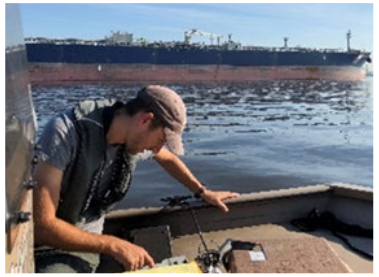

Data Centers *and the* Delaware River Basin

Chad Pindar, P.E.
Manager of Water Resource Planning

New Jersey Water Supply Advisory Council - April 17, 2026

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What is the Delaware River Basin Commission?

DRBC's website

Established by interstate compact in 1961, a regional body with the force of law to oversee a unified approach to managing a river system without regard to political boundaries.

Delaware | New Jersey | New York | Pennsylvania | Federal Gov't (USACE)

"provide trusted, effective and coordinated management of our Basin's shared water resources."

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1. Why is DRBC thinking about data centers?
2. Water use and power in the Delaware River Basin
3. All about data centers
4. Data centers and the DRB

Section 1

Why is DRBC thinking about data centers?

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Authorization

Section 1.5 Emergent Issues

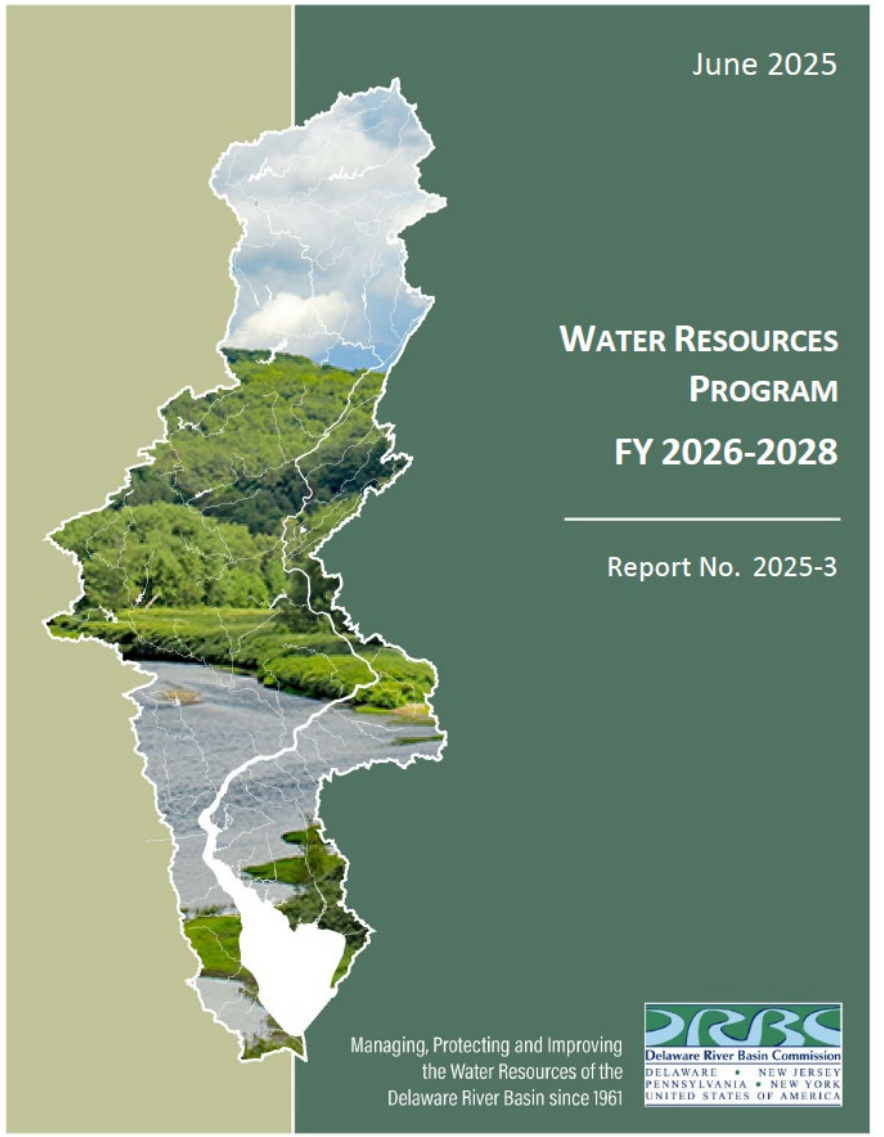
- 1.5.8 Data Centers

The growing importance of data centers and their potential impacts on water resources within the Basin are important to understand. Data centers consume large volumes of potable water for various purposes, primarily for cooling systems and humidity control, and the Commission has received inquiries for construction of data centers in recent years. DRBC will research and develop a briefing document on the potential impacts that data centers may have on water resources in the Basin.

Section 2.2 Work Program

- 2.2.1.1.1 Water Supply Planning for a Sustainable Water Future 2060

DRBC will work to develop a briefing document on the potential impacts that data centers may have on water resources.



Why is everyone interested?

