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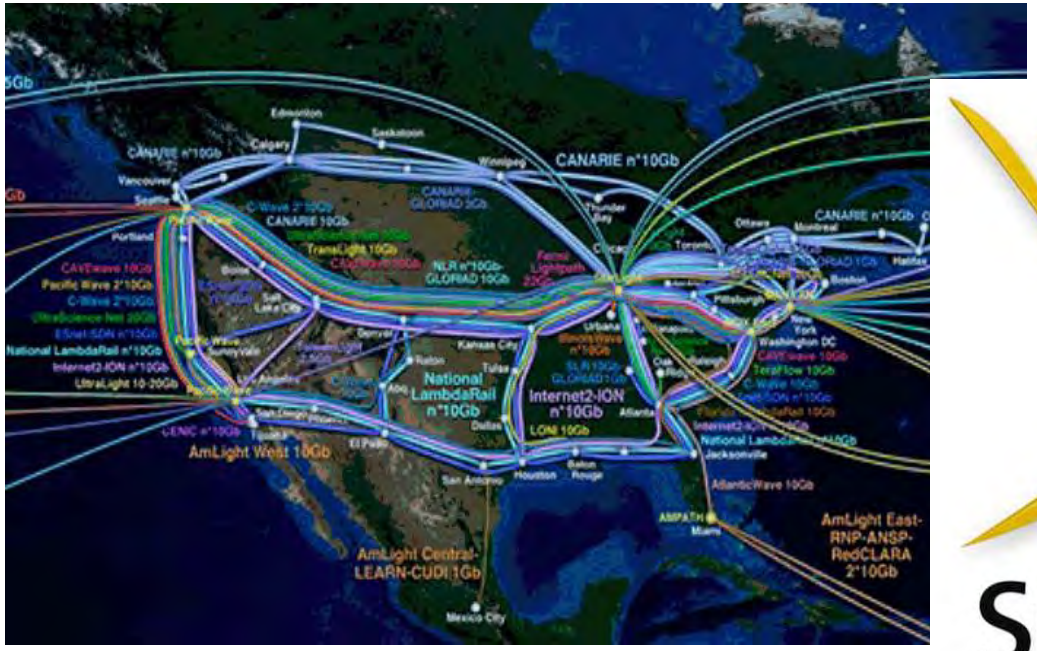
Metropolitan Mayors Caucus - Data Centers and ComEd Power Overview

Economic & Workforce Development and External Affairs Departments
and JLL Data Center Practice Team

September 16, 2025

Historic Perspective on Data Centers

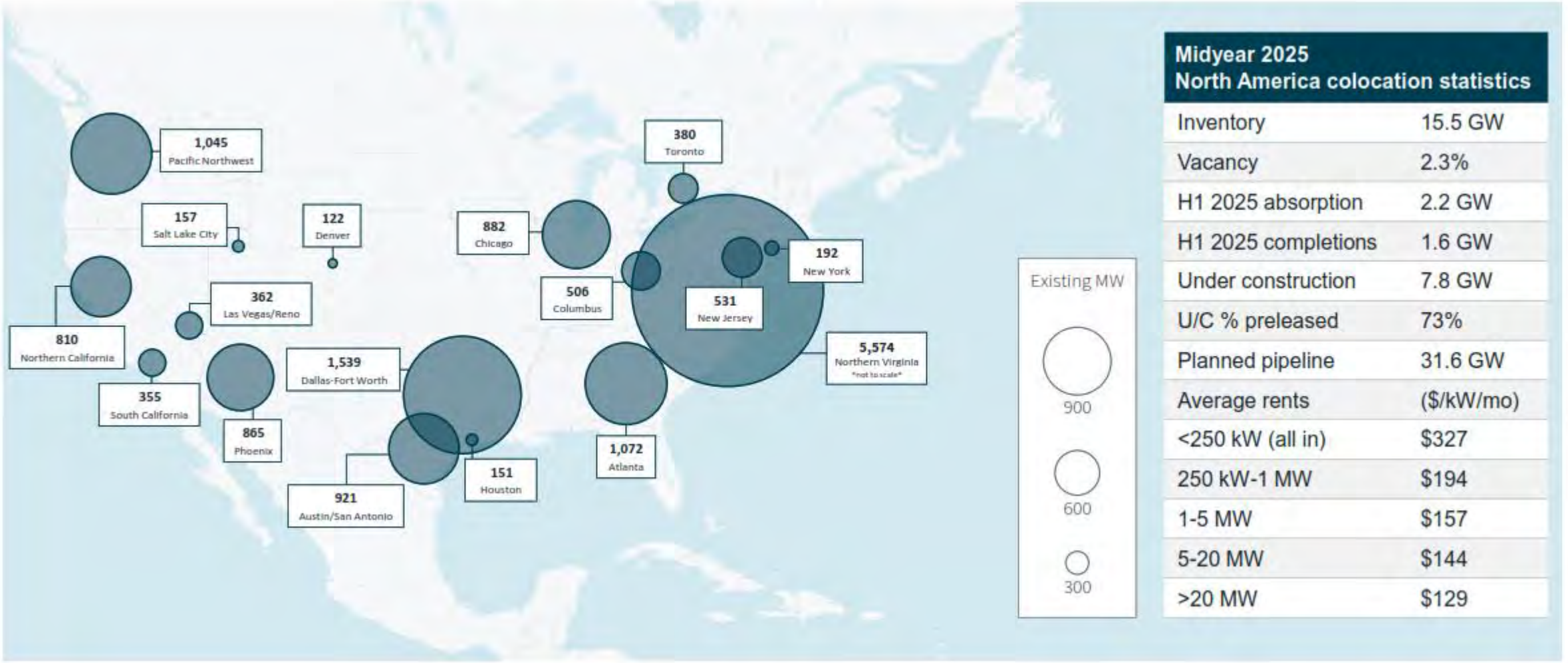
- Why Chicago – convergence of fiber optic networks, central location, abundant fresh water, safer from natural disasters, and state-level tax incentives (since 2019)
- ComEd is large and reliable, competitively priced, and provides access to clean energy resources
- Chicago is a top 5 global market – but is very small compared to Northern Virginia
- Multi-tenant vs. enterprise facilities – big leasers in Illinois are technology companies



Sprint

Rapid Expansion Nationally and Locally

U.S. data center markets

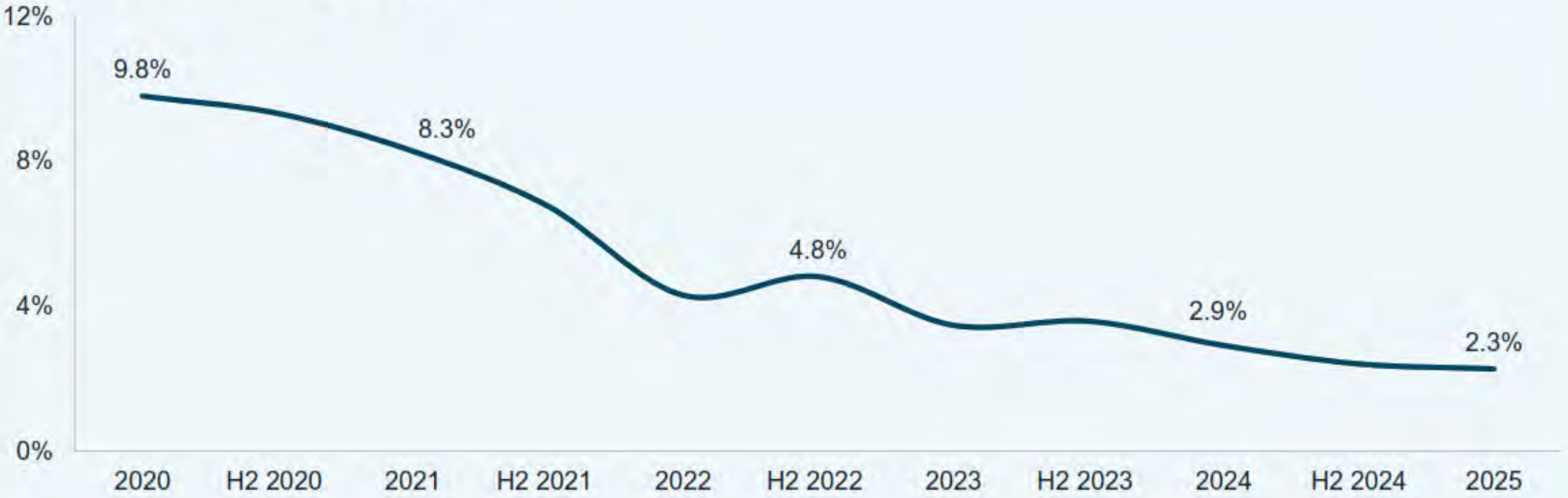


Midyear 2025 North America colocation statistics	
Inventory	15.5 GW
Vacancy	2.3%
H1 2025 absorption	2.2 GW
H1 2025 completions	1.6 GW
Under construction	7.8 GW
U/C % preleased	73%
Planned pipeline	31.6 GW
Average rents	($/kW/mo)
<250 kW (all in)	$327
250 kW-1 MW	$194
1-5 MW	$157
5-20 MW	$144
>20 MW	$129

Vacancy declines to a record low, constraining sector growth

Colocation vacancy is effectively 0%, constraining economic growth and undermining national security. Meanwhile, the construction pipeline is 73% preleased, signaling that any meaningful loosening of market conditions remains years away.

