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Policy Paper

Data Center Regulation in the United States

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Executive Summary

The rapid advancement of artificial intelligence has created a sudden increase in demand for the development of data centers. Unlike the previous generation of smaller data centers used for cryptocurrency mining or cloud storage, data centers necessary to run these new AI systems are of a much larger scale. These facilities, called "hypercenters", many owned by tech giants like x.AI, Google, Meta, and Amazon, require very large amounts of electricity, land, and often water. As a result, they have attracted increased attention from both government regulators and the general public. Regulation of data centers is fragmented across federal, state, and local laws each presenting their own challenges to developers. Given the critical importance of this new technology to both the US economy and national security, understanding how to facilitate the responsible growth of the industry must be a high priority. This paper outlines that regulatory landscape and proposes best practices for developers to navigate the process.

Introduction

The growth of artificial intelligence systems has created a surge in demand for new data centers to accommodate their immense computational demands.[1] These data centers owned by companies like x.AI, Google, Meta, and Amazon, form the hardware brains of modern artificial intelligence systems. As these artificial intelligence systems continue to grow in capabilities, the scale of the data centers needed to run them will also grow and they will need increasing amounts of electricity, water, and land.[2]

The increasing number and scale of these data centers is drawing increased attention from regulators, policy makers, and the general public.[3] Data center regulation of the United States is done by federal, state, and local levels of government with overlapping requirements in terms of environmental standards, electric utility management, zoning restrictions, and building codes, without a single unified policy framework.[4]

The purpose of this paper is to provide an overview of this complex regulatory and

policy landscape and the challenges of governing this rapidly evolving industry that is critical to the economic and national security of the United States. By examining the effect of federal, state, and local policies, this paper aims to give a thorough understanding of how data centers are regulated and the policies that need to be addressed to facilitate growth in this important industry.

Federal Regulation

The federal laws most relevant to the construction and operation of data centers are the Clean Air Act, the National Environmental Policy Act, and the Endangered Species Act.

Clean Air Act

In the United States, the primary law governing air pollution is the Clean Air Act. Under this act, the Environmental Protection Agency (EPA) sets national ambient air quality standards (NAAQS) for six common pollutants; carbon monoxide, nitric dioxide, ozone, particulate matter, sulfur dioxide, and lead.[5] These are referred to as Criteria Pollutants[6] and are regulated for both new and existing emission sources, including data centers.

As new data centers are built to meet the computational demands of increasingly sophisticated artificial intelligence systems, they will need electric power to be provided by some combination of the local electric grid and on-site electric generation. On-site generation typically takes one of two forms, as a primary source for data center power or as backup generation. Unlike smaller cryptocurrency mining data centers, large scale data centers running artificial intelligence models require uninterrupted power and so need on-site backup generators in case of grid power failure[7]. These are typically fueled by diesel or natural gas. International Energy Agency (IEA) defines “hyperscale” centers as those consuming 100 MW or more[8]. There are estimated to be roughly 600 hyperscale data centers in the US which is 54% of the world total as of 2025[9].

More have been announced that will use between one and 5 GW. For comparison, 5 GW is more than double the power used by the entire state of Alaska[10]. These hyperscale data centers have energy needs far beyond the available generating capacity of most power grids and must usually generate their own electricity on-site typically using natural gas turbines. Because this electricity is generated on-site and not drawn from the local grid, it is called behind the meter generation (BTM)[11]. BTM systems used either for primary or backup power are classified as stationary pollution sources under the Clean Air Act and are subject to regulation[12].

Under the act, locations are defined as either being in Attainment Areas where NAAQS air quality standards have been met or Non-Attainment Areas where those standards have not been met. Different regulatory

requirements and procedures are required in the two areas[13]. In locations designated Attainment Areas or in areas that have yet to be classified, for any new construction or modification of a stationary air pollution source, the Prevention of Significant Deterioration program (PSD) applies[14]. Under the PSD program, stationary sources are required to use Best Available Control Technology (BACT) which is defined case by case on the basis of the environmental, energy, and economic impact[15].

