead fixture.

The Midwestern windmill's halcyon days were, however, relatively short-lived. The "death knell" for windmills, in the words of central Illinois historian Bill Kemp, was the 1936 Rural Electrification

Act. That act required the federal government to provide cheap power line loans to farmers who banded together to form electricity cooperatives. With electric pumps, farmers could now move water on-demand, and their windmills were soon repurposed as television antennas or left to fall apart.

American wind energy waned until, forty years later, OPEC embargoed oil going to the U.S. and other countries that supported Israel during the Yom Kippur War. This led to widespread gas shortages, which, coupled with the nascent environmental movement, turned Americans toward wind once more. President Carter called on his country to cut its foreign oil habit and meet the energy crisis head-on through conservation and homegrown energy production. The federal government began investing in renewable energy research and development, but utility companies, which had long-monopolized both the generation and sale of electricity, weren't losing their turf without a fight.

Electric companies make their money through a guaranteed return on large infrastructure investments, providing incentive to build big power plants that ran on fossil fuels. They've historically been resistant to smaller, and less predictable, renewable power—especially when customers generate it on their own and, in essence, run the meter back. In 1978, federal lawmakers passed a law requiring utility companies to buy electricity from smaller, independent renewable energy producers as long as that electricity was cheaper than building new power plants.

That law, plus new tax credits, ushered in something of a wind energy bonanza as developers constructed thousands of wind turbines in the California desert in the 1980s. Because those early tax credits were based on how many turbines were installed (not how much energy they actually produced, like today), these early wind farms were plagued with issues. The U.S. wind energy industry had barely made it out of the starting gate when President Reagan came into office, slashed research and development funding for renewables, and allowed the developer tax credit to expire in 1985.

The renewables sector stalled until two decades later, when, in an “if you build it, they will come” spirit, Texas regulators constructed 464 miles of high-speed transmission lines to encourage developers to put turbines in the western part of the state. And come they did. Texas now has over 30 Gigawatts of turbines installed, providing a fifth of the state's electricity. That's enough power to light up Houston, San Antonio, Dallas, Austin, Fort Worth, and El Paso.

No small feat

As would surprise no one who has seen a tumbleweed move across a Kansas road, or felt the bitterly cold wind whipping across the North Dakotan plains, the Great Plains stretching from Texas up to the Dakotas is the windiest part of the country. Illinois, however, sits in the foothills of the wind belt, with average wind speeds clocking in at 15.5 miles per hour—about 5 mph slower than in its windier western counterparts.

But Illinois had something that South Dakota and Nebraska didn't: Chicago. "You didn't have to transport the electricity too far until you've got a major consumer of electricity," said David Loomis, an economist at Illinois State University and one of the state's foremost renewable energy researchers. "And then from Chicago, there were big transmission lines tied towards the East."

Wind didn't really take off in Illinois until lawmakers passed an energy standard in 2007 requiring that a quarter of the state's electricity come from renewable sources. "That was a huge catalyst," said Loomis, "because that confirmed that there was going to be a market for the wind energy to be sold." Now, there are over 3,000 wind turbines in the state generating over 17 billion kilowatt hours of electricity a year—enough to power 1.6 million homes.

Building a wind farm is no small feat. First, you need a place with adequate wind and transmission line access, which isn't easy because the windiest parts of the country are, by and large, rural areas with few electricity users. (A wind farm also can't be in an ecologically sensitive area—no "stopover habitat for whooping cranes," in the words of one developer). Once a developer has found a good site, they'll start knocking on doors and hosting events to convince locals to sign turbine leases.

When enough landowners sign on, an energy company applies for local permits. Finally, they need to find someone to buy electricity from the wind farm. With the onslaught of companies looking to go green, that's now one of the easiest parts of the whole process, said Tom Swierczewski, a senior development director at Enel Green Power who has decades of experience building wind farms in the Midwest.

Wind energy, as developers are quick to point out in glossy online "factsheets," also goes well with farming. Agriculture is notoriously tough to make a living at, with farmers at the mercy of both weather and international commodity markets. Wind turbine leases can provide a stable income source—in some cases enough to convince the next generation of farmers to stay the course—while taking little land (usually, less than two acres) out of production. Lease payments vary widely, but each turbine brings, on average, \$7,500 a year, with some leases going as high as \$20,000 annually. (In comparison, a single acre of corn cost central Illinois farmers \$4 on average last year before subsidies.)

