Novosardian

Power & Project Finance
SLOT RESERVATION ECONOMY

Top-down Structural
Asset Class: *Project Finance, Structured Credit, Power Generation Infrastructure*
Q4 2026

Backlog	*Slot Reservations*	*ABS*	*Spread*	*FERC*
116 GW	63 GW SRA	$61B	150-200bps	Dec 2025

Slot Reservation Economy

Pillar	Power & Project Finance
Asset Class	Structured Credit & Infrastructure
Primary Bottleneck	Heavy Duty Gas Turbine Casting
Market Scale	116 GW Backlog / $61B Data Center ABS
Core Thesis	BYOP Split Capital Stack & SRA Financialization
Published Date	Q4 2026

I. *Exit strategies are top of mind*
II. *Power availability is the bottleneck*
III. *Community opposition is an obstacle*
IV. *Financing for data centers is evolving rapidly*
V. *Investors require firm commitment, transparent credit*
VI. *The market is bifurcating; edge, enterprise and wholesale*

EXECUTIVE SUMMARY

Power availability has overtaken offtake credit as the binding constraint on AI data center development and the heavy-duty gas turbine market shows it most clearly with companies such as GE Vernova, Siemens Energy and Mitsubishi Power whom build nearly all of the world's energy supply and we expect all three to stay sold out through the end of the decade. This scarcity is reshaping how these projects get financed with developers turning to Bring-Your-Own-Power (BYOP) structures that are basically paid slot reservations for equipment that doesn't exist yet and a capital stack that now separates the power asset from the data center it feeds. Moreover, we find:

I. 116 GW. GE Vernova's combined firm backlog and slot reservation agreements reached 116 GW in Q2 2026, up from 83 GW at year end 2025 - roughly six years of committed output at current annualized production of around 20 GW.

II. $61b. Data Center ABS outstanding has grown from $4b in 2020 to approximately $61b year to date 2026, pricing at 150-200bp over Treasuries with a 5-year weighted average life.

III. Dec-2025 FERC order. A directive to PJM to rewrite co-located load and behind the meter generation tariff rules is unsettling the legal basis for financings closed just months earlier which created inter creditor risk that did not exist in the traditional grid connected financing model.

In this report, we analyze (1) the scale and mechanics of the turbine backlog, (2) the slot-reservation agreement as an emerging financial instrument, (3) the bifurcated capital stack that BYOP has produced, and (4) the regulatory architecture still being written underneath with certain implications on how project finance should underwrite these deals going forward.

Purview. This report covers the financing of gas-fired, on-site, and behind-the-meter power generation built specifically to serve AI data center load in the United States and the securitized and structured credit markets that have grown around it. It does not cover renewable PPA structures, nuclear SMR financing, or grid-scale transmission investment, each of which we treat as adjacent but distinct topics.

I. *The bottleneck moved from grid to the factory floor*

Grid interconnection queues were the first constraint to bind and in some regions the wait from application to energized service now stretches close to four years. Developers have responded by routing around the grid entirely which is where the term Bring-Your-Own-Power or BYOP comes around and is a way to relocate the bottleneck one link down the supply chain, from the utility queue to the gas turbine order book.

The scale of that order book is, in our view, the single most important physical constraint on the AI infrastructure buildout today. A unit ordered from any of the three major OEMs will not arrive before 2028 and for the largest firms, not before 2030 or 2031.

Figure 01: Heavy-duty gas turbine backlog by OEM, Q2 '26

Backlog composition differs by OEM — GE Vernova's figure blends firm orders and paid slot reservations; Siemens Energy reports firm backlog only. Baker Hughes discloses backlog in dollar terms rather than GW, as its Gas Technology Equipment segment includes LNG equipment alongside turbines and is not broken out by capacity.

