NWOK, AG AND ENERGY

On the path forward 2022

building a resilient community

Bringing new energy *to the region*

Centers: Wind developments sweep into Northwest Oklahoma

By Alexander Ewald
Enid News & Eagle

The winds of change are blowing in Northwest Oklahoma with the development of several major wind projects over the next three years starting as early as this month.

Chicago-based Invenergy's area facilities include three wind energy centers, which together — totaling 1,485 megawatts — are expected to provide enough power for nearly 450,000 homes, as well as more than 40 full-time operations and maintenance jobs once all three are online.

Two centers, the Sundance and Maverick faculties, are newly in operation; the third, Traverse Wind Energy Center, is set to begin operations by the end of the month and would be the largest of the three, at 999 megawatts, according to Invenergy.

The three projects, totaling $1.8 billion invested in local infrastructure costs, are projected to pay a cumulative $680 million in ad valorem taxes during their 30-year operations, Invenergy spokesperson Erika Huffman said, with two-thirds going to local school districts.

Invenergy also is developing a 600-megawatt wind project called Wagon Wheel that is located southeast of Enid in Kingfisher, Garfield and Logan counties. It is anticipated to begin operations in late-2025, Huffman said.

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NextEra Energy Resources LLC, a subsidiary of Florida-based NextEra Energy, has left a major energy footprint in Northwest Oklahoma.

Wind development

NextEra Energy Resources LLC, a subsidiary of Florida-based NextEra Energy, also has left a major energy footprint in Northwest Oklahoma. Next Era's subsidiaries own and operate facilities in 16 counties, as far west as Beaver County and as far south as Stephens County.

That totals around $6.8 billion of total capital investment, as well as $14.1 million in annual property taxes, since the company began operations in the state in 2003.

Most of its 17 current wind energy centers — including the company's Skeleton Creek wind energy center, which began operations in late-2020 — are located in northern and western Oklahoma.

The center, located in Alfalfa and Garfield counties, also is being developed to include a solar energy center and a battery energy storage system.

The company hasn't yet broken ground on that project, which is expected to go into commercial operation in the next couple years, NextEra spokesperson Sara Cassidy said.

"There's a tremendous amount of wind development in Western Oklahoma," Cassidy said.

Being 'a good neighbor'

Wind energy, using massive wind turbines to generate electricity, is a renewable, domestic energy source that has smaller environmental impact than burning fossil fuels, according to the U.S. Department of Energy.

Wind energy developers look at an area's transmission availability, vegetation and wind demand when developing a new center, said Tricia Hale, NextEra Energy's director of development, who oversees development in the Oklahoma and Colorado service areas.

"The western part of the state has had the right mix (of those qualities) in the past," she said.

In addition to producing energy, the company works to get involved with the communities in the area.

Two weeks ago, NextEra donated 300 STEM kits to Enid High School science classes for a second year. The first donations of learning kits arrived last year during the first big wave of the COVID pandemic that left Enid students in virtual learning for weeks.

"Oklahoma, we've been there for nearly 20 years," Cassidy said. "It's how do we give back, how do we build relationships, how do we remain a good neighbor?"

Moving the energy

The small turbines students will build will power a small LED light bulb, she said, giving a practical application of how wind turbines work.

The wind that blows past a turbine causes the blades to turn a generator, producing electricity that then travels to a transformer at the base, then underground to an on-site substation. From the substation, overhead electrical cables move the energy to another off-site station, into high-voltage transmission lines and finally to local distribution lines.

"Once we generate that electricity and (it) goes into the local electrical grid … the energy goes where it's needed," Hale said.

Solar energy transmission works similarly — energy is converted from solar panels and moved to a substation's power transformer, then to transmission lines.

Growing the workers

The American wind sector employs more than 100,000 workers nationwide, according to the DOE.

Wind and solar technicians are expected to be among the fastest growing jobs through 2028, Hale said.

"There is tremendous respect for our wind technicians, what they do day in and day out, the physicality of what they do," she said. "It is tremendous once you get to the top and look out, just the opportunity to see the vantage point. But the view is worth the work."

Much of these jobs come from local communities, both NextEra women said.

"We would love to have local people fill those jobs … and then be able to stay local (and) still work with the family farm or be close to family," Cassidy said. "How can we provide an educational opportunity that allows that?"

"And (still be a) part of the community they grew up in," Hale added.

Specialist: Temps prime, forage yields need rain

By Alexander Ewald
Enid News & Eagle

A developing drought that left 2021 with Oklahoma's warmest December on record is cutting into potential growth for the state's staple crop.

Depleting moisture in the ground is affecting production of wheat, which is by far the most profitable — and most versatile — of Oklahoma's cash crops, according to Oklahoma Cooperative Extension Service.

Josh Bushong, area agronomist specialist for Garfield County's OSU Extension Office, said the cool-season forage species would have thrived in the record-warm December 2021, but needed soil moisture was absent.

"This year, the drought prevented that," Bushong said. "One could argue it was more of a double-edged sword because the drought compounded the issue."

A good portion of the state — mostly Western Oklahoma, including the Northwest region — is experiencing extreme drought, the second-worst category reported by U.S. Drought Monitor.

Wheat is forage king

Wheat pasture has grown to the top of popular forage species over the past couple hundred years, owing to its nature as both a crop and a forage source for livestock.

Farmers across the state usually produce around 4.5 million acres of wheat — upward to half of that is grazed or at least dual purpose, Bushong said.

"The sooner we can get it up and growing in the fall, the better," he said. "We might be able to have a forage system where we put it up the whole year and not have to graze at all."

Growers are able to get nine months of the annual wheat yield, while in colder-climate states like North Dakota, production is limited to the summer, he said.

"Oklahoma's unique in that it's diverse across the state and has a lot of ecosystems," Bushong said. "We're at that stage where our winters aren't too severe."

Seasonal grazing

Oklahoma's variety of soil types, precipitation amounts and temperature gradients means many forage species, including wheat, are managed for pasture and hay, according to the extension service.

These forages are divided primarily into cool- and warm-season species that go dormant during their respective off-seasons, as well as types of perennial legumes such as alfalfa — broad-leaf plants that turn nitrogen from the air into nitrate in the soil.

Wheat as the top forage is trailed by other cool-seasons such as cereal rye, oat and barley. Warm-season forage, meanwhile, include crabgrass, sorghum and bermuda grass.

Much of the pasture goes to the state's stocker cattle industry — owners bring in calves to graze on the forage and then go to grain feed lots.

The archetypal, rolled-up barrels of hay that sit on open fields are used throughout the winter, Bushong said.

Alfalfa also is used for foraged hay in Northwest Oklahoma, he said, noting that it's, ironically, the most-produced crop in the county of the same name northwest of Garfield.

"It's weird how that worked," Bushong said.

TODD JOHNSON | OSU AGRICULTURAL COMMUNICATIONS SERVICES
Cattle (above) graze on a field. Josh Bushong, area agronomist specialist for Garfield County's OSU Extension Office, said the cool-season forage species would have thrived in the record-warm December 2021, but needed soil moisture was absent. Wheat (below) planted on Oklahoma State University's campus begins to show signs of drought stress.

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