centerstream DISTRICT ENERGY

How AI and integration are transforming energy infrastructure

As it expands into the infrastructure space, **Greystar,** one of the largest apartment managers in the U.S., has launched a new district energy platform company – **Centerstream** – with the acquisition of the district energy system in St. Louis, Missouri. **Jorge Fernandez,** Institutional Real Estate, Inc.'s managing director, infrastructure, recently spoke with **Mason Miller,** CEO at **Centerstream,** about the benefits of using AI to better align infrastructure with the people who use it. Following is an excerpt of that conversation.

AI is often associated with data centers, but how is it redefining district energy systems in broader and more impactful ways?

AI is transforming district energy systems by evolving them from fixed-schedule infrastructure into adaptive, predictive networks. Historically, these systems relied on average values, such as temperatures, occupancy and load. This made sense when the operations were manual and data were scarce.

But campuses and districts are not static. They ebb and flow with the seasons, usage patterns and building types. AI enables us to move beyond static setpoints and dynamically adjust operations in real time. It can forecast thermal loads by the hour, anticipate the effects of weather or class schedules, and optimize energy production accordingly.

Put simply, AI removes guesswork from operations. These systems can now be fine-tuned the way a Formula 1 pit crew tunes a car: always adapting, always looking ahead. The result is greater efficiency, enhanced resilience, and closer alignment between infrastructure and the lived experience of its users.

What role does cybersecurity play in supporting the evolution of increasingly digital and district energy infrastructure?

As district energy systems become more intelligent and interconnected, cybersecurity is no longer just an IT issue, it's a core infrastructure concern.

Previously, these systems were largely analog and isolated. Today, they integrate with building management systems, remote diagnostics, predictive algorithms, and cloud-based monitoring. While these capabilities enhance efficiency and responsiveness, they introduce new vulnerabilities.

Cybersecurity now plays the role that physical barriers once did. It safeguards operational continuity, occupant comfort, and even public safety. Without secure systems, smart infrastructure becomes exposed infrastructure.

Cybersecurity must be embedded from the design phase, not added later. Protections, such as segmentation, anomaly detection, access controls, and continuous monitoring, are essential. The systems that heat and cool hospitals, campuses or residential towers must be protected with the same rigor as those securing financial networks or public transit.

How is AI alongside cybersecurity expanding the potential of district energy systems beyond data centers, and what emerging applications, like adaptive thermal comfort modeling, could further transform the way we manage energy systems?

One of the most exciting frontiers in energy systems is adaptive thermal comfort modeling – the ability to optimize heating and cooling based on real-time human needs, not just static temperature targets.

Many systems still run on fixed setpoints, cooling to 72°F or heating to 68°F, regardless of occupancy, sunlight or how people actually feel. Yet human comfort is more dynamic than temperature alone. It is influenced by humidity, clothing, radiant heat, activity level and other real-world factors like movement, proximity to sunlight, or seating position.

AI-enabled models can now synthesize data from sensors, weather forecasts and real-time usage patterns to align heating and cooling with actual comfort, not just thermostat settings.

For example, on a university campus, a lecture hall can begin cooling 15 minutes before a scheduled class based on expected attendance, recent conditions and outside weather. When the room empties, the system reduces airflow, cutting load without compromising comfort.

At a city hall served by a district energy system, morning council meetings may bring dozens of suited attendees under hot stage lights. An adaptive system can anticipate high occupancy, limited movement and radiant heat, and increase cooling in advance. Later, lightly staffed offices with afternoon sun and casual dress require different responses. The system adjusts again, targeting comfort zone by zone based on real-time inputs.

This is where district energy is headed: systems that treat buildings not as static, uniform spaces, but as adaptive environments shaped by use. The result is not only lower energy consumption but infrastructure that works harder and smarter.

Centerstream's strategic relationship with Greystar is unique. How does this embedded relationship improve the company's ability to deliver lasting energy infrastructure for its clients?

Centerstream's relationship with Greystar is different because, unlike Centerstream, most district energy providers are brought in only once plans are finalized. They respond to RFPs, propose systems within fixed layouts and budget, and operate under constraints they did not shape. This often leads to compromises: systems that function, but don't fully align with how buildings operate long term.

Centerstream takes a different approach.

With Greystar, Centerstream is involved from the master planning stage, alongside the developer, architect and public partner, helping to shape how infrastructure supports sustainability, construction phasing, operational flexibility and long-term goals.