OEM	*Backlog*	*Q/Q Change*	*Composition*	*Typical lead time*
GE Vernova	116 GW	10.12%	1.86%	5-8 yrs
Siemens Energy	69 GW	9.47%	2.94%	3+ yrs
Baker Hughes	$37.1b	12.54%	2.67%	Multi-year

Source: GE Vernova Q2 2026 earnings release and SEC 8-K; Siemens Energy fiscal Q3 2026 results; Baker Hughes Q2 2026 results as compiled in Turbomachinery Magazine, August 2026

GE Vernova management has guided to at least 125 GW under contract by year-end 2026, against annualized heavy-duty output of roughly 20 GW which is a backlog to output ratio of nearly six years, even before accounting for further order growth. Pricing on new orders booked in the first half of 2026 tracked 10-20 percentage points higher on a $/kW basis than orders booked in Q4 2025, consistent with a supply-constrained market rather than a demand driven one.

While the supply side is responding, it has yet to keep pace with demand. GE Vernova has set a target of 20 GW in annualized output for the third quarter of 2026, rising to 24 GW by 2028 and toward 30 GW by 2030, achieved largely by expanding within its existing manufacturing footprint rather than building new capacity from scratch. Even at that trajectory, cumulative output through the decade falls well short of clearing the current backlog while also absorbing the orders still arriving behind it and the pace of arrival is only accelerating. Global turbine orders hit a record of 38 GW in the second quarter of 2026 alone, up 71% year over year with the U.S. accounting for roughly half. Hongeen Wei, Daan Struyven and Samantha Dart of Goldman Sachs Research's commodities team project U.S. data center power demand rising from 31 GW in 2025 to 41 GW in 2026 and 66 GW in 2027 with scheduled capacity additions accelerating to 36.3 GW in 2027 which by itself exceeds the entire industry's current annual manufacturing capacity. We read that gap as the clearest evidence that this bottleneck is structural rather than cyclical.

II. *The bottleneck beneath the bottleneck: Casting Capacity*

The primary bottleneck within the turbine supply chain is structural rather than systemic residing specifically in hot section blades and vanes. Operating in the direct combustion path, these parts require single-crystal investment casting to survive extreme thermal stress (3,000-3,600°F). Global manufacturing capacity is consequently restricted to a mere handful of specialized foundries with their order books booked out toward 2030, independent of and layered on top of OEM backlogs in Figure 01.

Two capital deployments in late 2026 transformed this specialized manufacturing bottleneck into an immediate asset allocation thesis. On August 29, Elon Musk confirmed that SpaceX had begun constructing a dedicated foundry in Bastrop, Texas, to cast hot-section blades and vanes for utility-scale gas turbines. By bringing casting in-house, SpaceX aims to bypass global foundry backlogs and compress turbine deployment lead times by up to 18 months while also casting Raptor rocket engine turbo pump components letting SpaceX spread its fixed casting cost across both its space and AI infrastructure businesses. Nine days later, GE Aerospace announced it would acquire castings maker Consolidated Precision Products (CPP) for $11.75b, financed with $7b in cash and the remainder in new debt, valuing CPP at roughly 18x '27 EBITDA including expected synergies.

Figure 02: Casting supply chain responses, August-September 2026

Date	*Actor*	*Move*	*Stated rationale*
Aug. 29, 2026	SpaceX	Confirmed in-house foundry	Bypass foundry backlog: Claimed 18-month quicker turbine deployment
Sept. 8, 2026	GE Aerospace	Agreed to acquire CPP for $11.75b	Secure mission-critical casting capacity across engine, aftermarket and defense

Source:: TechCrunch, Aug.30, 2026; Energy News Beat, Aug. 2026; GE Aerospace press release and form 8-K, Sept. 8, 2026

Though GE Aerospace refrained from mentioning SpaceX in its official statements, market participants effectively treated the announcements as co-dependent variables. The immediate secondary market reaction fell hardest on Howmet Aerospace, the dominant merchant casting house whose equity slipped by high single digits following the disclosure, deepening a 20% drawdown since mid-August. Shares of key equipment integrators, notably GE Vernova and Siemens Energy edged lower in tandem. Separately, at least one research shop has argued that SpaceX is more likely aiming to produce its own replacement parts than to challenge established turbine and castings makers directly.