In Non-Attainment Areas new construction or modification of a stationary pollution source triggers the New Source Review (NSR) process[16]. NSR requires a pre-construction permit and demonstration that the facility is meeting the Lowest Achievable Emission Rate standard for each of the six criteria pollutants[17]. In addition, NSR requires the new or modified source to acquire pollution offsets which reduce pollution elsewhere in the Non-Attainment Area to compensate for the new source[18]. These two requirements under NSR can significantly increase both the cost and complexity of siting a new source in a Non-Attainment Area. Both PSD and NSR processes require public notice and comment periods as well as ongoing air quality monitoring and reporting to ensure future compliance with NAAQS.

Large behind the meter generating systems can be classified as a major source under the act if they produce more than 100 tons per year of any criteria pollutant[19]. Major sources are required to comply with additional regulations that include obtaining an operating permit and obeying strict monitoring record keeping and reporting standards[20]. This includes installing continuous air monitoring systems and annual compliance recertification by the EPA[21].

Regulated facilities are also required to comply with State Implementation Plans (SIP)[22]. These are state level procedures for achieving or maintaining NAAQS. SIPs can impose restrictions on quantity of pollutants produced, operating hours, or the type of fuel that may be used for generation[23]. Even the use of emergency backup generators during a grid power outage may be restricted by a SIP[24].

These regulatory requirements impact almost all stages of data center development:

- **Site selection:** developers may choose to avoid building in Non-Attainment Areas to avoid the additional regulatory requirements of a new source review[25].

- **Design:** developers may be required to install a wide variety of emissions control technologies.

Fuel choice: developers may choose to use fuel with lower regulatory burden, such as natural gas over diesel, and alter site selection to accommodate the preferred fuel choice.

- **Operations:** on site generators may be

restricted in the times they can operate, limited to emergency use only[26], or fitted with automatic alert or shut off features connected to air quality monitors.

• **Cost:** emissions control technology, administrative burden of navigating the permitting process, environmental studies, and regulatory consultants all add to the cost of a project and may render it unfeasible.

Both the NSR and PSD regulatory schemes require public notification and comment periods[27]. Community or activist groups may use these processes to raise objections to construction based on air quality impact, noise, or greenhouse gas emissions[28].

National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1970 is an environmental law that requires all federal agencies to conduct an environmental review of any major action that might have a significant effect on the environment[29]. NEPA does not impose any specific pollution standards but is rather a purely procedural law mandating that agencies not only evaluate but also disclose publicly the likely environmental consequences of any federal action before making a decision[30]. The stated intention of the law was to force agencies to engage in environmentally informed decision making and to be transparent with public participation in the process[31].

NEPA impacts data centers when there is some federal nexus such as the use of federal lands, federal funding, or a connection to federally regulated infrastructure like an interstate electric transmission line. For example, if a project requires an easement on federally managed land, it would become subject to NEPA review[32].

The NEPA process varies depending on which of three categories of potential environmental impact are determined to exist[33]:

• Categorical exclusions apply to federal actions that have been predetermined to have no significant environmental impact[34].

• Environmental assessments are required when the significance of the environmental impact is unknown. If the assessment then concludes that there will not be a significant environmental impact the agency involved will issue a finding of no significant impact[35].

• Environmental impact statements are required for projects that are determined to be likely to cause a significant environmental impact[36].

For a large data center which is likely to have substantial behind the meter generation capabilities or water consumption for cooling, the environmental impact statement process will likely be triggered. This requires the developer to produce and

publicly release detailed technical studies and respond to concerns raised in public comment periods[37]. NEPA compliance is an administratively complex and lengthy process that can cause substantial permitting delays, impact public perception of the project through public release of environmental impact studies and public comment periods, and can subject the project to litigation risk for claims of inadequate NEPA review.

Endangered Species Act

The Endangered Species Act of 1973 is a federal law that was intended to prevent the extinction of both animal and plant species, and to promote the population recovery of species listed as threatened or endangered[38]. The act is administered by the US Fish and Wildlife Service USFWS and the National Marine Fisheries Service NMFS[39] and prohibits actions that "take" listed species or adversely impact designated critical habitat[40].

