



UNAUTOMATED  
THE HUMAN INTELLIGENCE PROJECT

PRACTICAL GUIDE 006

# RESPONSIBLE AI INFRASTRUCTURE

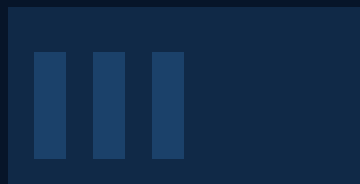
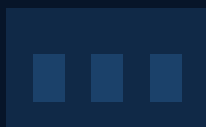
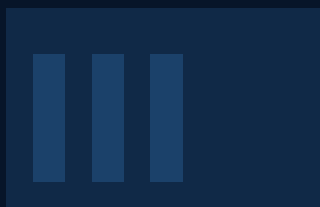
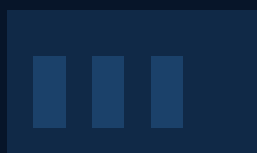
A Community Guide to Data Center Development

## THE HUMAN QUESTION

Does this project serve the people and place that will live with its consequences?

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**RESPONSIBLE AI INFRASTRUCTURE**

# A Community Guide to Data Center Development

A human first framework for water, power, noise, public value, and accountability.

**PURPOSE**

This guide helps residents, planning commissions, elected officials, utilities, economic development leaders, journalists, developers, and neighboring property owners ask better questions before a data center project is approved. It is designed to support informed judgment, not automatic opposition or automatic approval.

|                           |                                                                                                                                                                   |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| <b>WEBSITE</b>            | <a href="https://unautomated.org">unautomated.org</a>                                                                                                             |
| <b>PUBLIC USE</b>         | Free educational resource. It may be shared in full with attribution. The formal Ten Commitments must remain unaltered when reproduced as the official framework. |

## Important limitation

This resource is educational. It is not legal, engineering, environmental, utility, tax, land use, financial, public safety, or regulatory advice. Every project is site specific. Communities should use qualified professionals and applicable law to evaluate a proposal and convert appropriate protections into enforceable public action.

## Research standard

Technical claims in this edition are grounded in current primary sources from Lawrence Berkeley National Laboratory, the United States Department of Energy, the United States Environmental Protection Agency, and local governments that have adopted or studied data center standards. Source notes appear at the end of the guide.

*The future is not inevitable. The choice is ours.*

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#### HOW TO USE THE PACKAGE

Read the position first. Use the technical sections to understand the issue. Bring the Ten Questions to early public meetings. Complete the Impact Scorecard only after documents are available. Use the Human First Principles as the enduring standard when the details become complicated.

# Official Unautomated Position

## Responsible digital infrastructure

Unautomated supports the responsible development of digital infrastructure when the people, places, and public systems that host it are treated as part of the project rather than as costs that can be placed somewhere else.

We are neither reflexively for data center development nor reflexively against it. We reject the false choice between technological progress and community protection. Communities should not be asked to surrender water security, reliable and affordable electricity, reasonable noise levels, public safety, environmental quality, or meaningful participation simply because a project supports artificial intelligence. Developers should not be judged only by older assumptions when better cooling, energy, sound control, water reuse, heat recovery, and operating practices are available.

### THE STANDARD

The infrastructure supporting artificial intelligence should advance at the same pace as our responsibility for the communities that host it.

The proper question is not simply whether a data center should be built. It is whether this data center, in this place, under these conditions, serves the people who will live with its consequences.

## What this position requires

**1**

### EVIDENCE BEFORE CERTAINTY

A confident presentation is not proof. Major claims about water, power, noise, air, jobs, taxes, safety, and sustainability should be documented and independently reviewable.

**2**

### TECHNOLOGY WITHOUT COMPLACENCY

A community should not assume every new project resembles an older facility. It should also not accept a label such as advanced, closed loop, or efficient without defined boundaries and measurable performance.

**3**

### CONDITIONS INSTEAD OF WISHES

Important protections belong in permits, agreements, ordinances, rates, plans, reporting duties, and enforcement provisions.

**4**

### RESPONSIBILITY ACROSS TIME

The review should address construction, normal operation, emergencies, expansion, ownership changes, equipment replacement, and the end of the facility life.

# Connection to the Ten Commitments

This position is not a separate environmental platform. It is a direct application of the constitutional center of Unautomated to the physical infrastructure of artificial intelligence.

## COMMITMENT EIGHT

The obligations of artificial intelligence extend beyond the person using it, to the communities, workers, and shared world affected by its consequences, and no system may treat those wider costs as someone else's concern.

## COMMITMENT NINE

Progress must be measured by whether human beings are living fuller, more capable lives, not merely by whether a system has made a task faster.

## COMMITMENT TEN

The future shaped by artificial intelligence is not fixed, and every person, institution, and generation retains the standing to choose a better one than the one currently being built.

Taken together, these commitments reject a narrow accounting in which the user receives the benefit while the host community receives the cost. They also reject the idea that faster technological deployment is the only measure of progress. The future remains open to human judgment.

# Executive Summary

AI does not live in the cloud. It lives in buildings connected to land, water, electricity, roads, people, and public institutions.

Data centers can support economic activity, essential digital services, scientific work, communications, and the rapid growth of artificial intelligence. They can also require large and highly concentrated electric service, cooling systems, backup generation, water and wastewater capacity, road access, public safety planning, and long term land commitments. The responsible position is neither fear nor blind enthusiasm. It is disciplined review.

## The four tests

**1**

### PURPOSE AND COMPLETE SCOPE

Do we understand what is actually being proposed, including all phases and supporting infrastructure?

**2**

### SITE AND RESOURCE FIT

Can this place support the project without unreasonable harm to water, grid reliability, neighbors, public safety, land, and future community choices?

**3**

### COST AND RISK OWNERSHIP

Does the project carry the specialized costs and risks it creates rather than shifting them to residents or ordinary utility customers?

**4**

### ACCOUNTABILITY AND CORRECTION

Will promises remain visible, measured, enforceable, and correctable through changes in ownership and technology?

### A RESPONSIBLE APPROVAL IS NOT A PREDICTION

No review can eliminate uncertainty. A responsible approval identifies uncertainty, limits exposure, assigns responsibility, monitors actual performance, and creates a practical path to correction.



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PART ONE

# UNDERSTAND THE PROJECT

The physical infrastructure behind artificial intelligence and the reasons communities are asking harder questions.

