Hyperscale Data Centers

CRES Policy Position Statement and Educational Resource

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Section I - CRES Hyperscale Data Centers (HDCs)
Policy Principles, Background Information, Recommendations for Consideration by the 2027 Colorado General Assembly

Section II – Educational Resources - Recent Reporting, Updates, Sources, and Situation Assessment

- **Defining Data Centers, Reporting on Legislative Activity, Moratoria and Bans**
  - Defining data centers
  - Data centers in Colorado
  - Colorado's HDCs
    - QTS in Aurora
    - CoreSite center in North Denver
    - Colorado Springs - Garden of the Gods (planned)
    - Global AI Data Center – Windsor (planned)
    - Others in the planning stages
  - Description and reporting on the "Guardrails" and "Incentives" data center bills introduced in the 2026 legislative session
  - Reversing of the incentives trend
  - The movement towards HDCs moratoria and bans
- **The Impacts of HDCs**
  - The massive energy demands
  - Colorado's electric resource adequacy position
  - Bring your own power
  - Impacts on electric customers
  - Large load tariffs
  - Public health and the environment
  - Water challenges
  - Nuclear power and HDCs
  - Local heat island effect
  - Cryptocurrency
  - Noise pollution
  - Promising HDC technological developments, with more on the horizon
- **The Evolving Landscape of AI and HDCs**
  - Considerable uncertainties exist around the future growth of HDCs
  - The potential for an economic bubble
- **Summary and Conclusions**
- **Description of CRES**

Section I – CRES Hyperscale Data Centers

Policy Principles, Recommendations for Consideration by the 2027 Colorado General Assembly

CRES adopts these hyperscale data centers (HDCs) policy principles:

1. Colorado jurisdictions should place a moratorium on the permitting of HDCs until the legislature enacts guardrails equal to, or stronger than, those proposed in SB26-102.

2. Colorado and local jurisdictions must not provide incentives (such as tax breaks) to HDCs.

3. Colorado must require that HDC power supplies comply with the greenhouse gas emission reduction standards defined in HB19-1261 and SB19-236.

4. Should HDCs seek to power their facilities with methane gas, either directly, or from a facility built to power the HDCs, the legislature must ensure that the maximum level of public health protections is legally codified to include a net-zero new direct emissions standard enforced by the Colorado Department of Public Health and Environment's Air Pollution Control Division.

5. Colorado must limit water consumption by HDCs by prohibiting the use of evaporative cooling technology in their facilities. We support the imposition of water use effectiveness standards equal to, or stronger than, those proposed in SB26-102.

6. The legislature must ensure that Colorado utility regulations will not allow the infrastructure costs that were caused to serve HDCs to be shifted onto captive customers. HDCs must pay upfront for their full impact on the electric system.

7. Colorado should repeal laws that provide deeply discounted economic development rates to large loads as allowed in HB18-1271 and the follow-on law HB25-1177.

8. Colorado must ensure that state law precludes any jurisdictions from allowing HDCs to generate harmful noise pollution.

Section II – Educational Resources

Recent Reporting, Updates, Sources, and Situation Assessment

Concern is growing in Colorado regarding the potential arrival of more energy- and water-intensive, and air-polluting Hyperscale Data Centers (HDCs). At present, Colorado lacks meaningful protective economic and environmental guardrails to ensure that the arrival of HDCs does not cause the negative consequences observed across the country. We seek guardrails similar to, or stronger than, those identified in SB26-102, described below.

The arrival of new lightly regulated HDCs would introduce significant economic and environmental risks to Coloradans. HDCs represent the opposite of demand-side management, a key energy-conservation policy that has been rightfully pursued by state leaders for years.

Defining Data Centers, Reporting on Legislative Activity, Moratoria and Bans

Defining data centers

HDCs are not legally defined, but they typically fall within the range of a minimum of 20-50 megawatts (MW) of power consumption. They are operated and owned by major cloud service providers (such as Amazon, Google, Microsoft) and other corporations that sell services to a range of business interests. They occupy large physical footprints and operate increasingly to facilitate Artificial Intelligence (AI) workloads.

Other types of data centers include smaller 'enterprise' data centers (primarily for private IT services), collocated data centers (in which multiple clients share a data center space), and edge data centers (also smaller in size, and located close to end users to reduce latency).

AI advances have swept across all sectors of our economy, resulting in announcements and developments of what are termed "AI Data Centers." These seek to build in the gigawatt scale (1,000 megawatts and above). Scale matters. In contrast to HDCs and gigascale data centers, traditional data centers with less than 20 megawatts of power demand are of far less concern, as their impacts are, by comparison, more manageable.

Despite the surge in announcements and construction across the country, it would be prudent for Colorado to avoid viewing the development of HDCs in our state as inevitable. Heeding the siren sound of the "fear of missing out" has its risks. Utah and New Mexico illustrate what Colorado could face. The projected scale of these projects serves as a clear warning signal. We urge Colorado local jurisdictions to proceed with prudent caution and enact a pause (a moratorium) to allow time for a meaningful guardrails bill to become state law.

Data Centers in Colorado

Data Center Map.com indicates that Colorado currently has 57 data centers, with 45 located in the Denver area. 55 of Colorado's 57 data centers are less than 20 MW. These smaller data centers are not the subject of widespread discussion because their impact is low.

