THE INTERCONNECTION WALL

Why Power Timelines — Not Sites — Now Decide Industrial Location

WHITE PAPER | JULY 14, 2026

Devin Hillsdon-Smith

Founder & Principal | Hyphen Strategies, LLC

This white paper presents a power-first framework for industrial location decisions in a market where electrons, not acreage, are the binding constraint — how to read an interconnection queue, how to interrogate a utility capacity claim before you believe it, and how EDOs can build speed-to-power as a competitive advantage without a megasite budget.

EXECUTIVE SUMMARY

- Market context establishing why power delivery timelines have displaced land, labor, and incentives as the first and most frequent point of elimination in industrial site selection
- A working vocabulary for power claims — the difference between nameplate, available, and deliverable capacity, and why conflating them is the most expensive mistake in site diligence
- A practical guide to reading PJM and MISO interconnection queues, including cycle mechanics, realistic study-to-energization timelines, and the attrition rates that make a full queue less full than it looks
- A twelve-question power diligence framework for corporate decision-makers, with guidance on what a credible utility answer sounds like and what a dodge sounds like
- A speed-to-power playbook for EDOs — how to validate, position, and honestly market power capacity, and how to build a defensible energization date without a $50M budget

OPENING: THE CONSTRAINT HAS MOVED

By my count, Indiana has 47 certified sites. Only 11 can deliver 20+ MW of power within 24 months. I wrote that sentence in a white paper two months ago, and it has generated more phone calls than anything else I have published. Not because the number is shocking — most people in this business already suspected it — but because it names the thing everyone has been working around.

For thirty years, power was a late-stage diligence item. You confirmed it. You did not select on it. Site selection was a land, labor, and logistics exercise, with incentives as the tiebreaker and utility capacity as a box you checked somewhere around month four. That model is dead. In the projects I am advising right now — data centers, advanced manufacturing, and emerging energy — power is the first screen, and the sites that fail it never reach the workforce conversation at all.

The reason is arithmetic. Load growth is arriving on an 18-to-36-month commercial timeline, and the grid that serves it moves on a five-to-eight-year physical one. Everything downstream of that gap — queue positions, transformer lead times, substation upgrades, capacity prices — is a symptom. The gap itself is the story.

The company that treats power as a diligence item will lose 18 months finding out it cannot build. The EDO that markets acreage it cannot energize will lose credibility with the advisors it most needs to impress. Both failures are avoidable, and both are avoidable in week one rather than month five.

This paper is the framework I use to avoid them. It is written for both sides of the table, because the diligence question and the readiness question are the same question asked from opposite ends.

SECTION 1 — HOW POWER BECAME THE FIRST SCREEN

The Demand Shock

The demand story is well documented and I will not belabor it. Data centers accounted for roughly 4% of U.S. electricity consumption in 2024 and are projected to reach 7–12% by 2028. U.S. data center capacity is expected to scale from roughly 24 GW to 100 GW between 2026 and 2030. NERC projects peak demand across the MISO footprint could rise 24% on new data center load alone.

What matters for site selection is not the aggregate — it is the concentration. This load is not distributed evenly across the map. It is stacking into a handful of transmission corridors where fiber, water, land, and tax structure already align, and those corridors are precisely where headroom disappeared first. A site can sit forty miles from a constrained corridor and have more usable capacity than a site sitting inside it. Most site inventories do not capture that, because most site inventories were built to describe land.

The Supply Chain Behind the Meter

Even where capacity exists on paper, the hardware to deliver it does not exist on the shelf. U.S. power transformer lead times have reached roughly 128 weeks — nearly two and a half years — with generator step-up units running longer still, and substation transformers stretching past 160 weeks. Prices are up 77% since 2019. Medium-voltage switchgear is effectively sold out through 2028 in many channels.

That equipment reality changes the shape of a project schedule. Construction is no longer the critical path. Energization is. A site can be graded, permitted, entitled, and financed, and still sit dark waiting on a transformer that was ordered too late.

If your project schedule shows a single blended energization date, you do not have a schedule. You have a hope. Utility application, load study, facility study, service agreement, equipment order, factory acceptance, delivery, installation, and commissioning are nine separate milestones with nine separate failure modes.

