PART 3 · SECOND EDITION · SEPTEMBER 2026 (FIRST PUBLISHED JULY 2026)

Site Selection, Power Procurement & Permitting

Power is no longer a line item on the site memo — it is the site. Everything else in the funnel is a tiebreaker among the places that can energize in time.

AUGUST 2026 · TEXAS

~474 GW

The large-load queue one grid operator is tracking — and nearly nine of every ten megawatts are data centers

The queue grew roughly sevenfold in eighteen months, then stopped for a state audit on 3 August. A queue position is not a firm grid connection with a date on it.

ABBOTT DIRECTIVE LETTER · AS-OF 2026-08

THE REFRAME

Site selection used to ask: where is cheap land near fiber and users? It now asks: where can I energize hundreds of megawatts within 24–48 months?

Get the ordering wrong and you strand a billion-dollar campus on a slab that cannot be moved. Every screen in Part 3 runs behind that one question.

ACT I

Power is the site

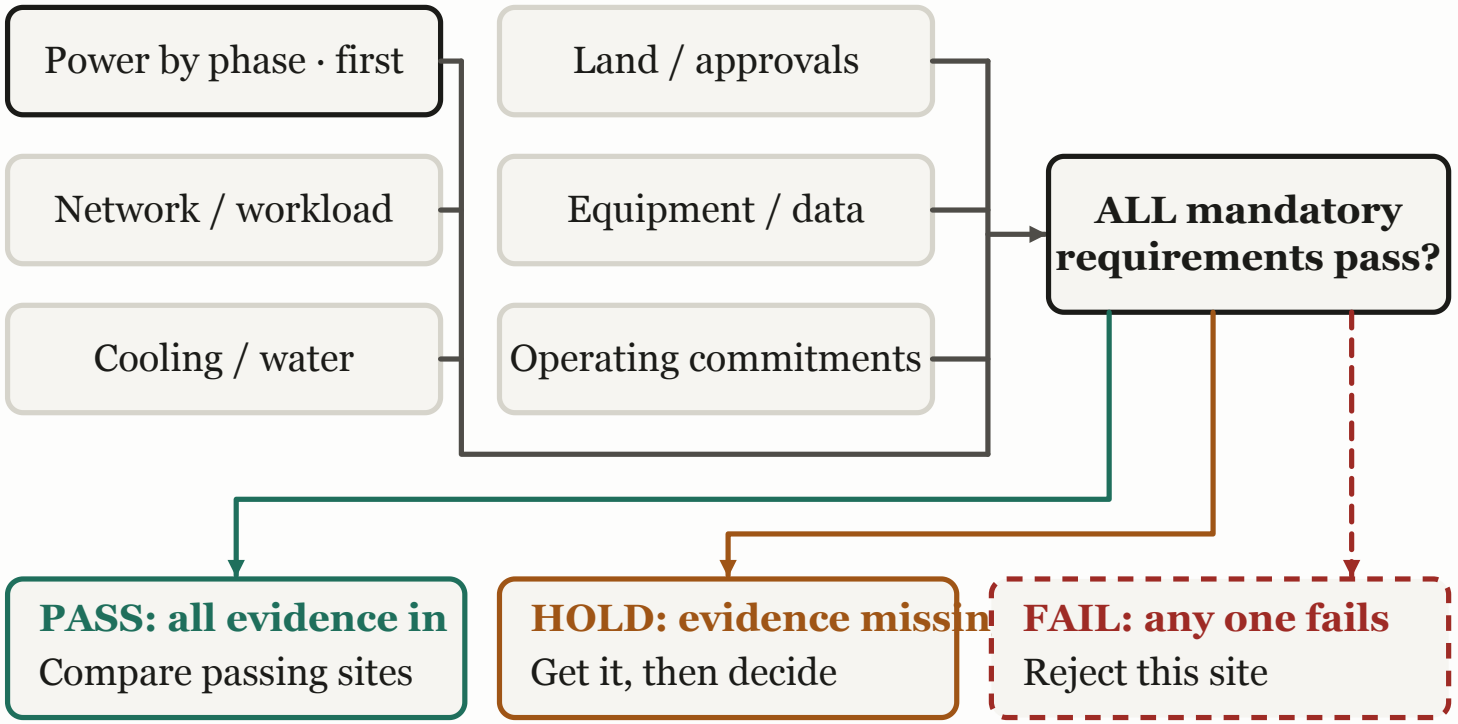
Speed-to-power now eliminates more candidates than land, latency, price, or incentives. The funnel pass/fails on firm-power-by-a-date first — everything else is scored on the survivors.

