



# AMERICAS DATA CENTER UPDATE

**OCT 2023**

**PRIMARY MARKETS:**

Atlanta, Chicago, Dallas, Northern Virginia, Phoenix, Portland,  
Silicon Valley, Toronto

**SECONDARY MARKETS:**

Austin, Columbus, New Jersey / New York, Montreal,  
São Paulo, Santiago, Querétaro, Bogota



# MARKETS

# UNITED STATES



## AMERICAS PRIMARY MARKET

# ATLANTA

## KEY INDICATORS\*



121MW ABSORPTION (H1 2023)



480MW IN OPERATION



670MW UNDER CONSTRUCTION



2.9% VACANCY RATE

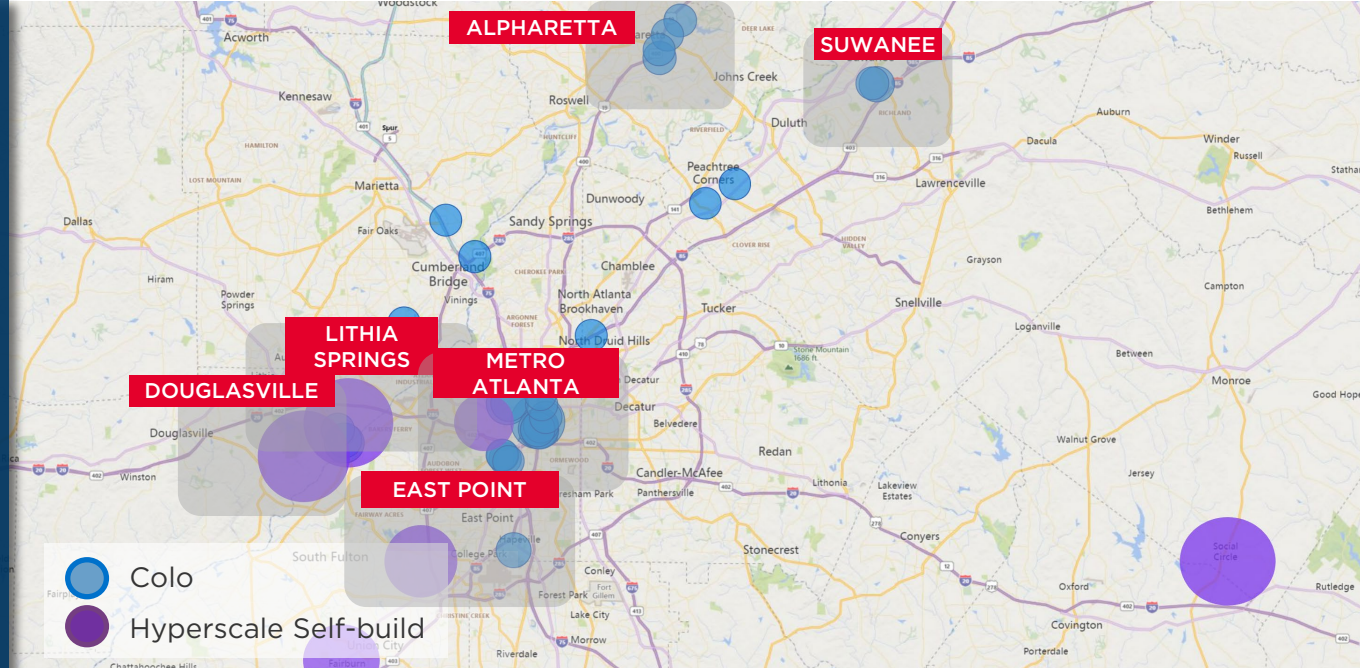
*\*Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.*

## MARKET OVERVIEW

Atlanta has seen a surge in absorption in 2023 with the delivery of a substantial amount of data center space that the market had been starved for over the second half of 2022. By the end of H1, Atlanta's 121MW absorption has already exceeded the 110MW of absorption for the entirety of 2022. Looking forward, the market continues to have a significant pipeline as both established clusters like Lithia Springs and Douglas County grow along with more emergent clusters in surrounding areas.

Vacancy has continued to tighten to a record 2.9%, with several new phases in process by DataBank, Digital Realty, H5, and Switch. Hyperscale self-build projects by Google (Douglas County), Microsoft (East Point, Lithia Springs, Palmetto) and Meta (Newton) have also continued in the market. Continued growth is expected as it's driven by a growing tech presence in the market, power limitations in nearby Northern Virginia, the business-friendly disposition of the area, and heightened investor interest, among others.

The state of Georgia is further signaling their commitment to the data center industry with last year's extension of sales and use tax exemption for high-technology data center equipment through to 2033., while adding a job creation requirement. A multitude of projects are currently in planning or are underway in the Atlanta market, one notable project is Project Excalibur, a 250MW, 600-acre QTS development 20 miles south of Atlanta that is planned to include 7 million square feet across 16 buildings comprised of 6.6 million square feet of data center space. Construction on the project is began this year and is expected to take 9 years to fully complete.



## ECOSYSTEM DEVELOPMENTS

- **Microsoft** has initiated construction on its multi-site campuses across East Point, Lithia Springs and Palmetto. In February, Microsoft hosted a community information session on its East Point Campus that involved some adjustments to the campus design. The hyperscaler originally purchased land for that development in 2021.
- **Meta** has signed a PPA with Walton EMC for 560MW of power from a range of solar facilities across Georgia. According to rumors, Meta considered expansions to its Newton data centers in 2021. This recent energy agreement could point to expnansions at that facility or in neighboring states.
- **AWS** acquired 13.57 acres in Suwanee for a planned data center. The hyperscaler had previously purchased 19 acres in the same submarket in 2022. In May, the cloud giant opened an AWS Direct Connect location in QTS's DC1, enabling private, direct access to AWS cloud, GovCloud regions and AWS local zones. Last year, AWS opened a local zone in the market.
- **QTS** is in the process of upgrading three data halls at its Suwanee (SUW-DC2) data center campus. The refresh will amplify the total capacity of the entire campus to 30MW. In Suwanee, QTS has enough acreage to scale their capacity to over 100MW. Separately, QTS has started work on the initial phases of its \$1.3B Project Granite along the Atlanta BeltLine railway that is currently undergoing re-development as a mixed-use corridor.
- **Switch** is planning a \$772M data center campus on 126 acres in Cartersville, GA. Named "KEEP 2.0 Atlanta North Campus", the development will join the DigitalBridge-owned operator's KEEP 1.0 campus in Douglas County that totals 150MW and over 1,000,000 sf.
- **Vantage Data Centers** is planning a 1.7M sf data center across three buildings in Douglasville. The tentative delivery date for the entire campus is currently listed as EOY 2025.
- **DataBank** initiated construction on ATL4 in July. The facility's first phase will include 4MW and 200k sf of white space. At full build out, the asset will reach a total capacity of 40MW and have dark fiber connections to the operator's ATL2 and ATL3 data centers.
- **Flexential** is moving forward with a phased 36MW campus in Douglasville. Expanding the initial planned capacity for the development, an initial 22.5MW and 130,000 sf at 1700 N River Road is expected to be available this year.
- **Aligned Data Centers** has begun its first foray into the Atlanta market, with a 44-acre land acquisition on River Road.
- **Edged Energy**, which has entered the North American market with a number of land acquisitions in established markets, bought 40 acres near Tilford Yard and has broken ground on a planned 180MW, 210,000 sf two-building data center.

RECENT PROPERTY SALES

SITE / <b>PROPERTY</b>	SIZE	SALE DATE	SALE PRICE (US\$)	BUYER	SELLER
Suwanee	14 acres	March 2023	(Undisclosed)	Amazon	(Undisclosed)
Tilford Yard	40 acres	April 2023	(Undisclosed)	Edged Energy	(Undisclosed)

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
DataBank	ATL 4 - Phase 1	20,000	4	U/C
	ATL 4 - Remaining Phases	180,000	36	In Planning
Digital Realty	10 Forsyth	300,000	(Undisclosed)	In Planning
	250 Williams	300,000	(Undisclosed)	In Planning
Edged Energy	Tilford Yard	210,000	180	U/C
Flexential	Douglasville - Phase 1	150,000	22.5	U/C - Q4 2023
	Douglasville - Phase 2	75,000 (est.)	13.5	In Planning
Meta	Newton - Phase 2	1,500,000	126 (est)	U/C
Microsoft	Palmetto	250,000	26 (est)	U/C
	Douglasville	980,000	100 (est)	U/C
	East Point	250,000	26 (est)	U/C
QTS	Project Excalibur (Fayetteville)	6,600,000 (est)	700 (est)	U/C- 2032 (full build out)
	Project Granite (Metro Atlanta)	1,150,000	100 (est)	In Planning - 2025
Stack Infrastructure	Lithia Springs	130,000	12	In Planning
Switch	KEEP 1.0 (new phase bldg 2)	400,000 (est)	35	Under Construction / Q4 2023
Vantage Data Centers	Douglasville	1,700,000	150 (est.)	U/C

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## AMERICAS SECONDARY MARKET

# AUSTIN

## KEY INDICATORS\*



1MW ABSORPTION (H1 2023)



41.5MW IN OPERATION



102MW UNDER CONSTRUCTION



10% VACANCY RATE

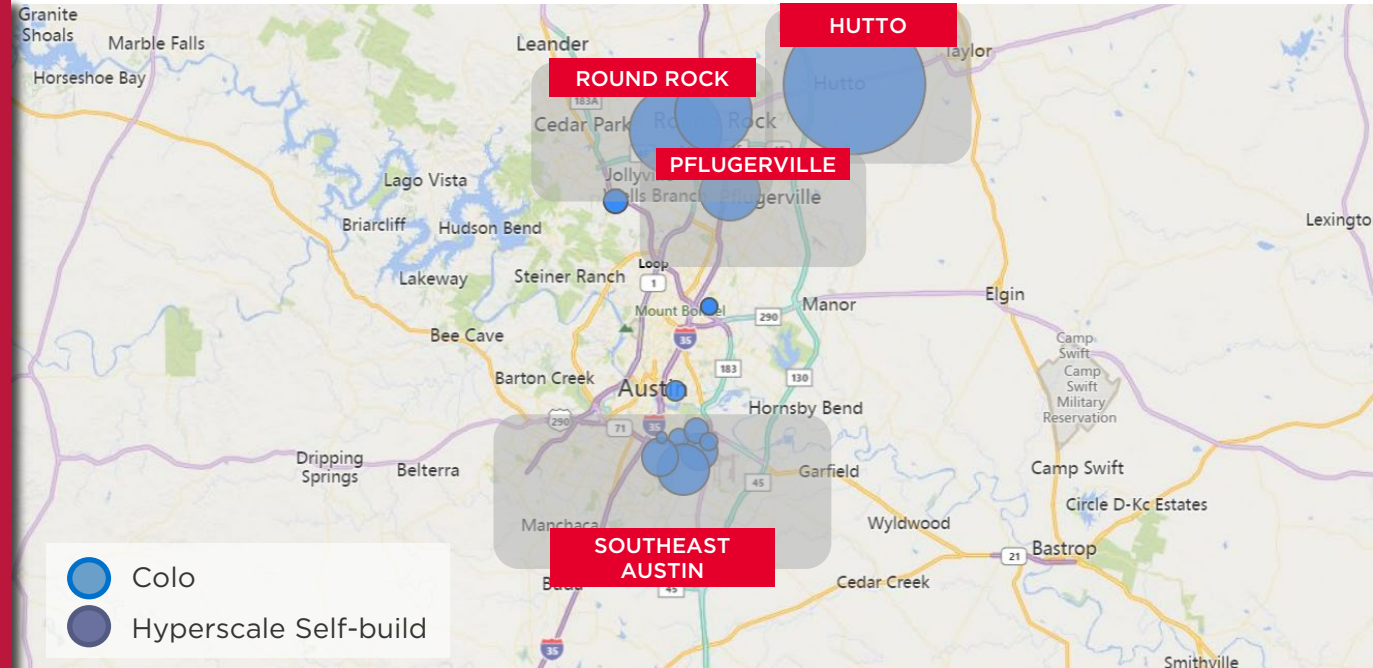
\*Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.