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HUMAN JUDGMENT. REAL CONSEQUENCE. A BETTER FUTURE.

# AI Does Not Live in the Cloud

Digital services feel weightless because people encounter them through screens. Their infrastructure is not weightless.

A data center is an industrial facility that houses computing, storage, networking, cooling, electrical, fire protection, security, and control systems. Artificial intelligence increases the importance of this physical layer because specialized computing can create very high electric demand and heat density. The facility may also require utility substations, transmission lines, water and wastewater systems, generators, fuel storage, batteries, roads, and emergency response capacity.

In June 2026, Lawrence Berkeley National Laboratory estimated that data centers could account for 11.8 percent of total United States electricity use by 2030, with a scenario range from 9.5 to 15.3 percent. [1] The exact future remains uncertain, but the direction is clear enough for communities to plan deliberately rather than react project by project.

## THE PHYSICAL CHAIN

**Compute creates heat.** Heat requires removal. Heat removal requires equipment, energy, and sometimes water. Reliability requires redundancy. Redundancy can require more land, power systems, generators, batteries, and public safety planning. Every link has a human and community consequence.

## A useful public vocabulary

|                           |                                                                                                            |
|---------------------------|------------------------------------------------------------------------------------------------------------|
| <b>WITHDRAWAL</b>         | Water taken from a source or utility.                                                                      |
| <b>CONSUMPTION</b>        | Water not returned to the immediate system, often because it evaporates or becomes part of a waste stream. |
| <b>PEAK DEMAND</b>        | The greatest amount of electricity or water expected at one time.                                          |
| <b>LOAD RAMP</b>          | How quickly a facility expects to move from early operation to its full electric demand.                   |
| <b>REDUNDANCY</b>         | Additional equipment or capacity intended to keep the facility operating when another component fails.     |
| <b>SENSITIVE RECEPTOR</b> | A place or person that may be especially affected by noise, air, light, traffic, or emergency conditions.  |

# Why Communities Are Being Asked to Decide

The demand for computing is growing faster than many local planning systems were designed to evaluate.

Communities may see genuine opportunities in tax base growth, construction activity, utility investment, technology employment, improved infrastructure, and participation in a strategic national industry. Developers may also identify sites with available land, fiber, electric service, cooler weather, favorable taxes, or proximity to markets. Those benefits deserve a fair hearing.

Community concern is also rational. A facility may operate continuously for decades. Its resource demand can be concentrated. Its permanent employment may be smaller than its construction workforce. Its sound can be persistent. Its utility infrastructure may be specialized. Its environmental effect may depend heavily on the selected cooling and power design. Its expansion may occur through phases that were not obvious during the first public hearing.

## Why trust breaks down

|                                     |                                                                                                                       |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>INCOMPLETE SCOPE</b>             | The public sees one building while the developer is planning a campus.                                                |
| <b>AVERAGE NUMBERS</b>              | Annual values are offered without peak day, peak hour, drought, heat, or emergency conditions.                        |
| <b>UNDEFINED LABELS</b>             | Terms such as closed loop, clean, efficient, quiet, or renewable appear without measurable boundaries.                |
| <b>BENEFITS WITHOUT COSTS</b>       | Jobs and taxes are highlighted while incentives, public services, utility risk, and opportunity costs remain unclear. |
| <b>PROMISES WITHOUT ENFORCEMENT</b> | Important assurances exist in presentations but not in permits, agreements, monitoring, or correction procedures.     |

### THE EDUCATIONAL STANCE

Do not begin by asking people to trust the developer or distrust the developer. Begin by creating a process in which trust is less necessary because evidence, conditions, reporting, and correction are built into the decision.



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PART TWO

# EXAMINE THE IMPACT

Water, electricity, noise, air, public safety, land, infrastructure, and community economics.

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HUMAN JUDGMENT. REAL CONSEQUENCE. A BETTER FUTURE.

# Water and Cooling

The correct water question is not simply, How much water does a data center use? The answer depends on computing load, climate, cooling design, operating temperature, water quality, season, redundancy, and the boundaries of the calculation.

Evaporative cooling can reduce electric demand for heat rejection in some conditions, but it consumes water through evaporation and requires additional water to control mineral concentration. DOE explains that cooling tower water use includes both evaporation and blowdown. It also describes operational improvements, direct liquid cooling, air cooling, hybrid systems, treatment, and reuse options. [2]

Air cooling can reduce onsite water consumption but may require more electricity, more equipment, or larger heat rejection systems, especially during hot weather. Direct liquid cooling moves heat from chips more efficiently than room air and can improve the ability to use warmer cooling water or recover heat. A closed loop recirculates fluid, but the full facility may still require makeup water, wastewater handling, or water associated with electricity generation. No design should be reduced to a slogan.

## What a complete water analysis contains

|                          |                                                                                                                    |
|--------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>SOURCES</b>           | Potable utility water, groundwater, surface water, reclaimed water, recycled process water, and emergency sources. |
| <b>QUANTITIES</b>        | Annual, monthly, peak day, peak hour when relevant, withdrawal, consumption, discharge, and expected expansion.    |
| <b>CONDITIONS</b>        | Normal weather, extreme heat, drought, equipment failure, loss of a water source, and alternative cooling modes.   |
| <b>QUALITY AND WASTE</b> | Pretreatment, chemicals, blowdown, brine, wastewater, thermal effects, and receiving system capacity.              |
| <b>OTHER USERS</b>       | Existing homes, farms, businesses, ecosystems, public supplies, and future community needs.                        |
| <b>VERIFICATION</b>      | Meters, reporting frequency, public access, independent review, triggers, correction, and enforcement.             |

### TECHNOLOGY CAN CHANGE THE OUTCOME

The EPA describes a Quincy, Washington water reuse system that treats and recirculates data center cooling water and is estimated to reduce potable groundwater use by 138 million gallons per year. The same case study also shows that reuse requires treatment, pipes, brine management, makeup water, finance, and long term cooperation. [3]

# Water Questions That Belong in the Approval

1

**DEFINE THE BOUNDARY**

State whether numbers include only onsite cooling or also water treatment, electricity generation, wastewater, construction, and related facilities.

2

**SEPARATE WITHDRAWAL FROM CONSUMPTION**

A facility may withdraw water and return some of it. The community should know both values and the quality of what returns.

3

**USE PEAK CONDITIONS**

Request the highest expected use during heat and full buildout, not only an annual average.