Proposals near your community

- municipalities are dealing with proposals
- DCs are a “new” type of industry - landuse / zoning
- quality of life concerns
  - traffic, noise, back-up generators, screening, etc.
  - utility connections – power, internet, water

TUESDAY, APRIL 14, 2026

PA House Passes Bills To Develop Model Zoning Ordinance To Help Local Governments Regulate, Mitigate The Impacts Of A.I. Data Center Developments; Report Water, Energy Use

Penn State Extension – A Guide to Common Questions – designed to help communities engage in dialogue with DC proposals.
https://extension.psu.edu/data-centers-a-guide-to-common-questions

Regional electricity bills

- Residential customer bills (e.g. PSE&G, PECO, JCP&L, PPL, ACE, MetED, DPLC)
- PJM costs increases

It’s all over local and national news

Elected officials & governance/policy

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POLITICS & POLICY ENERGY LAW NEW JERSEY

N.J. General Assembly … large data centers to p… upgrades

The bill aims to shield households and small b… large data centers.

By Sophia Schmidt · Updated Mar. 25, 2026 3:02 pm

21 WFMJ Locally Owned, Locally Connected

HOME NEWS WEATHER SPORTS VIDEO WHAT'S ON LIVE SCHEDU

Pennsylvania governor's legal action against PJM prevents … cross 13 states

NJ Spotlight News Powered by NJ PBS

WATCH HEALTH CARE EDUCATION BUDGET POLITICS UNDER THE DOME

NJ drops radioactive waste rule to drive nuclear plant construction

Sherrill signs bill to allow spent fuel storage, and now a 14-member panel can review financing, regulations to prepare for potential sites

ELISE YOUNG | APRIL 9, 2026 | UNDER THE DOME, ENERGY & ENVIRONMENT

PENNSYLVANIA CAPITAL-STAR

…RNMENT & POLITICS EDUCATION ENERGY & ENVIRONMENT CRIMINAL JUSTICE LABOR HEALTH CARE

…among governors whose states rely on … want data centers to guarantee their …er

The governors are exploring fast track approval for data centers that agree to deliver dependable power to the grid as part of the connection process.

BY: RAMBO TALABONG, INSIDE CLIMATE NEWS - NOVEMBER 3, 2025 12:07 PM

DATA

N.J. families just go… biggest energy bill spike. See the brutal numbers.

Updated: Mar. 23, 2026, 6:46 p.m. | Published: Mar. 23, 2026, 10:01 a.m.

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Governor Mikie Sherrill

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Home / News / Press Releases / Promise Kept: Governor Sherrill Takes Bold Action with Executive Orders Declaring State of Emergency on Utility Costs

Promise Kept: Governor Sherrill Takes Bold Action with Executive Orders Declaring State of Emergency on Utility Costs

Posted on 01/20/2026

PVTECH SUBSCRIBE TO PREMIUM SIGN IN

News Industry Updates Premium Manufacturing Markets & Finance Power Plants Feat…

NEWS

New Jersey governor looks to build 'thousands of megawatts' of renewables, attacks PJM 'mismanagement'