## MARKET OVERVIEW

As the undisputed tech hub of Texas, Austin has attracted major tech firms over the past several years thanks to Austin's growing population, robust workforce, and a steady stream of new college graduates each year. The data center market in Austin has grown in parallel as the metropolitan area offers plenty of available land, a business-friendly environment, and a healthy repertoire of economic development incentives. Historically, colocation providers such as Digital Realty, CyrusOne and Switch have located in the industrial areas of Southeast Austin, near Austin-Bergstrom International Airport. As major tech companies have announced office expansions in the downtown market, speculation has grown around the potential for hyperscale expansion in the market. As a result, several major data center construction projects have recently kicked off in the Austin area, Sabey Data Centers' build in Round Rock and the Skybox/Prologis builds in Pflugerville and Hutto. The Pflugerville / Round Rock markets have been of particular interest to future development, including Switch's 185 MW project, drawn by more affordable land prices and flexibility of utility choice.

## ECOSYSTEM DEVELOPMENTS

- **Skybox and Prologis** have received city approvals for a 600MW campus that will total 3.9M sf upon the 150 acres that the partnership acquired in Hutto last year. The campus development will be one of the largest in Texas at full buildout and will include over half a dozen data center buildings complete with two 300MW substations. At the partnership's first Austin development in Pflugerville, development plans near completion at the 30MW site, expected to deliver at year end.
- **Sabey Data Centers** nears completion on construction of its Round Rock facility. The site has completed exterior walls with installation of chillers and fiber entry points in place, along with development of a pad site for the onsite 160MW substation.
- In nearby Bastrop County, **Carpenter & Associates** have filed plans for a 1.4M sf data center campus that will encompass four buildings. Last year, Available Power announced that it was developing a 100MW lithium-ion battery storage for the campus.



## RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US\$)	BUYER	SELLER
Lambda Dr - San Antonio	123	May 2023	(Undisclosed)	CloudHQ	University of Texas System

## CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
Sabey Data Centers	Round Rock	430,000	72	Under Construction - Q1 2024
Skybox /Prologis	Skybox Austin I Powercampus Austin	141,420 3,900,000	30 600	Under Construction - Q4 2023 In Planning
Switch	Round Rock	2,000,000	185 (est.)	In Planning

## AMERICAS PRIMARY MARKET

# CHICAGO

### KEY INDICATORS\*



**72MW ABSORPTION (H1 2023)**



**688MW IN OPERATION**



**402MW UNDER CONSTRUCTION**



**5.1% VACANCY RATE**

\*Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.

### MARKET OVERVIEW

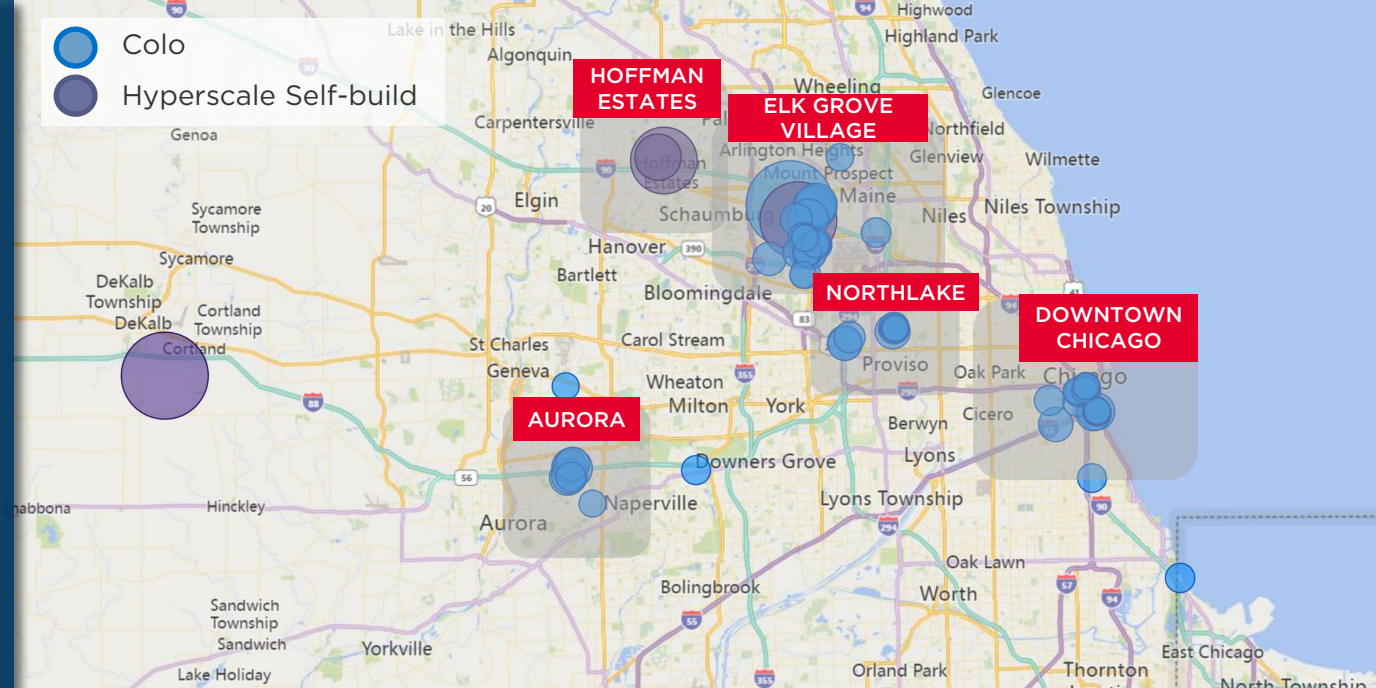
The Chicago data center market is seeing robust absorption into 2023, with 72MW absorbed in the first half of the year, putting it on track to surpass the 100MW absorbed in 2022. Vacancy rates have remained relatively low, remaining in the 5.0% - 5.5% range since last year. The demand for data center space remains high, fueled by the significant needs of hyperscalers looking to secure large capacities of space - Microsoft, Oracle, Google, AWS, Meta, Apple and ByteDance are all currently active in the market.

As demand has grown in well-established submarkets like Elk Grove Village and Hoffman Estates, competition for available land has risen, with other asset classes, mainly industrial, also vying for space in the O'Hare Industrial Corridor. New entrants into the market have had to get creative or find unfilled niches to establish themselves. For example, Aligned Data Centers acquired existing office buildings in Elk Grove Village for demolition and re-development as a data center campus, while other developers explored using residential land for data center projects.

The growth of these data center clusters has led to power constraints in certain areas of the Chicago market. ComEd, the primary utility provider in Illinois, estimates that obtaining sufficient power availability in some submarkets may range from 2025 to 2028. Despite these challenges, land acquisitions and project approvals are still progressing.

In the first half of the year, significant land acquisitions were made by companies like Microsoft, Edged Energy, Stream Data Centers, NTT, and TA Realty, resulting in hundreds of acres dedicated to new data center projects. Simultaneously, projects from CloudHQ, Nexstar Media Group, and Metro Edge received key approvals, moving them closer to development.

Pre-leasing and leasing for new projects remains strong, suggesting that current vacancy levels are likely to be sustained in the future. Server Farm leased its remaining vacancy of 15MW to a hyperscaler. Meanwhile, Equinix's downtown 350 E Cermak leased an additional 2MW with plans for further expansion. As Chicago approaches 1GW in total data center capacity, providers will seek new submarkets with available power and abundant land opportunities for further data center development.



### ECOSYSTEM DEVELOPMENTS

- **Microsoft** moved forward with plans to expand its campus in Hoffman Estates. The cloud service provider purchased an additional 30 acres adjacent to its 53-acre site that has been approved for two 207,000 sf data halls. This most recent purchase includes a 250,000 sf shell constructed by the previous owner. The hyperscaler has also recently purchased 300 acres in Mount Pleasant, WI.
- **Digital Realty** has sold a 65% stake in its 90% occupied CHI1 and CHI3 data centers to GI Partners. Totaling 67MW, the \$743M deal, with financing from Barclay's, Citigroup and Morgan Stanley, is representative of a larger strategy from the REIT to raise capital towards new projects and pay down existing debt.
- **CloudHQ** has received final approval to begin construction on its 252MW Mount Prospect campus.
- **Compass Data Centers** is under contract for the 273 acre former Sears headquarters campus in Hoffman Estates.
- **Stream Data Centers** sent an application to Elk Grove Village for the annexation and subdivision of a 40 acre residential site in order to develop a data center campus. If granted, the sale of the properties would close in August of this year. The planned campus would be made of three buildings and an on-site substation. Their delivered CH2 site is fully leased between a major gaming company and a hyperscaler.
- **T5 Data Centers and Metro Edge** have gained approval from Chicago DPD for a 19.8MW data five-story data center in the Illinois Medical District (IMD). Dubbed IMD1, the development will begin construction in the second half of 2023. T5 also has a 15 acre site under contract in Northlake for future development.
- **Edged Energy** has initiated construction in Aurora on a 100MW campus covering 65 acres. The sustainability-minded data center operator closed on the site in May of this year, with plans to deliver a first phase in Q2 2024. The project is a joint venture with Seefried Industrial Properties and will feature a PUE of 1.15 with on-site solar power, waterless cooling and backup generators supported by alternative fuels.
- **Farpoint Development's Bronzeville Lakefront** megadevelopment just south of Downtown Chicago gained approval from the city council. The \$3.8B mixed use plan will include an on-site data center and runs above several key longhaul fiber lines.
- **Nexstar Media Group** is partnering with a data center developer to develop 35 acres at their transmitter site into a campus totaling over 800,000 sf. The plan has received preliminary approval from Elk Grove Village and is estimated to begin construction later this year.
- **Argonne National Laboratory** brought online Aurora, a 2 exaflop supercomputer that will be one of the most powerful computing resources on the planet. Argonne National Laboratory has been a primary client for many new AI data center startups in recent years.



RECENT PROPERTY SALES

SITE / <b>PROPERTY</b>	SIZE	SALE DATE	SALE PRICE (US\$)	BUYER	SELLER
2625 Barrington Rd	14.7 acres	March 2023	\$41.5M	Microsoft	Prairie Ridge Development Group
2611 Barrington Rd	16.1 acres	March 2023	\$13M	Microsoft	Meijer
Braun Rd (Former Foxconn Site)	315 acres	April 2023	\$50M	Microsoft	Village of Mount Pleasant
<b>CH1</b>	488,500 sf	June 2023	\$446M (est.)	GI Partners (65% interest)	Digital Realty (retain 35% interest)
<b>CH3</b>	224,867 sf	June 2023	\$297 (est.)	GI Partners (65% interest)	Digital Realty (retain 35% interest)
Northwest Point Blvd	25.3 acres (assembled)	March / May 2023	\$56.4M	Aligned Data Centers	Various
Bilter Rd	65.3 acres	May 2023	\$27M	Edged Energy	Undisclosed
Elmhurst & Busse Rd	50 acres	November 2022	\$72M	TA Realty	Undisclosed

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
Aligned	ORD-01	TBD	100	In Planning
CloudHQ	Arlington Heights	1,700,000	252	U/C - Phase 1 2024
CyrusOne	Bensenville	TBD	TBD	In Planning
Digital Realty	Cermak Franklin Park	565,000 400,000	54 30 (est)	In Planning In Planning
Edged Energy	Aurora 1, 2, 3	588,240	100	U/C - Phase 1 Q2 2024
Iron Mountain	Des Plaines	330,000	36	In Planning
Microsoft	Elk Grove Village Hoffman Estates	414,000 400,000	30 (est) 50 (est)	U/C - 2023 In Planning
Meta	DeKalb- Phase 4	1,300,000	150 (est)	In Planning
Prime Data Centers	ORD-01 Remaining Phases	384,000 366,000	72 103	In Planning
T5 Data Centers / Metro Edge	IMD1	184,000	19.8	U/C

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## AMERICAS ESTABLISHED MARKET

