

Global Digital Assets**Emerging AI Infra - Initiating coverage (TeraWulf, Cipher Digital):
The Power Landlords of AI****Gautam Chhugani**

+91 226 842 1416

gautam.chhugani@bernsteinsg.com

**Mahika Sapra**

+91 226 842 1408

mahika.sapra@bernsteinsg.com

**Sanskar Chindalia**

+91 226 842 1445

sanskar.chindalia@bernsteinsg.com

**Harsh Misra**

+91 226 842 1457

harsh.misra@bernsteinsg.com

We are initiating coverage on TeraWulf (WULF) and Cipher Digital (CIFR) with an Outperform rating. WULF and CIFR stand out for their active multi-GW power development pipeline, strong order book (~\$24Bn) with hyperscaler sponsorship and a capital-light lease model leading to a rapid AI-revenue ramp up. Over the last 2 years, Bitcoin miners have contracted out 6 GW of power capacity to hyperscalers and neocloud operators across 17 deals worth over \$110Bn - contributing ~10% of AI data centers under construction. Across our coverage, we expect a nine-fold growth in aggregate AI revenue from \$1.2Bn in CY26E to \$10.7Bn by CY30E. We believe Bitcoin miners remain best positioned to solve 'time to compute' given their planned 30 GW power portfolio and operating ability to deliver 'warm powered shells' in time.

We believe WULF's edge lies in its power M&A capabilities. WULF has built a 3.8GW power portfolio through active M&A strategy built around redevelopment of brownfield sites, leveraging existing power infrastructure to optimize delivery timeline and buildout capex. WULF's order book (\$13Bn over 10-25 year contracts) is concentrated in a Fluidstack-Google partnership, however ~480MW power ('Justified Data' site) provides significant near term runway to diversify its clientele - lease visibility by Q2CY26 end. We expect a more rapid execution to revenue cycle for WULF with AI revenue growing from \$14Mn in CY25 to \$1.7Bn by CY30E (~\$1Bn ARR already contracted including JV) and EBITDA margins reaching ~84%. We rate WULF Outperform PT\$36.

CIFR has a high-quality orderbook (\$11.4Bn over 10-15 years), majority backed by hyperscalers (67%) with limited neocloud exposure. Cipher's recent deals shift entire operating cost to its tenants through triple net lease (>99% margin), hence positioning CIFR as a pure-play infrastructure platform. We believe CIFR's scalable power portfolio (3.2 GW planned including 1GW approved power) and a strong lead in the 'interconnect' queue with a ~2 GW pipeline will add further scale to its platform. We expect CIFR's AI revenues to grow from \$19Mn in CY26E to ~\$1.2Bn in CY30E (~\$0.9Bn ARR already contracted) with EBITDA margins reaching ~93%. We rate CIFR Outperform PT\$32.

We value WULF and CIFR at 21x one-year forward EV/EBITDA on steady state CY30E EBITDA (given the steep ramp-up) - in line with infra businesses - we discount the implied EV to arrive at our target valuation. By CY30E, we model incremental HPC contract execution at near term high visibility sites for both WULF (480MW Kentucky) and CIFR (200MW Ulysses). Any further progress on power development pipeline could imply further upside - not in our estimates.

Further, we lay out a comprehensive investment framework for our coverage universe - evaluated for power scalability, contracted order book/AI revenue ramp-up, unit economics and valuation. IREN remains our top pick for its vertically integrated neocloud proposition with 5 GW global power footprint and bluechip partners (Microsoft, NVIDIA). However, WULF and CIFR stand out for capital-light leases, faster deal cycles, active power development. RIOT, CLSK and MARA remain undervalued relative to their power portfolios, but will need to demonstrate more active AI deals.

BERNSTEIN TICKER TABLE

			2 Jun 2026		TTM	EBITDA (M)				EV/EBITDA (x)		
			Closing	Price	Rel.							
Ticker	Rating	Cur	Price	Target	Perf.	Cur	2025A	2026E	2027E	2025A	2026E	2027E
WULF (TeraWulf)	O	USD	26.49	36.00	572.6%	USD	(23.11)	115.77	768.30	(684.2)	136.6	20.6
CIFR (Cipher)	O	USD	26.29	32.00	637.2%	USD	22.24	50.72	636.93	666.1	292.0	23.3
SPX			7,609.78									

COVERAGE INITIATION

O - Outperform, M - Market-Perform, U - Underperform, NR - Not Rated, CS - Coverage Suspended

Source: Bloomberg, Bernstein estimates and analysis.

INVESTMENT IMPLICATIONS

We rate WULF (PT\$36) and CIFR (PT\$32) Outperform. We rate IREN Outperform (PT\$100), CORZ Outperform (PT\$32), RIOT Outperform (PT\$30), CLSK Outperform (PT\$24) and MARA Market-perform (PT\$17).

VALUATION COMPS TABLE

EXHIBIT 1: Bernstein valuation summary and comp table

	Market Cap (\$Bn)	EV (\$Bn)	EBITDA'27E (\$Bn)	EV/ EBITDA'27E	EBITDA'28E (\$Bn)	EV/ EBITDA'28E	EBITDA'30E (\$Bn)	EV/ EBITDA'30E
Infrastructure business								
Equinix	105.7	126.0	5.8	22	6.4	20	7.8	16
Digital Realty	67.0	84.5	4.1	21	4.6	18	5.7	15
Iron Mountain	38.2	58.0	3.2	18	3.5	16	4.1	14
Average				21		18		15
Neoclouds								
CoreWeave	65.3	98.2	15.7	6	25.1	4	46.0	2
Nebius	66.2	66.4	6.5	10	13.3	5	34.3	2
Bernstein Coverage								
WULF (PT \$36, 36% Upside)								
Current (on Bernstein EBITDA est)	13.1	15.8	0.8	21	1.4	11	1.4	11
Bernstein Target Valuation	17.7	24.4	0.8	32	1.4	18	1.4	17
CIFR (PT \$32, 22% Upside)								
Current (on Bernstein EBITDA est)	10.8	14.8	0.6	23	0.9	17	1.1	14
Bernstein Target Valuation	13.8	18.3	0.6	29	0.9	21	1.1	17
CORZ (PT\$32, 10% Upside)								
Current (on Bernstein EBITDA est)	9.2	10.4	0.6	16	1.0	11	1.0	11
Bernstein Target Valuation	13.3	16.2	0.6	26	1.0	17	1.0	17
RIOT (PT\$30, 10% Upside)								
Current (on Bernstein EBITDA est)	10.3	11.0	0.4	27	0.5	20	0.6	19
Bernstein Target Valuation	11.2	11.7	0.4	29	0.5	22	0.6	20
IREN (\$100, 57% Upside)								
Current (on Bernstein EBITDA est)	23.8	25.6	2.2	12	3.2	8	4.9	5
Bernstein Target Valuation	34.9	39.5	2.2	18	3.2	12	4.9	8
CLSK (\$24, 37% Upside)								
Current (on Bernstein EBITDA est)	4.5	5.0	0.5	10	0.4	14	0.2	22
Bernstein Target Valuation	6.0	6.4	0.5	13	0.4	18	0.2	29
MARA (\$17, 19% Upside)								
Current (on Bernstein EBITDA est)	5.4	4.8	0.5	9	0.4	13	0.2	21
Bernstein Target Valuation	6.8	6.2	0.5	11	0.4	17	0.2	28

Upside as of June 2, 2026

Source: Company filings, Bloomberg, Bernstein estimates and analysis

DETAILS

EXHIBIT 2: Initiating on CIFR (PT \$32) & WULF (PT \$36) with an Outperform

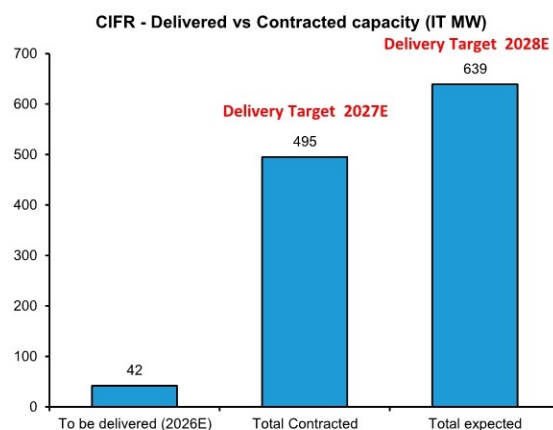
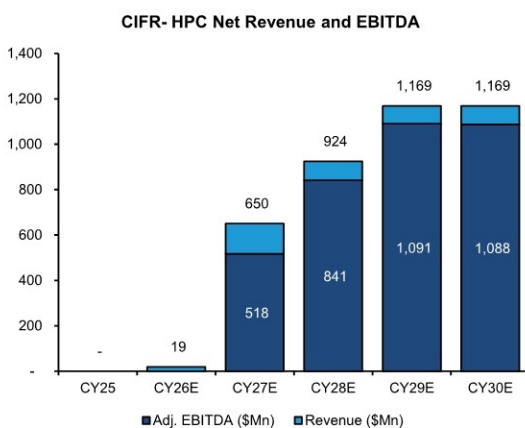
Company	Rating	Market Cap (\$ Bn)	Consensus Ratings			Total Ratings (N)	FY28 Revenue (\$Bn)		FY28 EBITDA (\$Bn)		Target Price (% upside)
			Buy	Hold	Sell		BERN	Cons.	BERN	Cons.	
IREN	OUTPERFORM	23.8	11	3	1	15	3.9	5.8	3.2	4.5	100 (57%)
WULF	OUTPERFORM	13.1	15			15	1.6	1.6	1.3	1.1	36 (36%)
RIOT	OUTPERFORM	10.3	19	2		21	0.9	0.9	0.5	0.3	30 (10%)
CIFR	OUTPERFORM	10.8	17			17	1.0	1.2	0.9	0.8	32 (22%)
CORZ	OUTPERFORM	9.2	16	1		17	1.2	1.7	1.0	1.2	32 (10%)
MARA	MARKET-PERFORM	5.4	8	5	1	14	1.4	0.7	0.4	0.04	17 (19%)
CLSK	OUTPERFORM	4.5	14			14	0.8	0.9	0.4	0.2	24 (37%)

For WULF, the revenue and EBITDA numbers are represented excluding Abernathy JV

Source: Company filings, Bloomberg estimates, Bernstein estimates and analysis

EXHIBIT 3: Company overview: CIFR

CIFR - Company Description	
Cipher Digital is a scaled AI infrastructure platform, having completed its transition from Bitcoin mining, supported by contracted hyperscaler capacity, fully funded near term capex and a power portfolio increasingly difficult to replicate. It controls ~1.2GW energized power across Texas and Ohio, anchored by 3 hyperscaler contracts, spanning from neocloud to hyperscaler counterparties with long duration, triple net agreements.	
CIFR - Business Metrics	



CIFR - Valuation Framework	
Multiple - EV/EBITDA'30E	21x
Methodology	Applied 1-year fwd. multiple to CY30E EBITDA, discounted to arrive at target valuation
Price Target	32
Current Price	26
Upside	22%

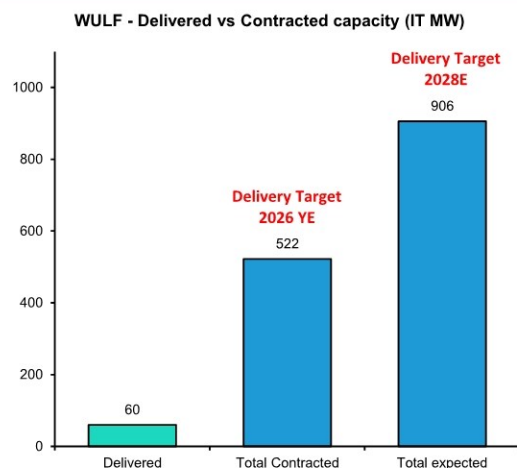
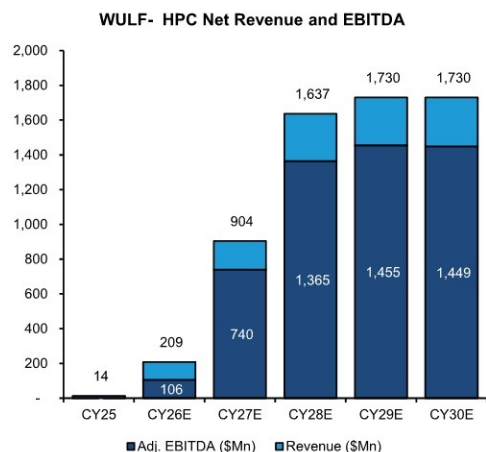
Upside as of June 2, 2026

Net revenue is calculated as straight line revenue, excluding power cost pass through

Source: Company filings, Bernstein estimates and analysis

EXHIBIT 4: **Company overview: WULF****WULF - Company Description**

WULF is positioned as a full scale AI infrastructure platform with scalable sites, credible contracts, fully funded near term capex and disciplined execution. The company controls a 3.8GW diversified power portfolio across key data center markets like New York, Kentucky, Maryland and Texas. Currently, it has 522 IT-MW contracted to Fluidstack and Core-42 for \$13 Bn total revenue.

WULF - Business Metrics**WULF - Valuation Framework**

Multiple - EV/EBITDA'30E	21x
Methodology	Applied 1-year fwd. multiple to CY30E EBITDA, discounted to arrive at target valuation
Price Target	36
Current Price	26
Upside	36%

Upside as of June 2, 2026

Net revenue is calculated as straight line revenue, excluding power cost pass through and includes WULF's share of Abernathy JV
Source: Company filings, Bernstein estimates and analysis

PORTFOLIO MANAGER'S SUMMARY

We initiate on TeraWulf (WULF) and Cipher Digital (CIFR) with Outperform ratings (WULF PT \$36, CIFR PT \$32). Both WULF and CIFR are emerging AI infrastructure players, transitioning from the legacy Bitcoin mining business to hyperscaler-grade AI infrastructure developers with a strong contracted orderbook and robust power pipeline underwriting future scalability. We believe access to power has become even more valuable given the physical, political and regulatory constraints to building data centers. Interconnect approval cycles now exceed four years in key data center markets like Texas, while supply chain for long lead items remains stretched. In this power constrained environment, Bitcoin miners find themselves in a unique position with ~30 GW of planned power assets, backed by permitting track records, community relationships and legacy queue positions that new entrants cannot replicate ([Exhibit 7](#)). We believe, Bitcoin miners remain best positioned to solve 'time to compute' given their planned 30GW power portfolio and operating ability to deliver 'warm powered shells' in time. Over the past two years, miners have contracted 6 GW of power capacity to hyperscalers and neocloud operators across 17 deals worth over \$110Bn ([Exhibit 5-Exhibit 6](#)).

There are two broad paths for Bitcoin miners' AI pivot - colocation and cloud ([Exhibit 11](#)). Colocation involves leasing out powered shell to hyperscaler or neocloud tenants against annuity rental income. Colocation monetizes power and land assets owned by Bitcoin miners through incremental data center capex (\$8-11Mn/ IT MW) while the tenant is responsible for bringing GPUs and managing the end customer stack. The cloud model is vertically integrated across the AI value chain - Bitcoin miners build data center, secure GPUs and operate their own cloud for hyperscalers or on-demand enterprise customers. AI cloud is a high risk - high reward business model. It requires significant upfront capex and has a complex execution path (managing bare metal hardware and software stacks). Cloud capex per IT MW ranges \$35-45Mn (3-5x colocation capex) but for materially higher revenue yield of \$10-12 Mn (5-8x colocation revenue). Therefore, investors looking for safer AI exposure prefer the colocation model - capex light, fixed high margin revenue and long term contractual safety. The take-or-pay colocation contracts require the counterparty to fulfill their lease obligation irrespective of facility utilization, with hyperscaler backstops further reducing the counterparty risk. Bitcoin miners (including WULF and CIFR) are leveraging backstops and credit sponsorship from hyperscalers to improve the credit profile of their contracted infrastructure. Overall, project financing markets are now underwriting 75-85% of the data center capex for Bitcoin miners at 6-7% financing cost. With project level financing at 6-7% (vs 9-12% unlevered IRR) and improving deal terms, we see significant opportunity for Bitcoin miners to generate equity value through their AI pivot.

WULF's AI infrastructure business is built around quality power assets and disciplined execution. WULF has an equally robust revenue book with ~643 gross MW contracted for \$13Bn total revenue, including ~72.5 gross MW already generating ~\$100Mn average ARR. We expect a more rapid execution to revenue cycle for WULF with AI revenue growing from \$14Mn in CY25 to \$1.7Bn by CY30E (including JV revenue share) and EBITDA margins reaching ~84% by CY30E. ([Exhibit 15](#)). WULF's current orderbook is largely concentrated with Fluidstack-Google partnership accounting for ~90% of total contracted revenues. However, we believe with ~3.8GW of total power assets, WULF has significant medium term runway to diversify its counterparty exposure by executing new HPC contracts ([Exhibit 16](#)). In the near term WULF is marketing 480MW of immediate power in Kentucky (Justified Data site), with incremental pipeline of 2.6 GW ensuring medium term scalability. We see WULF's power assets as one of the strongest in the industry, built around redevelopment of legacy industrial sites that leverages existing onsite power and transmission infrastructure to accelerate delivery and results in ~10% capex saving vs peers. Further, WULF holds a diversified power portfolio across key data center markets including New York, Texas, Kentucky and Maryland (vs single state concentration for peer miners), and benefits from cooler temperature that supports an efficient PUE buildout (1.25 vs upto 1.5 for peers). Going forward, we expect WULF to benefit from both incremental HPC contracts (scalability) and improving deal economics, as industry colocation terms shift towards triple net leases and direct hyperscaler customers (vs WULF's current gross leases with neoclouds, [Exhibit 18](#)).

CIFR's AI infrastructure business is built around bluechip orderbook and scalable power assets. CIFR has a high visibility revenue book with 700 gross MW contracted against \$11.4Bn total revenue, majority backed by investment grade hyperscalers (~67%) with limited neocloud exposure. We expect a conservative execution to the revenue cycle for Cipher with AI revenue growing from \$19Mn in CY26YE to \$1.2 Bn in CY30E and EBITDA margins stabilizing at ~93% ([Exhibit 20](#)). The existing ~3.1GW power pipeline provides it a multi-year runway to scale its AI infrastructure business - 270MW of grid-approved power available for near term expansion with a strong lead within 'interconnect' queue with a ~2 GW pipeline (all batch zero candidates in Texas) underwriting future buildouts ([Exhibit 22](#)). Conversion of pipeline into grid approved sites will demonstrate scalability of CIFR's AI infrastructure platform. With stabilizing financing costs (recently funded \$2Bn project at 6.125%) and improving return profile, we expect CIFR to be the key beneficiary from incremental HPC contracts as it transitions into a scaled AI infrastructure business ([Exhibit 21](#)). CIFR has consistently improved the return profile and credit quality of its AI/HPC

projects, shifting counterparty exposure from neocloud intermediaries (Fluidstack, backstopped by Google) to investment grade hyperscalers (AWS and another unnamed hyperscaler), and reducing operating exposure through triple net lease structure (>99% margin).

We rate WULF Outperform (PT \$36) and CIFR Outperform (PT \$32). We value WULF and CIFR at 21x one-year forward EV/EBITDA on steady state CY30E EBITDA (given the steep ramp-up) - in line with infra businesses - we discount the implied EV to arrive at our target valuation ([Exhibit 19-Exhibit 20](#)). We believe the existing contracted orderbook for CIFR and WULF is largely priced in, and incremental upside is driven by new HPC contract announcements. By 2030E, we model incremental HPC contracts at near term high visibility sites for both WULF (480MW Kentucky) and CIFR (200MW Ulysses). Any further progress on power development pipeline could imply further upside - not in our estimates. We expect WULF's AI revenue to grow from \$14 Mn in CY25 to \$1.7 Bn by CY30E, growing at a CAGR of 163% (including Abernathy JV share). Overall, we expect WULF's revenue mix to shift from 8% HPC in CY25 to 100% by CY30E. We expect EBITDA margins to reach 84%, as EBITDA grows from \$106 Mn in CY26E to \$1.4 Bn in CY30E (including Abernathy JV share). We expect CIFR's AI revenue to grow from \$19 Mn in CY26E to \$1.2 Bn by CY30E, growing at a CAGR of ~180%. Overall, we expect total revenue mix to shift from 10% HPC in CY26E to 100% by CY30E. We expect EBITDA margins to stabilize at 93% in CY30E, as EBITDA grows from \$518 Mn in CY27E to ~\$1.1 Bn in CY30E. We sunset WULF and CIFR's Bitcoin mining business over CY26-28E as they reallocate Bitcoin mining power to HPC capacity.

We see counterparty risk and leveraged capital structure as key risks for the colocation model. Bitcoin miner's current AI orderbooks are highly concentrated with large anchor clients. Fluidstack (not covered) represents ~90% of WULF's contracted revenues while AWS (Amazon -covered) represents ~48% of CIFR's contracted revenues. However, with scalable power pipeline and expanding customer base (from just neoclouds to hyperscalers, chip makers, OEMs, enterprises etc), we expect counterparty concentration to reduce over time. Further, Bitcoin miners are using multiple financial arrangements like backstopping and parent guarantees to hedge their counterparty exposure. Both CIFR and WULF have entered into backstopping arrangement with Google (Alphabet covered) through which Google underwrites a part of Fluidstack's lease obligations. Data center buildout requires significant capex outlay (\$8-12 Mn per IT MW), and 80-90% of the capex is funded through debt. However, the project level financing is secured by underlying data center assets and contract cashflows, and is non-recourse to company balance sheets. The contractual structure of the colocation model - long term take-or-pay obligations, triple net cost pass through and parent level guarantees provides meaningful downside protection to investors.

Our AI infrastructure coverage now comprises (i) colocation players (CIFR, WULF, CORZ); (ii) early stage AI pivot (RIOT, CLSK and MARA); and (iii) vertically integrated neocloud (IREN). We lay out a comprehensive investment framework driven by power scalability, contracted order book/AI revenue ramp-up, unit economics and valuation across our coverage ([Exhibit 25](#)). IREN remains our top pick for its vertically integrated neocloud proposition, backed by 5GW of global power footprint and bluechip partners like Microsoft and NVIDIA. AI cloud is a high risk-high reward path due to high capex intensity and complex execution. We believe IREN's conservative cloud ramp up anchored by a mix of long term and on-demand contracts and calibrated balance sheet leverage (funded 96% of \$5.8Bn GPU capex related to Microsoft contract at ~3.3% cost), positions it well to scale its cloud business. We believe current valuation reflects the contracted orderbooks for CIFR and WULF, and any incremental upside is driven by prospects of new AI contracts. Given their power scalability and improving execution credibility, we see this as a high probability scenario. We believe CORZ remains under pressure for large neocloud exposure, and new HPC contracts (beyond CoreWeave) would unlock further upside. We see significant re-rating potential in early stage AI pivots, particularly RIOT with 1.3GW of ready operating power. Over the past 12 months, RIOT has prepared its sites for AI/HPC compatibility (dissolved legacy mining contracts, acquired land etc.), and RIOT's 50 MW AMD (covered by Bernstein) partnership demonstrates its HPC capabilities and retrofit advantage. However, with ~1.8 GW of grid secured power still uncontracted, RIOT needs larger AI contracts (AMD expansion or new counterparties) to demonstrate the scalability of its AI infrastructure business. CLSK and MARA were late entrants to the AI infrastructure business, however they are now rapidly executing on their AI ambition. Both CLSK and MARA control ~1.8 GW of power each, and have significant re-rating potential from Bitcoin to AI power multiples as and when they secure a commercial validation for their AI pivot (sizable AI/HPC contract).

EXHIBIT 5: Bitcoin miner transition story: Delivering 6 GW power capacity for ~\$110Bn+ contracted revenue

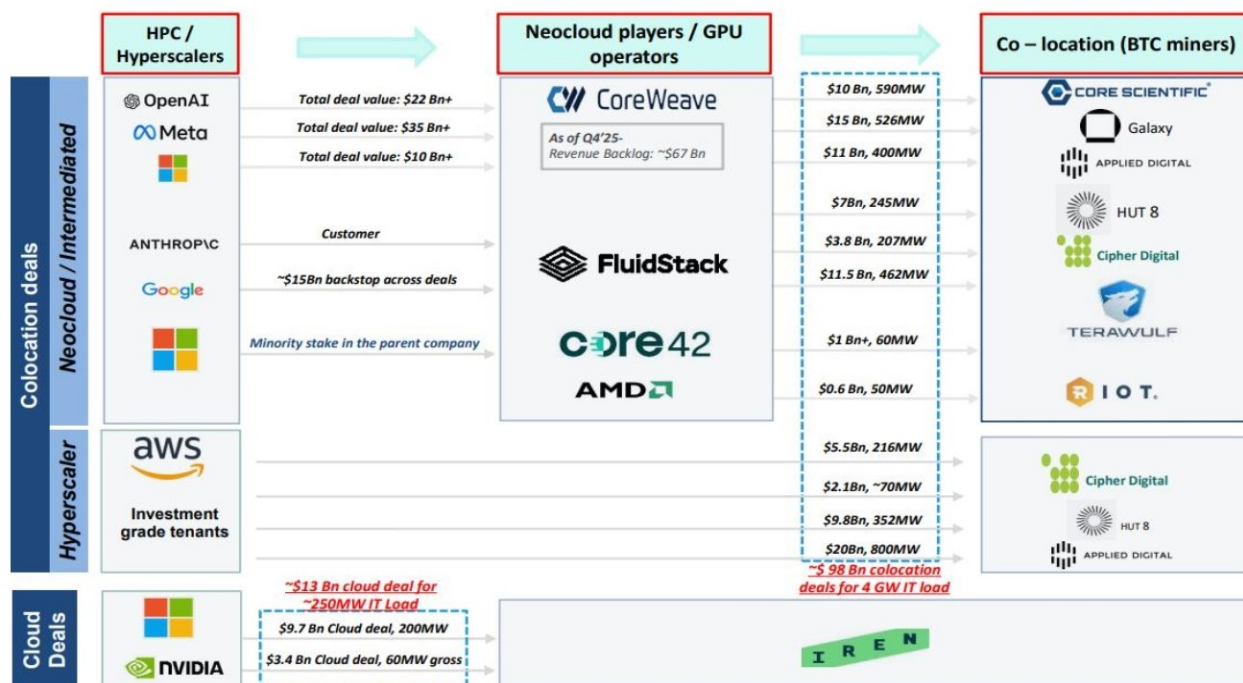
Power allocated	IT Load Contracted	Gross MW Contracted	Number of Deals
	~4.2 GW	~5.9 GW	17 deals
Contracted Revenue	Total Deal Value	Average Revenue ARR	Annual EBITDA Guidance
	\$110 Bn	\$10 Bn	\$8 Bn (88% average margin)
Delivery Schedule	Delivered IT Load	Annualized Revenue - Recognized	Target Delivery
	~400 MW (10% of contracted capacity)	~\$800 Mn (8% of contracted ARR)	Delivery by 2028E
Business Model	Cloud vs Colocation	Counterparty	
	Colocation deals for \$98Bn - 4 GW 2 Cloud deals for \$13Bn - 0.25 GW	6 hyperscaler deals (34% total deal value); rest with neoclouds etc.	