Wind farms also generate large permitting fees and property taxes for local governments. In Michigan, wind farms increase a community's property tax base anywhere from 15 to 400 percent, according to Sarah Mills, a senior project manager who researches renewable energy policy at the University of Michigan's Ford School of Public Policy. "You cannot believe what a big impact it makes," she said.

Despite these local economic benefits, there's growing resistance to wind. At first, researchers thought this pushback was a result of NIMBYism—people liking renewable energy in theory but not

when a 280-foot turbine goes up in their neighborhood. That argument might make sense in liberal bastions like Massachusetts and Vermont, where many of wind's staunchest opponents are self-described environmentalists, but sociologists point out that it doesn't hold water in the conservative rural Midwest and Great Plains where people are "generally ambivalent about [renewable energy] as a land use," Mills said.

Developers and academics alike are trying to understand the factors that make rural communities support or oppose wind. With a lot of the "low-hanging fruit" sites—that is, windy places that are relatively close to transmission lines but not in densely populated areas—already developed, energy companies are putting turbines closer to people's homes. At the same time, certain towns, counties and even whole states, like Ohio and Wisconsin, are now viewed as anti-wind. "We're starting to see communities get frustrated to the point that they're not allowing projects to go forward," said Doug Bessette, a geographer at Michigan State University who studies community energy development.

III. Christian County: We got beat

In 2008, a Kansas-based renewables developer called TradeWind Energy held a press conference at a farm outside Pana, Illinois—a small city in Christian County, which sits just south of the center of Illinois. TradeWind reps had already signed a lease with the farm owners to build a 180-foot meteorological tower on their land. That day, they were hoping to drum up support to sign leases for Rolling Farms: a proposed 100-turbine farm positioned on 14,000 acres of nearby farmland. "This came right out of the blue, and we're excited about it," Steven Snipes, the then mayor of Pana told a local reporter from the *Herald & Review*. "With the price of oil being what it is, Rolling Farms looks like a win-win situation to me."

Christian County sits about 40 miles south of where my mom saw her first turbine. From the late 1800s to the 1950s, dozens of coal mines in the county employed well over a thousand workers. The last operating mine, located just south of Pana, closed in 1994. The county is still home to a coal-fired power plant that's scheduled to close in the next five years, laying off an estimated 115 workers. (The closing was, in part, catalyzed by stricter air pollution standards.)

Farming remains a key industry in Christian County and the rest of central Illinois. The county is home to 794 farms, with over 400,000 acres of land in corn, soybeans and other crops. "We've been able to sustain ourselves as a county, but we still struggle with loss of population," said long-time resident and retired Illinois EPA official Dick Breckenridge. "This census is not going to treat us well."

For the five years after that press conference, Rolling Farms progressed nicely, as the developer held public meetings and signed on landowners. But in 2013, the U.S. renewables industry hit a recession, partially due to the expiration of a federal tax credit that gave developers corporate tax breaks for

every unit of electricity their renewable projects produced. TradeWinds sidelined the project for a few years, relaunching it with a land leasing campaign in 2018. They opened an office between a Sherwin-Williams and a hair salon in a low-slung vinyl-sided building in Taylorville, the 11,000-person centrally located county seat.

In a [2019 promo video](#), A.J. Wiss, head of planning and zoning for Pana, refers to Rolling Farms as an economic boon for Christian County. “We worry about teachers’ pensions—if we’re forced to come up with that on our own, good golly, the property taxes will be sky-high,” Wiss said. “With the wind energy lowering the taxes and generating the funds for the schools, we can do it without tears in our eyes.”

Rolling Farms and another wind project were expected to bring in over \$97 million in tax revenue for local schools over the next three decades. The projects would also bring 76 long-term jobs and over \$30 million for roads and other local projects, according to an economic analysis by Loomis, the Illinois State University economist.

