

INNOVATION ISSUE

ENERGY SOLAR



At least 15 Indiana solar farms of 1,000 acres or more are slated to go online by 2024, with several more in various stages of development. (Photo courtesy of Adobe Stock)

Indiana riding a wave of solar

But can it keep up the pace?

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It's planting season, and all around the Indiana countryside, the land is being readied for the hottest new crop. It's not a new strain of corn or soybean, but thousands of acres of solar panels in almost every direction.

On a rolling, rocky stretch of farmland in Clinton County, north of Frankfort, bulldozers are smoothing the earth for a new, 1,800-acre solar farm for utility AES Indiana that could provide enough electricity to power more than 30,000 homes.

In Randolph County, east of Muncie, workers from EDP Renewables LLC completed the construction of a 1,400-acre solar farm in January and are getting ready to sell the electricity under a 20-year power purchase agreement to Hoosier Energy Cooperative for communities in Indiana and Illinois.

And in northwest Indiana, engineers are developing plans to install panels across a whopping 13,000 acres on a \$1.5 billion project straddling Starke and Pulaski counties.

The huge project, aptly named Mammoth Solar, will generate enough electricity to power 70,000 homes. Developer Doral Renewables of Israel will sell the power under a long-term agreement to American Electric Power in Columbus, Ohio.

In all, at least 15 Indiana solar farms of 1,000 acres or more are slated to go online by 2024, with several more in various stages of development.

Many rural landowners are rolling out the welcome mat, attracted by the promise

of rich, long-term leases that sometimes pay five times an acre what they get from farmers. Cash-strapped communities, too, are finding a new way to boost their property tax base and pay for road-paving or fire departments.

Indiana is riding a wave of solar energy, due to surging demand from customers and falling prices for solar panels. And it's just getting started.

Over the next five years, Indiana is expected to install 6.7 gigawatts of solar capacity, enough to power more than 5 million houses.

And that would catapult Indiana to fourth place in the nation for solar growth—behind only Texas, California and Florida, according to the Solar Energy Industries Association, based on publicly announced projects.

"Indiana was very near the bottom not that long ago, with less than a half a percent of

our whole generation portfolio from solar,” said Steve Eberly, executive director of Hoosiers for Renewables, a statewide advocacy organization. “Things are certainly changing.”

By the end of 2021, that figure had nearly doubled to 0.92%—still modest, but the beginnings of what could be a tsunami in solar farms across the state.

“It’s growing exponentially,” said Doug Gotham, director of the State Utility Forecasting Group at Purdue University. “Indiana is definitely on an upswing.”

Meeting opposition

Now the question is whether Indiana can hold the pace, as some communities and landowners push back against an explosion in solar farms.

Some farmers say that renewable developers are pushing too hard, gobbling up tens of thousands of acres of land that could be used for other purposes—and in the process, littering the countryside with what they consider unsightly projects. They say communities should be more selective in approving projects.

“I don’t agree with taking prime farmland out of the equation, especially with food prices going up, food insecurity starting to go up,” said Kyle Barlow, a fourth-generation farmer who grows corn, soybeans, pumpkins and sunflowers on his 1,000-acre Shelby County farm. “I don’t feel it’s a good use of the land at all.”

He opposed New York-based Ranger Power’s 1,900-acre Speedway Solar project near Morristown, which Shelby County officials approved in 2019. And he has been one of the most vocal opponents of a second project, a solar farm proposed by Utah-based sPower, near the small town of Bengal, about 10 miles southwest of Shelbyville.

Earlier this month, Barlow won a seat on the Shelby County Council, following a grassroots campaign heavily focused on controlling the growth of renewable-energy projects near homes and adjoining farms.

“I think we should look for other places for solar, if we really need that energy,” he said, pointing to brownfields, parking lots, airports and interstate medians as possible sites.

Counties are also flexing their muscles to protect their right to approve projects. Last year, a group of counties was able to sink a proposed state law that would have set statewide standards on setbacks, heights and other facets of renewable-energy projects.

The bill was meant to address a major concern of large renewable developers, who said they must deal with a hodgepodge of regulations across Indiana’s 92 counties, rather than one state standard, in setting up large projects. But county commissioners said the bill would have taken away their ability to decide which projects would fit into their communities.

This year, state lawmakers passed a watered-down version of the bill, adding incentives for local governments. The big difference: This time, the state standards were voluntary.

Challenges slow some progress

And there’s another bump in the road, perhaps a substantial one—this one coming out of Washington, D.C.

Earlier this year, the Biden administration’s Commerce Department launched an investigation into whether Chinese companies have been circumventing U.S. tariffs on solar panels by secretly producing solar cells with Chinese parts in Cambodia, Malaysia, Vietnam and Thailand.