The law applies to both public and private projects under any of the following conditions:

- There is any federal involvement, such as issuing a permit under the CAA or the NEPA, providing funding, or allowing the use of federally managed land[41].

- A private party engages in an activity considered to be a taking of a listed species including by noise or pollution[42].

- An action will impact an area designated as critical habitat[43].

When a project is deemed to be subject to the act, the agency will conduct a biological assessment to determine if the project will impact listed species or critical habitat[44]. If the biological opinion is that the project will negatively impact a listed species or critical habitat then the agency must prohibit the development or require changes to the project such that the negative impact will be removed[45]. Even in cases where direct impact on listed species is unlikely, developers may be required to show that their project will not contribute to cumulative negative effects on species populations or habitat corridors[46].

One of the most controversial sections of the Endangered Species Act is section 11(g) Citizen Suits which allows private parties to petition the agency to list a species as threatened or endangered or to list an area as a critical habitat[47]. If the agency does not agree to list the species or habitat, the petitioning party then has the right to file a lawsuit against the agency in federal court to compel a favorable decision[48].

The ESA can impact data center development in a variety of ways:

- **Siting:** large data centers may need to build long access roads, connect to transmission lines, or consume significant quantities of water for cooling. Any of these could harm or fragment habitat for a listed species. As a

consequence, developers might be forced to relocate or redesign their project.

• **Delay:** biological reviews mandated by the ESA can add months and sometimes years to a project's construction timeline. In some cases, multi-season biological surveys are required[49].

• **Mitigation:** to receive ESA approval, developers may be required to engage in habitat restoration, species relocation, or funding for species recovery efforts[50].

• **Litigation:** ESA permitting decisions are often subject to litigation from environmental groups[51]. In response, a federal court may block a development on the grounds that the agency failed to follow the correct administrative procedures or that the environmental review and mitigation strategies are in some way inadequate. This can cause not only financial loss to the developer but also runs the risk of harming the company's public image.

Executive Orders

In the early months of President Trump's second term, he revoked or substantially modified a number of executive orders issued during the Biden administration that were relevant to data center development, in particular those that were focused on climate change and environmental justice[52]. The revoked orders included executive order 14008 *Tackling the Climate Crisis at Home and Abroad*, executive order 14028 *Improving the Nation's Cybersecurity*, and executive order 14110 *Safe Secure and Trustworthy Development and Use of Artificial Intelligence*[53].

In addition to rescinding Biden administration executive orders, President Trump reissued executive orders from his first administration that President Biden had canceled and issued new orders reflecting his priorities for economic growth, energy independence, and regulatory simplification especially for infrastructure projects like data centers. These orders included:

Executive order 13766 *Expediting Environmental Reviews and Approvals for High Priority Infrastructure Projects.* This directed all federal agencies to fast track the issuance of permits for infrastructure projects considered to be of national significance. Large artificial intelligence data centers could qualify under this order54.

Executive order 13807 *Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects* established the One Federal Decision policy which requires agencies to complete environmental reviews in no more than two years, addressing permitting delays stemming from the National Environmental Policy Act process[55].

Executive order 13783 *Promoting Energy Independence and Economic Growth* removed policies that were seen as restricting fossil

fuel development and ended the use of the "social cost of carbon" in project cost benefit analysis. This is highly relevant for data centers because it allows expanded access to fossil fuels for electricity generation without regulatory restrictions related to climate change[56].

Executive order 14179 *Removing Barriers to American Leadership in Artificial Intelligence* rescinded president Biden's executive order 14110 and ordered all federal agencies to prepare artificial intelligence leadership action plans within 180 days, remove policies restricting AI innovation, and promote AI infrastructure development[57].

The overarching objective of these orders was to allow for faster regulatory approval, reduce the burden of environmental regulations, eliminate the consideration of climate change in the regulatory process[58], and to expand the availability of fossil fuels[59]. All of these objectives would facilitate the development of large-scale AI data centers.

