



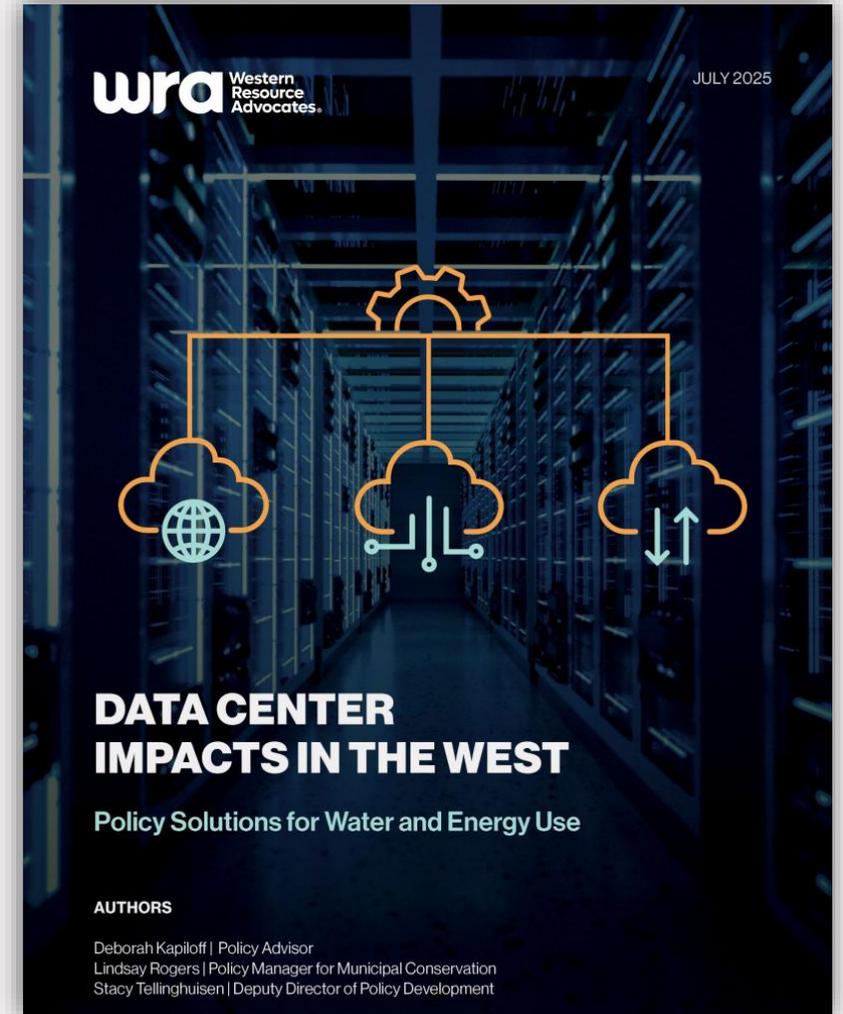
Data Center Impacts in Colorado: Policy Solutions for Water and Energy Use

Deborah Kapiloff, Lindsay Rogers and Clare Valentine



Welcome!

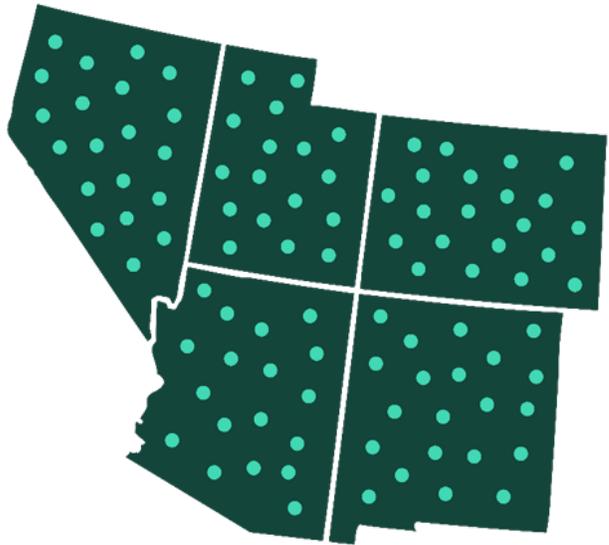
- ✓ Introduction
- ✓ Overview of water impacts of data centers
- ✓ Load growth in Colorado
- ✓ Xcel Energy's Just Transition Solicitation
- ✓ Solutions and policy in other states
- ✓ Q&A