North America colocation vacancy



Source: JLL Research

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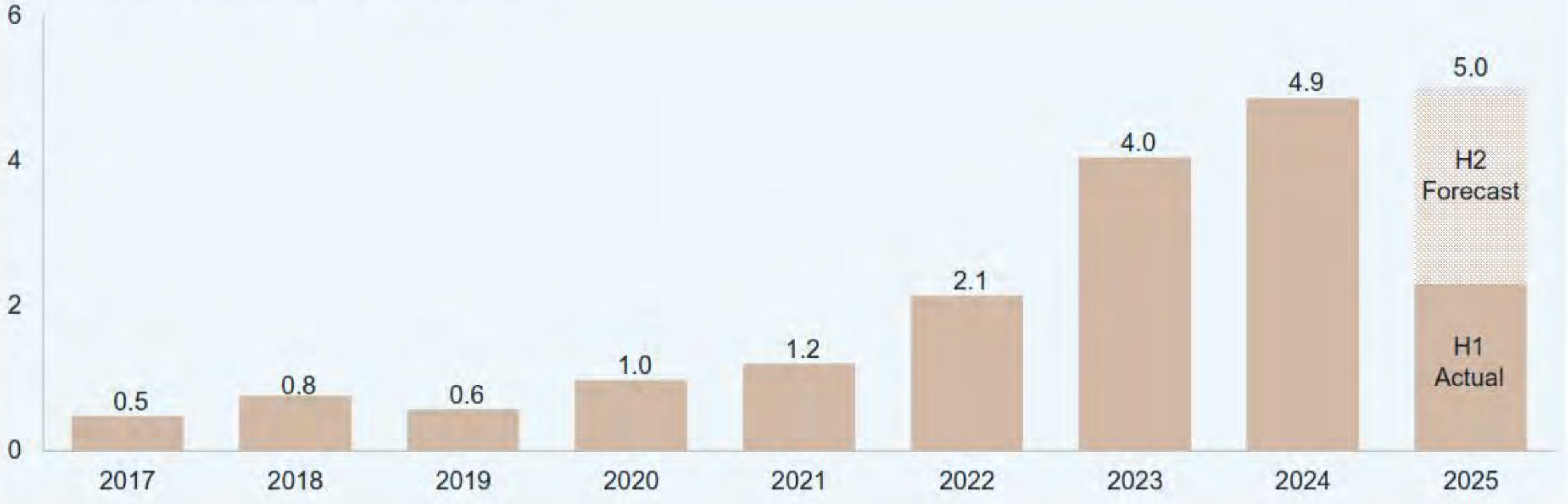
Preleasing drives absorption numbers, concentrated in core markets

With vacancy near 0%, virtually all absorption is the result of preleasing with delivery 12+ months out. Demand continues to be concentrated in core markets. In H1, 50% of absorption was recorded in two markets: Northern Virgina and Dallas.

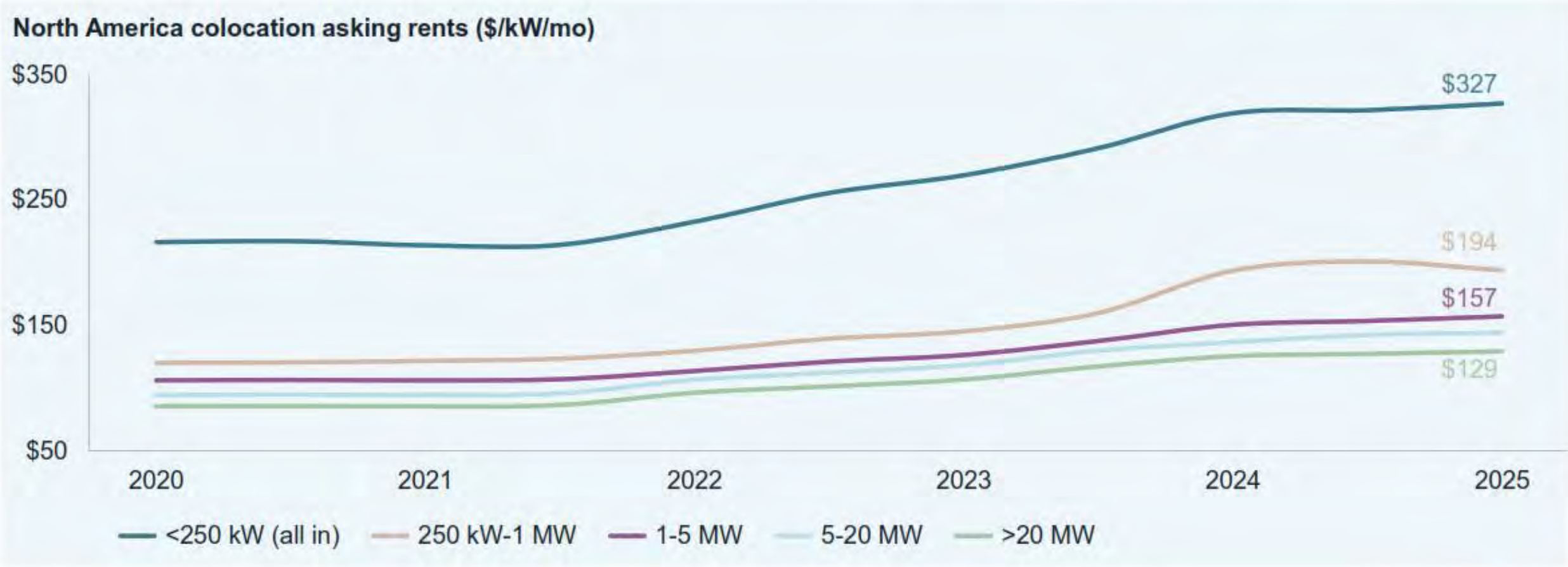
North America colocation absorption (GW)



Source: JLL Research

Rent growth slows to 3% year-over-year, 3-year CAGR of 12%

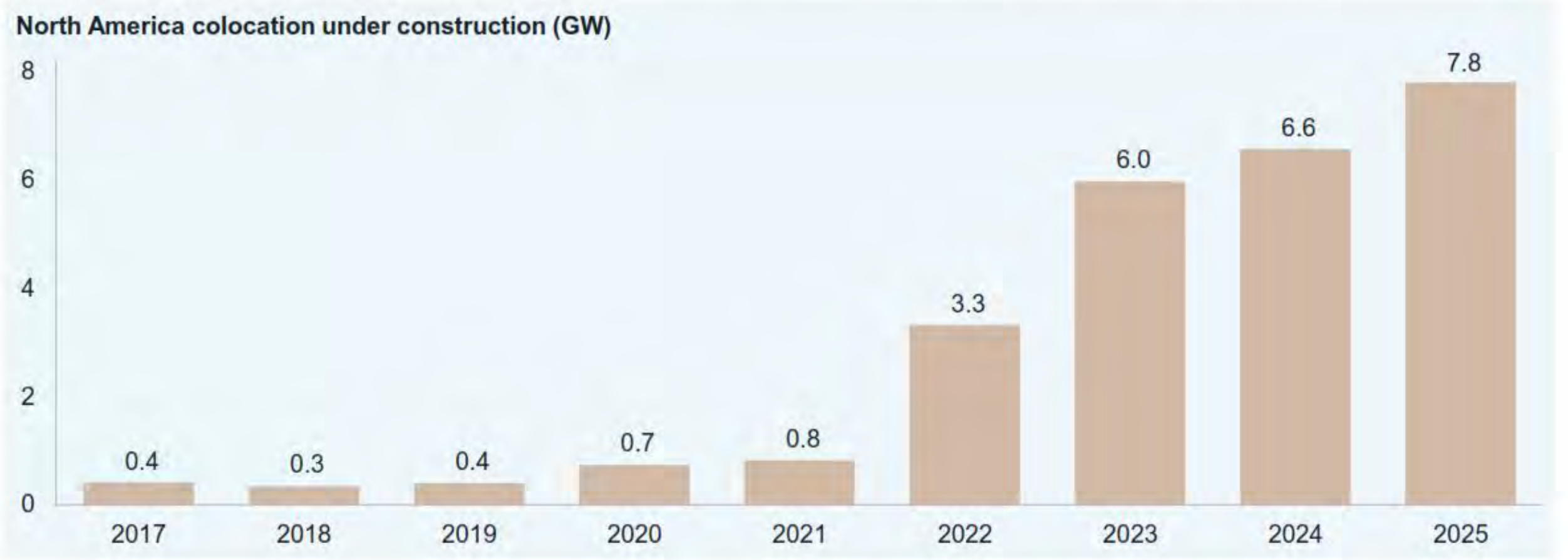
Rent growth slowed meaningfully in the first half of 2025 to 3% year-over-year. However, the 3-year CAGR remains robust at 12%. It is too early to determine if the multi-year trendline is broken or if this is a momentary anomaly.



