

# Deconstructing the Cloud

**The physical cost of data centers—and the policy  
playbook to protect local communities.**

# The Heavy Machinery of Artificial Intelligence

## The AI Multiplier

A single ChatGPT prompt requires 10X more energy than a traditional Google search.

## The Trajectory

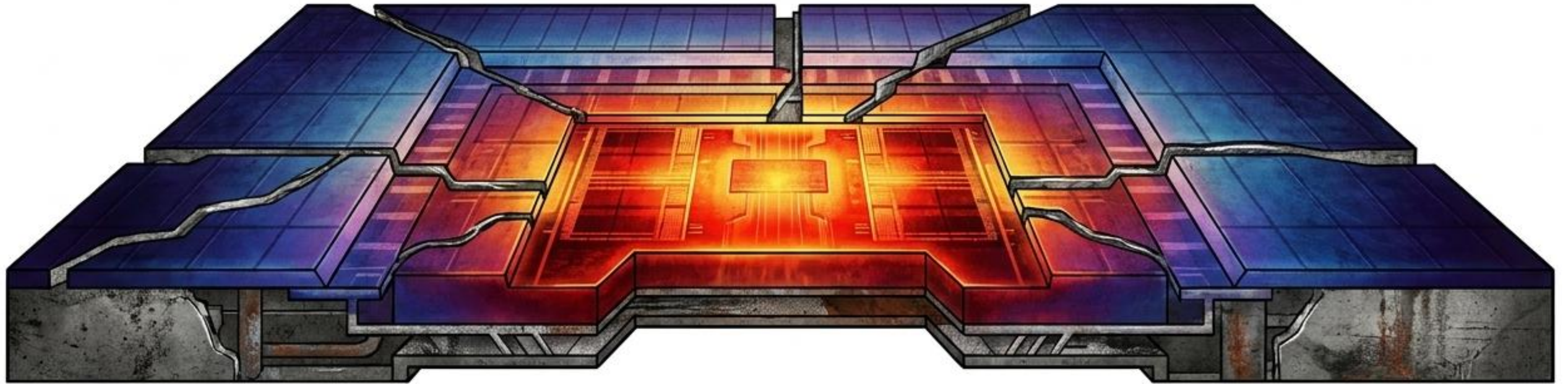
Data centers consumed 4% of U.S. electricity in 2023. By 2028, this will triple to 12%.

## The Scale

A single data center consumes up to 2 Megawatt hours (MWh) of electricity—equivalent to 2,000 homes.



# The Anatomy of Heat



## Continuous Workloads

High-performance AI training demands continuous, 24/7 electrical flow.

## Circuit Resistance

Electricity encounters resistance, converting massive amounts of energy directly into extreme heat.

## The Thermal Threat









If heat is not immediately removed, hardware malfunctions or permanently melts.

## The Quench

High specific heat capacity is required to pull the heat away. Air is no longer enough; liquid is mandatory.

**Key Statistic: 22% of data center facilities now rely on heavy water-based cooling systems to prevent hardware destruction.**

# The Cooling Paradox

| Cooling Technology                 | Energy Efficiency  | Water Efficiency  |
|------------------------------------|--|---|
| Water-cooled / Chilled Water Loops |  Highly Efficient   |  Highly Extractive                                   |
| Air-Cooled / Direct Expansion (DX) |  Low Efficiency     |  Low Water Use                                       |
| Computer Room Air Handlers (CRAHs) |  Moderate          |  Moderate   |
| Emerging Liquid / Direct-to-Chip   |  Highly Efficient |  Relies on Specialized Dielectric Fluids/Equipment |

**THE CORE TAKEAWAY:** You cannot optimize both simultaneously. To cool a facility efficiently, a data center must consume millions of gallons of water. Google's Council Bluffs facility in Iowa uses 980 million gallons annually—equal to the water usage of 4 million homes.

# THE BRIDGE TO NOWHERE

**THEORETICAL PROMISE:**  
100% Renewables &  
Small Modular Reactors (SMRs)

**Reality Check:** Solar and wind are inconsistent. SMRs have zero commercially viable models in operation.

**THE CONSTRAINT:**  
Tier 4 data centers demand 99.995% uptime. Intermittent renewables cannot meet this baseline without massive, mineral-heavy battery storage.

**PHYSICAL REALITY:**  
Direct Commissioning of Fossil Fuels

Tech companies claim to use a temporary bridge of fossil fuels, but the immense demand results in the cancellation of coal retirements and the construction of new gas plants.