There are plans for more data centers in Colorado, but at present, the state has only two HDCs. The first one built is the rapidly expanding massive QTS center in Aurora. The second, under construction, is the CoreSite development in the Globeville-Elyria-Swansea area in North Denver. Two others are under advanced consideration – one in Windsor, and the other near the Garden of the Gods State Park in Colorado Springs.

Three others, perhaps there may be more, are in the planning stages. The Cielo Digital Infrastructure Data Center may be slated to be built in New Raymer, in Weld County. It is reported that the developers have assumed that they have access to 750 MW of power.

It is also reported that a 380 MW Fontus Data Centre Project is in the planning/proposal stages, in an undisclosed location in Colorado. It is reported that Frontus is in the process of seeking natural gas and power interconnections.

In addition, in early 2022, Microsoft purchased a 260-acre parcel for $63.5 million in Aurora, in an industrial park south of DIA, with a reported ability to develop buildings that up to 1.1 million square feet in size and can build up to 6 million in square feet total.

QTS - Aurora

This Blackstone-owned $1 billion HDC is located on 65-acre property six miles south of Denver International Airport. A Colorado Sun article on the project states that "one of three massive data centers is already complete, a second appears nearly finished, and heavy machinery is now prepping a footprint for the third."

QTS paid Xcel $28.1 million for a 1.5-mile-long double-circuit 230 kV line that connects the data center to an Xcel substation, capable of supporting almost 1,000 megawatts of transfer capacity. By comparison, Xcel-Colorado (which serves about 65% of Colorado's electric customers) has a peak summer load demand of approximately 8,600 megawatts. According to this report, the facility will consume the power of 175,000 homes.

The first of the three buildings is rated at 177 megawatts. Once completed, the other two buildings will further pressure Xcel-Colorado's already stressed grid, with potentially risky power capacity consequences.

QTS recently revealed plans to install another 98 diesel backup generators at the facility, bringing the total fleet to 138 generators, capable of delivering around 345 MW of power. The pollution stemming from those generators will contribute to worsen our severe Front Range Ozone Non-Attainment public health problem.

According to the Colorado Sun, "a framework developed by Aurora Water bans almost all new large water users, such as golf courses or some heavy industrial projects. To comply, QTS states that their facility will rely on a closed-loop cooling system

(described later) to prevent its servers from overheating, rather than a far less efficient evaporative cooling system."

CoreSite – North Denver

This project is developed by American Tower's CoreSite, a Denver-based data center developer. The company specializes in what they describe as "our Edge Data Centers use our existing tower ground space to provide local infrastructure close to customers and end users, as AI and other modern workloads require low latency - the delay in data transmission between servers and clients. Milliseconds of latency can have a significant impact on success."

As reported in this Colorado Sun article, once complete, the campus known as DE3 will rely on Xcel power totaling 65 to 70 megawatts.

The project will activate backup diesel generators in the event of power outages, or when the grid is stressed. The pollution from the backup generators will occur only a block or two away from a low-income health clinic, a park, a recreation center, an affordable apartment complex, and an upcoming senior living center.

According to the Colorado Sun, "CoreSite plans to use evaporative cooling at its nearly completed facility in Denver's Elyria-Swansea neighborhood, which is expected to consume 275,000 gallons per day when operational."

The 80216 ZIP code, encompassing the disproportionately impacted Globeville-Elyria-Swansea community, is ranked as the most polluted ZIP code in America. Grassroots activism led by the Globeville Elyria Swansea Coalition, the Greenhouse Connection Center, and others continues to effectively raise public awareness of their situation, including getting the attention of Colorado lawmakers. Jane Fonda visited the community on June 25, 2026 to help increase public awareness. Her main emphasis was to urge citizens to press state and local governments to do their job and regulate HDCs.

CoreSite's decision to seek a permit to site one of its HDCs in the cumulatively impacted GES community highlights the need for appropriate regulation of data centers. The problem was made all the more evident after Denver's city government not only failed to raise questions when reviewing the CoreSite application, but also when the City's economic development office offered the company a $9 million incentive to move forward with the development. The offer was rescinded only after the optics of that idea were raised by residents to members of the Denver City Council.

In response to the community's concerns about the project, expressed most vividly after a community meeting drew 700 people in protest, the Denver City Council unanimously placed a minimum one-year moratorium to review the City's zoning ordinance to help protect communities from the harms of data centers. Nearly 60 Denverites showed up at the Council meeting. Several City Councilmembers apologized to the community for the City's lack of appropriate oversight of their permitting process.

Colorado Springs- Garden of the Gods
Colorado Springs is considering **Project Taurus,** an HDC proposed by Raeden. The 50-megawatt project would be located less than 1,000 feet from homes in the area and within view of the popular Garden of the Gods State Park. The project has received a preliminary approval despite community concerns over what may be the ultimate build-out plan.

Global AI Data Center – Windsor
This project is proposed for the former Kodak/Carestream Health campus at the Great Western Industrial Park. It will use a combination of local utility power and planned on-site self-generation to meet its massive energy needs as they target an HDC that could expand out to 1 gigawatt of power demand. Because the site currently sits in unincorporated Weld County (with the option to be annexed into either Windsor or Greeley), the proposed power supply would include Poudre Valley Rural Electric Association (PVREA) and Xcel Energy. The site has an existing industrial grid infrastructure that originally supplied power to the Kodak campus.