Overview of Data Center Resource Use in the West



Water Use



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

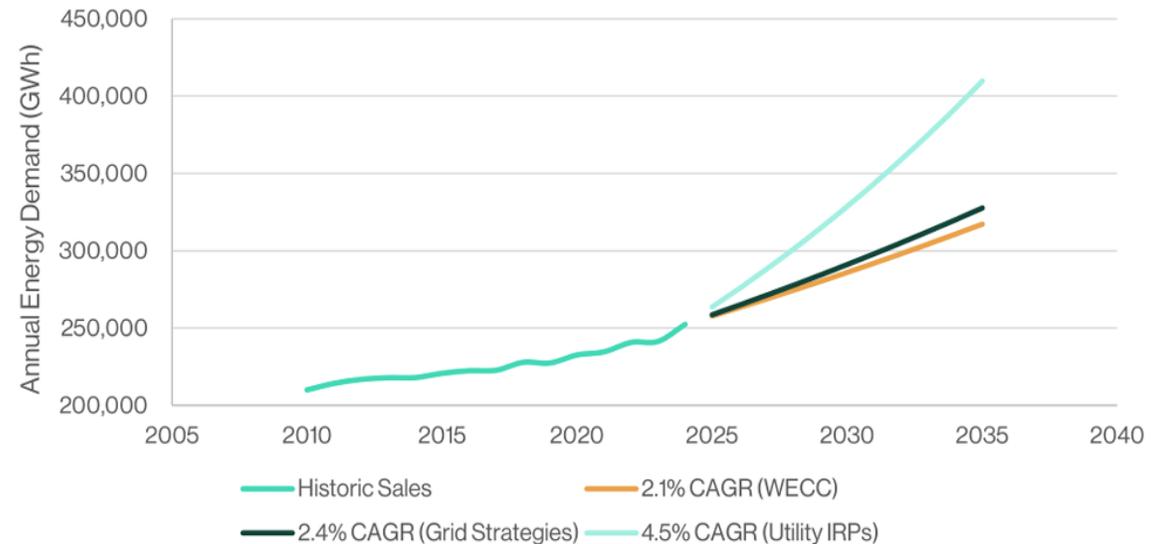


13.7K
estimated acre-feet of consumptive water use by 2030.

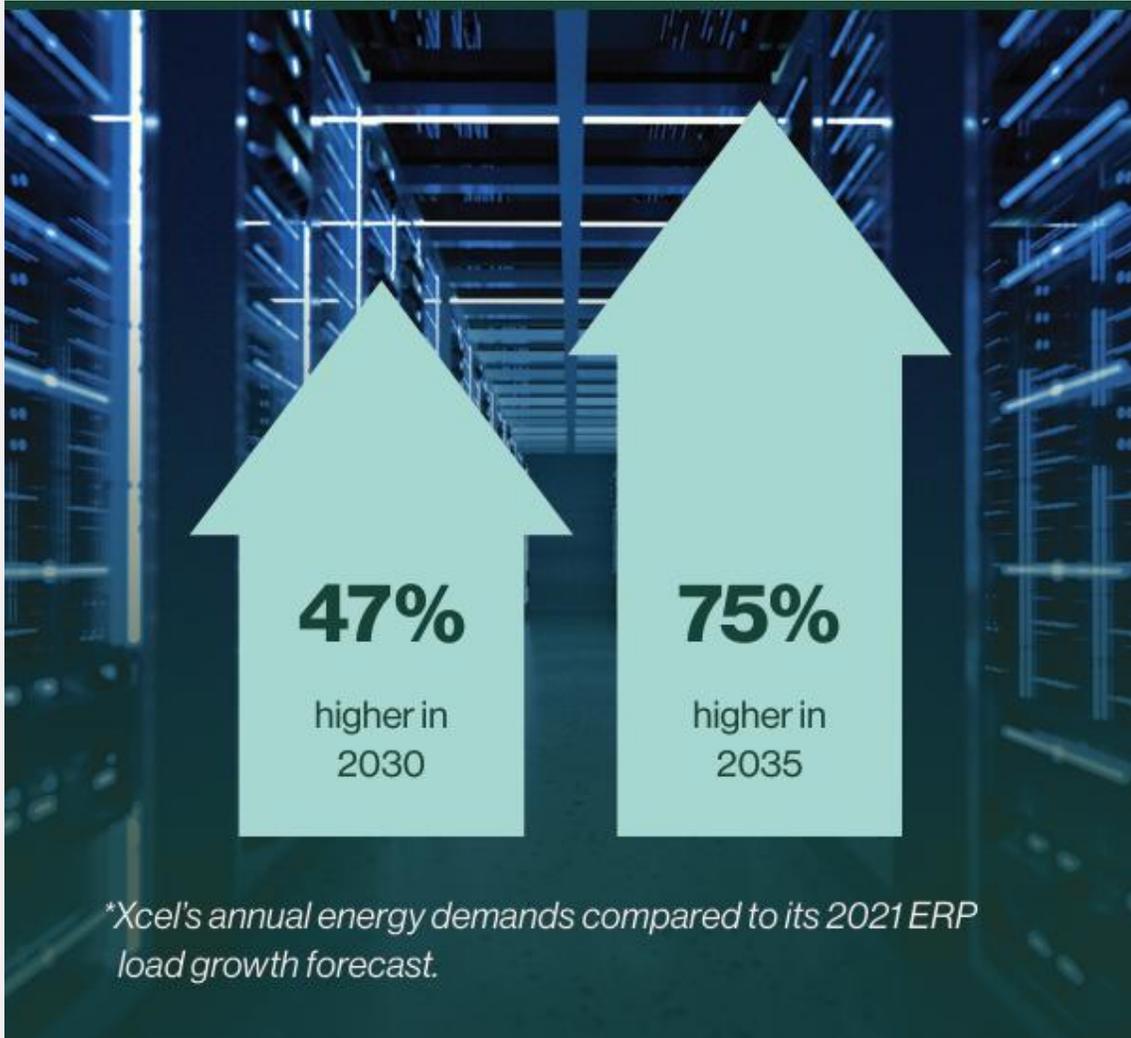
21.6K
estimated acre-feet of consumptive water use by 2035.