TradeWinds was bought by the Italian renewable energy company Enel Green Power in March of 2019, and by that time, they had secured signed leases for thousands of acres, convincing farmers to sign on by paying them about \$20,000 annually per turbine and by carefully tailoring their message to their clientele. “We’re not partnering with Greenpeace or the Sierra Club,” said Tom Swierczewski, a Rolling Farms developer who has worked on wind projects in the Midwest since 2006. “We talk about rural economic development benefits.”

Swierczewski, who looks like a blazer-clad defensive line coach, was confident he’d have no trouble finding someone to buy the electricity with the deluge of big companies looking to go green. But then Enel, like many developers who are trying to build wind farms in the U.S., hit a major snag in the permitting process: an anti-wind group.

By spring of 2019, a loose group of Christian County residents began regularly showing up to county board meetings, questioning the “quick pace” of the approval process for the wind farms. Some, like Pana resident Jean Vandenberg, raised concerns at a meeting that May about largely unproven health and environmental impacts from the turbines. (She did not bring up the large body of scientific research showing that living near coal plants, which provide a quarter of Illinois’ electricity, is directly linked to a range of health conditions, including heart and lung diseases.)

Others, like Len Corzine, a fifth-generation corn farmer and past president of the National Grain Growers Association, expressed concerns that turbines would stymie future residential and business development, and interfere with tractors and other GPS-guided farm equipment. “Christian County is the best land there is to produce food and fiber for society,” he said. “Why would we want to mess that up?”

The concerned citizens coalesced into Protect Christian County, LLC. The front page of the group's website has "Protect health, safety, property rights and property value" emblazoned across a photo of a meadow of milkweed and Black-eyed Susans. A turbine-free stormy sky hangs overhead. The group hired Phillip Luetkehans, a Chicago lawyer who helped impeach former Illinois governor Rod Blagojevich. Luetkehans filed for a six-month halt on wind power development proceedings in fall of 2019 on the grounds that the county needed more time to evaluate the proposed projects.

Americans generally don't mind living near wind farms—one national survey from the Lawrence Berkeley National Laboratory in California found that neighbors with a positive view of turbines outnumber critics seven to one. But that survey and similar others only cover areas where there's enough community support for wind farms to actually get built. They don't consider how people feel in areas where wind projects fail.

Protect Christian County isn't the only anti-wind organization. National Wind Watch, a coalition that's "working to save rural and wild places from heedless industrial wind energy development," according to their website, lists over 250 U.S. groups among its members. In Wisconsin, where wind development has had a particularly tough time, one county deemed turbines a public health risk. Joshua Fergen, a sociologist who studies renewable energy in rural areas at the University of Minnesota-Duluth, said that opposition to wind projects often doesn't arise organically in local communities. "There is a coordinated online network of astroturf campaigns explicitly designed to undermine local wind proposals," he said, though it's unclear who backs these groups.

Oil and gas titans like [ExxonMobil](#) have poured millions into climate denialism. Fossil fuel companies and utilities alike have also [lobbied against renewable energy mandates](#) and individual projects, including a [failed 2,000-megawatt development in Texas](#) that would have been the country's largest wind farm. Fergen said it's suspected, although hard to prove because of the anonymity of campaign donations, that conservative groups have provided indirect financial backing to the anti-wind misinformation network. National Wind Watch leader Tom Stacy has, for example, [consulted for the Institute for Energy Research](#), a fossil fuel-funded think tank.

Regardless of how they're supported, opposition groups throughout the country fight against wind projects using similar criticisms. Some are valid—[turbines do kill nearby birds](#) and other wildlife, and have reduced property values in some areas, though research doesn't show this as a large-scale trend. Other criticisms, like health impacts of wind farms, have little evidence backing them up.

People living near wind farms have pointed to turbines as the culprit for more than 240 negative health effects, ranging from lung cancer to hemorrhoids, said Simon Chapman, an emeritus professor of public health at the University of Sydney who studies what he calls "low-risk, high-anxiety" issues.

In 2009, Nina Pierpont, a pediatrician who also holds a Ph.D. in population biology, coined the term “wind turbine syndrome” after moving to upstate New York and hearing complaints from neighbors about mysterious health effects that had supposedly started when a wind farm was built nearby. Turbines do make some noise as their blades turn, but her theory, which she lays out in an eponymous, self-published book, was that low-frequency sound waves, called “infrasound,” from turbines can wreak havoc on the inner ear and throw the body’s balancing system out of whack, spawning a vast array of health problems.