# COLUMBUS

## KEY INDICATORS\*



**3.7MW ABSORPTION (H1 2023)**



**457MW IN OPERATION**



**383MW UNDER CONSTRUCTION**



**7% VACANCY RATE**

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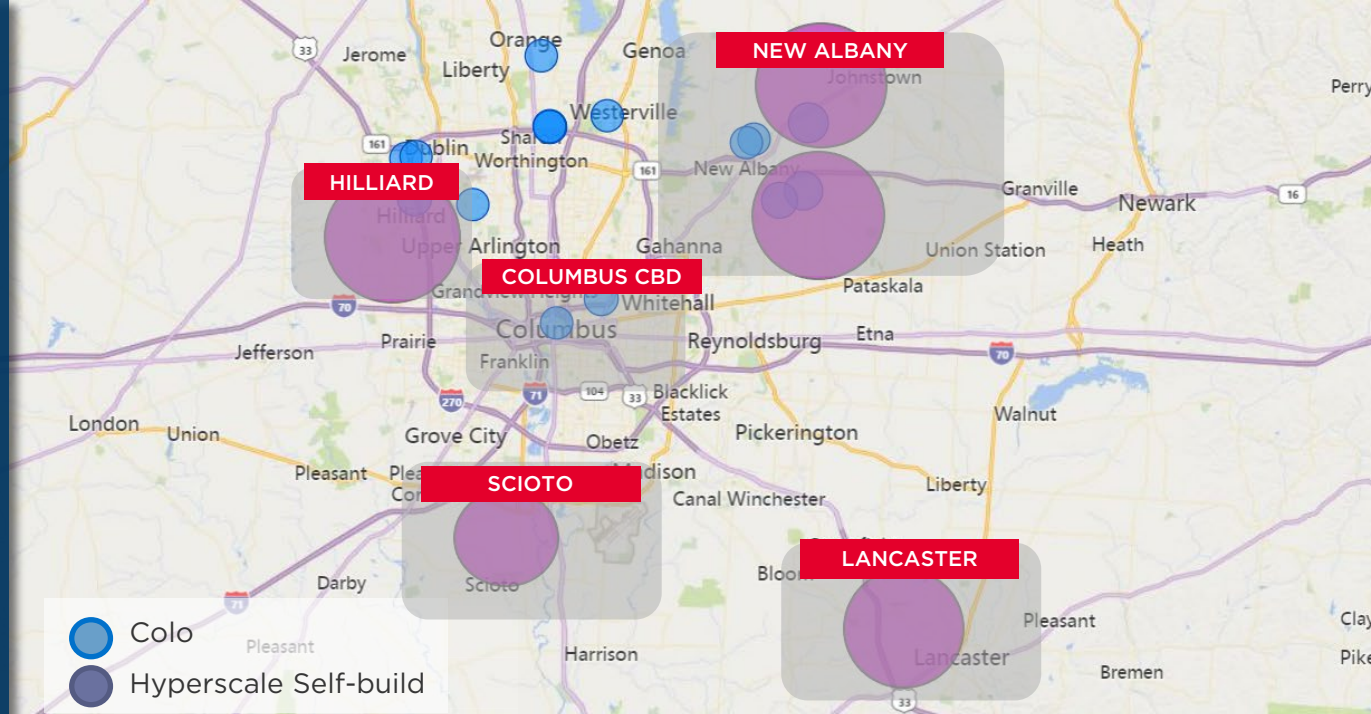
## MARKET OVERVIEW

Columbus has become a primary hyperscaler hub for the East Coast and Midwest, as these firms search for large campus opportunities. Driving the growing demand for data centers in the Columbus market is a low risk of natural disasters, affordable land, favorable tax incentives and an unregulated power market. While the Columbus Region is already home to more than 50 data centers, including those owned by AWS, Google Cloud, and Meta, billions of dollars in new investments are pouring into the metropolitan area.

Since the surge in AI interest, both AWS and Google have made additional multi-billion dollar commitments to sizably expanding their self-build footprints in the market. Meta has continued to build out its existing campus while Microsoft has just executed a substantial land transaction in the market. We can expect further growth as hyperscalers seek to satisfy the gargantuan projected data demand associated with artificial intelligence, moving Columbus into a mature data center market.

Colocation providers have begun to also set up facilities in the market. While some smaller colo data centers had existed in the market previously, a new wave of operators arrived aiming to cater to hyperscale activity. Lincoln Rackhouse and Cologix are moving towards the delivery of assets while both Edged Energy and Aligned Data Centers have begun new projects in Central Ohio over the past six months. One of the highest single investments comes from Washington, D.C.-based DBT Development Group who is planning a \$1 billion project in New Albany that will span up to 1 million square feet on 93 acres when complete.

Going forward, expect land prices to rise as sellers calibrate to the appetite of hyperscalers. Other asset classes have also found Columbus to be a key growth market, with Honda and LG developing a 2M sf EV battery factory in Jefferson County and Intel investing \$20B towards a chip factory in Licking County. New entrants should be aware of these well-capitalized, power-intensive use cases that will compete for parcels ideal for data center development.



## ECOSYSTEM DEVELOPMENTS

- **Amazon** is planning to invest \$7.8B towards expanding its self-build footprint across Ohio by 2030. Within the New Albany area, Amazon received approval for five data centers to be built within 439-acres the hyperscaler recently purchased in the submarket. Totalling 1.25M sf, the company would invest \$3.5B to build out the campus with room for further expansion.
- **Google** broke ground on two locations in South Columbus and nearby Lancaster that will total \$1.7B in additional investment into data centers in the state on top of the \$2B already invested in its New Albany data center campus. To power these sites, the hyperscaler signed a 650MW solar PPA with EDPR NA, their largest single contract on record.
- **Microsoft** has entered the market with the purchase of 183 acres in New Albany in July 2023.
- **Apple** is rumored to be evaluating Central Ohio for a potential data center campus.
- **Aligned Data Centers** acquired the former General Motors plant (totaling 129-acres) to the North in Sandusky, OH. The data center operator is expecting to spend \$202M on the redevelopment of the property towards data center uses. The site has an existing power feed of 80MW with expansion up to over 200MW. Power rack densities for the site could range up to 300 kW per rack depending on any AI or HPC requirements by users.
- **Edged Energy**, as part of their multi-pronged push across North American markets, announced plans for a 100MW facility in the Columbus market.
- A major technology company utilizing the shell company **Liames LLC** has secured 670-acres for the development of a data center campus in nearby Toledo, OH. The site has been granted re-zoning to light industrial use, including use as a data center, by the local township council.
- **SummitIG** is laying a new dark fiber network throughout Columbus, totaling over 200 miles.



RECENT PROPERTY SALES

SITE / <b>PROPERTY</b>	SIZE	SALE DATE	SALE PRICE (US\$)	BUYER	SELLER
Hayes Ave – Sandusky, OH	129 acres	Oct 2023	\$52M	Aligned Data Centers	Avgeris & Associates
Beech Rd	183 acres	June 2023	\$56.9M	Microsoft	The New Albany Company
Beech Rd NW	392 acres	Jan 2023	\$116.7M	Amazon	The New Albany Company
<b>7000 Souder Rd</b>	31,192 sf	Feb 2023	\$5M	Compugen	PCM

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
AWS	Hilliard / New Albany (multi-site)	1,250,000 (est.)	Undisclosed	In Planning
Google	Columbus Lancaster	Undisclosed Undisclosed	Undisclosed Undisclosed	U/C U/C
Meta	New Albany	1,000,000 (est.)	Undisclosed	U/C
Microsoft	New Albany	Undisclosed	Undisclosed	In Planning
Lincoln Rackhouse	New Albany – Phase 1 New Albany – Phase 2 New Albany – Remaining Phases	70,000 (est.) 174,000 (est.) 1,255,000 (est.)	10 25 181	U/C U/C In Planning
Cologix	COL4-S	256,000 (est.)	27 (est.)	In Planning
DBT Development Group	New Albany	1,000,000 (est)	Undisclosed	In Planning

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## AMERICAS PRIMARY MARKET

# DALLAS

## KEY INDICATORS\*



**68MW ABSORPTION (H1 2023)**



**140MW UNDER CONSTRUCTION**



**650MW IN OPERATION**



**3.4% VACANCY RATE**

\*Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.

## MARKET OVERVIEW

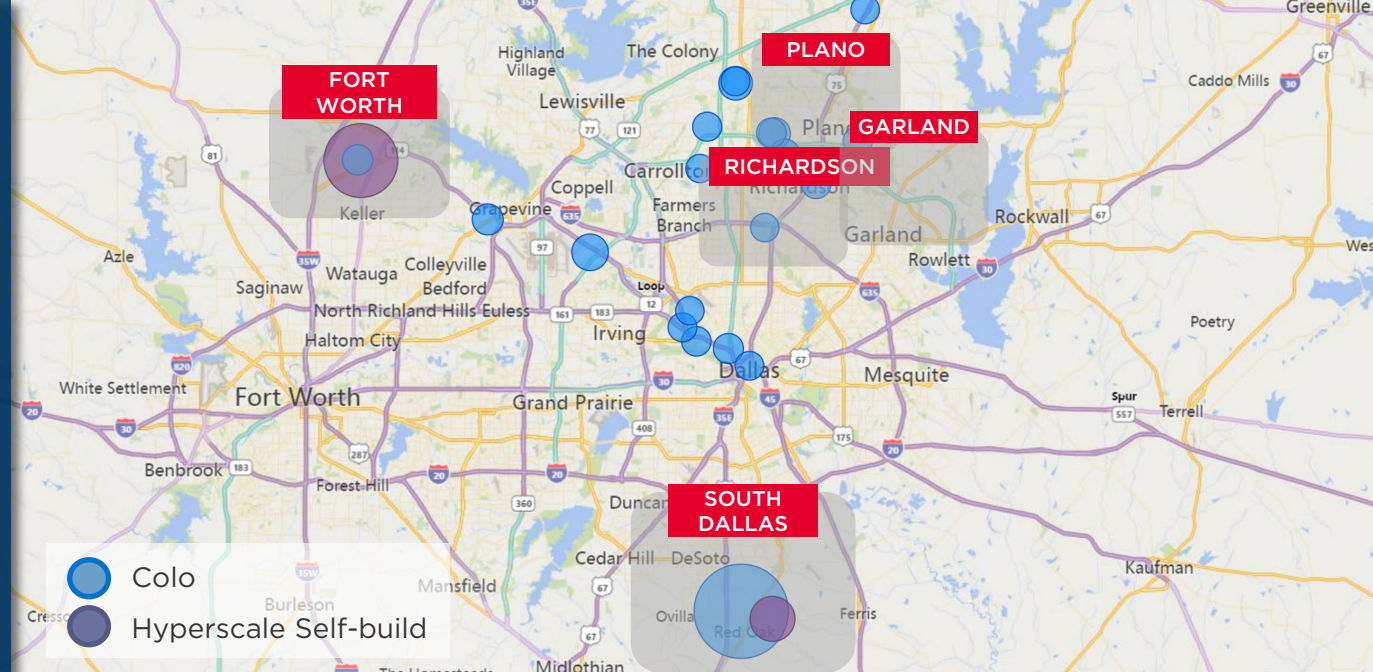
In H1 2023, demand for data center space in Dallas remains high, with 75 MW of leases transacted in the first half of the year equating to 68MW of net absorption. As with many major markets, vacancies continued to push vacancies lower to 3.4% as hyperscale and enterprise demand remain strong. Over the past year, colocation rents and utility prices have risen in the market. Pre-leasing has been a continued trend in the market, with almost all new construction promised to single users prior to initiating construction.

With vacancy at 3.4%, colocation rents and utility pricing have jumped over the past year. Wholesale leases have risen by 20%, whereas hyperscale leases have risen by 18%. Dallas remains a more affordable market than Northern Virginia or Silicon Valley, which have seen even more acute jumps in pricing.

South Dallas (into Ellis County) has been a major development cluster for developers in the market, with relatively available land and power driving demand from both colocation developers and hyperscale self-builds. Joining the likes of Google and Compass Datacenters that have already moved into the market, Skybox has begun development on a significant campus in the submarket. Compass has likewise doubled down with a further large land acquisition as it continues to build out its existing campus. Future buyers can expect land pricing to pick up in the submarket given the recent activity, with East Dallas submarkets potentially arising as an alternative area of future growth.