4

**ESTABLISH A SOURCE PRIORITY**

Identify which sources are used first and when potable or groundwater use is allowed.

5

**CREATE DROUGHT DUTIES**

Do not accept a voluntary promise to cooperate later. Establish triggers, reductions, alternative modes, and reporting now.

6

**PROTECT THE RECEIVING SYSTEM**

Confirm wastewater, blowdown, brine, chemical, temperature, and treatment capacity.

7

**METER AND PUBLISH**

Require separate meters by source and function where practical, with useful public reporting.

8

**REVISIT MAJOR CHANGES**

A new cooling design, increased density, larger phase, or new water source should trigger review.

**DO NOT ASK ONLY WHETHER WATER EXISTS**

Ask whether the source is dependable, lawful, resilient, affordable, and fair to the people and ecosystems already relying on it.

# Electricity, Infrastructure, and Ratepayer Protection

A data center can be both an economic development project and one of the largest new electric loads a region has ever considered.

The public review should identify maximum megawatts, annual megawatt hours, expected load factor, ramp schedule, phase timing, service redundancy, transmission, substations, generation, storage, and onsite power. It should also explain what happens if the project arrives later, grows more slowly, uses less energy, seeks more energy, changes ownership, or closes.

DOE identifies fair allocation of system costs, stranded asset risk, operational and resource adequacy risk, and appropriate risk sharing as central issues in rate design for large loads. [4] These questions are often handled by utilities and regulators rather than zoning boards, but local officials and residents still need to understand who has authority and whether the necessary decisions are coordinated.

## Questions for utilities and regulators

|                        |                                                                                                                      |
|------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>CAPACITY</b>        | What generation, transmission, distribution, and reserve capacity is needed, and on what schedule?                   |
| <b>RELIABILITY</b>     | How will the load affect normal operations, peak conditions, outages, restoration, and resource adequacy?            |
| <b>COST ALLOCATION</b> | Which costs are paid by the project, the utility, taxpayers, or other ratepayers?                                    |
| <b>UNDERUSE RISK</b>   | Who carries the cost if specialized infrastructure is built but the expected load does not arrive or remain?         |
| <b>FLEXIBILITY</b>     | Can the facility reduce, shift, or sequence demand during grid stress without creating other public risks?           |
| <b>TRANSPARENCY</b>    | Which rate, contract, forecast, and planning decisions can be explained publicly, and which are confidential by law? |

### A LOCAL APPROVAL SHOULD NOT PRETEND TO DECIDE A UTILITY CASE

It should require evidence that the proper utility and regulatory reviews exist, identify unresolved risks, coordinate conditions, and avoid promising residents an outcome that only another authority can deliver.

# Noise, Vibration, and the Twenty Four Hour Neighbor

Noise is not only a question of how loud a facility is. It is also a question of when, where, how often, at what frequency, and with what ability to correct it.

Data center sound may come from fans, chillers, cooling towers, pumps, transformers, substations, generators, loading, construction, and emergency operation. Continuous sound can become more noticeable at night when background levels fall. Tonal sound, low frequency sound, vibration, and repeated generator testing can create effects that a single overall decibel number does not fully describe.

Fairfax County, Virginia strengthened its data center ordinance in 2024 with equipment enclosure or screening, residential setbacks, and preconstruction and postconstruction noise studies. [5] The exact standard will vary by community, but the process is instructive.

## A responsible acoustic record

|                     |                                                                                                                        |
|---------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>BASELINE</b>     | Existing daytime and nighttime sound at representative property lines and sensitive receptors.                         |
| <b>PREDICTION</b>   | Normal, seasonal, full buildout, generator testing, emergency, tonal, low frequency, and cumulative conditions.        |
| <b>DESIGN</b>       | Equipment selection, enclosure, orientation, barriers, roof and wall treatment, setbacks, and operating controls.      |
| <b>VERIFICATION</b> | Defined measurement locations, methods, weather conditions, duration, professional qualifications, and public results. |
| <b>RESPONSE</b>     | Complaint intake, investigation, temporary mitigation, correction deadlines, retesting, and enforcement.               |

### PERFORMANCE MATTERS MORE THAN A RENDERING

A landscaped wall may look reassuring and still fail acoustically. Approval should focus on measurable sound at the places where people live, sleep, learn, recover, and work.

# Air Quality, Backup Power, Batteries, and Emergency Response

Reliability equipment that operates rarely can still matter greatly when it operates, and emergency equipment is not exempt from planning.

EPA identifies stationary engines and turbines as common sources of primary and backup power for data centers and notes that they are subject to air standards. Most air permits are issued by state and local agencies under approved programs. [7] The public record should distinguish emergency operation, testing, maintenance, nonemergency generation, and any plan to use onsite power as a routine grid or business resource.

Battery energy storage can support reliability and flexibility. It also requires site specific safety planning. EPA guidance emphasizes current standards, sensors and monitoring, responder coordination, air emissions, isolation, runoff, cleanup, and incident response. [8]

## The emergency plan should answer

|                         |                                                                                                                                     |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>HAZARDS</b>          | Fuel, batteries, coolant, refrigerants, chemicals, electrical equipment, fire, smoke, gas, runoff, and structural access.           |
| <b>RESPONDERS</b>       | Which agencies respond, what they know, what equipment and training they need, and who pays attributable costs.                     |
| <b>WATER AND ACCESS</b> | Fire flow, alternate water, apparatus routes, gates, turning, staging, hydrants, and all weather access.                            |
| <b>PUBLIC ACTION</b>    | Shelter, evacuation, notification, air monitoring, road control, medical coordination, and multilingual communication.              |
| <b>RECOVERY</b>         | Reignition monitoring, runoff containment, damaged equipment, hazardous material management, cleanup, reporting, and investigation. |

### EMERGENCY PLANNING IS A PUBLIC FUNCTION

The operator brings technical knowledge. Local responders bring responsibility for the community. The plan should be developed with both, tested before operation, and updated as equipment changes.

# Roads, Land, Stormwater, Construction, and End of Life

A project can create its greatest visible disruption during construction and its longest obligation after the original technology becomes obsolete.

Construction review should address truck routes, heavy haul loads, hours, worker traffic, dust, mud, noise, temporary lighting, road condition, traffic control, utility work, staging, drainage, restoration, and responsibility for attributable damage. Site review should address stormwater, erosion, flood risk, wetlands, groundwater recharge, trees, habitat, farmland, visual character, security lighting, heat, and future reuse.