Scientists immediately pointed out that lots of things produce infrasound—ocean waves, heartbeats and storms, to name a few, and that infrasound levels near turbines are comparable to those found in cities and along the coast. Pierpont isn’t a medical researcher and her book wasn’t peer-reviewed — twenty separate peer-reviewed studies and health department reviews found no conclusive evidence that turbines make people sick, and Chapman said that wind turbine syndrome complaints come almost exclusively from people in English-speaking countries. If turbines affected health on a wide scale, cases would pop up around the world. The book still gained traction among wind opponents.

Chapman is quick to note that people living by turbines who complain of headaches or sleeplessness aren’t making up those symptoms. Just like taking a sugar pill that you’re told will reduce stress can actually make you feel less stressed, being told that standing in front of a microwave might give you a headache can, indeed, bring about a headache. (Additionally, some turbines are outfitted with large blinking red lights that are genuinely annoying to look at.)

In 2012, a team of New Zealand psychologists investigated this “nocebo” effect by dividing a group of 60 undergrad volunteers in half and showing each a different video: one with TV reporters talking about the negative health effects of turbines and infrasound, the other highlighting purportedly therapeutic benefits of infrasound. After watching the video, volunteers listened to seven minutes of noise and infrasound from turbines. Three-quarters of those who had watched the negative footage said they felt worse than when they walked into the study, while almost all who watched the positive footage said they felt better.

Researchers have also found that whether people are receiving financial compensation from wind developers can predict whether allegations about health issues will arise, and that some symptoms, like sleeplessness, spread as people talk about them on social media, at public meetings or in the press. (This has why Chapman and others to refer to wind turbine syndrome as a “communicated disease.”) The nocebo effect combined with the fact that there isn’t a clear test to definitively *prove* that turbines are safe — there’s just no reliable evidence showing they aren’t — makes it hard to counter these claims once they take root.

Dick Breckenridge, a big supporter of wind farms who lives in Christian County, saw how these health arguments quickly turned a wind-supporting community in the opposite direction, setting the

tone for development in that area ever since. Breckenridge, who researched the environmental impacts of turbines when he worked at the Illinois EPA in the early 2000s, was thrilled when he learned that developers wanted to construct wind farms in his county. He and his wife even signed a lease for two turbines to go up on 80 acres of farmland they own in Assumption, a 1,168-person town on the eastern edge of the county. If the turbines were installed, the Breckenridges would get around \$40,000 a year for forty years. “All the sudden, my wife and I were talking about creating this trust for our granddaughters,” he recalled.

Then came Ted Hartke. At a Christian County board meeting in April of 2019, Hartke, an engineer from eastern Illinois, gave a presentation about what had happened to his family after a wind farm moved in next door. His daughter started wearing headphones because she said the harmonics from the turbines prevented her from studying. Hartke and his wife couldn’t sleep, and eventually sold their dream home for far less than it was worth just to get some peace. By the end, Hartke, who has given this presentation at wind farm meetings around the state, brought some attendees to tears, according to Breckenridge. “Boy, if we had any positive movement toward a wind farm, we took five steps back that night,” he said.

Motivated by fear of wind turbine syndrome and disruption to both farming and farmland, Protect Christian County filed a motion in 2020 to amend the county’s wind siting ordinances so that turbines had to be significantly further back from buildings. That change would reduce the amount of development-eligible land so much that neither of the proposed wind farms would be financially viable.

Steven Snipes, the former Pana mayor who sang the project’s praises over a decade ago, was (and still is) on the county zoning board of appeals back when Protect Christian County requested the ordinance change. He said that the board tried to go in with an open mind, but ultimately, they wanted to protect residents above all else. “The wind farm companies couldn’t seem to disprove the health issues that are possible to the younger people,” he said, adding that skepticism over whether the wind farm would sufficiently increase tax revenue factored in, too.