Source: JLL Research

7.7 GW of colo capacity is under construction, 73% is preleased

The colocation construction pipeline has ballooned to 7.8 GW, an astounding 10x what it was five years ago. Meanwhile, preleasing has remained above 70% for the last 2 years, a clear indication that demand is outpacing supply.



Source: JLL Research

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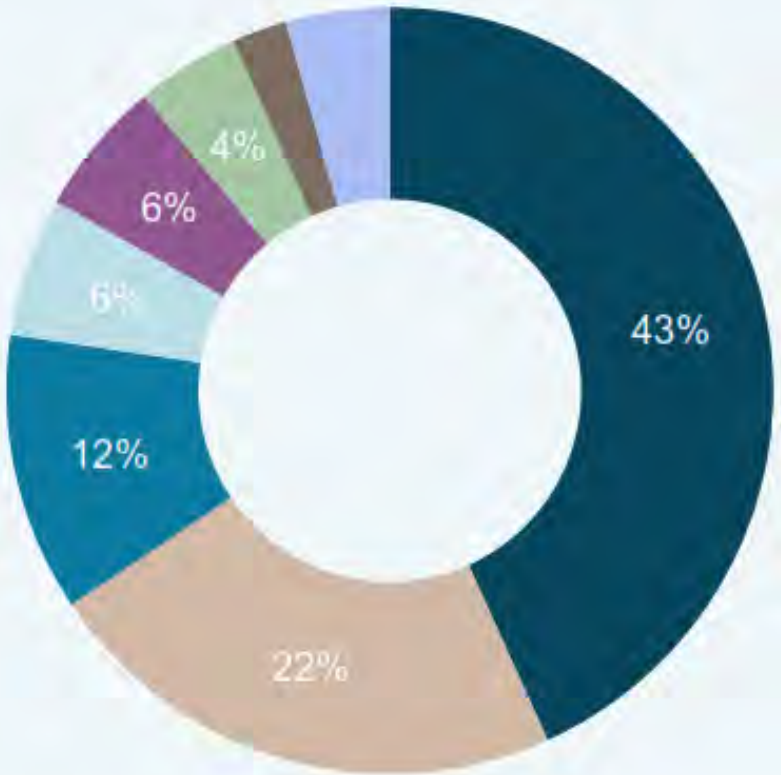
Cloud and tech industries dominate data center demand

Data center demand by industry has been relatively stable in recent years. While the cloud and tech industries represent 65% of all data center demand, the company rosters are significantly more diversified than the aggregate numbers suggest.

2025 data center demand by industry

- Cloud Providers, 43%
- Technology (Excl Cloud Cos), 22%
- Banking & Financial Services, 12%
- Entertainment & Media, 6%
- Healthcare & Education, 6%
- Telecom, 4%
- Retail & E-commerce, 2%
- Other, 4%



Cloud providers

Amazon	Apple
Microsoft	Snowflake
Google	Wasabi
Alibaba	MongoDB
Oracle	Salesforce
IBM	Iron Mountain
Tencent	VMware
OVHcloud	Dropbox
DigitalOcean	Box.com
Akamai	Cisco
Dell	Hewlett Packard
Rackspace	And others

Source: JLL Research

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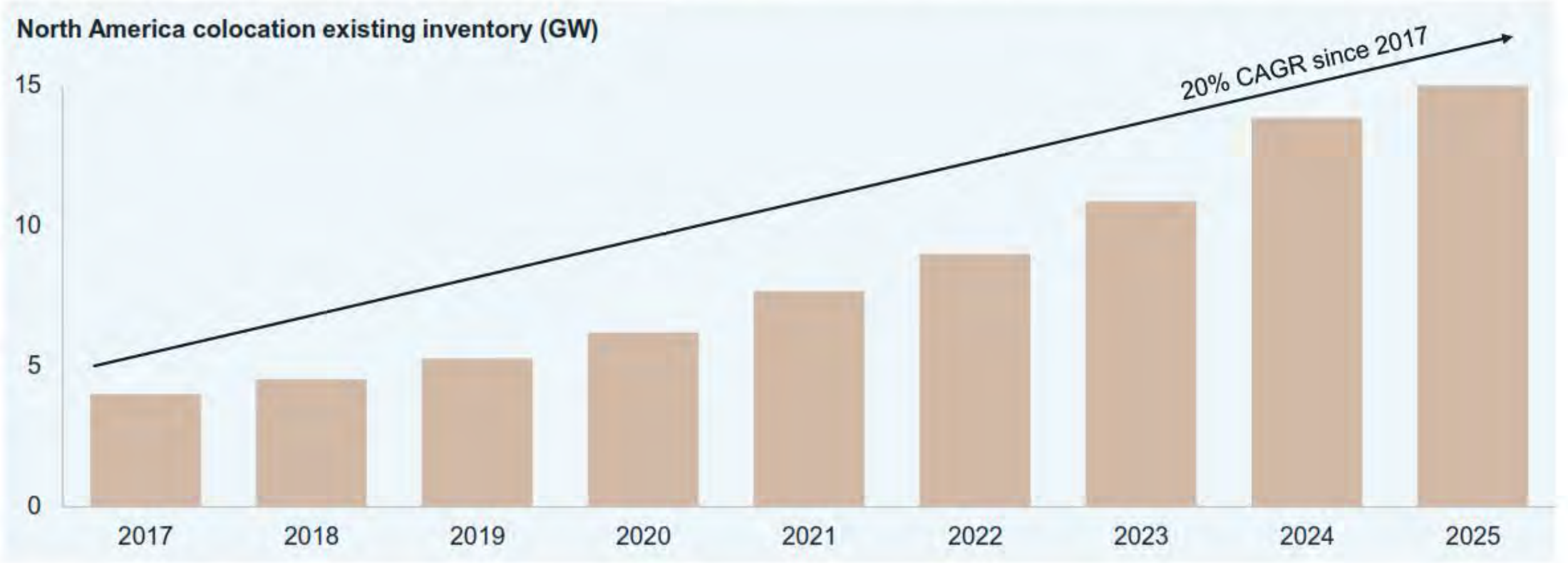
The data center market is doubling in size every four years

The North America colocation market has been growing at a 20% CAGR since 2017. The development pipeline supports continued growth at this pace through 2030, at which point the colocation market could total more than 42 GW.



Source: JLL Research

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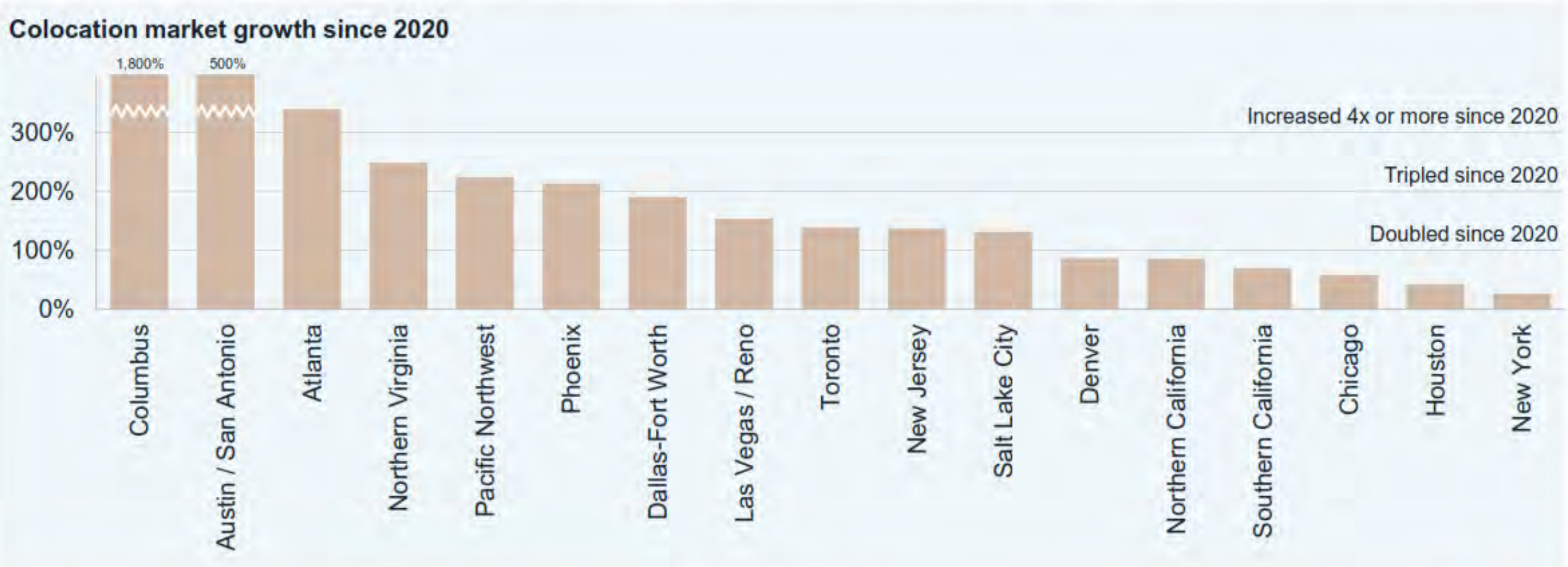
Most markets have doubled or tripled in size since 2020

The sector has been growing at a 20% CAGR since 2020. Over that time, most markets have doubled or tripled in size. On a percentage basis, the Columbus and Austin/San Antonio markets lead the U.S., growing from a small base in 2020.