Energy

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



Data Center Resource Use in Colorado



**Xcel's annual energy demands compared to its 2021 ERP load growth forecast.*

**8,498 acre-feet per year
(2.7 billion gallons)**

in new water demands, or
enough water to support up to
55,242 individuals.

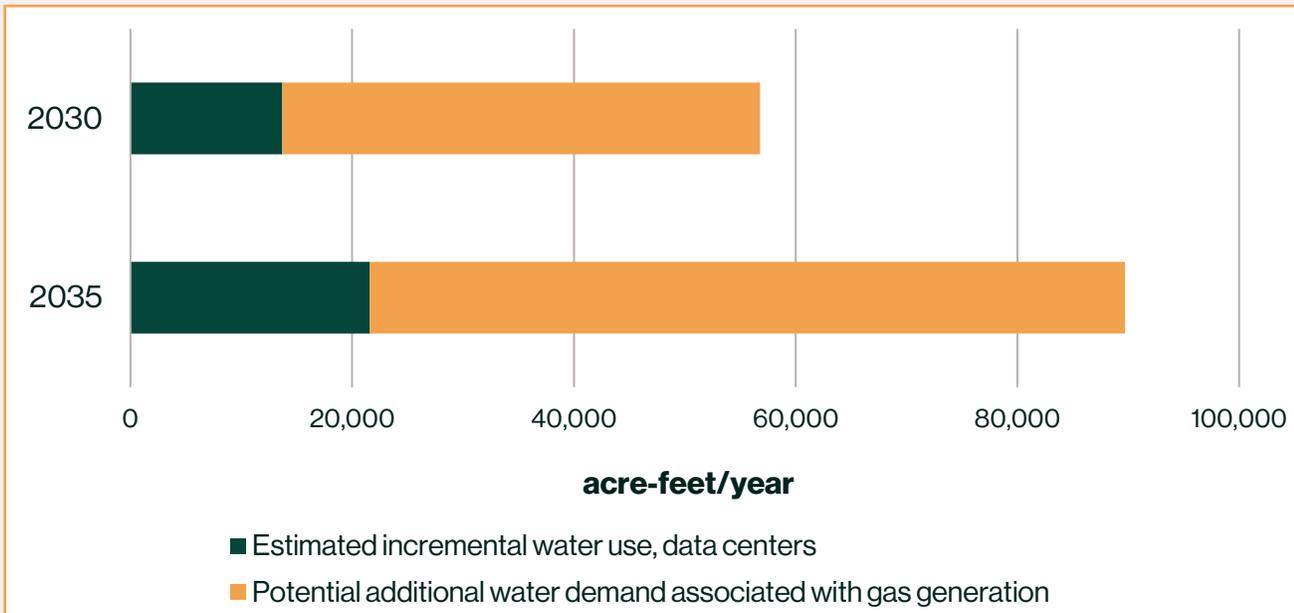
760,000 additional tons
of greenhouse gas pollution.



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



THE DENVER POST

NEWS > ENVIRONMENT • News

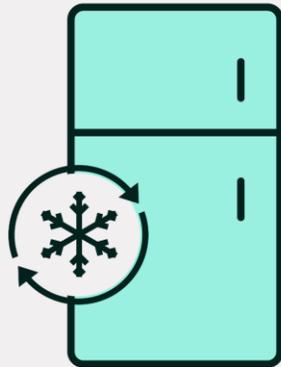
A new Denver data center could use as much water as 16,000 people every day. Should the city give it a tax break?