Bitcoin Miners	Customer/ Counterparty

Hyperscaler deal count does not include HUT** ~\$10Bn deal with investment grade tenant

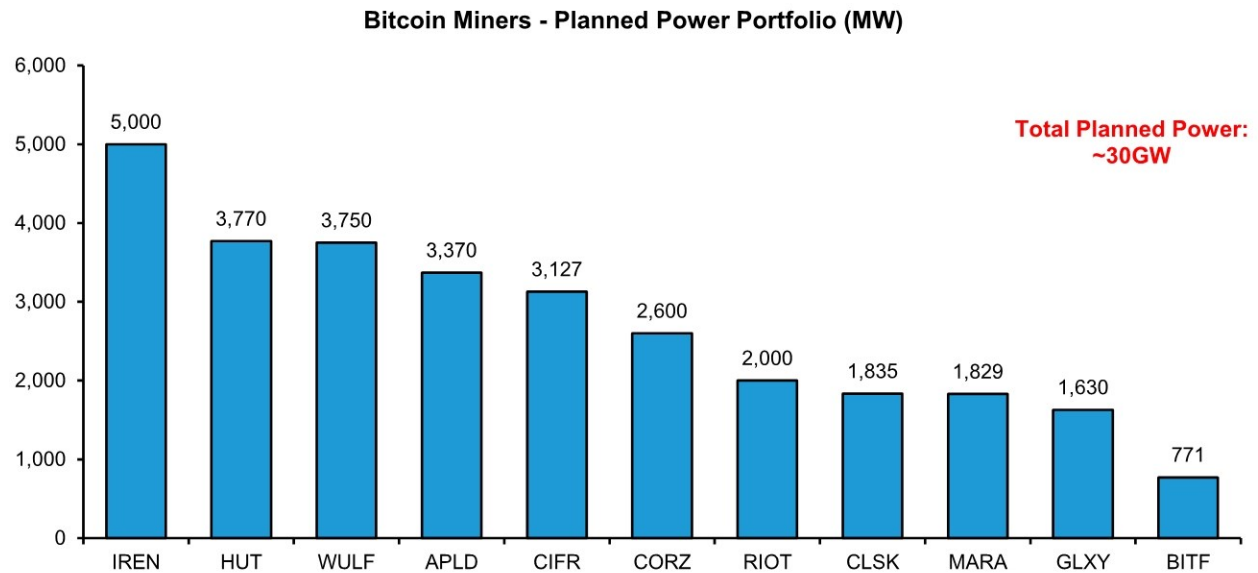
Source: Company filings, Bernstein analysis

EXHIBIT 6: Bitcoin miners are now integral part of the AI value chain



CORZ, IREN, CIPR, WULF, RIOT, META, Microsoft, Google, NVIDIA, AMD are covered by Bernstein

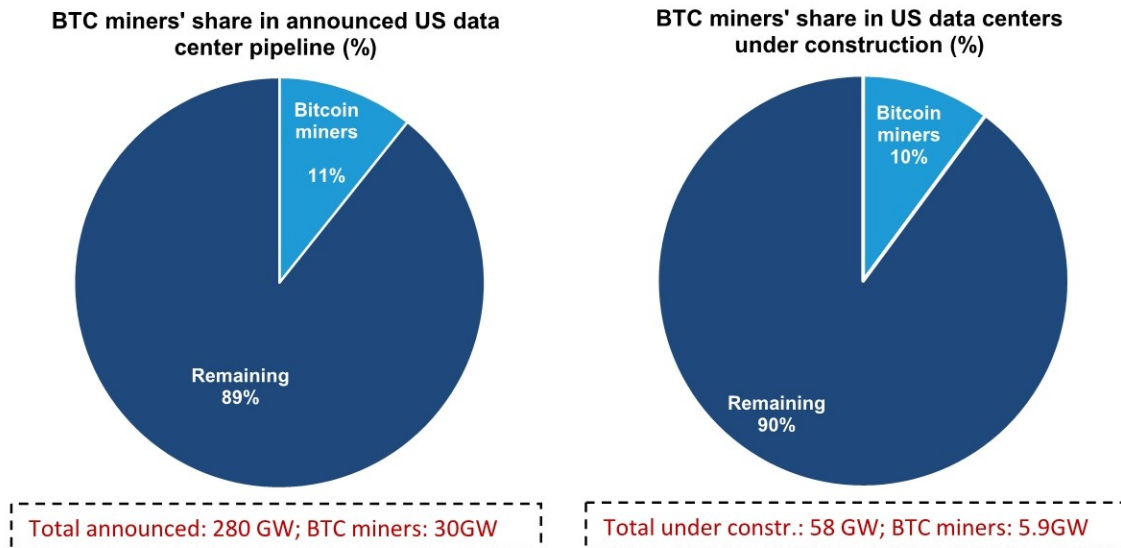
Source: Company filings, Bernstein analysis

EXHIBIT 7: **Bitcoin Miners' Power Advantage: Access to ~30GW planned power**

HUT includes 1.7GW power under exclusivity;

CIFR excludes 500MW Milsing site

Source: Company filings, Bernstein analysis

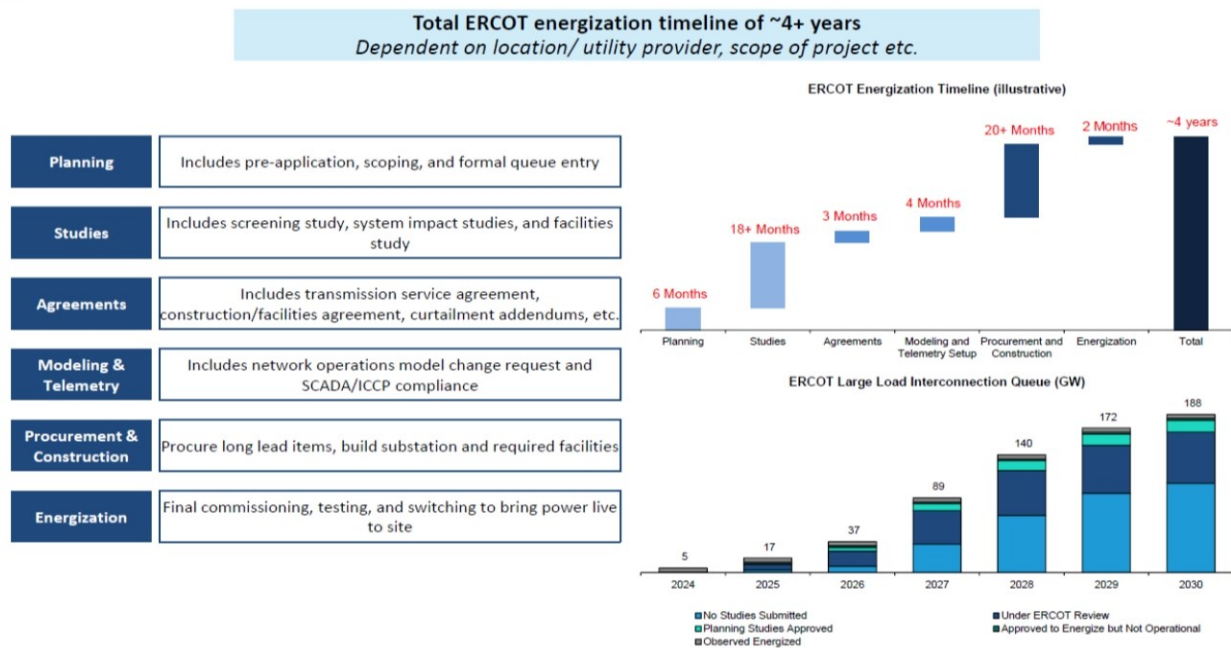
EXHIBIT 8: **BTC miners represent ~10% of data centers under construction in the US and ~11% of the announced data center pipeline**

All power mentioned is in gross MW

Source: Aterio, Bernstein analysis

EXHIBIT 9: U.S grid remains power constrained, as time-to-interconnect rises upto 4 years in key data center markets

1 Grid remains power constrained, as time-to-interconnect rises upto 4 years in key data center markets

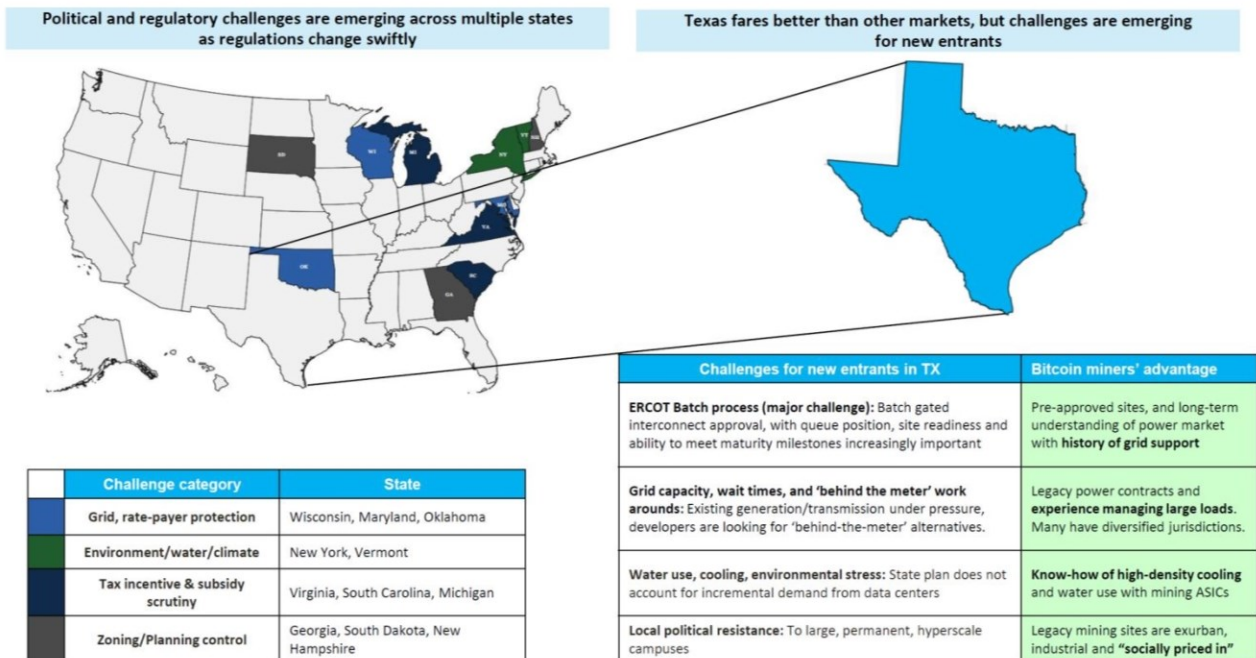


Interconnect queue based on ERCOT's July 2025 status update

Source: ERCOT, company presentation, Bernstein analysis

EXHIBIT 10: Political and regulatory constraints to data centers

2 Political and regulatory constraints to data centers across US states



The state-wise issues are for representation purpose for origination of potential regulatory challenges and not exhaustive.

Source: Bernstein analysis

EXHIBIT 11: AI Cloud vs co-location: AI cloud is a capex intensive model with higher revenue potential vs long term stable co-location cashflows

	AI Cloud	Co-location
Operating Model	Operates B2B/ D2C GPU clouds	Provides power and data center infrastructure to host neocloud
Revenue Economics	Driven by cloud utilization and per hour GPU pricing (~\$10+ Mn/IT MW)	Fixed lease rentals (~\$1.5 - \$2 Mn/IT MW)
Capex	Data Center and GPU capex (\$35-\$45 Mn/ IT MW)	Only data center capex (\$8-\$13 Mn/ IT MW)
Tech Risk	Require strong supplier relations to secure GPUs etc., Cloud operator bears the tech obsolescence risk	Client brings in GPUs and bears tech obsolescence risk
Financing	Asset backed financing (GPU leases), Customer prepayments	Project financing, Customer prepayments
Examples	IREN, HIVE	WULF, CIFR, CORZ, RIOT, GLXY, APLD

Key Factors

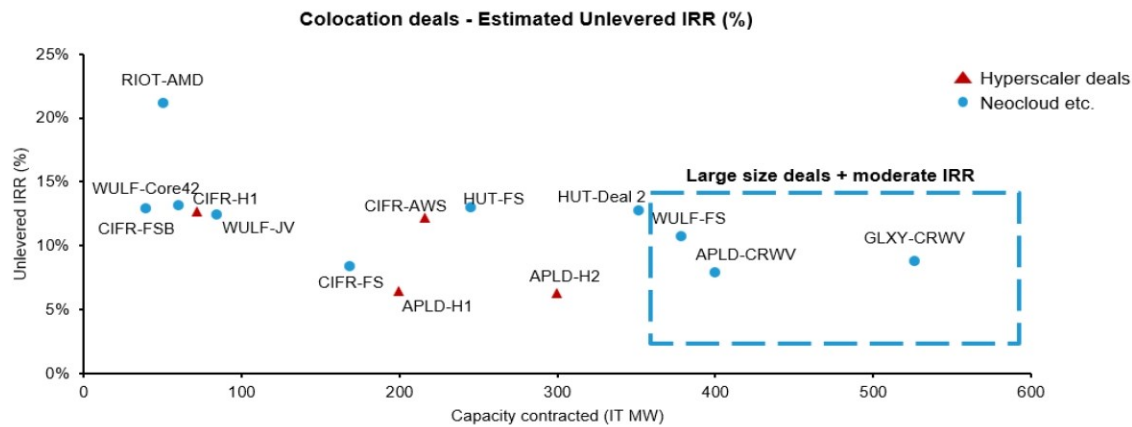
Source: Company filings, Bernstein analysis

EXHIBIT 12: IRR – Cloud vs Colocation: Colocation has higher unlevered IRR (capped upside) while Cloud provides direct exposure to compute markets

Per IT MW	Unit	AI Cloud	Colocation
Assumptions ---->		<i>Based on IREN-MSFT contract for 200 critical MW</i>	<i>Assuming 200MW IT load, with 90% EBITDA margins</i>
Annual Revenue		\$1.9Bn ARR	\$0.4Bn ARR
Annual Revenue/MW	\$Mn/MW	9.7	1.8
EBITDA Margin	%	85%	90%
EBITDA	\$Mn/MW	8.2	1.6
Capex			
AI/GPU	\$Mn	29.0	-
Ancillary	\$Mn	15.0	10.0
Total Capex	\$Mn/MW	44.0	10.0
Payback Period			
Hardware (GPU)	Years	3.5	-
Hardware + Infra	Years	5.3	6.2
NPV and IRR analysis			
Unlevered IRR	<i>Illustrative</i>	9%	12%

Source: Company filings, Bernstein analysis

EXHIBIT 13: IRR –deals: Colocation unlevered IRR ranges from 8-13%



Note: FS represents Fluidstack, H represents Hyperscaler client

Key takeaways	
Scale vs Economics	Large scale deals (300-500MW IT load) have moderate IRRs ranging between 8-12%, indicating Bitcoin miner’s preference to secure larger deal size and increased negotiation power of counterparty
Counterparty	Economics of direct hyperscaler deals are improving; HUT and CIFR’s triple net lease structure deliver >12% IRR
Retrofit vs Greenfield	Lower retrofit capex (e.g. RIOT-AMD) or capex sharing arrangement (like CIFR-AWS) with clients improve deal IRR by capping upfront capital investment

Source: Company filings, Bernstein analysis

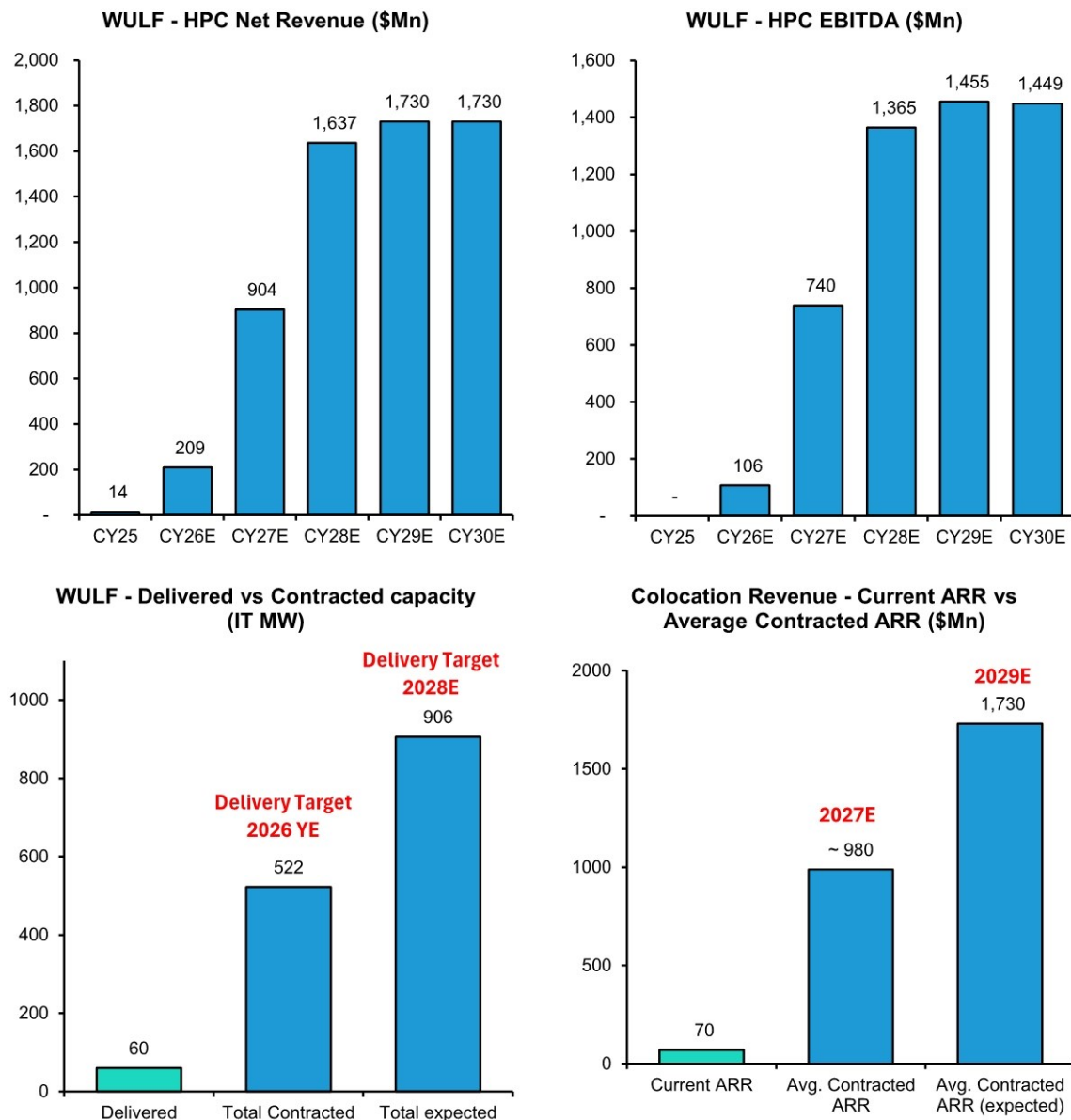
EXHIBIT 14: **Project financing market improves for AI infrastructure projects backed by Bitcoin miners**

Issuer	Counterparty	Guaranty	Interest rate	Amount (\$Mn)	Maturity
CIFR	Fluidstack (Barber Lake)	\$1.7Bn Google Backstop	7.125%	\$1.7 Bn	2030
	AWS (Black Pearl)	Amazon.com guaranty	6.125%	\$2 Bn	2031
WULF	Core42, Fluidstack (Lake Mariner)	\$3.2Bn Google Backstop	7.75%	\$3.2 Bn	2030
	Fluidstack (Abernathy)	\$1.3Bn Google Backstop	7.25%	\$1.3 Bn	2030
HUT	Fluidstack (River Bend)	\$7Bn Google Backstop	6.192%	\$3.25 Bn	2042
APLD	CoreWeave (Polaris Forge 1)	-	9.25%	\$2.35 Bn	2030
	IG Hyperscaler (Polaris Forge 2)	-	6.75%	\$2.15 Bn	2031
CORZ	Secured by CRWV data center	-	7.75%	\$3.3 Bn	2031
GLXY	CoreWeave (Helios)	-	SOFR+4.75%	\$1.4 Bn	2028

Key takeaways

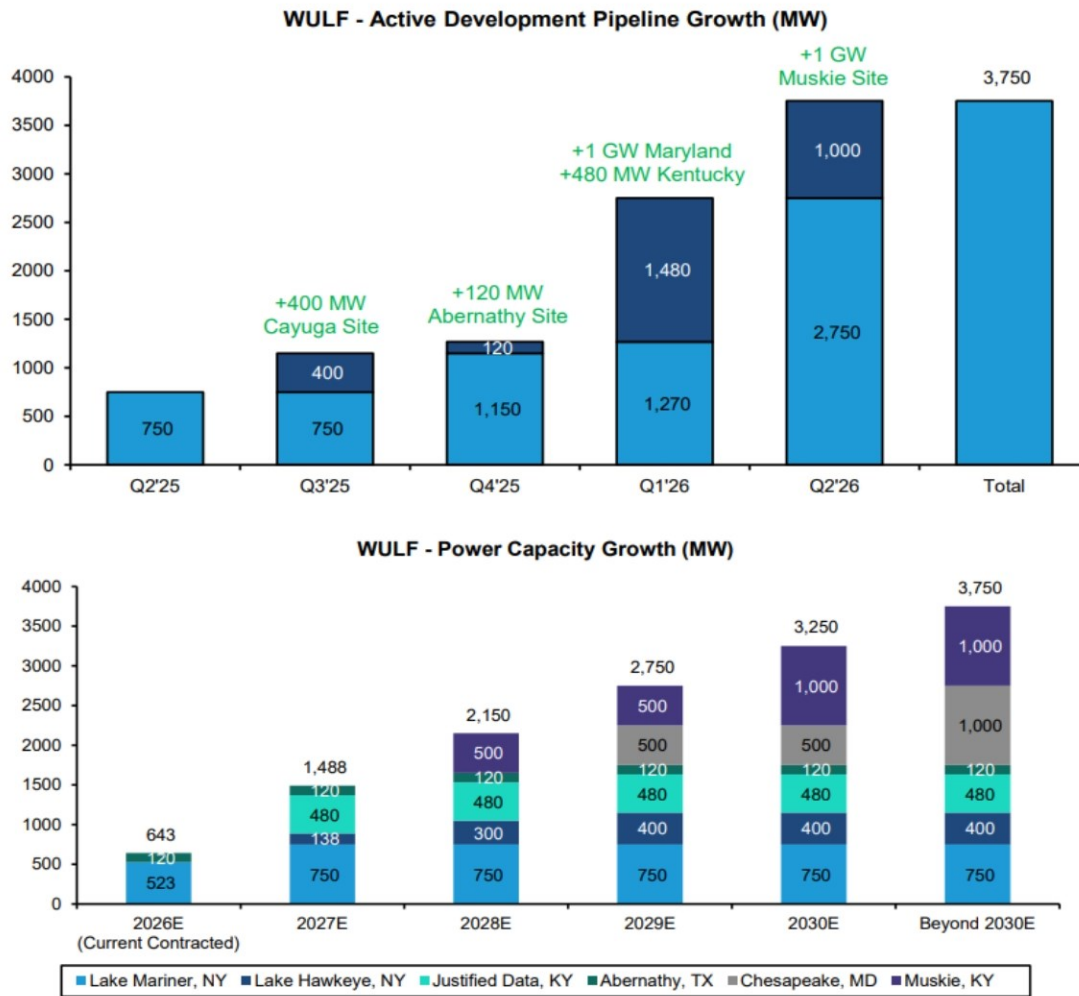
- Project financing typically funds **75-85% of total project capex** (loan to cost ratio)
- Most bonds are issued for **~5 years, supporting refinancing** opportunities when the data center mature and deal cashflow stabilizes
- Cost of financing improves with
 - Issuer profile (subsequent projects had better terms)
 - Tenant profile (direct hyperscaler contract received better terms)
 - Deal structuring (backstopping and hyperscaler guarantees improve funding terms)

Source: Company filings, Bernstein analysis

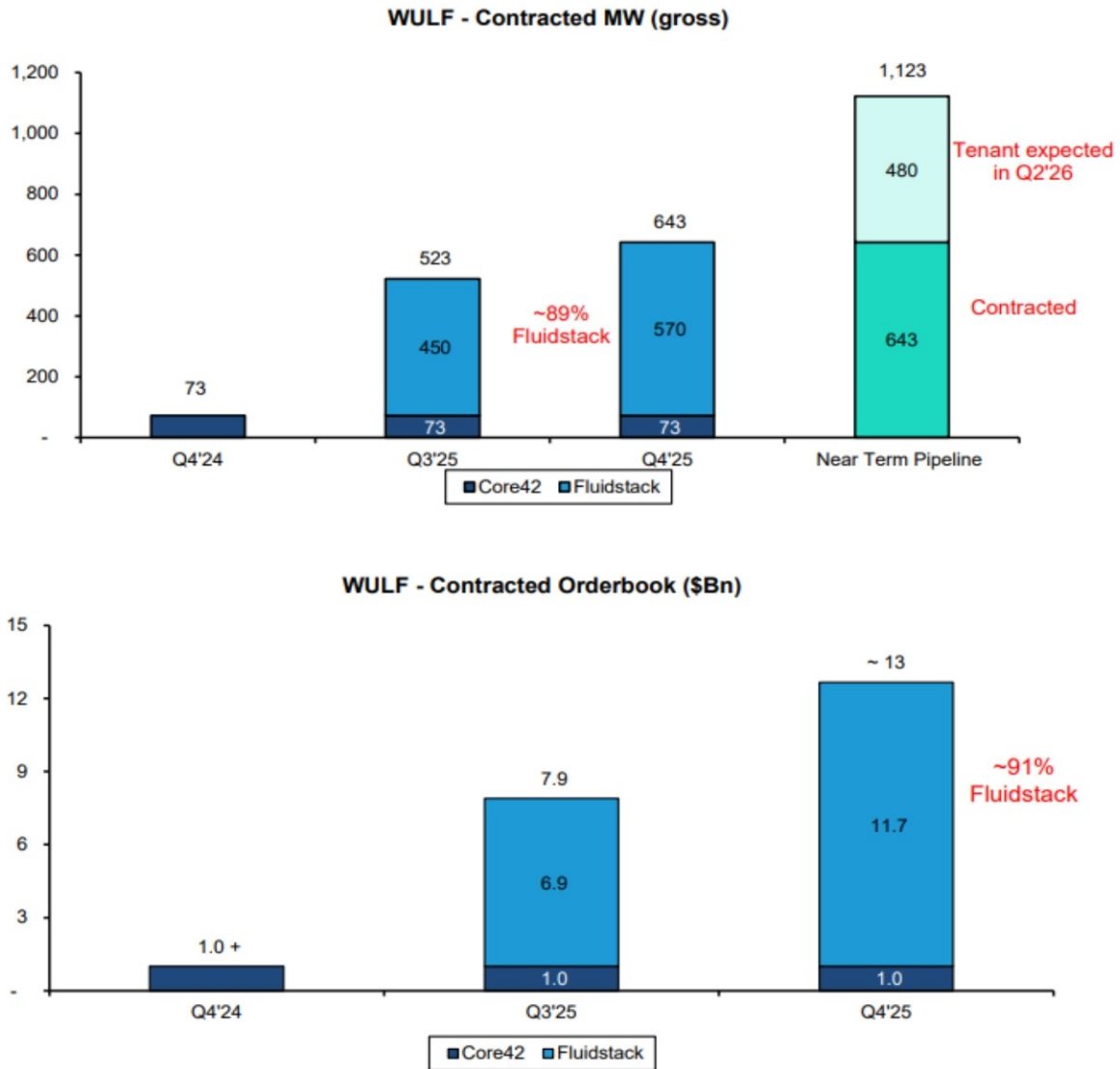
EXHIBIT 15: **WULF: We expect AI revenues to ramp up to \$1.7Bn by 2030E**

Net revenue is calculated as straight line revenue, excluding power cost pass through; Revenue and EBITDA also includes WULF share of Abernathy JV; Current ARR based on Q1'26 revenue

Source: Company filings, Bernstein estimates and analysis

EXHIBIT 16: **WULF's active M&A strategy supports high visibility power pipeline over CY26-30E**

Source: Company filings and guidance, Bernstein analysis

EXHIBIT 17: **WULF AI Orderbook: 643 gross MW contracted for ~\$13Bn total revenue**

Source: Company filings, Bernstein estimates and analysis

EXHIBIT 18: **WULF Deals Overview: Economics are improving for each subsequent deal**

