



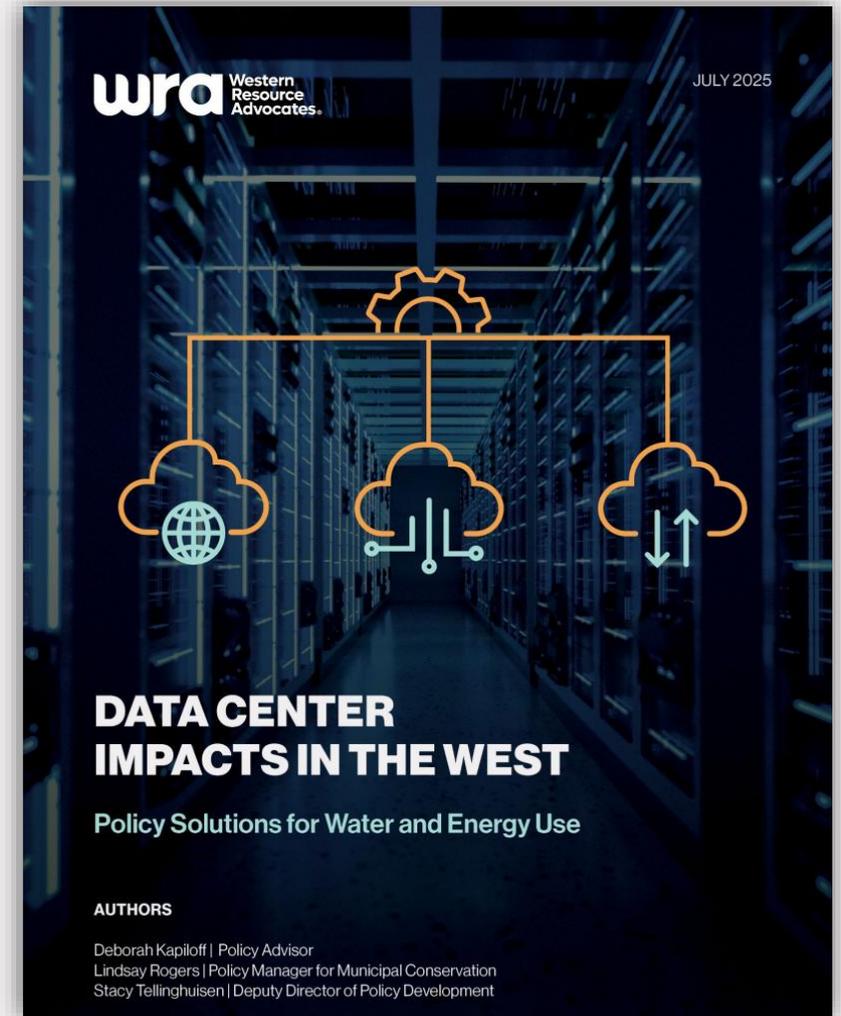
Data Center Impacts in Arizona: Policy Solutions for Water and Energy Use

Deborah Kapiloff and Alex Routhier, Ph.D.

Welcome!



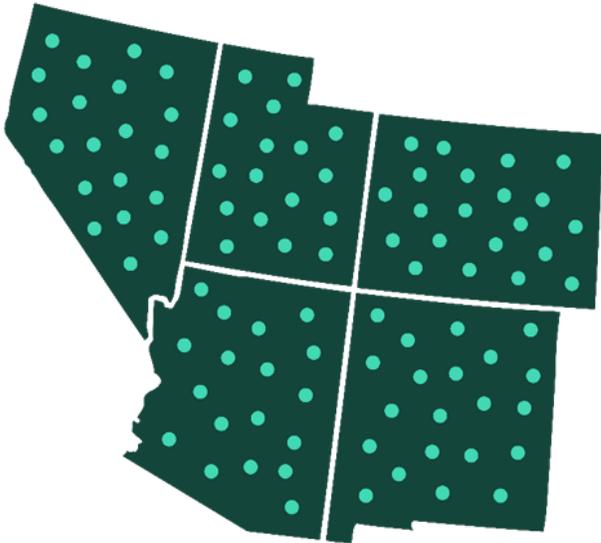
- ✓ Introduction
- ✓ Water and power impacts of data centers
- ✓ Navigating water and power demands
- ✓ Solutions and policy in other states
- ✓ Q&A