The Queue Was Built for a Different World

Interconnection processes were designed for a world of a few large generators applying serially, not thousands of generation and large-load requests arriving at once. The national

queue now holds more than 2.2 terawatts of waiting projects — nearly twice the capacity of all currently installed U.S. generation.

FERC targets 8–11 months to reach an interconnection agreement. PJM is averaging roughly 40 months, and active projects in data center load-growth zones are waiting 36–48 months. By one analysis, the timeline from interconnection application to commercial operation in PJM rose from under two years in 2008 to over eight years in 2025. Both PJM and MISO are mid-reform, and both reforms are real — but a reform announced in 2026 does not put electrons on your site in 2027.

SECTION 2 — ANATOMY OF A POWER PROMISE

2A: The Three Numbers That Get Conflated

When a site profile says "60 MW available," it is almost always reporting one of three different numbers — and rarely the one that matters. Every power conversation should begin by establishing which number is being quoted.

Nameplate Capacity

The rating stamped on the equipment. It tells you what the substation was built to handle, not what is unspoken for. It is the number most often reproduced in marketing collateral because it is the number easiest to obtain and the number that never goes down.

Available Capacity

Nameplate less existing load. Better, but still a snapshot — and a snapshot that ignores every project ahead of you in line. A substation with 30 MW of headroom and two queued projects consuming 24 MW of it has 6 MW available to you, not 30.

Deliverable Capacity

What the utility can actually energize for your load, at your voltage, on your schedule, with the equipment it can actually procure. This is the only number a project can be built on, and it is the number that requires an engineer rather than a brochure to produce.

The gap between nameplate and deliverable is where projects die. It is routinely 50–80% on sites that market themselves as power-ready, and it is invisible until someone asks the right four questions.

2B: The Vocabulary That Costs Money

A power promise is a legal and engineering document wearing the clothes of a marketing statement. The terms below are where the real content hides.

- **Distribution versus transmission service:** A site served at distribution voltage may top out below 20 MW regardless of what the substation can hold. Moving to transmission-level service is not an upgrade — it is a different project, with a different cost structure and a multi-year timeline.
- **Firm versus non-firm:** Non-firm, interruptible, and curtailable service can be energized faster and priced lower. For a data center or a continuous-process manufacturer, it may also be functionally useless. PJM is building curtailment expectations directly into its large-load framework; assume curtailment risk is a term of the deal, not an edge case.
- **On-site versus at-substation versus on-line:** Capacity at the substation is meaningless if the feeder to your parcel cannot carry it, and both are meaningless if the transmission line serving the substation is constrained.
- **Capacity letter versus capacity reservation:** A letter is an opinion. A reservation is a commitment with a deposit, a date, and consequences. Sites are routinely marketed on the strength of the former while implying the latter.
- **Dual feed versus redundant path:** Two feeds from the same substation are not redundancy. Ask which substation each feed originates from and what happens to your load when one goes down for maintenance.

A utility capacity letter dated more than twelve months ago is not evidence. In a market where queue positions, equipment lead times, and neighboring load all move quarterly, a 2024 letter tells you about 2024.

2C: Who Pays, and at What Rate

The second half of every power promise is commercial. A utility can be entirely truthful that it is able to serve your load and still be describing a project you would never approve. Under PJM's current cost allocation framework, developers and customers bear a larger share of the network upgrades their projects trigger. Network upgrade costs coming out of recent study cycles have been high enough, on their own, to drive project withdrawals.

The rate question is equally consequential and frequently deferred. Large-load tariffs are being rewritten across the Midwest right now — minimum take provisions, contract terms of 10–15 years, collateral requirements, and exit fees are all in motion. A site that clears every technical screen can still fail on a tariff that did not exist when the search began.

Ask two questions in the same breath: Can you serve this load, and what will it cost me to be served? A yes to the first without a number on the second is half an answer.

SECTION 3 — READING THE QUEUE

3A: PJM — Cycles, Not Lines

PJM has replaced its rolling, serial queue with an annual cycle-based process. Projects enter through a single intake window and are studied in coordinated clusters, with readiness requirements — site control, permitting progress, financial commitment — enforced earlier and decision points that force withdrawal or full security posting.