Source: JLL Research

Data Center 101

Value Proposition: A data center is a purpose-built building to maximize operational efficiency for information technology

US Data Center Market
- 10GW+ provisioned power
- $15B annual revenues
- 450+ data center companies
- 2,500+ data centers

General Characteristics of a Modern Data Center
- Large building – between 100,000 to 1,000,000 SF
- Multiple carriers provide internet access or dark fiber services (meet-me room)
- Lights-out operations with small local workforce (10-50 employees per DC)

Main components:
Building Shell, Hardened Construction, HVAC/Mechanical Systems, Generators, UPS, Power Distribution, Secure Entrance, Office Space, Loading Dock

Evolution of the Modern Data – Three main phases:

Enterprise

- Where it started
- Big rooms for private IT with lots of HVAC
- Usually in the same office building as employees
- Expensive for companies to build, operate, and upgrade
- Difficult, pricey to build diverse fiber connections

MTDC

- Combines multiple companies IT equipment in one building
- All the advantages of premium facility without having to build it
- Drove data center market for 15+ years
- Carrier density
- Still great for non-cloud, private IT workloads

Hyperscale

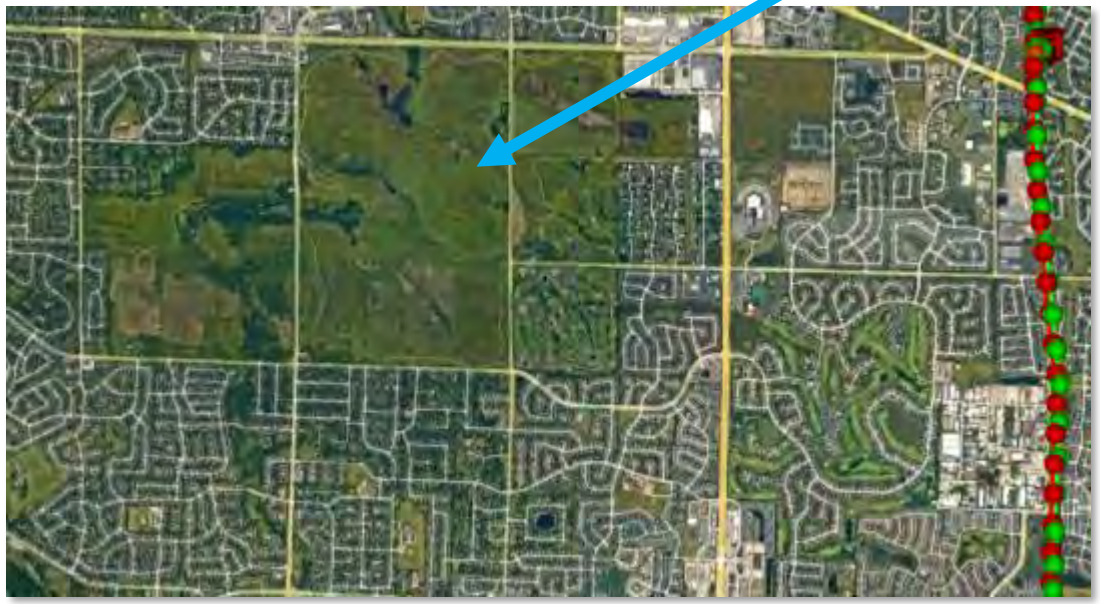
- DC built for 1-4 users
- Built for higher density, more power, more cooling
- Limited carriers + high density dark fiber
- Driving all the growth in DC market today
- 70% + of all new builds in 2023 were hyperscale
- Generative AI will continue this trend

What Data Centers are Requesting for New Project Sites

- Low risk sites with access to large power and water
- Proximity to existing fiber
- No new easements, or if required a clear route exists
- 100 acres+ in size
- Not in flood plains
- Not adjacent to residential
- Data center as a use in zoning ordinance
- Be mindful of clear height variance requests

Ideal

Not Ideal



Key:

138kV

345kV

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Top development challenges

1.

Power procurement

The U.S. power grid is not running out of capacity in the near-term. But there are challenges that need to be addressed.

2.

Bridge power

Some facilities will need to supplement or consider non-traditional power sources to handle growing loads, especially during times of peak usage.

3.

Grid capacity

What are the redundancy protections in place to ensure minimal downtime/disruptions? How easily accessible is the power grid?

4.

Market competition

The U.S. colocation data center market has doubled in size in just 4 years. Staffing remains a significant challenge amid unsatiable demand.

5.

Land pricing

Validated data center land sites are fetching premium pricing.

6.

Approvals

Potential zoning changes and public resistance to new data center construction has increased competition.

Illinois' Grid

ComEd serves the City of Chicago and the northern third of Illinois, totaling ~70% of the State's population

- Subsidiary of Exelon Corporation, an American Fortune 200 energy company headquartered in Chicago, Illinois
- Purely an electricity transmission and distribution company (Illinois has been deregulated with competitive energy supply since 1997)

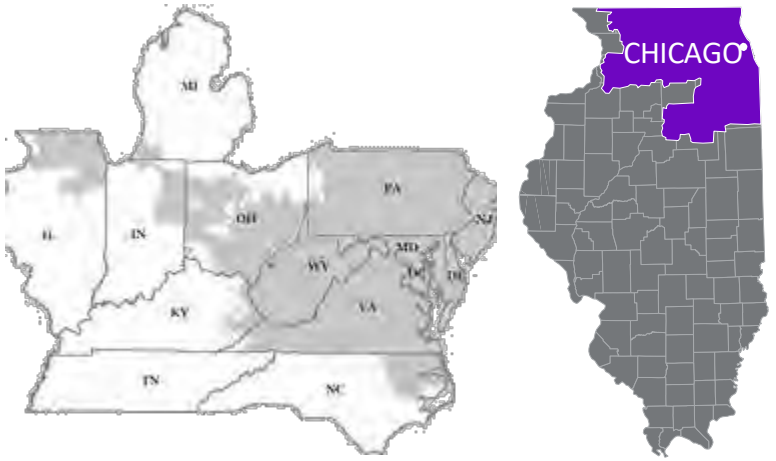
Regional Transmission Operator - PJM

ComEd's transmission system is part of the 13 State PJM Interconnection grid (www.pjm.com), which is the largest centrally dispatched grid in the world and serves 65 million people

183,254MW of total installed generation capacity

32.7GW of installed capacity located within the ComEd Zone

Illinois' fuel mix is the **6th most carbon-free** in the United States and has the 6th most installed wind generation and large nuclear fleet



ComEd System

ComEd has a workforce of 6,300 and operates 90,000 miles of power lines covering 11,400 square miles, 400 municipalities, and portions of 25 counties

~10 million people

4.0 million total customers

300,000 business customers

ComEd's current peak load is ~22GW, excess generation capacity in the region currently makes northern Illinois a **net exporter** of energy. This will change as unprecedented load requests continue to come in. **New generation** will be **essential** for continued **growth.**

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Illinois' Strong Energy Assets

Significant investments coupled with forward looking policies have positioned Illinois as a leader in clean energy and created significant benefits for customers throughout northern Illinois, including low and stable prices, industry-leading reliability, and other programs for customer savings and benefits

COMPETITIVELY PRICED POWER

ComEd's rates are **21% less** than the average commercial rate and **38% less** for industrial than the top 20 large metropolitan areas in the US.

Illinois competitive market allows for businesses to **negotiate ~60% of their total bill.**

INDUSTRY-LEADING RELIABILITY

ComEd annually ranks in the **top decile nationally** for fewest customer interruptions. Through 2024, ComEd has **24.7M avoided outages** since 2012.

Recognized by **PA Consulting** as **best in the Midwest** among large utilities in **2024** and named **Most Reliable Electric Utility in America** in 2023.

CLEAN & RENEWABLE POWER

Illinois is the **6th lowest** carbon-intense generation state. **#1** for nuclear and **#6** of wind generation.

Customers can take advantage of **solar rebates** ($300/kW up to 5,000kW) and have **access to 100% renewable power** through the Illinois competitive market.

ENERGY EFFICIENCY PROGRAMS

Over **$170M in annual incentives** available to business customers. Business customers have **saved $4.6B** in **electricity costs** since 2008.
(**$12B** for all customers)

Customers received **$2.25B** in **rebates & incentives** since 2008.

REDUCED DEPOSITS FOR EXTENSIONS

Customers are eligible for **large up-front credits** for electric line extensions and can recoup deposits on accelerated timeframes through the ComEd **Rider DE Tariff.**

BENEFICIAL ELECTRIFICATION

$100M in Rebates available in 2025!