Demand for AI computation space has added to the interest in the market. An AI GPU Cloud computing company leased one of the few remaining large blocks of space (exceeding 10MW) in the market during H1. Rumors have suggested that Microsoft and Google are in the process of signing large deals in Dallas or the wider Texas market driven by their strategies for AI.

As one of the Top Five US Data Center markets, Dallas looks to continue to rapidly grow with strong vacancy and pre-leasing numbers combined with a deep pipeline of assets.



## ECOSYSTEM DEVELOPMENTS

- **Google** signed a 150MW power agreement in South Texas with Danish energy company Ørsted. Located in Bee County, the Helena Wind Farm will provide renewable energy to the cloud provider's Texas assets over a 15-year agreement.
- **Digital Realty** sold its data center at 400 Akard St for approximately \$150M to DataBank. The sale is aligned with a larger strategy from the REIT to raise capital towards new projects and pay down existing debt. DataBank had been a tenant in the building prior to the purchase. Digital Realty has also moved forward with new developments in Garland and Lewisville
- **Meta** signed a 240MW power agreement with renewable energy provider Avangrid to source power from the True North solar farm near Waco. Meta's facility in Fort Worth is scheduled for completion this year.
- **Skybox** has begun development on a 100MW campus in South Dallas county in collaboration with Bandera partners. Simultaneously, the data center provider is currently working with Prologis on 100MW build-to-suit campus in Plano. The site was formerly under the operation of NTT and boasts a 25MW substation on-site with plenty of land for future development. Skybox has a number of other joint ventures in the works with Prologis, including projects near Austin.
- **Compass Datacenters** purchased approximately 375 acres of land in South Dallas for future data center development. The new campus is proximal to the operators existing campus in Red Oak which currently has two operational data centers. Compass is currently working with local officials to rezone the newly purchased property from agricultural use to a data center compatible zoning
- **Equinix** began expansion of its DA11 data center. As part of their IBX series of data centers, DA11 acts as a interconnection hub for Equinix which was first delivered in 2020.
- **NTT** is planning to spend \$50M on tenant fit-out improvements for its TX2 and TX3 data centers. Construction on both data centers began over the course of the past year and are poised to be complete (along with tenant improvements) in December 2024 (TX3) and July 2025 (TX2)



RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US\$)	BUYER	SELLER
400 Akard St	269,563 sf	March 2023	\$150M	DataBank	Digital Realty
Old Red Oak Rd	100 acres	April 2023	(Undisclosed)	Bandera Ventures, Skybox	(Undisclosed)
Red Oak Site	375 acres	April 2023	(Undisclosed)	Compass Datacenters	Various

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
Compass Datacenters	Red Oak	720,000	102	U/C - Q4 2023
QTS	Irving	640,000	(Undisclosed)	U/C - Q3 2023
Equinix	DA11	211,000	(Undisclosed)	U/C
Digital Realty	Garland	181,200	8	U/C
NTT	TX2 TX3	229,500 230,000	36 36	U/C - Q1 2024 U/C - Q2 2024
Stream Data Centers	Wilmer (Dallas VIII - Phase 1)	125,000	43	U/C
Flexential	Plano	100,000	9	U/C
Skybox, Bandera Ventures	Red Oak	600,000 (est)	100	In Planning

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## AMERICAS PRIMARY MARKET

# NORTHERN VIRGINIA + OUTLYING

## KEY INDICATORS\*



**447MW ABSORPTION (H1 2023)**



**4,507MW IN OPERATION**



**396MW UNDER CONSTRUCTION**



**0.9% VACANCY RATE**

*\*Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.*

## MARKET OVERVIEW

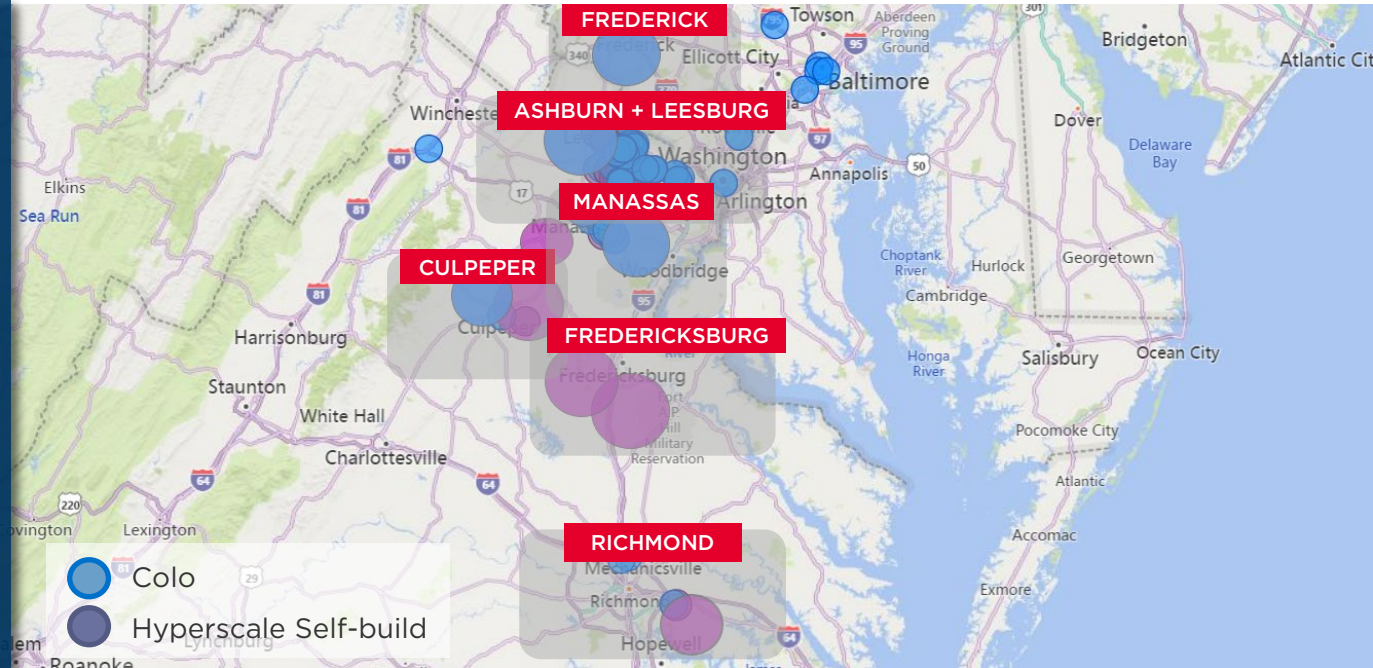
Ever the behemoth market of the Americas, Northern Virginia reached new heights in terms of operation and under development capacity this year. Despite growing headwinds for land and power availability, operators continued to expand the pipeline of the market. Absorption in the market remained fairly steady to recent years, with 447MW absorbed in the first half of the year. Vacancy remains at an all-time low of under one percent in the market, as pre-leasing of space has remained rapid among new projects. Any available land of sufficient size, with power and fiber availability, is heavily contested for either colocation or hyperscale self-build purposes.

As infrastructure in Loudoun County is upgraded to enable distribution of sufficient power, new projects have increasingly been announced at greater distances from traditional data clusters. While data centers had previously been concentrated in Loudoun County (Ashburn and Leesburg specifically), developments have spread in recent years to Manassas, Sterling, Herndon and Prince William County. Over the past year, developments have been announced increasingly farther afield as developers are in search of available power and larger land sites. Projects have been announced in Warrenton, Culpeper, Spotsylvania, Caroline County and as far South as Richmond. Movement has also moved northward as the Quantum Loophole development in Maryland attracted Aligned Data Centers and began plans for a low latency, high throughput fiber line to connect to the core NoVa data center clusters.

Pricing for both wholesale and hyperscale leases is highly dynamic, with operators seeking ever higher rates as vacancy continues to linger at record lows. Entities seeking 10MW+ spaces are having extreme difficulty finding anything available in the market today, pushing them to either wait for a new development or search elsewhere. There is occasional movement as major tenants migrate to cloud platforms, though these are likely to be absorbed very quickly.

As NoVa becomes a statewide, or even multi-state market, the size of developments have exponentially increased. Both hyperscalers and colocation providers are sourcing hundreds of acres and have millions of square feet in pipelines – with the key limiting factor being when a power commitment can be secured. Another challenge to note is growing regulatory and political pushback to data center development in certain submarkets – new entrants should be aware of community sentiment on a county and municipal level.

As large-scale campuses continued to be planned in outlying submarkets, there remain some planning for infill opportunities within traditional data center clusters like Ashburn and Beauneade. And as interest in artificial intelligence soars worldwide, peripheral developments in Southern Virginia, Maryland and even West Virginia as well as North Carolina will continue to grow as latency becomes a less critical deciding factor in development. Despite these headwinds, the market is still expected to grow by several gigawatts in size over the coming years.



## ECOSYSTEM DEVELOPMENTS

- **AWS** has filed proposals for a number of development sites in Stafford County (510,000 sf), Manassas (250,000 sf), Warrenton (220,000 sf) as well as Spotsylvania and Caroline Counties (10M sf). In King George County, the hyperscaler received approvals for a 7.25M sf 19-building data center campus to build a 250,000 sf data center in Manassas. The proposal of these developments follow a \$35B pledge by the cloud company to invest in a series of data centers throughout Virginia by 2040.
- **Microsoft** is in the process of expanding its Leesburg campus with two additional data centers. The hyperscaler has also announced plans for a 500,000 sf data center in Arcola. Microsoft has also signed a nuclear PPA with Constellation to power its Boydton data center campus.
- **Compass Datacenters and QTS** have filed updated proposals for the PW Digital Gateway project. The sprawling development will total an astronomical 22M sf between the two developers upon full build out.
- **Cologix** has completed ASH1, a 120MW 455,000 sf Scalelogix data center. Cologix's use of modular construction methods was apparently able to shorten the development of the data center to only seven months. The data center has delivered completely pre-leased.
- **Peterson Companies** has proposed a 2.1M sf campus in Culpeper that will cover 150-acres of rezoned land.
- **Fidelis New Energy** is proposing a 1GW data center dubbed the Mountaineer Gigasystem across state lines in West Virginia. The energy company is planning to develop a net-zero hydrogen production facility adjacent to the campus to be its primary energy source.
- **STACK Infrastructure** plans to build 96MW across two buildings on Hornbaker Road in Manassas. The operator had recently purchased the land from the Peterson Companies.
- **Coreweave** has signed a sizable lease within Digital Fortress and Chirisa's 29MW asset in the Meadowville Technology Park. The AI cloud services provider, which has recently signed Microsoft as a client, has been growing its portfolio of assets for AI computation loads. Chirisa secured a \$200M construction loan from Brookfield to retrofit the former CapitalOne data center.
- **H5 Data Centers** broke ground on a new 42MW facility in Beauneade. The 255,000 sf facility will replace an existing shell that was previously on the location.
- **Vantage Data Centers** completed the first phase of its 96MW campus in Ashburn that will total 800,000 sf.