For underwriting purposes, this adds a layer below the one we flagged in Figure 01 where a lender assessing turbine delivery risk should now also ask whether the OEM's own casting supply not just its assembly capacity is secure and whether a sponsor's BYOP plan depends on an OEM whose casting exposure is concentrated in a market three or four foundries deep.

III. *The slot reservation is becoming a financeable asset in its own right*

Of GE Vernova's 116 GW backlog, roughly 53 GW is firm equipment and 63 GW is held as slot-reservation agreements which are non-refundable deposits that reserve a manufacturing position ahead of a binding purchase order. An SRA behaves less like a purchase order and more like a call option on scarce industrial capacity where a developer can build a financing plan around it before a single turbine exists, provided the deposit converts to a firm order on schedule.

That conversion rate, in our view, an underappreciated risk metric. A deposit that fails to convert leaves a developer's power plan and everything financed against it without a turbine. We would treat SRA to firm order conversion as a first order underwriting variable, on par with offtaker credit quality in a traditional project financing.

Figure 03: GE Vernova gas equipment backlog composition, last three quarters

Period	*Total backlog*	*Firm equipment*	*Slot reservations (SRA)*
Q4 2025	83 GW	N/D	N/D
Q1 2026	100 GW	N/D	N/D
Q2 2026	116 GW	53 GW	63 GW

Source:: GE Vernova quarterly earnings releases, Q4 2025-Q2 2026; composition breakout first disclosed Q2 2026. N/D = not disclosed at the segment level in that period.

IV. *BYOP has split the capital stack in two*

The practical effect of BYOP is that a single AI campus is no longer financed as one asset, meaning that, power generation from turbines, fuel arrangements, interconnection rights is becoming financed through the project finance capital markets while the data center shell, racks and tenant lease are financed separately through commercial real estate debt, asset-backed securitization or structured preferred equity. Sponsors diverge on structural architecture, with some unbundling components to allow specialized markets to price discrete risks while others leverage infrastructure joint ventures to consolidate the entire site under a single financing umbrella.

Figure 04: Comparison of financing instruments across split capital stack

Instrument	*Collateral basis*	*Total pricing/tenor*	*Covers*
Project finance (BYOP power asset)	Turbine, PPA, fuel supply	Bank/private credit, long-dated	Power generation only
Data center ABS	100 GW	N/D	N/D
Single borrower CMBS	116 GW	53 GW	63 GW
Structured preferred equity	Sponsor equity + infra capital	Negotiated, integrated stack	Whole-campus financing
Corporate/hyperscaler debt	Investment-grade balance sheet	Cheapest, largest volume	Funds across the enterprise

Source: Ropes & Gray LLP, "Data Center Investment in 2026," June 2026; L&G, "Securitized Credit Financing Data Centers," February 2026; SFA Research Corner, July 2026.

Securitization has scaled quickly

Figure 05: Data Center ABS outstanding, 2020-2026
2021-2025 figures interpolated between disclosed year-end levels; 2020 and 2026 YTD as reported

Year	*ABS outstanding*	*Shares of esoteric ABS market*
2020	$4b	3%
2024	$27b	-
2025	$40b	-
2026 YTD	$61b	12%

Source: Barclays Research, cited in Crane Frontier, "Data Center ABS, By the Numbers," July 2026.

JPMorgan projects combined ABS and CMBS issuance of $30-40b annually through 2026 and 2027. Separately, Morgan Stanley estimates $250-300b of 2026 debt issuance tied to hyperscaler-driven buildouts more broadly which is a figure spanning corporate, project and securitized debt rather than securitization alone and not an additive to the ABS figures above.

The regulatory and intercreditor framework remains in a state of active evolution with institutional norms and structural protocols yet to fully crystallize

Splitting a campus into a power piece and a data center piece is straightforward in principle and considerably less so in a credit agreement. When the facility, power assets, interconnection rights, fuel arrangements and the tenant's uptime obligations sit with different creditors which are governed by remedies not designed to operate in isolation then a default in one piece can cripple value in another. This shift can open development pathways and create financeable energy infrastructure, however, it can also transform a familiar real estate and tenant-credit financing into a more complex capital structure.

