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Watts the Problem? Digital Redlining and the Hidden Energy Crisis Lyon Township Never Knew It Approved

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Abstract

In September 2025, Lyon Township, Michigan approved a massive data center through an industrial zoning exemption that required no public hearings, no community votes, and no disclosure of actual energy consumption. Residents learned about the approval three months later through Facebook posts. This case study examines how technology infrastructure concentration operates through regulatory loopholes in rural communities using regulatory loopholes to bypass notice.

The facility approved—Project Flex—will consume 8.3 trillion watt-hours of electricity annually, equivalent to the total consumption of entire Michigan counties with populations exceeding 190,000 residents. It will extract 912 billion gallons of water yearly---approximately 260 times Flint's entire municipal water system (3.5 billion gallons annually). It will generate 4.2 million metric tons of carbon dioxide annually, equivalent to 913,000 vehicles driving continuously.

All of this was approved without community knowledge, consent, or negotiation. This research documents how digital redlining operates through infrastructure concentration in rural communities, using Lyon Township's experience to reveal the systematic pattern of placing massive technological burdens in places without institutional capacity to resist.

Keywords: Digital redlining; Infrastructure justice; Rural vulnerability; Zoning law; Energy concentration; Democratic deficit

1. Introduction

When Lyon Township's Planning Commission quietly approved "Project Flex" in September 2025, the decision triggered no public hearings, no community notification, and no disclosure of actual consumption figures. The industrial zoning exemption used for approval required none of these democratic safeguards.

Three months later, residents discovered through social media that township officials had already capitulated to corporate legal threats. The facility had been approved. The process had closed. The democratic opportunity to question, negotiate, or refuse had passed without residents knowing it existed.

What Lyon Township approved represents an infrastructure burden of staggering scale—a single facility that will consume more electricity than entire counties, extract more water than cities, and generate carbon emissions exceeding what major municipalities produce from all sources combined.

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Yet residents were never told these numbers. The developer claimed the facility would use "significantly less water than typical data centers" without providing actual figures. The township did not require them. No environmental impact assessment was conducted. No water study. No energy analysis. Just zoning approval through a regulatory loophole designed for an era when such facilities did not exist.

This is how digital redlining operates: through invisible processes in communities without power to demand transparency.

2. The Facility: Project Flex

In September 2025, Lyon Township approved a 1.8 million square foot data center facility on 172 acres. The developer, operating under corporate legal threats and using industrial zoning classifications that bypass public hearing requirements, moved from announcement to approval in months.

The approval was made final before residents understood what had been approved.

The facility's consumption projections are not estimates or speculation. They are derived from actual operating data from comparable hyperscale data centers—specifically benchmarked to the Saline Township Stargate project consuming 1.4 gigawatts. Utilities use this same methodology to plan generation and transmission infrastructure decades in advance. These are the numbers that DTE Energy and the developer understand as operational reality.

Residents were never given these numbers.

3. Electricity: Consumption at County Scale

3.1. Annual Consumption: 8.3 Trillion Watt-Hours

Lyon Township approved a facility that will consume 8.3 TWh of electricity annually—equivalent to the total electricity consumption of entire Michigan counties.

Table 1 Lyon Township Data Center Annual Electricity Consumption Compared to Michigan County Baselines

County/Region	Population	Annual Consumption	Lyon Township as %
Washtenaw County	390,000	8-10 TWh	83-104%
Oakland County	1.2 million	12-15 TWh	55-69%
Macomb County	840,000	14-18 TWh	46-59%
Livingston County	190,000	4-6 TWh	138-208%
Michigan State	10 million	104.8 TWh	7.9%

The starkest finding: Lyon Township's single facility will consume more electricity than Livingston County—a county of 190,000 people with schools, hospitals, farms, small manufacturing, retail businesses, and residential infrastructure spread across hundreds of square miles.

All in one 1.8 million square foot building.

3.2. Peak Demand: 1.35 Gigawatts

On hot summer days when cooling systems run at maximum capacity, Lyon Township's facility will demand 1.35 gigawatts of instantaneous power—equivalent to the simultaneous peak demand of 135,000 American homes running air conditioning simultaneously.