# State-by-State Regression

## Washington

Reaching hydropower limits, forcing the purchase of unspecified open-market fossil fuels to power Grant County (where data centers use 40% of all power).

## Utah

Extending the life of the Intermountain Power Project coal plant.

## Nebraska

Reversing the 2023 retirement of the 644-MW North Omaha Station coal plant to power a Meta facility.

## Virginia

Projected 85% power demand spike. Keeping WV and MD coal plants alive; PJM proposing \$5.9B in new transmission lines just to import coal power.

## Georgia

Buying 750 MW from 50-year-old Mississippi coal plants.



# THE ANATOMY OF A RATE HIKE

**Step 1: Surging Tech Demand.**  
AI data centers arrive, straining local grid capacity to the breaking point.

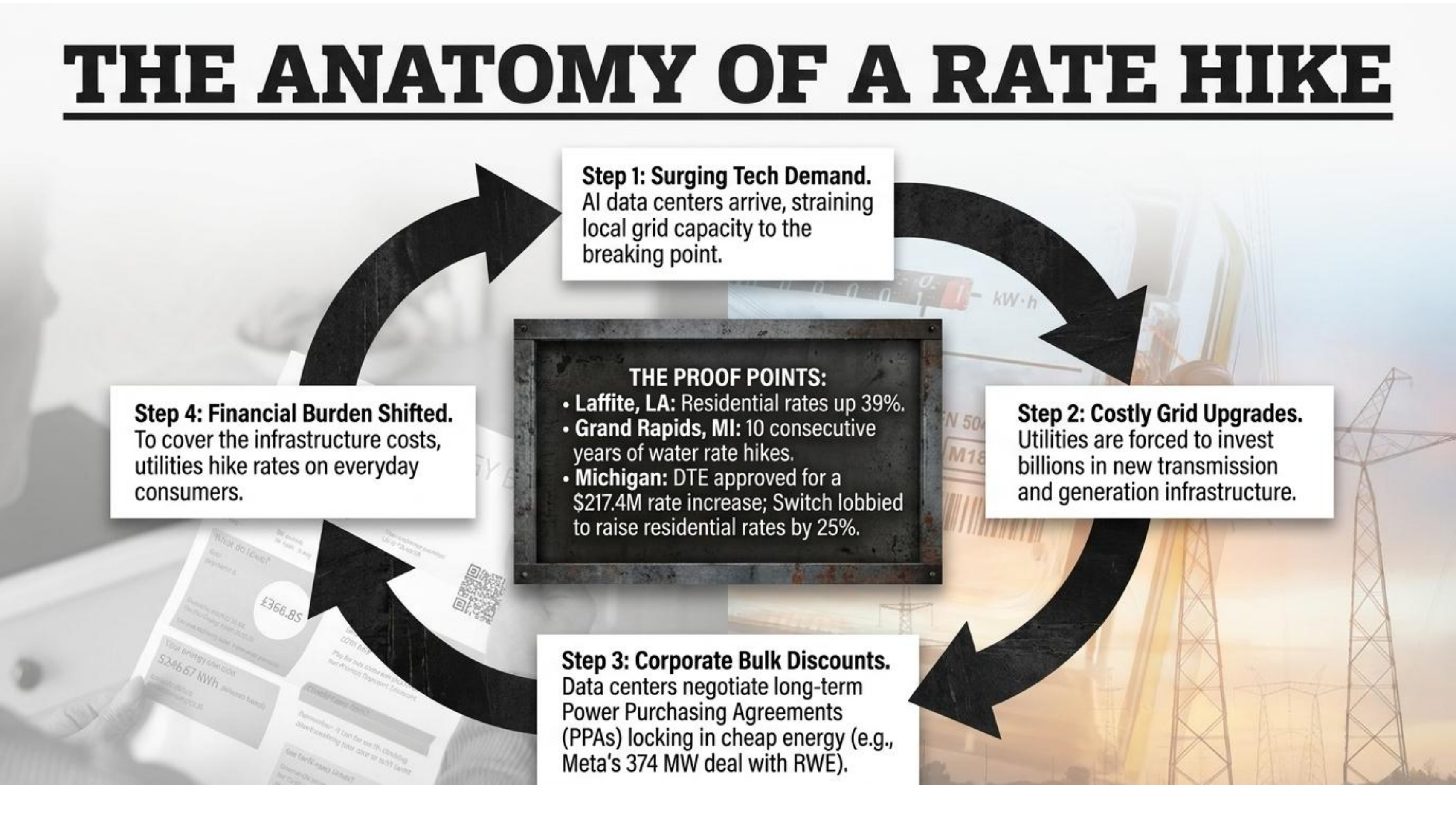
**Step 2: Costly Grid Upgrades.**  
Utilities are forced to invest billions in new transmission and generation infrastructure.