CoreSite plans to build a three-building, 600,000-square-foot data campus in Elyria-Swansea

A rendering shows the design of a new CoreSite data center proposed for Denver's Elyria-Swansea neighborhood. (Provided by CoreSite)

By **ELISE SCHMELZER** | eschmelzer@denverpost.com | The Denver Post
UPDATED: October 14, 2024 at 6:03 AM MDT

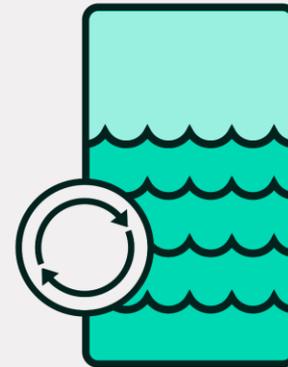
Water vs. Energy Tradeoffs



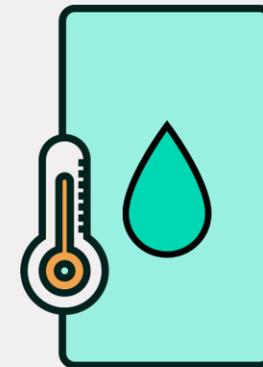
Refrigeration cooling systems use an air handler, circulate either cool air or water in the data center, and remove hot air.



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 users policies

A screenshot of a webpage from the Colorado Freedom of Information Coalition (CFOIC). The page features the CFOIC logo at the top, which includes a stylized 'C' with a yellow center and the letters 'FOIC' in blue. Below the logo is the text 'Colorado Freedom of Information Coalition' and 'THE VOICE FOR OPEN GOVERNMENT IN COLORADO'. A dark blue navigation bar with a white hamburger menu icon is positioned below the text. The main content area has the heading 'PUBLIC RECORDS LAWS' in blue, followed by the article title 'Judges in Denver and El Paso County order disclosure of data centers' water consumption records' in large, bold black font. The date 'JANUARY 28, 2025' and the author 'By Jeffrey A. Roberts, CFOIC Executive Director' are listed below the title. A short paragraph of text at the bottom of the screenshot reads: 'Court rulings in Denver and El Paso County this month rejected arguments from public utilities that water usage records for large data processing centers are confidential under the Colorado Open Records Act.'

Navigating Water Demands

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

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

[Email](#) [Bluesky](#) [X](#) [Facebook](#)



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.



Colorado Utilities' Energy Demands

- **Tri-State:** not reporting significant growth in official avenues, but its structure makes it more challenging to assess. Has filed a new High Impact Load Tariff.
- **Black Hills:** announced a merger with NorthWestern Energy to serve data center load, expecting a 5-7% annual growth rate.
- **Xcel Energy:** massive amounts of projected growth.



Data Center Load Growth:
Xcel Energy Colorado
Just Transition Solicitation

Overview

- Background on the Just Transition Solicitation, the Xcel Energy Colorado system, and Colorado's policy environment
- Magnitude and uncertainty of forecasted data center load growth
- Potential ratepayer and environmental impacts of data center load growth
- Policy solutions



Background

A circular graphic with a teal-to-dark-teal gradient and a glowing cyan border. The text '80 x 2030' is centered in white, bold, sans-serif font.

