

Linda Engle Introduction: Sustainable Idaho is brought to you by the Portneuf Resource Council.

Madison Long Introduction: Welcome to Sustainable Idaho. I'm your host Madison Long and today, we will be in discussion with two experts on the power, sustainability outcomes, and technology requirements of AI data centers in Idaho.

Ali Khan: My name is Ali Khan, the CEO and founder of MOATIT.

ML: Recently, Khan wrote an article in the Idaho State Journal based on his research for the recently proposed AI data center in Pocatello. Lex Developments applied to convert the former Hoku Materials polysilicon plant into a \$2.26 billion center. However, the City Council voted against the plans.

Megan Ronk: My name is Megan Ronk, and I serve as the Director of Customer Experience and Economic Development at Idaho Power.

The Harvard Gazette records that there are over 4,000 data centers across the U.S., with 3,000 more in the planning and construction stages. Many of these facilities act as 24/7 computing centers for AI technology that require large amounts of energy, specialized cooling systems, and AI chips.

AK: When we think of data centers, we are thinking about racks and racks of servers storing our information, or running our Facebook, running your Gmail. And that is true for data centers that have been built in the last four or five years. Now, the AI data centers are a tad different and the servers, systems, and the audience that they are for is different. The AI data centers in Idaho will bring new technology, jobs, benefits, and they also at the same time create stress and sustainability issues on our environment.

ML: In states like Illinois that have hundreds of data centers to support AI demand, Data Center Coalition studies showed that the industry added 115,000 jobs and contributed more than \$19 billion to the state's Gross Domestic Product. Currently though, Idaho only has two facilities under construction in Kuna, with four more facilities introduced. What makes Idaho a potentially sought-after location?

AK: There are a few reasons. One, is the Idaho State incentives that are available, the state's policy with respect to how to invite more technology, more business, and more revenue has been very effective, our environment, the availability of land, availability of gas and power structure that can be brought or upgraded to bring to data centers.

I think weather affects a lot. Our average temperature is pretty low. If we can use that cold air, then the cost of a cooling system is going to be almost reduced by, in Pocatello's case, about 35%. That 35% for 100-megawatt data center translates into about \$8 to \$12 million.

ML: The Lincoln Institute of Land Policy also records that AI data centers can use as much power as 100,000 homes or more. How could the potential power draw of these data centers affect Idaho Power and its customers?

MR: Over the next five years, we're planning to experience over 8% growth annually year over year. But when it comes to data centers and other large energy intensive projects, we're not overbuilding the system to accommodate them. Here in Idaho, the fundamental principle

has always been that growth pays for growth, so whoever is causing new costs on the system needs to be responsible for those costs. That's been a practice that's been in place for decades and positioned us pretty well as we've entered this new space of energy intensive projects to make sure we protect the interests of other customers.

ML: Currently, Idaho Power has a 100 percent carbon free clean energy goal by 2045, requiring solar, hydroelectric, wind, or geothermal generation methods. However, the Lincoln Institute of Land Policy reports that currently about half of the electricity used by US data centers come from fossil fuel power plants.

So while the customer may be responsible for infrastructure costs, the larger question remains where the electricity itself comes from and what that means for Idaho's energy system and the environment?

MR: Obviously we need to think about the actual generation resources that are required to serve their very high demand 24-7 load. So is that building a new gas plant or new solar and battery resources. As we consider all of the above approach, we need to make sure our system remains reliable, because that's an expectation of all of our customers.

We're obviously mindful of our clean energy goal. It was a goal, not a commitment. For us, it's really in this order, reliable, affordable, and clean. As we start to see some scale of new resources coming online, that'll be the time utilities like Idaho Power can embrace those technologies on our system. But, again we make those things happen at scale where they can be efficient for our customers.

ML: A portion of the energy required for the AI data centers is used for their cooling systems, which protect their chips from overheating. The most common type is water cooling, either in an evaporative or closed-loop system. Evaporative cooling consumes fresh water from local water supplies because it relies on the evaporation of that water to remove the heat.

AK: If it's an evaporative, water-wasting, inefficient data center, it's going to have impact on the water consumption, on electricity consumption, on local resources. If a data center is closed loop, that basically means it is not using any external water. Closed loops are used for a high volume of processing. The consumption of water is almost non-existent because one, they use deionized water, and two, they would add glycol to that water before they use it. So it's just like your car's radiator. Sometimes that glycol and deionized water has to be refreshed. How many times do you fill your car's radiator is a very easy comparison on the water side.

ML: Along with water concerns, are questions about how these data centers will impact the environment around them. With some data centers raising noise levels to 96 decibels, the Environmental and Energy Study Institute shows concerns for sleep deprivation, increased stress and blood pressure, and decreased cognitive performance. These noises and land development can create a disruption of habitat and hunting patterns of local animals.

AK: Some data centers are really, really bad for our environment, and they should never be built anywhere. And there are data centers that are very useful, very efficient, and that can utilize the resources available to us and bring more benefits, and those should be built.

I'm not an environmental expert, but in the case of Pocatello, where you're putting it in the Hoku site, where for 20 years there's already been factories, the impact would be almost negligible. It's a very, very specific question. But if you're in an industrial zone, and you're putting a data center that is connected to a generator that has industrial silencers on it, they're going to make a lot less noise, nobody will even notice them.

ML: The conversation is less about whether data centers are inherently good or bad, and rather how Idaho is considering their responsibilities in accommodating this growing industry. So, are there possible future solutions that could make AI data centers have a more sustainable impact on the communities they enter?

MR: There is an argument to be made that, as some of these larger users come onto the system, there are opportunities for them to cover a greater amount of some of the fixed costs that it takes to operate our system. There are also some advantages that they can bring in those times of the day when we aren't able to fully utilize our resources, when energy use is lower. I think one of the other things that will be interesting over time is their ability to have flexible load or curtailable load that doesn't necessarily impact our peak hours. I think it remains to be seen whether that's truly possible, but I'd like to think that in the future, some of these data center projects are able to be malleable to what works best for our system and what works best for other customers.

AK: You can make the conditions that data centers have to meet. On July 1st, the state of Idaho's new law actually came into effect where data centers cannot use water. And I was talking to one of the data center developers out on the East Coast and I asked are you going to regret coming towards Idaho or where these kinds of laws are being passed? Just to understand how these people are thinking. And the response was very simple. He said, no, because we don't use the evaporative systems anymore, it's a lot more cost to run and maintain. We don't want to spend all that money on water when we can use a closed loop system.

ML: The new law in Idaho Khan refers to, is House Bill 895, where AI data centers in Idaho that begin construction after July 1 of this year, "may not use water for cooling purposes as a consumptive use, unless supplied by a municipal, water district, or water/sewer system."

AK: It's technological evolution. There will be an impact. There could be, of course, negative impact if it's not done right. Okay, but we still need to use AI for our businesses, for writing our letters, to edit our radio programs, to edit our TV ads, to provide efficient travel information. Whose AI data centers should we use? If we stop building data centers, the rest of the world is not going to stop tomorrow.

ML Outro: Thank you to Ali Khan from MOATIT and Megan Ronk from Idaho Power for sharing more about AI data centers and their role in Idaho's economic development, energy, and environment. While this technology is still developing, the long-term effects are not yet fully understood. Each project has different needs and impacts, leaving communities to lead the conversation. Thank you for tuning into Sustainable Idaho.

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