By Will Norman

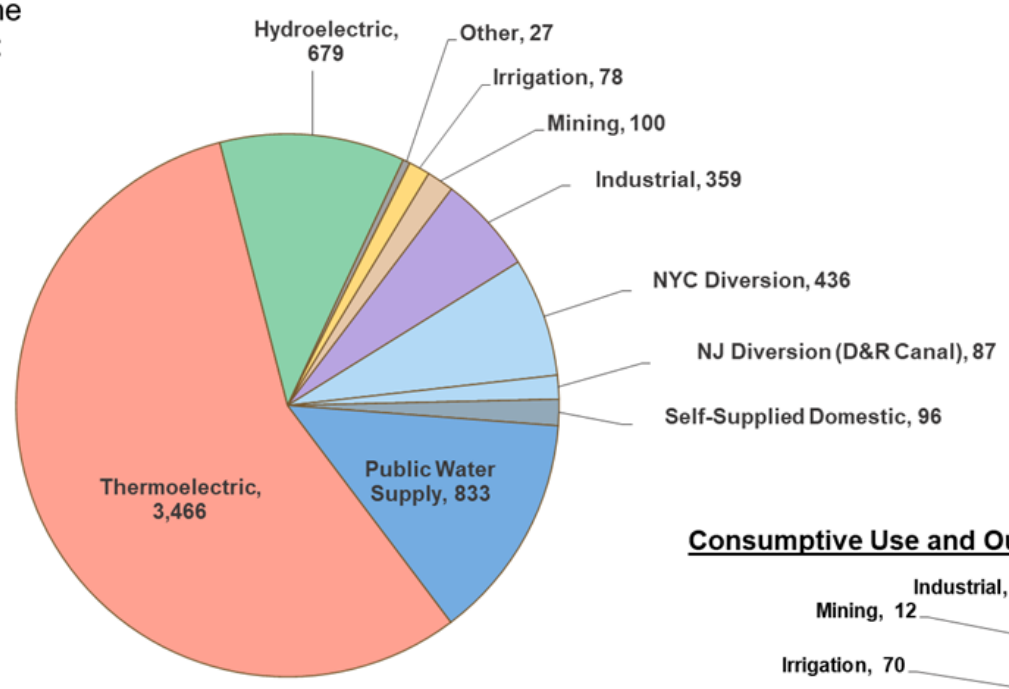
January 26, 2026

Section 2

Water use and power in the Delaware River Basin

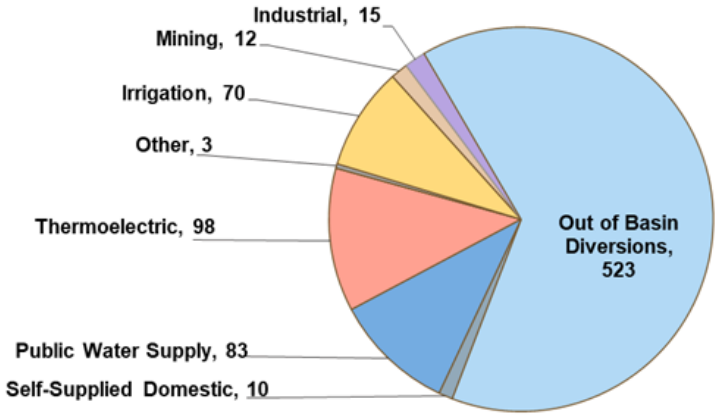
2024 DRB Water Withdrawals

Total Water Withdrawals (ground and surface) from the Delaware River Basin, **2024**: **6,160 MGD**



- Thermoelectric
- Hydroelectric
- Other
- Irrigation
- Mining
- Industrial
- NYC Diversion
- NJ Diversion (D&R Canal)
- Self-Supplied Domestic
- Public Water Supply

Consumptive Use and Out-of-Basin Diversions: 814 MGD



~ 6.1 BGD in 2024

- ~3.5 BGD is thermoelectric
- 0.8 BGD is PWS

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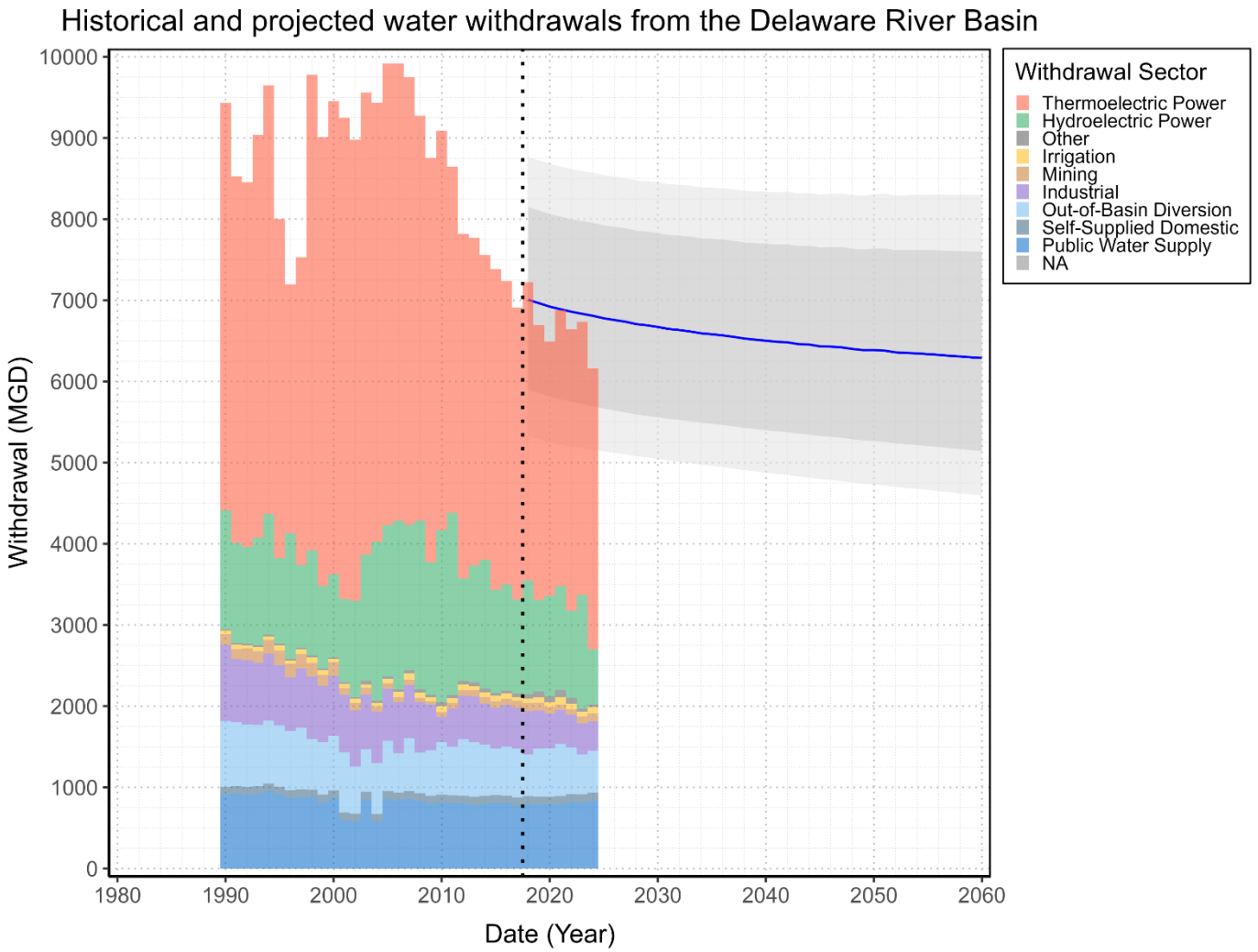
1990 – 2024 DRB Water Withdrawals