Those four countries supply more than 80% of the most popular types of solar modules used in the United States. If the investigation finds that China illegally steered its solar panels through those four countries, that could amount to a trade violation that could result in steep penalties.

In the meantime, hundreds of solar projects in the U.S. have been canceled or delayed, as solar companies scramble for supplies, due to a near-shutdown in the supply chain.

“The industry is essentially frozen,” Leah Stokes, a political scientist at the University of California, Santa Barbara, told The New York Times. “It’s already leading to layoffs, to say nothing of the impact on our climate goals.”

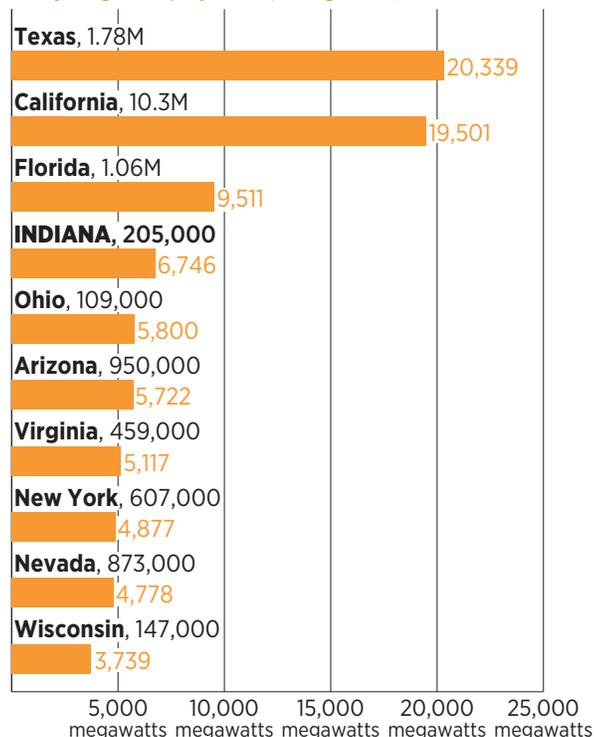
Already, Indiana is feeling the first tremors. On May 5,

Sunny skies

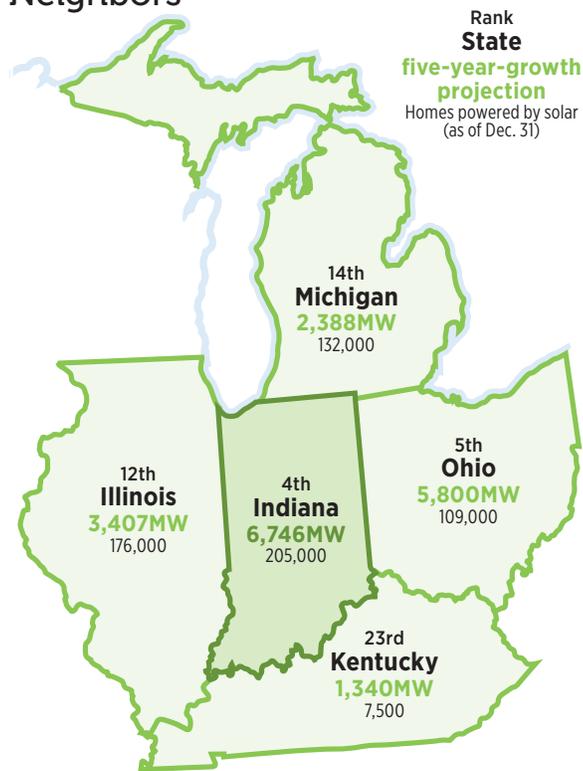
Indiana ranks fourth among all states for projected growth in solar power over the next five years, based on publicly announced projects. Below are the states with the highest projections, plus projections for Indiana’s neighbors.

Top 10

State, homes powered by solar (as of Dec. 31)
Five-year-growth projection (in megawatts)



Neighbors



Source: Solar Energy Industries Association

Merrillville-based utility Northern Indiana Public Service Co. said it would delay retirement of its largest coal-fired power plant, the Schahfer Generating Station in Wheatfield, by two years because of the federal investigation.

It's a sudden about-face for the company, which had said in 2019 it would retire four of its five remaining coal-fired units within five years, and generate 65% of its power from wind, solar and other renewables by 2028.

But now, the solar tariff probe is leading to uncertainties for solar projects, say officials at the utility's corporate parent, NiSource.

"The investigation by the U.S. Commerce Department related to the import of solar components from certain countries has brought uncertainty and delays to the solar panel market," NiSource Chief Strategy and Risk Officer Shawn Anderson said in a conference call with investors. "We, along with others in the industry, continue to advocate for an expeditious resolution to this investigation."

No other Indiana utility has yet made similar comments that indicate an abrupt retrenchment.