	Core42	Fluidstack – Lake Mariner	Fluidstack – Abernathy JV	TOTAL
Contracted Capacity	60 IT MW	↑ 378 IT MW	84 IT MW	522 IT MW
Contract Duration	10 years	10 years	↑ 25 years	10-25 years
Contract Revenue	\$1 Bn +	\$6.9 Bn	\$4.8 Bn	~\$13 Bn
Average Annual Revenue Yield	\$1.7 Mn/ IT MW	↑ \$1.8 Mn/ IT MW	↑ \$2.3 Mn/ IT MW	\$1.9 Mn/ IT MW
NOI	85%, \$92 Mn p.a.	85%, \$587Mn p.a.	↓ 70%, \$130 Mn p.a.	82%
Capex Guidance	\$7-8 Mn/ IT MW	↑ \$8-10 Mn/ IT MW	\$8-10 Mn/ IT MW	\$7-10 Mn/ IT MW
Financing	\$3.2 Bn secured notes @ 7.75%		↑ \$1.3Bn notes @ 7.25%	\$4.5 Bn – fully funded contract capex
Backstop and Guaranty	Parent guaranty from sovereign wealth fund-backed credit - G42	Google backstop \$3.2Bn against 14% pro forma equity	↑ Google backstops \$1.3Bn – no equity	Google, G42
Expansion	Two 5-year extension option	Two 5-year extension option	Exclusive right on tenant's >168MW project	10-year extensions, 168MW JV expansion

Source: Company filings, Bernstein analysis

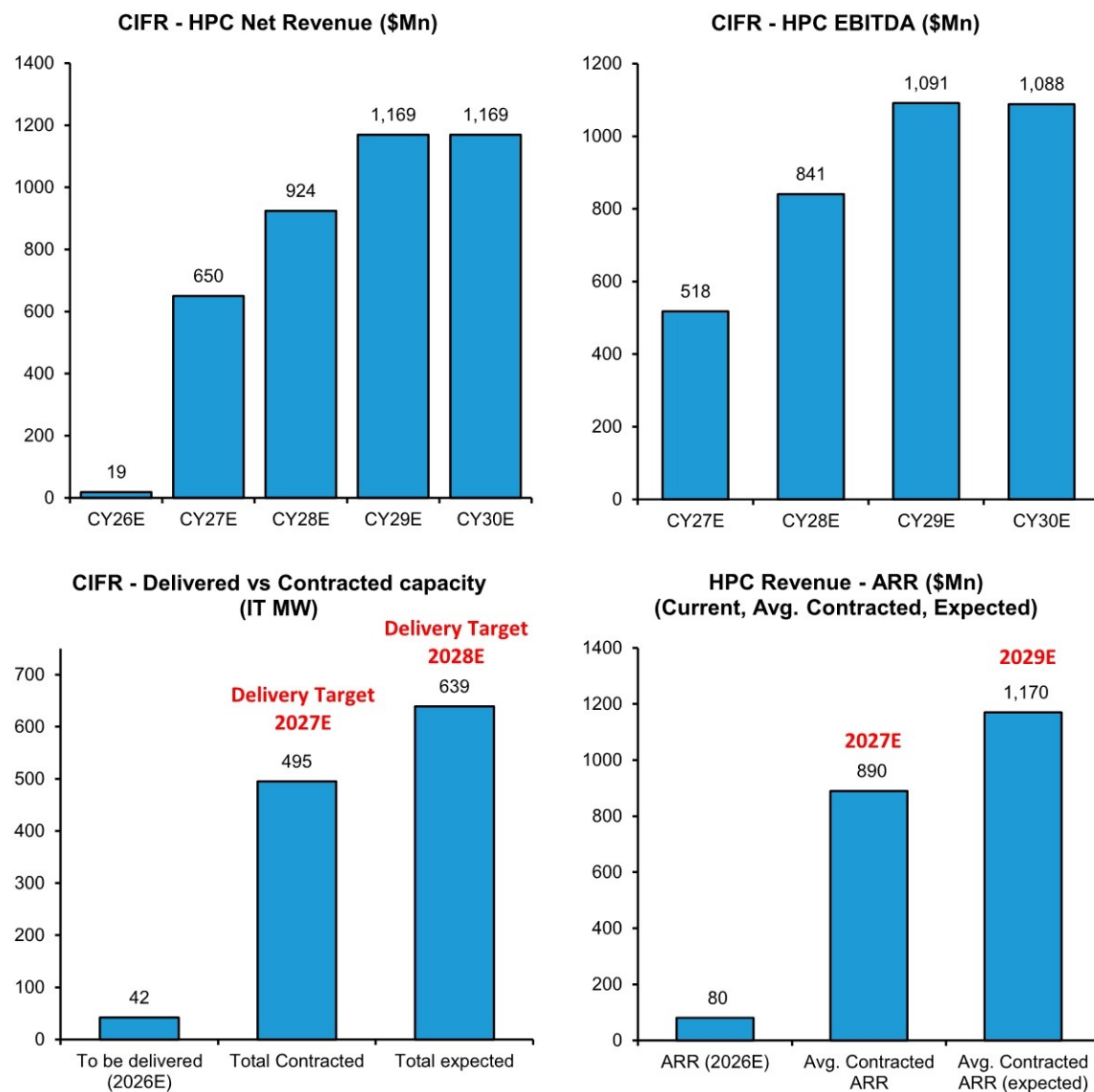
EXHIBIT 19: **We rate WULF Outperform PT\$36**

\$Mn, except specified	CY25	CY26E	CY27E	CY28E	CY29E	CY30E
Total Revenue	165	279	875	1,485	1,540	1,540
HPC Revenue (Net)	14	209	792	1,446	1,540	1,540
Mining Revenue	152	70	83	38	-	-
Total Adjusted EBITDA	(23)	116	656	1,250	1,327	1,320
HPC Adj. EBITDA		106	627	1,236	1,327	1,320
Net EBITDA Margin (%)		51%	79%	85%	86%	86%
Mining Adj. EBITDA		9	29	13	-	-
Margin (%)		13%	34%	35%		

1 Year Forward - EV/EBITDA multiple	21
EBITDA 2030E (WULF Standalone)	1,320
EBITDA 2030E (WULF JV)	129
Total EBITDA CY2030E (WULF + JV)	1,449
EV 2029E	30,426
EV (Jun'27E)	24,401
Net debt (Jun'27E)	6,675
Target Market Cap	17,726
Shares Outstanding	502
Target Price (\$/share)	36

HPC Revenue reflects net revenue (excludes power cost pass through)

Source: Company filings, Bernstein estimates and analysis

EXHIBIT 20: **CIFR: We expect AI revenue to ramp up to ~\$1.2Bn by 2030E**

1. By 2028, we expect CIFR to fully contract out their Ulysses site (144 IT-MW) along with their current contracts

2. Net revenue is calculated as straight line revenue, excluding power cost pass through

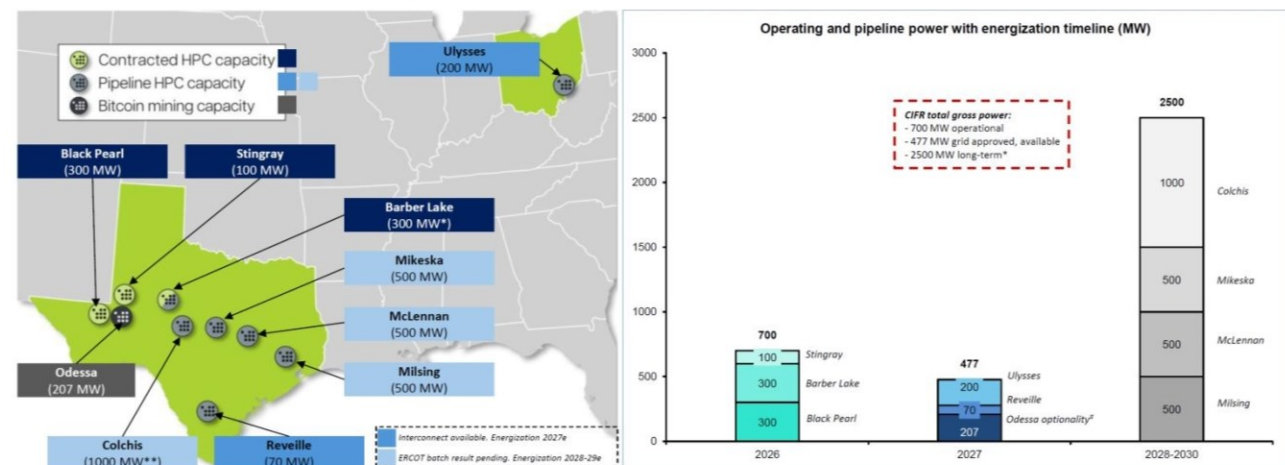
Source: Company filings, Bernstein estimates and analysis

EXHIBIT 21: **CIFR AI infrastructure business orderbook: 495 IT MW contracted for \$11.4Bn total revenue**

	Fluidstack – Phase 1	Fluidstack – Phase 2	AWS	3 rd hyperscaler	TOTAL
Contracted Capacity	168 IT MW	39 IT MW	↑ 216 IT MW	72 IT MW (PUE as per prior deals)	495 MW
Contract Duration	10 years		↑ 15 years	↑ 15 years	10-15 years
Contract Revenue	\$3 Bn	\$0.83 Bn	\$5.5 Bn	~\$2.1 Bn	\$11.4 Bn
Average revenue yield per IT MW	\$1.79 Mn	\$2.13 Mn	~\$1.70 Mn	↑ \$1.92 Mn	~\$1.8 Mn
NOI	85%, \$255 Mn p.a.	90%, \$75 Mn p.a.	↑ ~100%, \$367 Mn p.a.	↑ ~95-100%, \$131 Mn p.a.	~95%
Capex Guidance	\$9-11 Mn/ IT MW	↑ \$9-10 Mn/ IT MW	↑ \$9.5 Mn/ IT MW	\$9-11 Mn/ IT MW (assumed per prior deals)	\$9-11 Mn/ IT MW
Financing	\$1.73 Bn secured notes @ 7.125%		↑ \$2 Bn notes @ 6.125%	n.a.	\$3.73 Bn
Backstop and Guaranty	Google backstop \$1.73 Bn against ~5.4% pro forma equity		↑ Hyperscaler guarantee Amazon.com	n.a.	Google, Amazon.com
Expansion option	Two 5-year extension	Two 5-year extension	↑ Three 5-year extension	n.a.	10 to 15-year options

CIFR has not disclosed granular details of their third contract. The contract counterparty is an investment grade hyperscaler

Source: Company filings, Bernstein analysis

EXHIBIT 22: **CIFR controls ~3.1 GW of power assets, concentrated in Texas**

**Cipher currently own 76% of Colchis JV, will go to 95% on deal execution

#Odessa site is currently used for Bitcoin mining and company retains optionality for HPC data center

- Ulysses (200MW) and Reveille (70MW) have interconnect agreements, energization expected in 2027e; ERCOT batch zero announcement expected for June'2026 as per company management

Source: Company presentation and guidance, Bernstein analysis

EXHIBIT 23: **We rate Cifr Outperform PT\$32**

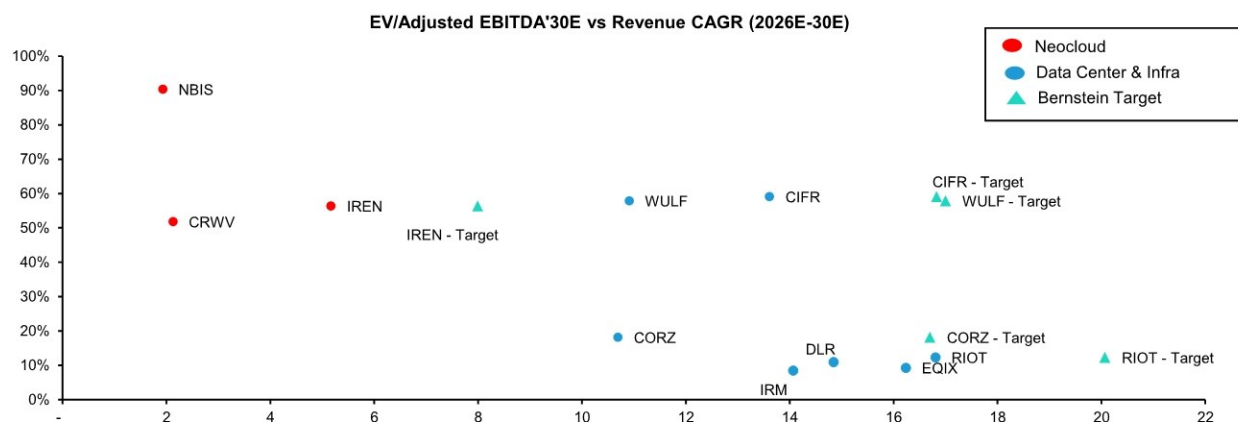
All values in \$Mn, unless specified	CY25	CY26E	CY27E	CY28E	CY29E	CY30E
Total Revenue	224	183	837	968	1,169	1,169
Bitcoin mining	224	164	187	44	-	-
HPC Colocation (Net revenue)	-	19	650	924	1,169	1,169
Total Adjusted EBITDA	22	74	637	863	1,091	1,088
Bitcoin mining	24	83	119	22	-	-
Adjusted EBITDA Margin - BTC Mining (%)	11%	50%	64%	51%	-	-
HPC Colocation	-	(8)	518	841	1,091	1,088
Net Adjusted EBITDA Margin - HPC (%)	-	-	80%	91%	93%	93%

1 Year Forward - EV/EBITDA multiple	21
EBITDA 2030E	1,088
EV 2029E	22,852
EV (Jun'27E)	18,315
Net debt (Jun'27E)	4,563
Target Market Cap	13,752
Shares Outstanding	437
Target Price	\$32.00
Upside	22%

Upside as of June 2, 2026

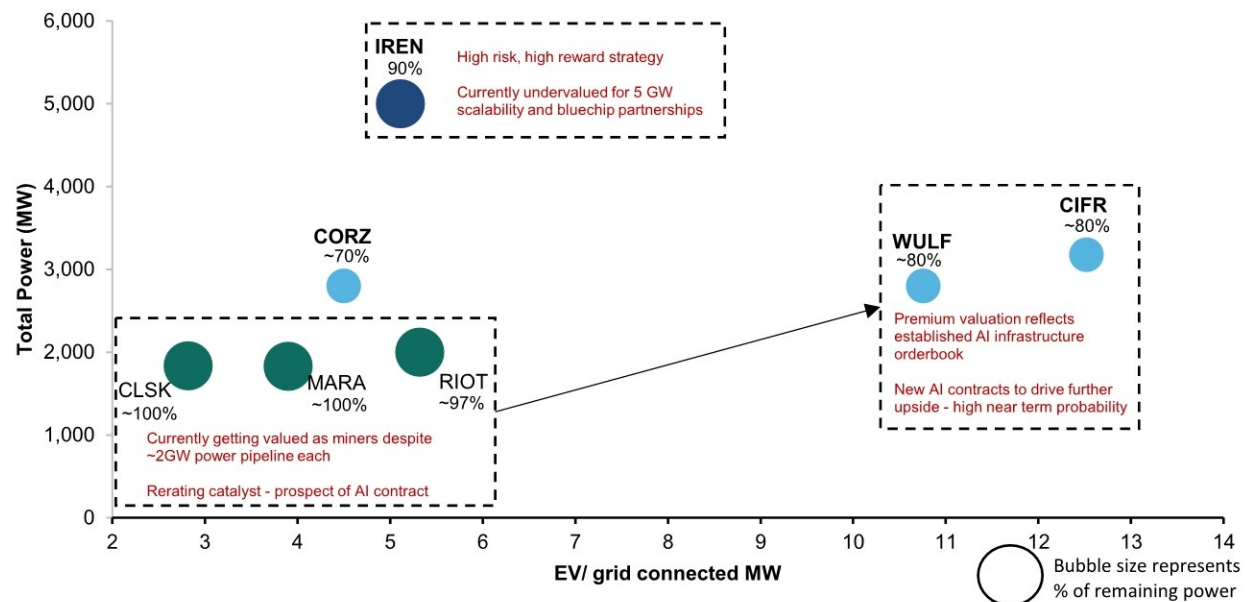
Net revenue is calculated as straight line revenue, excluding power cost pass through

Source: Company filings, Bernstein estimates and analysis

EXHIBIT 24: **We value Cifr and Wulf at a premium to peer infrastructure companies given their high visibility revenue ramp-up over CY26-30E**

Source: Bloomberg, Bernstein estimates and analysis

EXHIBIT 25: Summary valuation relative to power capacity



Source: Company filings, Bloomberg, Bernstein estimates and analysis

EXHIBIT 26: We lay out a comprehensive investment framework for our coverage universe - evaluated for power scalability, contracted order book/AI revenue ramp-up, unit economics and valuation

		CIFR	WULF	CORZ	RIOT	CLSK	MARA	IREN
Business Model	Focus	Colocation	Colocation	Colocation	Colocation + BTC	Colocation + BTC	Colocation + BTC	Cloud
	AI Progress	Buildout Phase	Operationalized 60 IT MW	Operationalized 243 IT MW	Operationalized 5 IT MW	Contracting Phase	Contracting Phase	Running GPU cloud
Scalability	Total Power (GW)	3.1 GW	3.8 GW	2.6 GW	2 GW	1.8 GW	1.8 GW	5 GW
	HPC Contracted (gross)	700 MW	643 MW	800 MW	66 MW**	-	-	540 MW
	Near Term Available Capacity	270 MW	480 MW	~1 GW	~1 GW	~0.8 GW	~0.7 GW	~0.7 GW
Order Book	Total Contracted Revenue	\$11.4 Bn	~\$13 Bn	~\$10 Bn	\$0.6 Bn	-	-	\$13.1 Bn
	Average ARR	~\$890 Mn	~\$980 Mn	\$850 Mn	\$64 Mn	-	-	\$3.1 Bn
	Current ARR	-	\$100 Mn	\$350 Mn	\$6 Mn	-	-	~\$135 Mn
Counterparty Quality	Customers	Fluidstack (Google backstop), AWS	Fluidstack (Google Backstop), Core42	Coreweave	AMD	-	-	Microsoft, NVIDIA
	Direct Hyperscaler	✓	-	-	-	-	-	✓
Unit Economics	Annual Revenue Yield - Blended	\$1.8 Mn/ IT MW	~\$1.9 Mn/ IT MW	\$1.4 Mn/ IT MW	\$1.3 Mn/ IT MW	-	-	~\$10 Mn/ IT MW
	NOI Margins - Blended	95%*	~82%	82.5%	80%	-	-	85%
Capex and Financing	Capex (Per IT MW)	\$9-11 Mn	\$8-10 Mn	\$1.5 Mn	\$3.5 Mn	-	-	~\$45 Mn
	Debt / Contracted Ann. EBITDA	6x	8x	6x	n.a.	n.a.	n.a.	5x
Valuation	Current EV/ EBITDA*28E	17x	11x	11x	20x	14x	13x	8x
	EV/ Total Planned MW	\$4.7 Mn/MW	\$4.2 Mn/MW	\$4 Mn/MW	\$5 Mn/MW	\$2.8 Mn/MW	\$2.8 Mn/MW	\$5.1 Mn/MW

**RIOT contracted MW based on PUE of ~1.3 based on Corsicana design

*CIFR NOI calculation based on company presentation

- We use 'Current debt/contracted annualized EBITDA'
Source: Company filings, Bernstein estimates and analysis

THE BIG AI PIVOT FOR BITCOIN MINERS

The investment case for Bitcoin miners has transitioned from potential Bitcoin upside to a structural AI infrastructure story. Over the last two years, access to grid-connected power has remained the key bottleneck for bringing new data center capacity online, with interconnect approval cycles stretching beyond four years in key data center markets. In this power constrained environment, Bitcoin miners with access to energized, grid-connected sites have emerged as strategic partners for AI/HPC players to accelerate time to market for new compute capacity. Over the last two years, Bitcoin miners have contracted out 6 GW of power capacity to hyperscalers, OEMs and neocloud operators (Google, Amazon, Microsoft, NVIDIA, AMD, CoreWeave and Fluidstack) across 17 deals worth over \$110Bn ([Exhibit 27](#)). Players like IREN, CIFS, WULF and CORZ have built a scalable AI infrastructure playbook — securing AI/HPC compatible sites, financing buildouts backed by long-term contracts and establishing credibility through disciplined execution. We share a quick overview of the industry landscape:-

Bitcoin miners with ~30GW of planned power remain well positioned in a power-constrained environment: Bitcoin miners have hard pivoted to building AI infrastructure, but their central proposition remains ready grid connected power in data center hubs such as Texas. Access to grid-connected sites is the biggest constraint in building AI cloud today with interconnect approval cycles extending upto 4 years in key data center markets like Texas ([Exhibit 30-Exhibit 31](#)). We believe Bitcoin miners remain best positioned to solve 'time to compute' given their planned 30 GW power portfolio and operating ability to deliver 'warm powered shells' in time. Beyond raw power access, miners are upgrading their execution layer - hiring veteran data center talent, building in-house EPC capabilities, and aligning physical infrastructure (land parcels, water, fiber, liquid cooling) to hyperscaler design standards.

Strong community alignment and grid relations strengthen Bitcoin miner's AI edge: Increasing legal and community scrutiny has further stretched the delivery timelines of planned/ under development data center projects. Currently, multiple states have legislative proposals to increase regulatory oversight on data center developments - (i) Grid and ratepayer protection (Wisconsin, Maryland, Oklahoma), (ii) Environment related (New York, Vermont), (iii) Tax incentive and subsidy rollback (Virginia, South Carolina) and (iv) Zoning/planning control (Georgia, South Dakota and New Hampshire). Bitcoin miners have historically been positive community participants. They participated in grid stability programs, redeveloped old sites, sourced renewable power etc, hence building strong grid and community relationships in markets like Texas, Georgia, Kentucky etc. For example, WULF have been closely working with community groups across its new development sites - proactively resolving concerns on noise, impact on energy prices, security measures etc.

Bitcoin miner's AI business models - Colocation and Cloud: There are two primary business models for AI infrastructure operators ([Exhibit 35](#)):

- **Colocation:** Build turnkey facilities (powered shell with cooling system etc.) and lease them out for 10-15 years against fixed rental income. The developer bears the data center capex, while the tenant bears the chip capex and technology obsolescence risk. Colocation margin ranges between 80-100% based on lease structure (gross vs net) and cost pass through terms.
- **Direct-to-customer AI cloud:** The cloud model is more vertically integrated across the AI value chain - Bitcoin miners own GPUs, operate the compute stack, and directly contract cloud capacity to AI and enterprise customers. The cloud pivot is a high risk-high reward path, it generates materially higher revenue per IT MW at \$10-12Mn (vs ~\$2Mn for colocation), but requires \$25-30Mn incremental GPU capex per IT MW. The cloud operator bears the technology (GPU) obsolescence and capacity underutilization risk.

Colocation de-risks data center capex through long-term contractual revenues: So far, colocation has emerged as the preferred business model for Bitcoin miners pivoting to AI, with few notable exceptions like IREN building their own cloud. We believe colocation is the safer business model to take AI exposure - capex light, long term revenue visibility and favorable (protective) contract terms. As Bitcoin miners successfully deliver proof-of-concept on building and operating AI infrastructure (power access, construction, financing), colocation deal terms are improving towards longer contract duration, better margin structure and bluechip counterparties.

- **Take-or-pay structure:** Colocation deals are structured as take-or-pay contracts. Hence, the tenant is obligated to meet the lease obligations irrespective of their utilization rate.

- **Parent guarantees and backstopping arrangements:** Colocation contracts are often secured by parent guarantees or backstopping arrangements ([Exhibit 38](#)). In the event of insolvency or default of the direct tenant, the parent or backstopping party is required to fulfill the lease obligations, pay a termination fee or find a replacement tenant (basis the contract terms). Early deals were anchored by neocloud counterparties with equity wrappers (hyperscalers backstopping neocloud obligations in exchange for warrants in the miner). More recently, Bitcoin miners are securing direct hyperscaler contracts with parent-level guarantees.
- **High margin, long term revenues:** Colocation margin ranges between 80-100%, implying capex payback in 5-7 years. Further, long contract duration (10-15 years base term) provides a sufficient safety cushion beyond the payback period and hedge the vacancy (re-contracting) risk in the future.

Improving access to low-cost project financing: The scalability of Bitcoin miners' AI pivot depends on their ability to fund infrastructure buildouts through low cost, long-term financing. Initially, Bitcoin miners upfronted required capex through customer prepayments, convertible issuance and equity ATMs. However, miners have now demonstrated the financing ability for their AI infrastructure assets backed by long-duration contracts with investment-grade counterparties. Hence, the funding mix is shifting towards the traditional infrastructure financing — initial sponsor equity to break ground, secure long term contract, and fund majority capex through project financing (at 70-85% loan-to-cost). Financing terms for AI infrastructure projects backed by Bitcoin miners are improving on three dimensions (i) issuer profile: terms improve as the sponsor becomes a more established AI infrastructure developer with a diversified customer base; (ii) tenant profile: direct hyperscaler exposure is being underwritten at investment-grade-adjacent rates; and (iii) deal structure: contracts with hyperscaler guaranty/backstopping and triple-net lease structures receive better financing terms. For recent colocation buildouts, the all-in financing cost (6-7%) is well inside unlevered deal IRRs (9-12%) — creating meaningful equity value for sponsors on a levered basis ([Exhibit 39-Exhibit 40](#)).

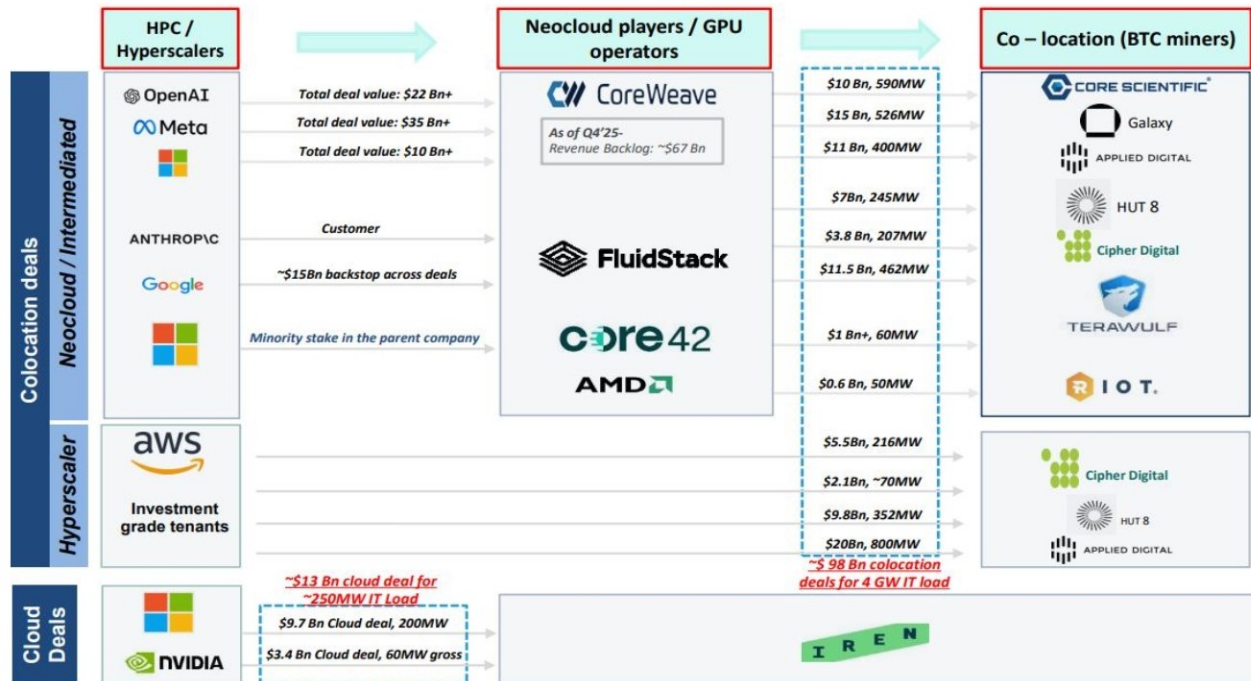
EXHIBIT 27: Bitcoin miner transition story: Delivering 6 GW power capacity for ~\$110Bn+ contracted revenue

Power allocated	IT Load Contracted ~4.2 GW	Gross MW Contracted ~5.9 GW	Number of Deals 17 deals
Contracted Revenue	Total Deal Value \$110 Bn	Average Revenue ARR \$10 Bn	Annual EBITDA Guidance \$8 Bn (88% average margin)
Delivery Schedule	Delivered IT Load ~400 MW (10% of contracted capacity)	Annualized Revenue - Recognized ~\$800 Mn (8% of contracted ARR)	Target Delivery Delivery by 2028E
Business Model	Cloud vs Colocation Colocation deals for \$98Bn - 4 GW 2 Cloud deals for \$13Bn - 0.25 GW	Counterparty 6 hyperscaler deals (34% total deal value); rest with neoclouds etc.	