On December 18, 2025, FERC directed PJM, the largest U.S. grid operator, to write new rules for co-located load and to revise its behind the meter generation tariff which would rewrite the entire regulatory foundation that BYOP financings were closed against just mere months earlier. State-level responses have been not seen an equilibrium to the decision - Texas's SB6 requires large loads to disclose on-site generation and curtail it during emergencies; Ohio, Georgia and Indiana have instead adopted minimum-take tariffs that bill large customers for reserved capacity whether or not they draw on it. In March 2026, seven of the largest AI companies have signed a White House facilitated Ratepayer Protection Pledge committing to fund grid infrastructure upgrades directly which shifts a share of buildout cost off the utility rate base and onto hyperscaler balance sheets.

VI. *What happens if demand doesn't show up*

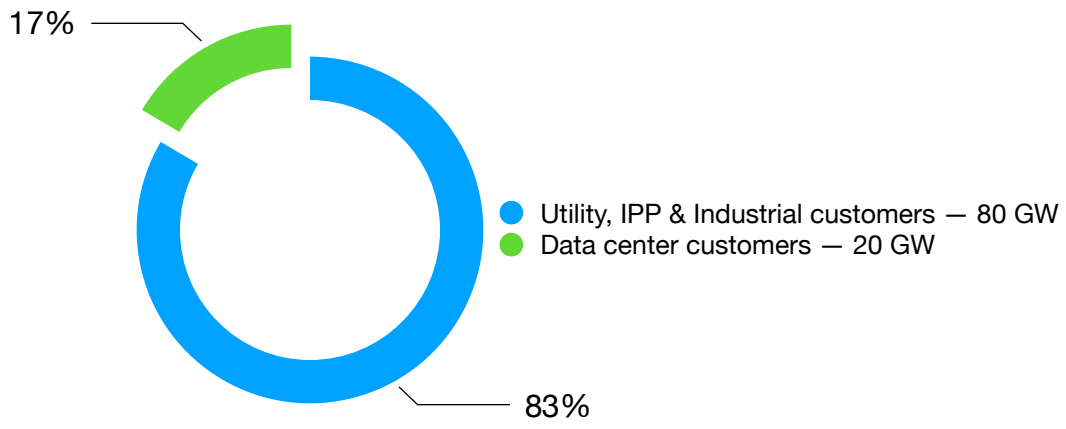
The bear case ——— Turbine scarcity today does not guarantee scarcity in 2028 through 2031 when the current wave of orders is actually scheduled to deliver. If AI data center demand decelerates substantially before then, the backlog this report treats as structural could instead prove cyclical; a queue that clears not because supply caught up but because demand became less aggressive. We think this is only partly right because the loss from a demand slowdown is not evenly distributed across the capital stack, rather it concentrates on whoever holds the least-protected position at the moment demand turns and that position moves as a project advances from reservation to firm order to financed construction. Four layers, from least to most protected.

1) Layer one – designed to absorb the first hit

A slot-reservation agreement is a non-refundable deposit and the terms are more explicit than the label suggests. In a February 2026 agreement, Canadian power producer Maxim Power paid GE Vernova a non-refundable deposit to hold a manufacturing slot for a single 7HA.02 turbine targeted for a 2030 delivery with the purchase price to be negotiated later and the deposit credited against it once a definitive agreement is signed. However, if the buyer never executes that definitive agreement, standard industry terms give the OEM the right to keep the reservation fee and resell the slow into a market that remains structurally short even in a slower-demand scenario.

That asset resale valuation reflects more than speculative sentiment around machine intelligence, grounded as it is in structural capital commitments and verifiable market fundamentals. Gas turbine demand is not a single purpose bet on data centers;

Figure 06: GE Vernova gas turbine backlog by customer type, Q1 2026



Source: Power Engineering. "Data centers drive record surge in GE Vernova power equipment orders as turbine slots tighten through 2030," April 2026, citing GE Vernova's Q1 2026 earnings call.

