Agriculture — Taking a Leadership Position in Energy Development

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Introduction

Agriculture is an energy-intensive industry — now more so than ever, with technology increasingly integral to the production of crops and livestock. Farmers' livelihoods depend on that energy being reliable and affordable. Achieving both will be a balancing act in the years ahead.

This report examines the so-called "energy revolution," exploring the opportunities and challenges it presents as well as the need for a commonsense transition strategy.

The Ohio Farm Bureau is working alongside farmers to help them take advantage of these opportunities and push for practical energy solutions and regulatory frameworks.

Let's dive in.

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Transition period for energy

"We're in a significant transition right now, and it's really important we get it right," says Pat O'Loughlin, president and CEO of Buckeye Power and Ohio Rural Electric Cooperatives. "People are rushing toward this 'energy transition' where we get away from fossil fuels, and there has been a major shift from coal toward natural gas as well as a shift from fossil fuels to renewables."

O'Loughlin expects both trends to continue, but he also emphasizes the need to be realistic about time frames and maintaining the resource base we have today. "We have to be patient and allow technology to take hold over time," he says. "We don't want to throw the baby out with the bathwater."

Natural gas prices on solid ground… for now

Natural gas prices spiked two years ago in response to geopolitical forces like the war in Ukraine and the resulting U.S. acceleration in exports of liquified natural gas, says Kevin Lauterjung, principal and co-founder of Community Energy Advisors, a certified retail electricity and natural gas broker and marketer.

Natural gas prices have since leveled off thanks to relatively high levels of storage. But Lauterjung expects domestic supplies to dwindle amid aggressive exports of liquid natural gas to higher-priced foreign markets over the next two or three years.

"Unless the U.S. increases production or domestic demand for natural gas domestically dissipates, there will be inflationary pressure on natural gas prices," he warns. Farmers' hedging options are limited as futures market prices have already factored in these dynamics.

Natural Gas Spot Prices Have Moderated After Volatile 2022

Source: U.S. Energy Information Administration and Thomson Reuters.

Electricity demand skyrocketing

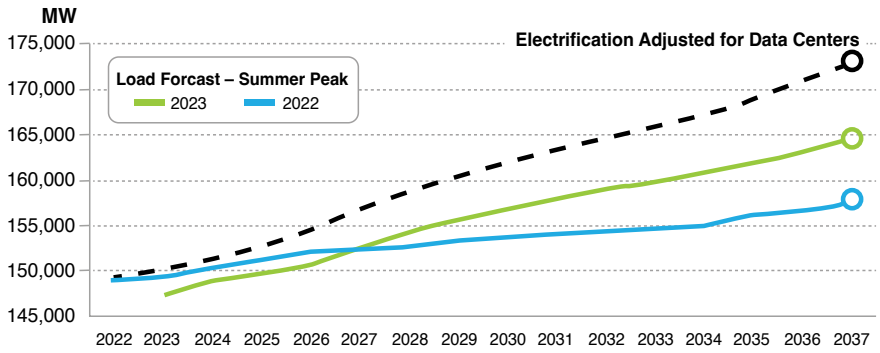
Electricity demand is soaring. “After a decade of relatively flat demand, the rise in data, computing, crypto-mining and the electrification of everything from appliances to automobiles has caused volatility and power price increases,” Lauterjung explains. “Ohio, in particular, is seeing rapid growth in data centers, crypto-mining and manufacturing.”

That growth will push electricity prices higher and strain our electrical grid. Severe weather could make impacts even more pronounced. One of the most pressing needs for our energy sector is investment in the power grid. Transmission and distribution need to be bolstered alongside generation.

“Electric demand in Central Ohio has the potential to double or even triple over the next few years. That’s hard to imagine,” O’Loughlin says.

This comes as trends within the state’s agriculture sector intensify its electricity needs. “Ag has always been a cost-sensitive industry, so affordability is very important,” O’Loughlin says. The same can be said for reliability. A power outage or rolling blackout during a winter storm or summer heat wave could have devastating impacts for a livestock or poultry producer.

Electric Needs Climb Amid Data Center Surge



SOURCES
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Stan Silwa and Michael Herman, PJM Planning Load Data Needs, presentation to PJM Load Analysis Subcommittee (June 26, 2023).
Scott Benner, PJM Energy Transition presentation to Markets and Reliability Committee (February 16, 2023).

Major backing for renewable energy development

“When renewable energy is more cost-effective than fossil fuels, the market will adopt it at a rapid pace,” Lauterjung predicts. “At this point, renewable energy is not reliable, affordable or dispatchable 24-7.” Therefore, O’Loughlin says renewables are more likely to complement than to replace fossil fuels — at least for the foreseeable future.

Nuclear generation is a carbon-free resource that both O’Loughlin and Lauterjung believe could bridge the gap between a carbon-emitting grid and a cleaner grid.

Spotlight on solar

Lauterjung expects continued growth in solar. Costs have dropped; federal, state and local financial assistance is available; and there's a rising market for selling the renewable energy certificates solar generates. The farm sector has taken note.

But solar has limitations. It takes about 6,000 acres of solar panels to match the electricity output of one 600-megawatt unit of coal generation, O'Loughlin says. "That's total output. There's no control over when we get solar energy or how much is generated."