The Rolling Farms developers tried to counter claims raised by project opponents, but Swierczewski conceded that their heart wasn’t in it. Enel did a cost-benefit analysis, and decided they hadn’t invested enough into the wind farm to warrant funding a full-on public relations campaign to try to salvage it. “Simply put, we got beat,” Swierczewski said.

Wind farm opponents in Christian County, some of whom were prominent community members, relied on emotional testimony and fear-mongering to sow doubt about the projects. They focused on getting the board to set impossibly strict standards under the guise that doing so would “more adequately protect public health, safety, and welfare of residents and property owners in the county,” according to their website. Ultimately, these arguments turned ambivalent county officials against the projects. Forty-five miles to the north, a different story played out.

IV. Logan County: An uphill battle

During the bitterly cold January of 2015, a wind farm proposed for a Logan County town ten miles southwest from my grandfather's land looked like it, too, would not make it off the drawing board. Although one wind farm had already been built in the northern part of the county, this new project, in a more populated area, faced a well-organized local opposition group, and the county board had just voted down the developer's permit application.

Less than five years later, Enel Green Power, who took over project development, had not only built that 7,500-acre wind farm called HillTopper, but was breaking ground on a 24-turbine expansion next door. Tom Martin, a sixth-generation central Illinois farmer, told a local reporter in 2019 that the wind farm had proven to be a "terrific neighbor," adding that he hadn't heard "one iota of opposition" to the newer project. And if anyone were to hear an iota of opposition to wind development in Logan County, it would have been Martin. That's because he led the campaign against the HillTopper wind farm just a few years prior.

Martin lives two miles south of the 1,500-person town of Mount Pulaski in the 1918 Sears and Roebuck mail-order bungalow where his father was born. He's been grain farming since 1982, and now grows 3,000 acres of corn, soybeans, wheat, hay, and straw. "Where we live, the land, the skyline, and sunsets and sunrises, you kind of consider yours," he said. "That horizon is something I've lived with my whole life, and I love that."

Around 2012, representatives from the Italian renewable energy company Relight asked Martin's neighbors if they'd be interested in putting turbines on their land. A couple of years later, Relight had expanded the wind farm to 80 turbines and came knocking on the Martins' door.

Relight offered the Martins thousands of dollars a year for each turbine on their farm. But Martin, no stranger to business dealings as a lifelong farmer and chair of the local economic development board, had difficulty navigating the contract. He felt especially skittish about how open-ended it was, allowing Relight to install cables, weather stations, and overhead lines on his family's land without any additional compensation. The Martins brought in their two children, who would eventually inherit the farmland, and in the end, they all voted no. "We had worked and bought this property," Martin said. "It was our ground, and I was not going to sign over all of my rights."

The Martins weren't alone in their skepticism. A growing number of people who lived within the wind farm's footprint but didn't own enough land to host a turbine started voicing concerns. Some were worried about supposed health impacts, while others said the turbines would disrupt their bucolic views and diminish property values. Many of the opponents were younger families who had

moved out of cities and suburbs to buy their dream homes on five-acre patches of countryside. “They had no opportunity to participate in the wind farm,” Martin said, “but they were gonna be surrounded by these towers.”

Not everyone shared the Martins’ qualms about the wind farm. Many who signed leases were absentee landowners — that is, they owned farmland in Logan County and were happy to collect turbine income without having to live by them. Close to half the farmland in the Midwest is rented out according to USDA data, with over 80% of that rented land owned by people who, like my mother, have no experience farming, [reports Investigate Midwest](#). With turbine leases restricted to those who own significant amounts of land, wind farms can “actually exacerbate some of these inequalities,” said Joshua Fergen, the University of Minnesota Duluth researcher.

A loose group of about 150 Logan County residents who opposed the wind farm began meeting regularly to figure out how to fight the project. Martin, who was heading up an effort to restore the town’s historic courthouse at the time, agreed to lead the group on one condition: that the fight didn’t pit neighbor against neighbor.

Just like in Christian County, the fight over the Mount Pulaski wind farm played out in front of county officials. But Relight had a sharp advantage in Logan County — a wind farm was already there. By the time landowners were considering signing Relight leases, the smattering of turbines that my family had gawked at in northern Logan County five years prior had blossomed into a 67-turbine farm that was pumping energy to power 34,000 homes and over a million dollars annually to nearby landowners.