The end of life belongs at the beginning of the decision. Technology cycles can be shorter than buildings and utility infrastructure. A responsible project explains what can be reused, what must be removed, how hazardous or specialized materials are handled, how utilities are retired, how the site is restored, and what financial protection remains if the owner is unable or unwilling to perform.

## Three time horizons

**1**

### CONSTRUCTION

Protect roads, neighbors, drainage, public safety, and ordinary community life while the project is built.

**2**

### OPERATION AND CHANGE

Maintain the site, monitor performance, review expansions, and update safety and technology obligations.

**3**

### CLOSURE AND REUSE

Remove or adapt equipment, protect the site, preserve public systems, and return the property to a lawful and useful condition.

#### A TAX AGREEMENT IS NOT A DECOMMISSIONING PLAN

Financial incentives, land use approval, utility service, environmental permits, and end of life obligations are different instruments. Each needs a responsible owner and enforceable terms.

# Community Economics and Public Value

A responsible economic analysis should be neither promotional nor cynical. It should separate categories, show assumptions, and compare public value with public cost and risk.

Construction may create substantial short term employment and contracting. Permanent operations may create fewer jobs but higher wages or specialized roles. Tax revenue may be significant, but incentives, exemptions, abatements, infrastructure spending, service costs, and opportunity costs can change the result. A project may also contribute to workforce programs, education, fiber, roads, environmental improvements, public safety, or a community fund. These benefits are strongest when they are measurable, proportional, enforceable, and connected to real local needs.

## Do not combine unlike numbers

|                              |                                                                                                                            |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>EMPLOYMENT</b>            | Construction workers, permanent employees, contractors, induced activity, local hires, and expected wages.                 |
| <b>TAXES</b>                 | Gross taxes, net taxes after incentives, duration, escalation, exemptions, and effects across jurisdictions.               |
| <b>PUBLIC COSTS</b>          | Roads, utilities, planning, consultants, emergency response, schools, housing, environmental review, and administration.   |
| <b>OPPORTUNITY COST</b>      | Alternative land uses, utility capacity, water allocation, tax base, housing, agriculture, and future development choices. |
| <b>COMMUNITY COMMITMENTS</b> | Who receives the benefit, when it is delivered, how it is measured, and what happens if it is not performed.               |

### PUBLIC VALUE IS NOT A PURCHASE OF PUBLIC CONSENT

Community benefits should not excuse an otherwise unsuitable project. They should address attributable impacts and create a transparent, lasting contribution when the underlying project is responsible.



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PART THREE

# BUILD A BETTER PUBLIC PROCESS

Evidence before certainty. Conditions instead of wishes. Accountability across the life of the project.

---

HUMAN JUDGMENT. REAL CONSEQUENCE. A BETTER FUTURE.

# A Better Community Approval Process

The best public process begins before positions harden and before the site plan becomes too expensive to change.

1

## EARLY NOTICE AND PLAIN LANGUAGE

Describe the complete project, decision process, authorities, schedule, known facts, open questions, and ways to participate.

2

## PREAPPLICATION COMMUNITY MEETING

Hold a meeting before the major layout, cooling, power, and mitigation choices are fixed. Record questions and publish responses.

3

## COMPLETE EVIDENCE PACKAGE

Require consistent information on scope, site, water, power, cooling, noise, air, safety, roads, environment, economics, reporting, and closure.

4

## INDEPENDENT TECHNICAL REVIEW

Let the public body select or control qualified reviewers. The applicant may pay reasonable costs without selecting the conclusion.

5

## COORDINATED AUTHORITY MAP

Identify which decisions belong to zoning, utilities, regulators, environmental agencies, roads, emergency services, and economic development.

6

## PUBLIC QUESTION REGISTER

Track each substantive question, the evidence received, the responsible reviewer, and whether the issue is resolved, conditioned, deferred, or disputed.

7

## DRAFT CONDITIONS BEFORE THE FINAL VOTE

Publish proposed conditions and agreements early enough for public and technical review.

8

## MONITORING AND CORRECTION

Define actual performance measures, reporting, inspection, complaint response, correction, enforcement, ownership continuity, and review of material changes.

### SOMETIMES THE RESPONSIBLE DECISION IS TO PAUSE

Linn County, Iowa adopted data center standards in February 2026 and later approved an eighteen month moratorium to evaluate cumulative impacts on water, electricity, emergency response, transportation, infrastructure, and regional planning. [6] A pause can be a planning tool when the scale of change exceeds the available record.

# The Applicant Evidence Package

A common submission structure makes projects easier to compare, reduces repeated questions, and shows where uncertainty remains.

|                                           |                                                                                                                                                             |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. PROJECT NARRATIVE</b>               | Purpose, end user type, full campus, phases, schedule, ownership, operator, contractors, and requested approvals.                                           |
| <b>2. SITE AND ALTERNATIVES</b>           | Site plan, nearby uses, setbacks, visual design, alternative sites or layouts, and land use compatibility.                                                  |
| <b>3. ELECTRIC PLAN</b>                   | Maximum demand, annual use, ramp, substations, transmission, generation, batteries, redundancy, utility coordination, cost responsibility, and flexibility. |
| <b>4. WATER AND COOLING PLAN</b>          | Cooling process, sources, withdrawal, consumption, discharge, peak use, drought, reuse, wastewater, brine, treatment, alternatives, and meters.             |
| <b>5. ACOUSTIC STUDY</b>                  | Baseline, predictive model, equipment data, tonal and low frequency review, construction, generators, cumulative effects, mitigation, and testing.          |
| <b>6. AIR AND POWER PERMITS</b>           | Engines, turbines, fuel, testing, hours, emissions, required permits, records, and nonemergency operation.                                                  |
| <b>7. EMERGENCY PLAN</b>                  | Hazards, batteries, fuel, fire, access, water, monitoring, runoff, responders, public communication, shelter, evacuation, and recovery.                     |
| <b>8. CONSTRUCTION AND TRANSPORTATION</b> | Truck routes, road capacity, heavy haul, hours, traffic, parking, dust, mud, noise, restoration, and financial responsibility.                              |
| <b>9. ENVIRONMENTAL AND SITE SYSTEMS</b>  | Stormwater, erosion, flood, wetlands, habitat, trees, farmland, groundwater, lighting, heat, and maintenance.                                               |
| <b>10. ECONOMIC AND FISCAL ANALYSIS</b>   | Jobs by type, wages, taxes, incentives, public costs, service needs, opportunity costs, and enforceable community commitments.                              |
| <b>11. MONITORING AND REPORTING</b>       | Meters, tests, inspections, public data, complaints, incidents, correction, enforcement, and annual review.                                                 |
| <b>12. CHANGE AND CLOSURE</b>             | Expansion triggers, technology review, ownership continuity, decommissioning, adaptive reuse, restoration, and financial security.                          |

# Model Community Conditions

These are educational examples, not model legal language. Counsel, engineers, utilities, regulators, and public officials should adapt them to local authority, evidence, and law.