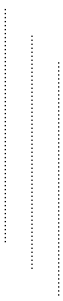
Several independent sources of demand would persist even if AI capex slowed and grid reliability is one because as intermittent renewable capacity keeps expanding, operators need dispatchable gas as the backstop and the market has already priced that scarcity on its own terms. PJM's December 2025 base residual auction cleared at FERC's $333.44/MW-day price cap and still landed roughly 6,600 MW short of its own reserve margin becoming a shortfall with essentially nothing to do with AI load. A second source is fleet replacement with an aging U.S. gas and coal generation base that needs new capacity regardless of how the AI buildout proceeds. A third is demand outside U.S. data centers including LNG export and offshore compression, industrial electrification and combined heat/power and gas-fired buildout in markets such as India, China, Brazil and Mexico that are diversifying away from hydropower and coal for reasons that predate this cycle. None of this guarantees a forfeited slot resells at the price a data center developer would have paid and it doesn't mean an OEM holding a lapsed reservation isn't working with an empty order book if AI demand cools.

2) Layer two – firm orders ahead of financial close carry sponsor risk, not lender risk

Once a reservation converts to a firm order but before project debt is drawn, the developer is committed to the turbine purchase price with the deposit credited toward it but has not yet leveraged that commitment with third-party financing. Lenders in this market generally require a signed EPC contract and a binding, credit-backed offtake agreement before financial close which means the most speculative layer of the queue, the unconverted or recently converted reservation typically isn't carrying bank or bondholder debt yet making the capital at risk at this stage is sponsor equity and the developer's own pre-development spend.

3) Layer three – fixed price contracts

A true take or pay tolling or capacity agreement with an investment-grade counterparty obligates payment regardless of whether the data center actually uses the power which converts what looked like demand risk into counterparty-credit and contract-enforceability risk instead. All of this depends on three things a lender has to verify – (1) Whether the agreement is genuinely take or pay rather than usage based (2) Whether termination or material-adverse-change provisions are narrower than they first appear (3) Whether the contract's tenor actually matches the debt's tenor rather than leaving a merchant tail exposed once the agreement rolls off. Once fully verified, you have to diligently note that financing that looks fully de-risked on the cover page can still have real exposure buried in the termination-payment schedule.

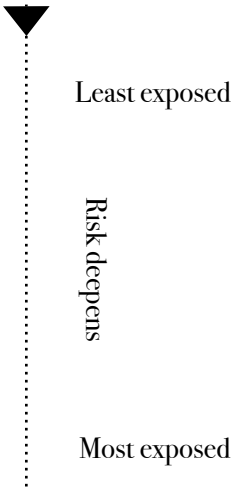


4) Layer four – OEM equity absorbs a slowdown in conversion, not project lenders

GE Vernova, Siemens Energy and Mitsubishi Power are all expanding manufacturing capacity against their backlogs, but by most accounts those expansions are being kept measured relative to the full size of the order book which suggests management itself is already pricing in some sort of non-conversion. If reservation to order conversion slows, the party most exposed to OEM equity, through multiple compression and underutilized new capacity rather than the lenders financing individual power projects downstream.

Figure 07: Who bears the loss, by layer of the capital stack, if demand stalls

Layer	*Instrument*	*Loss if demand stalls*	*Mitigant*
1. Reservation	Slow-reservation agreement (SRA)	Deposit forfeited; OEM keeps cash and resells the slot	Deposit priced as an option premium; loss bounded by design
2. Firm order, pre-financial close	Turbine purchase agreement	Sponsor equity and pre-development spend at risk; project shelved	Third-party debt not yet drawn against this position
3. Financed/under construction or operating	Project debt secured by PPA or tolling agreement	Debt service risk if offtake terminates or counterparty credit deteriorates	True take-or-pay structure, IG counterparty, termination payments sized to cover outstanding debt
4. OEM capacity expansion	OEM equity	Backlog conversion slows; multiple compression, factory underutilization	Capacity expansions kept measured relative to headline backlog



As anticipated by the structural model, early signs of demand softening have materialized exclusively within non-binding pipeline figures rather than executed financing agreements. For instance, Exelon cut its own "high profitability" data center load forecast from roughly 18 GW to about 11 GW on July 30, 2026, a decline of nearly 40% in a single quarter and its broader interconnection pipeline fell from roughly 43 GW to 25 GW over the same period. Separately, Allianz Commercial's construction risk research found local opposition delayed or blocked at least 75 U.S. data center projects worth close to $130b in the first quarter of 2026 alone making it a permitting and political risk layered on top of pure demand risk. McKinsey's July 2026 scenario analysis, modeling data center demand through 2035, concludes that near-term underbidding is currently the larger risk for power sector players, however, treats overbuilding and stranded-asset exposure as a live question the industry is actively underwriting for rather than ignoring the potential problem that may arise.