THE REORDERED FUNNEL

The 2024–2026 reordering: the power screen runs first, and it kills the most sites

Pass mandatory gates before ranking

Illustrative flow. A high score cannot offset a failed requirement.



Guide scenario · Source: Guide derivation · as of Sep 2026

Latency fell from first to third — a hard gate for inference only. Land, fiber, and incentives are tiebreakers now. Screen on power before you spend a diligence dollar on anything else.

SUPPLY-SIDE CONTEXT PLUS PROJECT CLOCKS

Generation/storage queues are not large-load service queues

>2,060 GW

US generation/storage queue — supply-side context, not data-center load requests

LBNL, QUEUED UP: 2026 EDITION · AS-OF END-2025

>8 yr

PJM application to commercial operation — roughly quadrupled since 2008

RMI / PJM FILINGS · AS-OF 2025

18–24 mo

Time to actually build the data center — years shorter than the wait for its power

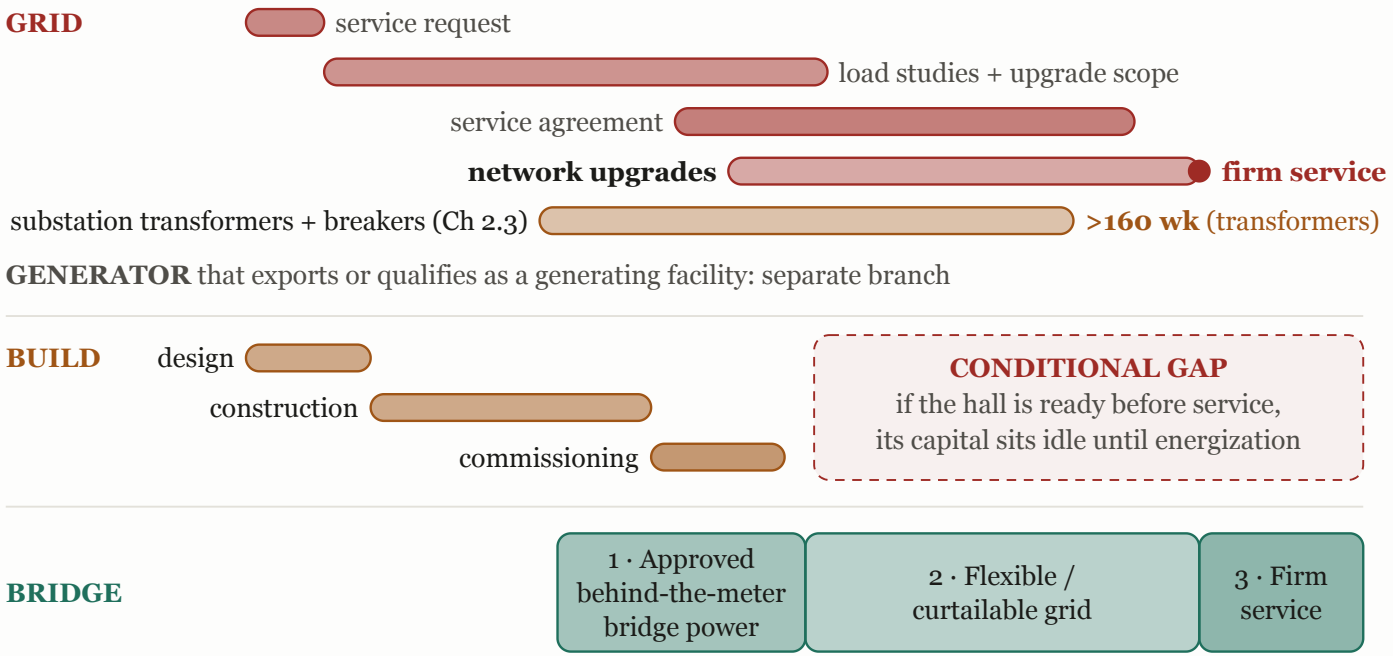
MASTT, TYPES OF DATA CENTERS · AS-OF 2026-04