Overview of Data Center Resource Use in the West



Water Use



● Is equivalent to 2,000 people, representing 194,000 people in total.

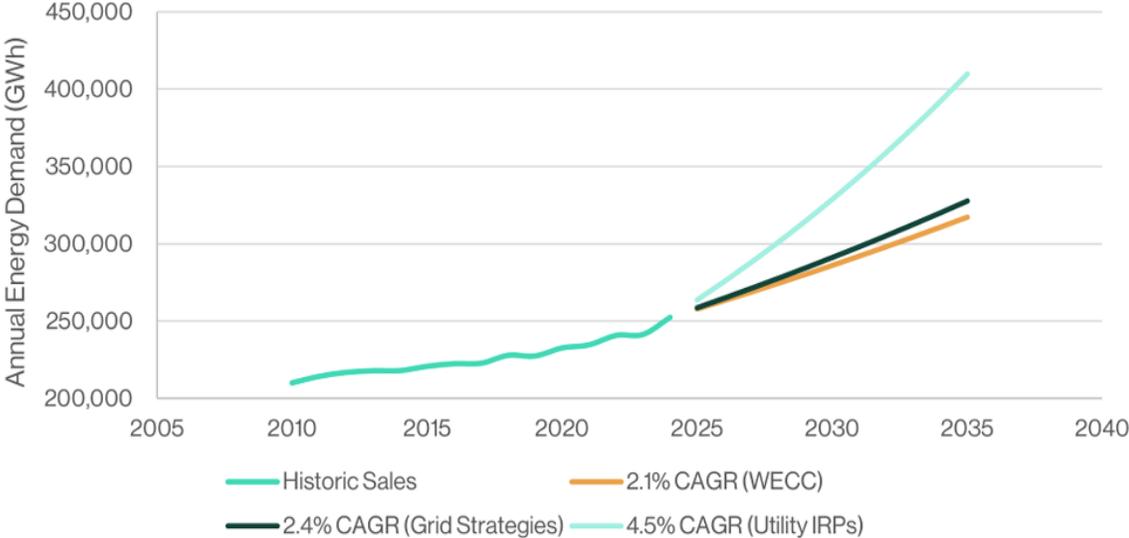


13.7K
estimated acre-feet of consumptive water use by 2030.

21.6K
estimated acre-feet of consumptive water use by 2035.

