

SUSTAINABILITY, COMMUNITY IMPACT CONCERNS SHADE DATA CENTER INVESTMENT

By Lauren Jessop,
The Center Square Contributor

Pennsylvania's growing data center development offers economic opportunities but also raises tough questions about sustainability and community impact.

As electricity demand surges, and older generation sources are retiring faster than new ones come online, officials are grappling with how to manage grid reliability, infrastructure needs, and local and environmental concerns — while exploring policies that strike a balance between supporting smart growth and protecting consumers.

The issue has industry experts divided with some voicing concerns about family sustaining jobs and environmental impact, and others believing an affordable, safe, and reliable energy future is attainable.

There are 88 data centers across the commonwealth, according to Data Center Maps, and their database does not include private, government, or institutional facilities. Of those listed, 35 are located near Pittsburgh and 31 near Philadelphia.

A growing trend is co-locating data centers with onsite energy generation, thereby producing their own electricity

and potentially sending surplus power back to the grid. The Pennsylvania Public Utility Commission, or PUC, is considering making this a requirement, along with covering the cost of infrastructure upgrades, as it develops a model tariff.

Currently, nuclear-powered Amazon Susquehanna campus is the only operational example of this in Pennsylvania, while two others — Homer City Energy Campus — (natural gas) and Beaver Valley (nuclear) — are under development.

Co-located generation is nothing new, says Lehigh Valley engineer and IEEE Standards Association member James Daley.

Daley told The Center Square that the demands of large data centers are comparable to major industrial complexes the grid has historically served — like Bethlehem Steel, for example.

Built in the late 1800s, Bethlehem Steel's furnaces were primarily powered by steam engines fueled by coal. By the 1910s, they began drawing electricity from local utilities, but as demand increased, dedicated substations and new grid connections were added — costs that the company helped cover.

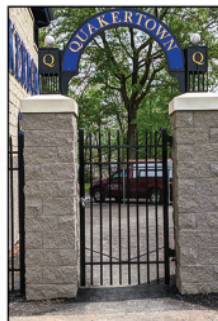
(Continued on page 24)



**HOLLENBACH
CONSTRUCTION, INC.**

"ONE STEP BEYOND"

Celebrating
56 Years of Consistent
Quality & Excellence



*Quakertown
Memorial Park
Baseball Stadium
Reconstruction*

Hollenbach Construction, Inc. can provide your business with Professional Construction Management Services and Design Build Services for your New Construction and Renovation projects. Let us take your projects from start to finish in the areas of:

Senior Living - Healthcare • Religious - Educational • Commercial - Industrial



166 Holly Rd., P.O. Box 507
Boyertown, PA 19512

Phone: 610-367-4200 Fax: 610-367-1020

email: tlittle@hollenbach.com

www.hollenbach.com



Marketing That Feels Human

Because It Is.

Your customers crave connection. That's why we build campaigns that feel personal—because they are. From eye-catching creative to data-backed digital strategy, beMarketing helps brands grow by creating marketing that connects.

Ready to Make your Marketing More Human?
Reach out now — let's create real connections.

484-261-1149 | beMarketing.com



AI is Already Changing Business!

Is Yours Ready?

Join 16,000+ Local Leaders
Learning How to Leverage AI

one hour at a time...

- ✓ Attract more customers
- ✓ Automate repetitive tasks
- ✓ Cut marketing costs
- ✓ Stand out from competitors

Our “AI Power Hour” Workshops break down the latest AI trends for real-world business results – no tech skills required.

Ai | POWER HOUR



<https://AiPowerHour.events>

EARTH ENGINEERING INCORPORATED *Geotechnical Engineers & Geologists*



Subsurface Investigations
Geotechnical Design
Stormwater Infiltration Testing
Carbonate Site Assessments
Environmental Site Assessments and Remediation

Construction Inspection & Testing
Clean Fill Testing
Laboratory Soils Testing

www.earthengineering.com

Corporate Headquarters: 610-277-0880

Central PA: 717-697-5701

Lehigh Valley: 610-967-4540

South Jersey: 856-768-1001

QUALITY * COMMITMENT * PERFORMANCE

DATA CENTER INVESTMENT

(Continued from page 23)

To further reduce demand on the public grid, they eventually built on-site power plants.

Co-located generation is one way to resolve energy demand issues while protecting existing ratepayers, Daley said. Other options include serving the facilities from transmission or sub transmission stations, and the use of nuclear power.

Installing on-site Combined Heat and Power, or CHP systems, or combined cycle power plants can also help offset the energy needed for equipment cooling.

“Diligence and oversight of proposed projects require multiple input sources — not the least of which is the PUC,” said Daley.

Rest assured, he added, locating and powering an IT Center poses no different challenge than large-scale projects successfully handled over the past century. “The PUC makes sure rate payers are not unfairly charged for grid alterations that do not benefit them directly.”

The mix of energy sources is crucial to grid reliability, which Daley says needs to be 24/7, “and you can’t do that with renewables.”

According to the U.S. Energy Information Administration, or EIA, in

2023, 60 percent of electricity generated was from fossil fuels — natural gas, coal, and petroleum. Additionally, 19 percent came from nuclear, and renewable energy sources accounted for approximately 21 percent.

He noted the lower capacity ratings of renewable energy sources compared to those of fossil fuels, citing figures from the U.S. Department of Energy.

The capacity rating for nuclear is 92.3 percent, followed by geothermal (65 percent), natural gas combined cycle (59.9 percent), and coal (42.6 percent). Hydro and wind are rated at around 34 percent, while solar and natural gas simple cycle are 23.4 percent and 17.2 percent respectively.

Daley’s comments are supported by a 2024 report by the North American Electric Reliability Corporation, or NERC, warning that the substitution of intermittent renewable energy for baseload 24/7 power has made the nation’s electric grids less resilient, less secure, and less reliable.

“These centers,” he said, “are a good industry for any town that wants to host them, because they’re excellent tax revenue sources with minimum impact on the community, and can be excellent corporate neighbors.”