**THE PROOF POINTS:**

- **Laffite, LA:** Residential rates up 39%.
- **Grand Rapids, MI:** 10 consecutive years of water rate hikes.
- **Michigan:** DTE approved for a \$217.4M rate increase; Switch lobbied to raise residential rates by 25%.

**Step 4: Financial Burden Shifted.**  
To cover the infrastructure costs, utilities hike rates on everyday consumers.

**Step 3: Corporate Bulk Discounts.**  
Data centers negotiate long-term Power Purchasing Agreements (PPAs) locking in cheap energy (e.g., Meta's 374 MW deal with RWE).

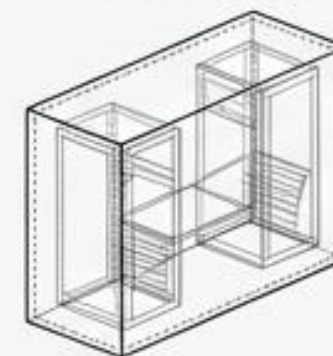


# The Broken ROI of Tech Subsidies



## THE HEAVY COST:

- Washington State: \$300M+ in forgone tax revenue given to Microsoft and others.
- Genesee County, AL: \$838,000 cost to taxpayers per single job created.
- Michigan: Tax exemptions directly bleeding revenue from Caledonia Community Schools.



## THE LIGHTWEIGHT BENEFIT:

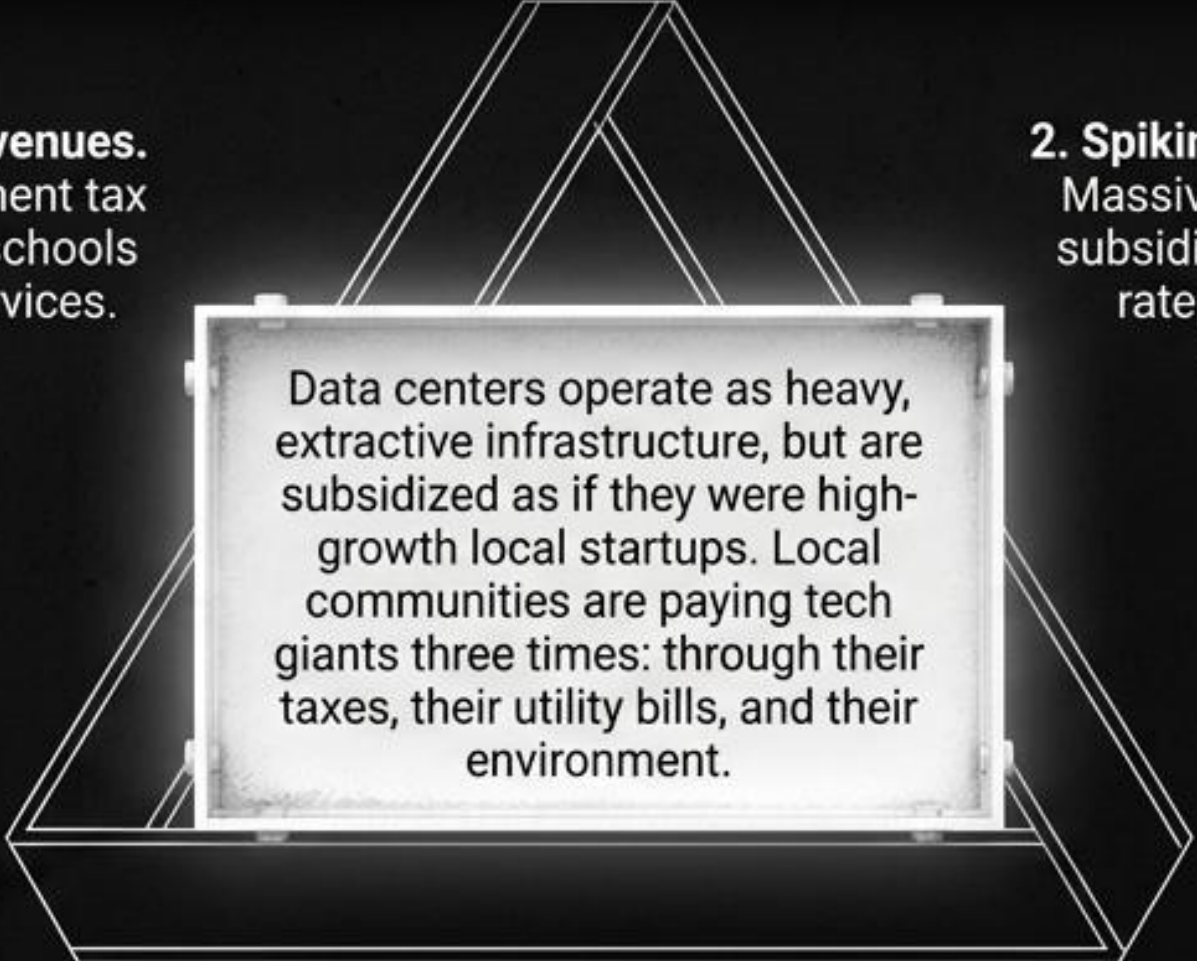
- Data centers require almost no permanent employees.
- Jobs created are low-wage, non-union, term-limited contractor roles (janitorial/security).