Energy

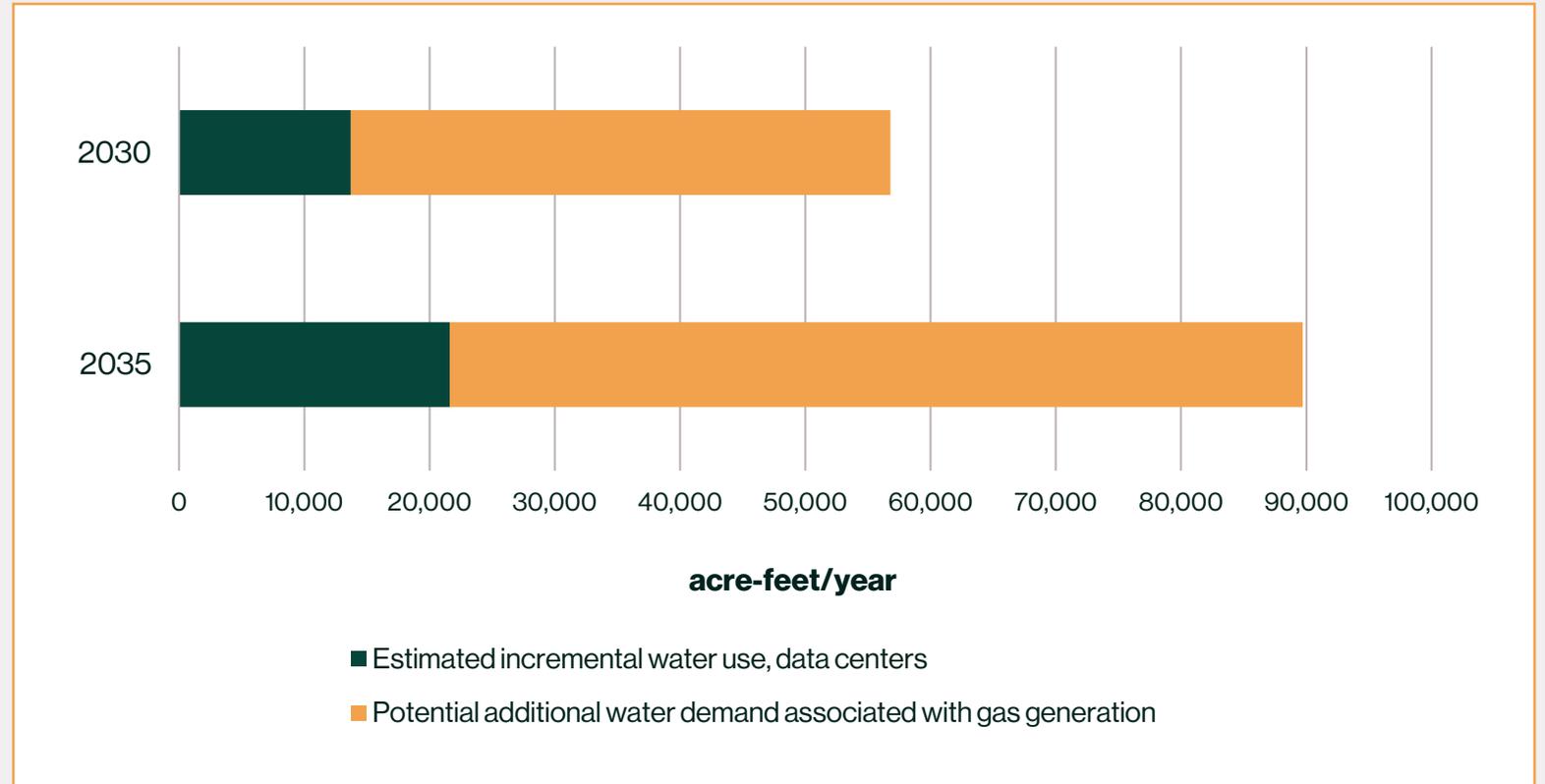
Historic and Projected Future Demands (AZ, CO, NV, NM, and UT)