Because Global AI's ambitious target is up to 1 gigawatt of power demand, the developer has stated that the facility is being designed to ultimately rely on up to 90% on-site self-generation. The site is currently only served by PVREA (with a peak load of 289 megawatts). Due to its duty to provide electricity to its existing members, only a small fraction of PVREA's power can be dedicated to serving Global AI's demand. Because Global AI is in the severe front range ozone non-attainment area, good public policy would deny the applicant an air permit.

Description and reporting on the "Guardrails" and "Incentives" data center bills introduced in the 2026 legislative session.

The "Guardrails Bill" - SB26-102 Large-Load Data Centers - Concerning measures to ensure accountability for large-load data centers. The bill was sponsored by Democrats Senator Cathy Kipp and Representative Kyle Brown. If passed, the bill would have required HDCs to supply their own renewable energy, would have set water efficiency standards, would have tightened pollution standards for backup systems, and would have required meaningful community input for projects in historically polluted neighborhoods.

CRES articulated its strong support of SB26-102, joining many others by mobilizing citizens to communicate with legislators via letters and direct testimony.

In the final days of the session, the sponsor withdrew the bill when faced with a lack of majority support to move it out of committee. The bill's defeat has been attributed to intense opposition coming from the Data Center Coalition, certain segments of organized labor, and corporate lobbyists. The chance for passage may also have been hindered due to the governor's position of strategic ambiguity. Some considered that the governor may have likely vetoed the guardrails bill if it had reached his desk, which weakened the resolve of certain legislators to pass it.

An excellent summary of the forces that both supported and opposed the bill was presented in a May 2026 Rocky Mountain Voice article, stating that "cities are filling the

gap themselves." The RMV's research indicated that 238 lobbyists registered positions on one or both bills on behalf of 221 clients.

CRES extends recognition and credit to the technical, regulatory, legal, and political wisdom, intelligence, and community support provided by dozens of organizations, too numerous to name, which actively educated themselves, their members, the public, and legislators about the details of HDCs. Highlighted here are just a few of the many organizations that provided leadership and continue to do so:
Southwest Energy Efficiency Project, Western Resource Advocates, Earthjustice, Water Education Colorado, Conservation Colorado, Physicians for Social Responsibility, Colorado Coalition for a Livable Climate, Colorado Fiscal Institute, Natural Resources Defense Council, and the Colorado Chapter of the Sierra Club.

The "Incentives Bill" - HB26-1030 - Data Center & Utility Modernization - Concerning facilitation of data center development." Three Democrats sponsored the bill – Alex Valdez, Monica Duran, and Kyle Mullica.

A wide variety of environmental and public health organizations vigorously opposed the incentives bill, mobilizing citizens to urge legislators to vote "No" via letters, emails, phone calls, and direct testimony.

HB26-1030 attempted to finally reverse the history of earlier failed industry attempts to extract financial incentives from the State. HDC backers proposed bills in 2024, 2025, and 2026 to attract data centers to Colorado with exemptions from state sales and use taxes. The legislature wisely rejected these efforts.

Two matters stand out as key reasons why the incentives bill lacked sufficient support to pass. First, according to a recent poll, a staggering 91% of Colorado citizens have called for common-sense rules to protect Colorado ratepayers from the impact of HDCs. Second, the 2026 Colorado state budget faced a $1.5 billion shortfall, requiring the legislature to make painful cuts to essential services. The sponsors pulled the incentives bill just before a committee vote, knowing that it was facing defeat. It was widely predicted that the bill would not pass because millions of dollars would be lost to state revenues, according to its fiscal note.

Many voices testified about the bad optics and callousness of Colorado handing tens of millions of dollars in exemptions from state sales and use tax to big tech companies amidst widespread cuts to critical programs. Because of this string of legislative defeats, some now speculate that the industry may not introduce an incentives bill in 2027, anticipating fierce pushback from legislators who heard such strong objections from their constituents in 2026.

Reversing of the Incentives Trend

While 38 states had previously embraced data centers by enticing them with tax breaks, many states are now having second thoughts. After a decade of distributing generous incentives to data centers, states are starting to reverse course.

Recent reporting by Business Model Analyst.com states that "from Illinois to Arizona, the subsidies that lured Meta, Amazon, and Microsoft are being frozen, capped, and conditioned as the AI buildout collides with rising power bills."

Their report states that "in June 2026 alone, Illinois paused its incentive program, Arizona enacted a three-year moratorium, and Oklahoma passed a ratepayer-protection law. With 38 states offering subsidies and roughly two dozen now moving to curb them, the economics of where Big Tech builds are being rewritten in real time."

Eighty-six percent of residents in Monterey Park, California, recently voted in favor of a ballot measure banning data centers in the city. The data center proposal that sparked the conversation around the ban had been sited 65 feet from a residential community, which is well below the 1,500-foot standard guideline.

Even Texas is rolling back its generous hand-outs, including the governor's proposed repeal of the state's $3.2 billion HDC sales tax exemption.

The Movement Towards Moratoria and Bans

In large part due to the lack of resolution at the state legislature, regulation of HDCs in Colorado is shifting to the local level. DataCentersBan.com reports that several Colorado jurisdictions have placed moratoria on new HDCs, which provide local decisionmakers the opportunity to pause the rush and take the necessary time to conduct further research.