State Regulation

Overview

Regulation of data centers on the state level varies widely due to the differing policy priorities of states over economic, energy, and environmental issues[60]. State policies typically are relevant to data centers in areas of utility regulation, environmental protection, and economic incentives. State environmental regulations typically build on existing federal law such as the Clean Air Act, National Environmental Policy Act, and the Endangered Species Act. This section provides an overview the state-level regulatory policies that impact data center construction and operation with a particular focus on states that have a significant data center presence: Arizona, California, Georgia, Illinois, Nevada, New Jersey, Oregon, and Washington.

Energy and Utility Regulation

State bodies, often called public utility commissions, impact data centers through regulation of electricity supply, grid reliability policies, and rate structures. State level electric utility regulation is less relevant to the largest artificial intelligence data centers which typically produce their own electricity on site behind the meter and are less likely to have a connection to the local electric grid[61].

Arizona: the Arizona Corporation Commission regulates the state electric grid which currently has approximately one gigawatt of data center load. In April, 2025 the Commission formally began developing energy regulations specific to data centers[62].

California: the California Energy Commission has a data center specific requirement that centers with a Power Usage Effectiveness (PUE)[63] exceeding 1.5 must reduce it by a minimum of 10% per year under the CALGreen Act 64. The state has a renewable portfolio standard which requires

60% of energy be produced by renewable sources by the year 2030, and 100% by 2045[65]. Operators can meet this standard by for example installing on-site solar panels, or by purchasing renewable energy credits.

Georgia: the Georgia Public Service Commission manages the state grid which currently has a 1.2 GW load from data centers. Large users drawing more than 100 MW are required to either sign long term electricity purchase agreements or to contribute to a grid upgrade fund[66].

Illinois: the Illinois Commerce Commission regulates the state electric grid and requires any user drawing over 50 MW to fund 15% of necessary grid upgrades. The Commission also enforces the state Climate and Equitable Jobs Act which requires 40% of energy use to be from renewable sources by 2030 and energy storage systems such as multi megawatt per hour batteries[67].

Nevada: the Nevada Public Utilities Commission requires large power users to negotiate with utility NV Energy[68] and authorizes the utility to reduce rates specifically for data centers using clean energy[69]. The state electric grid currently serves 800 MW of data center demand.

New Jersey: The New Jersey Board of Public Utilities regulates electricity services in the state. Under the NJ Clean Energy Act, all commercial facilities over 25,000 square feet are required to track and report energy use. Legislation signed in 2025 requires the Board to study the impact of data centers on electricity use and to develop policies including taxation to limit demand[70].

Ohio: The Ohio Public Utilities Commission requires data center operators to pay for 85% of their subscribed energy use regardless of actual consumption for up to 12 years[71]. Data center operators must also fund between 10 and 20% of grid upgrades[72].

Oregon: The Oregon Public Utility Commission requires participation in a demand response program for users drawing more than 75 MW. The "Protecting Oregonians With Energy Responsibility" (POWER) Act, created a specific classification for data centers requiring them to pay their "fair share" of grid infrastructure upgrades[73].

Texas: Texas electric grid is managed by the Electric Reliability Council of Texas (ERCOT). Texas has largely deregulated its energy markets which allows large users including data center operators to negotiate market rate prices with power providers. In response to power failures during a winter storm in 2021, the large flexible load (LFL) program was introduced in 2022[74]. Any user drawing greater than 75 MW[75] may be designated as an LFL, to register with ERCOT, and participate in a demand response program to reduce peak loads.

Virginia: in Virginia the electric grid is regulated by the State Corporation Commission. The state currently hosts a large number of data centers, primarily in

Northern Virginia drawing over four GW of power which is nearly 25% of total electricity demand in the state[76]. The Corporation Commission oversees utility rates and has authorized construction of approximately two GW of additional capacity from natural gas and renewable sources since 2020. Utility regulation relevant to data centers occurs mostly at the local level.