For example, while a traditional provider might be told where to site an energy plant after buildings are set, Centerstream helps site plants based on density, trenching and long-term scalability. That leads to real-world benefits: minimized excavation, preserved land, and distribution networks that scale rather than get replaced.

But the biggest difference shows up during implementation, especially in the context of long-term public-private partnerships.

In the traditional model, a university issues an RFP and selects a third-party developer, an energy provider and a capital partner.

Each has separate contracts, goals and timelines. The result is often misalignment, and the university is left managing it.

Take a familiar case: a university wants to adopt geothermal heating. The energy provider supports it for efficiency. The private developer, under cost pressure, pushes to delay. The O&M team resists unproven tech. The university gets stuck between vendors, wasting years revisiting contracts.

That's not a process failure. It's structural.

Centerstream eliminates that misalignment. As part of a unified platform, Centerstream aligns energy, development and finance under one structure, adjusting internally without redrafting scopes or realigning incentives.

So, if a university updates its climate plan mid-concession, we're not asking, "How do we get the team to agree?" We're asking, "What's the best way to deliver this together?"

From an administrator's view, that means fewer change orders, shorter timelines, and outcomes that reflect institutional goals, not the lowest common denominator of compromises.

We don't assemble teams for a one-off. We're integrated for the long term, offering flexibility, stability and accountability that only a single-platform model can deliver.

> *"The key is not to fight complexity, but to navigate it using tools that reduce friction and build alignment."*

Why are district energy systems considered to be more stable and secure investments compared to traditional infrastructure public-private partnerships (P3)?

District energy systems offer attributes that many traditional P3 assets lack: recurring revenue, captive demand and operational stability.

They serve essential needs – heating, cooling, domestic hot water – via infrastructure that customers can't easily bypass. And they're often structured around long-term service agreements or cost-of-service contracts that resemble utilities, but with more contractual stability and less regulatory exposure.

Compare that to infrastructure like airports or toll roads, where revenues fluctuate with usage and economic cycles. A district system serving a hospital or university has far more predictable demand and often operates on a take-or-pay basis.

These systems also benefit from centralized operations and economies of scale, which reduce lifecycle costs compared to in-building solutions. That makes them efficient and inherently more investable. They combine the reliability of infrastructure with the predictability of essential services, and that's increasingly rare in today's market.

What strategies have proven effective in helping universities overcome slow decision-making and drive progress on energy initiatives?

Universities are not slow by accident – they're structured for deliberation. Governance prioritizes inclusivity, stewardship and long-term thinking. But that can stall energy initiatives that require timely coordination and flexible execution.

The key is not to fight complexity, but to navigate it using tools that reduce friction and build alignment.

One strategy is sequencing decisions to match institutional risk appetite. Instead of requesting approval for a 30-year concession upfront, we break work into manageable phases. It might start with a low-risk energy audit, then near-term efficiency upgrades, followed by larger capital investments. Each step builds momentum and trust.

Another is scenario-based. Universities respond better when they see not just one option, but the consequences of delay or alternative paths. We show how phasing or funding choices impact emissions, costs, and operational control, and how they align with institutional goals.

A third strategy is collapsing parallel conversations. Too often, energy, capital planning and real estate are siloed. Because Centerstream integrates energy, development and finance, we unify these discussions. A CFO hears the same plan as the facilities director and the sustainability lead. The result: faster decisions and stronger alignment.

We also support the decision-making process itself. That means preparing board-ready materials, translating technical content, and equipping provosts and trustees to explain the "why" in terms that resonate. If a major project stalls, it's often not due to merit, but because no one told the right story to the right audience.

Finally, and perhaps most importantly, we give universities space to evolve. Rather than forcing all-or-nothing decisions, we build frameworks that preserve flexibility. Campuses can phase investment, adapt to new funding, and respond to changing needs without resetting the entire project.

The goal isn't to rush the process. It's to respect it, de-risk it and make it actionable. That's how campus ambition becomes operational reality.

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CORPORATE OVERVIEW

Centerstream works closely with our partners – municipalities, universities, healthcare systems, data centers and multi-use campuses – to provide tailored long-term innovative and sustainable district energy and distributed energy systems. As both investor and operator, we bring a unique lens to each project, streamlining the path to delivery. Centerstream benefits from deep industry expertise and a modern, collaborative approach backed by institutional capital with extensive experience in project development and execution.

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