$53M available for electrifying public and fleet vehicles. **$38M** for charging infrastructure and make ready work.

These funds will help **reduce emissions and enhance sustainability** for future generations.

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Ensuring an Affordable, Equitable, and Reliable Energy Transformation

Federal

Legislative initiatives, including recent notable bills like the Infrastructure Investment & Jobs Act **(IIJA)** and Inflation Reduction Act **(IRA),** support pace and direction of energy transformation

Regulators (e.g., FERC, EPA) have oversight and/or set direction for critical issues impacting industry (e.g., implementing legislation, transmission planning, rate design)

Judicial branch sets guardrails for legislative and regulatory efforts

PJM

Administers capacity auction and energy market, subject to FERC oversight and reflecting stakeholder input

Other generation planning and coordination efforts, including interconnection approvals and Reliability Must Run agreements

Transmission planning and project approval ensure a reliable grid under various long-term policy scenarios

State

Legislative priorities and progressive clean energy goals drive grid's supply and demand evolution (e.g., CEJA and industry incentive programs in IL)

Regulators implement legislative agendas through rate cases, other investment recovery mechanisms, rate design, and other regulatory proceedings (e.g., MD co-location study)

Amidst ever-growing demands on the grid, balancing alignment across Federal and state policies along with market design and execution to support our customers requires constant engagement and focus.

Typical Power Requirements

- Power demands vary by business sector and depend on the type and amount of equipment being used
- ComEd provides necessary electrical infrastructure that meet power requirements thru different voltages (12kV, 34kV, or 138/345kV) and onsite equipment
  - 1 megawatt (MW) is the power equivalent of approximately 225 single family homes or 2 large big box retail stores

Large Retail

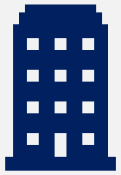
Typical Loads (12kV):

0.5 - 0.75MW+

(Avg. 1.3MW)

Existing Customers:

400



Office

Typical Loads (12kV):

1 - 2MW+

(Avg. 7MWs)

Existing Customers:

900

Warehousing

Typical Loads (12kV):

0.5 - 4MW+

(Avg. 1.4MW)

Existing Customers:

1,000

Manufacturing

Typical Loads (12/34kV):

1 - 10MW+

(Avg. 2MW)

Existing Customers:

2,000

Data Center

Typical Loads:

30 – 1,000MW+

(Avg. 6MW, but new requests are 300MW+)

Existing Customers:

75

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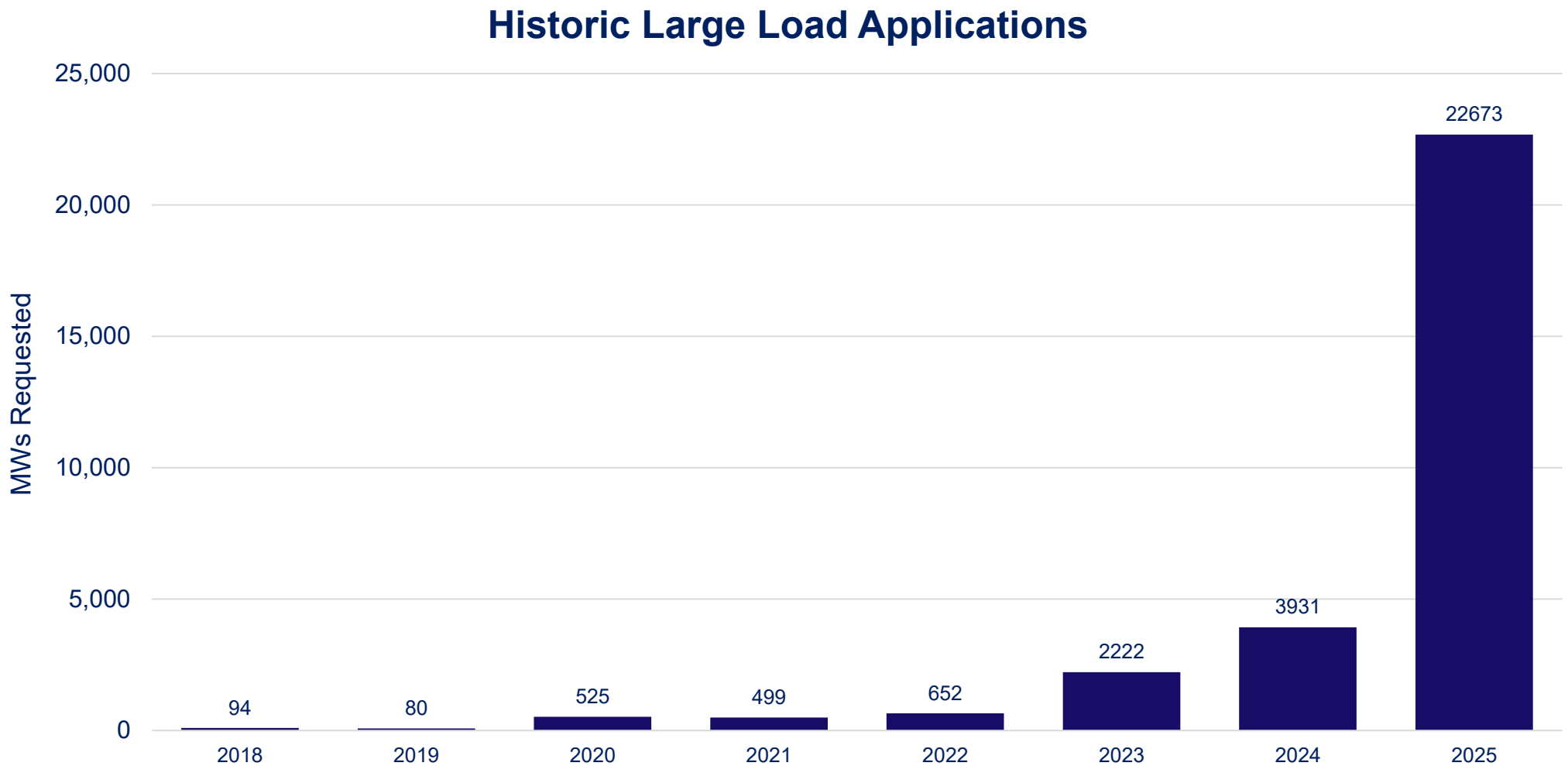
Background – Growth in High Density Loads in the ComEd Service Territory

- Like many utilities, **ComEd is experiencing an unprecedented increase in new applications for service to large high-density loads.**
- The increase in large load project requests began in 2020 with Meta and Microsoft and in 2023 with Gotion coming to ComEd's service territory. But **in late summer 2024, the scale and pace of project inquiries and applications increased substantially.**
- ComEd's current **economic development project pipeline includes ~100 large projects** requests in various stages of engineering or construction, all with customer deposits paid.
  - These **represent 32 projects at 12 or 34kV and 69 at or above 138kV**. ComEd currently has 42 non-generator retail customers served at 69kV or above.
  - For context, **ComEd's historic peak demand of 23,753 MWs was set in 2011** and the **2024 peak demand was 21,560 MWs and 2025 was 20,714 MWS.** Note: addition of large high-density loads may have specific and varying effects on different types of energy demand forecasts, not all of which are based on system peak demand.