**80 x
2030**

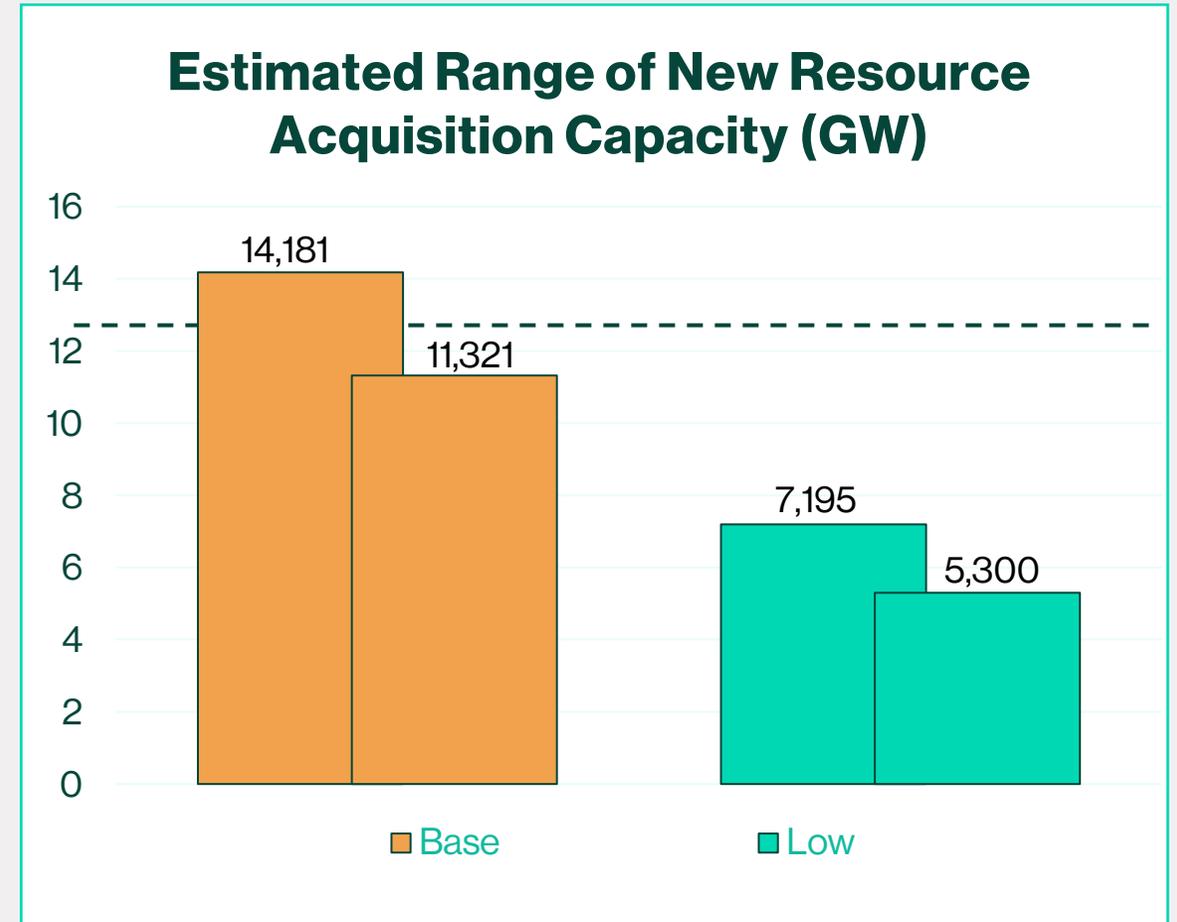
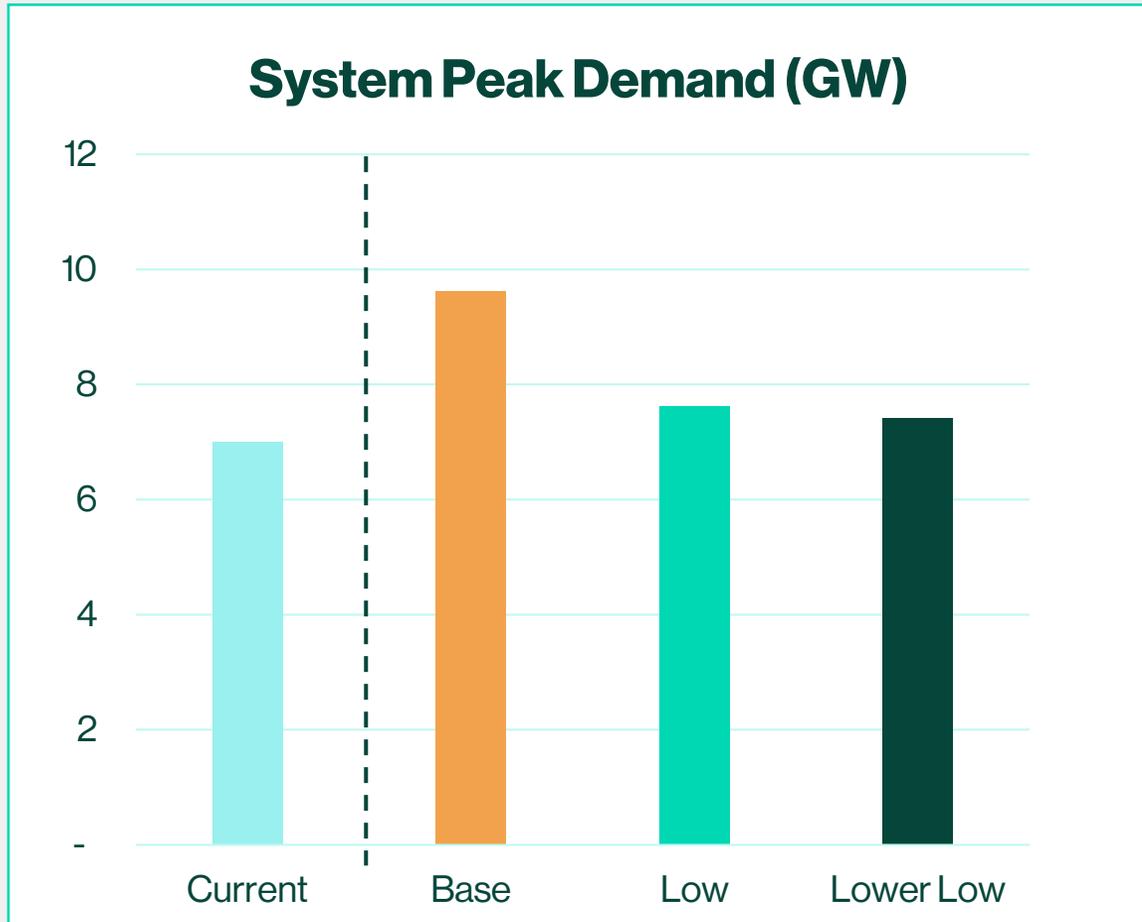
A circular graphic with a solid orange-to-teal gradient and a glowing cyan border. The text '7 GW' is centered in dark teal, bold, sans-serif font.