Washington: the Washington electric grid is managed by the Utilities and Transportation Commission. The Commission enforces the Clean Energy Transformation Act which mandates 80% carbon neutral electricity by 2030[77]. In February 2025, the Governor issued executive order 25-05 mandating a study led by the Department of Revenue of energy use by data centers[78].

Environmental Regulation

State environmental regulations typically build on federal environmental laws by imposing stricter pollution standards. Regulation of data centers at the state level is typically done through frameworks that apply generally to all industries.

Arizona: The Arizona Department of Environmental Quality oversees compliance with state air and water standards. All emitting businesses are required to conduct monitoring and file reports demonstrating environmental compliance[79].

California: The California Environmental protection Agency Air Resources Board enforces air pollution and climate change requirements[80]. The Climate Corporate Data Accountability Act and the Greenhouse Gases: Climate-Related Financial Risk Act require reporting of direct and indirect greenhouse gas emissions[81]. The California Environmental Quality Act requires environmental impact studies in air quality Nonattainment Areas[82].

Georgia: The state Environmental Protection Division requires all stationary pollution sources to secure air quality permits, including data centers for emissions from generators and cooling systems[83].

Illinois: the Illinois Environmental Protection Agency requires community impact assessments under the state Climate and Equitable Jobs Act[84].

New Jersey: the Department of Environmental Protection regulates air quality including through the state's nitrous oxides budget program which includes reporting requirements[85].

Ohio: the Ohio Environmental Protection Agency mandates air pollution emissions reporting for nitrogen oxides through its eBusiness Center[86].

Oregon: the Oregon Department of Environmental Quality administers the state's environmental protection programs. The state has implemented water use standards for industrial facilities including requirements for water recycling[87].

Texas: the Texas Commission on

Environmental Quality allows the use of behind the meter generation in air quality Attainment Areas with very few restrictions but requires the purchase of emission offset credits in air quality Non-Attainment Areas like Houston[88].

Virginia: the Virginia Department of Environmental Quality does not require a permit for backup generators of less than 10 megawatts running up to 500 hours per year if they are in air quality Attainment Areas. Behind the meter systems generating more than 50 megawatts are subject to a nitrogen oxides limit of 0.1 pounds per megawatt hour and are required to use selective catalytic reduction[89].

Washington: The Department of Ecology sets carbon emissions standards under the state's Cap and Invest program. Regulated facilities must purchase credits for the full amount of their current carbon dioxide emissions, with the cap declining over time[90].

Tax Incentives and Economic Development

Multiple states offer tax incentives to industrial developers including data centers. These benefits are typically conditioned on investment dollar amounts, number of jobs created, or heightened environmental standards.

Arizona: the Arizona Commerce Authority offers tax credits for any facility that invests between $25 and $50 million in the state, varying by location[91].

California: the California Competes Tax Credit is provided over five years for developers creating 100 jobs. Preference is given to businesses locating in high poverty areas[92].

Georgia: the state High Technology Data Center program offers tax reductions for facilities investing $100 million in the state and creating at least 50 jobs[93].

Illinois: The Data Center Investment Program offers tax credits for data centers creating 50 jobs paying at least 120% of the median county wage, are carbon neutral, or are certified as a green building[94].

New Jersey: the Grow New Jersey Assistance Program gives tax credits to businesses investing $100 million and creating 100 jobs with group health insurance coverage[95].

North Dakota: North Dakota provides a sales tax exemption for purchase of data center computer hardware and software if the facility is at least 15,000 square feet with more than 50% used for data processing[96].

Ohio: the Ohio Job Creation Tax Credit gives a tax incentive for businesses creating at least 10 jobs with a payroll of $660,000 and that pay 150% of the federal minimum wage[97]. The state also gives a sales tax exemption for data center equipment[98].

Oregon: the state provides a property tax exemption for developers investing at least $50,000 in enterprise zones and paying an average of 150% of the average local wage[99].

Texas: Texas provides sales tax exemption specifically to data centers of at least 100,000 square feet, investing at least $200 million, creating at least 20 jobs paying 120% of county average wage[100].