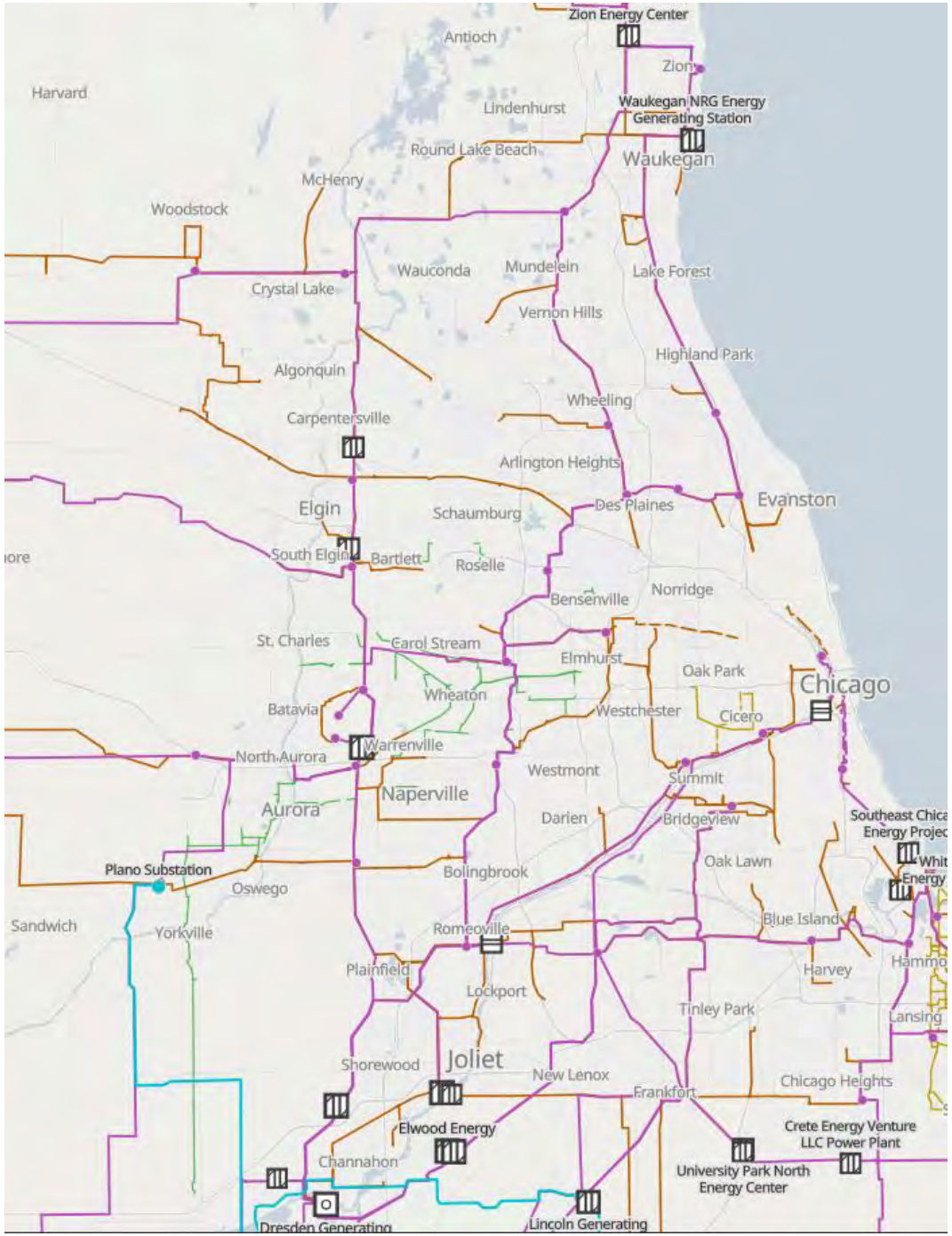
Large Load Applications Submitted to ComEd Continue to Increase in Scale



Power and Planning

- **ComEd Transmission & Substation Infrastructure**
  - 138, 345, and 765kV transmission lines
  - Multiple 12 and 34kV distribution substations (and circuits)
  - General ranges for power by voltage:
    - 12kV = up to 10MWs
    - 34kV = 10 -- 50MWs
    - 138kV = 50 -- 300MWs
    - 345kV = above 300MWs
  - Visit https://www.openinframap.org/ to view a public global transmission and substation map

- **System Planning Overview**
  - System peak load flat to negative for ~15 years
  - Different departments conduct system planning and interconnection of new customer and generation requests
  - PJM also conducts system studies to ensure reliability and generation availability



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Next Steps

- **Questions and discussion?**

- Locations of large available sites for preliminary ComEd feedback
- Send inquiries of received requests by MMC members to ComEd Economic Development or External Affairs
- Early engagement and collaboration is critical for joint success

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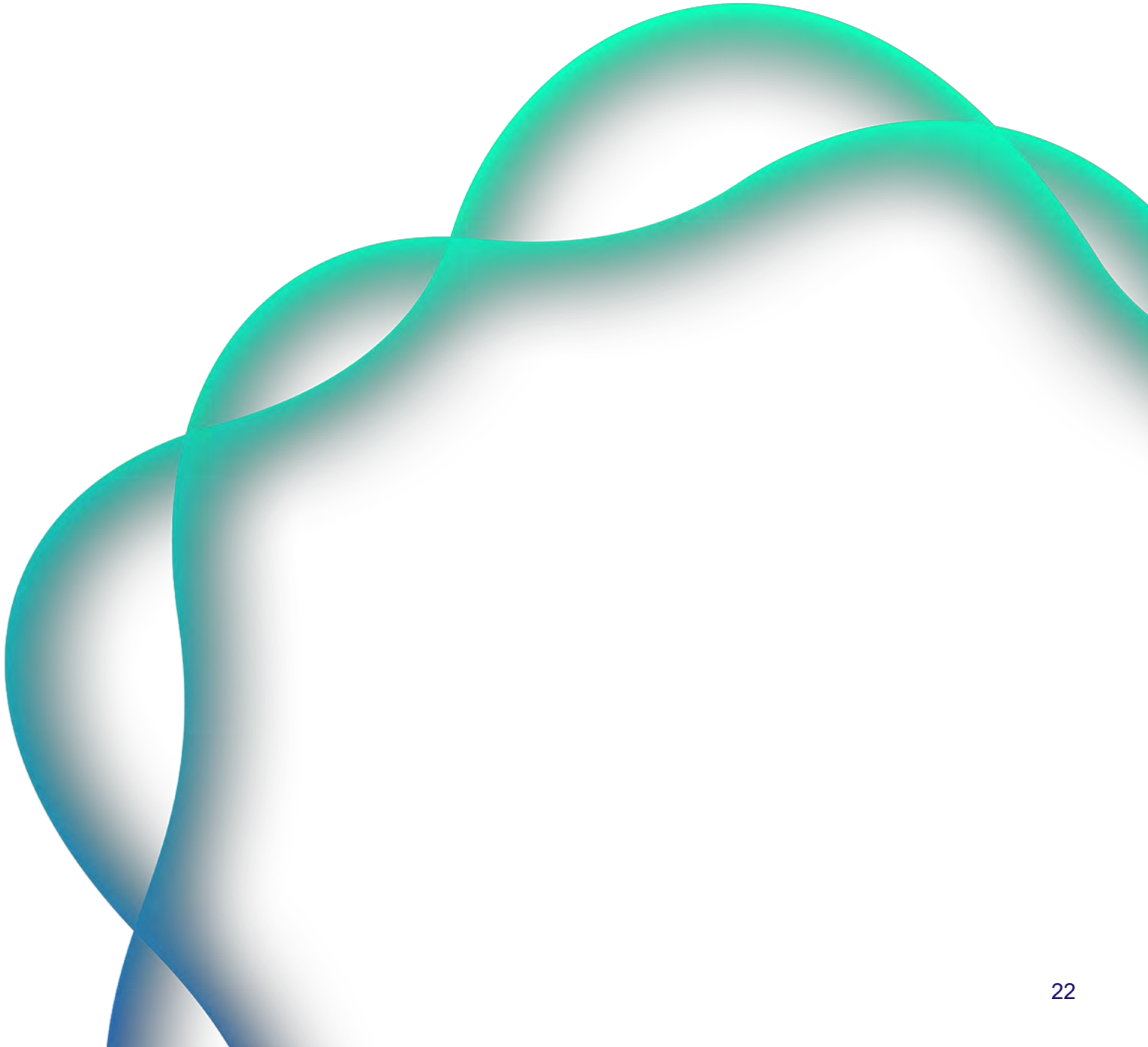
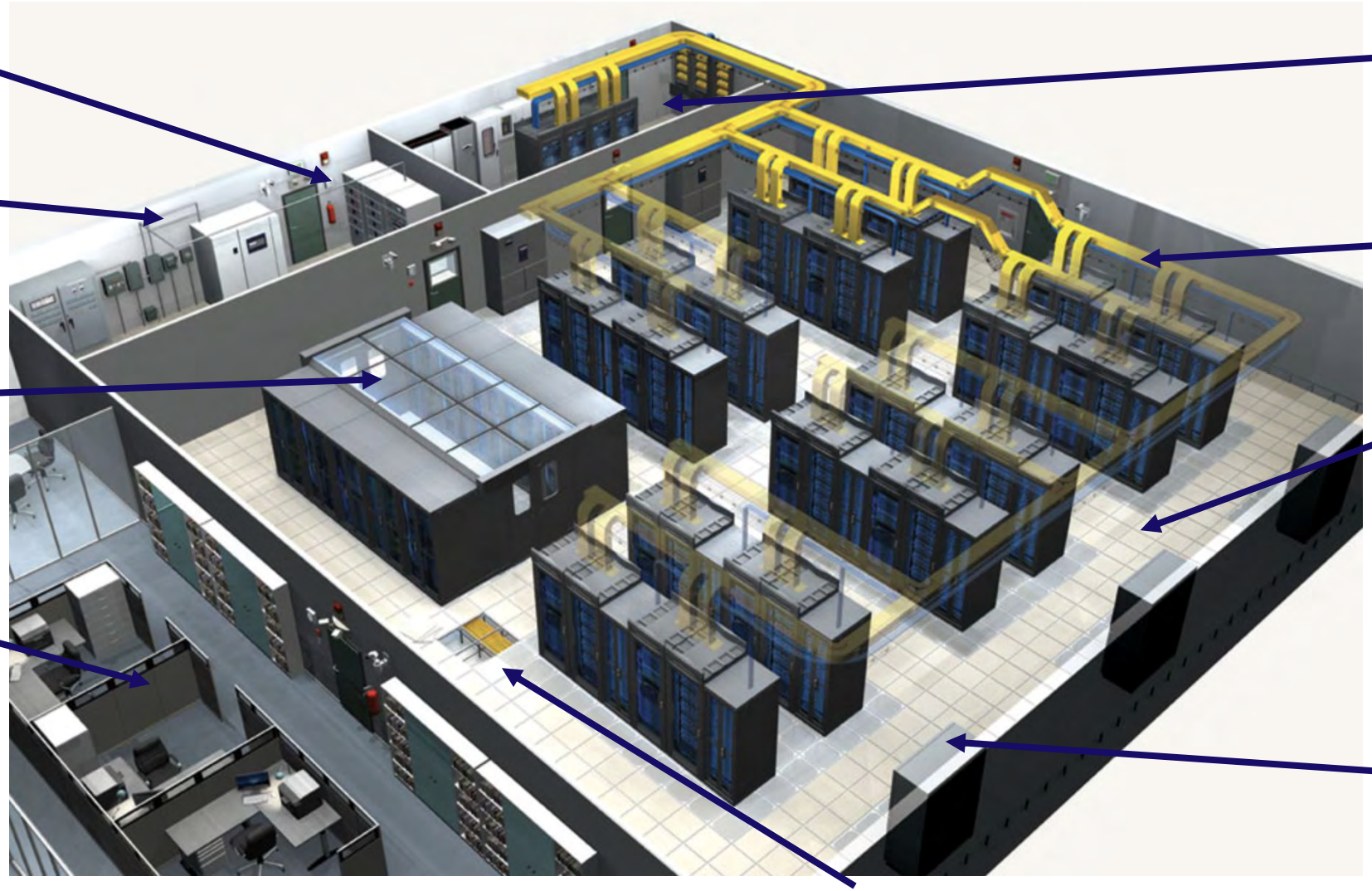
Appendix