**1****FULL BUILDOUT DISCLOSURE**

Approval documents identify the entire anticipated campus, every known phase, related utility infrastructure, maximum building area, maximum electric load, maximum water demand, backup power, and likely expansion. Material changes return for review.

**2****WATER BUDGET AND SOURCE HIERARCHY**

The applicant provides annual, monthly, and peak day withdrawal and consumption estimates by source. Potable water is not used where a dependable and lawful lower quality source can meet the need without shifting harm elsewhere.

**3****DROUGHT AND SHORTAGE RESPONSE**

The approval includes measurable trigger levels, mandatory reductions, alternative operating modes, reporting, and a clear priority structure during drought, aquifer stress, utility interruption, or emergency.

**4****UTILITY COST RESPONSIBILITY**

The applicable utility, regulator, and developer establish a structure that reasonably protects other customers from specialized infrastructure costs, underutilized assets, sudden load changes, and premature closure.

**5****ACOUSTIC PERFORMANCE**

The project meets enforceable property line and sensitive receptor limits for overall, tonal, impulsive, and low frequency sound. Modeling, baseline measurement, postconstruction testing, complaint investigation, and correction are required.

**6****BACKUP POWER AND AIR QUALITY**

All engines, turbines, fuel systems, and onsite generation are disclosed. Required permits, emissions limits, testing schedules, operating records, maintenance, and complaint procedures remain available to the public to the extent permitted by law.

# Model Community Conditions, continued

7

**EMERGENCY READINESS**

The operator coordinates with fire, emergency management, law enforcement, health, water, and public works agencies. Site plans address batteries, fuel, hazardous materials, access, fire water, air monitoring, runoff, shelter, evacuation, and public communication.

8

**CONSTRUCTION AND ROAD PROTECTION**

A construction management plan addresses hours, truck routes, heavy haul loads, road condition, dust, mud, noise, traffic control, worker parking, restoration, and financial responsibility for attributable damage.

9

**PUBLIC REPORTING**

A public dashboard or annual report states actual water withdrawal and consumption, electric use, generator testing and operation, significant incidents, noise complaints, corrective actions, employment, taxes, and community commitments.

10

**INDEPENDENT VERIFICATION**

The community may obtain qualified independent review of technical submissions and postconstruction performance. The reviewer is selected or controlled by the public body, even when reasonable costs are paid by the applicant.

11

**CORRECTION AND ENFORCEMENT**

Conditions identify the responsible party, evidence required, inspection authority, correction deadlines, remedies, financial assurance when appropriate, and consequences for repeated or material noncompliance.

12

**OWNERSHIP CONTINUITY AND END OF LIFE**

Sale, transfer, restructuring, or lease does not erase obligations. A decommissioning plan addresses equipment removal, hazardous materials, utilities, site restoration, adaptive reuse, and financial security appropriate to the risk.



UNAUTOMATED  
THE HUMAN INTELLIGENCE PROJECT

PART FOUR

# USE THE COMMUNITY TOOLS

Ten questions, a fifty question impact scorecard, a decision record, and ten Human First principles.

# Ten Questions Every Community Should Ask

Bring these questions to the first meeting, not the last. The purpose is to reveal the complete project, the hardest conditions, the ownership of risk, and the strength of accountability.

**1**

## What is the complete project?

Ask for the full campus, all planned phases, substations, transmission lines, generators, batteries, water and wastewater facilities, roads, and likely expansion. A small first phase should not hide the impact of the intended buildout.

**2**

## What will it use on the hardest day?

Annual averages can conceal the day that matters most. Request maximum electric demand, peak water withdrawal and consumption, generator operation, cooling demand, and emergency conditions during heat, drought, grid stress, or equipment failure.

**3**

## Where will the water come from, and what happens when it is scarce?

Distinguish potable, groundwater, surface water, reclaimed water, and recycled process water. Ask who else depends on the source and what mandatory response begins during drought or shortage.

**4**

## Why was this cooling design selected?

Require a comparison of air cooling, evaporative cooling, direct liquid cooling, closed loop systems, hybrid approaches, water reuse, and heat recovery. The least expensive design for the developer is not automatically the best design for the community.

**5**

## What electrical infrastructure is required, and who carries the risk?

Identify substations, transmission, generation, storage, service schedule, and the party responsible for costs if the facility expands slowly, uses less power than forecast, closes, or leaves specialized utility investments behind.

# Ten Questions, continued

**6**

## What will nearby people hear?

Study continuous mechanical sound, tonal and low frequency sound, vibration, generator testing, emergency operation, and cumulative noise. Require preconstruction modeling, postconstruction testing, complaint response, and correction.

**7**

## What are the air quality and emergency response obligations?

Review backup engines, turbines, onsite generation, batteries, fuel storage, fire planning, hazardous materials, shelter or evacuation procedures, responder training, water supply, air monitoring, and runoff control.

**8**

## What public value remains after construction?

Separate temporary construction activity from permanent employment and lasting public benefit. Examine taxes after incentives, public service costs, workforce opportunities, infrastructure improvements, environmental protection, and community commitments.

**9**

## Which promises are binding and visible?

Convert important claims into written conditions, agreements, permits, reporting duties, performance limits, inspection rights, correction deadlines, and enforceable remedies. A presentation is not a protection.

**10**

## What happens when the project changes or ends?

Require review of material expansions, ownership changes, cooling conversions, new power systems, and new phases. Establish decommissioning, equipment removal, site restoration, financial security, and continuing obligations.

### THE QUESTION BEHIND ALL TEN

**Are we approving yesterday's data center assumptions, or requiring the best reasonably available and site appropriate design for the community that will host it?**

# Data Center Community Impact Scorecard

This scorecard is not a vote, a certification, or an automatic score. It is a structured record of what has been demonstrated, what remains incomplete, and which conditions deserve attention before a decision.