7 GW

A circular graphic with a teal-to-dark-teal gradient and a glowing cyan border. The text '33.3 GWh' is centered in white, bold, sans-serif font.

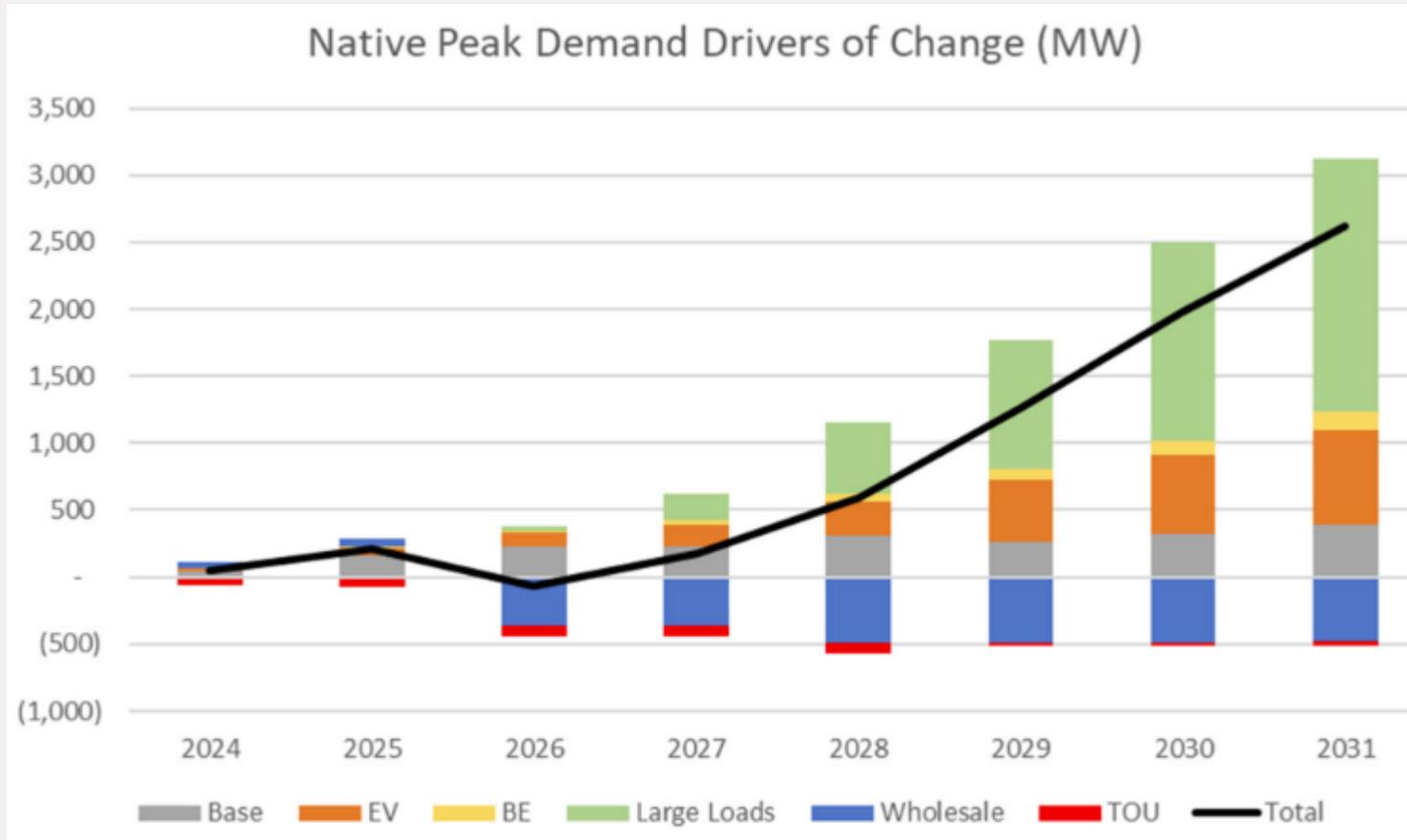
**33.3
GWh**

Large Load Growth in the Just Transition Solicitation





Large Load Growth in the Just Transition Solicitation



“The expected addition of large new loads is the key driver of growth in the Base Case forecast, accounting for...**72 percent of the peak demand growth** through the resource acquisition period.”

- Public Service Direct Testimony



Large Load Growth in the Just Transition Solicitation



