Data centers need massive power. They're eyeing Kentucky's idle industrial sites to get it

One environmental attorney warns of ratepayer costs down the road

By Liam Niemeyer
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The former Paducah Gaseous Diffusion Plant in McCracken County.

Paducah Mayor George Bray calls the former Paducah Gaseous Diffusion Plant in McCracken County the ideal site for a hyperscale data center.

When the plant was enriching uranium, initially for the nation's stockpile of nuclear weapons and then for nuclear power plant fuel, it had the ability to use over 3 gigawatts of power and used 26 million gallons of water a day.

"When we enriched uranium there, all the infrastructure around that power is still available," Bray said. "Plus, we've got you know tremendous water capacity out there."

The plant closed in 2013 under the control of the federal government, and local elected leaders debated for years what could become of the infrastructure there, an active Superfund site needing remediation for the legacy of hazardous and radioactive waste released into the environment.

The U.S. Department of Energy provided an answer late last month, planning to transform a portion of the site into a hyperscale data center and nearby natural gas-fired power plants to "the AI race." The 1.8 gigawatt data center, one of the largest so far planned in Kentucky, is a part of a larger strategy by the Trump administration to turn former Cold War-era federal sites into hubs for data centers and energy production.

That electrical infrastructure — high-voltage transmission lines, substations, transformers — that allows a hyperscale data center to access massive amounts of electricity is something that's in high demand and in short supply across the country as technology companies spend billions of dollars on data center construction.

And these data center developers are increasingly looking to Kentucky's idled industrial sites — former coal mines, a former aluminum smelter, a former steel mill, industrial parks — to find it.

While local economic development directors see an opportunity for new life at languishing industrial sites, one environmental attorney warns there could be a cost for ratepayers down the line.

A SMELTER INTO A HYPERSCALER

Along the Ohio River, the Century Aluminum smelter in Hancock County had shuttered its operations after over 50 years of operation in 2022, citing unsustainably high electricity prices.

It laid off more than 600 employees in the county of about 9,000 people. The infrastructure where 482 megawatts of electricity flowed through transmission lines to craft military-grade aluminum products remained on site.

Mike Baker, the director of the Hancock County Industrial Foundation, a local economic development group, said the loss of those smelter jobs and tax revenue meant the loss of personal livelihoods and money for local schools and government. He had been in talks with Century Aluminum, which owned the site, to try to find a new use for it.

"Manufacturing is what we were hoping for," Baker said. "Had nothing to do with data centers at the time in 2022. I don't think anybody even knew what a data center was."

A hyperscale data center developer arrived years later. Investor-owned TeraWulf bought the site from Century Aluminum earlier this year, planning to use that power capacity to turn it into a 482-megawatt hyperscale data center. The company is leasing the data center to artificial intelligence company Anthropic.

"It was a former industrial site that had the power," Baker said. "That's the number one draw for a data center is, 'Is their power available?' And that makes that location much more attractive."

There are a number of other idled industrial sites across the state that have been eyed by hyperscale data centers looking for places to hook up.

• The hyperscale data center developer based in Spain is looking at the former AK Steel mill in Boyd and Greenup counties to build a 2-gigawatt data center campus.

• Before the Bell County Fiscal Court passed a temporary ban on data center construction, a developer was looking to use more than 300 megawatts of leftover electrical transmission infrastructure from inactive coal mines to power a data center.

• TeraWulf is also planning on taking over an Eastern Kentucky industrial park— the same park where the state tried and failed to locate an aluminum mill — for another hyperscale data center.

• The city of Pikeville is also in negotiations to put a smaller data center in a local industrial park that has existing electrical infrastructure.

• Baker said the jobs created by TeraWulf at the former aluminum smelter site — about 200 permanent jobs — won't make up for the lost smelter employment.

But he believes the site, and industrial sites similar to it, are a much better fit for a large data center. He said that's compared to a situation where a data center uses hundreds of acres of prime farmland or locates next to a subdivision. He called that a situation "that could generate the kind of emotion and concern that communities have" with data centers.

"The tax revenue can be significant," Baker said. "That can be a worthy use of that property."

In Mason County, the local planning and zoning committee approved the rezoning of more than 2,000 acres of rural, agricultural land to industrial use for a planned hyperscale data center by an undisclosed technology company. Local pushback against the project over land use and environmental impacts has been ongoing since last year.

Chasing power — but at what cost?

Yet late last month, residents in Hancock County voiced strong concerns about the project to the state utility regulator Kentucky Public Service Commission in a local public hearing. They expressed concerns over the data center's water usage, what it could mean for their electricity bills and the impacts of backup electricity generators installed at the industrial site.

Gary Elder, a resident of the Hancock County city of Lewisport, told the PSC during that hearing he has concerns over utility costs, potential pollution and the "loud racket" with having seen reporting about data centers in other states.

"It's already been there at these states," Elder said. "If it happened there, why do we not think it's going to happen here? So, think about that — what you're going to do to us."

The PSC is considering whether to approve a special contract for power between TeraWulf and electric utility Big Rivers Electric Corporation.

Byron Gary, an attorney for the environmental legal group Kentucky Resources Council, said putting data centers on former industrial sites "certainly makes sense" from a developer's perspective given much of the transmission infrastructure is already there. He said developers might also avoid local pushback on projects if it's already been an industrial site in the past.

But he worries about potential longer-term costs for Kentucky ratepayers, assuming all the proposed massive data centers come to fruition.

In the case of the Hancock County data center, he said, the TeraWulf data center also has a tentative agreement with Big Rivers Electric Corporation to get its power from the wholesale electricity market through the regional energy grid operator MISO, given that the electric utility doesn't have close to enough power on its own to power multiple data center projects.

He said as more demand

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