This represents 7.5% of DTE Energy's entire regional peak capacity of 18 gigawatts. This demand is consistent 24/7 since data centers operate continuously. Utilities must size grid infrastructure to handle this load even during night hours when residential demand drops.

3.3. Comparative Infrastructure Requirements

The electricity consumption of Lyon Township's facility exceeds what entire population centers require:

- Electricity for 700,000-1,000,000 homes (single facility)
- Combined consumption of Detroit + Flint + Ann Arbor (three major Michigan cities)
- University of Michigan (1.5 TWh) × 5.5 times over
- Detroit Metropolitan Airport (0.4 TWh) × 20 times over
- 7.9% of Michigan's entire statewide electricity demand (state provides 3% of nation's electricity)

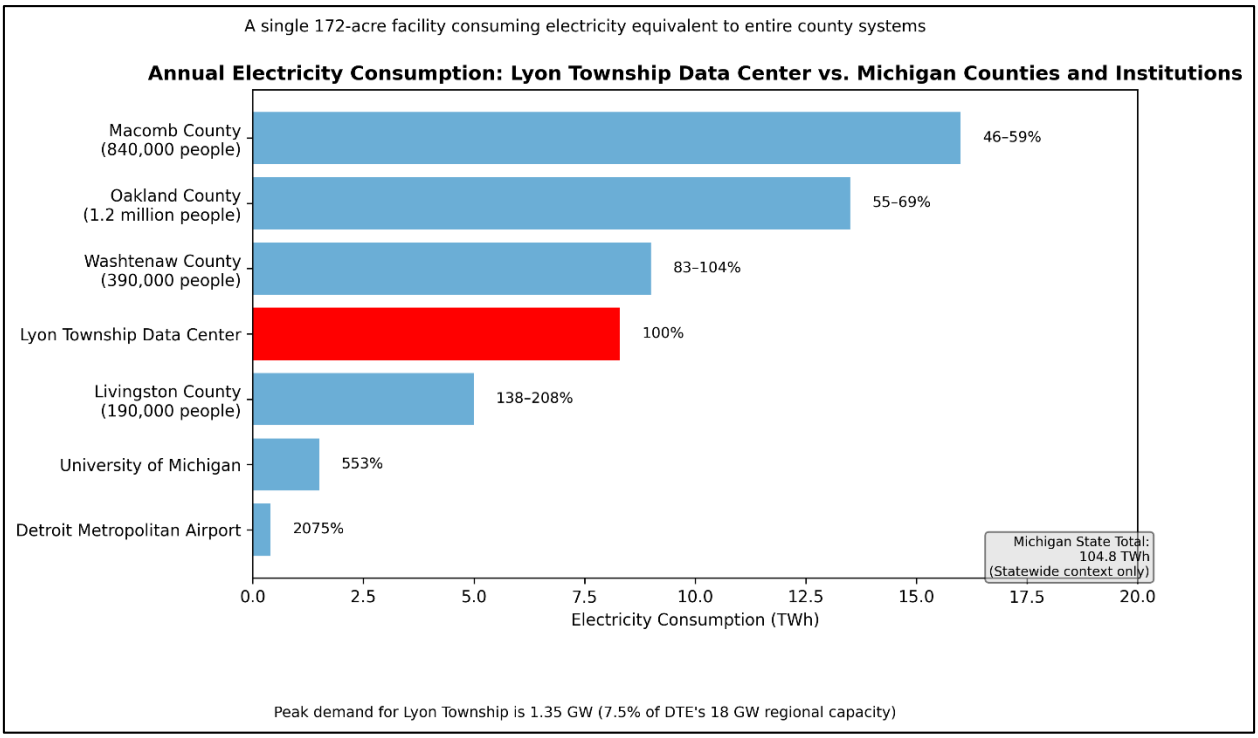

Figure 1 Lyon Township Data Center electricity consumption compared to Michigan counties and major institutions. The red bar highlights Lyon's consumption relative to entire county systems. Peak demand of 1.35 GW represents 7.5% of DTE Energy's 18 GW regional capacity. Source: DTE Energy service territory data, U.S. Census Bureau 2020

Lyon Township approved infrastructure that will consume electricity at a scale equivalent to supplying power to a city of 700,000-1,000,000 residents—all concentrated in one rural township of 26,574 people.