Water Withdrawals 1990 - 2024

~ 10,000 MGD in 2005 (10 BGD)

~ 6,000 MGD in 2024 (6 BGD)

~ 4,000 MGD *decrease* (4 BGD)

Decrease Projected to 2060

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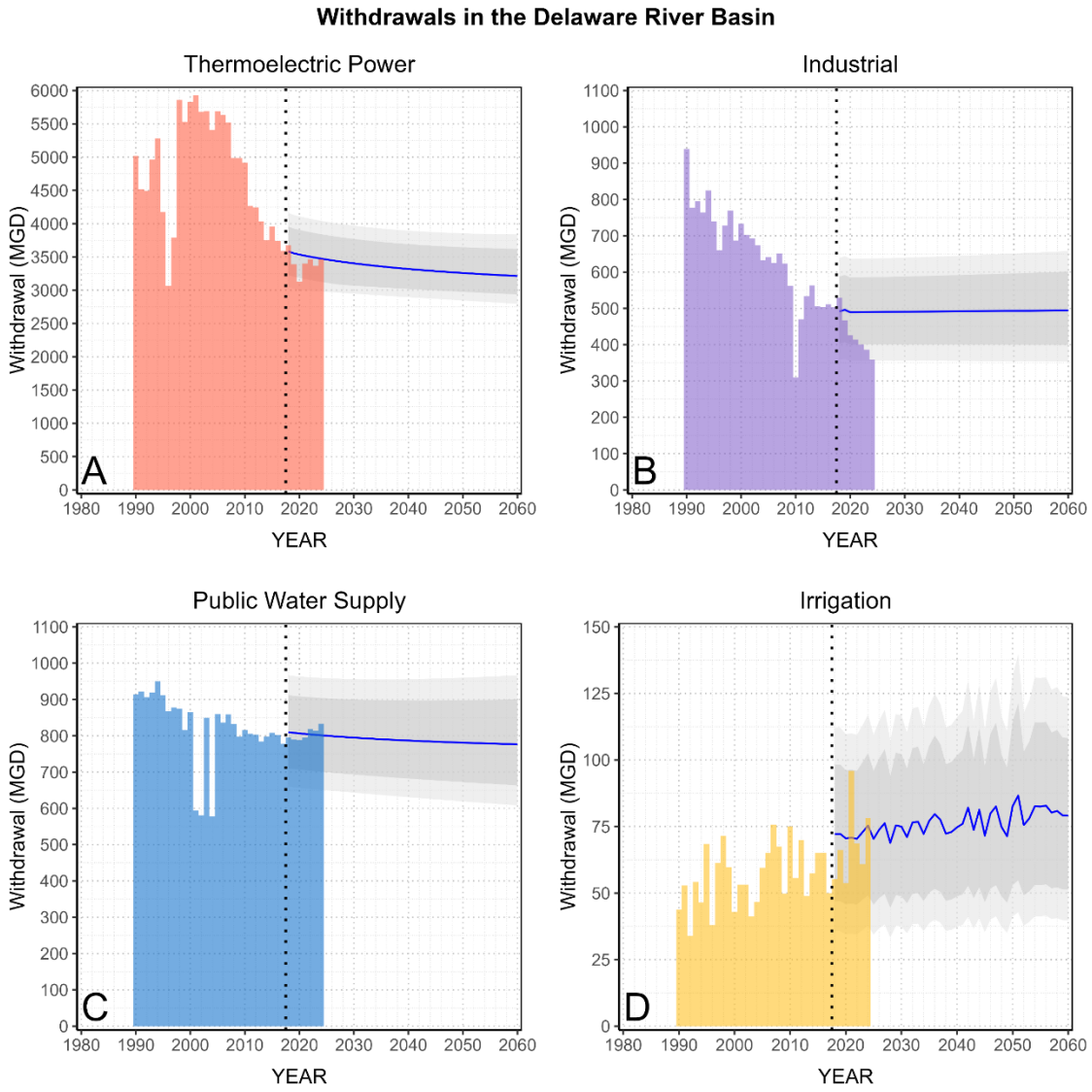
Key Sectors



Notes

A. Thermoelectric - 2.5 BGD decrease since 2000, reverse?

B. Industrial – continued decreases **below** projection

C. PWS shows **increase – but near projection**

D. Irrigation shows **increase**

Data Centers could impact three of these sectors.