Virginia: The Data Center Sales and Use Tax Exemption applies to facilities investing $150 million and creating 50 jobs paying 150% of the local average wage[101]. The exemption is scheduled to expire in 2035[102].

Washington: the state provides a sales and use tax exemption for data center equipment, not including non-profit, federal, or local governments[103].

The variation in state regulations and tax incentives create complexity. At least 20 states attempt to attract data center investment through tax incentives. California, Illinois, New Jersey, Oregon, and Washington emphasize environmental sustainability policies. Arizona and Nevada focus on water conservation. Data center developers face wide variation in permitting timelines ranging from months to years[104], widely differing pollution standards and water usage restrictions. In addition, Illinois[105] and New Jersey[106] have begun implementing environmental justice assessments.

Local Regulation

Local government regulation has a very large impact on data center development and operations. Local officials are typically the main point of contact for developers dealing with zoning restrictions, building and environmental codes, and community impact requirements[107]. From a formal perspective, local government regulation is a purely administrative and technical process. However, in practice these decisions can be strongly influenced by political responses to community concerns about noise, land rezoning, environmental issues, and economic impacts[108]. Unlike federal regulation, local regulatory standards can vary widely across short distances between neighboring jurisdictions and over short timeframes within a single jurisdiction[109]. This variation creates regulatory problems of both complexity and uncertainty, especially for developers of large, high profile data centers[110].

This section reviews the three main types of local regulation most relevant to data center development: zoning and land use, building and environmental codes, and community impact standards, using case studies from local jurisdictions with substantial data center presence to show their impact on development and operations, including cases where local regulations resulted in development cancellation[111].

Zoning and land use

Local zoning regulations determine where and under what conditions a data center may be built. They are often restricted to areas zoned for heavy industrial use, require a zoning variance, or for the area to be rezoned to a different use112. Receiving the necessary zoning permits may require

public hearings, environmental studies, and intensive negotiations with local zoning officials[113].

Case Study Amazon Web Services (2023)
Loudon County, Virginia

Amazon Web Services proposed to build a 500 megawatt data center on 100 acres in Loudon County, Virginia. At the time the county already hosted more than 100 data centers collectively drawing two gigawatts of electricity from the local grid[114]. County zoning codes required a minimum 200 foot setback from the property line to reduce noise and visual impact on nearby residential areas[115]. In public hearings members of the community expressed concerns about increased traffic from the development and about the necessity to install new power lines[116]. The County Board of Supervisors eventually granted zoning approval for the project on the condition that Amazon fund $5 million in local road improvements and use underground power lines to reduce visual impact. Amazon agreed to the terms and proceeded with the project.

Case Study: Microsoft (2024)
Phoenix, Arizona

Microsoft proposed a large data center in Goodyear, Arizona which is a suburb of Phoenix. The project was approved by the City Council on the condition that Microsoft paid $40 million to upgrade the city's wastewater treatment plant, switch from water cooling to air cooling, and pay $5 million as "financial assurance" for sewer line costs plus $800,000 for city administrative costs[117].

Case Study: Google (2023)
Council Bluffs, Iowa

Google proposed a $350 million expansion to an existing data center complex in Council Bluffs Iowa[118]. The expansion was part of a $6.8 billion investment by Google in the region since 2007 and was intended to expand its 2.9 million square foot complex to support artificial intelligence and cloud services[119]. There was strong public opposition to the project from both local residents and environmental groups on the grounds that the cooling system would pull millions of gallons of water per day from the Missouri river and overburden the power grid which was already servicing more than 20 data centers. Google proposed funding $1.3 million of Missouri basin water infrastructure and using 100 percent renewable energy[120]. At the time of writing, final permitting status is unknown.

Building and environmental codes

Local jurisdictions enforce building codes for structural safety, fire protection, energy efficiency, and environmental impact. In states with strong environmental mandates like California and Oregon municipalities may add "reach codes" which are local codes that exceed state level requirements[121].

Case Study: Google (2021)
The Dalles, Oregon

In 2021 Google proposed expanding its data center in The Dalles and applied for new water use permits. The request prompted public opposition over water shortage concerns. The project was allowed to proceed after Google pledged a $28.5 million upgrade to the city water treatment system[122].