Bitcoin Miners	Customer/ Counterparty
 CORE SCIENTIFIC[®]  TERAWULF  HUT 8  Cipher Digital  IREN  APPLIED DIGITAL  R I O T.  Galaxy  Google  NVIDIA  FluidStack   ANTHROPIC  AMD  CoreWeave  aws  core42	

Source: Company filings, Bernstein analysis

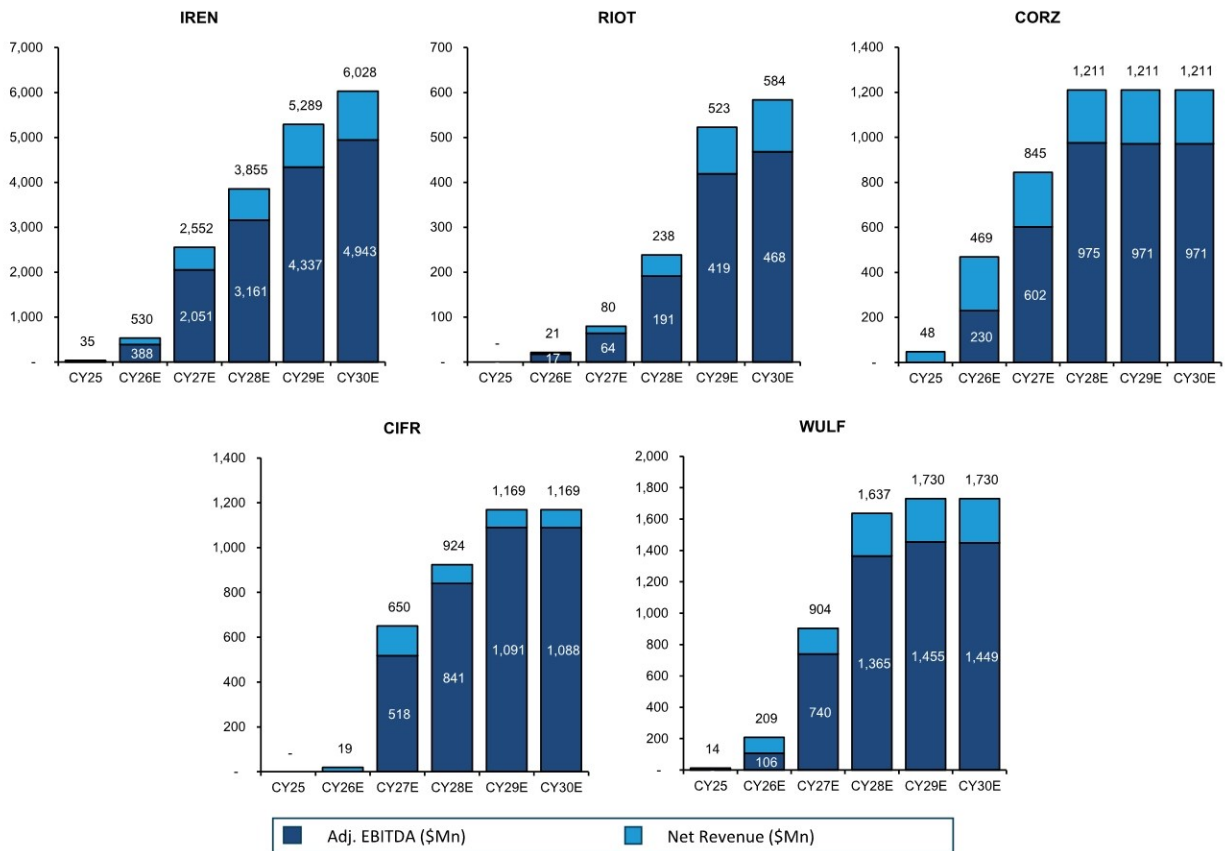
EXHIBIT 28: Bitcoin miners are now integral part of the AI value chain



CORZ, IREN, CIFR, WULF, RIOT, META, Microsoft, Google, NVIDIA, AMD are covered by Bernstein

Source: Company filings, Bernstein analysis

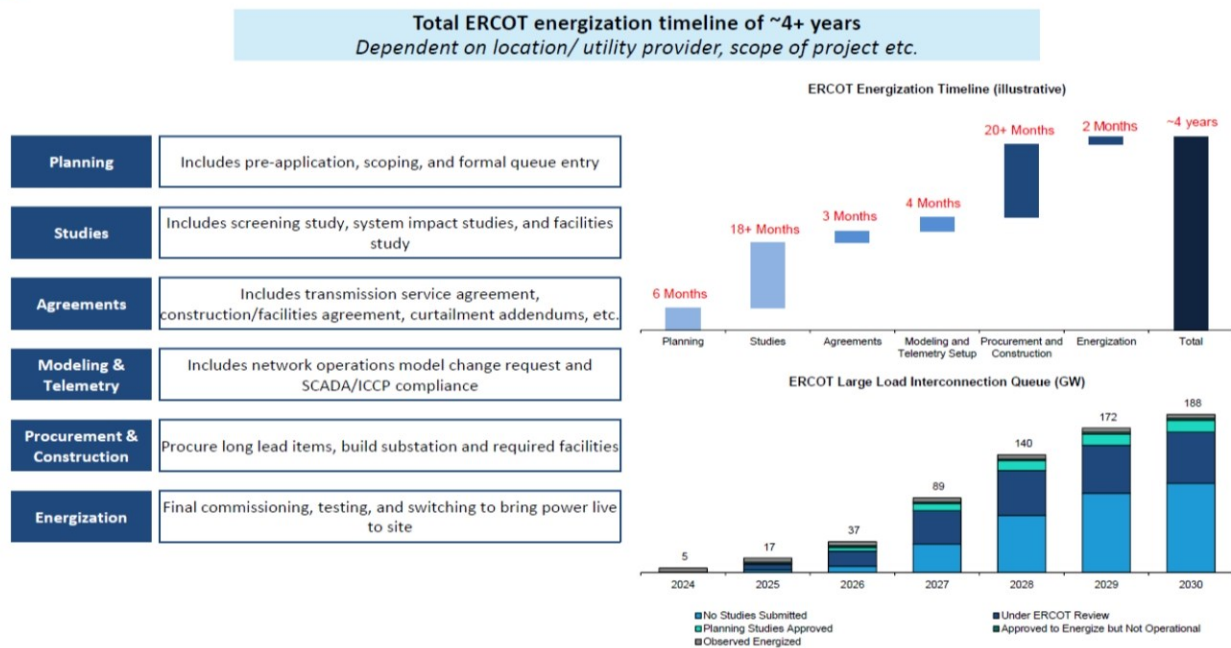
EXHIBIT 29: Bitcoin miners' pivot to AI infrastructure colocation and compute - Net AI Revenue and Adj. EBITDA ramp-up



Net revenue is calculated as straight line revenue, excluding power cost pass through; WULF revenue and EBITDA includes Abernathy JV share
Source: Company filings, Bernstein estimates and analysis

EXHIBIT 30: U.S grid remains power constrained, as time-to-interconnect rises upto 4 years in key data center markets

1 Grid remains power constrained, as time-to-interconnect rises upto 4 years in key data center markets

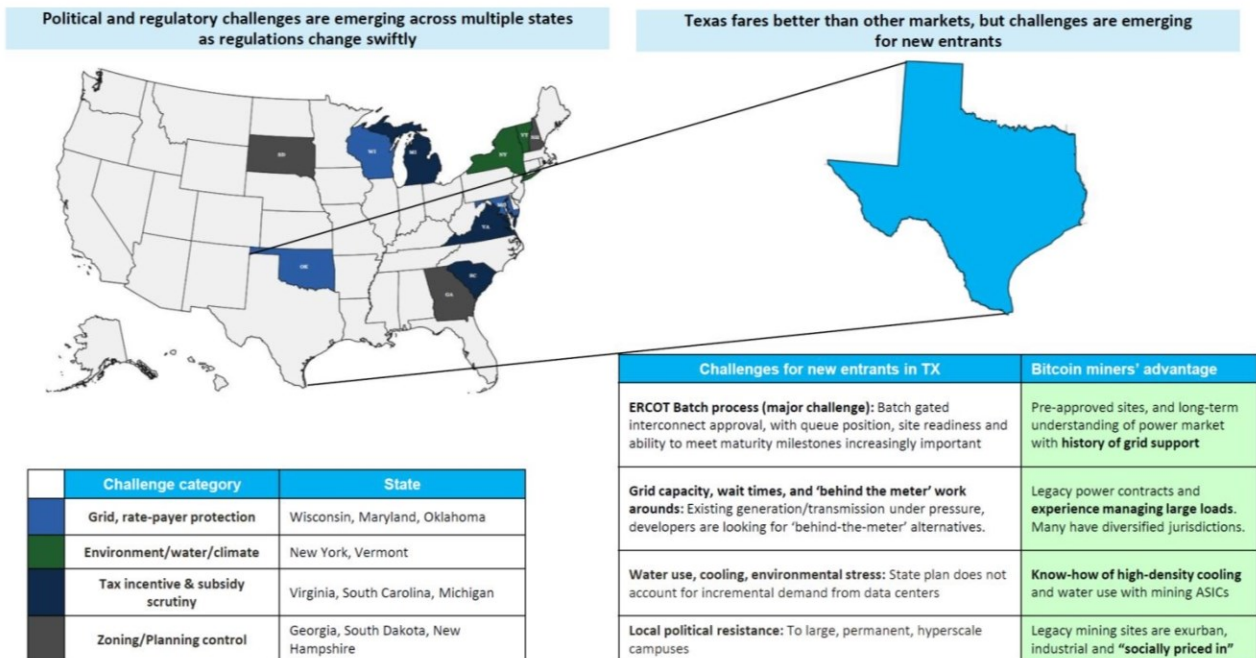


Interconnect queue based on ERCOT's July 2025 status update

Source: ERCOT, company presentation, Bernstein analysis

EXHIBIT 31: Political and regulatory constraints to data centers

2 Political and regulatory constraints to data centers across US states



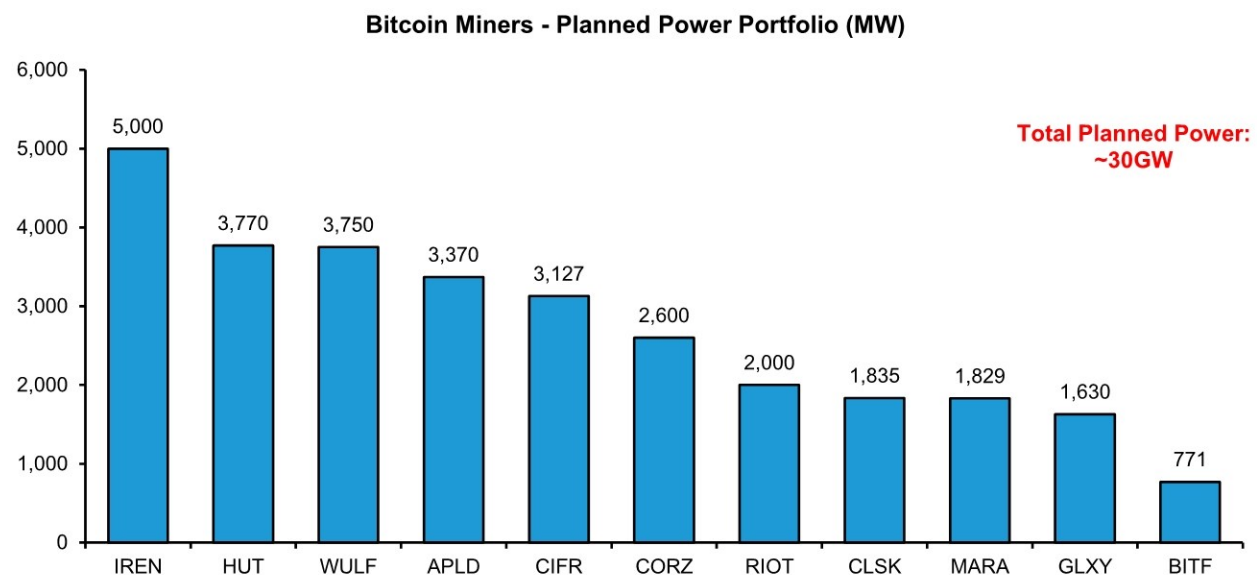
The state-wise issues are for representation purpose for origination of potential regulatory challenges and not exhaustive.

Source: Press reports, Bernstein analysis

EXHIBIT 32: Bitcoin miners sit in an envious position despite increasing challenges to data center construction in the US

S.No	Factor	Core Point
1	Operational Geography	Texas (historically major presence of miners) operates under an established framework with no moratorium, lesser regulation, known cost schedule. In other states, most miners' sites remain in comparatively comfortable position
2	Legacy Interconnection Positions	Mining-era queue positions entered into prior to 2025 are insulated against new-entrant cost-shifting rules. New entrants today face a 5 to 7 year wait along with the full regulatory burden
3	Triple-Net Lease Structure	NNN leases convert tariff inflation from a direct company EBITDA risk into counterparty risk which becomes manageable given hyperscaler credit rating, backstop agreements, or prepayments
4	Limited Exposure to Highest-Risk States	Zero material pipeline in stringent regulation states such as California, unlike pure play data center REITs with comparatively higher exposure to the same regulatory areas.
5	Demand Response Track Record	Mining curtailment history gives a documented grid-cooperation record that regulators that helps Bitcoin miners maintain relationships. New entrants will have to build from scratch.

Source: Press reports, Bernstein analysis

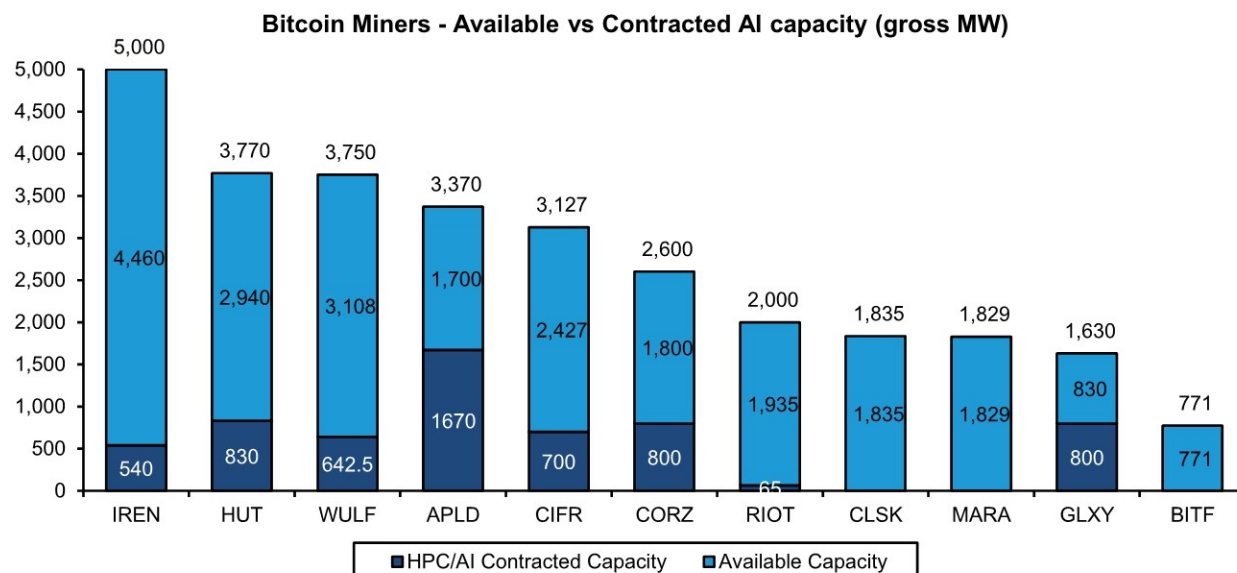
EXHIBIT 33: Bitcoin Miners' Power Advantage: Access to ~30GW planned power


HUT includes 1.7GW power under exclusivity;

CIFR excludes 500MW Milsing site

Source: Company filings, Bernstein analysis

EXHIBIT 34: Bitcoin miners still have significant power runway available for AI/HPC deployments



RIOT contracted MW assuming PUE 1.3

Source: Company filings, Bernstein analysis

EXHIBIT 35: AI Cloud vs co-location: AI cloud is a capex intensive model with higher revenue potential vs long term stable co-location cashflows

	AI Cloud	Co-location
Operating Model	Operates B2B/ D2C GPU clouds	Provides power and data center infrastructure to host neocloud
Revenue Economics	Driven by cloud utilization and per hour GPU pricing (~\$10+ Mn/IT MW)	Fixed lease rentals (~\$1.5 - \$2 Mn/IT MW)
Capex	Data Center and GPU capex (\$35-\$45 Mn/ IT MW)	Only data center capex (\$8-\$13 Mn/ IT MW)
Tech Risk	Require strong supplier relations to secure GPUs etc., Cloud operator bears the tech obsolescence risk	Client brings in GPUs and bears tech obsolescence risk
Financing	Asset backed financing (GPU leases), Customer prepayments	Project financing, Customer prepayments
Examples	IREN, HIVE	WULF, CIFR, CORZ, RIOT, GLXY, APLD

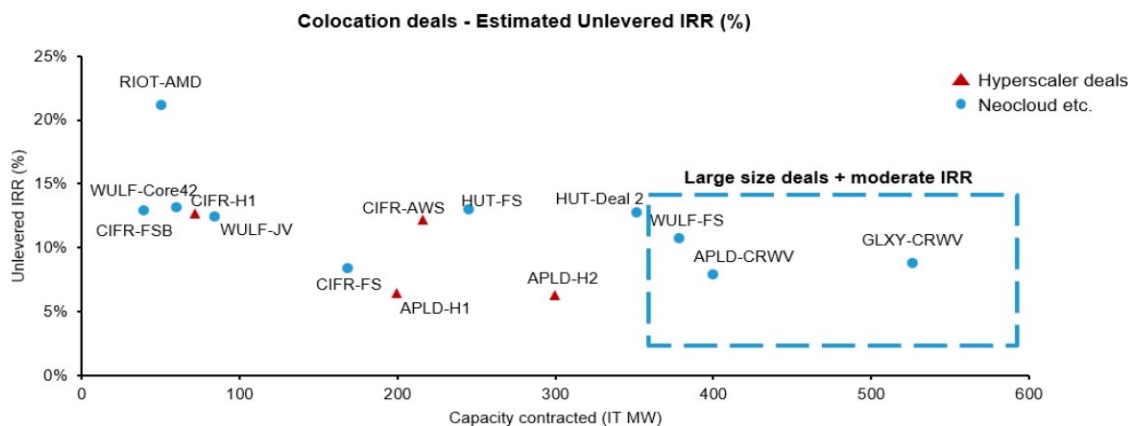
Source: Company filings, Bernstein analysis

EXHIBIT 36: IRR – Cloud vs Colocation: Colocation has higher unlevered IRR (capped upside) while Cloud provides direct exposure to compute markets

Per IT MW	Unit	AI Cloud	Colocation
Assumptions ---->		Based on IREN-MSFT contract for 200 critical MW	Assuming 200MW IT load, with 90% EBITDA margins
Annual Revenue		\$1.9Bn ARR	\$0.4Bn ARR
Annual Revenue/MW	\$Mn/MW	9.7	1.8
EBITDA Margin	%	85%	90%
EBITDA	\$Mn/MW	8.2	1.6
Capex			
AI/GPU	\$Mn	29.0	-
Ancillary	\$Mn	15.0	10.0
Total Capex	\$Mn/MW	44.0	10.0
Payback Period			
Hardware (GPU)	Years	3.5	-
Hardware + Infra	Years	5.3	6.2
NPV and IRR analysis			
Unlevered IRR	Illustrative	9%	12%

Source: Company filings, Bernstein analysis

EXHIBIT 37: IRR –deals: Colocation unlevered IRR ranges from 8-13%



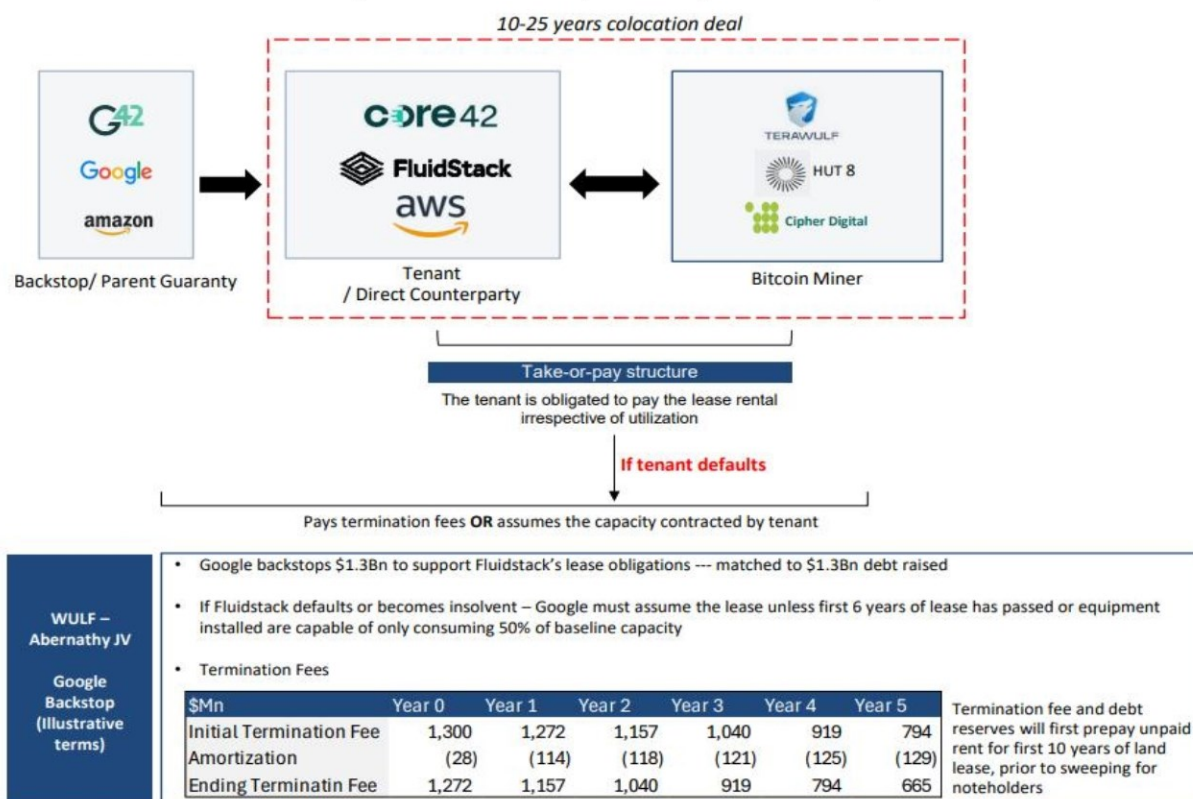
Note: FS represents Fluidstack, H represents Hyperscaler client

Key takeaways

Scale vs Economics	Large scale deals (300-500MW IT load) have moderate IRRs ranging between 8-12%, indicating Bitcoin miner's preference to secure larger deal size and increased negotiation power of counterparty
Counterparty	Economics of direct hyperscaler deals are improving; HUT and CIFR's triple net lease structure deliver >12% IRR
Retrofit vs Greenfield	Lower retrofit capex (e.g. RIOT-AMD) or capex sharing arrangement (like CIFR-AWS) with clients improve deal IRR by capping upfront capital investment

Source: Company filings, Bernstein analysis

EXHIBIT 38: Colocation deals lock long term HPC revenues, de-risking data center capex



Source: Company filings and presentations, Bernstein analysis

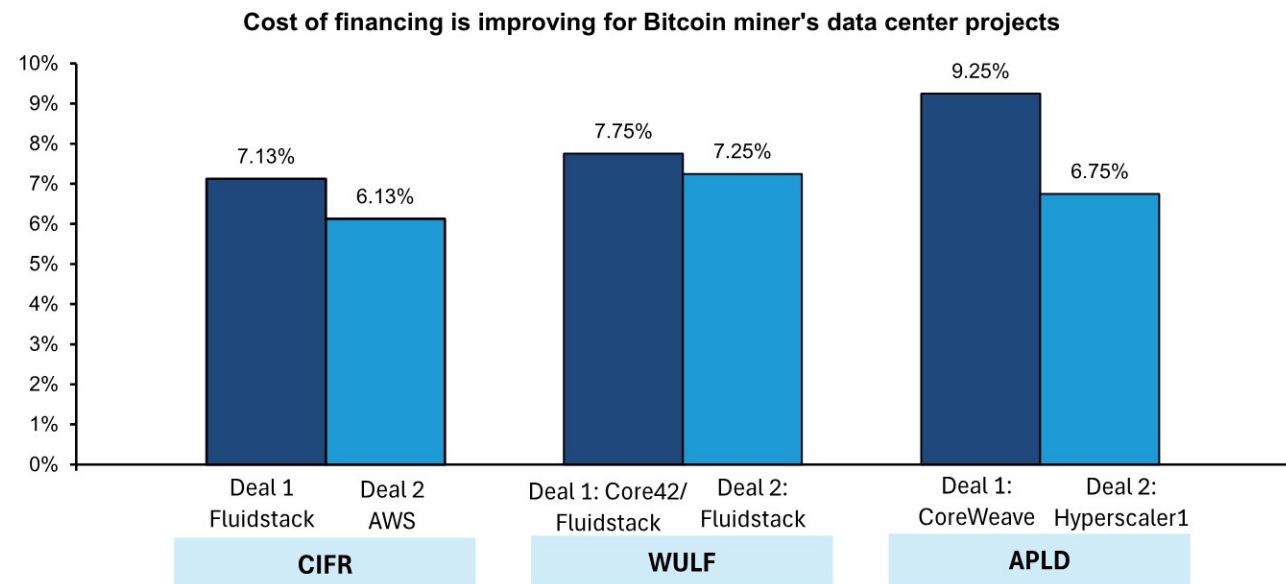
EXHIBIT 39: **Project financing market improves for AI infrastructure projects backed by Bitcoin miners**

Issuer	Counterparty	Guaranty	Interest rate	Amount (\$Mn)	Maturity
CIFR	Fluidstack (Barber Lake)	\$1.7Bn Google Backstop	7.125%	\$1.7 Bn	2030
	AWS (Black Pearl)	Amazon.com guaranty	6.125%	\$2 Bn	2031
WULF	Core42, Fluidstack (Lake Mariner)	\$3.2Bn Google Backstop	7.75%	\$3.2 Bn	2030
	Fluidstack (Abernathy)	\$1.3Bn Google Backstop	7.25%	\$1.3 Bn	2030
HUT	Fluidstack (River Bend)	\$7Bn Google Backstop	6.192%	\$3.25 Bn	2042
APLD	CoreWeave (Polaris Forge 1)	-	9.25%	\$2.35 Bn	2030
	IG Hyperscaler (Polaris Forge 2)	-	6.75%	\$2.15 Bn	2031
CORZ	Secured by CRWV data center	-	7.75%	\$3.3 Bn	2031
GLXY	CoreWeave (Helios)	-	SOFR+4.75%	\$1.4 Bn	2028