The Enterprise Data Center - in an Office Building

Step 1: A special room in your office built for servers



Specialized HVAC units just for the Data Hall

Uninterruptable Power Supplies (UPS)

Optional fully-enclosed server cabinets to manage hot air exhaust from servers

Usually near workspaces for non-IT staff

Central network room for local network connections

"Raceway" or cable trays for network cables

Raised floor also acts as plenum for cold air supply to the Data Hall

Low voltage power cables to each server installed under a raised floor

More specialized HVAC units just for the Data Hall

Badge access entrance for staff

Raised floor tiles can be lifted to access cables below

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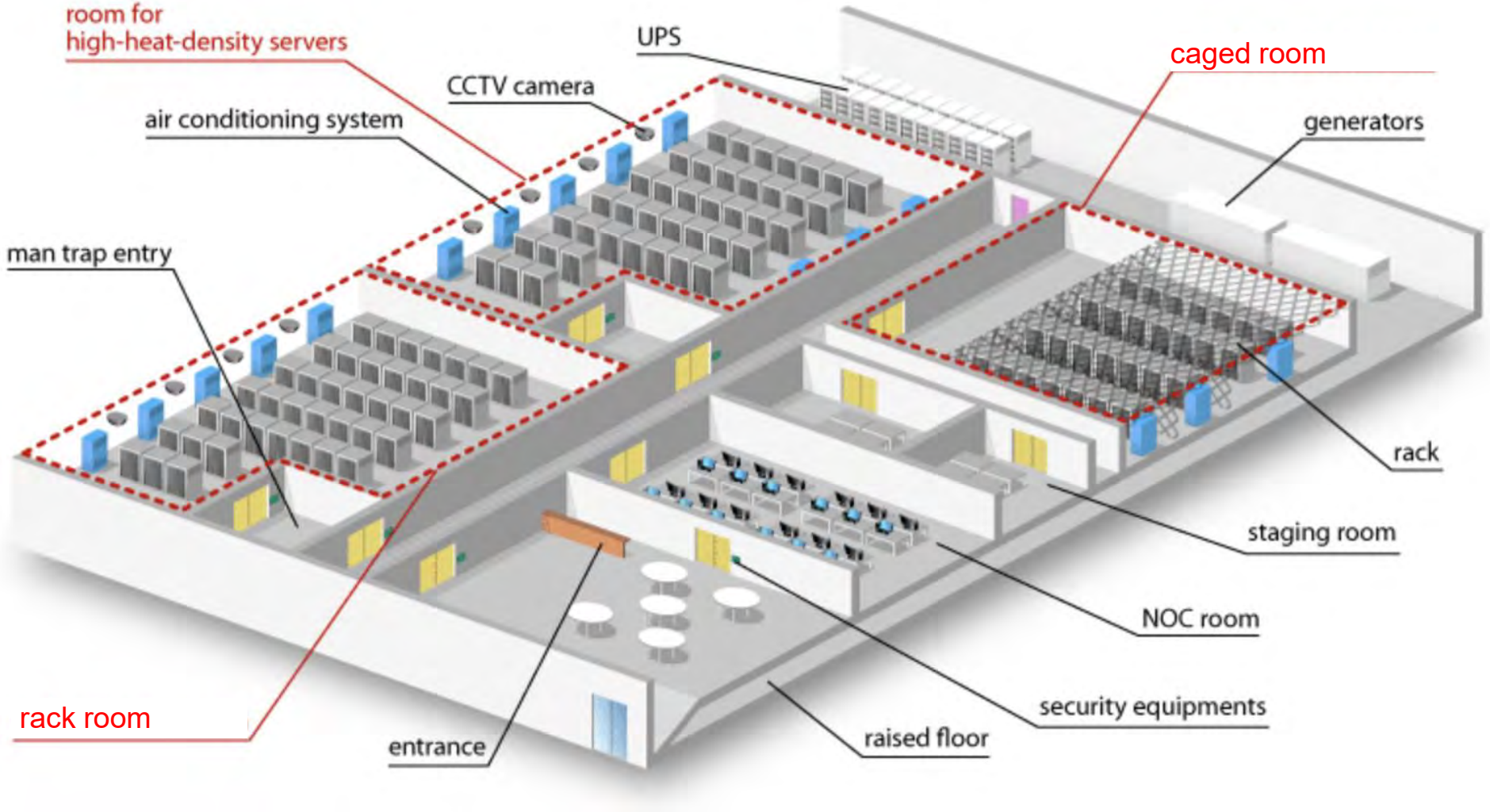
Purpose Built Multi-Tenant Data Center

Step 2: A professionally managed data center to move your servers



- Designed like an apartment building; multiple tenants will share the data halls
- Tenant servers are installed in locking, fully-enclosed cabinets
- Tenant can choose to have an area “caged off” from the rest of the room; for larger tenants
- Must include areas outside the data hall for different tenant staff to work

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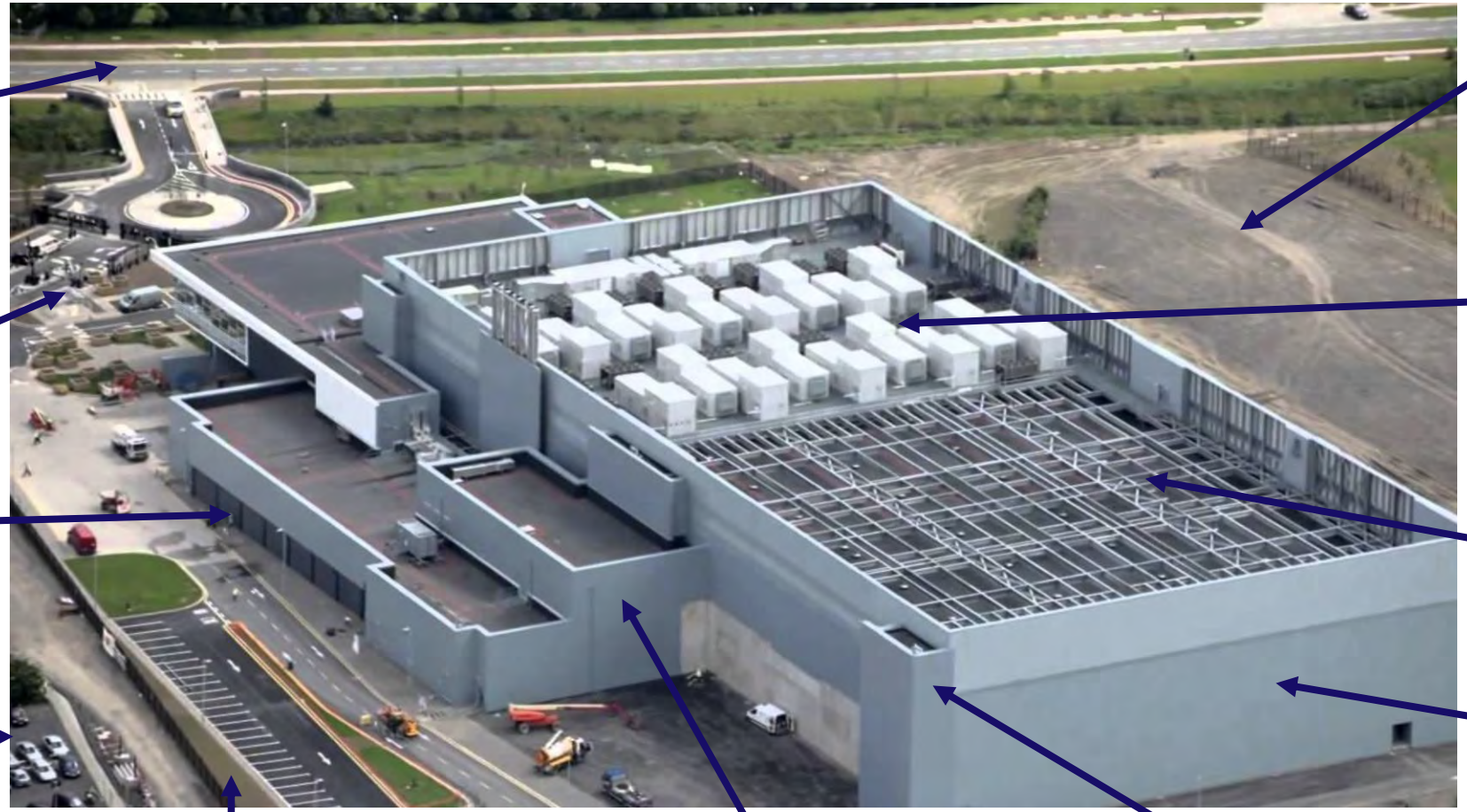
Depending on the power requirements, the facility/campus may require transmission voltage and a dedicated onsite substation