- Power demands for PJM grid
- Industrial if they self-supply
- Customers of PWS

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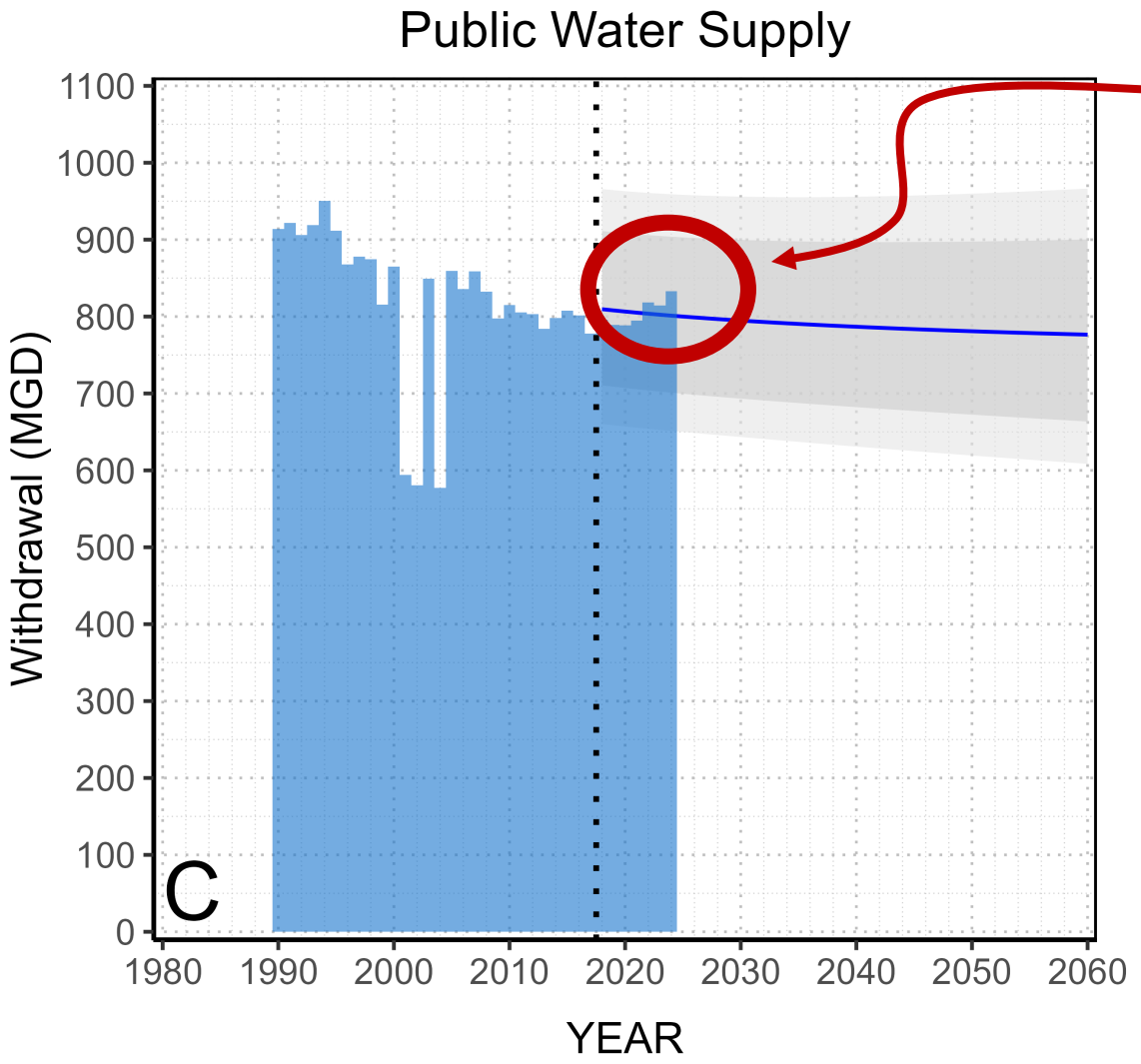
1990 - 2024– PWS Water Use



<u>Notable observation:</u> First time in decades that the PWS sector has seen a multi-year increase in withdrawals

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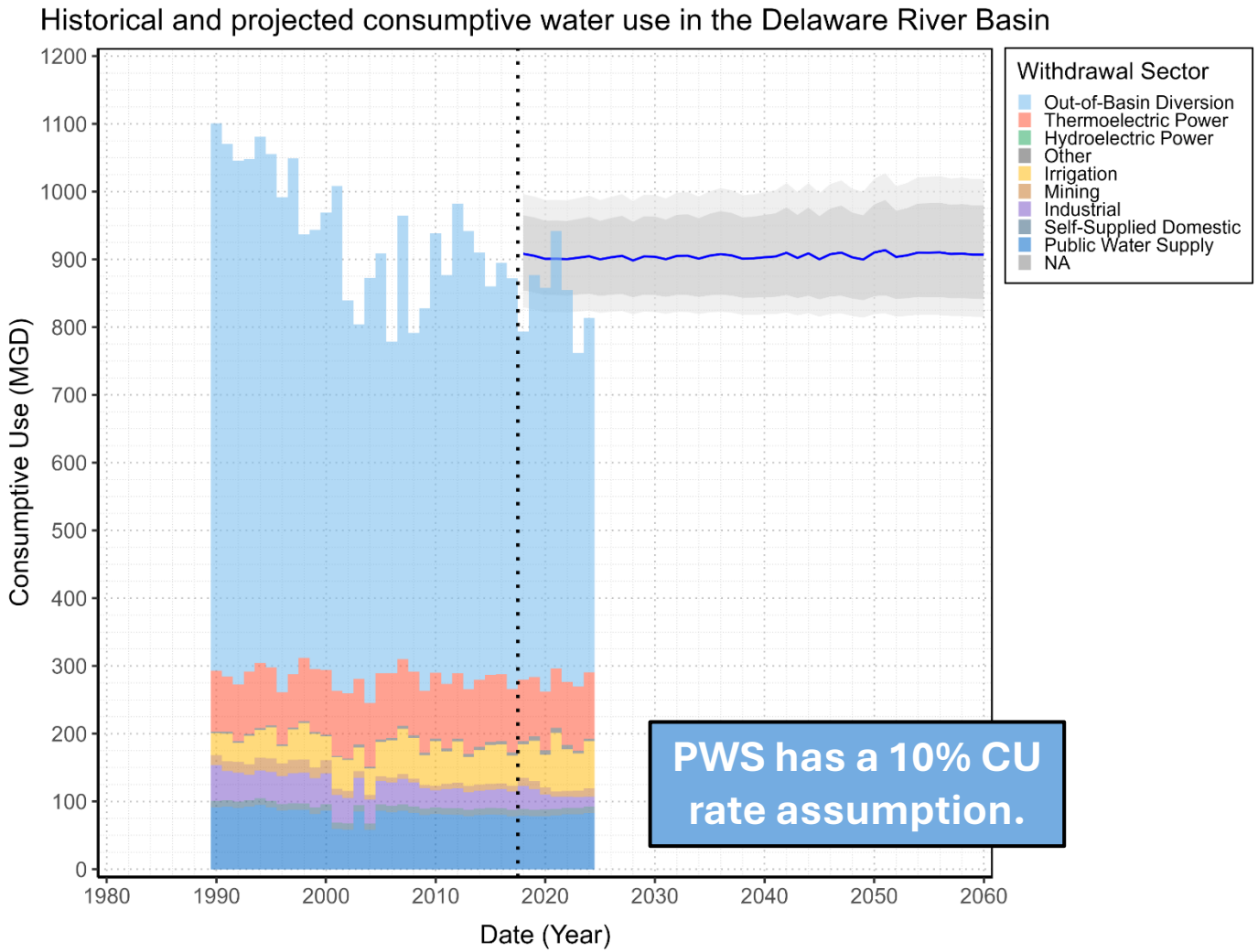
1990 – 2024 DRB Consumptive Water Use