TWO CLOCKS, ONE GAP

The grid, not the building, sets the energization date

The grid clock often runs longer than the build clock

Bridge power can cover the gap. Bar lengths show sequence, not duration.



Decide firm vs flexible against the host utility's actual offer.

Bridge power needs its own fuel, emissions, protection and islanding approvals.

Durations are project-specific; generator-queue statistics do not define this load-service schedule.

Schematic · Source: guide synthesis + Wood Mackenzie · as of October 2026

Studies, upgrades, and the long-lead transformer run long past commissioning; every month of that gap is idle capex. The bridge sequence — BTM power, then a curtailable tie, then firm — closes it.

THE VALUE OF SPEED

~$12–13 B/GW-yr

AI-cloud contract revenue per GW of contracted critical IT a year — the gross figure behind every speed premium

Contested and single-source (SemiAnalysis), and gross revenue, not profit. Weigh a speed premium against your own contracted margin and the date the service is accepted.

SEMIANALYSIS · AS-OF 2026-06

THE FOOTPRINT DECISION

One gigawatt campus, or a distributed fabric?

Single gigawatt campus

— One mega-interconnection — the slowest, highest-stakes fight

— Cheapest per MW: shared substation, fiber, cooling, security

— Every GPU on one fabric — the home of synchronous pre-training

— All eggs in one grid node, one weather basin, one hearing room

Distributed multi-region fabric

— Several smaller interconnections — faster in aggregate

— Duplicated overhead per site; higher unit cost

— Inter-site latency limits it to inference and async-tolerant training

— Diversified across grids, regulators, and climates

SO WHAT

Workload coupling decides. Synchronous pre-training is pulled toward concentration; inference and async-tolerant methods can spread — and buy faster aggregate energization by doing so.

THE SPEED-VS-CONTROL LADDER

Build modality: what you trade for time

MODALITY	TIME TO LIVE CLUSTER	CAPITAL POSTURE	BEST FIT
Greenfield self-develop	24–36 mo construction once power is secured; grid waits can overlap (JLL, January 2026)	Highest — full capex, full control	Durable, large, well-forecast workloads
Build-to-suit	18–30 months	Lease + IT; balance-sheet-light	Purpose-built capacity without owning the build
Powered shell	12–24 months	Shell lease + fit-out	Density optionality on someone else's firm power
Colocation	6–12 months	Opex-led	Speed, uncertain demand, bridge capacity

THE INTERCONNECTION DECISION

Firm power in years, or curtailable power now?

Firm interconnection (standard queue)

— The right to draw full load at any hour, network-upgraded to your peak

— Multi-year queue wait; re-study risk you do not control

— Utility owns the firmness obligation

— SLA-clean — the only fit for firm-demand inference

Curtailable / non-firm service

— Energizes years earlier by riding existing grid headroom

— You agree to shed load during scarcity hours

— The cheapest fast electron — and the easiest one to mis-price

— Fits checkpoint-tolerant training, batch, and eval sweeps

SO WHAT

Decide firm-vs-flexible before you pick a market: Texas SB6 makes curtailment a condition of service, not a faster queue, and SPP sells non-firm service while firm is built. The rules don't travel.