Purpose Built Data Center – Single Tenant - Hyperscale

Step 3: Specialty design for single tenant with custom needs



Access to major roads for ease of shipping & receiving; ease of staff to access the site

Single secure entrance for visitors & staff vehicles

Central building for security, office space

Parking outside perimeter wall for visitors

Land for future expansion

Chillers & HVAC Equipment

AND

"Line-ups" for generators, UPS,

Area for data hall (where the servers will be installed)

Two-story design

Perimeter Wall for added physical security

Exterior design features to make building look more attractive

Cargo Elevators

Depending on the power requirements, the facility/campus may require transmission voltage and a dedicated onsite substation

Cluster Impact Study, Engineering, and Construction

Phase 1 — Transmission Impact Cluster Study and Scoping Engineering

Timeline: ~12-18+ Months, including transmission impact cluster study
Deposit Costs: $1 million+*, optional long lead material deposits

Requirements to Begin: Site control (LOI/PSA), engineering deposit, service application, load ramp schedule, one-line diagram, site plan, transmission planning questionnaire, and prefer a letter of intent (LOI) from a large power user for the location

**** ComEd follows the PJM Attachment M-3 Process for supplemental customer projects. Potential scope and schedule impacts of transmission system network upgrades required to serve new customers is contingent on PJM's wholistic analysis of their footprint as part of their Do No Harm analysis.***

The cluster study is a new process that occurs in parallel with the Scoping Engineering step. Because of the unprecedented number of large power project requests, ComEd has implemented this new approach as of Q3 2024, which allows us to analyze the impact of a large group or cluster of projects at the same time and develop comprehensive solutions across the ComEd territory.

Scoping Engineering accounts for engineering and design, technical challenges, and approvals. ComEd provides all equipment layout and specifications for the project. This phase involves bringing on an approved ComEd engineering firm, identifying engineering analysis of the scope of work, issuing a ComEd project diagram, and refining the costs (+/-25%) and schedule. To ensure alignment, recurring calls/meetings between ComEd and the customer are typically set. Customer required easements must be secured during this phase, if needed.

Phase 2 — Detailed Engineering

Timeline: ~12-18+ Months
Deposit Costs: Additional deposit depends on scope of work

Requirements to Continue: Additional deposit, continued engagement on project details, service configurations, etc.

Additional internal ComEd approvals to conduct detailed engineering to issue an IFC (issued for construction) package, order additional long-lead materials, obtain permits, further refine costs (+/-10%) and provide a detailed schedule. Recurring calls with the customer are continued during this phase.

Note that ComEd's environmental policy requires substation land to meet TACO Tier 1 requirements.

Phase 3 — Construction

Timeline: ~12-24+ Months (depending upon scope of work)
Deposit Costs: Remaining project costs from estimates due at start

Requirements to Continue: All property rights are secured (easements, acquisitions), permits approved, additional deposit / charges are paid, and continued engagement on construction activities, etc.

Construction includes all field work, livening, commissioning, and testing of facilities that were placed in service. The estimated timeline is contingent on the customer having all required civil construction completed and approved. Recurring calls with the customer are continued during this phase.

Note that transmission network expansions/reinforcements may extend project timelines significantly due to land acquisition needs and regulatory approvals.

The above referenced engineering phases are for end-user ComEd customers. In some cases, if a landowner has obtained an LOI from a large power user purchaser, then ComEd can begin Phase 1 Cluster Study and Scoping Engineering, but we cannot conduct this phase without direct technical engagement with the end user customer. Enough room for an onsite substation is required (6-7 acres at 138kV and ~25+ acres at 345kV), plus separate ComEd water detention, and two points of direct unimpeded 24-hour vehicular access are required.

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** New initial engineering deposit policy (6/25), pending ICC approval, is $1M for up to 200MWs and $500k for each additional whole 100MWs; a 1GW project would therefore be $4M* Global supply chain challenges continue to impact construction timelines for some critical infrastructure such as substation transformers, circuit breakers, and switchgear control buildings. We attempt to mitigate this with advanced customer deposits during Phase 1 to secure manufacturing production slots earlier than normal.*

ComEd Grid - Typical Transmission Connections

Transmission & Substation System

ComEd's transmission system is designed to meet all reliability requirements of NERC, PJM, and Exelon. The ComEd system is unique in that it has two subsystems in some areas, referred to as red and blue, that aid in providing redundant service feeds to customers.

Exelon Utilities, including ComEd, are developing interconnection standards that require customers to own their transformation. In these circumstances, ComEd will serve the customer using two lines to a customer owned and maintained switchyard. ComEd may be able to supply the two lines by expanding an existing ComEd substation or a new Transmission Substation (TSS) will be constructed on land secured by the customer. The land will be purchased by ComEd prior to TSS construction. ComEd requires separate storm water detention for their substation, two separate secure access points, as well as an option to purchase the ESS land, should ComEd need to network the substation into our bulk power system.

On-Site Customer ESS (~50-300MW Typically)

For projects **~50-300MW** ComEd typically serves from our 138kV transmission system.

ComEd may also construct an on-site customer substation, referred to as an Electric Service Station (ESS), that is connected to ComEd's 138kV transmission system. The customer is responsible for the civil work, installing the foundations, while ComEd typically provides transformers, circuit breakers, and other high voltage equipment in the ESS. If the customer desires, they can own their own transformers in a separate fenced substation yard. This would also have implications on the monthly bill, as the line item for primary transformers would be removed.

On-Site Customer ESS (>300MW Typically)

For projects **above 300MW**, ComEd typically would serve from our 345kV transmission system using two lines to a customer owned and maintained switchyard with their transformation. ComEd does not have transformers available at this voltage.

ComEd requires separate storm water detention for their substation, two separate secure access points, as well as an option to purchase the ESS land, should ComEd need to network the substation into our bulk power system.

Timeline: To design, engineer, and construct, this process generally takes **~36 – 60+ months**, namely driven by long lead time equipment (transformers, breakers) and transmission network reinforcements/expansions based on the results of the transmission impact cluster study. Limited interim bridging capacity (10MW max, where available) may be brought to the location from our distribution voltage system.

Costs: The costs for the on-site customer station (ESS) are considered standard service covered via base monthly delivery rates. Off-property high voltage distribution extensions are covered via Rider DE tariff. Additional project costs chargeable to customers will be based on the costs and tariffs in effect for the work at that time.

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ComEd Grid - Typical Distribution Connections

Distribution Extension/Expansion (<50MW Typically)

ComEd leverages its distribution system at **12kV or 34kV** depending on load level, to service customers that require **~50MW or less.** ComEd's general process for new customer projects is to collect a ~10% deposit of the total scope of work to conduct engineering after receipt of a formal request with a submitted service application, electrical one-line drawing, site plan, and other related materials. The property owner will also need to call the New Business Hotline (**1-866-NEW-ELEC)** to request a Service Request Number **(SR#)** to start the application process.

ComEd provides N-1 as standard service, but customers have the option of requesting redundant services with an ATO or automatic throw over at an additional cost.

Long lead materials are typically ordered early in the engineering process. Due to global supply chain challenges, ComEd has been leveraging additional customer deposits to secure manufacturing slots for long lead materials such as substation transformers, circuit breakers, and other equipment.

After engineering is completed and permits obtained, construction of on and off-property components can take up to 12-24 months, depending on the complexity of the scope of work. Total project costs for standard service are covered through refundable deposits under ComEd's line extension tariff program known as Rider DE (distribution extension). Rider DE provides a 5- year revenue credit against the project cost and provides annual refunds over a 10-year period based on actual annual customer usage levels with opportunities for accelerated refunds if certain load conditions are met. Engineering and any long lead material deposits are applied towards final deposit requirements.

Timeline: Depending on electric infrastructure that may be in place, can range from ~12-36+ months. The longer timeline is driven by substation expansion work and feeder extensions. Where capacity exists, timelines may be shorter.

Costs: Costs for line extensions and substation expansions are covered via the Rider DE tariff.