Case Study: NTT Data Center (2018)
Hillsboro, Oregon

In 2018, NTT proposed construction of a data center in Hillsboro, Oregon. The project was subject to the recently enacted Cleaner Air Oregon program mandating extensive environmental reviews as a condition of permitting. NTT was granted a construction permit after a three year environmental study[123].

Case Study: Apple Data Center (2017)
Waukee, Iowa

In 2017, Apple announced plans for a $1.3 billion data center in Waukee, Iowa with a projected completion date of 2020. The project required approval from the Waukee Planning and Zoning Commission, followed by approval from the Waukee City Council. Final approval was not given until 2024 after the company announced plans to restore a portion of the property into wetland[124].

Community impact requirements

Some local jurisdictions mandate evaluation of community impact, either through a standalone process or as part of public hearings and open comment periods[125]. Community impact requirements can include funding for traffic mitigation, workforce development and training programs, or environmental justice assessments[126].

Case Study: QTS and Compass Data Centers (2023)
Prince William County, Virginia

Developers QTS and Compass Data Centers requested rezoning of 2,100 acres near Manassas National Battlefield park for their Digital Gateway data center project[127]. The project received intense opposition from local residents, historical preservation, and environmental groups[128]. Opponents claimed that the project would interfere with views of the historic battlefield location, strain local infrastructure, and create a concentration of industrial development near a protected historic site. The company's development plans were in full compliance with local zoning and environmental codes but the county Board of Supervisors rejected the request for a building permit on the basis of insufficient community support and the negative cumulative impacts of the project combined with other nearby facilities. After a 27 hour long and very contentious public hearing, the board narrowly reversed its decision and approved the rezoning[129]. After receiving the permit, the project was again blocked by a lawsuit filed by the American Battlefield Trust[130]. As of 2025, the litigation is still under way[131].

Case Study: Switch Data Centers (2018)
Reno, Nevada

Switch announced the first 130 megawatt data center, to be eventually expanded to 650 megawatts, on its 2,000 acre Citadel Campus. The project was the target of concerns over water use raised by environmental groups, local residents, and the Pyramid Lake Paiute Tribe. The company eventually promised that it would not allow treated wastewater to enter the lake. The project was subsequently approved.

Case Study: QTS Data Centers (2023)
Henrico County, Virginia

QTS announced plans to construct a $5 billion data center campus near Richmond, Virginia in Henrico County. In January 2025, the county adopted a new regulation requiring all data centers to apply for a provisional use permit which includes a public hearing component[132]. The issues reviewed in the permitting decision include distance from residential areas, visual impact, noise abatement, and landscaping buffer areas. Although initial legal filings for the project began in 2023, the county stated that elements of the 2025 regulation would be retroactive and apply to QTS. In public hearings, county residents expressed opposition to the project due to concerns over environmental impact and historic preservation. The project was eventually given a provisional use permit and allowed to proceed.

Discussion

Data center are faced with a complex web of regulations from federal, state, and local governments, each imposing their own obstacles to developers[133]. Given the extreme importance of artificial intelligence to the future of the US economy and national security, responsibly facilitating construction of these centers is essential[134]. However, regulatory reform to accomplish this goal presents extreme challenges[135].

Federal-level challenges

Federal regulations relevant to data centers stem primarily from three laws: the Clean Air Act, the National Environmental Policy Act, and the Endangered Species Act. None of these laws are specific to data centers but rather apply broadly across all sectors of the economy[136]. As a result, any effort to ease data center development through a reform of federal regulations would require a much broader discussion of federal regulatory reform of the entire economy. While this may be a worthwhile task, it cannot be addressed only from a data center perspective.

State-level challenges

Data center regulatory reform on the state level presents a similar challenge. Like federal laws, state laws relevant to data centers are typically part of broader economy wide policies[137]. Reforming these regulations to benefit data center development would require comprehensive

state economy wide policy changes which makes targeted reform very difficult.