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US\$)	BUYER	SELLER
43915 Devin Shafron Dr	132,285 sf	Apr 2023	\$150M	GI Partners	Starwood Capital
44150 Wade Drive - Chantilly	25 acres	Jul 2023	\$34.4M	Amazon	Firefox LLC
VA1 adjacent parcel	10 acres	Jan 2023	\$27M	Vantage Data Centers	The Boston Properties
23540 Pebble Run PI	14 acres	Jul 2023	\$15M	Microsoft	Remington Mulch Company
13832 Redskin Dr	8 acres	Jun 2023	\$25M	Starwood Capital	Word of Grace Christian Church

CONSTRUCTION & PLANNED UPDATES\*

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
AWS	Multiple Sites	18,230,000 (est.)	Undisclosed	U/C & In Planning
Microsoft	Multiple Sites	1,250,000 (est.)	Undisclosed	In Planning
Compass & QTS	PW Digital Gateway	22,000,000	Undisclosed	In Planning
Starwood Capital	Herndon	2,200,000 (est.)	Undisclosed	In Planning
CloudHQ	Multiple Sites	4,500,000 (est.)	482 (est.)	U/C & In Planning
Corscale	Gainesville	2,300,000 (est.)	306 (est.)	U/C & In Planning
Digital Realty	Multiple Sites	12,436,000 (est.)	1,144 (est.)	U/C & In Planning
Peterson Companies	Culpeper	2,000,000	600 (est.)	In Planning
NTT	Multiple Sites	970,136 (est.)	224 (est.)	In Planning
CyrusOne	Multiple Sites	595,0000 (est.)	95 (est.)	In Planning
PowerHouse Data Centers	Ashburn & Sterling	2,000,000 (est.)	461 (est.)	In Planning
Aligned Data Centers	Ashburn & Fredrick, MD	3,800,000 (est.)	288 (est.)	In Planning
STACK Infrastructure	Multiple Sites	1,7000,000 (est.)	396 (est.)	U/C & In Planning
Sabey Data Centers	Multiple Sites	300,000 (est.)	42 (est.)	U/C & In Planning
The BlackChamber Group	Multiple Sites	3,100,000 (est.)	555 (est.)	In Planning

\* = Highlighting key pipeline properties, not fully extensive of smaller developments or those earlier in planning process

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## AMERICAS ESTABLISHED MARKET

# NEW JERSEY / NEW YORK

## KEY INDICATORS\*



**10.7MW ABSORPTION (H1 2023)**



**376MW IN OPERATION**



**63MW UNDER CONSTRUCTION**



**5.8% VACANCY RATE**

*\*Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.*

## MARKET OVERVIEW

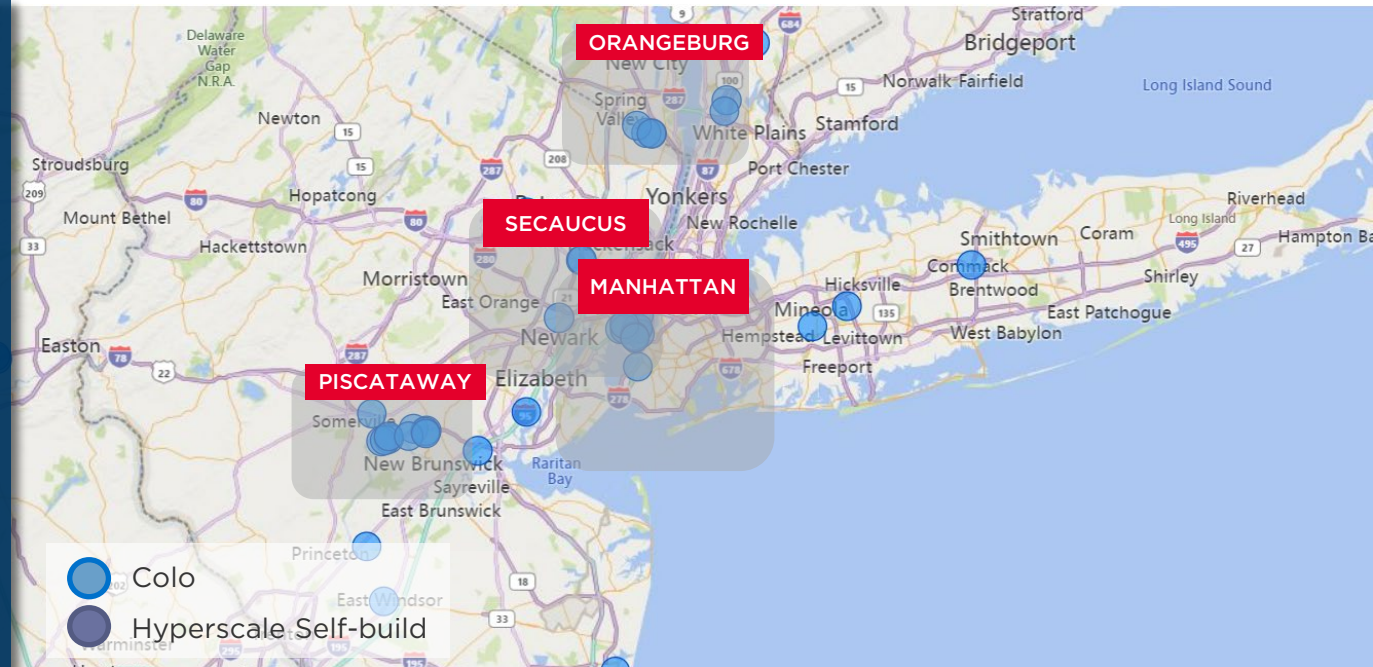
Continued demand for assets in the New York - New Jersey market had a continued to tighten vacancy to a record low 5.8%. Established national players have recently double-downed on their involvement in the market, with QTS and Equinix both moving forward with expansion plans to their existing assets in the market.

Last year, some new entrants established themselves in the market through national acquisitions. H5 Data Centers moved forward with a portfolio acquisition of seven of vXchnge's assets around the United States, including one located in Secaucus, NY. As part of its recent acquisition of ColoHouse, 1547 Realty relocated certain of ColoHouse's services to its asset in Orangeburg, NY. Both Coresite and DataBank are also working to expand their presence in the market.

With the overall turbulence of the global economy, deal flow in New Jersey and New York contracted somewhat from the substantial transaction volume in 2021. Lease rates, which had been on a downward trajectory through 2021, saw upticks in pricing across different sizing buckets across 2022 and 2023

In terms of interest in AI, interest has been growing with applications for the financial sector based in New York. The New York Department of Financial Services (DFS) is purchasing a supercomputer to understand financial use cases and anticipate needed regulations. Elsewhere other entities are determining applications for edge AI applications with low latency requirements. The market is unlikely to be a center of the larger scale model training facilities, which will likely be focused in markets with cheaper land.

With absorption continuing apace, New York/New Jersey data center market continues to grow at a steady pace, with continued services targeting the connectivity hub that has grown around the financial and population center of New York City.



## ECOSYSTEM DEVELOPMENTS

- **Coreweave**, a blockchain cloud provider now utilizing its GPU deployment for AI, signed a multi-billion dollar deal with Microsoft to provide large scale GPU parallelized workloads. Earlier in the year, Coreweave had raised over \$421M at a \$2B valuation as interest in AI surged. The data center provider has a data center in Weehawken, NJ that serves as its US East cloud region. Coreweave has also won TierPoint for a multi-MW colocation deal, likely connected to their Hawthorne location.
- **AT&T** has signed a 15.6MW solar PPA through five projects in Upstate New York to provide power to its data centers in the region.
- **Zayo** has launched a new subsea cable between the New Jersey Landing Station NJFX and Manchester by leasing capacity along the Havfrue/AEC 2 cable.
- **Nasdaq** has completed the migration of its Nasdaq Bond Exchange onto AWS. The complete migration will involve a combination of moving some features entirely to the cloud while installing AWS infrastructure in Nasdaq's central operations in Equinix's data center in Carteret, NJ.
- **Paperspace**, an New York-based AI and cloud computing startup, was acquired by DigitalOcean for \$111M. The company has had a deployment in CoreSite's New York data center since 2016.
- **Continent 8**, a data center provider dedicated towards gambling services, is expanding its Atlantic City facility with a new modular data center addition as part of multi-market expansion strategy that includes Illinois, Iowa, Kansas, Louisiana and Puerto Rico
- **New York Internet (NYI)** is partnering with **JEMB Realty** to manage the carrier hotel at 75 Broad St.

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
QTS	Piscataway - Expansion	50,000	15	U/C / 2023
Equinix	NY11 - Expansion	Undisclosed	48	U/C / 2023
DataBank	Orangeburg	200,000	30	In Planning
EIP	New Britain	465,000	20	In Planning

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## AMERICAS PRIMARY MARKET

# PHOENIX

## KEY INDICATORS\*



**325MW ABSORPTION (H1 2023)**



**1,257MW IN OPERATION**



**276MW UNDER CONSTRUCTION**



**2.8% VACANCY RATE**

*\*Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.*

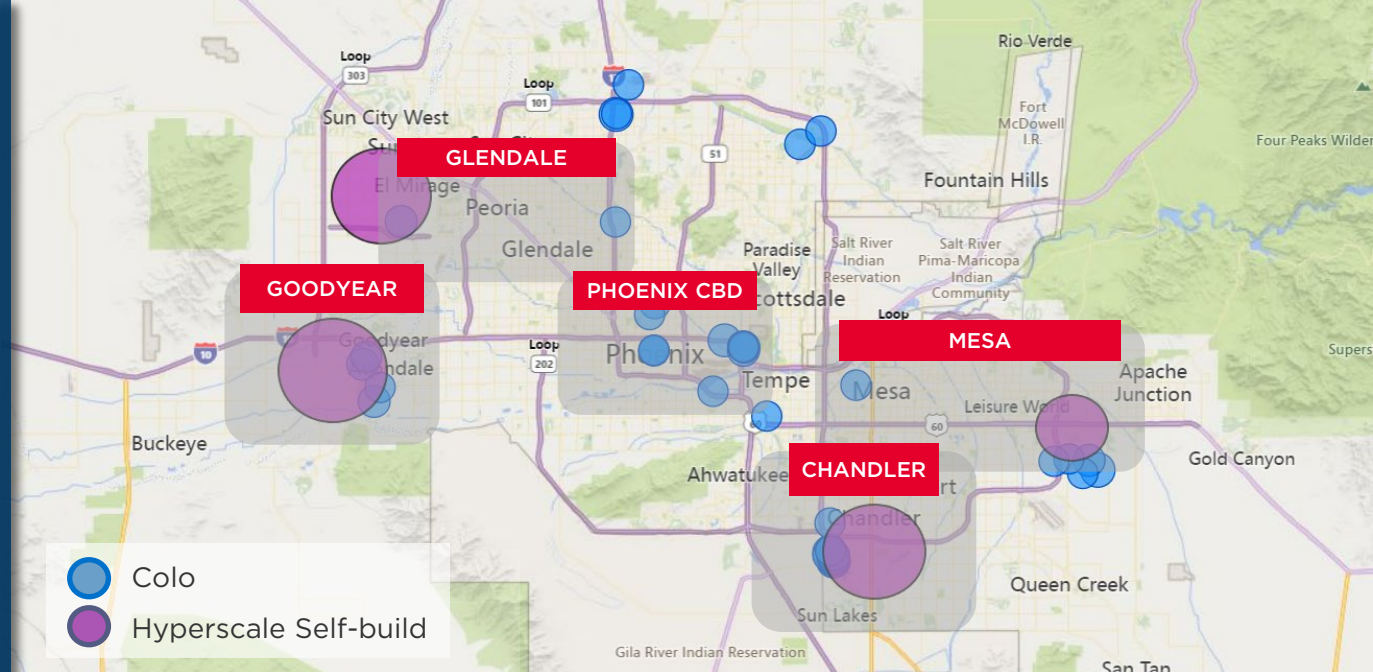
## MARKET OVERVIEW

After reaching a record level of absorption of 411MW in 2022, the Phoenix market showed no signs of slowing in 2023 as it already has reached an eye-popping 325MW absorbed. As Phoenix has joined the rarified air of gigawatt plus markets, it has shown no sign of slowing as hyperscalers and colocation providers alike have evaluated land sites across Mesa, Chandler, Goodyear, Glendale and Avondale.

All major US hyperscalers either have an established foothold or extensive plans to grow in the market. Market colocation veterans as well as new entrants continue to acquire land and break ground on new developments. As established hands such as QTS, Vantage Data Centers and Aligned Data centers all continued their development pipelines, companies such as Prime Data Centers and Edged Energy announced their initial forays into the market.

With tight vacancy and many options when it comes to providers, Phoenix has quickly become the central data center hub along the West Coast. The established power grid in the market remains predominantly natural gas (52%) and nuclear (45%), however more private solar developers continue to begin construction on new solar farms around the state.

Despite growing solar developments in surrounding areas, power (as with many markets) is becoming more constricted as competition grows for larger data center deals in the Phoenix area. Water usage has also become a critical issue for the market, as high ambient temperatures and demand for more intensive AI/HPC workloads have generally increased the requirements for more intensive water cooling technologies. State and local governments have begun to ask data center operators to limit their water usage – and have incentivized the deployment of air cooling technologies. The confluence of these factors will likely lead to fewer high rack density deployments in the Phoenix market as compared to others, though this will likely do little to dampen the overall positive momentum of the market.



RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US\$)	BUYER	SELLER
3856 S Everton Terrace	15 acres	Apr 2023	\$1.2M	EdgeCore	Meta
Mesa	165 acres	Aug 2023	\$62.7M	Novva Data Centers	State of Arizona (Auction)
19640 North 31 <sup>st</sup> Ave	7.31 acres	Mar 2023	\$15M	Aligned Data Centers	DTT
Skyway 202	51 acres	Oct 2022	\$78.5M	STACK Infrastructure	Metropolis Investment Holdings

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
AWS	Elliot Rd, Mesa	452,000	Undisclosed	In Planning
	Pecos Rd, Mesa	452,000	Undisclosed	In Planning
Google	Redhawk, Mesa - Phase 1	288,530	Undisclosed	U/C - Q2 2025
	Redhawk, Mesa - Phase 2+	461,470	Undisclosed	In Planning
Meta	Mesa	1,500,000	Undisclosed	U/C
QTS	PHX2 DC5	189,000 (est)	24 (est)	U/C
	PHX2 Other Phases	440,000 (est)	84 (est)	In Planning
	Waddell	4,500,000 (est)	768 (est)	In Planning
Aligned Data Centers	PHX-06 & PHX 08	850,000 (est.)	170 (est.)	In Planning
STACK Infrastructure	Downtown Phoenix	1,780,000	230	In Planning
	Goodyear	1,000,000	150	In Planning
PhoenixNAP	Phoenix	500,000	50	In Planning
Vantage Data Centers	Goodyear - Phase 2	240,000 (est.)	48 (est.)	U/C
EdgeCore	Mesa - Expansion	40,0000 (est.)	14 (est.)	U/C
EdgeConnex	Mesa	1,000,000	100	In Planning
Stream	Goodyear	2,000,000	200	In Planning
Prime Data Centers	Avondale - Phase 1	260,000	42	U/C - Q3 2025

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## AMERICAS ESTABLISHED MARKET

# PORTLAND / EASTERN OREGON

## KEY INDICATORS\*



**54MW ABSORPTION (H1 2023)**



**1,040MW IN OPERATION**



**383MW UNDER CONSTRUCTION**



**2% VACANCY RATE**

*\*Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.*

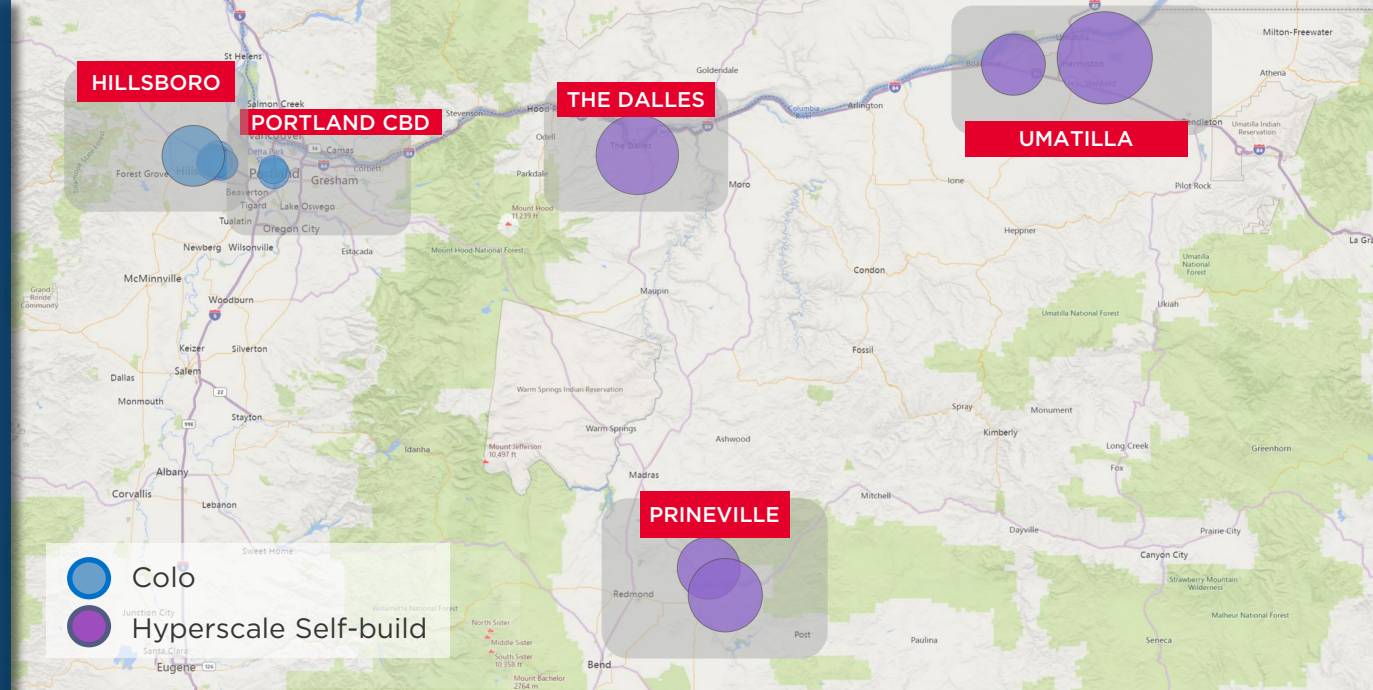
## MARKET OVERVIEW

Despite Portland's historical classification as a secondary market, the core market as well as outlying areas in Eastern Oregon have become a hotbed of development over the past several years. Plentiful renewable energy, more affordable land parcels and proximity to West Coast markets have drawn hyperscalers and colocation providers to quickly build out campuses in the area. While colocation providers have typically developed near Portland, hyperscalers have established significant self-build campuses across rural areas of Eastern Oregon.

Within Portland proper, over 90% of current inventory is located within the Hillsboro data center cluster to the West of the city. QTS, Digital Realty, STACK Infrastructure, Flexential, NTT and EdgeConneX all have either constructed or are actively under construction. Absorption in the market has continued to be strong into 2023, with 54MW taken up so far. With vacancy hovering around 2%, there remains strong pre-leasing and build-to-suit activity throughout the Portland cluster. As land and power become less available in Hillsboro, data center providers have begun to look into adjacent submarkets. Both Crane Data Centers and Rowan Data Centers have both secured large hyperscale-targeted sites in the Forest Grove submarket (adjacent to Hillsboro).

Eastern Oregon has also become a hotspot for data centers, with Google, Amazon and Meta all establishing sizable campuses in various counties. Amazon has a collection of data centers and sites across Umatilla County, and has recently announced a large-scale, multi-site expansion effort in the area. Google has been steadily expanding a campus in The Dalles since 2006. Lastly, Meta and Apple both have data centers in Prineville. In total, there is 684MW operational across these hyperscaler deployments, with over 500MW either under construction or planned.

Incentivized by renewable energy, good network connectivity, a resilient tech workforce and lower power cost, the market is primed for continued growth. New entrants to the market should be aware of increasing regulatory pushback to new data center developments, further highlighting the importance of sustainable construction and energy usage as well as operations that are supportive of local communities. There remain significant opportunities across the state for growth in the data center market.



## ECOSYSTEM DEVELOPMENTS

- Amazon** is moving forward with its East Oregon projects in Port of Morrow. The five data center portfolio is planned to total \$12B in investment.
- Apple** has received approval from city officials for a \$177M expansion to its Prineville Data Center.
- Meta** has secured a power agreement for its development over the state border in Kuna, ID. With plans for a 960,000 sf facility, the hyperscaler is working with Idaho Public Utilities Commission to source completely renewable energy.
- Sabey Data Centers** announced a plan for a \$950M campus in Eastern Oregon. Located in Umatilla County, the 60-acre site will be home to a 715,000 sf data center with over 100MW in capacity. The development will utilize carbon-free energy and is expected to begin construction in Q1 2025.
- Flexential** put forward plans for its fifth data center in the Hillsboro cluster. Totalling 36MW, the facility will include direct connections to the operator's Network Access Point (NAP) in the Pacific Northwest. The operator is also nearing completion of Hillsboro 4, slated for completion this Fall.
- Crane Data Centers** continues to move forward with its 100MW development in Forest Grove. In partnership with Principal Asset Management, Crane plans two phases for a total of 300,000 sf.
- Rowan Data Centers**, a subsidiary of Quinbrook Infrastructure Partners, is planning a 1.1M sf data center campus that will be composed of four buildings in Port of Morrow. In September, the Morrow County Board of Commissioners approved the rezoning of use for the 274-acre site. The developer announced plans for a 150MW development in Forest Grove that will target hyperscale tenants.
- Roundhouse Digital** had announced a proposal for a new data center in Cascade Locks. Located East of Portland, the 10MW facility would have invested \$100M to build a facility targeting government and energy companies as tenants. However, local concerns on the use of electricity and a number of other factors have resulted in the cancellation of the project.

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US\$)	BUYER	SELLER
1521 Poplar St	24 acres	Oct 2022	\$6.2M	Crane Data Centers	TTM Technologies

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
Amazon	Port of Morrow (Multi-phase)	TBD	TBD	In Planning
Apple	Prineville (expansion)	900,000 (est)	120 (est)	U/C
EdgeConneX	POR 03	40,000 (est)	13	U/C
Digital Realty	Hillsboro (OR2)	489,000	48	In Planning
Meta	Kuna, ID	960,000	80 (est)	In Planning
QTS	Hillsboro	1,500,000 (est)	250	U/C
Sabey Data Centers	Umatilla County	715,000 sf	100	In Planning
Stack Infrastructure	Hillsboro (Expansion)	540,000 (est)	60 (est)	In Planning
Flexential	Hillsboro 4 Hillsboro 5	138,000 358,000 (est)	18 36	Completed In Planning
1547	Pittcock Block	Undisclosed	Undisclosed	In Planning
Aligned Data Centers	Hillsboro - Phase 1 Hillsboro - Phase 2	Undisclosed Undisclosed	72 36	In Planning In Planning
Crane Data Centers	Forest Grove	Undisclosed	100	In Planning

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## AMERICAS PRIMARY MARKET

# SILICON VALLEY

## KEY INDICATORS\*



**43MW ABSORPTION (H1 2023)**



**824MW IN OPERATION**



**315MW UNDER CONSTRUCTION**



**4.5% VACANCY RATE**

*\*Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.*

## MARKET OVERVIEW

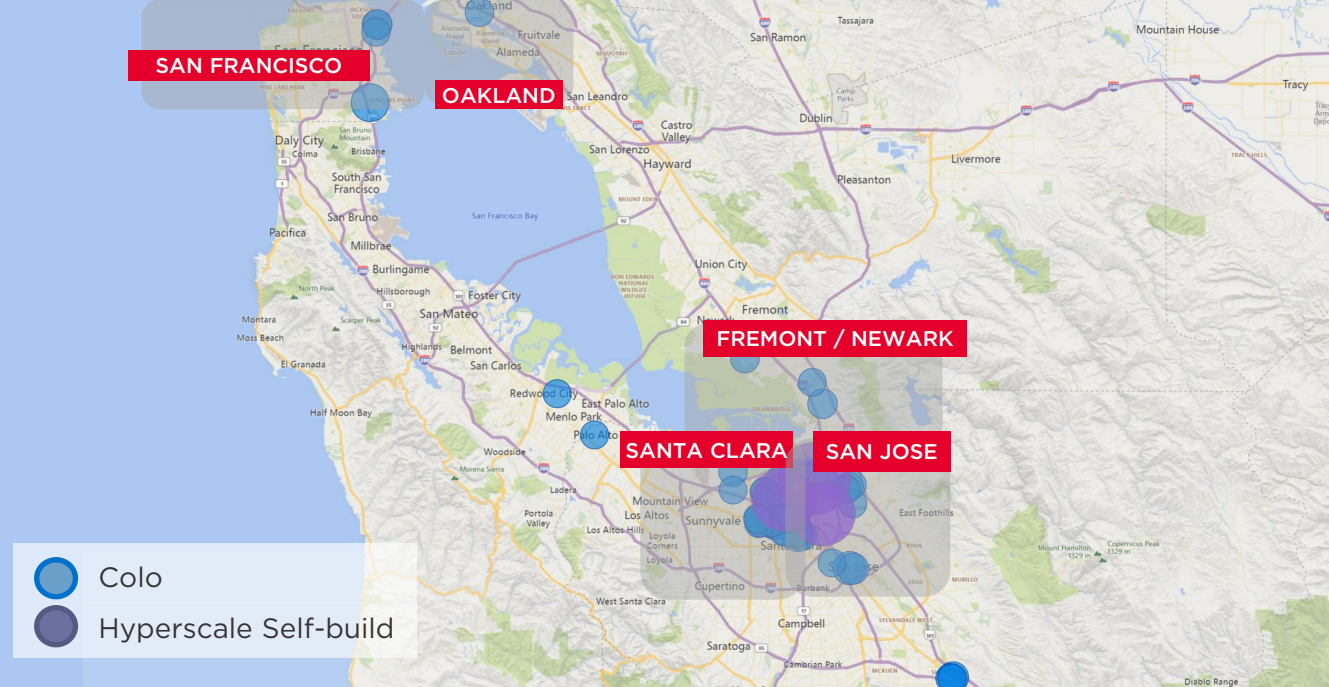
Despite increasing costs for power and land, the data center market in the San Francisco Bay Area remains robust and growing. While vacancies have crept upward over the past half year, they remain comfortably under five percent – suggesting a fairly tight market. Absorption-wise, H1 2023 saw a respectable 43MW of leasing – with cloud requirements continuing to drive pre-leasing and build-to-suit projects. Power availability, as in other markets, has been challenging with utility providers having limited capacities of the needed size for the large developments currently in planning.

