COLORADO
Data Center Impacts in the West: Policy Solutions for Water and Energy Use

**Western Resource Advocates**

Seemingly overnight, artificial intelligence is now built into everything from iPhones and Google searches to online services like Amazon. As entire industries work to adapt to the sweeping change of AI, data centers — the buildings that serve as the engines of AI and cloud computing — pose explosive demands on Colorado's energy and water.

KEY FINDINGS

- The collective annual energy demands of the utilities in WRA's region are projected to be **55% higher in 2035**. This equates to an annual growth rate of 4.5% over the next decade.

- The growth projected in just the **next five years** surpasses the current system of electricity production – that took a century or more to build.

- If projections of data center load growth become reality, these new facilities in the Interior West could have an annual on-site water use of **21,600 acre-feet (7 billion gallons) in 2035**. This amount of water can serve the annual needs of up to 194,400 individuals.

47% higher in 2030

75% higher in 2035

*Xcel's annual energy demands compared to its 2021 ERP load growth forecast.
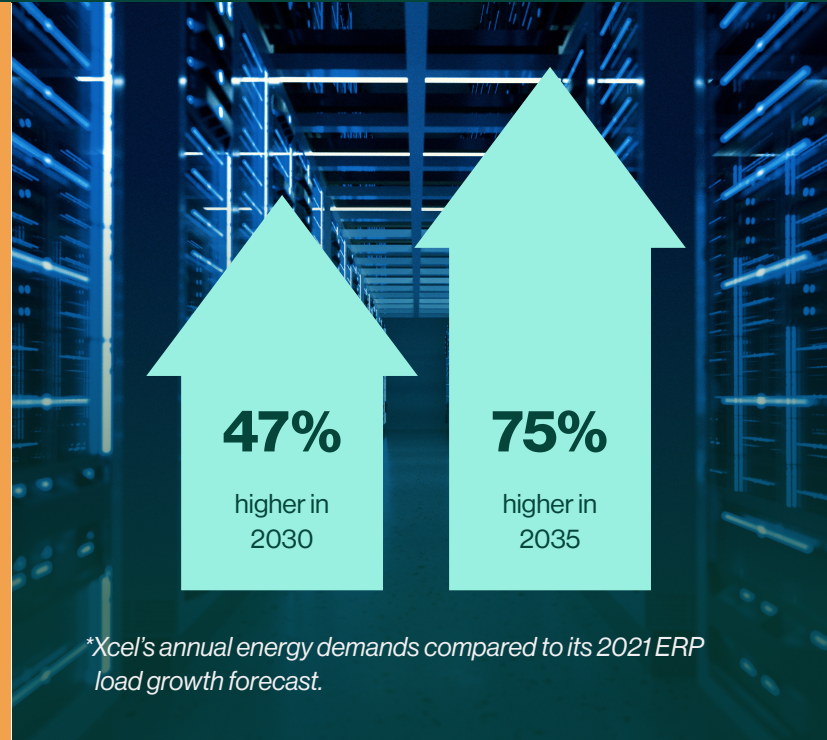
TRI-STATE GENERATION AND TRANSMISSION

Tri-State serves member electric distribution cooperatives across Colorado, New Mexico, Wyoming, and Nebraska. In its 2023 Electric Resource Plan proceeding, Tri-State included a modest level of new large commercial loads in its load forecast, which was based on information provided by its members. In response to discovery in May 2024, Tri-State stated that its load forecast includes 65 megawatts of new large, unspecified customer load in 2030, and 103 megawatts of new large customer loads in 2035.

PUBLIC SERVICE COMPANY OF COLORADO (XCEL ENERGY)

In its Just Transition Solicitation (JTS) filed in October 2024, Xcel Energy projects significantly higher demands — both peak demands and annual energy — than it forecast in its

2021 Electric Resource Plan (ERP). The vast majority of these demands stem from "large loads," which include both new manufacturing facilities and data centers. Specifically, compared to its 2021 ERP load growth forecast:

- Xcel's peak demand forecast is 25% higher in 2030 and 43% higher in 2035. By 2030, large loads are forecast to increase Xcel's peak demands by almost 1,500 megawatts, relative to 2023 levels.