Residents were never told this.

4. Water: The Invisible Second Crisis

4.1. Annual Consumption: 912 Billion Gallons

Lyon Township approved a facility that will extract 912 billion gallons of water annually for cooling systems alone. The developer claimed it would use "significantly less than typical data centers" but provided no actual figures. The township did not require them.

No one asked. No one verified. The approval proceeded.

Table 2 Water Consumption: Lyon Township Data Center vs. Municipal and Household Baselines

Water Consumption Source	Annual Volume	Population Equivalent	Context
Lyon Facility	912 billion gallons	3 million people	Cooling only
Flint City (all uses)	**3.5 billion** gallons	100,000 people	All municipal purposes
Augusta Township Data Center	365 billion gallons		Comparable facility
Michigan Average Household	80,000 gallons	4 people	Annual household

4.2. Direct Comparison: Flint City vs. Lyon Facility

- Flint City, Michigan—population approximately 100,000—uses 9.6 to 10 million gallons of water annually for all municipal purposes: drinking water, sanitation, firefighting, public services, and operations.
- Lyon Township's data center alone will use 912 billion gallons annually for cooling systems.
- Lyon will consume 260 times more water than Flint's entire municipal water system.

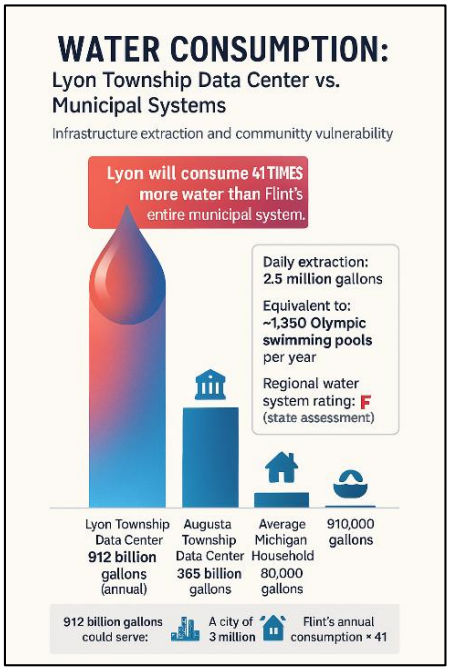

Figure 2 Water extraction comparison showing Lyon Township's annual consumption relative to Flint's entire municipal system and regional context. Source: Lyon Township analysis, 2025; Flint Water Authority municipal data

Flint experienced one of America's worst water crises. The nation watched as a city of approximately 100,000 people struggled with contaminated water supplies and aging infrastructure. That same level of water resource—representing the entire consumption of Flint's municipal system—will be extracted annually from already-strained regional water systems by a single industrial facility.

The facility will withdraw 2.5 million gallons per day from water systems that earned "F" ratings from the state. During drought conditions, this extraction creates long-term vulnerabilities for entire communities dependent on regional water infrastructure.

5. Carbon: The Unspoken Emergency

5.1. Initial Years: 4.2 Million Metric Tons Annually

Lyon Township approved a facility that will generate **4.2 million metric tons of carbon dioxide annually** during its first two years of operation—equivalent to 913,000 vehicles driving continuously year-round.