Still, when it came time to vote in January of 2015, county board officials voted the project down in a tie. Jan Schumacher, then a communications coordinator for a senior home chain, was a board member who voted against the project. She has a theory as to why the wind farm in the northern part of the county was less controversial than the Mount Pulaski project — it was built in a less historic, less scenic area.

That speculation tracks with recent research looking at community acceptance of turbines in Michigan. Dr. Sarah Mills, the University of Michigan energy policy researcher, began noticing that wind development seemed to be more contentious in parts of Michigan with more lakes and vacation homes. She began suspecting that whether people supported wind farms in their community depended on why they lived there. Mills and a colleague recently tested this by surveying wind developers about pushback on projects they had built throughout the Midwest. They found that projects in less scenic areas with larger farms were less controversial. “(If) people are seeing value in that land for their ability to make money off the property, then wind is seen as just another way for that land to be productive,” Mills said.

Schumacher actually likes the way wind turbines look, finding the rhythmic turning of the blades soothing. But it was clear that not everyone living by turbines felt that way. Before the vote, a man who lived by a wind farm in the northern part of the state told Schumacher that his family had developed health issues after the turbines were built. Schumacher was concerned that a phenomenon called “shadow flicker,” which is when sunlight passing through the turning blades creates a moving shadow, could impact residents with autism or other sensitivity conditions. The wind companies seemed dismissive of those concerns. “I’m in favor of renewable energy, so I was trying to support [the wind farm] in that respect,” Schumacher said. “But on the other hand, I didn’t want to hurt the residents in the community.”

Shortly after the vote, a board member who supported the project asked Schumacher if she would talk with the developer about a revised proposal. She agreed. The developer said they would decrease turbine height and increase setbacks from nearby properties, but what caught Schumacher’s eye was a property value guarantee. If someone living close to the proposed farm started having trouble sleeping or other health effects that made them want to move, the developer would buy their home for market value. This promise allayed Schumacher’s concerns that an unhappy resident might feel trapped in a home next to a turbine.

To sweeten the deal for community members who didn’t own enough land to host a turbine, the developer also agreed to set aside money above and beyond the local property tax revenue to fund a local high school renovation and other improvement projects. Those changes convinced Schumacher and another board member that the wind farm was a net gain for Logan County, and, despite continued local resistance, they switched their votes to approve the project in summer of 2015.

In 2018, Enel finished building the 71-turbine farm. Electricity from the project goes to General Motors, Bloomberg, and 340 Starbucks locations across Illinois. The following year, after a much less contentious permitting process, Enel tacked on an additional 24 turbines.

When I asked Martin whether he saw the wind farms differently now that they’re built, he emphatically said that he does not like living among them, and that the construction caused drainage issues in his fields. Despite that, he feels the developer has been a good neighbor. Each year, Enel donates over \$100,000 to the local economic development board and \$25,000 to restore Martin’s beloved courthouse. Logan County residents have also put some of the wind money toward opening “Market on the Hill,” a food cooperative that sells sandwiches, coffee, fresh produce from nearby farmers, and even wine from a local vineyard.

Enel’s success also paved the way for more renewable energy projects in both wind and, more recently, solar. Logan’s first solar project—a 70-megawatt farm proposed for the central part of the county—gained approval last spring. Martin is ok with these changes, in part because the HillTopper

wind farm set a precedent that energy initiatives should involve, and benefit, the people who live there.

“They are trying to back up what they’d said they’d do,” Martin said, “which is come in and make my home and my community a better place.”

V. A stake in the outcome

Logan and Christian counties are both Republican farming counties with slowly declining populations of about 30,000 people. Both also have had wind farms proposed within their borders in the past decade, with significant tax revenues and landowner payments attached. And yet, Logan County has had substantial renewable energy development, while Christian County has all but banned wind farms from going up within its bounds.

In Christian County, opposition groups successfully used specious claims backed by emotional testimony to sow doubt about the wind farms, using the local permitting process to drive developers away. Officials there ultimately found concerns about health and quality of life impacts from living near turbines to be more persuasive than potential local economic benefits.