As of July 2026, the following Colorado jurisdictions have enacted moratoria on large data centers: City and County of Denver, Broomfield County, Jefferson County, Larimer County, Boulder County, Montrose County, the City of Longmont, Delta County, and Logan County.

Nationwide, in May 2026, the National Council of State Legislatures reported: "As data centers continue to generate attention, lawmakers in 14 states are considering banning their development. The proposed moratoriums all target new facilities and are often paired with requirements to study the impacts of data centers." National Public Radio reported that on December 9, 2025 "more than 230 groups signed on to a letter calling for a national pause on new data centers that power AI."

Recent national polling indicates a wide majority of Americans want a national moratorium. There are reports that as of June 2026, over 500,000 people in the U.S. are members of Facebook groups actively opposing local data center projects.

The Washington Post reports that "data centers have united Americans of both parties in a shared hatred. Feeling ignored by political and economic powers, people are rallying against computer hubs over concerns about their communities' future."

According to a May 2026 report by Data Center Watch, "there are at least 345 local data center opposition groups nationwide totaling over 428,000 members, with at least one new opposition group forming every day." Their report states that "$64 billion in US data center projects have been blocked or delayed by a growing wave of local, bipartisan opposition."

According to a June 2026 report by DataCenterOpposition.com, there are over 525,000 members of 430 local data center opposition Facebook groups in the U.S., with two new groups forming each day.

As more state and local Colorado decisionmakers consider the factors in the ongoing debates regarding HDCs, they may trend towards exercising prudence by pausing permitting to avoid potential problems in the future.

New York Governor Kathy Hochul signed an executive order on July 14, 2026, pausing data center development for a year in that state. The move increases the likelihood of more state bans and brings the once-fringe idea of a nationwide moratorium into the realm of the possible. Hochul signed Executive Order 62, "establishing a temporary moratorium on new data center permitting while the state develops higher development standards and a benefits framework for host communities. The order directs the Department of Environmental Conservation to hold in abeyance any discretionary permit application for data center construction or expansion that is pending or filed after the order's date and has not already been deemed complete.

Politico reports that "moratoriums remain a step too far for a lot of moderate Democratic governors, including Pennsylvania's Josh Shapiro, Virginia's Abigail Spanberger, Arizona's Katie Hobbs and Maine's Janet Mills. But the pressure is growing to do more to curb the proliferation of power- and water-hungry data centers, which can drive up local electric rates and add an often-unwanted industrial presence in rural areas."

The Impacts of HDCs

The massive energy demands of HDCs

The multi-hundred-megawatt QTS-Aurora project and the potential three-building 200-megawatt CoreSite plan can be compared to Xcel's 8.6-gigawatt Colorado electric system. Other comparisons - DIA's peak load is approximately 50 megawatts, and Boulder's peak load is approximately 200 megawatts.

Berkeley Lab researchers have stated that data centers could use up to 15% of all U.S. electricity by 2030, up from 5% in 2024. With limited exceptions, HDCs use power around the clock. To maintain customer satisfaction and steady revenues, HDCs must do all they can to avoid downtime. They seek reliable power at the lowest cost, but of even higher priority is their need to achieve high utilization factors. HDCs' ambition to 'speed to power' to 'win the AI race' has become quite challenging. Given the haste by HDCs, development schedules are becoming more expensive, as they experience severe supply chain issues. Much of the rising costs are the result of inflation and destructive tariffs.

The National Electric Reliability Corporation has increasingly issued warnings about power shortages, in large part due to the development of HDCs. Their 2025 Long-Term Reliability Assessment (LTRA) states that "the North American electric grid faces intensifying reliability risks over the next decade as demand growth driven by data centers and artificial intelligence threatens to outpace resource additions." According to this report, "NERC has issued its highest-urgency warning this year after documenting a new category of reliability threat: AI training campuses large enough that when their

automatic protection systems trip offline, they pull gigawatts off the bulk power system in under a second - faster than any human operator can respond."

For three years running, the data center industry has argued that the reason why Colorado has only two HDCs is that the legislature has refused to provide its corporations with lucrative tax breaks. It is more likely that the real reason why Colorado has not been a target for HDCs is that our grid does not match their primary criteria on where to locate: finding areas served by an electric grid that can timely meet their enormous need for electric power. Colorado's electric power grid does not have excess capacity. For the foreseeable future, Colorado is likely to be a "slow go" state for HDC development.

Colorado's Electric Resource Adequacy Position

Colorado continues to face electric resource adequacy challenges as load growth projections are considered and as coal-fired generation plants retire as required by the State's decarbonization statutes. The 2026 Colorado Energy Office's Annual Resource Adequacy report shows a projected statewide native load forecast of 11,998 MW for 2027. The report concludes that to ensure a reliable energy supply in Colorado, they recommend these actions:

- Assess current energy demand trends and future projections.
- Evaluate the adequacy of existing energy resources and infrastructure.
- Identify potential gaps in resource availability during peak demand.
- Recommend strategies for enhancing renewable energy integration.
- Promote energy efficiency programs to reduce overall consumption.
- Encourage collaboration among utilities for resource sharing and planning.

Xcel is seeking approval at the Colorado Public Utilities Commission to receive $100 million to shore up its resource adequacy.