Key takeaways

- Project financing typically funds **75-85% of total project capex** (loan to cost ratio)
- Most bonds are issued for **~5 years, supporting refinancing** opportunities when the data center mature and deal cashflow stabilizes
- Cost of financing improves with
 - Issuer profile (subsequent projects had better terms)
 - Tenant profile (direct hyperscaler contract received better terms)
 - Deal structuring (backstopping and hyperscaler guarantees improve funding terms)

Source: Company filings, Bernstein analysis

EXHIBIT 40: **Financing cost is improving for subsequent projects financed by Bitcoin miners**

Source: Company filings, Bernstein analysis

EXHIBIT 41: **Overview of colocation deals secured by Bitcoin miners**

	Overview		Scale			Revenue & Economics			Capex & Delivery	
	Customer	Location	IT MW Contracted	Duration	Contracted Revenue	Avg Annual Revenue	Revenue per IT MW	NOI Margin	Capex per IT MW	Full Delivery
CIFR	Fluidstack	Barber Lake, Texas	207 MW	10 years	\$3.8 Bn	\$380 Mn	\$1.8 Mn/IT MW	86%	\$9-11 Mn	Q1'27
	AWS	Black Pearl, Texas	216 MW	15 years	\$5.5 Bn	\$367 Mn	\$1.7 Mn/IT MW	100%	\$9.5 Mn	Q1'27
	Investment Grade Hyperscaler	Stingray, Texas	72 MW*	15 years	\$2.1 Bn	\$140 Mn	\$1.9 Mn/IT MW	~95-100%*	\$9-11 Mn*	2028
WULF	Core42	Lake Mariner, New York	60 MW	10 years	\$1 Bn	\$100 Mn	\$1.7 Mn/IT MW	85%	\$7-8 Mn	Q1'26
	Fluidstack	Lake Mariner, New York	378 MW	10 years	\$6.9 Bn	\$690 Mn	\$1.8 Mn/IT MW	85%	\$8-10 Mn	2026 YE
	Fluidstack - JV	Abernathy, Texas	84 MW*	25 years	\$4.8 Bn	\$190 Mn	\$2.3 Mn/IT MW	70%	\$8-10 Mn	2026 YE
HUT	Fluidstack	River Bend, Louisiana	245 MW	15 years	\$7 Bn	\$467 Mn	\$1.9 Mn/IT MW	~100%	\$9-11 Mn	2027
	High Investment Grade	Beacon Point, Texas	352 MW	15 years	\$9.8 Bn	\$656 Mn	\$1.9 Mn/IT MW	~100%	\$9-11 Mn	Starts Q3'27
APLD	CoreWeave	Polaris Forge 1, North Dakota	400 MW	15 years	\$11 Bn	\$733 Mn	\$1.8 Mn/IT MW	85-91%	\$11-13 Mn	H1'27
	Hyperscaler 1	Polaris Forge 2, North Dakota	200 MW	15 years	\$5 Bn	\$333 Mn	\$1.7 Mn/IT MW	83-89%	\$11-13 Mn	H1'27
	Hyperscaler 2	Delta Forge 1, Polaris Forge 3	600 MW	15 years	\$15 Bn	\$1,000 Mn	\$1.7 Mn/IT MW	82-88%	\$11-13 Mn	H1'28+
CORZ	CoreWeave	TX, OK, GA, NC	590 MW	12 years	\$10 Bn	\$850 Mn	\$1.4 Mn/IT MW	80-85%	\$1.5 Mn**	Early 2027
GLXY	CoreWeave	Helios, Texas	526 MW	15 years	\$15 Bn	\$1,000 Mn	\$1.9 Mn/IT MW	90%	\$11-13 Mn Phase 1	2028
RIOT	AMD	Rockdale, Texas	50 MW	10 years	\$0.6 Bn	\$64 Mn	\$1.3 Mn/IT MW	80%	\$3.5 Mn	Q2'27

Source: Company filings, Bernstein analysis

WULF - ACTIVE POWER M&A, CAPITAL LIGHT AND DISCIPLINED EXECUTION

We initiate on TeraWulf (WULF) with an Outperform rating PT\$36. We believe WULF's AI infrastructure business is built around scalable sites, credible contracts and disciplined execution. WULF controls a well-diversified power portfolio of ~3.8 GW, spanning across key data center markets like New York, Texas, Kentucky and Maryland. Of this, 522MW IT load (643 MW gross) is already contracted to Fluidstack and Core42 (not covered) for 10-25 years. The remaining ~3GW power comprises high

visibility sites (like 480MW Kentucky campus) and long-term development projects (1GW each at Morgantown and Eastern Kentucky site) - providing multi-year runway to keep delivering new HPC capacity ([Exhibit 43](#)).

So far, WULF has contracted 522MW of IT load, representing ~\$13Bn in contracted revenue and \$980Mn revenue ARR. WULF's HPC contract book is anchored by a Fluidstack-Google partnership ([Exhibit 45](#)). Fluidstack is the direct tenant (representing ~90% of WULF's contracted capacity and revenue), while Google enhances counterparty quality through backstopping arrangement. Google also holds warrants to acquire ~14% pro forma equity stake in WULF (on deal signing), indicating long term strategic alignment.

WULF ADVANTAGE: ATTRACTIVE POWER ASSETS AND STRONG EXECUTION PROFILE

Attractive power assets: WULF controls 3.8GW of power assets across key data center markets like New York, Kentucky, Maryland and Texas. WULF's power strategy is built around redevelopment of legacy industrial sites - leveraging in-place power and transmission infrastructure to deliver HPC capacity at lower incremental capex vs greenfield buildouts. We see WULF's power portfolio as one of the strongest in the industry:

(i) Diversified power portfolio: WULF's power portfolio is spread across key data center markets like New York, Kentucky, Maryland and Texas. Unlike most mining peers concentrated in a single state (like Texas), WULF has sites across multiple markets operated by NYISO, SPP, MISO and PJM ([Exhibit 44](#)). This de-risks WULF power pipeline from changing regulatory policies or grid dynamics in a single state and gives WULF an edge to serve hyperscaler customers that are looking for diversified geographic footprint. Further, most of WULF sites (except Abernathy) are located in the northern half of the country, benefitting from cooler climate and supporting industry-leading PUE of 1.25.

(ii) Redevelopment of legacy industrial and brownfield sites: WULF's power portfolio largely includes brownfield sites that leverage existing infrastructure to accelerate delivery time and reduce buildout cost. WULF's power portfolio is built around legacy industrial sites with basic power infrastructure (like grid infrastructure, transmission lines etc) already in place - like Lake Mariner (former coal fired power plant), Lake Hawkeye (retired coal plant), Justified Data (former Aluminum smelter) and Chesapeake Data (generation site). This offers WULF a structural advantage in delivering new capacity at lower capex (WULF's capex guidance at \$8-10Mn/ IT MW vs comparable peer guidance at \$10-13Mn/ IT MW).

(iii) Existing power portfolio supports both near-term and long-term scalability: WULF's power pipeline supports multi year development runway. In the near term, 480MW Kentucky site provides immediate power access (targeting delivery from H2'27), Lake Mariner, Muskie and Cayuga are in advance stages for medium term expansion while the Morgantown site provides long term opportunity to deliver 1GW campus with on site generation. WULF is targeting to deliver 250-500 MW of critical IT load each year by full development of existing power assets.

Strong execution profile: WULF's management brings in key experience in developing, financing and operating power assets ([Exhibit 42](#)). So far WULF has contracted 522MW of critical IT load to Fluidstack and Core42, on-track for 2026 delivery. WULF remains well capitalized with fully funded capex to execute all contracts.

(i) On-track execution: WULF remains on track to deliver 522MW IT load by 2026 end - 60 MW contracted to Core42 (~\$100Mn average ARR) is fully delivered and operational. While the remaining (378MW at Lake Mariner with \$690Mn ARR and 84MW at Abernathy with \$190Mn ARR) are on track for phased delivery through 2026 ([Exhibit 46](#)).

(ii) Financing and credit enhancement: WULF has fully funded the near term contract capex for the buildout of 438MW IT load at Lake Mariner via \$3.2Bn senior secured notes. The Fluidstack deal is underwritten by Google through a backstopping arrangements, significantly improving the credit profile of the project ([Exhibit 47](#)). As part of the arrangement, Google has agreed to backstop \$3.2Bn of Fluidstack lease obligations, against warrants to acquire ~14% pro forma stake in WULF. Recently, WULF closed a revolving credit facility providing up to \$250 million of committed capacity at SOFR+1.25-1.75% supported by a syndicate of leading global financial institutions, demonstrating its ability to secure infrastructure backed credit at attractive terms.

(iii) Design and specifications: WULF has aligned AI infrastructure design requirements with sophisticated counterparties like Google and Fluidstack. On the Lake Mariner campus, WULF is now building colocation facilities with closed loop cooling (not reliant on lake or utility water) and has optimized construction and sequencing workflows. Through design enhancements WULF has increased Fluidstack contracted capacity by 12 MW IT load, adding \$200Mn

to contracted revenues without any incremental capex.

Going forward we expect WULF’s contract quality to further improve backed by credible execution record. WULF currently has 3 long term lease contracts - Fluidstack at Lake Mariner (378MW IT load contracted for \$6.9Bn over 10 years), Core42 (60MW IT load contracted for \$1Bn over 10 years) and Fluidstack at Abernathy (JV of which WULF’s share represents 84MW IT load contracted for \$4.8Bn over 25 years). The economics have slightly improved over each subsequent deal (eg. revenue per IT MW up from \$1.7Mn to \$1.8Mn per IT MW between Core42 and Fluidstack deal at the same site).

However, we see meaningful opportunity for WULF to secure improved deal terms as the industry move towards high value accretive deal structures - longer duration (15 years), improved revenue yields (upto \$2Mn per IT MW), triple net leases (~100% NOI margins) and non-dilutive hyperscaler guarantees. We believe the initial 522MW IT load underwrites WULF’s transition into AI infrastructure business, demonstrating a credible execution and disciplined credit market track record. Going forward, we believe WULF’s disciplined execution at scale will be a key advantage to scale its AI infrastructure business - secure contracts backed by proven track record, finance them on favourable terms and deliver new HPC capacity.

EXHIBIT 42: **WULF’s management brings in key experience in developing, financing and operating power assets**

Paul Prager
Co-Founder, Chairman & CEO

Deep expertise in power generation, infrastructure development, and commodity trading

Nazar Khan
Co-Founder and CTO

20 years at Beowulf Energy. Previously worked in investment banking & PE at Evercore Partners

Kerri Langlais
Chief Strategy Officer

20+ years of power sector & financing exp. incl. Natural Resources advisory at Goldman Sachs

Stefanie F.
Chief Legal Officer & Secretary

15 years as General Counsel at Beowulf Energy. Merger and Acquisition experience

Patrick Fleury
Chief Financial Officer

24 years of finance experience across capital markets and principal investing.

Sean Farrell
Chief Operating Officer

12+ years in Renewables, grid optimization. Onshore Sales (N. America), Siemens Gamesa RE experience

30+ years
Power market experience

NYISO & PJM
Deep operating history

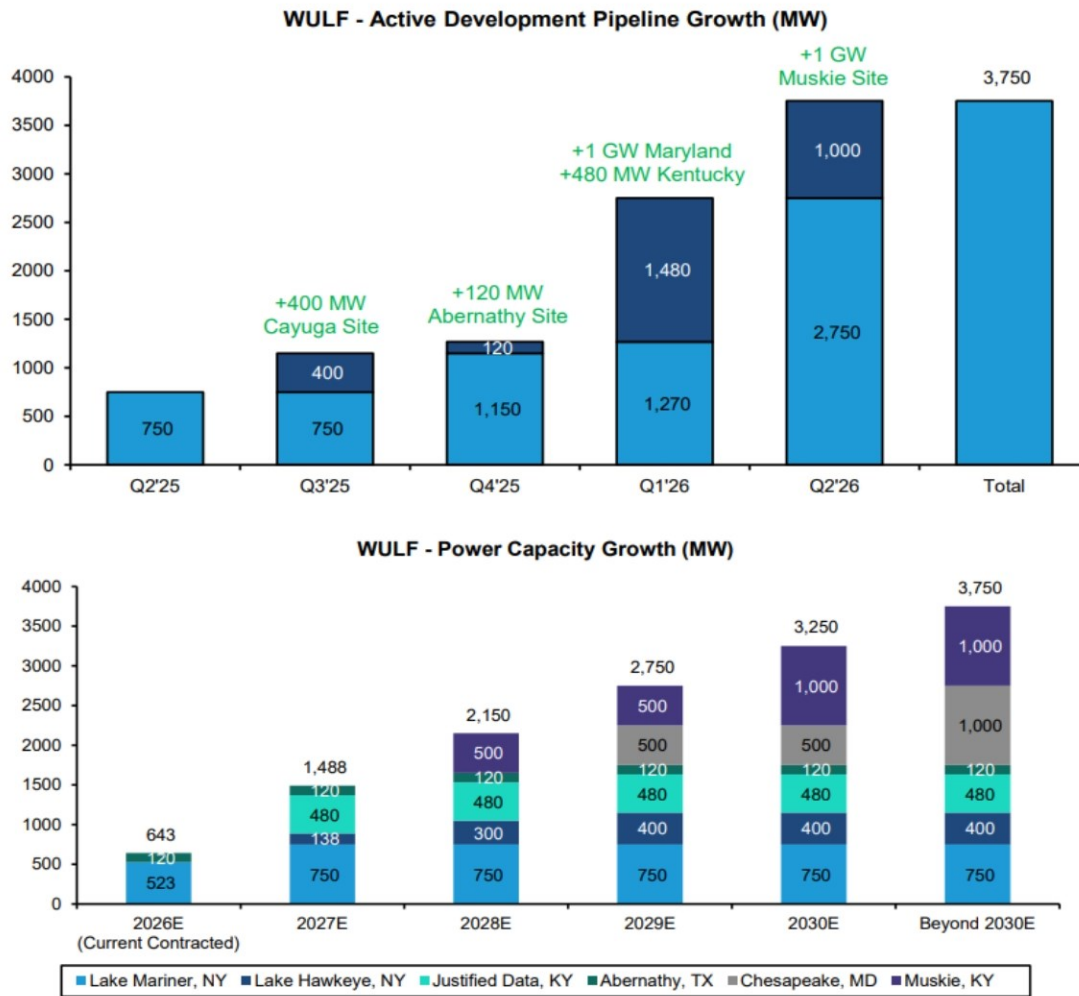
6 GW
Power generation experience

Source: Company website, Bernstein analysis

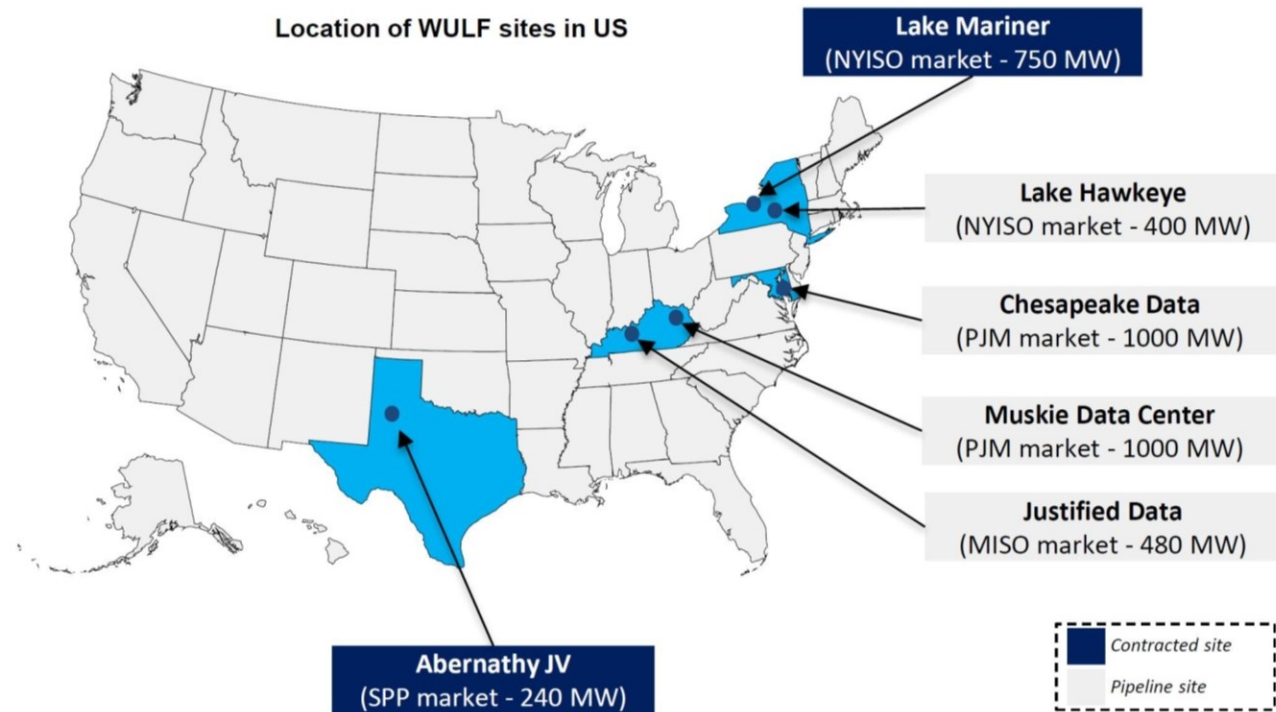
GLOBAL DIGITAL ASSETS

BERNSTEIN | SOCIETE GENERALE GROUP

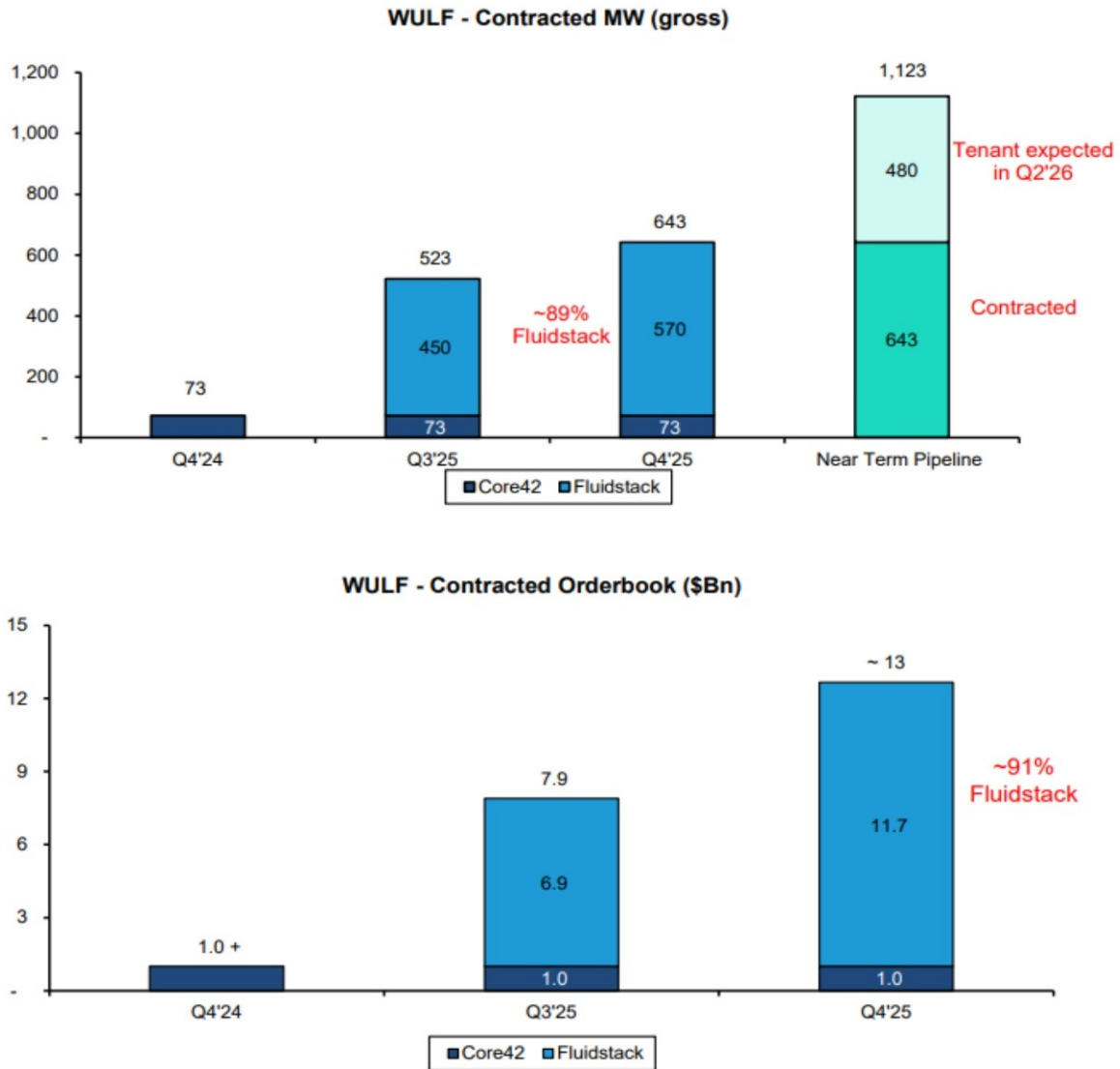
34

EXHIBIT 43: **WULF's active M&A strategy supports high visibility power pipeline over CY26-30E**

Source: Company filings and guidance, Bernstein analysis

EXHIBIT 44: WULF's diversified power portfolio across key data center markets, derisks pipeline conversion from regulatory and grid constraints

Source: Company filings, Bernstein analysis

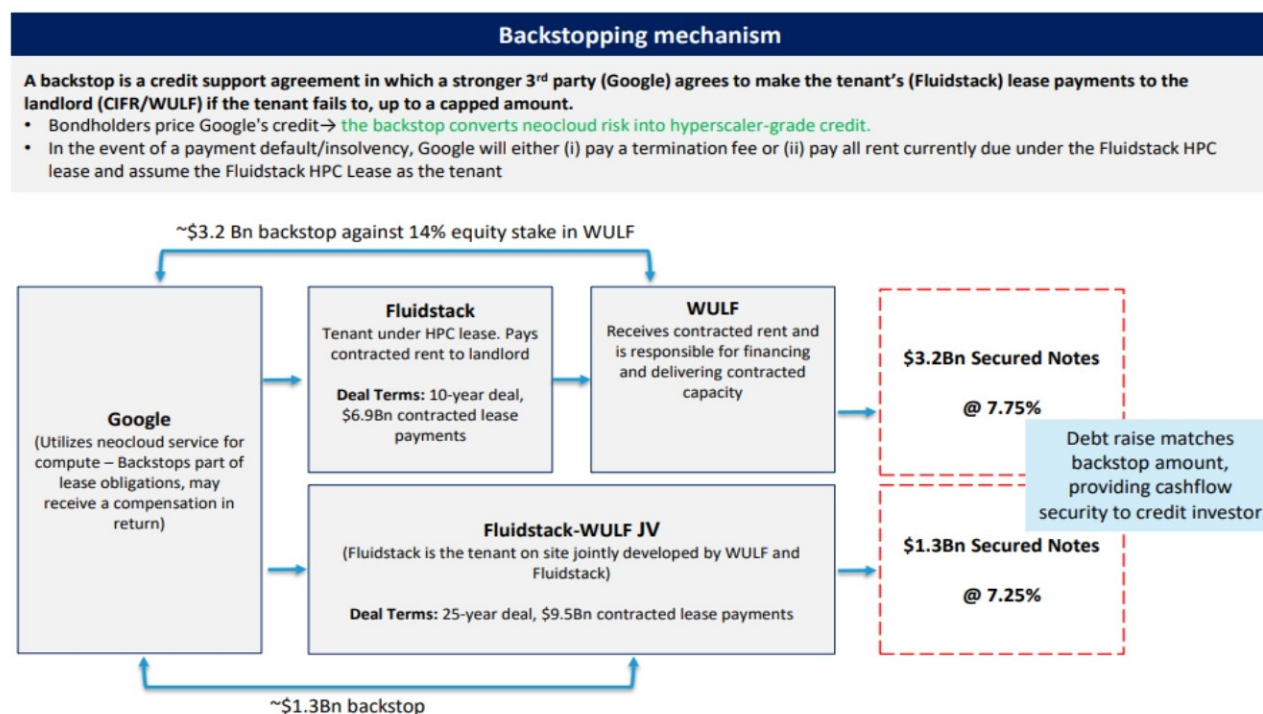
EXHIBIT 45: **WULF AI Orderbook: 643 gross MW contracted for ~\$13Bn total revenue**

Source: Company filings, Bernstein estimates and analysis

EXHIBIT 46: **WULF Deals Overview: Economics are improving for each subsequent deal**

	Core42	Fluidstack – Lake Mariner	Fluidstack – Abernathy JV	TOTAL
Contracted Capacity	60 IT MW	↑ 378 IT MW	84 IT MW	522 IT MW
Contract Duration	10 years	10 years	↑ 25 years	10-25 years
Contract Revenue	\$1 Bn +	\$6.9 Bn	\$4.8 Bn	~\$13 Bn
Average Annual Revenue Yield	\$1.7 Mn/ IT MW	↑ \$1.8 Mn/ IT MW	↑ \$2.3 Mn/ IT MW	\$1.9 Mn/ IT MW
NOI	85%, \$92 Mn p.a.	85%, \$587Mn p.a.	↓ 70%, \$130 Mn p.a.	82%
Capex Guidance	\$7-8 Mn/ IT MW	↑ \$8-10 Mn/ IT MW	\$8-10 Mn/ IT MW	\$7-10 Mn/ IT MW
Financing	\$3.2 Bn secured notes @ 7.75%		↑ \$1.3Bn notes @ 7.25%	\$4.5 Bn – fully funded contract capex
Backstop and Guaranty	Parent guaranty from sovereign wealth fund-backed credit - G42	Google backstop \$3.2Bn against 14% pro forma equity	↑ Google backstops \$1.3Bn – no equity	Google, G42
Expansion	Two 5-year extension option	Two 5-year extension option	Exclusive right on tenant's >168MW project	10-year extensions, 168MW JV expansion

Source: Company filings, Bernstein analysis

EXHIBIT 47: **Backstopping arrangement converts Fluidstack deal into Google backed credit**

14% pro forma stake on deal signing date

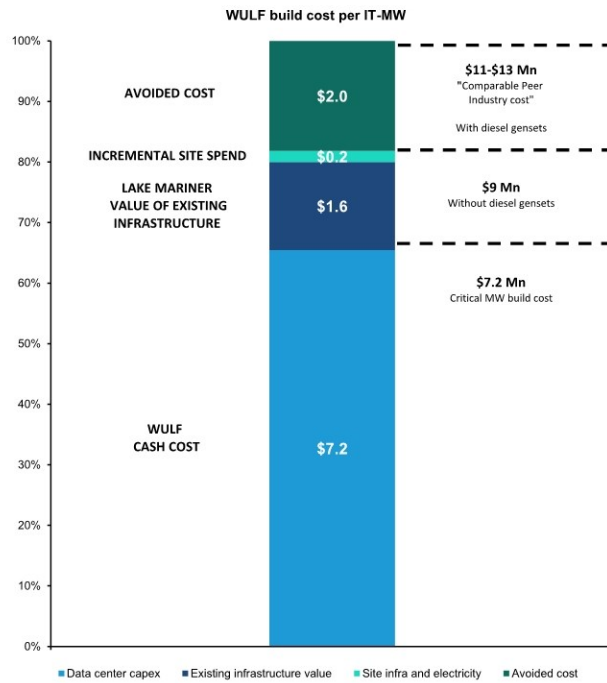
Source: Company filings, Bernstein analysis

