

When the Cloud Comes to Town: A Decision Framework for Communities Facing Mega Data Center Proposals

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Abstract—The rapid expansion of artificial intelligence and cloud computing has accelerated the development of large-scale data centers across the United States, often in small or mid-sized communities with limited regulatory capacity. While these facilities promise tax revenue and jobs, recurring concerns about opaque subsidy agreements, significant electricity and water demands, cost-shifting to ratepayers, and limited long-term employment have emerged across multiple jurisdictions. Despite growing community opposition, no existing framework integrates community decision-making across zoning, utility regulation, environmental permitting, and fiscal analysis for data center proposals. Existing resources either serve developer interests, diagnose impacts without guiding action, or address individual concerns in isolation.

This paper presents a governance and advocacy framework with two components: a decision tree mapping the regulatory pathway data center proposals follow—with community intervention points at each stage—and a structured evaluation checklist linking six concern dimensions (electricity, water, fiscal impact, emissions, noise, and employment) to specific regulatory forums and enforceable mechanisms. The framework is developed through multi-site qualitative case analysis across four U.S. jurisdictions and applied retroactively to an ongoing case in Simpson County, Kentucky. Results demonstrate that communities possess more formal influence than commonly assumed, but that influence is time-sensitive and procedurally fragmented across forums that communities often do not know to monitor. The framework is designed primarily for municipal officials and community advocacy organizations in small-to-mid-sized jurisdictions evaluating data center proposals.

Index Terms—data centers, community governance, infrastructure siting, environmental justice, regulatory framework, public participation

I. INTRODUCTION

In April 2025, a development group told Simpson County, Kentucky officials they wanted to build an industrial park. By May, they had purchased 529 acres. By August, the project had morphed into a data center proposal requiring more electricity than the regional utility could supply. Residents trying to track what was actually approved found themselves piecing together information from deed recordings, annexation filings, and planning commission agendas. Even people who attended meetings struggled to follow what was happening.

The confusion in Simpson County reflects a pattern playing out across the country. Data centers are expanding rapidly, driven by growth in cloud computing and artificial intelligence—from roughly 25 GW of capacity today to a projected 96 GW by 2030 [1]. Local governments approve land use changes and infrastructure plans early in the process, often before key details are public. Once approvals are in place, changing the terms becomes difficult. A review by the nonprofit Good Jobs First found that most states offer special tax treatment for data centers, but few disclose which companies receive the subsidies or how much public revenue gets forgone [2]. Economists have questioned whether the tax breaks offered to data centers actually deliver benefits that justify their cost, especially in cases where permanent job creation is limited and public oversight is weak [3].

Despite growing community pushback—including moratoria in at least five jurisdictions across Virginia, North Carolina, and Minnesota [4]—communities facing their first data center proposal lack a structured tool for navigating the regulatory landscape. Existing resources fall into three categories: developer-side site selection models that optimize for the company [5]; environmental justice screening tools that diagnose impacts but do not guide decisions [6]; and issue-specific advocacy guides that cover individual concerns without integrating them [7], [8]. No existing framework helps communities navigate the full regulatory pathway—from initial proposal through zoning, utility proceedings, environmental permitting, and fiscal analysis—as an integrated decision process.

This paper presents a governance and advocacy framework with two components: (1) a decision tree mapping the regulatory pathway a data center proposal follows, with community intervention points at each stage; and (2) a structured evaluation checklist linking six community concern dimensions to specific regulatory forums and enforceable mechanisms. The framework is developed through qualitative case analysis across four U.S. jurisdictions and validated by retroactive application to the ongoing Simpson County case.

II. RELATED WORK

Community engagement in infrastructure siting has been studied extensively in the context of energy facilities, waste management, and industrial development. Sovacool et al. identify civic capacities—leadership, knowledge, resources, and networks—as prerequisites for meaningful community participation in siting decisions [9]. Wolsink’s work on facility opposition demonstrates that community responses are values-based and procedurally driven, not simply expressions of local resistance [10]. The EPA’s Cumulative Impacts Framework provides federal guidance on assessing disproportionate environmental burdens, but operationalizes assessment rather than community decision-making [6].