Challenges remain as we proceed with plans to retire the state's remaining nine antiquated coal-fired power plants by January 1, 2030. This will remove about 4,500 MW of supply from the Colorado grid over the next three years. Additionally, Xcel and other utilities are reporting that supply chain challenges, rising costs, the loss of renewable energy tax incentives, and other headwinds are slowing or cancelling some long-planned large renewable projects.

The constraints in the Colorado electric power supply were illustrated last year when Coca-Cola cancelled a $500M bottling plant project near DIA after Xcel was unable to commit to a power supply agreement. Before this, the QTS and CoreSite data center projects also tapped Xcel's power supply, possibly putting the brakes on other large load projects.

Colorado utilities would be severely challenged to supply a new HDC project on the scale of the QTS data center. As a result, if HDCs are to come to Colorado, they would almost certainly need to be of the 'bring your own power' type, described below.

Unless directly addressed at the legislature, BYOP projects may proceed outside of traditional utility regulatory frameworks and may only require a land use permit from the local jurisdiction, along with an air permit from the Colorado Air Pollution Control Division. BYOP projects are typically sited in more rural areas that have access to a large

gas supply pipeline, fiber broadband, land, and water purchased from agricultural producers.

Bring Your Own Power (BYOP)

Multi-billion-dollar deals are at play regarding the huge demand for expensive options when HDCs cannot wait for utility power to be available. Bloomberg New Energy Finance reports that data centers "plan to boost on-site gas power 57-fold." The report finds that "100 gigawatts of on-site gas-burning capacity are planned to power data centers across America. The Bloomberg report finds that it is equivalent to 18% of the total existing capacity of all U.S. natural gas power plants, a staggering amount."

The non-partisan energy policy think tank Energy Innovation has concluded that behind-the-meter methane-gas-powered HDCs will raise US energy bills for homes and businesses. "They will be fed by on-site power plants burning natural gas, not by the electric grid. Counterintuitively, it is data centers' independence from the grid — coupled with their use of natural gas — that will hike energy costs for American homes and small businesses."

Energy Innovation states that "building your own natural gas power plant might appear to protect other energy customers by reducing new demand on the grid, but that's not the case. Natural gas is a market-traded commodity, meaning data centers that gobble up lots of natural gas will naturally compete with other gas customers, increasing prices. That does more than just worsen home heating costs and exacerbate global heating. Since natural gas supplies 43% of U.S. electricity and gas-fired generators set the price of electricity in most hours, higher natural gas prices also raise electricity costs."

Dr. David Hurlbut, a member of the CRES policy committee and a noted expert on transmission policy, has proposed a two-pronged state approach to data centers: (a) allow HDCs to petition the PUC to become independent large load entities and obtain electricity without going through a public utility; and (b) establish competitive renewable energy zones (CREZs) to increase the availability of low-cost renewable energy that HDCs might use. The proposal includes guardrails for water consumption, the use of fossil fuels as on-site backup generation, and community engagement. For HDCs, the economic incentive behind this option would be the ability to find electricity at wholesale that costs less than what they would pay a public utility in Colorado. (For more on this concept, see Dr. Hurlbut's article in Big Pivots.)

An HDC project announced by Google in June 2026 illustrates how Dr. Hurlbut's proposal might work. Google's HDC will be in the Texas Panhandle, co-located with more than 1 GW of wind, solar, and battery storage developed by its project partner, Intersect. The HDC and its generation will be in a CREZ that the Texas PUC designated in 2008, a zone with the same wind and solar resources found in Southeast Colorado. The generators and the HDC will not connect to the local utility (Xcel affiliate Southwest Public Service), but instead will connect with Texas's ERCOT wholesale market. Google plans to use advanced air-cooling technology and a "minority share" of natural gas for firming. The project was negotiated directly with local officials.

This proposal should be explored to determine to what extent a change in Colorado's utility law (CRS Title 40, which defines conditions within exclusive service territories) may result in

an incentive for HDCs to contract for renewables over methane gas. As noted, large renewable energy buildouts are starting to serve an increasing number of HDCs, but more centers plan to burn fracked methane gas, causing a significant spike in air pollution.

Impacts on Electric Customers

Considerable rate hikes have recently jolted customers in utility service territories, particularly in Virginia, with the state's exceedingly high penetration of HDCs. Most notably, rate hikes are often concentrated in utilities with a large presence of HDCs. In the mid-Atlantic PJM territory, "data centers now account for 97% of the 5,250 MW peak load growth, transforming from a projected trend into the primary driver of capacity scarcity." There are very real concerns that rate hikes like these could happen in Colorado should utilities propose, and regulators approve, infrastructure to meet the HDCs' load. Xcel customers are bracing for the possibility of the largest rate hike ever, as proposed by Xcel Energy.

If not properly regulated, HDCs could drive up the electric load on the grid, increasing the risk that utilities may build more polluting methane gas power plants, which would cause upward rate pressure on captive customers.

Concerns about the impact of HDCs are not limited to residential and commercial customers. A recent report by Environment+Energy Leader states that HDCs are found to be limiting the power that would otherwise be available to industrial customers. The report states that "manufacturers and data centers are competing for the same megawatts. A factory expansion and a hyperscale campus can now be bidding for capacity on the same substation, and the data center usually has the better contract terms, the faster capital, and the louder political backing."