## How to mark each question

|                         |                                                                                                                           |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>DEMONSTRATED</b>     | The record contains specific, credible, reviewable evidence and an appropriate enforceable commitment when one is needed. |
| <b>PARTLY</b>           | Some evidence exists, but an important boundary, condition, phase, authority, or enforcement detail remains incomplete.   |
| <b>NOT DEMONSTRATED</b> | The available record does not support the claim or does not contain the needed protection.                                |
| <b>UNKNOWN</b>          | The information has not been provided, cannot be confirmed, or belongs to a review that has not occurred.                 |
| <b>N/A</b>              | The question does not apply, and the reason is written in the record.                                                     |

### READ THE PATTERN, NOT THE SCORE

A project may have strong technology and weak accountability. It may have a good site and an unresolved water source. It may create public value while shifting utility risk. Clusters of Partly, Not Demonstrated, and Unknown answers matter more than an artificial total.

## Core conditions

Questions marked Core Condition address information or protection that usually deserves resolution before final approval. A community may identify additional core conditions based on local law and circumstance.

# 1. Project identity and complete buildout

1

CORE CONDITION

Has the applicant disclosed the full anticipated campus rather than only the first phase?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

2

Are maximum building area, electric load, water demand, generators, batteries, substations, and related infrastructure identified?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

3

Are all ownership, operating, utility, financing, and development entities clearly identified?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

4

CORE CONDITION

Are expansion assumptions, future phases, and material change triggers written into the approval?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

5

Can the public distinguish confirmed facts, estimates, design options, and future intentions?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

## CATEGORY CONCLUSION

Most important evidence received: \_\_\_\_\_

Most important unresolved issue: \_\_\_\_\_

Condition or next action: \_\_\_\_\_

## 2. Siting and compatibility

6

Is the site compatible with nearby homes, schools, health facilities, farms, natural resources, and established community plans?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

7

Were alternative sites or campus configurations meaningfully evaluated?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

8

Do setbacks, height, screening, lighting, security, and building design reduce effects beyond the property line?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

9

Does the review include cumulative impacts from other existing, approved, or reasonably foreseeable projects?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

10

Can the site support safe access, emergency operations, utilities, and future decommissioning?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

### CATEGORY CONCLUSION

Most important evidence received: \_\_\_\_\_

Most important unresolved issue: \_\_\_\_\_

Condition or next action: \_\_\_\_\_

### 3. Water, wastewater, and drought

11

Are annual, monthly, and peak day water withdrawal and consumption stated separately for each source?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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12

Does the analysis distinguish potable, groundwater, surface, reclaimed, recycled, and process water?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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13

Has a qualified study evaluated effects on existing users, aquifers, surface water, wastewater, brine, and water quality?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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14

Are mandatory drought and shortage triggers, reductions, reporting, and alternative operating modes established?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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15

Does the selected cooling system reflect a documented comparison of site appropriate alternatives?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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#### CATEGORY CONCLUSION

Most important evidence received: \_\_\_\_\_

Most important unresolved issue: \_\_\_\_\_

Condition or next action: \_\_\_\_\_

## 4. Electricity, grid reliability, and cost responsibility

16

CORE CONDITION

Are maximum demand, annual use, ramp schedule, load factor, and phase timing disclosed?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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17

Are required substations, transmission, generation, storage, and fuel systems identified?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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18

CORE CONDITION

Has the utility or regulator addressed reliability, resource adequacy, and effects on other customers?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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19

CORE CONDITION

Does the applicable rate or agreement reasonably assign specialized infrastructure and stranded asset risk to the project?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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20

Are flexibility, curtailment, phased energization, efficiency, and heat recovery opportunities evaluated?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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### CATEGORY CONCLUSION

Most important evidence received: \_\_\_\_\_

Most important unresolved issue: \_\_\_\_\_

Condition or next action: \_\_\_\_\_

## 5. Cooling design and technology

21

Does the application describe the complete cooling process in plain language, including where heat and water go?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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22

Are energy and water tradeoffs compared across air, evaporative, liquid, hybrid, reuse, and recovery options?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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23

Are claims such as closed loop, water free, efficient, or sustainable defined with measurable boundaries?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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24

Are maximum performance, maintenance, redundancy, failure modes, and seasonal operating changes explained?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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25

Is there a schedule for reviewing better technology during major expansion or equipment replacement?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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### CATEGORY CONCLUSION

Most important evidence received: \_\_\_\_\_

Most important unresolved issue: \_\_\_\_\_

Condition or next action: \_\_\_\_\_

## 6. Noise, vibration, and neighboring property

26

Was existing ambient sound measured at representative times and sensitive locations?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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27

Does modeling evaluate continuous, tonal, impulsive, low frequency, generator, construction, and cumulative sound?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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28

Are equipment enclosure, orientation, barriers, setbacks, and operating controls integrated into the design?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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29

Are preconstruction and postconstruction testing methods, locations, weather conditions, and reporting established?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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30

Is there an enforceable complaint, investigation, correction, and retesting process?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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### CATEGORY CONCLUSION

Most important evidence received: \_\_\_\_\_

Most important unresolved issue: \_\_\_\_\_

Condition or next action: \_\_\_\_\_

## 7. Air quality, backup power, batteries, and emergencies

31

CORE CONDITION

Are all engines, turbines, generators, fuel tanks, and expected operating hours disclosed?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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32

Are required air permits, emissions limits, testing, records, and cumulative impacts addressed?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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33

If batteries are included, do design and operations follow current safety standards and site specific hazard analysis?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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34

CORE CONDITION

Was the emergency plan developed with local responders and supported by access, equipment, training, water, monitoring, and communications?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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35

Are evacuation, shelter, air monitoring, runoff, cleanup, and public notification responsibilities clear?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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### CATEGORY CONCLUSION

Most important evidence received: \_\_\_\_\_

Most important unresolved issue: \_\_\_\_\_

Condition or next action: \_\_\_\_\_

## 8. Roads, construction, stormwater, land, and ecology

36

Does a construction plan identify hours, routes, truck volumes, heavy haul loads, dust, mud, noise, parking, and traffic control?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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37

Is the project financially responsible for attributable road, drainage, utility, and public infrastructure impacts?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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38

Are stormwater, erosion, wetlands, flood risk, groundwater recharge, habitat, trees, farmland, and heat effects addressed?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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39

Are light, security, visual screening, building mass, and long term property maintenance standards established?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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40

Does the site retain enough space and access for repair, emergency response, restoration, and future reuse?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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### CATEGORY CONCLUSION

Most important evidence received: \_\_\_\_\_

Most important unresolved issue: \_\_\_\_\_

Condition or next action: \_\_\_\_\_

## 9. Community economics and public value

41

Are temporary construction jobs, permanent jobs, contract work, and induced activity stated separately?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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42

Are tax revenue estimates shown before and after abatements, incentives, exemptions, and public costs?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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43

Are workforce, education, local purchasing, infrastructure, environmental, or community commitments measurable and enforceable?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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44

Has the public body evaluated service costs, opportunity costs, land use effects, and possible property value concerns?