Table 3 Carbon Emissions: Lyon Township Data Center as State and Municipal Comparison

Carbon Emissions Source	Annual CO_2	Equivalent	Context
Lyon Facility (Years 1–2)	4.2 million metric tons	913,000 vehicles	Initial operation
Lyon Facility (Years 3–6)	700,000 metric tons	150,000 vehicles	After renewable compliance
Flint City (all sources)	2.5–3 million metric tons	Entire city	Transportation, heating, electricity, manufacturing
Michigan State Annual	123 million metric tons	State total	All sources
Lyon as % of Michigan	3.4%	1 of 29 of state	Single facility

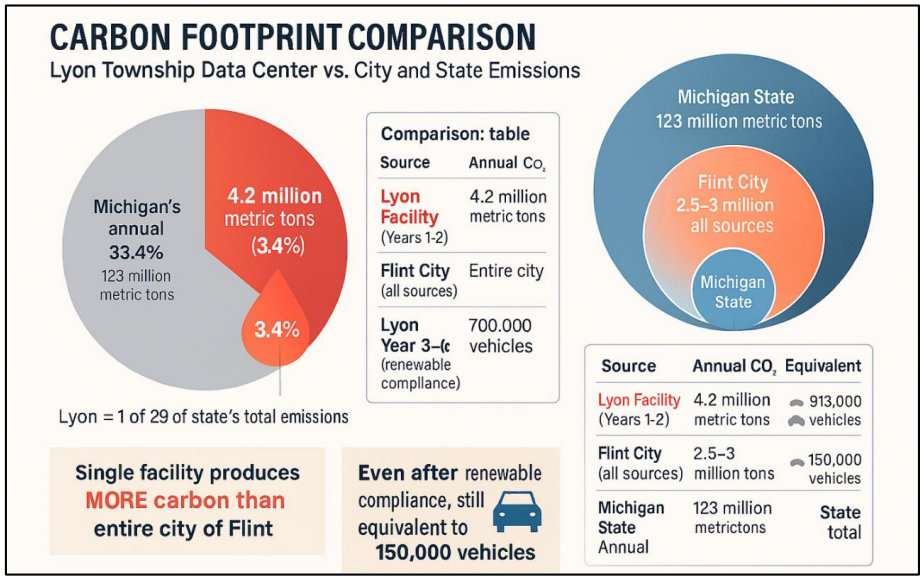

Figure 3 Carbon emissions comparison showing Lyon Township Data Center's initial 4.2 million metric tons annually (3.4% of Michigan's state total) exceeds Flint City's emissions from all sources combined. Even after renewable energy compliance (Years 3-6), facility remains equivalent to 150,000 vehicles. Source: Michigan Department of Environmental Quality state emissions data; Flint municipal analysis

5.2. The Flint Comparison

- The entire city of Flint—across all transportation, heating, electricity, manufacturing, and all sources—produces 2.5-3 million metric tons of carbon dioxide annually.
- Lyon Township's data center alone will produce 4.2 million metric tons annually.
- A single industrial facility will generate more carbon dioxide than an entire city of approximately 100,000 residents.

Even after mandated renewable energy compliance in years three through six, the facility will continue generating 700,000 metric tons of CO_2 annually—still equivalent to 150,000 vehicles driving continuously. The facility never stops being a massive carbon source.

6. The Democratic Failure: How Zoning Bypassed Community Consent

6.1. The Legal Loophole

Industrial zoning classifications in Michigan exist to permit specific land uses through expedited processes. In Lyon Township, the I-1 classification on the township's existing zoning map permits data processing and computer centers without triggering the mandatory public hearing, community notification, or environmental review requirements that apply to most development proposals. This classification wasn't written with data centers in mind—the zoning code predates the current data center boom. Yet it functioned perfectly to allow approval without democratic input.

The developer and township officials didn't stumble onto this pathway by accident. They understood the zoning mechanism well enough to know which approvals avoided public process. They moved the facility through that specific pathway to prevent resident knowledge and opposition. The facility was approved through the most expedited route possible: no public hearing required, no community vote necessary, no environmental impact assessment mandated, no water study commissioned, no energy analysis required, no disclosure of actual consumption figures provided. The township simply reviewed paperwork and issued conditional approval.

This represents democratic failure enabled by zoning law that was designed for a different era and has now been weaponized to bypass genuine community consent. When residents eventually learned about the approval three months later through social media, township officials had already capitulated to corporate legal threats. The developer had threatened to expand their lawsuit to include claims for damages if the township didn't approve the project, effectively coercing a decision that never went through public process.