Research on data center impacts specifically is emerging but remains primarily descriptive. Shehabi et al. at Lawrence Berkeley National Laboratory provide authoritative estimates of U.S. data center energy consumption [11]. Mytton and Ashtine document water consumption patterns across cooling technologies [12]. The International Energy Agency projects that global data center electricity demand could double by 2030 [13]. Good Jobs First’s analysis of subsidy transparency reveals that not a single U.S. state tracks both jobs promised and jobs actually created by data center incentive recipients [2]. These studies document what data centers do, but do not provide communities with tools to respond.

On the practitioner side, the AI Now Institute’s North Star Data Center Policy Toolkit maps policy interventions by issue domain but is organized by topic rather than by decision pathway [7]. The Wisconsin “Big Tech Unchecked” guide provides educational context but is not an operational framework [8]. Community benefit agreement literature addresses negotiated protections but focuses on post-siting negotiation rather than pre-approval evaluation [14]. No existing resource integrates multiple regulatory forums into a structured decision framework that tells communities where and when to intervene across the full lifecycle of a data center proposal. This paper fills that gap.

III. METHODOLOGY

This study employs multi-site qualitative case analysis combined with policy and regulatory document review. Four cases were selected to represent distinct dimensions of data center community impact: emissions and environmental permitting (Memphis, TN), zoning and infrastructure (Loudoun County, VA), water consumption (The Dalles, OR), and electricity cost allocation (North Carolina). Simpson County, KY serves as the primary case and retroactive validation site.

Data sources include public regulatory filings (zoning applications, public utility commission dockets, air permit records), local and federal government documents (county ordinances, Congressional Research Service reports, EPA guidance), investigative journalism and court filings, state-level legislative records, and one semi-structured interview with a former U.S. Department of Energy official with experience in utility digitalization and AI-driven energy deployment. Cross-case analysis identified recurring regulatory forums, community

intervention points and their timing, information needs, and enforceable outcomes achieved or missed. These patterns were synthesized into the decision tree and evaluation checklist presented in Section IV.

IV. FRAMEWORK

The proposed framework has two components: a decision tree that maps the regulatory pathway and identifies community intervention points (Section IV-A), and an evaluation checklist that links specific community concerns to the documents, forums, and enforceable mechanisms available at each stage (Section IV-B).

A. Decision Tree: Regulatory Pathway and Intervention Points

Fig. 1 maps the typical sequence a data center proposal follows through regulatory approval, from initial land acquisition through operations. At each stage, the framework identifies the relevant regulatory forum, whether public participation is required, and what enforceable outcomes communities can pursue.

A critical finding from the case analysis is that these stages often proceed in parallel rather than in sequence. Utility interconnection discussions may begin before zoning is settled. Incentive negotiations may conclude before environmental permits are filed. Communities that engage only one forum—typically the most visible zoning hearing—may miss binding decisions being made simultaneously in less visible proceedings. The framework is designed to surface these parallel tracks so communities can monitor and intervene across all relevant forums.

B. Community Evaluation Checklist

Table II provides a structured checklist organized by six concern dimensions identified through case analysis. For each dimension, the checklist specifies the questions communities should ask, the documents they should request, the regulatory forum where the issue is decided, and the enforceable mechanisms available.

The checklist is designed to be usable by non-experts. It does not require legal training—it identifies what to ask for, where to ask, and what an enforceable answer looks like. If a developer cannot or will not provide the requested information, that itself is a significant finding for community decision-making.

V. CASE ANALYSIS AND FRAMEWORK APPLICATION

A. Simpson County, KY—Retroactive Framework Application

In Simpson County, those issues became local. According to coverage by WKU Public Radio, the proposal would include three large facilities built over several years [15]. Developers said the project could employ about 150 workers, with average salaries somewhere between \$80,000 and \$100,000. Supporters said the development could generate significant tax revenue and support local services.

Opponents raised concerns about scale and infrastructure. Local officials said the Tennessee Valley Authority could