Some Logan County officials, meanwhile, were on board with wind from the beginning—gungho enough to talk two skeptical board members who had initially opposed the county’s most controversial wind farm into supporting the project—and the developer compensated not just landowners, but the community at large.

Communities seeing tangible benefits from wind farms makes a big difference in wind acceptance, experts say, and developers are increasingly looking to compensate non-participating wind farm neighbors. Whether community members believe the project review process was fair and that their voices were heard is “the largest predictor of their attitude toward the project,” said Ben Hoen, a research scientist from California’s Lawrence Berkeley National Laboratory who studies renewable energy policy and acceptance levels. “They need to feel like they have a stake in the outcome.”

National climate organizations like the Sunrise Movement have put significant effort into electing pro-climate national officials, but who sits on county (and in some states, town) boards has huge effects on whether renewable energy projects are actually built. Both Logan and Christian counties had well-organized opposition groups and Republican-dominated boards, but individual board members determined the fate of the projects.

To sidestep the messiness of community approval, some developers have pushed for statewide siting standards. Experts caution, however, that such a heavy-handed approach could backfire, especially in conservative, “small government” parts of the country. Instead, communities should be encouraged

to set their own standards before renewable energy developers come in, said Sarah Mills, the University of Michigan public policy researcher. “If a county sets a pro-solar ordinance, that’s a really good map [of] where the solar developer should be going,” she added.

But the most radical way to gain local buy-in might be for the wind (or solar) farm to be owned by the community where it's built. There are some clear economy of scale challenges with that approach—the average wind turbine now costs \$3.5 million to construct. Some experts like Fergen say that smaller-scale, cooperatively-owned turbines, like ones found in Scotland and Denmark, could upend the view that wind farms, which are often owned by international companies, are unwelcome incursions on rural areas.

There may soon be some financial incentive for the U.S. move in that direction in the near future. The Biden administration is considering overhauling the production tax credit, which is currently only accessible for businesses with high tax bills to offset, so refunds could be more widely available for community-owned projects, said Hoen.

One thing is clear: We’re running out of time to figure out how to get communities to buy into renewables. Researchers and developers say that opposition to wind in the Midwest has grown so intense that renewable energy companies are pivoting to solar. That’s a problem because meeting our aggressive climate commitments requires more wind farms in the middle of the country—offshore wind and solar have a lot of potential for growth, but they can't get the U.S. to zero net energy alone, and similar opposition groups are cropping up in pockets across the country. Some northeastern communities, for example, are [fighting large solar development](#), citing everything from loss of farmland to aesthetic concerns that mirror those of wind opponents. This resistance could also jeopardize plans to extend the U.S.'s network of transmission lines to move renewable energy from farm fields and deserts to cities.

Back in central Illinois, the wind farm that my family signed a lease for over a decade ago is being built this year. My grandfather is no longer around to see the turbines finally go up. My mom, my sister and I are deciding whether to sign a separate lease with the developer of a new Logan County wind farm that could be built next year. We’d get more than \$20,000 of additional annual income, and we all live almost 1,000 miles away from the wind farm, so the aesthetic impact of the turbines doesn’t affect us directly.

One summer night a few years ago, I drove by a wind farm near my grandmother’s house. The turbines were close together, with large red lights blinking like ships out at sea. I stared at a ranch house in the middle of the farm, wondering what its inhabitants thought about the turbines. How visible were the blinking lights from their living room? Had they fought with their neighbors about the wind farm? Were payments from the wind company giving them the freedom to stay where they were or trapping them there?

Living near wind turbines is undoubtedly healthier than living near oil refineries or coal-fired power plants, the fallout of which is disproportionately borne by Black and other minority communities. But renewable energy projects undoubtedly change rural areas, and replacing fossil fuels with cleaner power hinges on figuring out how to dispel falsehoods about renewable energy without dismissing genuine concerns. County and town officials are key players in this transition, and while they can be swayed by vociferous anti-wind opponents to vote down projects, they're less likely to do so if development deals are structured in a way that benefits the community as a whole. To reach our national climate change goals, rural community members beyond just large landowners need to feel excited about, rather than begrudge, a wind farm going in next door.

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