EXHIBIT 48: Overview of WULF power sites - Leveraging legacy brownfield sites for AI deployments

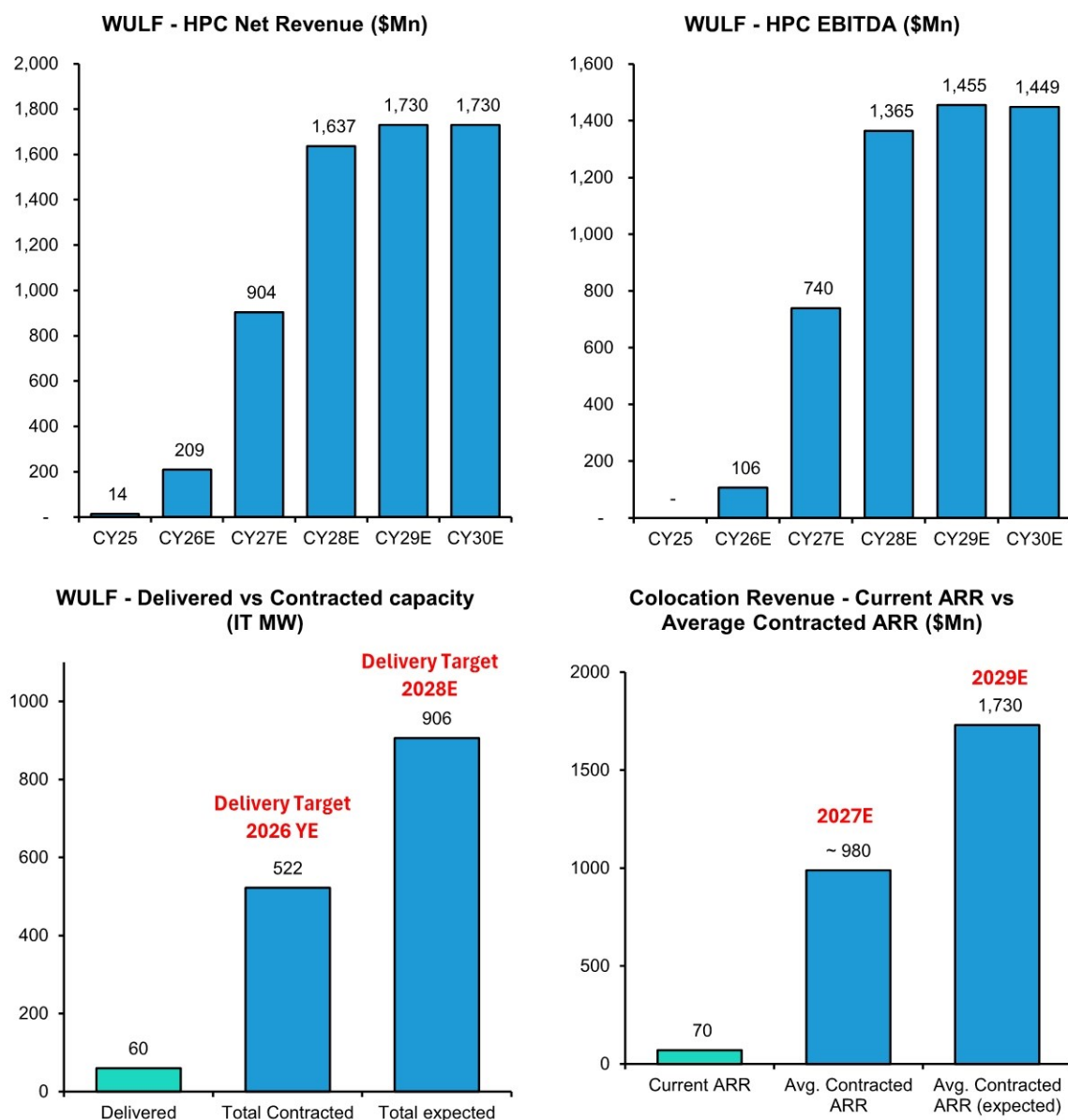
WULF – site construction updates		
Lake Mariner, New York  • Client: Fluidstack / Google, Core42 • Power: 750 gross-MW / 600 IT-MW • Construction update/site info: ✓ 60 IT-MW delivered; 378MW delivery across CY26e ✓ 162 IT MW remaining	Abernathy JV, Texas  • Client: Fluidstack / Google • Power: 240 gross-MW / 168 IT-MW • Construction update: ✓ Targeting delivery by CY26e	Justified Data, Kentucky  • Power: 480 gross-MW / 384 IT-MW • Construction update/site info: ✓ Immediate availability ✓ 250 buildable acres, on-site energized substation, high voltage transmission lines
Lake Hawkeye, New York  • Power: 400 gross-MW / 320 IT-MW • Construction update/site info: ✓ Phase I 138 gross MW, 2027e ✓ Dual fiber paths, redundant transmission lines ✓ 90% zero carbon power region	Chesapeake Data, Maryland  • Power: 1000 gross-MW / 800 IT-MW • Site information: ✓ 210 MW operational generation capacity ✓ 250 buildable acres ✓ Initial phase to deliver 500MW	Muskie Data Center, Kentucky  • Power: 1000 gross-MW • Site information: ✓ Phase I (500 MW, 2028e) ✓ Phase II (500 MW, 2030e) ✓ Zoning ready, AEP substation construction ongoing

Source: Company presentation, Bernstein analysis

EXHIBIT 49: WULF: Redevelopment of brownfield sites provide capex advantage vs peers



Source: Company presentation, Bernstein analysis

EXHIBIT 50: **WULF: We expect AI revenues to ramp up to \$1.7Bn by 2030E**

Net revenue is calculated as straight line revenue, excluding power cost pass through; Revenue and EBITDA also includes WULF share of Abernathy JV
Source: Company filings, Bernstein estimates and analysis

EXHIBIT 51: **We rate WULF Outperform PT\$36**

\$Mn, except specified	CY25	CY26E	CY27E	CY28E	CY29E	CY30E
Total Revenue	165	279	875	1,485	1,540	1,540
HPC Revenue (Net)	14	209	792	1,446	1,540	1,540
Mining Revenue	152	70	83	38	-	-
Total Adjusted EBITDA	(23)	116	656	1,250	1,327	1,320
HPC Adj. EBITDA		106	627	1,236	1,327	1,320
Net EBITDA Margin (%)		51%	79%	85%	86%	86%
Mining Adj. EBITDA		9	29	13	-	-
Margin (%)		13%	34%	35%		

1 Year Forward - EV/EBITDA multiple	21
EBITDA 2030E (WULF Standalone)	1,320
EBITDA 2030E (WULF JV)	129
Total EBITDA CY2030E (WULF + JV)	1,449
EV 2029E	30,426
EV (Jun'27E)	24,401
Net debt (Jun'27E)	6,675
Target Market Cap	17,726
Shares Outstanding	502
Target Price (\$/share)	36

HPC Revenue reflects net revenue (excludes power cost pass through)

Source: Company filings, Bernstein estimates and analysis

CIFR: HYPERSCALER RELATIONSHIPS, STRONG POWER PIPELINE

We initiate on Cipher Digital (CIFR) with an Outperform rating (PT\$32). CIFR's AI infrastructure business is built around quality counterparties, a high visibility power portfolio, and disciplined execution. CIFR's ability to structure better deals vs standard industry (and consistently improve return profile for each project) further adds to its competitive edge. CIFR now has \$11.4Bn in contracted AI revenues secured across neoclouds (Fluidstack) and hyperscalers (AWS and another investment grade hyperscaler tenant). CIFR's total power pipeline stands at 3GW+ including 1GW of grid approved power and another 2GWs at various stages of approval process. Out of the 1GW grid approved power, CIFR has already contracted 700MW to 3 customers (Fluidstack, AWS and an unnamed hyperscaler tenant). The remaining ~270MW provides near term scalability for new HPC contracts.

CIFR'S ADVANTAGE: SCALABLE POWER PORTFOLIO AND HYPERSCALER RELATIONSHIPS

CIFR's progression across its three deals reflects its power and infrastructure advantage: from a neocloud intermediary requiring third-party credit enhancement (Fluidstack, backstopped by Google) to a direct 15-year, triple-net lease with AWS and most recently a third 15-year campus lease directly with an investment-grade hyperscaler. CIFR's improving deal structure - long duration deals (15 years) with Triple net structure (~100% NOI margin) have allowed it to fund projects at improved financing spreads (recent secured notes at 6.125%), accelerating equity returns ([Exhibit 54-Exhibit 55](#)).

(i) Direct hyperscaler counterparty: Cipher has diversified its HPC client base from neocloud exposure to hyperscalers, improving the credit quality of underlying contracts. Out of \$11.4Bn HPC order book, hyperscalers represent ~67% (\$7.6Bn) while neoclouds represent the remaining 33% (\$3.8Bn). Bitcoin miners initially contracted out sites to neoclouds or AI intermediaries, and used third-party guarantees to improve credit quality of the underlying AI/HPC contract. CIFR secured its first HPC contract at Barber Lake with Fluidstack, supported by a \$1.7Bn Google backstop. CIFR's next two contracts are with direct hyperscaler counterparties - AWS and another investment grade hyperscaler.

(ii) Shifting to high-margin triple net lease structure: CIFR's contract structure has evolved from modified gross leases (80-90% margin) to triple-net leases (~100% margins). High margin structure shifts almost all operating cost exposure to the tenant, improving project cashflows and returns. In modified gross lease, some costs are passed through to the tenant (like

power, utilities etc) while others stay with the data center provider (like security, taxes, maintenance etc). In triple-net lease structure, the tenant bears all the costs including operating expenses, taxes and insurance. The data center provider is typically responsible to maintain the structural framework of the building and facility, hence clocking 99-100% NOI margins.

(iii) Improving deal terms: With each successive contract, CIFR has seen improvement across margins, tenure and risk transfer. The Barber Lake lease with Fluidstack is a modified-gross deal, 10 year term with 2 five year extension options, ~86% NOI margin and Google backstop. The Black Pearl contract is a clear improvement with a triple net structure, 15 year term with 3 five year extension options and ~95-100% NOI margins, as power, opex and excess capex above \$9.5Mn/MW are passed through. The latest deal with an investment grade hyperscaler broadly follows the same template with long duration, high margin and a trend towards infrastructure-style economics.

(iv) Financing: Credible counterparties have translated into favourable financing terms for CIFR with lower cost of capital, higher loan to cost ratio and improved credit rating of issued bonds. CIFR's hyperscaler relationships (direct counterparties or through backstopping arrangements) has allowed it to obtain debt at incrementally tighter spreads, as the \$2Bn financing for Black Pearl site (which was 6.5x oversubscribed) at 6.125% is 100bps lower compared to the \$1.7Bn financing for Barber Lake at 7.125%. Loan to cost for the debt for AWS contract has improved to ~85% (vs ~71% for Fluidstack), and Moody's rated it Ba2 (vs Ba3 for Fluidstack).

Attractive power pipeline: CIFR has 3GW+ total power pipeline - 1.2 GW grid approved capacity and additional 2GW in various stages of grid approval (all Batch Zero candidates for ERCOT's approval process, [Exhibit 53](#)). Out of the 1.2GW grid connected power, CIFR has already contracted 0.7 GW for HPC, and it is actively marketing 270MW across 2 sites (Ulysses and Reveille). CIFR's power portfolio is concentrated in Texas (~3 GW) with the recent acquisition of 200MW Ohio site marking CIPHER's expansion beyond Texas and ERCOT to other data center friendly markets.

(i) Near term-Ulysses, Reveille, Odessa optionality: In the near term, CIFR is actively marketing Reveille (70MW, Texas) and Ulysses (200MW, Ohio) sites to new HPC tenants. In addition, the energized 207MW Odessa site offers optionality to shift from Bitcoin mining to HPC contracts as its current PPA rolls off in 2027.

(ii) Long term-Colchis, Mikeska, Milsing, McLennan: Further out, CIFR's runway is anchored by three large Texas sites that are expected to be included in ERCOT's Batch Zero processing - 1 GW Colchis campus (supported by Direct Connect Agreement with AEP), and 500 MW each at McLennan and Mikeska sites.

Going forward, we expect CIFR to replicate its AI infrastructure business playbook across its power pipeline. We believe CIFR's AI infrastructure playbook - contract large-scale capacity to investment grade counterparties on high margin, long duration structures, finance at the project level using hyperscaler-backed cash flows, and deliver on time. Going forward, we believe the key differentiator for CIFR is its ability to convert its 2GW+ power pipeline into contracted capacity ahead of peers, a meaningful structural edge given CIFR's lead in interconnection approvals. CIFR already has ~1GW of grid-approved power, with ~270MW uncontracted and available for near-term deals.

We expect CIFR's disciplined execution at scale: delivering 200+ IT MW each for Fluidstack and AWS by early 2027, to further reinforce its credibility with hyperscalers, enabling it to secure incremental contracts on continued improving terms across its near-term (Ulysses, Reveille) and longer-term (Colchis, McLennan, Mikeska) pipeline. CIFR's facilities are being developed to hyperscaler specifications, incorporating air and liquid cooling readiness across campuses. Barber Lake (~207 IT MW) is under construction with 99% equipment secured. Black Pearl (~216 IT MW) is advancing across both retrofit and new build phases (~93% and ~80% equipment secured respectively), mitigating supply chain bottlenecks that continue to impact new developments.

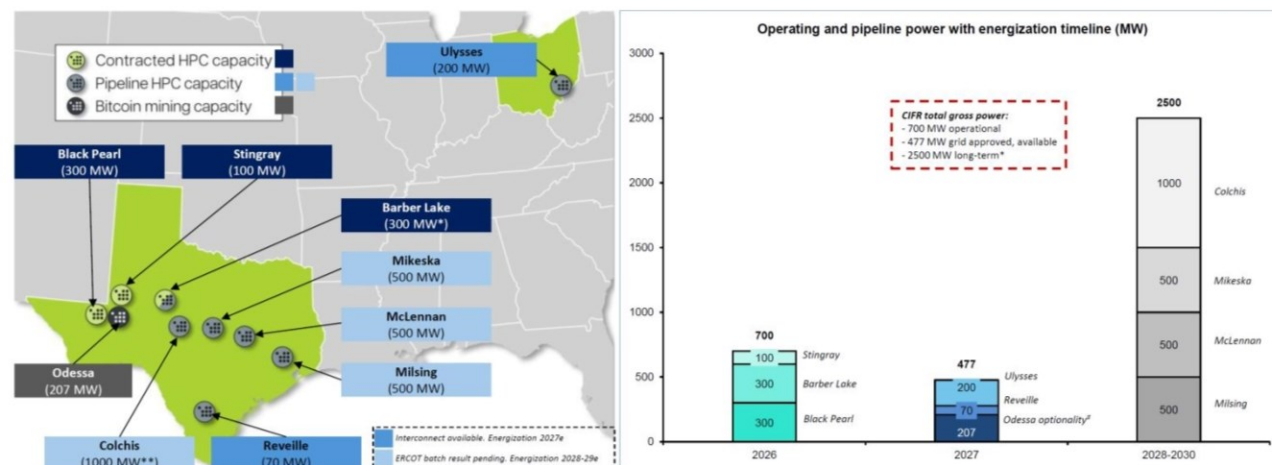
EXHIBIT 52: **Overview: Cipher management team****Leadership**

 Tyler Page Chief Executive Officer Responsible for business development and strategic planning for Bitfury Group, has more than 20 years of experience in institutional finance and fintech.	 Will Iwaschuk Co-President & Chief Legal Officer Responsible for running the company's day-to-day operations, with particular focus on corporate aspects of the business.	 Patrick Kelly Co-President & Chief Operating Officer Co-president and COO of Cipher. He was Chief Operating Officer and co-founder of Stone Ridge Asset Management, and worked with Stone Ridge Trusts	 Gregory Mumford Chief Financial Officer He was a senior investment banker in the Digital Assets & Infrastructure Investment Banking group at Keefe, Bruyette & Woods.
---	--	--	--

Team Experience

4.7 GW Power sourced by Cipher employees	3.1 GW Data centers deployed by Cipher employees	74 years Combined experience operating data centers
148 years Combined hyperscaler experience	14 Ex-hyperscaler employees	18 Ex-traditional finance employees

Source: Company presentation, Bernstein analysis

EXHIBIT 53: **Overview of CIFR pipeline and energization timeline**

**Cipher currently own 76% of Colchis JV, will go to 95% on deal execution

#Odessa site is currently used for Bitcoin mining and company retains optionality for HPC data center

- Ulysses (200MW) and Reveille (70MW) have interconnect agreements, energization expected in 2027e; ERCOT batch zero announcement expected for June'2026 as per company management

- The company is yet to give guidance regarding energization timelines for Milsing site

Source: Company filings and guidance, Bernstein analysis

EXHIBIT 54: **CIFR AI infrastructure business orderbook: 495 IT MW contracted for \$11.4Bn total revenue**

	Fluidstack – Phase 1	Fluidstack – Phase 2	AWS	3 rd hyperscaler	TOTAL
Contracted Capacity	168 IT MW	39 IT MW	↑ 216 IT MW	72 IT MW (PUE as per prior deals)	495 MW
Contract Duration	10 years		↑ 15 years	↑ 15 years	10-15 years
Contract Revenue	\$3 Bn	\$0.83 Bn	\$5.5 Bn	~\$2.1 Bn	\$11.4 Bn
Average revenue yield per IT MW	\$1.79 Mn	\$2.13 Mn	~\$1.70 Mn	↑ \$1.92 Mn	~\$1.8 Mn
NOI	85%, \$255 Mn p.a.	90%, \$75 Mn p.a.	↑ ~100%, \$367 Mn p.a.	↑ ~95-100%, \$131 Mn p.a.	~95%
Capex Guidance	\$9-11 Mn/ IT MW	↑ \$9-10 Mn/ IT MW	↑ \$9.5 Mn/ IT MW	\$9-11 Mn/ IT MW (assumed per prior deals)	\$9-11 Mn/ IT MW
Financing	\$1.73 Bn secured notes @ 7.125%		↑ \$2 Bn notes @ 6.125%	n.a.	\$3.73 Bn
Backstop and Guaranty	Google backstop \$1.73 Bn against ~5.4% pro forma equity		↑ Hyperscaler guarantee Amazon.com	n.a.	Google, Amazon.com
Expansion option	Two 5-year extension	Two 5-year extension	↑ Three 5-year extension	n.a.	10 to 15-year options

CIFR has not disclosed granular details of the third deal. The contract counterparty is an investment grade hyperscaler

Source: Company filings, Bernstein analysis

EXHIBIT 55: **Financing terms are improving as CIFR move towards Triple Net leases with direct hyperscaler customers**

Barber Lake – Fluidstack/Google			Black Pearl – AWS		
\$1.73 Bn Issuance at Par	Nov'2030 Maturity date	5NC2 Call structure	\$2 Bn Issuance at Par	Feb'2031 Maturity date	5NC2 Call structure
7.125% Coupon	~71% Loan-to-Cost	Ba3/BB- Moody's/Fitch	6.125% Coupon	~85% Loan-to-Cost	Ba2/BB- Moody's/Fitch
Borrower Entity: Cipher Compute LLC - Completed two bond issuances - \$1.4Bn initial high -yield offering + \$0.3Bn tack -on offering - Concurrent warrant issuance to Google aligns incentives for construction completion and financial backstopping			Borrower Entity: Black Pearl Compute LLC - Priced \$2.0 billion high -yield bond issuance at 6.125% with ~\$13.0 billion in initial book interest, implying ~6.5x+ oversubscription - Surplus funding allowed for a ~\$233MM capex reimbursement to Cipher Digital		

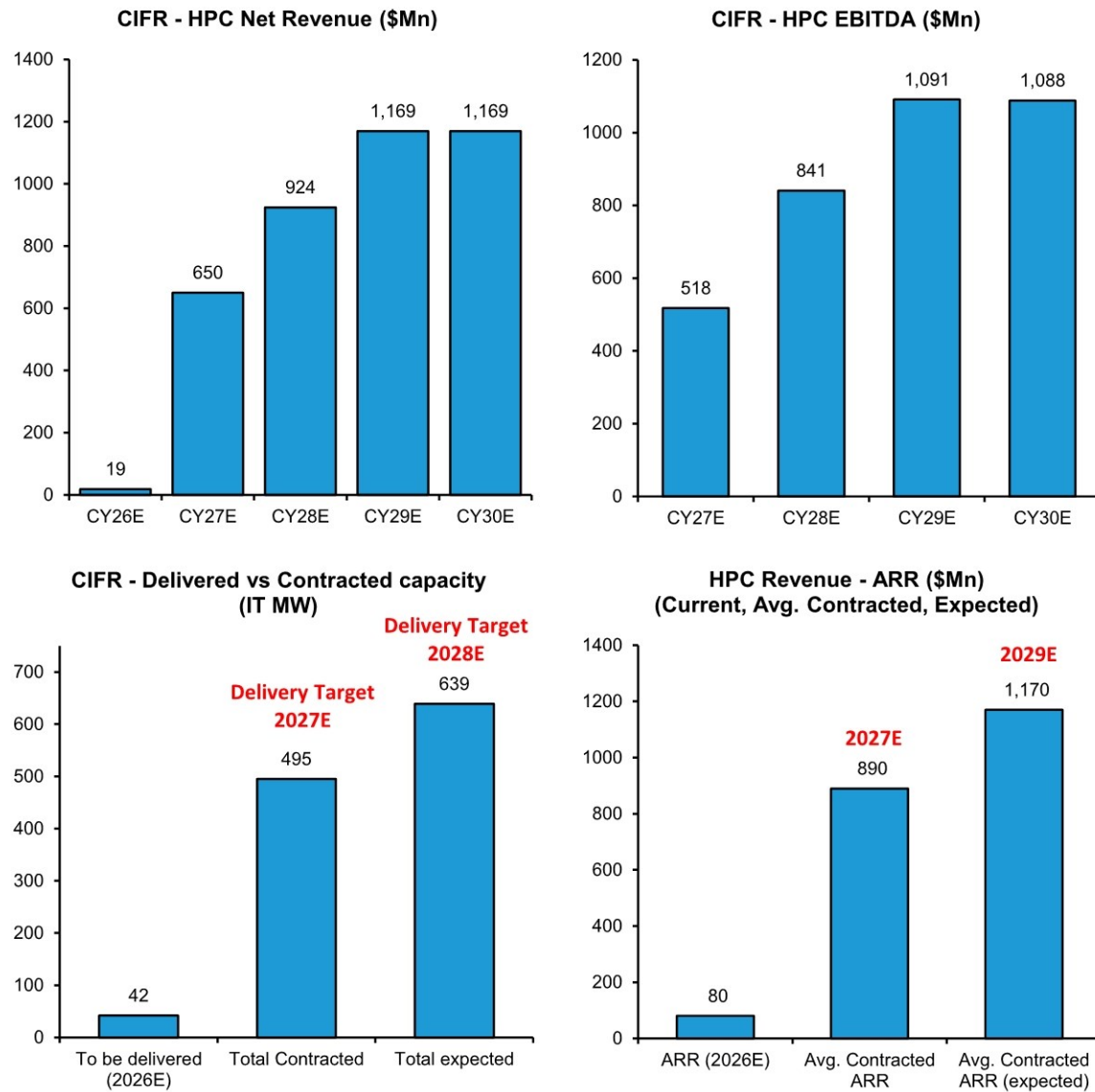
*As of publishing date, Cipher is yet to raise debt for their latest deal at Stingray site

Source: Company presentation, Bernstein analysis

EXHIBIT 56: CIFR's procurement and design edge - majority equipment secured for near term delivery

Site – Barber Lake	Site – Black Pearl	Site – Stingray
		
• Client: Fluidstack / Google • Power: 300 gross-MW / 207 IT-MW • Construction update: ✓ Building topped out with completion of primary structural steel ✓ Mechanical, electrical, networking work on schedule ✓ ~99% Equipment secured ✓ 100% Design complete	• Client: AWS • Power: 300 gross-MW / 216 IT-MW • Construction update: ✓ Data center development on track as Phase I retrofit, Phase II pad preparation progress ✓ Actively installing Phase I cooling and electrical infrastructure for new HPC equipment ✓ ~93% Phase I Equipment secured ✓ ~80% Phase II Equipment secured	• Client: Not disclosed • Power: 100 gross-MW / not disclosed • Construction update: ✓ Data center development on track with earthwork and pad preparation currently in progress ✓ Electrical work for substation has commenced , aligning with Q4 2026 target energization timeline ✓ Electrical construction mobilizing in Q2 2026

Source: Company presentation, Bernstein analysis

EXHIBIT 57: **CIFR: We expect AI revenue to ramp up to ~\$1.2Bn by 2030E**

By 2028, we expect CIFR to fully contract out their Ulysses site (144 IT-MW) along with their current contracts

Net revenue is calculated as straight line revenue, excluding power cost pass through

Source: Company filings, Bernstein estimates and analysis



EXHIBIT 58: **We rate CIFR Outperform PT\$32**

All values in \$Mn, unless specified	CY25	CY26E	CY27E	CY28E	CY29E	CY30E
Total Revenue	224	183	837	968	1,169	1,169
Bitcoin mining	224	164	187	44	-	-
HPC Colocation (Net revenue)	-	19	650	924	1,169	1,169
Total Adjusted EBITDA	22	74	637	863	1,091	1,088
Bitcoin mining	24	83	119	22	-	-
Adjusted EBITDA Margin - BTC Mining (%)	11%	50%	64%	51%	-	-
HPC Colocation	-	(8)	518	841	1,091	1,088
Net Adjusted EBITDA Margin - HPC (%)	-	-	80%	91%	93%	93%

1 Year Forward - EV/EBITDA multiple	21
EBITDA 2030E	1,088
EV 2029E	22,852
EV (Jun'27E)	18,315
Net debt (Jun'27E)	4,563
Target Market Cap	13,752
Shares Outstanding	437
Target Price	\$32.00
Upside	22%

Upside as of June 2, 2026

Net revenue is calculated as straight line revenue, excluding power cost pass through
Source: Company filings, Bernstein estimates and analysis

FINANCIALS AND VALUATION**WULF**

We rate WULF Outperform (PT\$36). We value WULF at 21x EV/ 1-year forward EBITDA on CY30E steady state EBITDA ([Exhibit 59](#)). The 21x one year forward EV/EBITDA multiple is based on long term average multiple of infrastructure businesses. Applying 21x multiple on CY30E adjusted EBITDA of \$1.4Bn (including WULF's share of Abernathy JV), we arrive at \$30Bn EV for CY29E. We discount it to arrive at our target EV of \$24Bn (12 month target). After adjusting for \$7Bn in net debt, we arrive at our target valuation of \$36 per share.

Revenue buildup: We expect WULF's HPC revenue to grow from \$14 Mn in CY25 to \$1.7 Bn by CY30E (including Abernathy JV share), growing at a CAGR of 163%. Overall, we expect total revenue mix to shift from 8% HPC in CY25 to 100% by CY30E. Our HPC revenue buildup comprises 522MW IT load already contracted and incremental 384 IT-MW contracts at high near term visibility Kentucky sites. Of the \$1.7 Bn CY30E revenue, existing contracts represent ~\$1 Bn while new assumed contracts include ~\$0.7Bn. We expect EBITDA margins to reach at 84%, as EBITDA grows from \$106 Mn in CY26E to \$1.4 Bn in CY30E (including Abernathy JV share). We expect WULF's Bitcoin mining segment to sunset over CY26-28E as WULF reallocates Bitcoin mining power to HPC capacity.

CIFR

We rate CIFR Outperform (PT\$32). We value CIFR at 21x EV/ 1-year forward EBITDA on CY30E steady state EBITDA ([Exhibit 60](#)). The 21x one year forward EV/EBITDA multiple is based on long term average multiple of infrastructure businesses. Applying 21x multiple on CY30E adjusted EBITDA of ~\$1.1Bn, we arrive at ~\$23Bn EV for CY29E. We discount it to arrive at our target EV of ~\$18Bn (12 month target). After adjusting for \$4.6Bn in net debt, we arrive at our target valuation of \$32 per share.