TABLE I
DECISION TREE: DATA CENTER PROPOSAL REGULATORY PATHWAY AND COMMUNITY INTERVENTION POINTS

Stage	Regulatory Forum	Public Participation	Community Actions	Enforceable Outcomes
1. Land Acquisition & Zoning <i>(Highest leverage)</i>	County/City Planning Commission	Required (hearing, testimony)	Oppose/condition rezoning, demand CUP, require impact studies	Zoning conditions, CUP requirements, denial
2. Utility & Grid <i>(Parallel with Stage 1)</i>	Public Utility Commission / state regulatory body	Available but often overlooked	Intervene in PUC docket, demand cost allocation transparency	Tariff conditions, cost allocation orders
3. Environmental Permitting	State environmental agency / EPA (if federal nexus)	Required for air permits; varies for water	File formal comments, request conditions, challenge adequacy	Emissions limits, water caps, monitoring requirements
4. Fiscal & Incentive Negotiation <i>(Least transparent)</i>	County/city council, state econ. development agency	Often limited; FOIA may be needed	Demand disclosure of incentive terms, push for clawbacks	Clawback clauses, reporting requirements
5. Construction & Operations <i>(Lowest leverage)</i>	Building inspections, compliance monitoring	Complaint-driven	Monitor permit compliance, file complaints, enforce earlier conditions	Fines, permit revocation, legal action

TABLE II
COMMUNITY EVALUATION CHECKLIST FOR DATA CENTER PROPOSALS

Concern	Key Questions	Documents to Request	Regulatory Forum	Enforceable Mechanism
Electricity	What is the MW demand? Who pays for grid upgrades? Is there a ratepayer protection tariff?	Interconnection filing, utility IRP, PUC docket	Public Utility Commission	Tariff conditions, cost allocation order
Water	How many gallons/day withdrawn vs. consumed? What cooling type? What happens during drought?	Water permit application, drought contingency plan, water service agreement	State water agency / local utility	Permit withdrawal caps, drought-triggered reductions, monthly reporting
Fiscal Impact	What are net taxes after incentives? Are there clawbacks for missed targets?	Incentive agreement, assessed value projections, PILOT terms	County/city council	Clawback clauses, sunset provisions, annual public reporting
Emissions	Is on-site generation planned? What fuel? What permits are required?	Air permit application, emissions inventory	State environmental agency / EPA	Emissions limits, monitoring requirements, public notice
Noise	What are projected dB levels at property line? Is there a sound study?	Noise study, CUP conditions, generator testing schedule	Local planning/zoning commission	Decibel limits, operating hour restrictions, buffer zones
Employment	How many permanent vs. construction jobs? Local hiring commitments? Wage floors?	Incentive agreement, workforce development plan	County/city council	Hiring targets with reporting, training commitments, clawbacks

not supply the amount of electricity the project would need. Developers talked about on-site power generation as a solution, which raised new concerns about noise and emissions. Residents also questioned how much of the promised employment would stick around after construction, and how many jobs would actually go to people who already live in the area.

The Planning and Zoning Commission responded in October 2025 by voting unanimously against a proposed text amendment that would have expanded what is allowed in the heavy industrial zone. The Franklin City Commission accepted that recommendation. At the county level, officials drafted an ordinance that applies countywide, requiring “advanced technology centers” and “integrated energy systems” to get a conditional use permit before operating [16]. The ordinance allows for fines and other penalties if conditions get violated. The developer’s attorney said the ordinance could jeopardize the project and raised the possibility of legal action. As of early 2026, the proposal is still subject to review by city and county bodies.

In an interview, a former U.S. Department of Energy official who worked on utility digitalization and AI deployment towards cleaner energy described the choice facing communities directly. Data centers can create a real increase in a local tax base, especially in smaller jurisdictions, he said. Even facilities with relatively small permanent workforces can generate substantial property tax payments once they are built. At the same time, job numbers need context. Construction phases can employ hundreds of workers for short periods. Ongoing operations usually need far fewer staff, often dozens or a few hundred employees depending on the size and design of the facility.

The publicly cited figures in Simpson County fall within that range. Developers pointed to roughly 150 permanent jobs and competitive salaries. Those figures help explain why the proposal drew serious attention. They also help explain why residents and officials want to see those claims documented and enforced, not just treated as informal promises. The challenge is not identifying the promised benefits, but figuring out

how they would actually be delivered. Nationally, many data center deals get structured through limited liability companies and negotiated behind closed doors. Tax incentives often get approved without full public disclosure. In some states, even basic information about subsidy recipients is shielded by confidentiality rules [2].

That lack of clarity helps explain why residents described the process as hard to follow. The key questions about power supply, on-site generation, and long-term fiscal impacts were still unanswered even after land transactions and zoning discussions had already happened. The county ordinance was an attempt to create a formal checkpoint before construction could start.