Consumptive Water Use

~ 1,100 MGD in 1990 (1 BGD)

~ 825 MGD in 2024 (0.825 BGD)

~ 300 MGD decrease (0.3 BGD)

Projected to remain constant

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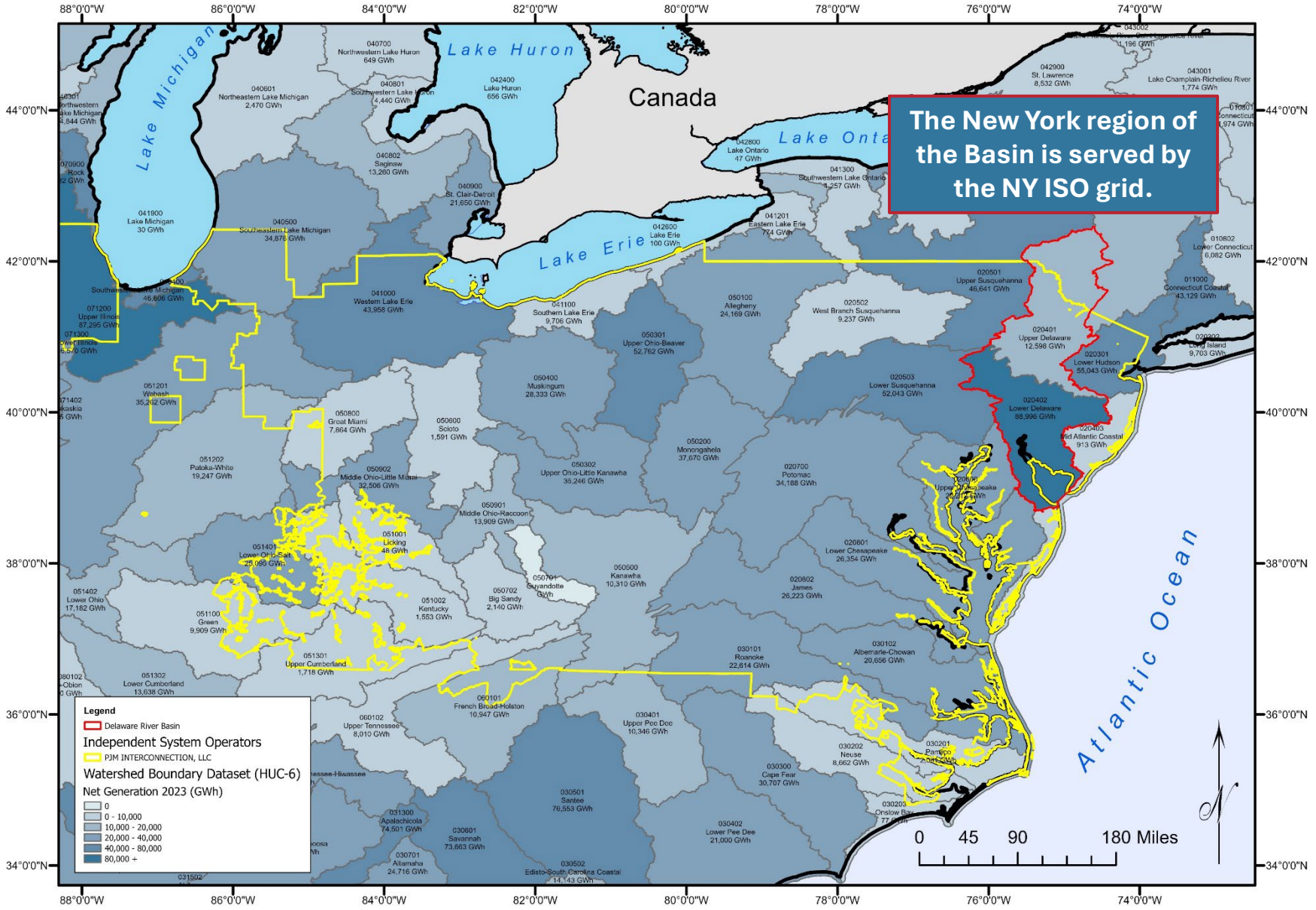
PJM Grid