Large loads included in the forecast had virtually no financial commitment to remaining in Colorado.



Several large loads withdrew service requests during the proceeding, including the largest load in the queue.



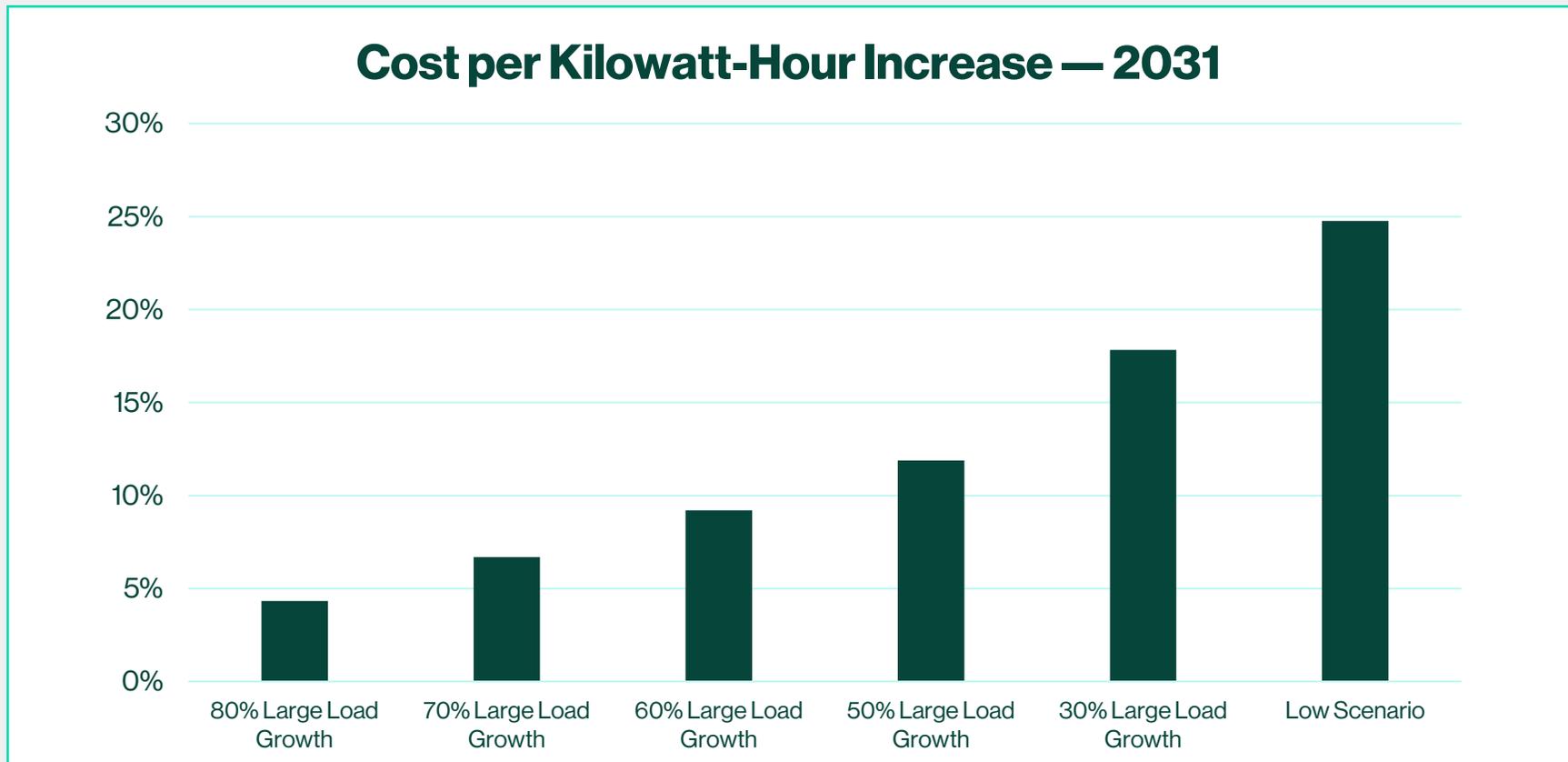
"And all this uncertainty is playing out in the context of major delays and cost increases for the 2021 Electric Resource Plan projects. So given all these uncertainties, I can't get comfortable approving anything like the level of resource need and investment that the Company is seeking in either of its base load forecasts."