The practical implications for a site selector are three. First, timing matters: missing an intake window can cost a full year regardless of how ready your project is. Second, cluster study means your cost allocation depends on who else is in your cluster — a variable you do not control and cannot fully price at application. Third, PJM's Expedited Interconnection Track, approved in June 2026 and effective July 31, 2026, creates a narrow window for qualifying shovel-ready projects to execute an interconnection agreement in about ten months and reach commercial operation within three years. It sunsets at the end of 2027. If a project can qualify, that pathway is worth more than any incentive package on the table.

3B: MISO — Cycles, Caps, and the Expedited Path

MISO runs an annual Definitive Planning Phase cycle with regional queue caps, meaning capacity in a given study area can close before your project is ready to apply. Its Expedited Resource Addition Study is a targeted, temporary path intended to issue an interconnection agreement in roughly three months for reliability-critical resources, processed on a limited, serial basis with a hard project ceiling.

ERAS is a generation pathway, not a load pathway, and that distinction is where most of the confusion in the Midwest sits. It matters to a large load indirectly — a nearby ERAS project may be the thing that makes your load serviceable — but you cannot apply your way out of a load-serving constraint through it.

The single most useful question I ask a utility in the Midwest is not "do you have capacity." It is: "What is in the queue ahead of me in this study area, at what MW, and what is your honest read on which of those projects will actually be built?" The answer tells me more than any capacity letter.

3C: Attrition — Why a Full Queue Is Emptier Than It Looks

Queue volume is routinely misread in both directions. EDOs see a crowded queue and conclude the region is out of room. Companies see a queue position and conclude a project is real. Both are wrong, because most of what is in the queue will never connect.

Of ERCOT projects that began screening by 2020, roughly 40% have reached interconnection agreement status or become operational. In PJM, that figure is about 24%

— meaning roughly three-quarters have not and likely never will. For PJM projects submitted between 2018 and 2020, 65–80% of capacity withdrew before executing an agreement. Since PJM's 2023 reforms took effect, hundreds of projects have dropped out or been removed.

A 30% attrition assumption is the difference between a site that looks blocked and a site that is actually available. Read the queue as a probability distribution, not a waiting list.

3D: Verifying a Power Claim — The Four-Document Test

When a site claims capacity, I ask for four things before I take the claim seriously. If an EDO or utility cannot produce them, the number is a marketing number.

- The current single-line diagram for the serving substation, with nameplate ratings and existing load
- A queue extract for the study area showing projects ahead of the site, their MW, and their status
- The utility's stated equipment lead time for the specific upgrades this site would trigger — in weeks, not adjectives
- A written statement of the interconnection pathway and cost responsibility, naming who pays for network upgrades and under what tariff

This is not an unreasonable ask. Utilities that are serious about economic development produce it in two weeks. The ones that cannot are telling you something important about how the project will go once you are committed.

SECTION 4 — THE POWER DILIGENCE FRAMEWORK: TWELVE QUESTIONS

These are the questions I put to a utility before a site makes a shortlist. The value is less in the questions than in listening to how they are answered — precision is a signal, and so is its absence.

Capacity and Delivery

- **1.** Is the capacity you are quoting nameplate, available, or deliverable to this parcel — and can you show me the arithmetic?
- **2.** What load is already committed but not yet energized in this study area, and what is its MW?
- **3.** At what voltage would you serve this load, and what is the maximum you can deliver at that voltage without a transmission-level upgrade?

- **4.** What specific equipment does this service require, what is the current lead time on each item, and have any slots been reserved?

Timeline and Commitment

- **5.** What is the date you can energize the first phase of this load, and what has to go right for that date to hold?
- **6.** What is the earliest date this project could enter the applicable interconnection cycle, and what happens if that window is missed?
- **7.** Will you put a capacity reservation in writing, with a term and a deposit structure — and if not, why not?
- **8.** What is your track record energizing a load of this size in this territory in the last 36 months?

Cost, Risk, and Reliability

- **9.** What network upgrades does this load trigger, what is the estimated cost, and who bears it under the current tariff?
- **10.** What tariff would this load be served under, and what are the minimum take, contract term, collateral, and exit provisions?
- **11.** Is the service firm? Under what conditions can we be curtailed, how often, and for how long?
- **12.** What is the redundancy configuration — which substations feed this site, and what is our exposure during a single-contingency event?