- Xcel projects that its annual energy demands will be 47% higher in 2030, and 75% higher in 2035. By 2030, large loads are forecast to increase annual energy demands by 11,400 gigawatt hours.

- Using an estimate of the national average on-site water intensity of data centers of and Xcel's energy demand projections, WRA estimates the incremental, new water demands associated with cooling data centers in Colorado could be 4,865 acre-feet per year in 2030 and 8,498 acre-feet per year in 2035.

Xcel's JTS application highlights the potential impact of data center loads on emissions. The utility's preferred plan suggests a modest increase in greenhouse gas emissions, compared with its approved 2021 ERP; under Xcel's base plan in its pending JTS, the company would achieve an 85% reduction in emissions by 2030, relative to 2005 levels, whereas under the approved 2021 IRP, Xcel would have achieved an 87% reduction. This is a difference of 760,000 tons of greenhouse gas pollution and emissions reductions could be expected to backslide further — potentially down to the 80% statutory requirement.

8,498 acre-feet per year (2.7 billion gallons) in new water demands, or enough water to support up to 55,242 individuals.

760,000 additional tons of greenhouse gas pollution.

XCEL CO

Xcel Energy (CO): Annual Energy (GWh)
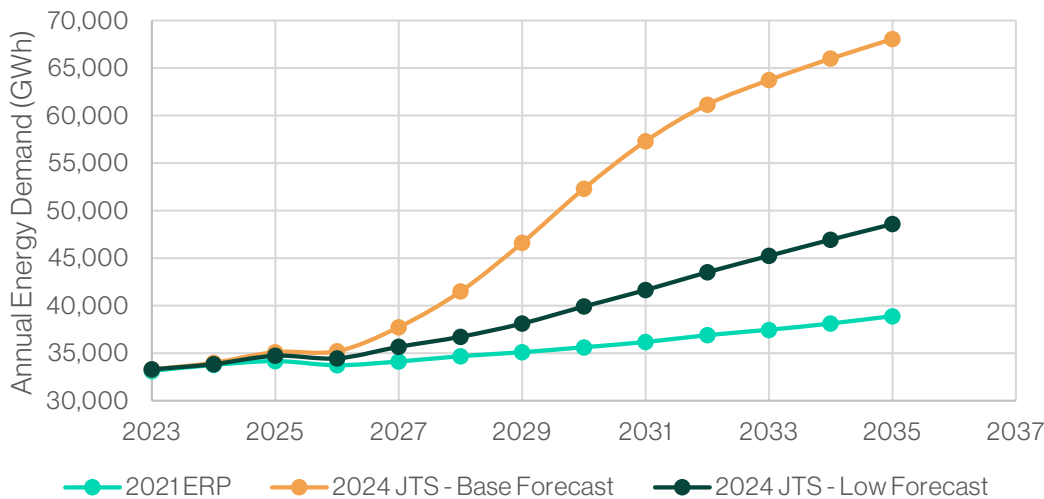
Xcel's annual energy forecast under the 2021 ERP and the 2024 JTS (both the base forecast and a low growth forecast).

Legend: 2021 ERP — 2024 JTS - Base Forecast — 2024 JTS - Low Forecast

Xcel Energy and Tri-State Generation and Transmission must reduce greenhouse gas emissions associated with their Colorado load by at least 80% below 2005 levels by 2030 according to Colorado statute.

Xcel is one of several utilities in the Interior West that offers economic discount rates to select large-load customers.

As AI usage increases and data centers expand, we must meet new energy demands with clean energy and rapidly decarbonize the rest of our energy infrastructure, while also understanding the impact these centers have on our already stretched water supplies in Colorado.

We need policies that advance clean energy, preserve scarce water resources, and protect electricity customers. With the right policies in place, data centers can catalyze investments in innovative clean energy resources while driving broader system transformation.

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