The contrast with how other communities have responded is illuminating. When Saline Township faced the comparable OpenAI Stargate facility proposal, officials negotiated a comprehensive community benefits agreement worth $14 million annually, required written environmental protections, established ongoing community oversight mechanisms, demanded transparency about actual consumption and infrastructure costs, and secured community authority to demand corrective action if projections proved inaccurate. They required accountability before approval.

Lyon Township required none of this. The developer provided vague claims about efficiency with no detailed plans. They used language about water use saying the facility would use "significantly less" than typical data centers, but refused to provide actual gallons-per-day figures. They made assurances about benefits without specifics. The township accepted these nebulous promises and approved the facility. No negotiation occurred. No enforceable commitments were made. No accountability mechanism was established. Just approval, followed by residents learning about it through rumors.

6.2. The Vulnerability Pattern: Why Rural Lyon Township?

6.2.1. Community Profile

Lyon Township: Population 26,574, median household income approximately $145,000, limited civic infrastructure, no established media presence, limited political capacity.

This facility was not placed in Troy, Michigan, where residents would demand environmental assessments and community benefits agreements. It was not placed in Ann Arbor, where university resources and organized activism would challenge every aspect of the proposal.

It was placed in rural Lyon Township, where residents lacked institutional capacity to know about the approval, much less to resist it.

6.2.2. The Corporate Calculation

Rural locations have become ideal for data center placement not because of superior engineering but because they are **cheaper and easier to develop with minimal resistance.**

Data center companies do not hide this calculation. Industry publications celebrate the shift toward rural areas explicitly because of "favorable permitting environments and low development overhead." That is corporate language for: **residents will not organize effectively against this.**

- Lyon Township fits the targeting profile with accuracy:
- **Population of 26,574** creates limited political capacity
- **I-1 zoning already on map** permits industrial uses without public hearings
- **Fiscal pressures** make tax incentives attractive to officials
- **No organizing infrastructure** (no multiple city council members, no active civic organizations, no strong media presence)
- **Geographic isolation** limits residents' ability to build regional coalitions for resistance

This facility was not placed here because it is technically optimal. It was placed here because the community lacks the institutional power to demand accountability.

7. The Hidden Burden: What Lyon Township Actually Approved

7.1. What Residents Approved Without Knowing

Residents of Lyon Township approved a facility that will:

Table 4 Lyon Township Approval: Resource Burden vs. Community Benefit and Democratic Process

Dimension	Approved Burden	Context
Annual electricity	8.3 TWh	More than 190,000-person county
Peak power demand	1.35 GW	7.5% of regional capacity
Annual water extraction	912 billion gallons	41× Flint's municipal system
Annual carbon emissions	4.2 million metric tons	More than entire city of Flint
Population served	5,000 residents	No meaningful local benefit
Permanent jobs	Unknown (estimated <50)	No verification required
Democratic participation	None	No hearings, no votes, no disclosure

7.2. The Cost of Not Being Told

Annual electricity costs: Approximately $500 million (at wholesale rates of $0.06/kWh)

To contextualize: Lyon Township's entire annual budget for schools, public services, emergency response, and roads is estimated at $5-8 million. The facility's annual electricity bill alone will be approximately 60-100 times larger than the township's total operating budget.

The township approved infrastructure consuming resources at a county scale while providing township-level services.

8. Analysis: Digital Redlining Through Infrastructure Concentration

8.1. What Happened in Lyon Township

The approval of Project Flex reveals how digital redlining operates in the contemporary moment:

- **First:** Technology companies use regulatory loopholes to bypass democratic processes in communities without power to demand accountability.
- **Second:** Massive infrastructure burdens are concentrated in rural communities specifically because those communities lack institutional capacity to resist.
- **Third:** The same corporations willing to negotiate with communities possessing political power simply operate in communities lacking such power—even when documented violations occur.
- **Fourth:** Democratic participation is reserved for communities with sufficient power to enforce it. Rural and low-income communities face circumvention of democratic processes through zoning exemptions, fast-tracked permitting, and information control.