Applied retroactively, the framework reveals that Simpson County residents organically engaged Stage 1 (zoning) effectively—achieving a unanimous denial and a new conditional use permit requirement. However, Stages 2 through 4 of the framework remain largely unaddressed. No intervention has occurred in PUC proceedings regarding electricity cost allocation. Environmental permitting for on-site generation has not yet been triggered. And fiscal incentive terms have not been publicly disclosed or subjected to clawback conditions. The framework would have surfaced these parallel tracks earlier, giving the community a more complete picture of where enforceable decisions were being made.

B. Supporting Cases

The framework’s dimensions are further supported by cases in other jurisdictions:

Emissions and permitting (Memphis, TN): In 2024, an AI data center operated 35 natural gas turbines without required air permits, producing over 1,700 tons of NO_x annually [17]. A coalition including the NAACP and Southern Environmental Law Center filed suit [18]. The EPA subsequently closed the regulatory loophole that had been exploited [19]. This case illustrates Stage 3 of the framework—had the community been monitoring environmental permitting from the outset, the absence of required air permits could have been flagged before operations began.

Water consumption (The Dalles, OR): Google’s data center water consumption grew from 12 million gallons in 2012 to 550 million gallons by 2025, reaching 40% of the city’s total water supply [20]. The city initially attempted to keep water usage data confidential, and transparency was only achieved after legal challenge [21]. The framework’s water dimension—with its emphasis on requesting specific consumption data, drought contingency plans, and monthly public reporting—directly addresses the information asymmetry this case exposed.

Electricity cost allocation (North Carolina): Data centers are driving an estimated 80% of projected 15-year electricity load growth in the state [22]. At least five counties and cities have passed moratoria on new data center development [4], reflecting broad community concern over who bears the cost of grid expansion. The framework’s Stage 2 intervention—engaging PUC proceedings on tariff design and cost allocation

before rates are set—targets exactly the decision point where cost-shifting to ratepayers gets locked in.

VI. DISCUSSION

Across the cases examined, three patterns recur. First, community influence is real but time-sensitive. In Simpson County, the zoning denial and new ordinance demonstrate that communities can impose meaningful conditions—but primarily before construction begins. In Memphis, the absence of early community engagement in permitting allowed operations to proceed without required permits for months. The framework’s stage-based structure reflects this: leverage is highest at Stages 1 through 3 and diminishes sharply at Stage 5.

Second, regulatory fragmentation is the primary barrier to effective community engagement. Proceedings happen in parallel across forums—zoning boards, public utility commissions, environmental agencies, and fiscal authorities—that communities do not know to monitor simultaneously. In Simpson County, residents effectively engaged the zoning process but have not yet intervened in utility or environmental proceedings. The framework’s decision tree is designed specifically to surface these parallel tracks.

Third, information asymmetry consistently favors developers. In The Dalles, water data was initially concealed. Nationally, Good Jobs First found that no state tracks both promised and actual job creation from data center incentives [2]. The evaluation checklist addresses this by specifying exactly what documents to request and from which forum, converting vague concerns into actionable information demands.

The former DOE official interviewed for this study pointed to emerging tariff structures—particularly the clean transition tariff model—as evidence that enforceable cost protections are technically achievable [24]. The challenge is ensuring communities know these mechanisms exist and can advocate for them in the relevant proceedings before rates are set.

VII. LIMITATIONS AND FUTURE WORK

This study has several limitations. The analysis is qualitative and does not claim statistical generalizability. All cases are U.S.-specific; international regulatory structures differ substantially. Several cases are ongoing, meaning some outcomes are preliminary. The framework assumes communities have some organizational capacity and access to public proceedings—conditions that may not hold in all jurisdictions. It does not address scenarios where state law preempts local authority or where federal action overrides local decision-making.

Future work should develop a quantitative scoring model to complement the qualitative checklist, conduct longitudinal tracking of framework adoption, expand analysis to international contexts, and pursue survey validation with municipal officials and community advocates who have navigated data center siting processes.

VIII. CONCLUSION

Communities facing data center proposals encounter a fragmented regulatory landscape with severe information asymmetry. The framework presented in this paper—a decision tree

mapping five regulatory stages with community intervention points, and a six-dimension evaluation checklist linking concerns to enforceable mechanisms—consolidates these scattered decision points into an integrated advocacy model. Case analysis across four jurisdictions demonstrates that communities possess more formal influence than commonly assumed, but that influence is procedurally fragmented and time-sensitive. As data center development accelerates, communities should not have to rediscover these leverage points from scratch each time.

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