THE HEADROOM HIDING IN PLAIN SIGHT

98 GW

New US load the existing grid could absorb — if it tolerates a handful of curtailed hours a year

The arithmetic behind every flexible-interconnection deal of 2026: the grid is sized for its peak, and the peak is rare. Flexibility is the accelerant you can offer before it is imposed on you.

DUKE UNIVERSITY · AS-OF 2025-02-11

ACT II

Make your own electrons

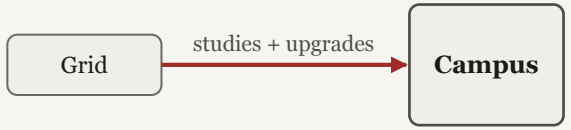
When the queue is the critical path, generation stops being backup and becomes the supply decision: grid, bridge, island, or co-located — each locks in risks that outlive the GPU generation it was meant to power.

THE FOUR SUPPLY STRUCTURES

Speed-to-power vs certainty: the portfolio fork the rest of the deal inherits

Four supply structures: who sets your power date, and what risk you kee

GRID-ONLY

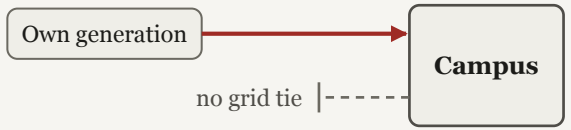


Date set by: the host utility
You keep: utility-specific cost + rights

GRID + BRIDGE

Date set by: equipment, fuel + air permits
You keep: fuel, permit + stranded-bridge risk

BEHIND-THE-METER ISLAND



All BTM: ~90 GW announced, little yet running

Date set by: fuel + air permits
You keep: island reliability + transition scope

CO-LOCATED HYBRID

All nuclear deals: up to ~13 GW announced, mostly grid-fed; co-location contested

Date set by: plant + grid interfaces
You keep: shared critical path + power rights

~$12–13B/GW-yr AI-cloud revenue (contested); timing value depends on contracts, utilization, margin + firm rights.

A **portfolio decision**: basis, shape and regulatory risks outlive the GPU generation.

Measured + forecast · Source: Cleanview + Carnegie + SemiAnalysis · as of August 2026

Grid-anchored supply is the cheapest firm electron on a date you don't control. Queue-bypass supply runs on its own contracted dates, at above-grid cost, with fuel, permit and stranding risk yours.

THE QUEUE-BYPASS WAVE

~90 GW announced

Behind-the-meter generation announced so energization need not wait for grid service

Announced, not built — only a small fraction operates today. Treat announcements as intent, not supply: the pipeline lateral, the air permit, and the turbine slot are critical paths of their own.

CLEANVIEW, MICHAEL THOMAS, BYPASSING THE GRID, PUBLIC REPORT · AS-OF MID-2026 (PUBLISHER'S OBSERVATION WINDOW)

THE PRIME-MOVER DECISION — COMPARE ON ONE HEAT-VALUE BASIS

Buying speed and buying cheap energy are different plants

PRIME MOVER	LEAD TIME	EFFICIENCY (NET ELECTRICAL)	BEST-FIT ROLE
Reciprocating engine (RICE)	Set by the OEM's dated slot; a 282 MW Oct 2026 order: 2028 delivery, 2029 operation	Up to 50% (Wärtsilä 50SG, 60 Hz, at generator terminals)	Speed; spiky loads; the default bridge
Aeroderivative turbine	Set by the OEM's dated slot; refurbished units quoted on availability	37–42% simple cycle; derates hard in heat	Denser bridge power
Heavy-frame / CCGT	Mitsubishi delivers 2028–2030; GE Vernova slots reach 2032 (Sept 2026)	~60–64% combined cycle	Permanent base load; lowest heat rate
Solid-oxide fuel cell	Weeks–months	~60–65% net electrical; near-zero criteria pollutants	Buys the permit, not just the megawatt
Nuclear (restart / SMR)	Crane 2027, Duane Arnold 2029, Palisades undated; SMRs by named project	Firm and clean; FOAK capex heavy	The 2030s answer — not a speed fix

THE STRANDED-ASSET TRAP

The signature stranded asset of the BYOP wave: the bridge plant that never gets to demote.

