

Will rapid data center growth help Arizona? Examining the pros and cons

ASU event brings industry, academic and community experts together to collaborate on solutions to debate

By Joanna Allhands, ASU News
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Arizona is engaged in a debate about where data centers should be built — with cities, developers and residents having varying opinions on the issue.

So how do we find common ground?

That was the driving force behind a Feb. 11 standing-room-only knowledge exchange that attracted experts from industry, community organizations and academia.

The event was hosted by the [Julie Ann Wrigley Global Futures Laboratory](#) at Arizona State University, where scientists and industry leaders work to improve the planet; [Energy Forward](#), the laboratory's energy transformation network; and the [NSF Futures Engine in the Southwest](#), an ASU-led effort to bolster the regional economy with air, water and power innovations.

Energy Forward leaders began meeting a year ago with a broad swath of experts to better understand how data centers could impact Arizona.

"We learned that we were wrong about a lot of things," said [Kelly Barr](#), the laboratory's associate vice president and chief alliance officer. "But we also realized that these meetings produced interesting insights that needed to be shared.

"That was the goal of the knowledge exchange — for everyone to leave with a shared understanding of the benefits but also the challenges that data centers present."

Data centers are growing rapidly

Data centers house the computer servers that run our increasingly digitized world. Companies are spending billions of dollars to rapidly build more of them amid a high-stakes artificial intelligence arms race with China.

Arizona has attracted more data centers than most states, with many more in the pipeline. They generate tax revenue, support jobs in other industries and help extend services like telehealth and prescription delivery to rural areas.

But there are downsides to the rapid construction.

Data centers can be noisy, and they expel excess heat. [David Sailor](#), director of ASU's [School of Geographical Sciences and Urban Planning](#), unveiled preliminary research during the event that suggests data centers can warm neighborhoods by several degrees, further stressing them in summer.

Meanwhile, Arizona utilities are under tremendous pressure to keep pace with data centers' unprecedented power demands, and concerns are growing about how those billions of dollars in needed infrastructure might impact residents' electricity bills.

Is water use a problem?

Experts with a wide range of views shared their perspectives during the Feb. 11 event. Many challenged popular narratives.

It's often argued, for example, that data centers use too much of Arizona's water.

But not all data centers use water for cooling, said Alex Dymersky, who manages power and sustainability efforts at the data center developer EdgeConneX. The technology also is improving in those that do, allowing them to use less water than centers did a few years ago.

It's tough to estimate how much [water data centers use](#) for cooling, said [Sarah Porter](#), director of ASU's [Kyl Center for Water Policy](#). But power generation for all users — not just data centers — makes up 3% of the state's water demand.

That's roughly the amount of water used on golf courses.

Most metro Phoenix cities have assured water supply designations, meaning they have enough renewable water on hand to supply current and future users for 100 years. A growing number of cities also have laws that require data centers to enact efficiency measures or limit water use.

"That doesn't mean everything is fine," Porter said. "We're good right now."

If future data centers build outside cities with assured water supply designations, she warned, they could pump groundwater without replenishing what they use — and that could hurt rural areas that already lack secure water supplies.

Kevin Moran, associate vice president for regional affairs at the Environmental Defense Fund, also cautioned that while water use in data centers may not be a problem for most metro Phoenix cities now, that could quickly change if the Colorado River supplies on which they rely are heavily cut.

Work to find solutions is underway

Speakers spoke in depth on subjects that rarely find their way into the public debate. Business leaders and city planners detailed the many factors that influence where data centers are located.

Representatives from the state's three largest power companies — Arizona Public Service, Salt River Project and Tucson Electric Power — explained how they are reworking requests for new service, hoping to get a better handle on which data center proposals are real and which will never materialize.

During this initial knowledge exchange, participants were urged to ask questions and exchange ideas, particularly with people they didn't already know.

And at the end of the day, attendees were asked what helped them change their perspective about data centers.

"Collaboration" was one of the most popular responses.

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Main image



Therese Kerfoot (center), EdgeCore executive vice president of strategy, speaks during a Feb. 11 data center development panel at the Walton Center for Planetary Health on ASU's Tempe campus. Alex Dymersky (left), EdgeConneX manager of power and sustainability, and Dado Slezak, QTS Data Centers executive vice president for power and energy strategy, listen. Photo by Quinton Kendall/ASU

Text image(s)



Gary Dirks, senior director of ASU's Julie Ann Wrigley Global Futures Laboratory, speaks during the Feb. 11 event about data centers. Photo by Quinton Kendall/ASU