Core underwriting considerations

1) Offtaker credit is close to non-issue given hyperscaler balance sheets; the decisive risk has moved to equipment delivery and regulatory durability. SRA to firm order conversion should be tracked as an explicit underwriting KPI, not assumed.

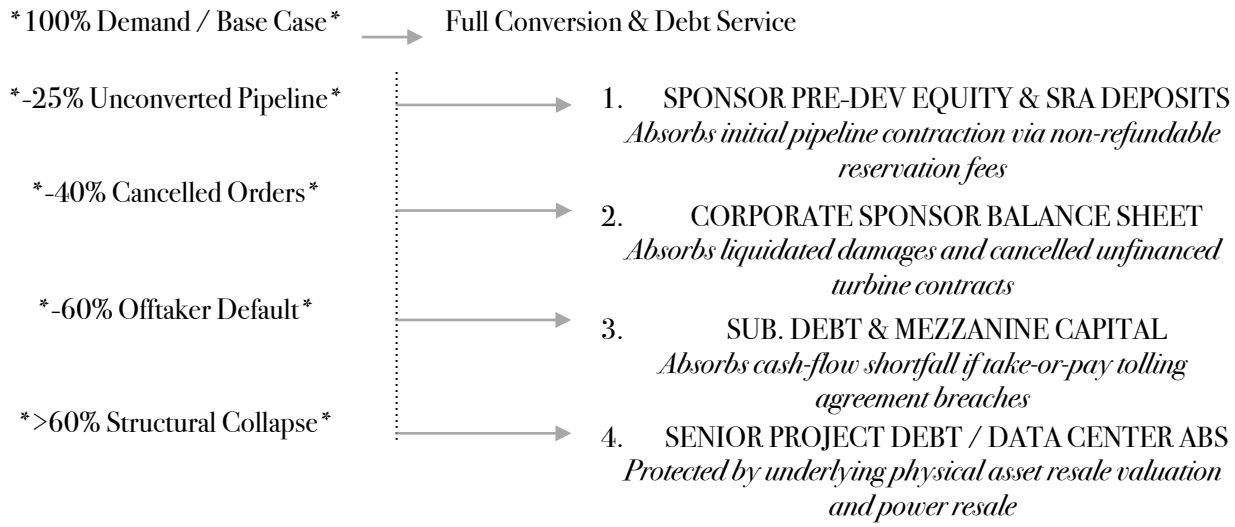
2) Intercreditor structure matters more in a split capital stack than in a traditional single asset financing. Lenders should map exactly which creditor controls remedies if the power asset and the data center default independently of one another.

3) Regulatory tariff structures (FERC/PJM, state minimum-take rules) are always constant. A financing closed against today's rules may not be bankable against tomorrow's and deal teams should stress test for tariff and interconnection rule changes over the financing's tenor and not just at deal close.

4) Turbine delivery risk has a sub-layer worth underwriting separately; the OEM's exposure to a casting supply chain only three or four foundries deep. Vertical integration into casting by either an OEM or a hyperscaler is now a live variable that could and is shifting delivery timelines in either direction over a financing's tenor.

5) Most of the market's headline backlog and reservation figures sit in layers with bounded deposit sized downside whereas real exposure concentrates in financed, contracted assets where protection depends entirely on whether the offtake is actually take or pay with termination payments sized to outstanding debt rather than on the strength of the demand narrative itself.

LOSS ABSORPTION WATERFALL UNDER SEVERE DEMAND RECOVERY SCENARIOS



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