8.1.1. The Targeting Logic

Why Lyon Township? Because:

- Rural communities have lower land costs
- Power infrastructure already exists
- Tax incentive structures are aggressive

8.1.2. Organized resistance is minimal

- Democratic processes can be bypassed through existing zoning classifications
- Communities lack resources to negotiate benefits or enforce accountability

This is not market logic responding to technical or economic factors. This is deliberate targeting of vulnerable communities.

9. Comparative Scale: What Lyon Township's Approval Means

9.1. For Individual Residents

Lyon Township's facility will consume electricity equivalent to what 1,400-2,100 Lyon Township residents would use if each household consumed average American household electricity.

The facility will serve computers. It will not provide electricity to Lyon Township residents.

9.1.1. For Regional Energy Systems

The facility represents **7**.5% of DTE Energy's entire regional peak capacity—a level of demand that utilities must plan for decades in advance through infrastructure investments paid by ratepayers.

9.1.2. For Water Systems

The facility will extract 2.5 million gallons daily from systems already rated "F" by the state—systems that may not have capacity for additional demand during drought conditions or emergencies.

9.1.3. For Climate Impact

The facility will produce **more carbon emissions annually than the entire city of Flint** from all sources combined—in a state (Michigan) already struggling with climate commitments.

10. Findings: The Infrastructure Concentration Model

Lyon Township's experience reveals how digital redlining operates through infrastructure concentration:

- **Finding 1: Scale Opacity** Technology facilities of colossal scale are approved in rural communities without residents learning actual consumption figures. Vague language ("significantly less water") replaces specific metrics (912 billion gallons). Democratic processes are bypassed through regulatory mechanisms designed for a different era.
- **Finding 2: Community Vulnerability as Selection Criterion** The same corporations negotiate extensively with communities possessing political power. When communities lack such power, these same corporations operate without negotiation, even in violation of environmental standards.
- **Finding 3: Infrastructure Burden Concentration** Massive energy, water, and carbon demands are concentrated in communities least equipped to manage consequences. County-scale infrastructure is placed in township-scale communities without county-level authority.
- **Finding 4: Democratic Deficit** When democratic participation requires sufficient political power to demand it, rural communities are systematically excluded. Zoning loopholes, fast-tracked permitting, and information control become mechanisms for circumventing community consent.

11. Implications: What This Means for Michigan Communities

As AI infrastructure expands across the state, Lyon Township's experience represents a warning. Multiple data centers are planned for rural Michigan locations. Each will follow similar patterns:

- Industrial zoning exemptions avoiding public hearings
- Vague claims about efficiency without actual metrics
- Approval timelines measured in months, not years
- Residents discovering decisions through social media, after approval is final
- Infrastructure burdens at county or state scale in communities with township-level authority

Without intervention, Michigan's rural communities will become hosts for massive technology infrastructure burdens while urban communities with political power successfully resist or negotiate favorable terms.

12. Conclusion

Lyon Township, Michigan approved a facility that will consume:

- 8.3 trillion watt-hours of electricity annually (equivalent to entire county consumption)
- 912 billion gallons of water annually (260 times Flint's municipal system)
- 4.2 million metric tons of carbon dioxide annually (more than the city of Flint produces from all sources)

All of this was approved through an industrial zoning exemption requiring no public hearing, no community vote, and no disclosure of actual consumption figures.

Residents learned about the approval three months later, through Facebook.

- This is not transparency. This is extraction. This is how digital redlining operates in rural communities without power to resist.
- The Lyon Township case demonstrates that environmental protection, democratic participation, and community negotiation are not technically or economically impossible. They are simply reserved for communities with sufficient political power to demand them.
- For rural Michigan communities without such power, the result is infrastructure concentration—massive technological burdens approved through regulatory loopholes in processes specifically designed to bypass democratic consent.
- The numbers are stark. The pattern is clear. Unless Michigan implements requirements for community consent, environmental impact assessment, and transparent disclosure before approval, rural communities will continue becoming sacrifice zones for technology infrastructure.

Compliance with ethical standards

Disclosure of conflict of interest

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