Water Impacts

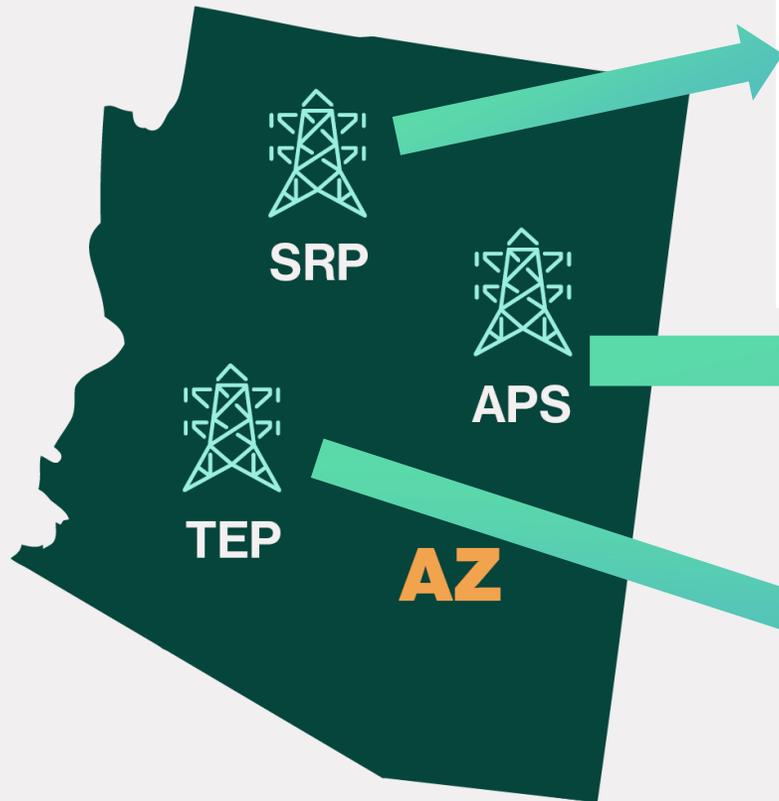
- Water is used on-site for cooling and offsite for power generation
- Water use efficiency (WUE, L/KwH) varies significantly based on cooling technology, climate, and design



Data Center Resource Use in



Arizona



↑ **30%* higher in 2035**
**Increase in annual energy demands compared to SRP's previous forecasts.*

⚡ **4,049 acre-feet per year (1.3 billion gallons)**
in new water demands, or enough water to support up to 31,000 individuals.

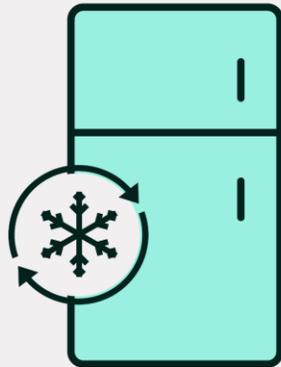
↑ **24%* higher in 2035**
**Increase in new annual energy demands compared to APS' 2020 IRP.*

⚡ **3,312 acre-feet per year (1.08 billion gallons)**
in new water demands, or enough water to support up to 25,000 individuals.

↑ **52%* higher in 2035**
**Increase in projected annual energy demands compared to TEP's 2023 IRP.*

⚡ **1,953 acre-feet per year (637 million gallons)**
in new water demands, or enough water to support up to 15,000 individuals.

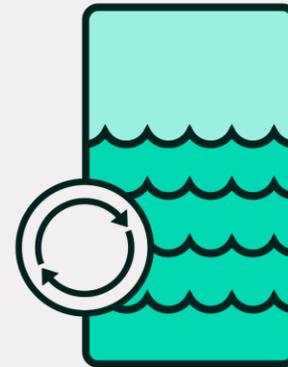
Water vs. Energy Tradeoffs



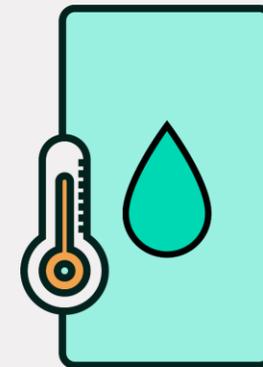
Refrigeration cooling systems use an air handler, circulate either cool air or water in the data center, and remove hot air.



Adiabatic- or direct-evaporative-cooling systems use water to cool air that is circulated in the data center.



Free-cooling systems take advantage of outdoor ambient air or water temperatures to cool the air that is circulated in a data center.



Liquid-cooling systems directly absorb heat from computer components, rather than cooling the air around the computers.