The plan: gas now, grid in three years, gas falls back to backup. Then the interconnection slips or the permit binds — and the high-heat-rate bridge becomes the permanent plant you never designed.

ACT III

The other gates: fiber, water, dirt, permits

These screens almost never win a site — but any one of them can silently subtract eighteen months and tens of millions. They run in parallel with power diligence, never after it.

THE FIBER SCREEN

Physics sets the budget; route diversity sets the cost

~4.9 µs/km

One-way delay per km of standard solid-core fiber — hollow-core is route-specific

GUIDE DERIVATION FROM C AND N≈1.47 · AS-OF 2026-10-12

~$150k/route-mile (illustrative)

Illustrative build cost per constructed route-mile; price each diverse route separately

GLOBAL DATA CENTER HUB · AS-OF 2026-04-09

THE WATER GATE

~0.36 L/kWh

US annual-average site WUE across all cooling types (LBNL model, 2023) — heat rejection, not the loop, sets it

Withdrawal and discharge are two separate permits — and the discharge path for warm, dosed blowdown often binds harder. Screen water before you sign the land, against a drought year, not a normal one.

LBNL, 2024 UNITED STATES DATA CENTER ENERGY USAGE REPORT, FIGURE 4.7 · AS-OF DECEMBER 2024 REPORT; 2023 ESTIMATE

THE LAND SCREEN

~0.86

Gross acres per MW of planned IT at Vantage's Frontier campus (2025) — one project, not a rule

Acreage is a power ceiling in disguise: translate every parcel into megawatts before you sign, and buy for the density ramp, not the phase-one plan. Cheap desktop tests gate the costly field programs.

VANTAGE DATA CENTERS · AS-OF 2025 ANNOUNCEMENT

THE PERMITTING REALITY

Permitting is a set of parallel clocks — you energize when the slowest finishes

Start every approval that runs longer than construction before you control the land.

Grid interconnection (large load)	~3–7+ yr
Air permit — synthetic-minor/PSD review after a complete application (EPA Region 8)	6–12 mo
Air permit — minor source, no comments or refined modeling (EPA Region 8)	~60–90 days
Shell plus MEP construction (Broadstaff planning estimate)	12–24 mo
Energization date	**the slowest clock**

A project that breaks ground on schedule can still sit dark. Build a one-page long-pole register — queue position, air regime, federal nexus, land-use status — before land control.

ACT IV

Politics is a gate now

Tax breaks are being clawed back, opposition is organized and bipartisan, and export rules decide whose chips you may plug in. The market you pick pre-loads these constraints before you score a single parcel.

Q1 2026 · UNITED STATES

~$130B

Data-center projects blocked or delayed in a single quarter — matching all of 2025

Social license is now a hard gate in series with power and water. A project with a queue slot, a water permit, and a financeable design can still die in a planning-commission hearing — stranding both.

DATA CENTER WATCH · AS-OF Q1 2026

WHY THE POLITICS TURNED

The cost-shift grievance, and the structure that neutralizes it

$11.24/mo

Added to a typical Dominion home bill by the 2026 base-rate change (all approved costs)

VIRGINIA SCC, 2025 DOMINION BIENNIAL REVIEW, NOVEMBER 25, 2025 · AS-OF 2025-11-25

843

Active local opposition groups — more than doubled in a year

DATA CENTER WATCH, REPORTED BY BLOOMBERG VIA INSURANCE JOURNAL, SEPTEMBER 21, 2026 · AS-OF 2026-09-21

25 states

States with an approved large-load tariff ring-fencing data-center grid costs

EDISON ELECTRIC INSTITUTE, LARGE LOAD PROJECTS AND TARIFFS, SEPTEMBER 2026, PAGE 12: 25 STATES WITH AT LEAST ONE APPROVED TARIFF, 7 WITH PENDING TARIFFS. · AS-OF 2026-09-11

THE INCENTIVE REVERSAL

~2 dozen states

States moving to pause, cap, condition, or repeal their data-center tax breaks

Incentives buy economics, never feasibility — and a ten-year abatement banked against a multi-decade asset is the most reversible figure in the pro-forma. Underwrite it risk-weighted, not contractual.