**THE REALITY CHECK:** In Quincy, WA, while tech giants operate multimillion-dollar facilities, the local fire department is so starved for tax revenue it cannot replace outdated equipment.

# THE TRIUPLE DEFICIT

**1. Drained Local Revenues.**  
Property and equipment tax exemptions starve schools and emergency services.

**2. Spiking Residential Rates.**  
Massive grid upgrades are subsidized directly by local ratepayers and small businesses.



Data centers operate as heavy, extractive infrastructure, but are subsidized as if they were high-growth local startups. Local communities are paying tech giants three times: through their taxes, their utility bills, and their environment.

**3. Depleted Natural Resources.**  
Millions of gallons of water consumed; dying coal plants kept on life support.

# THE DANGER OF THE BLANK CHECK



## CASE STUDY: Michigan Public Act 207 of 2024

- Grants tax exemptions for data center equipment purchases for brownfield sites until 2050 or 2065.
- **THE CATCH:** All data centers only have a lifespan of 15-20 years.
- **THE RESULT:** This exemption completely shields these facilities from all construction and operating taxes throughout their entire life cycle.

**TAKEAWAY:** There are currently no state or federal laws directly restricting data center construction. Instead, over a dozen states have implemented laws designed to incentivize them, leading directly to higher electricity rates and reliance on non-renewable energy.

# THE BLUEPRINT: ACCOUNTABILITY & ADDITIONALITY

## POLICY 1: TYING TAX BREAKS TO CLEAN ENERGY (MODEL: VA HB2578)

- Require facilities to purchase specific percentages of clean energy and mandate that backup generators meet strict emissions standards to qualify for ANY sales/use tax exemptions.
- Force the capture and reuse of data center waste heat.

## POLICY 2: THE ADDITIONALITY MANDATE (THE GOLD STANDARD)

**THE PROBLEM:** Data centers currently buy up all existing green energy, forcing regular consumers onto fossil fuel grids.

**THE SOLUTION:** Mandate Renewable Energy Additionality. Data centers cannot rely on existing infrastructure; they must generate new renewable capacity (e.g., funding new wind/solar farms) to expand the overall supply.

# THE GOLD STANDARD: THE GERMAN ENERGY EFFICIENCY ACT

## FRAMEWORK (ENERGIEEFFIZIENZGESETZ - EEffG)



### MANDATORY ENERGY AUDITS

Large facilities must conduct regular, independent audits to identify inefficiencies.



### STRICT PERFORMANCE STANDARDS

Enforced adoption of advanced cooling technologies and server virtualization.



### MANDATED RENEWABLE INTEGRATION

Operators are legally incentivized/required to procure certified green energy or generate it on-site.



### PUBLIC ACCOUNTABILITY

Mandatory public reporting of energy usage and efficiency metrics.

**SUMMARY:** A proven, sustainable growth model that aligns industrial tech expansion directly with national energy transition goals, preventing the disproportionate burdening of the grid.

# THE FINAL MANDATE

- 1. Adopt the Model:** Implement the German Energy Efficiency Act and strict additionality clauses.
- 2. Protect the Ratepayer:** Pass explicit laws preventing utility cost-shifting to residential consumers.
- 3. If All Else Fails, Repeal:** If data centers cannot operate without draining local resources and taxes, repeal their tax breaks.
- 4. Do Not Start:** For states without data center tax incentives: do not enact them. Redirect public resources to education and actual renewable energy.

**It is time to regulate the cloud like the heavy industry it actually is.**