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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45

Does the project create lasting public value proportionate to the scale and duration of its impacts?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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### CATEGORY CONCLUSION

Most important evidence received: \_\_\_\_\_

Most important unresolved issue: \_\_\_\_\_

Condition or next action: \_\_\_\_\_

# 10. Transparency, enforcement, ownership, and end of life

46

Will actual water, power, emissions, incidents, noise complaints, corrections, employment, and public commitments be reported?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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47

Can the public body obtain independent technical review, inspections, records, and postconstruction testing?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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48

Do conditions identify owners, deadlines, evidence, correction duties, remedies, and consequences for noncompliance?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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49

Do obligations survive sale, transfer, restructuring, lease, change of operator, and material expansion?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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50

Is there an enforceable decommissioning, equipment removal, hazardous material, restoration, reuse, and financial security plan?

CORE CONDITION

☐ DEMONSTRATED ☐ PARTLY ☐ NOT DEMONSTRATED ☐ UNKNOWN ☐ N/A

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## CATEGORY CONCLUSION

Most important evidence received: \_\_\_\_\_

Most important unresolved issue: \_\_\_\_\_

Condition or next action: \_\_\_\_\_

# Scorecard Summary and Decision Record

Do not replace judgment with a total. Record the pattern, the core conditions, and the reasons for the decision.

| CATEGORY                                                  | STRONGEST EVIDENCE | UNRESOLVED ISSUE OR CONDITION |
|-----------------------------------------------------------|--------------------|-------------------------------|
| 1. Project identity and complete buildout                 |                    |                               |
| 2. Siting and compatibility                               |                    |                               |
| 3. Water, wastewater, and drought                         |                    |                               |
| 4. Electricity, grid reliability, and cost responsibility |                    |                               |
| 5. Cooling design and technology                          |                    |                               |
| 6. Noise, vibration, and neighboring property             |                    |                               |
| 7. Air quality, backup power, batteries, and emergencies  |                    |                               |
| 8. Roads, construction, stormwater, land, and ecology     |                    |                               |
| 9. Community economics and public value                   |                    |                               |
| 10. Transparency, enforcement, ownership, and end of life |                    |                               |

# Decision Path

1

## INSUFFICIENT EVIDENCE

The record is not complete enough for a responsible decision.

2

## EVIDENCE COMPLETE, CONDITIONS STILL NEEDED

The major facts are available, but protections must be drafted, reviewed, and made enforceable.

3

## SUPPORT WITH CONDITIONS

The project is suitable only with the identified conditions, agreements, monitoring, and correction duties.

4

## DO NOT SUPPORT AS PROPOSED

The site, scale, design, cost allocation, public value, or unresolved risk does not support approval in its current form.

5

## DEFER FOR CUMULATIVE OR REGIONAL STUDY

The decision depends on infrastructure, resource, or growth effects that cannot be responsibly evaluated as an isolated application.

### RECOMMENDED PATH

### CORE CONDITIONS

### REASONING

### NEXT REVIEW DATE

### RESPONSIBLE PUBLIC BODY OR OFFICIAL

# Human First Data Center Principles

Ten public principles for responsible digital infrastructure

**1****HUMAN WELFARE IS THE MEASURE**

A project should be judged by its effects on people and place, not only by computing capacity, capital investment, or speed to construction.

**2****PLACE MATTERS**

A design that is responsible in one climate, watershed, grid, or land use pattern may be irresponsible in another.

**3****ESSENTIAL RESOURCES MUST BE PROTECTED**

Water, electricity, air, public safety, roads, land, and emergency capacity are shared systems, not blank inputs.

**4****THE PROJECT SHOULD CARRY THE COSTS IT CREATES**

Residents and ordinary utility customers should not bear unreasonable financial, operational, environmental, or infrastructure risk.

**5****TECHNOLOGY CLAIMS REQUIRE EVIDENCE**

Terms such as closed loop, efficient, clean, renewable, quiet, and sustainable should be defined, measured, and independently reviewable.

**6****THE BEST DESIGN IS SITE APPROPRIATE**

Communities should expect a documented comparison of available designs and a clear explanation of why the selected approach fits the location.

**7****PUBLIC PARTICIPATION MUST BE MEANINGFUL**

People should receive understandable information early enough to influence the project, not after the important choices are fixed.

**8****PERFORMANCE MUST REMAIN VISIBLE**

Actual water, power, noise, emissions, incidents, and public commitments should be reported in a form the community can understand.

**9****PROBLEMS MUST TRIGGER CORRECTION**

Approval should include monitoring, response deadlines, remedies, and authority to require changes when actual performance differs from what was promised.

**10****THE FUTURE REMAINS A HUMAN CHOICE**

No project is inevitable merely because demand is growing. Communities retain the standing to choose better technology, better terms, a better site, a different scale, or no project as proposed.