BLOOMBERG TAX, DANIEL MOORE, JUNE 12, 2026 · AS-OF 2026-06-12

THE SOVEREIGNTY GATE

5 selected policy events

Selected US chip-export policy events, Jan 2025 to Jan 2026 — published, rescinded, gated, reopened

A multi-year build against a rule that can change in a news cycle. Lock the irreversible early — the jurisdiction of the slab, the bloc it sits in — and keep the operator and data plane reversible.

GUIDE TALLY OF FEDERAL REGISTER AND BIS NOTICES AND NVIDIA FORM 10-Q DISCLOSURES · AS-OF JAN 2025–JAN 2026

WHERE THE SCREENS COLLIDE

Every cluster is a pre-loaded constraint bundle

CLUSTER	POWER POSTURE	THE GATE THAT BINDS FIRST	BEST-FIT WORKLOAD
Northern Virginia / PJM	Saturated, premium; supply pre-committed	Firm power + entitled land + social license	Latency-bound inference — increasingly capped
Texas / ERCOT	Cheap energy; ERCOT studies and state permits held for an audit (Aug–Sep 2026)	ERCOT's audit and Batch Zero study; SB6 curtailment is a condition of service	Curtailable training and batch
Nordics	Cold, clean; free cooling most of the year	Latency to EU demand; node headroom	Training and async-tolerant work; heat reuse
Ireland (Dublin)	Constrained — self-supply mandated to reconnect	Grid-and-policy gate	EU inference, now self-supply-gated
Gulf (UAE / Saudi)	Abundant, sovereign-funded	US export controls + regional conflict exposure	Sovereign AI at scale, gated by chip access

THE THROUGH-LINE

In 2026 you secure power first and assemble land around it. Land-first siting — the default of two decades — is now the most expensive ordering error in the playbook.

TAKE IT HOME

What to do Monday

01 Reorder the funnel: pass/fail on firm-power-by-a-date first; score land, fiber, and incentives only on the survivors.

02 Decide firm vs curtailable before you pick a market — flexibility is the cheapest fast electron, and the easiest to mis-price.

03 If you bridge with gas, write the demotion plan on day one — intent sets the efficiency tier, the air permit, and the exit.

04 Run fiber, water, and flood diligence in parallel with power: route diversity and fiber delivery dates can kill a powered site.

05 Start the slowest approvals before land control, and map which one actually sets your service date.

06 Neutralize the ratepayer cost-shift with a large-load tariff and take-or-pay — or inherit a coalition you cannot out-spend.

07 Underwrite incentives as risk-weighted, not contractual — and never let one buy back a power gate the site failed.

THE DEFINITIVE GUIDE TO

AI Data *Centers*

This deck is the map. The guide is the territory — every number here is dated, sourced, and kept current in the full chapters.

Ch 3.2 Queues, curtailable service, and the speed-to-power playbook

Ch 3.5 Bring-your-own-power: prime movers, permits, stranding risk

Ch 3.9 The permitting critical path and the long-pole register

Ch 3.13 Market clusters and the site-scoring playbook

READ THE FULL PART, WITH EVERY SOURCE AND DERIVATION, AT AIDATACENTERGUIDE.COM

SOURCES

Every figure in this deck traces to the guide's dated register (1/4)

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About these figures

Figures are resolved by reference from the guide's claim register at build time (Second edition · September 2026 (first published July 2026)) — a number appears here only as it appears, dated and sourced, at aidatacenterguide.com. Newer data may exist: check the live register.