- Regional Transmission Organization (RTO)
- Largest grid in U.S.
- ~65 million customers
- 13 states + D.C.
- HQ in Valley Forge, PA
- Regulated by FERC

CY2023 net power generation
Lower Delaware HUC

2nd in the country
1st in the PJM

88,690 GWh in 2023



Total net power generation (from all sources) as reported through EIA Form-923 (CY2023), aggregated to a HUC-6 scale for the entire country. Labels within each watershed indicate the watershed name, as well as the net generation in gigawatt-hours (GWh).

Sources:
United States Energy Information Administration (EIA) Form 923, Form 860 and "PowerPlants" shapefile.
USGS Watershed Boundary Dataset (HUC-6 boundaries)

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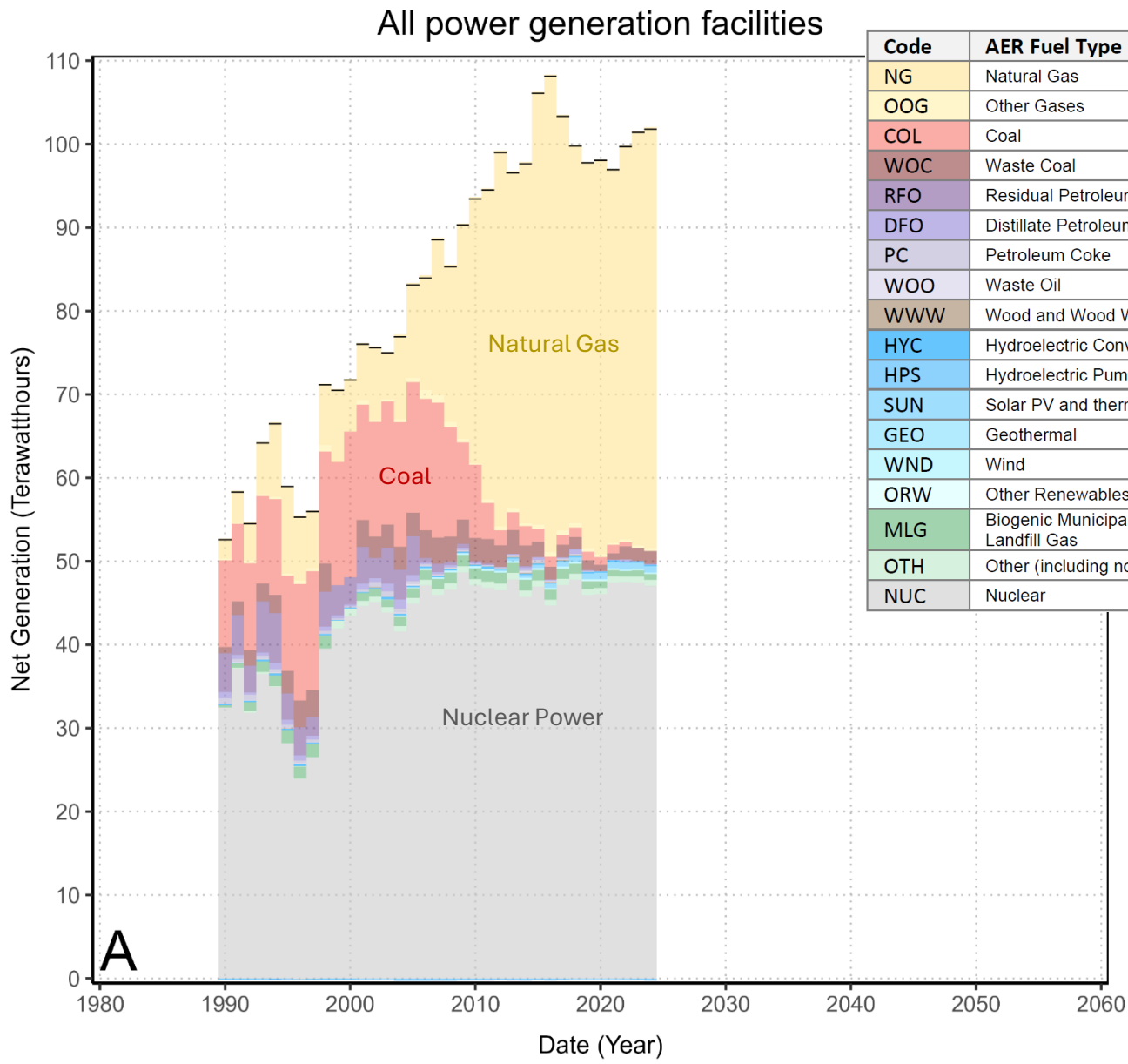
The Delaware River historical context for essential power generation