A utility that answers all twelve with dates, documents, and numbers is a competitive advantage for the community it serves. A utility that answers in adjectives is a risk the community has not priced.

SECTION 5 — WHAT EDOs SHOULD DO ABOUT IT

Everything above is the corporate side of the table. Read from the other side, it is a to-do list — and it is a list that a county EDO with a modest budget can actually complete.

Stop Marketing Capacity You Cannot Energize

The instinct is to lead with the biggest number the utility will let you print. The cost of that instinct is that you get eliminated in round two, and the advisor who eliminated you remembers. In a market with maybe two dozen advisors running the large industrial projects in your region, credibility is a finite and non-renewable asset.

I have never once removed a site from consideration because an EDO told me the truth about its power position. I have removed many because they did not, and I found out in week six.

Publish Your Real Power Position — Including the Bad News

An honest site profile — 18 MW deliverable today, 45 MW deliverable in 30 months with a committed substation upgrade, dual-feed available in year three — is more valuable to a site selector than an optimistic one, because it can be acted on. The counterintuitive result is that transparency generates more shortlist appearances, not fewer, because it lets the advisor match your site to the right project instead of guessing.

Pre-Diligence Power the Way You Pre-Diligence Environmental

Nobody markets a site without a Phase I. Almost everybody markets a site without an engineering-grade power validation, which is strange given that power eliminates more sites than environmental does. The four documents in Section 3D are the minimum. They cost a fraction of a Phase II and they answer the first question every serious project will ask.

Get Inside the Utility Planning Cycle

Utility capital plans are set on multi-year cycles, and the window in which a substation upgrade can be added to the plan opens and closes on a schedule that has nothing to do with your RFP calendar. Know who at the utility owns the plan. Know when the window is. Bring load — real, credible, documented load — to that conversation before the window closes, not after a project lands.

Treat Bridge Strategies as Strategy, Not Desperation

Behind-the-meter generation, phased load ramps, flexible or curtailable first-phase service, and on-site storage are not admissions that your grid position is weak. In a market where the alternative is a four-year wait, a credible bridge to full service is a competitive product. The regions that will win the next cycle are the ones that can offer 30 MW in twelve months and 100 MW in forty-eight, and can prove both.

Build the Number You Want to Be Known For

Speed-to-power is buildable. It is a 24-to-36-month program of utility coordination, capacity reservation, equipment pre-ordering where justified, and honest documentation — and it costs a fraction of a megasite. The EDO that can answer "when can I have 100 MW" with a date and a signature behind it will beat the EDO next door with twice the acreage and twice the incentive budget.

SECTION 6 — THREE SCENARIOS

The three scenarios below are illustrative models, not client engagements. They are constructed from the patterns and failure modes described in this paper, with figures set at realistic Midwest market values, to show how the framework behaves under pressure.

Every number in them is hypothetical. What is not hypothetical is the shape of the problem — I have watched each of these dynamics play out, in some form, on real projects.

SCENARIO 1: The 60 MW That Was Actually 14

Profile: Advanced manufacturer, $420M CapEx, 40 MW at full build, 30-month schedule to production. Shortlist of four Midwest sites. The frontrunner is a certified 240-acre site marketing 60 MW of substation capacity, with the strongest workforce numbers and the largest incentive offer of the four.

Discovery

- The 60 MW figure was substation nameplate. Existing load consumed 22 MW, leaving 38 MW available on paper
- Two queued projects in the same study area — a 15 MW cold storage facility and a 9 MW plastics expansion — held commitments against that headroom, dropping true availability to roughly 14 MW
- The site was served at distribution voltage. Serving 40 MW required transmission-level service, a new delivery point, and a 34-month equipment lead time on the primary transformer
- The utility's capacity letter was 19 months old and predated both queued projects

Solution and Outcome

The site was not disqualified — it was repriced. The realistic energization date for full load moved from month 18 to month 46, which was fatal to a 30-month schedule but survivable in phases. The company shifted to a site 50 miles away with 34 MW deliverable at transmission voltage in 20 months and a weaker incentive package.

The stronger incentive offer was worth $11M. The power delay it concealed would have cost 16 months of delayed production — roughly $140M in deferred revenue. The site with the worse offer was the better deal by an order of magnitude.

Key Lesson: The most expensive number in site selection is the one nobody asked a second question about. Fourteen megawatts of headroom is not a technicality; it is the whole decision.