New developments have continued to rise from both hyperscalers and colocation providers in the market. Amazon and Microsoft have both moved forward with expansions to their footprints in the South Bay. Like other major markets, developments are continuing to move out of the traditional data center clusters and into outlying areas. Outside of Santa Clara and San Jose, several planned facilities have been announced to the Northeast in Milpitas, Fremont and Hayward. Further out, Amazon signaled interest further South down the Salinas corridor when it purchased land in Gilroy. Rumors suggest that there may also be additional developments under evaluation for North Bay industrial submarkets. Beyond the immediate Bay Area, interest continues in outlying markets with more available land such as Sacramento and Stockton.

Lease pricing in the market has seen some of the largest jumps in the country, with a 42% jump in hyperscale pricing over the course of the past year, with similar increases for wholesale and retail rents.

In terms of the effect of artificial intelligence in the market, developers are generally seeking to place larger scale training facilities in more remote areas with plentiful power and affordable land costs. However, there remain certain high performance computing (HPC) needs throughout Silicon Valley for specific industry and research sectors. Operators such as Colovore have sought to provide support for these, building out facilities that feature cutting edge infrastructure and customization.

Going forward, Silicon Valley looks to continue to rise above a challenging land and power situation to remain a top market in North America.



## ECOSYSTEM DEVELOPMENTS

- Amazon** has purchased an approximately 750,000 sf industrial building in Santa Clara to be redeveloped into a three-building data center campus. The hyperscaler has filed plans for the development with the city of Santa Clara. This is in addition to another underway Santa Clara project and a planned site in Gilroy that continues to work its way through local government approvals.
- Microsoft** submitted plans for the 65-acre site it closed on in San Jose last year, outlining two data centers that total nearly 400,000 sf each.
- EdgeCore** has begun construction on its SV01 data center a 36MW facility located between Juliet Lane and Laurelwood Road. The colocation provider has also planned a similar sized second phase of the asset, SV02.
- Valley Oak** has applied for a 90MW data center in Fremont. Located at 37887 Shinn St in Fremont, the facility will total 490,000 sf and 90MW. The sizable development is representative of the further expansion of data center development beyond the typical clusters of Santa Clara and San Jose.
- GI Partners** has filed for an application for a 72MW data center in Santa Clara. Located at the Walsh Technology Center, the plans call for an on-site substation for 244,000 sf of space.
- Invesco** acquired Equinix SV3 from Sobrato in July. The 5.4MW facility sold for \$86.2M and is located in Milpitas.
- Stack Infrastructure** announced plans for two facilities totaling 60MW in San Jose. The SV05 and SV06 facilities will be adjacent to the existing SV01 facility. The new development will require a rezoning from the city of San Jose. Stack is also planning to establish a 100MW PG&E substation on-site along with backup generators. Additionally, Stack opened the first 6MW phase of its SV02A facility.
- Vantage Data Centers** is planning a new development in San Jose on Nortech Parkway. Owned by Jubilee Christian Center, the 9.8 parcel won't be Vantage's first foray into the market: the data center provider has a 77MW operational campus and two other campuses under development already.
- CoreSite** has moved forward with expanding its SV9 data center. The expansion will add 240,000 sf of new data center space and 34MW of power. The project is expected to be completed in 2024.
- Arelion** launched a new longhaul fiber line connecting the Bay Area to Denver. The new route will have connections to Reno and Salt Lake City, and will have 10G, 100G and 400G wavelength options.
- NTT's** Sacramento data center is rumored to have been leased by Tesla. The previous tenant, Twitter, terminated its lease with the facility last year.

RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US\$)	BUYER	SELLER
Equinix SV3	103,420 sf	June 2023	\$86.3M	Invesco	Sobrato
3205 Bassett St	33,257	March 2023	\$13.3M	StratCap	Spirit Realty Capital
960 Central Expwy	41 acres	March 2023	\$237.8M	Amazon	Corning

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
Amazon	Santa Clara	515,742 (est)	60 (est)	U/C
	Santa Clara	TBD	TBD	In Planning
	Gilroy	438,000 (est)	98 (est)	In Planning
Cologix	SV1 - Further Phases	134,000	11	In Planning
CoreSite	SV9	240,000	34	U/C
CyrusOne	Santa Clara	288,900	67.5	U/C
Digital Realty	641 Walsh Ave - Phases 2+	430,000	48	U/C
EdgeCore	SV01	270,000	36	U/C
	SV02	270,000	36	In Planning
GI Partners	Walsh Technology Center	244,000	72	In Planning
Microsoft	Alviso-Milpitas Blvd	397,000	99 (est)	In Planning - 2028
	Orchard Pkwy	632,000	TBD	In Planning
Prime Data Centers	1111 Comstock	80,000	9	Completed
	2175 Martin	80,000	9	U/C - Q4 2023
	2225 Martin	207,000	32	In Planning
	1231 Comstock	119,000	9	In Planning
Stack Infrastructure	SV05	515,742	30	U/C
	SV06	438,000	30	U/C
T5	Newark - Phase 2	180,000	32.1	In Planning

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# MARKETS CANADA





## AMERICAS ESTABLISHED MARKET

# TORONTO

## KEY INDICATORS\*



**7.3MW ABSORPTION (H1 2023)**



**280MW IN OPERATION**



**41MW UNDER CONSTRUCTION**



**5% VACANCY RATE**

*\*Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.*

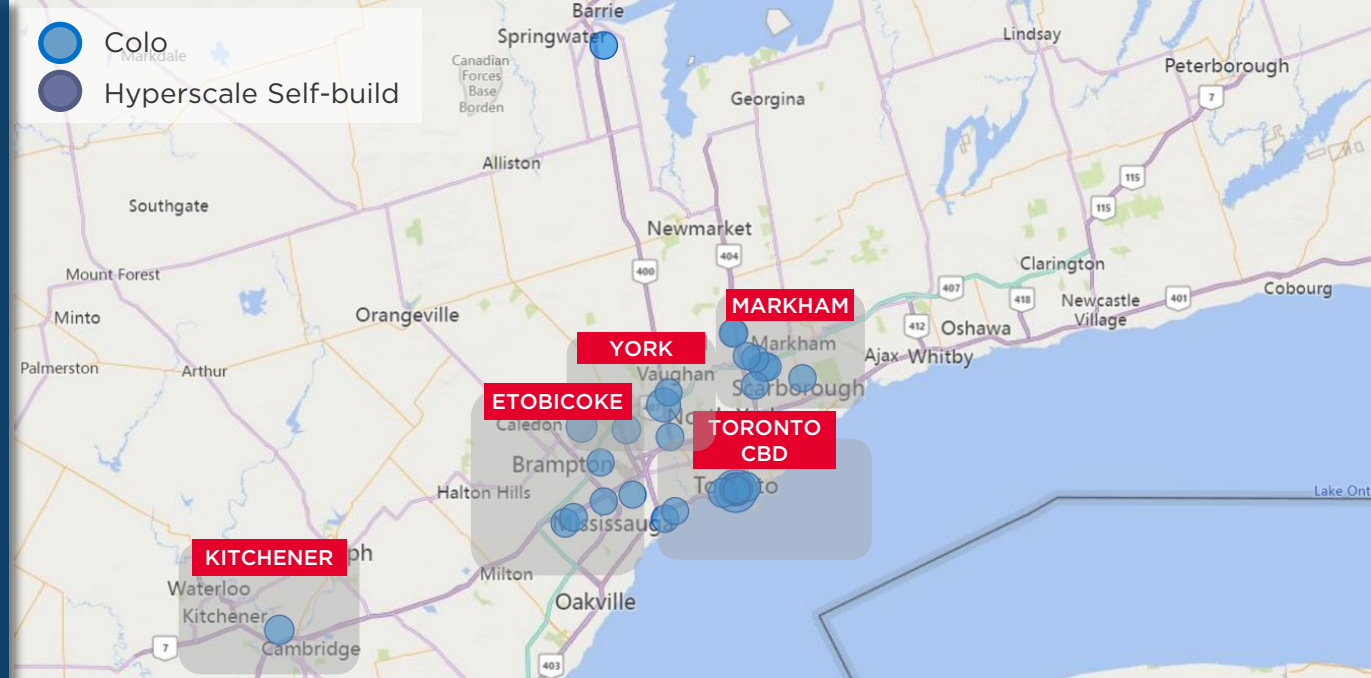
## MARKET OVERVIEW

Toronto saw record absorption in 2022, totaling over 75MW over the course of the year as several newly delivered spaces were quickly leased. While leasing in 2023 has so far been a tame 7.3MW, vacancy has risen marginally by a percentage point to 6.7%. Going forward, with strong pre-leasing in the market, new deliveries will do little to move vacancy in the market.

Colocation activity continues to be strong in the market as providers such as Digital Realty, Equinix and Cologix have steadily grown their portfolios in the market. The purchase of Allied REIT's data centers in the market by KDDI Telehouse, has further signaled confidence in Toronto as a key central connectivity hub to not only US markets but also vitally on major longhaul fiber routes connecting the Pacific and Atlantic.

In terms of hyperscale deployments, both STACK Infrastructure and Compass Datacenters have been active in building out significant facilities in the market. In terms of self-build projects, only Microsoft has plans to build out a facility in Etobicoke, with other hyperscalers looking farther out for potential options.

Land remains expensive throughout Toronto, with voracious competition from industrial users due to the concurrent expansion needs of that asset class. Difficulties with site selection have been further compounded with limited available power – particularly for hyperscale developments. This barrier will continue to limit newly announced projects for some time, Prospective developers are having difficulty locating quality sites, leading to further delays in bringing potential capacity to market. Expect further interest in Toronto through the remainder of 2023, with those able to work around site selection issues to be amply rewarded.



## ECOSYSTEM DEVELOPMENTS

- **KDDI Telehouse** acquired the Allied REIT data center portfolio for \$1.02B. Toronto data centers located at 151 Front St, 250 Front St and 905 King St were all included in the transaction. The transaction will lead to the creation of the new KDDI Canada entity, with control of facilities that have key tenants such as Equinix, Cologix and Digital Realty. In total, the Toronto portfolio exceeds 30MW when fully built out.
- **Digital Realty** retrieved possession of the 381 Gough Rd data center, which had formerly been leased to Sungard Availability Systems.
- **STACK Infrastructure** has brought online the first phase of its development in partnership with Toronto-based First Gulf. The first phase totals 8MW, while the full build out of the 19-acre site will total 56MW with an estimated completion of 2026. STACK secured hydroelectric power for the site from Toronto Hydro.
- **Grain Management** in partnership with **StratCap** has purchased a majority stake in the former Loblaws data center in Brampton, ON. The facility is currently 127,000 sf with options for expanding capacity. Tenants of the facility includes Loblaws, PC Financial and Sun Life Financial.
- **Manulife Investment Management** acquired a controlling stake in Serverfarm, which operates a 14MW Toronto-based facility in North York.
- **Windstream and Bluewater Networks** are planning to establish a new longhaul fiber route from Toronto to Chicago. With 10GbE, 100GbE and 400 GbE wavelength options, the route will diversify the current fiber options running through the Great Lakes region.



## RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US\$)	BUYER	SELLER
151 Front St West	325,772 sf	August 2023	\$673M	KDDI Telehouse	Allied Properties REIT
250 Front St West	173,000 sf	August 2023	\$187M	KDDI Telehouse	Allied Properties REIT
905 King St West	103,205 sf	August 2023	\$160M	KDDI Telehouse	Allied Properties REIT
Loblaws Data Center	609,000 sf	June 2023	\$61M	StratCap, Grain Management	Choice Properties

## CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
STACK Infrastructure	Toronto - Phase 2	300,000 (est)	24	In Planning - Q2 2026
	Toronto - Phase 3	300,000 (est)	24	In Planning
Equinix	TR7	70,000	3	U/C - Q3 2023
Compass Datacenters	Etobicoke	214,000	30	U/C
Serverfarm	Humber Valley - Ph	80,000 (est)	8	U/C
Cologix, CIM Group	TOR4x-Phase 1	50,000	8	In Planning
Microsoft	Etobicoke	289,450	35 (est.)	In Planning
Urbacon Data Centres	Niagara Falls (NY)	600,000	135	In Planning

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AMERICAS SECONDARY MARKET

MONTREAL

KEY INDICATORS\*



1MW ABSORPTION (H1 2023)



135MW IN OPERATION



30MW UNDER CONSTRUCTION



10% VACANCY RATE

*\*Definition: Key indicators are based on operational Hyperscale Cloud, Colo, Edge & Telco data centre facilities in the market and excludes Captive & ICT.*

MARKET OVERVIEW

Despite the slower take-up than many larger markets, vacancy has remained unchanged for the Montreal market at 10%. Rumored hyperscale interest in the area continues, as many have carbon-neutral pledges to fulfil before 2030 and the low-cost hydroelectric power locally will assist in achieving this goal. Site selection has moved away from Montreal Island in search of more available power elsewhere. Vantage, Cologix and Equinix have all been expanding their Montreal footprints, with QScale suggesting that a campus in Montreal may be coming soon after an initial build in Quebec City. Enovum has been working on sizable redevelopment opportunity, providing the market with a larger capacity opportunity that could tempt tenants to the market. Having patiently waited for hyperscale interest over the past several years, the rise of AI and sheer velocity of cloud growth may finally have drawn significant interest to the Montreal market.

ECOSYSTEM DEVELOPMENTS

- Cologix** initiated development of MTL8, which will total 21MW at full build out. The first phase of the 205,000 project is due for delivery in Q3 2024. Under Cologix's Scalelogix branding, the development will target hyperscale customers. The campus will be fully powered by hydroelectric energy from Hydro Quebec. Separately, QIX established a Point-of-Presence (PoP) in Cologix's MTL7 data center.
- Equinix** has begun construction on MT2 that expected to complete in Q3 2023. The expansion will consist of the addition of 500 cabinets on top of the 500 cabinet expansion completed last year, increasing the white space of the facility by a total 37,000 sf. The facility formerly belonged to GI Partners and Stream Data Centers.
- Aligned Data Centers** has invested in Lévis-based Qscale, a data center services provider with specializes in unique high rack density deployments focusing on high performance computing (HPC) tenants with renewable energy needs. In May, Qscale signed its first major tenant - Hewlett Packard Enterprise (HPE) - to a data hall within its Q01 campus located in Quebec City. HPE will utilize the data center AI and HPC requirements. Currently, two initial phases of the project have been delivered with full build out totaling an estimated 142MW.



RECENT PROPERTY SALES

SITE / PROPERTY	SIZE	SALE DATE	SALE PRICE (US\$)	BUYER	SELLER
9200 Rt Transcanadienne	575,801 sf	Aug 2023	\$91.7M	Equinix	Hypertec Immobilier Inc
21500 Rt Transcanadienne	76,833 sf	May 2023	\$11.7M	Groupe Ultra	Vantage Data Centers

CONSTRUCTION & PLANNED UPDATES

OPERATOR	DATA CENTER	SIZE (SF)	POWER (MW)	STAGE - EST. DELIVERY
Cologix	MTL8 - Phase 1	29,500	3	Under Construction In Planning
	MTL - Phases 2+	90,000	18	
Equinix	MT2 - Phase 2	30,000 (est)	3	Under Construction In Planning
	MT2 - Phase 3+	180,000 (est)	36	
Enovum	MTL1	117,000	24	Under Construction
Compass Datacenters	Montreal I	50,000 (est)	9	In Planning



# MARKETS

# LATIN AMERICA





## SÃO PAULO

## KEY INDICATORS\*



30MW ABSORPTION (H1 2023)



301MW IN OPERATION



132MW UC



6% VACANCY RATE

As the primary data center hub for Brazil, São Paulo has seen rising interest from regional operators as well as international hyperscalers and colocation providers. With a massive population (almost 20% that have yet to have internet access) and a limited number of data centers, the market makes a logical entryway into South America. Across two cable landing stations, the market has access to ten major undersea cable routes. The market itself is fairly fiber dense, with telecommunications companies having established metro and longhaul routes through the market.

In terms of colocation in the market, Ascenty, Equinix and ODATA have a significant footprint. Many operators are partnerships between multiple entities: Ascenty is a joint venture between Digital Realty and Brookfield, Scala Data Centers is funded by DigitalBridge and ODATA was acquired by Aligned Data Centers in May of this year. As for hyperscalers, Microsoft announced self-perform projects in the Campinas and Hortolândia submarkets of São Paulo – its first in Latin America. AWS, Google, Huawei, Tencent and Oracle also have a cloud region footprint in the market.

As of June, Ascenty has purchased an additional 500,000 sf of land in Osasco. The operator recently sourced \$1B in financing from Natixis, Scotiabank, Credit Agricole, Banco MUFG Brasil, and Mizuho. Other entrants are increasingly establishing larger footprints, with CloudHQ announcing a 144MW three-building campus in Campinas. Ada Infrastructure, a vehicle of Singapore-based GLP, has also proposed 40MW for Campinas along with another 60MW in nearby Rio de Janeiro.

While hydropower has been a primary source of power in Brazil, recent data center developments have signed PPAs for wind power (Microsoft signing an agreement for 154MW, ODATA has bought a minority stake in a 212MW wind farm). The market will continue to see some of the largest data center development plays in the coming years.

## SANTIAGO

## KEY INDICATORS\*



18MW ABSORPTION (H1 2023)



190MW IN OPERATION



35MW UC



6% VACANCY RATE

Anchoring the Southern and Western portions of South America, Santiago has seen substantial interest from hyperscalers and high velocity growth for its data center market. The market has access to a cable landing station enabling six undersea connections to major markets along the Pacific coast of the Americas. Along with government incentives for enterprises to move compute loads off premises, the market's growing renewable energy has been a driver of interest. New entrants should be aware of environmental risks from potential seismic activity and changes in the national government body.

Colocation-wise, up until 2021 the market had been largely dominated by local telcos combined with modest colocation offerings. Seeking hyperscale demand, Ascenty, ODATA, Scala Data Centers and EdgeConneX have entered the market since then. Scala has planned projects for both Curauma (5MW live, 30MW at full build) and in the Chacabuco submarket of Santiago (23MW across two buildings). With funding from Stonepeak, Cirion has announced plans for a 20MW development in the Quilicura Industrial District. Local telco Grupo GTD had considered an acquisition offer from Australian-based Macquarie Capital for a 49% stake in GTD's data center business. While the deal ultimately fell through, it is representative of the strong investor interest in the Chilean market.

Google was the first hyperscaler to establish a data center in the Santiago market back in 2015 with an 80MW self-build facility. The cloud giant is expected to add over 100MW to its self-build portfolio in the Chilean market going forward. Microsoft submitted a proposal for a \$317M project in Quilicura last year that will include a 26MW substation. Oracle also has a cloud region in the market. Just this summer, AWS added a Local Zone to the market to join its Cloudfront Edge presence.

Chile's overall fuel mix includes renewable sources of hydroelectric, wind and solar that total nearly 50% of overall energy generation. The energy market is deregulated. With diverse renewable options, operators can seek sustainability-linked financing for data center development. EdgeConnex secured \$150M of this type of loan this past year for development in both Chile and Colombia. Going forward, Santiago is expected to see even more substantial growth as hyperscalers widen their footprints and colocation providers begin to deliver at scale.

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# QUERÉTARO

## KEY INDICATORS\*



**45MW ABSORPTION (H1 2023)**



**115MW IN OPERATION**



**42MW UC**



**4% VACANCY RATE**

Queretaro is Mexico's primary data center cluster, with an established presence by telcos, colocation operators and hyperscalers. Supported by strong digital infrastructure with low latency connections to both major Mexican and United States population centers, extensive government incentives and a low risk of natural disasters, the market has become the preeminent focus for developers in Central America.

Major colocation operators include Digital Realty / Brookfield-backed Ascenty, Aligned's ODATA, I Squared Capital-funded KIO Networks, Equinix and the local Telmex. Recently KIO Networks began construction on its 12MW QR02 facility which will be targeting a hyperscale tenant. The operator also acquired additional land in the market for a third development. Last year, Ascenty and ODATA both launched new data centers in Queretaro. CloudHQ received approval for its \$4B 288MW campus, one of the largest in Mexico, slated to begin construction by Q1 2024. Scala Data Centers is planning to open a 5MW fully hyperscale leased data center in a submarket closer to Mexico City.

On the hyperscaler side, Oracle Cloud was the first entrant into the market and is currently planning to open a second region in Monterrey in partnership with Telmex. Google and Microsoft have both confirmed plans to add cloud regions to the Queretaro market while Amazon has announced the addition of a Local Zone.

While only 22% of the energy mix of Mexico is currently renewable (hydro, wind or solar), efforts are growing from both private players and the State of Queretaro to increase the sustainable energy options in the market. Going forward, Queretaro will move from a cluster of singular data halls to a major data center market with significant campuses from both hyperscalers and colo.

# BOGOTA

## KEY INDICATORS\*



**9MW ABSORPTION (H1 2023)**



**30MW IN OPERATION**



**61MW UC**



**15% VACANCY RATE**

Over the past year, the Bogota market has seen a spike in interest from data center operators as AWS announced a Local Zone for the market. Fundamentally, Colombia lies at a key crux between Central and Southern America with a stable business environment, growing government incentives and higher internet penetration compared to some neighboring countries. With its central location and strong digital infrastructure, Bogota has become the primary cluster of data center development in the country. Finally, in terms of power Bogota has access to generation and distribution infrastructure than any other city in the country. Additionally, the presence of a free trade zone in Bogota has drawn the interest of a number of international data center operators.

In 2017, Equinix and ODATA entered the market, with Ascenty, KIO Networks, Scala Data Centers and Hostdime entering over the past several years. As colocation providers have entered, interest from hyperscale giants seeking further Southern American landing pads have taken notice. Equinix has recently completed its second data center in the market ahead of schedule, adding another 32,000 sf of colocation space to their footprint. Ascenty has been nearing completion of its Bogota 1 facility, with Bogota 2 scheduled for delivery next year. KIO acquired a data center in the market this year that will provide 6MW of operational capacity at BO1. HostDime also delivered 3MW last year. The United States-based operator Level 3 also operates three data centers across Colombia, two of which are in Bogota.

Oracle is planning to host a cloud region in Colombia in partnership with local telco Claro, which has owned and operated a number of data centers throughout Colombia.

A significant (nearly 70%) of energy in the market is drawn from hydroelectric power in the mountainous regions of the country, with an increased focus by the government in expanding hydro and other renewable sources will grow. Bogota looks to be a promising market with a lot of runway for new entrants to establish facilities in the coming years.

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