Large Load Tariffs

To help address the threat of higher utility bills, the Colorado Public Utilities Commission has opened a docket to consider adding a new category of customers: large loads. At a minimum, the new tariff is expected to include up-front fees, 15-year contracts, security deposits, and early-exit fees of 75% to pay for the electricity that would have been used. The PUC ordered Xcel Energy to produce a draft large load tariff, which the company describes as a way to "address the growth in customers with large electricity needs, such as data centers, with a focus on ensuring existing customers do not subsidize large new customers."

Similar large load tariffs are to be implemented by the Federal Energy Regulatory Commission, where Tri-State Generation and Transmission has proposed a "tariff designed to establish a repeatable and fair process for incorporating high impact loads onto the Tri-State system without adverse impacts to reliability or affordability. The process would allow Tri-State members to respond in a consistent manner to requests for services from heavy energy-users, such as data centers."

An example of how a large load tariff can work is evident at the Oregon Public Utilities Commission, which recently increased Portland General Electric's large load rates by 29.7%.

Time will tell whether the emergence of these new large load tariffs at the state and federal levels will protect Colorado electric and methane gas customers from rate hikes accelerated by HDCs.

Public Health and the Environment

When HDCs seek to power their centers with on-site behind-the-meter inside-the-fence methane gas generation and/or diesel backup reciprocating engines, they must first obtain permits before being allowed to operate. Permits to site HDCs within the Front Range ozone severe non-attainment zone should be rejected. Or if approved, that should happen only if they conform to a standard of net-zero new direct emissions. Approximately 4 million people live within Colorado's Denver Metro/North Front Range ground level ozone non-attainment zone, which encompasses nine counties: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Weld, and a portion of Larimer. These residents are receiving ever more frequent ozone action alerts to limit outdoor activity, and even stay inside.

Responsible public policy must ensure close legislative oversight of the Department of Public Health and Environment to be certain that we have enforceable frameworks that protect residents' right to breathe clean air. Legislative leaders must determine whether the current criteria and system for permitting HDCs at the Colorado Air Pollution Control Division need to be strengthened to protect public health.

The Air Quality Control Commission reports that they recently "adopted revisions to their Air Quality Regulation 27, which includes the Greenhouse Gas and Energy Management for Manufacturing (GEMM) rules, also known as GEMM 1 and GEMM 2. These rules set targets to reduce greenhouse gas emissions for Colorado's largest sources in the industrial and manufacturing sector."

Should legislators find that the existing rules and regulations are too lenient, revisions should be crafted to ensure that permitting HDCs in Colorado does not make our air quality even worse. This is especially important given reporting that "the Environmental Protection Agency has proposed cutting the American public out of air pollution permits for "minor sources," which includes the tractor-trailer-sized diesel generators used by data centers. EPA's proposal removes any requirement for transparency or public participation for "minor source" pollution sources, including most data centers."

An additional concern is that the development of more HDCs connecting to what will most likely be a capacity-constrained grid poses the risk of delaying implementation of Colorado's plan to close its remaining polluting coal plants by the end of 2030, an effort already under attack by the Trump Administration's abuse of DOE emergency orders to keep coal plants running past the time when they should be retired.

Regardless of the power supplied to HDCs, backup diesel generators are routinely installed to keep HDCs' utilization factors high when experiencing a loss of grid power. Operating diesel generators emits hazardous air pollutants that degrade air quality in local communities.

This is especially relevant to disproportionately impacted communities, such as Denver's Globeville-Elyria-Swansea neighborhood, where the first of three buildings comprising the 70-megawatt CoreSite data center has been constructed with fourteen 5,000-horsepower polluting diesel backup generators installed and operational. Unless the City and County of Denver prohibit such polluting generators on existing HDCs, two additional centers are proposed for the adjoining land, along with their associated large banks of diesel generators.

Powering HDC growth in Colorado with methane or coal would move the state in the opposite direction of the rapid progress needed to reduce the greenhouse gas emissions that are heating our planet to dangerous levels.

Water challenges

HDC water consumption is a major concern, particularly given Colorado's severe drought and wildfire conditions. A June 28, 2026 Colorado Sun article states that "the developer building a new data center in north Denver said the facility could use up to 805,000 gallons of water each day to cool its computer systems if all three planned buildings are constructed. By comparison, a single-family home uses roughly 200 gallons of water per day, according to Denver Water."

HDCs also cause an indirect increase in total water consumption when they purchase power from water-intensive utility-owned fossil generation. A recent report "Thirst For Data - State Responses to Data Center Water Use" by the University of Colorado, states that " indirect water consumption by U.S. data centers, or water consumed to generate power, was approximately 211 billion gallons in 2023. That's double the allocation of Colorado River water for the entire state of Nevada"

Among power generation options, nuclear reactors are the largest consumers of water. Solar and wind use the least of all energy sources, by far.

Western Resource Advocates' "Data Centers in the West" report details the water and power impacts posed by HDCs in Colorado and several western states. The report notes that "agriculture is the piece that will ultimately suffer the most from additional water use in other sectors. Public policy should ensure that data centers don't contribute to additional stress on Colorado's water supply, and the buying and drying of farm land." Southwest Energy Efficiency Project's report on HDCs also provides excellent data and guidance for legislators, utilities, and concerned residents.