SCENARIO 2: The Regional Power Audit

Profile: Three-county regional partnership, combined population 210K, 19 marketed industrial sites across the region, competing for advanced manufacturing and mid-size data center projects. No site had landed a project above $100M in six years, despite consistent RFP participation.

Discovery

- Of 19 marketed sites, 12 published a power figure. Eleven of those twelve were quoting nameplate or available capacity, not deliverable capacity
- Validated against queue positions and equipment lead times, only 4 sites could deliver 20+ MW inside 30 months — and two of those four were not being actively marketed to large-load projects
- The region's single best power asset was a 160-acre site with an underused transmission-level delivery point that had been dismissed internally because the parcel shape was awkward

Solution and Outcome

The partnership stopped marketing 19 sites and started marketing 4, with published, engineer-validated power positions including the constraints. The awkward parcel became the region's flagship. Two of the eliminated sites were re-tiered toward 5–10 MW light industrial, where they were genuinely competitive.

Marketing fewer sites honestly produced more shortlist appearances than marketing all of them optimistically. The audit cost less than one Phase II environmental assessment.

Key Lesson: Most regions do not have a power problem. They have a power-information problem — and the two get confused because nobody has done the arithmetic.

SCENARIO 3: The Bridge to 100 MW

Profile: City of 34K, 300-acre site adjacent to a transmission corridor, pursuing a 100 MW data center against megasite competition in three other states. Available capacity today: 25 MW. Realistic path to 100 MW: 44 months.

The Play

- Rather than claim 100 MW, the city published the real curve — 25 MW firm at month 12, 60 MW at month 30, 100 MW at month 44, each with the specific upgrade and equipment order behind it
- The utility committed a capacity reservation on the first 25 MW with a deposit structure and a date, rather than a letter
- The city negotiated a phased-load structure allowing a first-phase build at 25 MW with curtailable service on an additional 10 MW, bridging the gap to the substation upgrade

Outcome

The city lost the 100 MW project — the developer needed full load by month 30 — but won a 45 MW deployment from a second developer who had been told "no" by three larger regions that could not produce a credible date.

Key Lesson: A documented curve beats an undocumented ceiling. The megasites lost this one on paper they could not produce, not on capacity they did not have.

CONCLUSION

The industrial location decision has been reordered. Land, labor, logistics, and incentives still matter — they decide which of the viable sites wins. But viability itself is now a power question, and it is answered first.

The New Model Requires Four Shifts:

- Power first, not power fourth. Screen for deliverable capacity in week one, before the site tour, before the incentive conversation, before anything.
- Deliverable over nameplate. Every capacity number is three numbers. Insist on the only one that can be built on.
- Queue literacy as a core competency. Reading a cycle, a cluster, and an attrition rate is now as fundamental to this business as reading a Phase I.
- Speed-to-power as the competitive product. For EDOs, a credible energization date is worth more than acreage, and it is cheaper to build than a megasite.

I have advised $8 billion in investments over 15 years. I have never seen a single variable reorder this industry as completely as power delivery has in the last 36 months.

The projects are real and they are coming. The land is not the question anymore.

The question is whether you can turn the lights on — and whether you can prove it.

ABOUT THE AUTHOR

Devin Hillsdon-Smith | Founder & Principal | Hyphen Strategies, LLC

devin@hyphenstrategiesllc.com | hyphenstrategiesllc.com

Devin Hillsdon-Smith is the founder and principal consultant of Hyphen Strategies, LLC, a boutique site selection and economic development advisory firm. With 15+ years of experience spanning public sector economic development and private sector site selection, Devin has advised over $8 billion in corporate investments across North America.

Devin serves on the board of directors of the Indiana Economic Development Association (IEDA) and other nonprofit organizations. He is a licensed real estate broker and attorney with deep expertise in utility infrastructure analysis, environmental due diligence, and economic development finance. He maintains proprietary utility infrastructure dashboards tracking substation capacity, circuit headroom, transformer lead times, and interconnection queue positions across the Midwest and Mid-Atlantic.

Hyphen Strategies specializes in corporate site selection ($50M–$3B+ projects), certified sites programs, regional utilities studies, data center advisory, and affordable/workforce housing development for economic development organizations and growing companies.