Local-level challenges

Reform at the local level presents a very different set of challenges. There are over 3,000 counties and approximately 35,000 cities, towns, townships, and other assorted local municipal jurisdictions in the United States, each potentially with their own unique zoning ordinances, building codes, and community impact requirements[138]. Formulating a single set of policy reform recommendations generally applicable across this extraordinarily heterogeneous set of municipalities would be nearly impossible.

Also, regulatory processes, particularly at the local level, are often driven by political concerns rather than strictly technical requirements[139]. At the federal level, the most prominent example is the section 11(g) Citizen Suit provision of the Endangered Species Act which can be used by advocacy groups to block development projects rather than to directly protect a listed species or habitat. At the local level the decision whether to approve or reject a data center project is often more overtly political. Data center projects of Meta in San Jose, California and QTS in Prince William County, Virginia clearly show how political pressure from residents or activist groups can influence regulatory outcomes.

For this reason, even if broadly applicable local regulatory reforms proposals could be developed, they would have little effect since the formal zoning or building codes are often used as tools to implement political decisions. If one tool was made unavailable, political pressure would be redirected towards using a different tool to achieve the desired outcome.

Policy recommendations

Given the difficulty of reducing the regulatory hurdles for data center development stemming from regulatory policies that are not specific to data centers and from the highly political nature of regulatory decisions at the local level, successful development of a specific data center project will be largely dependent on the extent to which the data center developer is able to navigate this regulatory landscape. Two examples from North Dakota demonstrate the critical importance of how companies deal with the local political environment before data center construction begins and on an ongoing basis during operation.

<u>Atlas Power in Williston, North Dakota</u>

In January of 2022 Atlas Power announced they would be constructing a $1.9 billion data center in Williston, North Dakota[140]. The project was plagued by conflict with the local government and community, escalating to the point that in June of 2023 the Williams County Commission unanimously voted to request the local utility to cut power to the facility[141]. Several factors contributed to this outcome:

- **Poor site selection:** the developer chose to site the data center 800 feet from the nearest residence despite the fact that cooling fans and associated equipment produce a significant amount of noise. Eventually, a group of local residents banded together to file a lawsuit against the company alleging it was a public nuisance[142].

- **Grid capacity issues:** the site did not have sufficient spare capacity in the local electric grid to service the facility without increased use of transmission lines owned by other utilities. The additional cost to the grid operator for use of these transmission lines was passed on as rate increases to local residential electric consumers causing additional animosity[143].

- **Inadequate community engagement:** the company's public interaction with the community was inadequate. North Dakota Association of Counties Executive Director Aaron Birst said of the company "if somebody would have taken a little bit of time to talk to a local, they could have avoided some of those (problems)"[144].

Applied Digital in Ellendale, North Dakota

A contrasting example can be found in the data center developed by Applied Digital in Ellendale North Dakota, demonstrating a successful approach to navigating the local political landscape:

- **Appropriate site selection:** Applied Digital deliberately chose to avoid development near residential areas to minimize community opposition over traffic and noise[145].

- **Using stranded power:** the company chose a site with a large amount of "stranded power", which is local generating capacity that exceeds transmission capacity. The amount electricity being generated by local wind farms exceeded the capacity of local transmission lines forcing some of the generating capacity to be shut down. By purchasing that stranded power, in 2023 electricity rates were reduced by $5 million,[146] despite drawing approximately 180 megawatts from the local utility grid, earning community goodwill[147].

- **Positive community engagement:** before construction began, the company took action to foster a productive relationship with the local community by holding multiple open town hall meetings, separate from local government hearings. The purpose of the meetings was to explain the project to local residents, listen to their concerns, and answer their questions. They went so far as to send a representative to talk to the local "coffee club," creating an

atmosphere of trust and support.

The takeaway lesson for prospective data center developers from the contrasting outcomes of these two projects is to recognize that local permitting can be a highly political process[148]. If a developer fails to address the need for public support, the project can meet every technical regulatory requirement and still fail[149]. By making community support and trust a very high priority at every stage of the process, data center developers can substantially improve the probability project success[150].

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