Revenue buildup: We expect CIFR's HPC revenue to grow from \$19 Mn in CY26E to \$1.2 Bn by CY30E, growing at a CAGR of ~180%. Overall, we expect total revenue mix to shift from 10% HPC in CY26E to 100% by CY30. Our HPC revenue buildup comprises 495 IT-MW load already contracted and incremental 144 IT-MW contracts at high near term visibility Ulysses site. Of the \$1.2Bn CY30E revenue, existing contracts represent ~\$890 Mn while new assumed contracts include \$280 Mn. We expect EBITDA margins to stabilize at 93% in CY30E, as EBITDA grows from \$518 Mn in CY27E to ~\$1.1 Bn in CY30E. We expect CIFR's Bitcoin mining segment to sunset over CY26E-28E as CIFR reallocates Bitcoin mining power to HPC capacity.

For both WULF and CIFR we assume incremental HPC contracts only on their high visibility power pipeline (480MW Kentucky site for WULF and 200MW Ulysses site for CIFR). However, any further progress on power development pipeline could imply further upside for both WULF and CIFR - not in our estimates. Both WULF and CIFR have long term development pipeline of upto 2GW of critical IT load. We carry out a sensitivity analysis for potential EV contribution from new capacity coming online for WULF and CIFR beyond the current high visibility sites. We assume a 9% cap rate on per MW NOI, given these are 10-15 year contracts with concentrated counterparties and limited scope for restructuring during the contract life. Each incremental MW can add \$17-\$19Mn to the EV based on NOI margin range of 85%-95% and current revenue yields (\$1.8Mn/ IT MW). Both WULF and CIFR have long term development pipeline of upto 2GW of critical IT load, that translates into \$9-\$40Bn incremental EV value by CY30E. Discounting back to mid-2027E, we arrive at \$6-\$25Bn incremental EV based on the capacity conversion and ramp-up. We believe CIFR and WULF's long term development pipeline continues to represent an optionality that could underwrite scalability of their AI infrastructure business beyond CY30E, and hence providing comfort on premium valuation vs. peers within our coverage.

EXHIBIT 59: **We rate WULF Outperform PT\$36**

\$Mn, except specified	CY25	CY26E	CY27E	CY28E	CY29E	CY30E
Total Revenue	165	279	875	1,485	1,540	1,540
HPC Revenue (Net)	14	209	792	1,446	1,540	1,540
Mining Revenue	152	70	83	38	-	-
Total Adjusted EBITDA	(23)	116	656	1,250	1,327	1,320
HPC Adj. EBITDA		106	627	1,236	1,327	1,320
Net EBITDA Margin (%)		51%	79%	85%	86%	86%
Mining Adj. EBITDA		9	29	13	-	-
Margin (%)		13%	34%	35%		

1 Year Forward - EV/EBITDA multiple	21
EBITDA 2030E (WULF Standalone)	1,320
EBITDA 2030E (WULF JV)	129
Total EBITDA CY2030E (WULF + JV)	1,449
EV 2029E	30,426
EV (Jun'27E)	24,401
Net debt (Jun'27E)	6,675
Target Market Cap	17,726
Shares Outstanding	502
Target Price (\$/share)	36

HPC Revenue reflects net revenue (excludes power cost pass through)

Source: Company filings, Bernstein estimates and analysis

EXHIBIT 60: **We rate CIFR Outperform PT\$32**

All values in \$Mn, unless specified	CY25	CY26E	CY27E	CY28E	CY29E	CY30E
Total Revenue	224	183	837	968	1,169	1,169
Bitcoin mining	224	164	187	44	-	-
HPC Colocation (Net revenue)	-	19	650	924	1,169	1,169
Total Adjusted EBITDA	22	74	637	863	1,091	1,088
Bitcoin mining	24	83	119	22	-	-
Adjusted EBITDA Margin - BTC Mining (%)	11%	50%	64%	51%	-	-
HPC Colocation	-	(8)	518	841	1,091	1,088
Net Adjusted EBITDA Margin - HPC (%)	-	-	80%	91%	93%	93%

1 Year Forward - EV/EBITDA multiple	21
EBITDA 2030E	1,088
EV 2029E	22,852
EV (Jun'27E)	18,315
Net debt (Jun'27E)	4,563
Target Market Cap	13,752
Shares Outstanding	437
Target Price	\$32.00
Upside	22%

Upside as of June 2, 2026

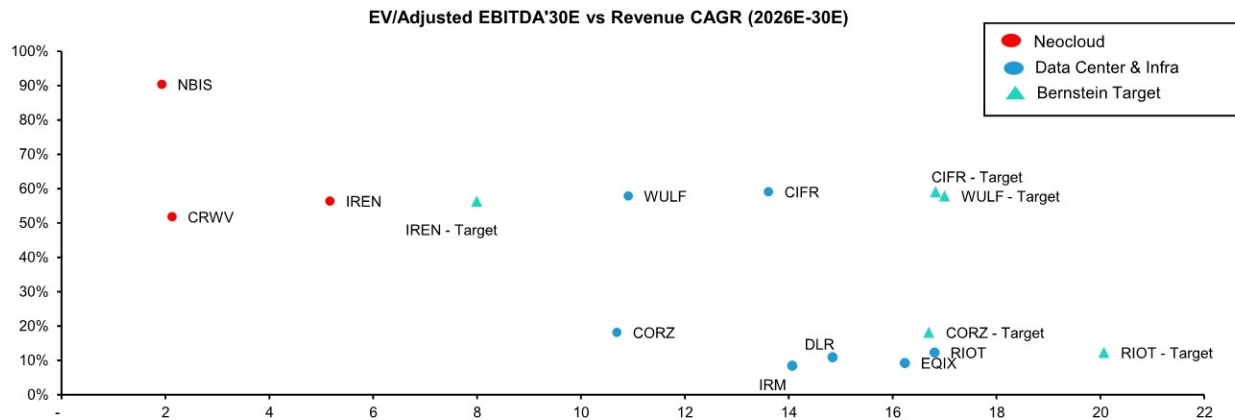
Net revenue is calculated as straight line revenue, excluding power cost pass through
Source: Company filings, Bernstein estimates and analysis

EXHIBIT 61: **CIFR and WULF's long term development pipeline continues to represent an optionality that could underwrite scalability of their AI infrastructure business beyond CY30E, and hence provides comfort on the premium valuation vs peers**

Assuming 9% cap rate						
EV optionality (\$Bn) - CY30E		NOI Margin (%)				
		85%	88%	90%	93%	95%
Incremental IT MW	500	9	9	9	9	10
	1,000	17	18	18	19	19
	1,500	26	26	27	28	29
	2,000	34	35	36	37	38
EV optionality (\$Bn) discounted to CY27E		NOI Margin (%)				
EV optionality (\$Bn) - CY27E		85%	88%	90%	93%	95%
Incremental IT MW	500	6	6	6	6	7
	1,000	12	12	12	13	13
	1,500	18	18	19	19	20
	2,000	23	24	25	26	26
Assuming 8% cap rate						
EV optionality (\$Bn) - CY30E		NOI Margin (%)				
		85%	88%	90%	93%	95%
Incremental IT MW	500	10	10	10	10	11
	1,000	19	20	20	21	21
	1,500	29	30	30	31	32
	2,000	38	39	41	42	43
EV optionality (\$Bn) discounted to CY27E		NOI Margin (%)				
EV optionality (\$Bn) - CY27E		85%	88%	90%	93%	95%
Incremental IT MW	500	7	7	7	7	7
	1,000	13	14	14	14	15
	1,500	20	20	21	22	22
	2,000	26	27	28	29	29
Assuming 7% cap rate						
EV optionality (\$Bn) - CY30E		NOI Margin (%)				
		85%	88%	90%	93%	95%
Incremental IT MW	500	11	11	12	12	12
	1,000	22	23	23	24	24
	1,500	33	34	35	36	37
	2,000	44	45	46	48	49
EV optionality (\$Bn) discounted to CY27E		NOI Margin (%)				
EV optionality (\$Bn) - CY27E		85%	88%	90%	93%	95%
Incremental IT MW	500	8	8	8	8	8
	1,000	15	16	16	16	17
	1,500	23	23	24	25	25
	2,000	30	31	32	33	34

Source: Bernstein analysis

EXHIBIT 62: We value CIFR and WULF at a premium to peer infrastructure companies given their high visibility revenue ramp-up over CY26-30E



Source: Bloomberg, Bernstein estimates and analysis

INVESTMENT FRAMEWORK ACROSS OUR COVERAGE UNIVERSE

We lay out a comprehensive investment framework for our coverage universe - evaluated for power scalability, contracted order book/AI revenue ramp-up, unit economics and valuation ([Exhibit 63-Exhibit 64](#)). In our coverage IREN, CIFR, WULF, CORZ and RIOT are now building active AI infrastructure businesses. IREN remains our top pick for its vertically integrated neocloud proposition backed by 5GW of global power footprint and bluechip partnership (like Microsoft and NVIDIA - both covered). We expect rapid ramp-up of HPC revenues for CIFR, WULF and CORZ over CY26-27E. However, we believe the contracted order book of these companies is already factored in the current valuations and any incremental upside here on would be driven from new HPC contracts. We continue to like CIFR, WULF and CORZ for high visibility power pipeline and faster deal conversion cycles. We believe Bitcoin miners still at nascent stage of AI pivot (RIOT, CLSK and MARA) represent significant re-rating potential as and when they validate their AI pivot by executing at scale HPC contracts. We believe RIOT's 1.3GW operating power assets positions it well for AI retrofits at low incremental capex (\$3.5Mn per IT MW for AMD contract).

(i) We like CIFR, WULF and CORZ for their power scalability and faster deal conversion cycles: We believe CIFR, WULF and CORZ are building AI infrastructure businesses - each on track to deliver ~500 IT MW colocation capacity by early 2027. However, we believe the current valuations already reflect the existing order books for these companies, and incremental upside would be driven by new AI contracts. For CIFR, WULF and CORZ, we see this as a high probability scenario - given their scalable power pipelines, improving execution credibility, and fast deal conversion cycles. WULF is actively marketing 480MW Kentucky site, CIFR is marketing 270MW at Reveille and Ulysses, and CORZ is marketing ~1GW across Texas and Oklahoma.

We believe CIFR and WULF are ahead on the AI pivot, working directly with hyperscalers and improving deal economics (like higher revenue yield, triple net lease structure, etc.). We see significant re-rating potential for CORZ as it executes on non-CoreWeave contracts in the near future led by >1GW of recently added new power assets. Further, capex sharing terms under the CoreWeave contract (bears only \$1.5Mn per IT MW capex vs \$8-11Mn incurred by peers) adds to CORZ's balance sheet advantage.

(ii) RIOT, CLSK and MARA have significant re-rating potential, but they would require commercial validation for their AI pivot: We believe RIOT, CLSK and MARA represents significant re-rating potential as and when they validate their AI pivot through sizable HPC contracts and disciplined execution. RIOT is still early in the AI transition. However, we believe 1.3GW of operating power assets, offers massive optionality to scale up RIOT's AI infrastructure business in the near term. The 50 IT MW AMD contract demonstrates RIOT's ability to deliver HPC capacity for bluechip counterparty. We believe further scale up of the AMD (covered) contract and/or new HPC deals would be a significant re-rating catalyst for RIOT's power portfolio.

CLSK and MARA were late entrants in the Bitcoin x AI hybrid business model, and therefore have longer gestation period in announcing their first deals. Hence, they are still trading at ~\$3Mn EV/ Planned MW, implying a ~40% discount vs peer miners that have successfully transitioned to AI. We believe new HPC contracts can be a significant re-rating catalyst for CLSK and MARA from Bitcoin to AI infrastructure multiples. Both CLSK and MARA are aggressively advancing on their AI ambition - CLSK is actively marketing 250MW Sandersville site and additional 585MW in Texas, while MARA is marketing multiple sites with

Starwood partnership.

(iii) We like IREN for its vertically integrated cloud proposition and bluechip partnerships: We continue to like IREN for its vertically integrated cloud proposition backed by 5 GW of fully owned global power footprint. The execution path for AI cloud model is complex, however IREN's recent tech and infrastructure partnership with NVIDIA validates IREN's execution and operational capabilities to manage the complex cloud stack (both bare metal and software). We see IREN's AI cloud model as a high risk-high reward business opportunity. It generates significantly higher revenue yield (\$10mn/IT MW vs ~\$2Mn per IT MW for colocation) but requires upto \$45Mn capex per IT MW (vs ~\$10Mn/ IT MW for colocation). We believe IREN's conservative cloud ramp up anchored by a mix of long term and on-demand contracts and calibrated balance sheet leverage (funded 96% of \$5.8Bn GPU capex related to Microsoft contract at ~3.3% cost), positions it well to scale its cloud business.

KEY RISKS

- **Counterparty risk:** Counterparty credibility is the key risk in large scale AI buildouts. For companies like WULF and CORZ, single counterparty (Fluidstack and CoreWeave respectively) represents 90-100% of the total contracted revenues so far. Overtime, Bitcoin miners have diversified counterparty exposure across chip providers, hyperscalers and neoclouds. Almost one-third of the deals announced by value have been directly with hyperscalers and the remaining with neoclouds. Further, they have secured backstopping arrangements and parent guarantees to hedge against the counterparty risks (particularly for neocloud intermediaries). A backstop is a credit support agreement in which a more credible third party underwrites obligations of the direct counterparty. So, if the tenant defaults on the contractual obligation, backstopping party fulfills it upto a pre-specified capped amount (like Google backstopping \$3.2Bn of Fluidstack's lease obligation to WULF). The backstopping entity might receive consideration for the arrangement, like Google received warrants to acquire 14% equity stake (as on deal signing) in WULF.
- **Leverage financing:** Bitcoin miners have tapped project financing market to fund 70-85% of the total capex requirements, adding significant balance sheet leverage. However, the debt is usually secured by data center assets and is non-recourse to the parent entity. Colocation deal terms help in derisking the capex outlay. The typical contract duration of 10-15 years fully covers the 5-7 years payback period for data center capex. Further, backstopping arrangements and parent guarantees enhance credit profile of the underlying contract and allow Bitcoin miners to secure favourable financing terms (including 6-7% cost of debt).
- **Further, ongoing grid rule overhauls and community opposition can affect the execution timelines:** Bitcoin miners are still awaiting grid and regulatory approvals on many of their sites (high probability but not yet approved). For example, ~2GW of Cipher's power portfolio is still not fully approved. Any delays in securing grid connection or delivering new capacity can impact the credibility of Bitcoin miners' AI infrastructure business.

EXHIBIT 63: **We lay out a comprehensive investment framework for our coverage universe - evaluated for power scalability, contracted order book/AI revenue ramp-up, unit economics and valuation**

		CIFR	WULF	CORZ	RIOT	CLSK	MARA	IREN
Business Model	Focus	Colocation	Colocation	Colocation	Colocation + BTC	Colocation + BTC	Colocation + BTC	Cloud
	AI Progress	Buildout Phase	Operationalized 60 IT MW	Operationalized 243 IT MW	Operationalized 5 IT MW	Contracting Phase	Contracting Phase	Running GPU cloud
Scalability	Total Power (GW)	3.1 GW	3.8 GW	2.6 GW	2 GW	1.8 GW	1.8 GW	5 GW
	HPC Contracted (gross)	700 MW	643 MW	800 MW	66 MW**	-	-	540 MW
	Near Term Available Capacity	270 MW	480 MW	~1 GW	~1 GW	~0.8 GW	~0.7 GW	~0.7 GW
Order Book	Total Contracted Revenue	\$11.4 Bn	~\$13 Bn	~\$10 Bn	\$0.6 Bn	-	-	\$13.1 Bn
	Average ARR	~\$890 Mn	~\$980 Mn	\$850 Mn	\$64 Mn	-	-	\$3.1 Bn
	Current ARR	-	\$100 Mn	\$350 Mn	\$6 Mn	-	-	~\$135 Mn
Counterparty Quality	Customers	Fluidstack (Google backstop), AWS	Fluidstack (Google Backstop), Core42	Coreweave	AMD	-	-	Microsoft, NVIDIA
	Direct Hyperscaler	✓	-	-	-	-	-	✓
Unit Economics	Annual Revenue Yield - Blended	\$1.8 Mn/ IT MW	~\$1.9 Mn/ IT MW	\$1.4 Mn/ IT MW	\$1.3 Mn/ IT MW	-	-	~\$10 Mn/ IT MW
	NOI Margins - Blended	95%*	~82%	82.5%	80%	-	-	85%
Capex and Financing	Capex (Per IT MW)	\$9-11 Mn	\$8-10 Mn	\$1.5 Mn	\$3.5 Mn	-	-	~\$45 Mn
	Debt / Contracted Ann. EBITDA	6x	8x	6x	n.a.	n.a.	n.a.	5x
Valuation	Current EV/ EBITDA'28E	17x	11x	11x	20x	14x	13x	8x
	EV/ Total Planned MW	\$4.7 Mn/MW	\$4.2 Mn/MW	\$4 Mn/MW	\$5 Mn/MW	\$2.8 Mn/MW	\$2.8 Mn/MW	\$5.1 Mn/MW

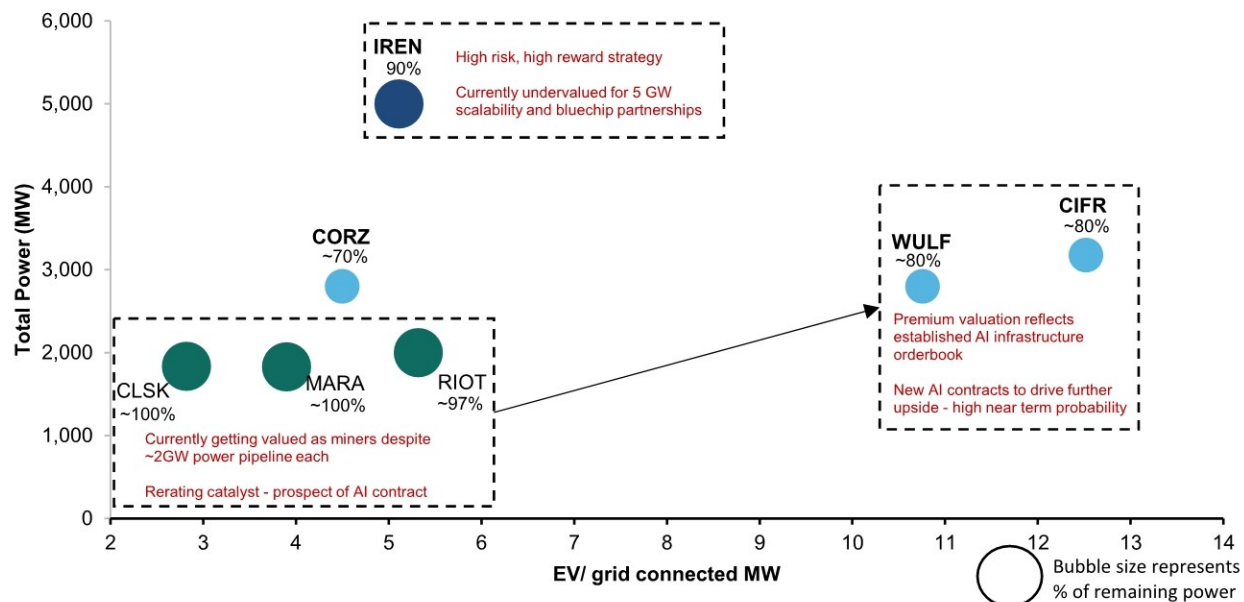
**RIOT contracted MW based on PUE of ~1.3 based on Corsicana design

*CIFR NOI calculation based on company presentation

- We use 'Current debt/contracted annualized EBITDA'

Source: Company filings, Bernstein estimates and analysis

EXHIBIT 64: Summary valuation relative to power capacity



Source: Company filings, Bloomberg, Bernstein estimates and analysis

ESG

We identify following ESG issues of importance for WULF and CIFR:

(i) Data center operations are energy intensive. WULF and CIFR are trying to reduce the environment impact from their data centers by sourcing cleaner energy. For example, WULF's Lake Mariner site is located in Western New York with 89% zero carbon grid, while the Cayuga site is located in a region that draws 90% zero carbon power. CIFR operates primarily in West Texas and Ohio, where it emphasizes power-advantaged locations and has signed a preliminary agreement with ENGIE to procure up to 300MW of wind power for a Texas data center, supporting a gradual shift toward cleaner supply.

(ii) Concerns are rising against impact of data centers on local communities (energy prices, noise, safety etc). WULF and CIFR are actively engaging with the community groups to mitigate any such concerns. Further, they are redeveloping legacy sites and repurposing them for data center developments.

APPENDIX - FINANCIAL FORECASTS

EXHIBIT 65: Financial Forecast - WULF

Income Statement- \$Mn, except per share	FY25A	FY26E	FY27E	FY28E	Balance Sheet- \$Mn	FY25A	FY26E	FY27E	FY28E
Revenue					Assets				
Bitcoin Mining Revenue	152	70	83	38	Cash and Cash equivalents	3,266	443	434	410
Colocation Revenue	17	229	860	1,573	Other current assets	22	57	60	83
Total revenue	168	298	944	1,611	Total current assets	3,288	500	494	493
Cost of revenue					PPE	1,508	5,311	7,846	7,427
Bitcoin Mining	80	25	29	17	Other non-current assets	1,762	1,995	2,303	2,395
HPC Colocation	2	36	139	227	Total non-current assets	3,270	7,306	10,149	9,823
Total cost of revenue	83	61	168	244	Total assets	6,558	7,806	10,643	10,316
Operating (expenses) income					Liabilities				
Selling, general and administrative	148	205	119	93	Accounts payable & accrued expenses	295	424	375	326
Depreciation	89	240	460	558	Other current liabilities	905	1,094	758	455
Other expenses	36	71	34	49	Total current liabilities	1,200	1,518	1,133	780
EBITDA (Standalone)	(23)	116	656	1,250	Long term borrowings	5,171	5,473	8,688	8,341
EBITDA (incl JV share)	(23.1)	115.8	768.3	1,378.1	Other non-current liabilities	47	70	99	94
Finance expense	(80)	(295)	(492)	(529)	Equity				
Net income (loss)	(661)	(804)	(289)	118	Total stockholders' equity	140	746	724	1,100
EPS (\$/share)	(1.66)	(1.73)	(0.58)	0.23	Total liabilities and stockholders' equity	6,558	7,806	10,643	10,316

Source: Company filings, Bernstein estimates and analysis

EXHIBIT 66: CIFR - Financial forecast

Income Statement- \$000s	FY25A	FY26E	FY27E	FY28E	Balance Sheet- \$000s	FY25A	FY26E	FY27E	FY28E
Revenue					Assets				
Bitcoin Mining Revenue	223,942	163,804	186,894	43,566	Cash and Cash equivalents, restricted cash	2,664,631	874,553	2,081,023	958,338
AI Cloud Services Revenue	-	20,363	704,892	1,003,028	Other current assets	263,304	54,302	89,444	89,673
Total revenue	223,942	184,168	891,786	1,046,594	Total current assets	2,927,935	928,856	2,170,467	1,048,012
Cost of revenue					PPE	622,455	4,580,368	5,411,195	6,021,233
Bitcoin Mining	81,216	51,630	42,687	13,446	Other non-current assets	741,518	762,068	829,819	885,707
AI Cloud Services	-	3,268	83,383	118,645	Total non-current assets	1,363,973	5,342,436	6,241,014	6,906,939
Total cost of revenue	81,216	54,897	126,070	132,091	Total assets	4,291,908	6,271,291	8,411,481	7,954,951
Operating (expenses) income					Liabilities				
Compensation benefits	79,129	137,749	127,864	32,863	Accounts payable & accrued expenses	130,150	338,706	685,952	586,707
General and Administrative	36,382	46,095	63,305	24,370	Other current liabilities	568,921	342,429	25,277	28,126
Depreciation & Amortization	198,973	191,473	373,760	434,943	Total current liabilities	699,071	681,136	711,229	614,833
EBITDA	22,236	50,721	636,931	862,826	Long term borrowings	2,711,648	4,935,702	6,902,384	6,586,470
EBITDA Margin	10%	28%	71%	82%	Other non-current liabilities	45,335	38,494	38,483	41,427
Finance expense	(36,559)	(310,399)	(435,875)	(445,876)	Total non-current liabilities	2,756,983	4,974,197	6,940,867	6,627,897
Income tax (provision) benefit	3,313	(407)	-	(2,905)	Equity				
Net income (loss)	(822,244)	(467,820)	(229,442)	(52,720)	Accumulated losses	(1,003,656)	(1,117,972)	(1,117,972)	(1,117,972)
EPS	(2.15)	(1.13)	(0.53)	(0.12)	Total stockholders' equity	835,854	615,959	759,385	712,221
					Total liabilities and stockholders' equity	4,291,908	6,271,291	8,411,481	7,954,951

Source: Company filings, Bernstein estimates and analysis

VALUATION METHODOLOGY

TeraWulf Inc

We value WULF at 21x one-year forward EV/EBITDA on steady state CY30E EBITDA (given the steep ramp-up). We discount the implied EV to arrive at our target valuation. We sunset the Bitcoin mining segment by CY28E. We rate WULF Outperform PT\$36.

Cipher Digital Inc

We value CIFR at 21x one-year forward EV/EBITDA on steady state CY30E EBITDA (given the steep ramp-up). We discount the implied EV to arrive at our target valuation. We sunset the Bitcoin mining segment by CY28E. We rate CIFR Outperform PT\$32.

RISKS

TeraWulf Inc

Downside Risks to our target price:

1. WULF's current AI order book is concentrated in one counterparty. WULF needs to demonstrate robustness of its AI infrastructure business by diversifying its customer base over time.
2. The AI infrastructure business is capex intensive and execution depends on WULF's ability to secure low cost and favorable financing.
3. Scalability of AI infrastructure business depends on WULF's ability to develop new powered sites, and its ability to procure land, equipment and execute the data center development in time. Any lag in supply chain or execution delays, could impact its ability to scale AI business.

Cipher Digital Inc**Downside Risks to our target price:**

1. CIFR's current power portfolio is concentrated in Texas, and any changes in grid dynamics or regulatory environment can impact the scalability of CIFR's AI infrastructure business.
2. CIFR is yet to deliver the contracted HPC capacity to its customers. Any lag in supply chain or execution delays, could impact its ability to scale AI business.
3. The AI infrastructure business is capex intensive and execution depends on CIFR's ability to secure low cost and favorable financing.

DISCLOSURE APPENDIX

I. REQUIRED DISCLOSURES

References to "Bernstein" or the "Firm" in these disclosures relate to the following entities: Bernstein Institutional Services LLC (April 1, 2024 onwards), Sanford C. Bernstein & Co., LLC (pre April 1, 2024), Bernstein Autonomous LLP, BSG France S.A. (April 1, 2024 onwards), Sanford C. Bernstein (Hong Kong) Limited 盛博香港有限公司, Sanford C. Bernstein (Canada) Limited, Sanford C. Bernstein (India) Private Limited (SEBI registration no. INH000006378), Sanford C. Bernstein (Singapore) Private Limited, Sanford C. Bernstein Japan KK (サンフォード・C・バーンスタイン株式会社) and analysts employed by Société Générale Africa Technologies & Services to produce Bernstein research under a Global Services Agreement in place between Bernstein and Société Générale.

Bernstein is part of a joint venture between Société Générale (SG) and AllianceBernstein, L.P. (AB). Unless specifically noted otherwise, for purposes of these disclosures, references to Bernstein's "affiliates" relate to both SG and AB and their respective affiliates.

VALUATION METHODOLOGY

This research publication covers six or more companies. For valuation methodology and other company disclosures:

Please visit: <https://bernstein-autonomous.bluematrix.com/sellside/Disclosures.action>.