Duke Energy Indiana, which currently operates about 21 megawatts of solar power, has said it wants to build or buy projects that generate an additional 4,525 megawatts of solar power over the next 20 years.

But it has not given details on where those projects might be located, only saying it has requested bids on projects, and it's up to the third-party developer to decide where to locate them.

So not only can't it say where the projects will be located, but it also can't say whether the tariff investigation might slow them down.

"Where we are in the process right now, we haven't seen the bids yet," said Kelley Karn, vice president of regulatory affairs and policy for Duke Energy Indiana. "So we're not aware of whether that's going to be a significant issue or not yet."

Andrés Gluski, president and CEO of Virginia-based AES Corp., the parent of AES Indiana, told analysts in a May 6 conference call that the investigation "could have a very deleterious effect on the whole solar industry in the U.S."

But he added the company doesn't expect a slowdown in projects sooner than the second half of next year and predicted the case would be dismissed within months. "This is not going to stop us," he said.

In Indiana, AES has two big solar

projects under way. One is the Clinton County project, called Hardy Hills, which will stretch across Union and Owen townships and include 581,594 solar panels, making it one of the largest solar farms in the state.

The other is a 250-megawatt solar farm in Pike County, near its Petersburg Generating Station, located about 125 miles southwest of downtown Indianapolis. That project is scheduled to come online in 2024 and power the equivalent of 45,000 homes during peak hours.

Booming all over

AES Indiana officials said Indiana's boom in solar might be significant in scale, but other states are seeing big upswings in solar farms as well.

"Across the United States, solar has been the most-dominant, most-added form of new capacity for the last three years," said Kristina Lunda, president of AES Indiana. "So everywhere across the U.S., in all 50 states, solar is growing very fast."

Two primary factors are driving the solar boom. On one side is the falling cost of solar power.

Solar energy prices dropped from \$369 to \$40 a megawatt hour between 2009 and 2019, far lower than the cost of coal (\$109) or natural gas (\$56), according to a 2020 study by Michael Hicks, an economist at Ball State University.

"Indiana is in the midst of a historical shift in fuel use," he said in his report. The shift, he said, would make Indiana more attractive to firms and households that favor lower prices and fewer emissions.

The other major factor is demand. Major corporations, including Indiana's Eli Lilly and Co. and Cummins Inc., have said they want to sharply cut their carbon footprint and are putting pressure on energy providers to ramp up capacity.

Last year, Lilly opened a 16-acre solar farm near one of the drugmaker's manufacturing plants in Kinsale, Ireland. The farm was developed by Lilly partner Enerpower, which designed, built and will maintain the farm.

Lilly said the farm will generate almost 6,000 megawatts of power over a year, equivalent to reducing 2,350 tons of carbon. An additional 10 acres of solar panels are being added nearby and will be put in operation in the second half of 2022.

Lilly is also constructing, with partners, small solar farms in France, Spain and Puerto Rico, and has solar arrays in use at facilities in Italy, India, California and

New Jersey. The company said it is "also investigating potential locations" for solar panel arrays at its headquarters complex in Indianapolis.

If it sounds like Indiana will soon be producing more than enough electricity to power most of the households across the state, it's not a bad guess. Indiana is on track to install enough solar capacity by 2027 to power more than 5 million houses.

But of course, electricity does not stay in one place. The large utilities that are developing or buying power from the massive solar farms say all those electrons will go onto the grid. And at that point, Carmel-based Midcontinent Independent System Operator, the organization responsible for managing the power grid across Indiana, 14 other states and the Canadian province of Manitoba, decides where to route the energy throughout the region, and at what price.

"All of the energy from our generation facilities go into MISO," said Lund of AES Indiana. "And then MISO determines the way that plants get dispatched to both ensure reliability and then also ensure the lowest cost across the system."

So electricity generated in the rural countryside of Indiana can end up as far south as Louisiana and as far north as Canada.

But still, solar advocates say it is not only good for reducing carbon emissions but can generate millions of dollars in economic development for local communities.

Hoosiers for Renewables' website is full of success stories, how wind and solar projects have generated windfalls to fund schools, first responders, road-paving programs and the like.

"A single 50-megawatt renewable energy project like a solar energy farm can generate more than \$1 million in property tax revenue per year," the website says. "That's new money for schools, road improvements and other essential services."

Eberly, the group's executive director and a former Warren County commissioner, said he quickly learned of the benefits while trying to improve services in his community, located just west of Purdue University. Many of the roads, he said, are dirt and gravel, but that is changing.

"I saw firsthand what the influx of a \$200 million utility scale solar project can do," he said. "We've created, for the first time ever, a paving fund whereby we can pave key roads to encourage residential growth."

"I think it's been a good thing," he said. "Many of our residents agree."•