Denver is in a Stage 1 drought designation. When enacting its drought designation, the Denver Board of Water Commissioners said it may need to institute more restrictions in August. Neighboring communities are also enacting watering restrictions.

Should additional HDCs receive permits to operate in Colorado, they would place increasing pressure on our already limited water resources. One-half of Denver's and Colorado Springs' water is sourced from the severely stressed Colorado River.

A Smart Water Magazine report states that "under peak use and temperature conditions, a large HDC facility could use 1 to 5 million gallons of groundwater per day in an open loop system, the water usage of 30 to 50 thousand people." When HDCs cool their facilities with evaporative cooling (which is currently allowed in Colorado), they are betting that vast quantities of water will be available to them for a very long time. Fortunately, the trend line is that HDCs are starting to choose, or are required to use, closed-loop systems, which cut water use but increase energy demands and require the use and periodic flushing of toxic chemicals.

According to a DataCentreMagazine report: "Data centre operators are reducing water waste and energy consumption with closed-loop systems that promise sustainability without sacrificing density. The data centre industry is undergoing a fundamental shift in

how it approaches thermal management, driven by the dual pressures of AI-driven density requirements and mounting concerns over resource consumption."

Closed-loop cooling systems, "once considered a specialized solution, are rapidly becoming the standard architecture for operators seeking to balance performance with environmental responsibility. At the heart of this transformation is a simple principle: circulating coolant through sealed systems that eliminate the need for constant water replenishment.

Closed-loop cooling is the use of micro-climates within the data center racks and does not eliminate the need for heat rejection to the environment. That heat has to go somewhere: to evaporative cooling (cooling towers), dry coolers (raising air temperature), or water-cooled heat exchangers (raising the temperature of the source water – river, lake, or groundwater). All heat expulsion options have environmental impacts.

Some movement is also taking place to introduce adiabatic dry cooling and chiller options, but they can increase power demand by 10%, and by 30% during peak periods." Taking water conservation one step further is immersion cooling technology, which is only in an early stage of deployment.

Nuclear power and HDCs

The nuclear topic needs to be addressed because many in the HDCs industry and policy world are talking about it. As the rush to build HDCs for AI is underway, a growing number of developers have set their sights on procuring their own power generation. And now, alongside consideration of methane or renewables, some HDC developers are also exploring the idea of small modular reactors, an interesting thought experiment, and despite all of the hype, when only two exist in the world.

In response to the recent consideration of a nuclear renaissance, CRES issued a Policy Position Statement on Nuclear and sponsored a talk entitled "Should Nuclear Power Return to Colorado?"

The policy statement and the presentation point to the many problems Colorado has experienced with uranium mining, a failed reactor operation leading to customers paying for a white elephant, and more. We are concerned that Colorado might reasonably expect similar problems to continue should nuclear power be reintroduced to the state.

Local Heat Island Effect

An increasing body of evidence indicates that areas in proximity to HDCs experience higher local temperatures, known as the heat island effect. A recent report by ResearchGate "estimates that the land surface temperature increases by 2°C/36°F on average after the start of operations of an AI data center, inducing local microclimate zones." This problem is particularly relevant if HDC developers seek approvals to site in urban areas. In light of temperatures soaring across the world, a new slogan is in circulation – "we need cooling centers, not data centers."

Cryptocurrency
Although data is often not readily verifiable, cryptocurrency is generally viewed as representing about 16% of HDCs' power consumption. A Columbia University report entitled "Crypto's Dirty Little Secret" indicates that crypto "uses a lot of energy. How much energy? Bitcoin, the world's largest cryptocurrency, currently consumes an estimated 150 terawatt-hours of electricity annually — more than the entire country of Argentina, population 45 million. Producing that energy emits some 65 megatons of carbon dioxide into the atmosphere annually — comparable to the emissions of Greece — making crypto a significant contributor to global air pollution and climate change."

Other issues with crypto abound, including recent reporting that nearly a million investors have lost a total of $3.8 billion on the Trump Crypto Coin. The nexus between cryptocurrency and HDCs provides a partial answer to those who may wonder why the White House has so aggressively pursued the buildout of HDCs. Of interest, just a few miles from Mar-a-Lago, the Palm Beach County commissioners rejected a proposal to build an AI data center, voting in line with the ardent opposition from residents.

Noise Pollution
Diesel generators plus HVAC systems create a constant hum that may exceed 90 decibels. Noise levels above 85 decibels are harmful to hearing, and ambient noise disrupts sleep patterns. Populations living near HDCs have reported increasing complaints about "living in hell" because of noise pollution. Not only are there concerns about the audible noise, but more recent concerns have been raised about inaudible vibrations that travel through the walls of HDCs - infrasound. Residents near the CoreSite in North Denver will be taking baseline noise measurements to compare before and after conditions.

Promising HDC technological developments, with more on the horizon
Promising HDC technological developments are on the horizon, such as employing photonics to increase the efficiency of computer chips. These and other advances may eventually lead to a reduction in HDC power demands- but that is in the future. In actual practice today, and in the near-term, new AI models require a lot more computing, which drives up HDCs' power demand.