# Plain Language Glossary

|                              |                                                                                                                                                                |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AIR COOLING</b>           | A system that rejects heat primarily through air and mechanical equipment rather than evaporating water onsite.                                                |
| <b>BLOWDOWN</b>              | Water removed from a cooling system to limit the concentration of minerals and other dissolved material.                                                       |
| <b>CLOSED LOOP</b>           | A system that recirculates fluid. The term does not by itself establish zero water use, zero discharge, or zero outside impact.                                |
| <b>COOLING TOWER</b>         | Equipment that commonly rejects heat through evaporation. It may use makeup water and create blowdown.                                                         |
| <b>CURTAILMENT</b>           | A planned reduction in electric demand during defined grid or operating conditions.                                                                            |
| <b>DATA CENTER</b>           | A facility containing computing, storage, networking, electrical, cooling, security, control, and related systems.                                             |
| <b>DECOMMISSIONING</b>       | The process for ending operation, removing or reusing equipment, managing materials, retiring utilities, restoring the site, and satisfying continuing duties. |
| <b>DIRECT LIQUID COOLING</b> | A system that moves heat from computing equipment into a circulating liquid closer to the heat source.                                                         |
| <b>HEAT RECOVERY</b>         | Capturing data center heat for another useful purpose rather than rejecting all of it to the environment.                                                      |
| <b>LOAD FACTOR</b>           | The relationship between average electricity use and maximum demand over a period.                                                                             |
| <b>LOW FREQUENCY SOUND</b>   | Sound energy at lower frequencies that may travel differently and may be perceived as hum, rumble, pressure, or vibration.                                     |

# Plain Language Glossary, continued

|                                  |                                                                                                                                                                                                                           |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MAKEUP WATER</b>              | New water added to replace water lost through evaporation, blowdown, leaks, treatment, or other processes.                                                                                                                |
| <b>MEGAWATT</b>                  | One million watts. It describes power at a point in time.                                                                                                                                                                 |
| <b>MEGAWATT HOUR</b>             | A measure of energy equal to one megawatt used for one hour.                                                                                                                                                              |
| <b>POWER USAGE EFFECTIVENESS</b> | The ratio of total facility electricity use to electricity used by the computing equipment. Lower values generally indicate less facility overhead, but the metric does not describe every environmental or human effect. |
| <b>RECLAIMED WATER</b>           | Treated wastewater used again for an appropriate purpose instead of being discharged or using a higher quality source.                                                                                                    |
| <b>SENSITIVE RECEPTOR</b>        | A person or place that may be especially affected, such as a home, school, health facility, park, or protected resource.                                                                                                  |
| <b>STRANDED ASSET RISK</b>       | The risk that specialized utility infrastructure is built but not fully used or paid for over its expected life.                                                                                                          |
| <b>TONAL SOUND</b>               | Sound concentrated at a distinct frequency that may be more noticeable than broad background sound.                                                                                                                       |
| <b>WATER CONSUMPTION</b>         | Water that is not returned to the immediate source or system, often because it evaporates or enters a waste stream.                                                                                                       |
| <b>WATER WITHDRAWAL</b>          | Water taken from a source or utility before accounting for what may be returned.                                                                                                                                          |
| <b>WATER USAGE EFFECTIVENESS</b> | A site based metric relating annual water use to the energy used by computing equipment. The boundary and water sources should be clearly stated.                                                                         |

# Source Notes

This guide uses current primary and governmental sources to explain the issue. The sources do not endorse Unautomated or this framework. Local law, technology, plans, and project facts change. Verify the current record before relying on a specific detail.

1. Lawrence Berkeley National Laboratory, United States Data Center Energy Usage Report: 2025 Update, published June 2026. The report estimates data centers could account for 11.8 percent of total United States electricity use by 2030, with scenario estimates from 9.5 to 15.3 percent.
2. United States Department of Energy, Cooling Water Efficiency Opportunities for Federal Data Centers. DOE explains cooling tower evaporation and blowdown, water usage effectiveness, operational efficiency, direct liquid cooling, air cooling, hybrid approaches, and water saving technologies.
3. United States Environmental Protection Agency, Water Reuse Case Study: Quincy, Washington. The city and Microsoft created a water reuse utility that reduces reliance on potable groundwater and is estimated to save 138 million gallons of groundwater per year.
4. United States Department of Energy, Electricity Rate Designs for Large Loads: Evolving Practices and Opportunities, January 2025. The brief identifies fair cost allocation, stranded asset risk, operational and resource adequacy risk, and appropriate risk sharing as central rate design issues.
5. Fairfax County, Virginia, Board of Supervisors Approves New Data Center Zoning Ordinance Amendment, September 2024. The amendment addresses equipment enclosure, residential setbacks, noise studies, building design, and community engagement.
6. Linn County, Iowa, Data Centers in Unincorporated Linn County, updated 2026. The county describes water studies, water use agreements, economic development agreements, and an eighteen month moratorium to study cumulative infrastructure and regional impacts.
7. United States Environmental Protection Agency, Clean Air Act Resources for Data Centers, current through 2026. EPA identifies stationary engines and turbines as common sources of primary and backup power and explains that most air permits are issued by state and local agencies.
8. United States Environmental Protection Agency, Battery Energy Storage Systems: Main Considerations for Safe Installation and Incident Response, current through 2026. EPA summarizes planning, monitoring, responder coordination, air, runoff, fire, and cleanup considerations.
9. Lawrence Berkeley National Laboratory, Avoiding Waste Heat through AI Infrastructure Thermal Integration, 2026. The article explains that nearly all electricity used in a data center becomes heat and discusses opportunities for heat recovery and community integration.

## Additional public documents worth requesting

|                               |                                                                                                                                                                              |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UTILITY</b>                | Load forecast, service agreement, line extension or contribution agreement, rate or tariff, system impact study, transmission studies, resource plan, and regulator filings. |
| <b>WATER</b>                  | Source capacity study, permits, aquifer or watershed analysis, drought plan, wastewater capacity, treatment analysis, discharge permits, and water agreements.               |
| <b>LAND USE</b>               | Application, narrative, site plans, phasing plan, staff reports, conditions, development agreements, economic agreements, and final decisions.                               |
| <b>ENVIRONMENT AND SAFETY</b> | Stormwater, wetlands, flood, air permits, generator records, hazardous materials, battery design, emergency plans, responder comments, and incident reporting.               |
| <b>ACOUSTICS</b>              | Baseline data, model files, equipment sound data, assumptions, mitigation details, postconstruction protocol, results, complaints, and corrections.                          |

# The Community Is Not Outside the System

The servers may be inside a secured building. The consequences are not.

Artificial intelligence depends on physical places and shared systems. The land is part of the technology. The water is part of the technology. The grid is part of the technology. The road, the fire department, the neighbor, the ratepayer, the worker, and the future use of the site are part of the technology.

A responsible community does not reject progress because it is new. It does not accept progress because it is profitable, urgent, or impressive. It examines what is true. It decides what is worth doing. It acts with good judgment.

*DISCERNMENT. PRUDENCE. WISDOM.*

## THE FINAL QUESTION

Would we consider this a responsible project if the people living beside it were people we loved?

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