– Commissioner Blank, in the Commissioner's Weekly Meeting on August 6, 2025



Ratepayer and Environmental Impacts

If large load does not materialize, existing ratepayers will bear the costs.





Ratepayer and Environmental Impacts

Even if large loads materialize, residential and regular commercial customers are slated to bear the brunt of the Company's capital plan.

Class	Rate Increase in 2031, Relative to 2024
Residential	28.2%
Commercial & Industrial (No Transmission)	18.9%
Commercial & Industrial (Transmission)	0.3%
Lighting	9.5%
All Retail	6.7%



Ratepayer and Environmental Impacts

Higher forecasts for large load growth drive gas combustion turbine resource selection in the modeling.

Load Forecast	<u>Lowest</u> Amount of Gas Selected in a Portfolio	<u>Highest</u> Amount of Gas Selected in a Portfolio
Base	1,575 MW	2,625 MW
Low	700 MW	1,050 MW



Policy Solutions in the Just Transition Solicitation

★ Large Load Tariff

Line Extension Policies

Clean Transition Tariff

Cost Allocation

Flexible Service
Connections

Emissions Modeling

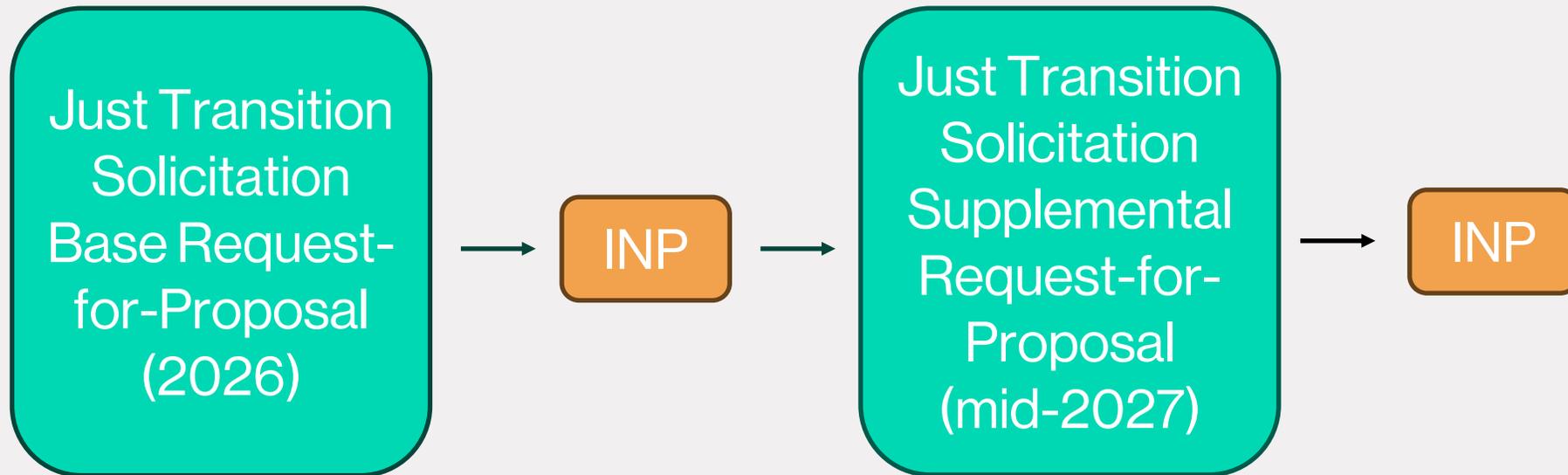
Demand Management

★ Procurement Processes



Policy Solutions in the Just Transition Solicitation

Incremental Need Pool (INP): Pool of resources that are on-call to be activated for development in response to bid failures or load growth.



Our Recommended Policy Solutions



- 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 or load curtailment



Financial commitments for transmission needed to serve new large loads



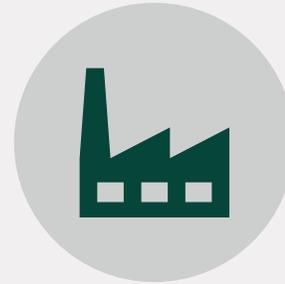
Methodology for demonstrating site control



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?