The balance between energy production, property rights and the importance of farmland is vital. Ohio Farm Bureau's members have policies supporting wind and solar projects on non-agricultural land. The agricultural community's engagement is critical to finding the best way for our state and nation to pursue those priorities.

Power Siting

"In the 20th century, there were two major sources of electricity — coal and nuclear," observes Dale Arnold, director of energy, utility and local government policy at Ohio Farm Bureau. "Traditional, large-scale and centralized 20th Century generation assets like coal are disappearing."

Nuclear energy production has been stable, despite the closure of a few plants. But O'Loughlin points development of new facilities is at a standstill in the U.S. "Because of the time and scale it takes to develop a new nuclear facility, we are likely 20+ years away from another plant coming into service and making a meaningful impact."

What might energy production of the future look like? Smaller, but robust generation assets like natural gas-fired turbine generation stations, wind, solar, biomass, geothermal, compact nuclear, and hydrogen production are possibilities, Arnold says. These will be located in open areas of the community — namely, farm ground.

Ohio Farm Bureau acts as a collective voice for farmers, advocating the Ohio Power Siting Board Process for a uniform system of rules, regulations and processes governing energy project development across the state. "We need to have power generation, but we also need it accommodated in a way that involves the community," Arnold says. "Agriculture, energy, industry/business and residential land use all need to be considered and balanced."

Ohio Farm Bureau prepares farmer advocates

As stewards of large tracts of land, farmers need to take a leadership position in this land use and energy development planning. **"Farmers have the right and the responsibility to be at the table,"** Arnold says. "Ohio Farm Bureau shows them how."

He details: "We make sure farmers have access to legal counsel. We help them understand the process, the rules, the regulations, and the questions they need to ask so they can participate in proceedings. We give them a roadmap on how to advocate their position and help them take those first critical steps."

Getting involved early and often is huge, Arnold says. The energy sector works in 30-year blocks. "If you wait to get involved until a project is ready to break ground, you're too late."

Ask energy developers these questions:

- Why are you here?
- What are your long-term (10- to 30-year) plans?
- How will this project be operated?
- How will you work with/invest in the community?
- What are your plans for repair, remediation, financing and decommission bonding for when the project is finished?
- Will the community be involved with planning for Stage 2, Stage 3, and beyond.

To learn more, download the Ohio Farm Bureau Energy and Utility Issues Resource Guide

Controlling energy costs on your farm

"Next to labor, energy in the forms of fuel and electric generation are the largest single expenses for most farms and agribusinesses," Arnold says.

Controlling costs is critical to farmers' longevity. The Ohio Farm Bureau Energy Savings Program helps farmers do so, whether that's sourcing competitive energy contracts, conducting an energy audit or making energy-saving upgrades.

The program helps farmers explore whether investing in onsite power generation for their personal farm use (wind, solar, geothermal or a traditional genset systems) would be worthwhile. It also helps them investigate and fund energy efficiency options like adding insulation, farm automation, software, sensors or advanced metering.

Keep an eye on carbon intensity scoring

"One of Ohio Farm Bureau's core objectives is helping farmer members gain a competitive advantage in the marketplace," says Eric Niemeyer, a farmer, Ohio Farm Bureau trustee for Delaware County and energy consultant advisor. "Carbon intensity scoring fits squarely in that wheelhouse."

What is carbon intensity? It's the amount of energy required to produce a certain quantity of a crop, biofuel, livestock, etc. **"Your carbon intensity score and related data is an asset — one that's going to add value along the supply chain,"** Niemeyer says.

Earlier this year, the Treasury Department and IRS updated guidance on the Sustainable Aviation Fuel (SAF) tax credit and introduced a pilot program, 45Z Clean Fuel Production, that credits practices like no-till farming and cover cropping for lowering the CI score of feedstocks used to produce SAF.

"Multibillion dollar corporations are making huge greenhouse gas commitments and putting major dollars behind them. Consumers and investors are demanding they do these things, and they're demanding it with their dollars," Niemeyer says. "Momentum is gaining, not waning."

Right now, Niemeyer says the most important thing farmers can do is to educate themselves on what carbon intensity is and why they should care and understand the value of their data as it relates to carbon intensity. That knowledge will position farmers to make smart decisions and leverage that asset when the opportunity is right.

Considerations regarding carbon-based opportunities

Today's carbon efforts are backed by some serious momentum and dollars, tying back to environmental social governance objectives set by nearly every Fortune 100 company and fueled by consumers. Whether or not you ultimately participate, you need to understand the basics of carbon programs.

1. What carbon intensity is.
2. What a CI score is.
3. How a CI score is calculated.
4. Why you should care.

Click here to learn more

Sensible regulatory framework needed

Extreme environmental regulations for the energy industry are causing those operating the grid to question how they'll meet the demand for electricity we have today, let alone the projected growth. Ohio's coal-fired power plant count has dwindled from 21 in 2009, to four in 2024, with another slated to close in a few years, O'Loughlin says. The state is now a net importer of electricity.

Reductions in electric supplies like coal and gas will make it more difficult for electric cooperatives and others to provide reliable service, especially when extreme weather strikes. "Farmers are resilient people, but their businesses and incomes depend on electricity being reliable and affordable," O'Loughlin says.

As major power users and potential solutions providers, farmers need to be involved with this energy revolution.

Niemeyer sums it up well: "You don't get a competitive advantage by sitting on the sidelines and waiting f or things to happen. You have to be a rainmaker and a trailblazer."