According to Chartbook, "from 2020 to 2024, the number of floating point operations per watt of power performed by frontier models increased by 40% per year, and the duration of training runs increased by 25% per year. How will these competing forces net out from a power perspective? According to Epoch AI 13, power demand would grow by 4x per year without any mitigating factors." Rapid HDC development today could result in overbuilding new power infrastructure due to underestimating these computing efficiency gains. Depending on how contracts are structured with a local utility, such as Xcel, customers may be at risk of paying higher rates for electricity.

While the concept of placing data centers in space may serve as an interesting distraction, the concept is fraught with engineering and practical challenges. For starters, Space Magazine points out that "in space, there is no air to blow across hot equipment and help heat escape. The heat has to leave as infrared radiation, which is a relatively slow process. As a result, removing 10 megawatts of waste heat can require radiator surfaces comparable to the size of two football fields." For a more detailed

description, see this IEEE Spectrum video that describes why space-based data centers does not make engineering and financial sense.

The Evolving Landscape of Artificial Intelligence and HDCs

Artificial intelligence, created in HDCs, has rapidly moved into our everyday lives, with mostly hidden, yet enormous impacts on energy, air pollution, water use, and land use. Although more HDCs are expected to be constructed somewhere, that should not mean that they need to be built in Colorado. This map of HDCs demonstrates that a digital economy does not require HDCs to be spread equally across the country.

HDC supporters have centered their case - prioritizing local tax revenues and job creation over air, water, and energy impacts, and cost shifts to electric customers.

Although HDCs stimulate many construction jobs for a few years, once an HDC is built, only a few permanent jobs will be created. For a local example, the $1 billion QTS-Aurora HDC will employ approximately eighty permanent workers. Eighty employees are roughly equivalent to the workforce of ten Starbucks stores.

Considerable Uncertainties Exist Around the Future Growth of HDCs
Regular announcements report on HDCs' capital investments, stock market earnings, gigascale data centers, advances in chip and cooling technologies, more powerful AI models, robotics, utility mergers and acquisitions, industry IPOs, big tech rivalries, and so much more.

Sizeable investments are being made in methane-powered combustion plants, including refurbishing jet engine turbines to power HDCs. Life extensions are being proposed or implemented for aging polluting coal-fired power plants. Life extensions are also being considered for some nuclear plants, including the non-operational unit at the Three Mile Island plant in Pennsylvania, and the Palisades plant in Michigan.

The potential for an economic bubble
Many observers are stating growing concerns about the potential financial impacts should there be a negative result of over-investing in HDCs. An in-depth JP Morgan 98-page report, released in March 2026, entitled "Fighting Words," takes a detailed look at the financial challenges facing energy options and the future of HDCs.

A July 2026 article in the Economist discusses how America's data center pushback puts the AI boom at risk, describing financial risks associated with over-investment in HDCs. The recent downgrade of tech giant Oracle's stock, due to its debt and overinvestment in data centers, has been noticed on Wall Street.

In addition, the Center for Public Enterprise issued a report entitled "Bubble or Nothing," warning that "should economic conditions in the tech sector sour, the burgeoning AI boom may evaporate- and, with it, the economic activity associated with the boom in data center development."

Marketwise reports that public angst is increasingly directed at HDCs, where AI is housed. Several analysts express concerns that the overvaluation of US stocks may have

passed the level that brought the stock market to its knees in 1929, which kicked off the Great Depression. In response to the concerns being raised about AI, former Apple CEO Tim Cook thinks that AI regulations are needed.

In addition, central banks are warning about the potential of an AI boom and bust. A June 2026 article in the UK Telegraph warns that "debt-fueled spending on AI is driving up the risk of a global financial crisis." The report states that "reversal of excessive tech investments could have serious economic consequences. The Bank for International Settlements said that "excessive spending on new AI data centres and opaque transactions risks a financial meltdown similar to the global credit crunch nearly two decades ago."

The Institute for Energy Economics and Financial Analysis recently opined that "if and when the AI bubble bursts, it will likely lead to bankruptcies, a cooling off of investment in the sector, and very likely fewer operational data centers than currently forecasted. Electricity and natural gas ratepayers may be left paying for the costs of unused or underused infrastructure capacity."

Summary and Conclusions

CRES encourages Colorado citizens and decisionmakers to continue widening our collective understanding of the many challenges that may result if lightly regulated HDCs come to the state.

We urge state and local decision-makers to exercise their serious fiduciary responsibilities, stabilize electric rates, reduce greenhouse gas emissions, reduce air pollution, conserve our stressed water resources, and protect public health.

We recommend local moratoria throughout Colorado on HDCs, with a review pending the passage of a guardrails bill similar to, or stronger than (if necessary), the provisions in SB26-102.

CRES urges policymakers to reject any incentives desired by the HDC industry. We view the industry's desire for incentives as detrimental to the state's fiscal health. State legislators should not forfeit critical future tax revenue to help the HDC industry. We are at a time when revenues are in short supply – they are needed to help sustain services for everyday Coloradans.

Description of CRES

The Colorado Renewable Energy Society drives environmental, social, and economic benefits for Colorado by promoting renewable energy and energy efficiency. CRES and its local chapters provide education, policy advocacy, and community engagement that accelerate the adoption of all forms of renewable energy, energy efficiency, high-performance building, energy storage, and emerging technologies that will help Colorado achieve 100% renewable energy. CRES is a statewide, non-partisan, non-profit, 501(c)3 membership organization.