Or, you can also write to the Director of Compliance, Bernstein Institutional Services LLC, 245 Park Avenue, New York, NY 10167.

RISKS

This research publication covers six or more companies. For risks and other company disclosures:

Please visit: <https://bernstein-autonomous.bluematrix.com/sellside/Disclosures.action>.

Or, you can also write to the Director of Compliance, Bernstein Institutional Services LLC, 245 Park Avenue, New York, NY 10167.

RATINGS DEFINITIONS, BENCHMARKS AND DISTRIBUTION**EQUITY RATINGS DEFINITIONS****Bernstein brand**

The Bernstein brand rates stocks based on forecasts of relative performance for the next 12 months versus the S&P 500 for stocks listed on the U.S. and Canadian exchanges, versus the Bloomberg Europe Developed Markets Large and Mid Cap Price Return Index EUR (EDME) for stocks listed on the European exchanges and emerging markets outside of the Asia Pacific region, versus the Bloomberg Japan Large and Mid Cap Price Return Index USD (JPL) for stocks listed on the Japanese exchanges, and versus the Bloomberg Asia ex-Japan Large and Mid Cap Price Return Index (ASIAX) for stocks listed on the Asian (ex-Japan) exchanges - unless otherwise specified.

The Bernstein brand has three categories of ratings:

- Outperform: Stock will outpace the market index by more than 15 pp
- Market-Perform: Stock will perform in line with the market index to within +/- 15 pp
- Underperform: Stock will trail the performance of the market index by more than 15 pp

Coverage Suspended: Coverage of a company under the Bernstein research brand has been suspended. Ratings and price targets are suspended temporarily, are no longer current, and should therefore not be relied upon.

Not Rated: A rating assigned when the stock cannot be accurately valued, or the performance of the company accurately predicted, at the present time. The covering analyst may continue to publish research reports on the company to update investors on events and developments.

Not Covered (NC) denotes companies that are not under coverage.

Bernstein brand stock ratings are based on a 12-month time horizon.

Autonomous brand – common stocks

The Autonomous brand rates common stocks as indicated below. As our benchmarks we use the Bloomberg Europe 500 Banks And Financial Services Index (BEBANKS) and Bloomberg Europe Dev Mkt Financials Large and Mid Cap Price Ret Index EUR (EDMFI) index for developed European banks and Payments, the Bloomberg Europe 500 Insurance Index (BEINSUR) for European insurers, the S&P 500 and S&P Financials for US banks and Payments coverage, S5LIFE for US Insurance, the S&P Insurance Select Industry (SPSIINS) for US Non-Life Insurers coverage, and the Bloomberg Emerging Markets Financials Large, Mid and Small Cap Price Return Index (EMLSF) for emerging market banks and insurers and Payments. Ratings are stated relative to the sector (not the market).

The Autonomous brand has three categories of common stock ratings:

- Outperform (OP): Stock will outpace the relevant index by more than 10 pp
- Neutral (N): Stock will perform in line with the market index to within +/- 10 pp
- Underperform (UP): Stock will trail the performance of the relevant index by more than 10 pp

Coverage Suspended: Coverage of a company under the Autonomous research brand has been suspended. Ratings and price targets are suspended temporarily, are no longer current, and should therefore not be relied upon.

Not Rated: A rating assigned when the stock cannot be accurately valued, or the performance of the company accurately predicted, at the present time. The covering analyst may continue to publish research reports on the company to update investors on events and developments.

Those denoted as 'Feature' (e.g., Feature Outperform FOP, Feature Under Outperform FUP) are our core ideas.

Not Covered (NC) denotes companies that are not under coverage.

Autonomous brand common stock ratings are based on a 12-month time horizon.

Autonomous brand – preferred stocks

The Autonomous brand has three categories of preferred stock ratings:

- Outperform (OP): The total return of the preferred instrument is expected to outperform preferred securities of other issuers operating in similar sectors or rating categories over the next six months.
- Neutral (N): The total return of the preferred instrument is expected to perform in line with preferred securities of other issuers operating in similar sectors or rating categories over the next six months.
- Underperform (UP): The total return of the preferred instrument is expected to underperform preferred securities of other issuers operating in similar sectors or rating categories over the next six months.

Autonomous preferred stock ratings are based on a 6-month time horizon.

AUTONOMOUS CREDIT RESEARCH

Where this report contains investment recommendations for credit instruments, as defined in article 3(1)(35) of the Market Abuse Regulation, the information below is presented to comply with its disclosure requirements.

The report may also include reference(s) to published opinions by other Autonomous or Bernstein analysts covering the equity securities of the issuer(s) referenced herein. Please note an investment recommendation for credit instruments published by the author(s) of this report may differ from the published view of the analyst covering equity securities for the issuer(s) contained in this report and vice versa.

CREDIT RATINGS DEFINITIONS

The Autonomous brand has three categories of credit ratings:

- Credit Outperform (C-OP): The total return of the Reference Credit Instrument is expected to outperform the credit spread of bonds of other issuers operating in similar sectors or rating categories over the next six months.

- **Credit Neutral (C-N):** The total return of the Reference Credit Instrument is expected to perform in line with the credit spread of bonds of other issuers operating in similar sectors or rating categories over the next six months.
- **Credit Underperform (C-UP):** The total return of the Reference Credit Instrument is expected to underperform the credit spread of bonds of other issuers operating in similar sectors or rating categories over the next six months.

Autonomous credit ratings are based on a 6-month time horizon.

A list of all investment recommendations produced by the author(s) of this report alongside credit ratings history are available upon request.

It is at the sole discretion of the Firm as to when to initiate, update and cease research coverage. The Firm has established, maintains and relies on information barriers to control the flow of information contained in one or more areas (i.e. the private side) within the Firm, and into other areas, units, groups or affiliates (i.e. public side) of the Firm

DISTRIBUTION OF EQUITY RATINGS/INVESTMENT BANKING SERVICES

Equity Rating	Market Abuse Regulation (MAR) and FINRA Rating Category	Global Rating Distribution	Investment Banking Relationships*
Outperform	BUY	51.1%	16.5%
Market-Perform (Bernstein Brand) Neutral (Autonomous Brand)	HOLD	36.3%	17.8%
Underperform	SELL	12.6%	14.9%

* These figures represent the percentage of companies within each equity rating category for which affiliates of Bernstein have provided investment banking services within the previous 12 months.

As of March 31, 2026. All figures are updated quarterly.

PRICE CHARTS/ RATINGS AND PRICE TARGET HISTORY

This research publication covers six or more companies. For price chart and other company disclosures, please visit <https://bernstein-autonomous.bluematrix.com/sellside/Disclosures.action> or you can write to the Director of Compliance, Bernstein Institutional Services LLC, 245 Park Avenue, New York, NY 10167.

CONFLICTS OF INTEREST

Gautam Chhugani maintains long positions in various crypto currencies.

Bernstein Autonomous LLP or BSG France SA, beneficially, has either a net long or short position of 0.5% or more of the total issued share capital of a class of common equity securities of the following MiFID eligible securities: Core Scientific Inc.

AB and/or its affiliates beneficially own 1% or more of a class of common equity securities of the following company: Core Scientific Inc.

SG and/or its affiliates beneficially own 1% or more of a class of common equity securities of the following company: Riot Platforms Inc.

Certain affiliates of Bernstein act as market maker or liquidity provider in the equities securities of: TeraWulf Inc.

Certain affiliates of Bernstein act as market maker or liquidity provider in the debt securities of: Riot Platforms Inc.

OTHER MATTERS

The legal entity(ies) employing the analyst(s) listed in this report, and their location, can be determined by the country code of their phone number, as follows:

+1 Bernstein Institutional Services LLC; New York, New York, USA

+44 Bernstein Autonomous LLP; London UK

+212 Société Générale Africa Technologies & Services; Casablanca, Morocco

+33 BSG France S.A.; Paris, France

+34 BSG France S.A.; Madrid, Spain

+41 Bernstein Autonomous LLP; Geneva, Switzerland

+49 BSG France S.A.; Frankfurt, Germany

+91 Sanford C. Bernstein (India) Private Limited; Mumbai, India

+852 Sanford C. Bernstein (Hong Kong) Limited 盛博香港有限公司; Hong Kong, China

+65 Sanford C. Bernstein (Singapore) Private Limited; Singapore

+81 Sanford C. Bernstein Japan KK; Tokyo, Japan

Where this report has been prepared by research analyst(s) employed by a non-US affiliate, such analyst(s), is/are (unless otherwise expressly noted below) not registered as associated persons of Bernstein Institutional Services LLC or any other SEC-registered broker-dealer and are not licensed or qualified as research analysts with FINRA. Accordingly, such analyst(s) may not be subject to FINRA's restrictions regarding (among other things) communications by research analysts with a subject company, interactions between research analysts and investment banking personnel, participation by research analysts in solicitation and marketing activities relating to investment banking transactions, public appearances by research analysts, and trading securities held by a research analyst account.

Where this report has been prepared by research analyst(s) employed by Société Générale Africa Technologies & Services (part of the Société Générale group of companies), it has been prepared on behalf of a Bernstein company under a Global Services Agreement in place between Bernstein and Société Générale.

CERTIFICATION

Each research analyst listed in this report, who is primarily responsible for the preparation of the content of this report, certifies that all of the views expressed in this publication accurately reflect that analyst's personal views about any and all of the subject securities or issuers and that no part of that analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views in this publication.

II. ADDITIONAL GLOBAL CONFLICT DISCLOSURES

It is at the sole discretion of the Firm as to when to initiate, update and cease research coverage. The Firm has established, maintains and relies on information barriers to control the flow of information contained in one or more areas (i.e., the private side) within the Firm, and into other areas, units, groups or affiliates (i.e., public side) of the Firm.

III. OTHER IMPORTANT INFORMATION AND DISCLOSURES

Separate branding is maintained for "Bernstein" and "Autonomous" research products.

- Bernstein produces a number of different types of research products including, among others, fundamental analysis and quantitative analysis under both the "Autonomous" and "Bernstein" brands. Recommendations contained within one type of research product may differ from recommendations contained within other types of research products, whether as a result of differing time horizons, methodologies or otherwise. Furthermore, views or recommendations within a research product issued under one brand may differ from views or recommendations under the same type of research product issued under the other brand. The Research Ratings System for the two brands and other information related to those Rating Systems are included in the previous section.
- Autonomous operates as a separate business unit within the following entities: Bernstein Institutional Services LLC, Bernstein Autonomous LLP, Sanford C. Bernstein (Hong Kong) Limited 盛博香港有限公司 and Sanford C. Bernstein (India) Private Limited. For information relating to "Autonomous" branded products (including certain Sales materials) please visit:

www.autonomous.com. For information relating to Bernstein branded products please visit: www.bernsteinresearch.com.

Analysts are compensated based on aggregate contributions to the research franchise as measured by account penetration, productivity and proactivity of investment ideas. No analysts are compensated based on performance in, or contributions to, generating investment banking revenues.

This report has been produced by an independent analyst as defined in Article 3 (1)(34)(i) of EU 596/2014 Market Abuse Regulation ("MAR") and the same article of MAR as it forms part of United Kingdom domestic law by virtue of the European Union (Withdrawal) Act 2018.

To our readers in the United States: Bernstein Institutional Services LLC, a broker-dealer registered with the U.S. Securities and Exchange Commission ("SEC") and a member of the U.S. Financial Industry Regulatory Authority, Inc. ("FINRA") is distributing this publication in the United States and accepts responsibility for its contents. Where this material contains an analysis of debt product(s), such material is intended only for institutional investors and is not subject to the US independence and disclosure standards applicable to debt research prepared for retail investors.

Bernstein Institutional Services LLC may act as principal for its own account or as agent for another person (including an affiliate) in sales or purchases of any security which is a subject of this report. This report does not purport to meet the objectives or needs of any specific individuals, entities or accounts.

To our readers in Canada: If this publication pertains to a Canadian domiciled company, it is being distributed in Canada by Sanford C. Bernstein (Canada) Limited, which is licensed and regulated by the Canadian Investment Regulatory Organization. If the publication pertains to a non-Canadian domiciled company, it is being distributed by Bernstein Institutional Services LLC, which is licensed and regulated by both the SEC and FINRA, into Canada under the International Dealers Exemption.

This document may not be passed onto any person in Canada unless that person qualifies as "permitted client" as defined in Section 1.1 of NI 31-103.

To our readers in Brazil: This report has been prepared by Bernstein Institutional Services LLC, and Banco BTG Pactual S.A. ("BTG") is responsible for the distribution of this report in Brazil.

To readers in the United Kingdom: This publication has been issued or approved for issue in the United Kingdom by Bernstein Autonomous LLP, authorised and regulated by the Financial Conduct Authority and located at 60 London Wall, London EC2M 5SH, +44 (0)20-7170-5000. Registered in England & Wales No OC343985.

This document is for distribution only to persons who (i) have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Financial Promotion Order"), (ii) are persons falling within Article 49(2)(a) to (d) ("high net worth companies, unincorporated associations, etc.") of the Financial Promotion Order, (iii) are outside the United Kingdom, or (iv) are persons to whom an invitation or inducement to engage in investment activity (within the meaning of section 21 of the FSMA) in connection with the issue or sale of any securities may otherwise lawfully be communicated or caused to be communicated (all such persons together being referred to as "relevant persons"). This document is directed only at relevant persons and must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this document relates is available only to relevant persons and will be engaged in only with relevant persons.

To our readers in the member states of the EEA: This publication is being distributed by BSG France SA, which is authorised and regulated by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and Autorité des Marchés Financiers (AMF).

To our readers in Hong Kong: This publication is being distributed in Hong Kong by Sanford C. Bernstein (Hong Kong) Limited 盛博香港有限公司, which is licensed and regulated by the Hong Kong Securities and Futures Commission (Central Entity No. AXC846) to carry out Type 4 (Advising on Securities) regulated activities and subject to the licensing conditions mentioned in the SFC Public Register (<https://www.sfc.hk/publicregWeb/corp/AXC846/details>). This publication is solely for professional investors, as defined in the Securities and Futures Ordinance (Cap. 571). The purpose of this report is solely to provide an analysis of the issuers referred to in this report and is not intended for any purpose contrary to the laws of Hong Kong.

To our readers in Singapore: This publication is being distributed in Singapore by Sanford C. Bernstein (Singapore) Private Limited, only to accredited investors or institutional investors, as defined in the Securities and Futures Act 2001 of Singapore ("SFA"). Recipients in Singapore should contact Sanford C. Bernstein (Singapore) Private Limited in respect of matters arising from, or in connection with, this publication. Sanford C. Bernstein (Singapore) Private Limited is regulated by the Monetary Authority of Singapore and licensed under the SFA as a capital markets services licence holder for dealing in capital markets products that are securities and collective investment schemes and an exempt financial adviser for advising on, issuing and promulgating analyses and reports on securities. Sanford C. Bernstein (Singapore) Private Limited is registered in Singapore with Company Registration

No. 20213710W and located at One Raffles Quay, #27-11 South Tower, Singapore 048583, +65-6230-4612.

To our readers in the People's Republic of China: The securities referred to in this document are not being offered or sold and may not be offered or sold, directly or indirectly, in the People's Republic of China (for such purposes, not including the Hong Kong and Macau Special Administrative Regions or Taiwan, the "PRC") in contravention of any applicable laws of the PRC.

This document does not constitute an offer to sell or the solicitation of an offer to buy any securities in the PRC to any person to whom it is unlawful to make the offer or solicitation in the PRC.

We do not represent that this document may be lawfully distributed, or that any securities may be lawfully offered, in compliance with any applicable registration or other requirements in the PRC, or pursuant to an exemption available thereunder, or assume any responsibility for facilitating any such distribution or offering. In particular, no action has been taken by us which would permit a public offering of any securities or distribution of this document in the PRC. Accordingly, the securities are not being offered or sold within the PRC by means of this document or any other document. Neither this document nor any advertisement or other offering material may be distributed or published in the PRC, except under circumstances that will result in compliance with any applicable laws and regulations.

To our readers in Japan: This publication is being distributed in Japan by Sanford C. Bernstein Japan KK (サンフォード・C・バーンスタイン株式会社), which is registered in Japan as a Financial Instruments Business Operator with the Kanto Local Finance Bureau (registration number: The Director-General of Kanto Local Finance Bureau (FIBO) No.3387) and regulated by the Financial Services Agency. It is also a member of Japan Investment Advisers Association. This publication is solely for qualified institutional investors in Japan only, as defined in Article 2, paragraph (3), items (i) of the Financial Instruments and Exchange Act.

For the institutional client readers in Japan who have been granted access to the Bernstein website by Daiwa Securities Group Inc. ("Daiwa"), your access to this document should not be construed as meaning that Bernstein is providing you with investment advice for any purposes. Whilst Bernstein has prepared this document, your relationship is, and will remain with, Daiwa, and Bernstein has neither any contractual relationship with you nor any obligations towards you.

To our readers in Australia: Sanford C. Bernstein (Hong Kong) Limited 盛博香港有限公司 is responsible for distributing research in Australia. It is regulated by the Securities and Exchange Commission under U.S. laws, by the Financial Conduct Authority under U.K. laws, which differs from Australian laws. Sanford C. Bernstein (Hong Kong) Limited 盛博香港有限公司 is exempt from the requirement to hold an Australian financial services license under the Corporations Act 2001 in respect of the provision of the following financial services to wholesale clients:

- providing financial product advice;
- dealing in a financial product;
- making a market for a financial product; and
- providing a custodial or depository service.

To our readers in India: This publication is being distributed in India by Sanford C. Bernstein (India) Private Limited (SCB India) which is licensed and regulated by Securities and Exchange Board of India ("SEBI") as a research analyst entity under the SEBI (Research Analyst) Regulations, 2014, having registration no. INH000006378 and as a stock broker having registration no. INZ000213537. SCB India is currently engaged in the business of providing research and stock broking services. Please refer to www.bernsteinresearch.in for more information.

- SCB India is a Private limited company incorporated under the Companies Act, 2013, on April 12, 2017 bearing corporate identification number U65999MH2017FTC293762, and registered office at Level 3A, 4th Floor, First International Financial Centre, Plot Nos C-54 and C-55, G Block, Near CBI Office, Bandra Kurla Complex, Bandra (East), Mumbai 400098, Maharashtra, India (Phone No: +91-22-68421401).
- For details of Associates (i.e., affiliates/group companies) of SCB India, kindly email MUM-BERNSTEIN-InCompliance@bernsteinsg.com.
- SCB India does not have any disciplinary history as on the date of this report.
- Except as noted above, SCB India and/or its Associates (i.e., affiliates/group companies), the Research Analysts authoring this report, and their relatives
 - do not have any financial interest in the subject company

- do not have actual/beneficial ownership of one percent or more in securities of the subject company;
- is not engaged in any investment banking activities for Indian companies, as such;
- have not managed or co-managed a public offering in the past twelve months for any Indian companies;
- have not received any compensation for investment banking services or merchant banking services from the subject company in the past 12 months;
- have not received compensation for brokerage services from the subject company in the past twelve months;
- have not received any compensation or other benefits from the subject company or third party related to the specific recommendations or views in this report; and
- do not currently, but may in the future, act as a market maker in the financial instruments of the companies covered in the report.
- do not have any conflict of interest in the subject company as of the date of this report.
- Except as noted above, the subject company has not been a client of SCB India during twelve months preceding the date of distribution of this research report. Neither SCB India nor its Associates (i.e., affiliates/group companies) have received compensation for products or services other than investment banking, merchant banking or brokerage services from the subject company in the past twelve months.
- The principal research analyst(s) who prepared this report, members of the analysts' team, and members of their households are not an officer, director, employee or advisory board member of the companies covered in the report.
- Our Compliance officer / Grievance officer is Ms. Rupal Talati, who can be reached at +91-22-68421451, or MUM-BERNSTEIN-InCompliance@bernsteinsg.com / Scbin-investorgrievance@bernsteinsg.com
- The Research investor charter and Terms & Conditions of SCB India are available on its website and may be accessed at [Sanford C. Bernstein \(India\) Private Limited](https://bernsteinresearch.in/) (<https://bernsteinresearch.in/>) for your reference.
- Disclaimer: Registration granted by SEBI, and certification from NISM, is in no way a guarantee of performance of the intermediary or provide any assurance of returns to investors. Investments in securities market are subject to market risks. Read all the related documents carefully before investing.

To our readers in Switzerland: This document is provided in Switzerland by or through Bernstein Autonomous LLP, and is provided only to qualified investors as defined in article 10 of the Swiss Collective Investment Scheme Act ("CISA") and related provisions of the Collective Investment Scheme Ordinance and in strict compliance with applicable Swiss law and regulations. The products mentioned in this document may not be suitable for all types of investors. This document is based on the Directives on the Independence of Financial Research issued by the Swiss Bankers Association (SBA) in January 2008.

To our readers in the Middle East: Bernstein Autonomous LLP, DIFC branch has its principal office at Gate Village 06, DIFC, Dubai, UAE. Bernstein Autonomous LLP, DIFC branch is regulated by the Dubai Financial Services Authority (DFSA) with the registration number CL10040 and is provisioned for Arranging Deals in Investments and Advising on Financial Products. All communications and services are directed at Professional Clients and Market Counterparties only (as defined in the DFSA rulebook). Persons other than Professional Clients and Market Counterparties, such as Retail Clients, are not the intended recipients of our communications or services.

LEGAL

All research publications are disseminated to our clients through posting on the firm's password protected websites, bernsteinresearch.com and autonomous.com. Certain, but not all, research publications are also made available to clients through third-party vendors or redistributed to clients through alternate electronic means as a convenience.

This publication has been published and distributed in accordance with the Firm's policy for management of conflicts of interest in investment research, a copy of which is available from Bernstein Institutional Services LLC, Director of Compliance, 245 Park Avenue, New York, NY 10167. Additional disclosures and information regarding Bernstein's business are available on our website

www.bernsteinresearch.com.

The securities described herein may not be eligible for sale in all jurisdictions or to certain categories of investors where that permission profile is not consistent with the licenses held by the entities noted herein. This document is for distribution only as may be permitted by law. This publication is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of, or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject any of the entities referenced herein or any of their subsidiaries or affiliates to any registration or licensing requirement within such jurisdiction. This publication is based upon public sources we believe to be reliable, but no representation is made by us that the publication is accurate or complete. We do not undertake to advise you of any change in the reported information or in the opinions herein. This publication was prepared and issued by entity referred to herein for distribution to eligible counterparties or professional clients. This publication is not an offer to buy or sell any security, and it does not constitute investment, legal or tax advice. The investments referred to herein may not be suitable for you. Investors must make their own investment decisions in consultation with their professional advisors in light of their specific circumstances. The value of investments may fluctuate, and investments that are denominated in foreign currencies may fluctuate in value as a result of exposure to exchange rate movements. Information about past performance of an investment is not necessarily a guide to, indicator of, or assurance of, future performance.

This report is directed to and intended only for our clients who are "eligible counterparties", "professional clients", "institutional investors" and/or "professional investors" as defined by the aforementioned regulators, and must not be redistributed to retail clients as defined by the aforementioned regulators. Retail clients who receive this report should note that the services of the entities noted herein are not available to them and should not rely on the material herein to make an investment decision. The result of such act will not hold the entities noted herein liable for any loss thus incurred as the entities noted herein are not registered/ authorised/ licensed to deal with retail clients and will not enter into any contractual agreement/arrangement with retail clients. This report is provided subject to the terms and conditions of any agreement that the clients may have entered into with the entities noted herein. All research reports are disseminated on a simultaneous basis to eligible clients through electronic publication to our client portal.

The information in this report was prepared by Bernstein solely for the internal business use of our clients. Clients may store, display, analyze, reformat and print the information in this report for this limited use only. Clients may not copy, alter, create derivative works, resell, reverse engineer, commercially exploit, share or distribute any part of the information contained herein for any purpose without Bernstein's express written consent. These restrictions include extracting data or using the content to develop indices or other products. Further, you may not use this report, or any portion of this report, to train or finetune any third-party machine learning or artificial intelligence system, or as a prompt or input into any such system. You also may not, without Bernstein's express written consent, do any of the foregoing in connection with your own internal machine learning or artificial intelligence system.

Bernstein may use artificial intelligence tools in the preparation of its materials. Any such materials are reviewed by Bernstein's research analysts prior to publication.

This report has been prepared for information purposes only and is based on current public information that we consider reliable, but the entities noted herein do not warrant or represent (express or implied) as to the sources of information or data contained herein are accurate, complete, not misleading or as to its fitness for the purpose intended even though the entities noted herein rely on reputable or trustworthy data providers, it should not be relied upon as such. Opinions expressed are the author(s)' current opinions as of the date appearing on the material only and we do not undertake to advise you of any change in the reported information or in the opinions herein.

This publication was prepared and issued by the entity referred to herein for distribution to eligible counterparties or professional clients. The information in this report is intended for general circulation and does not constitute an offer to buy or sell any security, investment, legal or tax advice nor a personal recommendation, as defined by any of the aforementioned regulators. It does not take into account the particular investment objectives, financial situations, or needs of individual investors. The report has not been reviewed by any of the aforementioned regulators and does not represent any official recommendation from the aforementioned regulators. The investments referred to herein may not be suitable for you. Investors must make their own investment decisions in consultation with advice sought from a financial adviser regarding the suitability of the investment product, taking into account the specific investment objectives, financial situation or particular needs of any recipient of the recommendation, before the recipient makes a commitment to purchase the investment product.

The analysis contained herein is based on numerous assumptions. Different assumptions could result in materially different results. The information in this report does not constitute, or form part of, any offer to sell or issue, or any offer to purchase or subscribe for shares, or to induce engage in any other investment activity. The value of any securities or financial instruments mentioned in this report may fluctuate subject to market conditions. Information about past performance of an investment is not necessarily a guide to, indicative of, or assurance of future performance. Estimates of future performance mentioned by the research analyst in this report are based on assumptions that may not be realized due to unforeseen factors like market volatility/fluctuation. In relation to securities or financial instruments denominated in a foreign currency other than the clients'

home currency, movements in exchange rates will have an effect on the value, either favorable or unfavorable. Before acting on any recommendations in this report, recipients should consider the appropriateness of investing in the subject securities or financial instruments mentioned in this report and, if necessary, seek for independent professional advice.

The securities described herein may not be eligible for sale in all jurisdictions or to certain categories of investors where that permission profile is not consistent with the licenses held by the entities noted herein. This document is for distribution only as may be permitted by law. It is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or would subject the entities noted herein to any regulation or licensing requirement within such jurisdiction.

Source: Bloomberg Index Services Limited. BLOOMBERG® is a trademark and service mark of Bloomberg Finance L.P. and its affiliates (collectively "Bloomberg"). Bloomberg or Bloomberg's licensors own all proprietary rights in the Bloomberg Indices. Neither Bloomberg nor Bloomberg's licensors approves or endorses this material, or guarantees the accuracy or completeness of any information herein, or makes any warranty, express or implied, as to the results to be obtained therefrom and, to the maximum extent allowed by law, neither shall have any liability or responsibility for injury or damages arising in connection therewith.

No part of this material may be reproduced, distributed or transmitted or otherwise made available without prior consent of the entities noted herein. Copyright Bernstein Institutional Services LLC Bernstein Autonomous LLP, BSG France S.A., Sanford C. Bernstein (Hong Kong) Limited 盛博香港有限公司, Sanford C. Bernstein (Canada) Limited, Sanford C. Bernstein (India) Private Limited (SEBI registration no. INH000006378), Sanford C. Bernstein (Singapore) Private Limited and Sanford C. Bernstein Japan KK (サンフォード・C・バーンスタイン株式会社). All rights reserved. The trademarks and service marks contained herein are the property of their respective owners. Any unauthorized use or disclosure is strictly prohibited. The entities noted herein may pursue legal action if the unauthorized use results in any defamation and/or reputational risk to the entities noted herein and research published under the Bernstein and Autonomous brands.