Navigating Water Demands

1. **Consistent, transparent water use reporting**
2. Technical best management practices for on-site water management
3. Large water user policies

Public officials reconsider NDA process amid Project Blue outrage

Elected officials for both the city of Tucson and Pima County say they wish they had more information – and could have shared more with the public



by Yana Kunichoff and John Washington
August 4, 2025



The proposed site of a 290-acre data center near Houghton Road in Tucson. Credit: Michael McKisson

Navigating Water Demands

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Water authority moves to conserve on cooling systems in Southern Nevada

High-consumption evaporative systems banned in new commercial buildings amid drought



Steven Lewis, general manager for the a/c company Ambient Edge, showing their own evaporative cooling unit at their shop in Henderson, Nevada. Thursday, September 14, 2023. Brian Ramos Photo by: Rhiannon Saegert

By Rhiannon Saegert

Monday, Sept. 25, 2023 | 2 a.m.

Navigating Water Demands

1. Consistent, transparent water use reporting
2. Technical best management practices for on-site water management
3. **Large water user policies**

After Project Blue outcry, Tucson adopts rules for large water users

New ordinance adds oversight and transparency for companies seeking millions of gallons from the city system

by Yana Kunichoff
August 20, 2025

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A community member holds a sign at the Project Blue info session at the TCC on Aug. 4, 2025. Photo by Michael McKisson // Un miembro de la comunidad sostiene un cartel en la sesión informativa del Proyecto Blue en el TCC el 4 de agosto de 2025. Foto de Michael McKisson.



Navigating Power Demands

SRP Minimum Billing

Changes to E-67 plan made:

- “In an effort to shield other customers from being required to pay for costs incurred to serve customer load that may not materialize...”
- All loads over 20 MW
- Minimum demand charge on the greater of actual demand or 80% of forecasted load



Navigating Power Demands

APS Rate Case: Extra High Load Factor Customers

XHLF = Customers that have a constant load throughout the day, close to their maximum possible load

- Attempting to make growth pay for growth
- All cost incurred from generation built to serve data centers will be borne by data center customers
- Creating mechanism to attempt to insulate ratepayers from rising costs due to data center loads



ACC Data Center Docket

- Docket No. E-00000A-25-0069
- Opened By Chairman Thompson in April 2025

“... it's important to balance the economic opportunities presented by data centers with the need to financially protect other ratepayers to ensure they are not bearing the rising energy generation and transmission costs associated with this burgeoning industry.”

WRA's Recommended Policy Solutions

wra



Clean Transition
Tariffs



Behind-the-Meter
Clean Resource
Deployment



Load Shifting



Energy
Efficiency



Contract
Provisions



Ratemaking and
EDR Reform



Water Efficiency
and Reporting

Minnesota HF16/SF19



- Water use considerations explicit in project approval
- Large customer class directive for the commission
- Criteria for approval of tariffs or electric service agreements for large customers
- Clean energy and capacity tariff required for all public utilities
- Requirement for data centers to meet sustainable design or green building standards

“Data centers will use less electricity in Minnesota, because Minnesota is colder,” said [Rep. Duane Quam](#) (R-Byron).
“That’s why so many would like to put them here.”

Texas SB6



Passed by a supermajority and signed by the governor



Rulemaking to ensure large loads are paying their interconnection costs



Requirement for use of backup generation for load curtailment



Financial commitments for transmission needed to serve new large loads



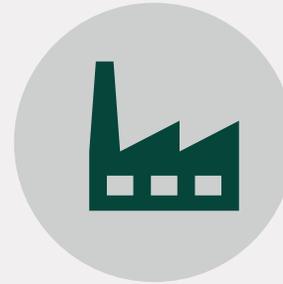
Methodology for demonstrating site control



Oregon HB 3546



Defines large load as 20 MW or above



Different class of service from other industrial & commercial classes



Commission must consider whether the rate structure impedes the state's clean energy goals, whether the costs of serving the class are represented and mitigate the risk of other classes having increased costs



10-year minimum contract term and obligation requiring the retail electricity consumer to pay a minimum amount or percentage, based on the projected electricity usage

Questions?