Power Facility Net Generation in the Delaware River Basin Categorized by AER Fuel Type



Code	AER Fuel Type Description
NG	Natural Gas
OOG	Other Gases
COL	Coal
WOC	Waste Coal
RFO	Residual Petroleum
DFO	Distillate Petroleum
PC	Petroleum Coke
WOO	Waste Oil
WWW	Wood and Wood Waste
HYC	Hydroelectric Conventional
HPS	Hydroelectric Pumped Storage
SUN	Solar PV and thermal
GEO	Geothermal
WND	Wind
ORW	Other Renewables
MLG	Biogenic Municipal Solid Waste and Landfill Gas
OTH	Other (including nonbiogenic MSW)
NUC	Nuclear

*Total net power generation includes facilities in the Upper Delaware (020401) and the Lower Delaware (020402).

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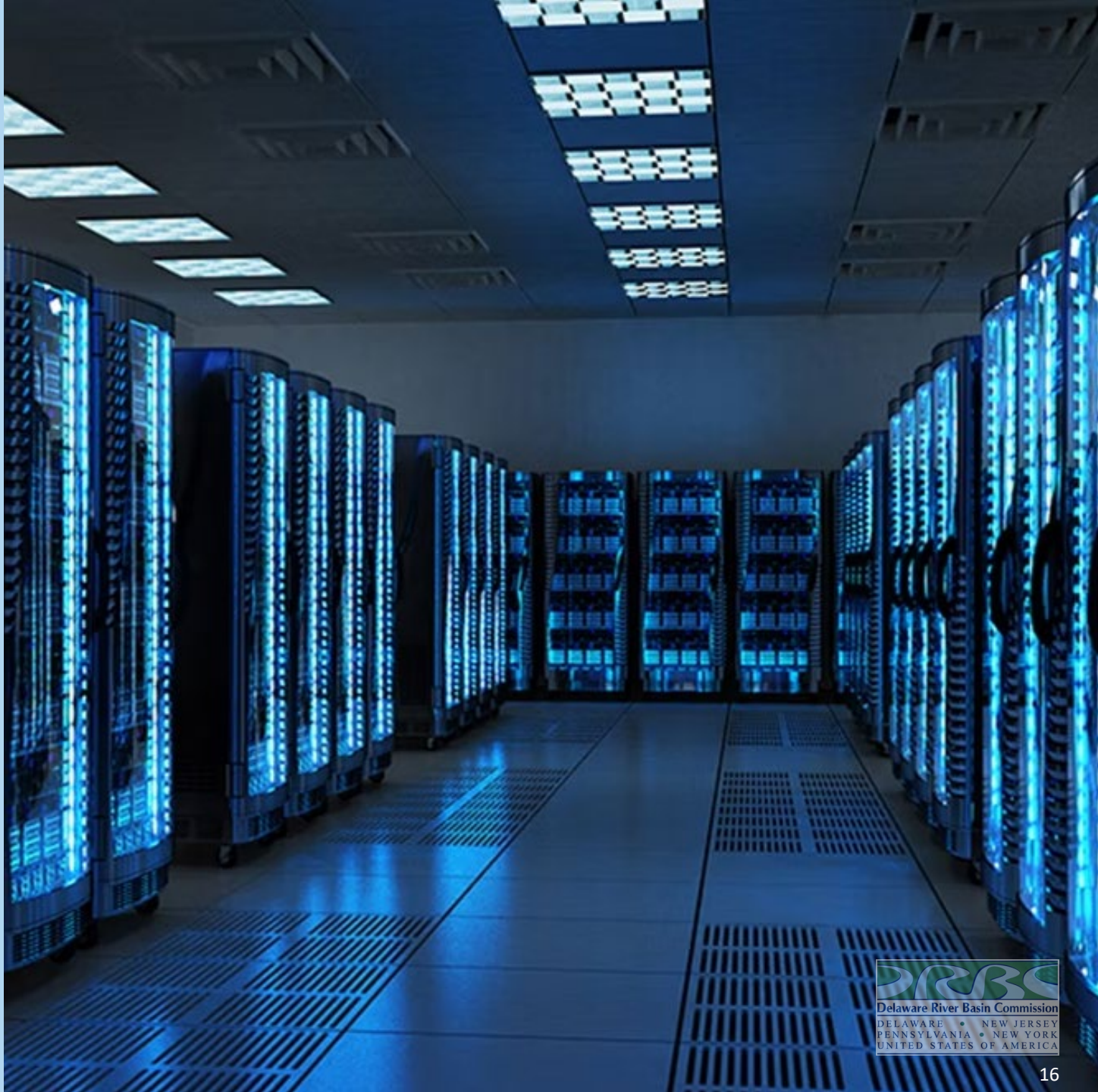
Section 3

All about data centers



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What is a data center?

Gemini

2.5 Flash

What is a data center? Specifically those which are developed to support things like Machine Learning or Artificial Intelligence.

A **data center** is a centralized physical facility—a building, a dedicated room, or a collection of buildings—that houses computer systems and associated components, such as servers, storage systems, and networking equipment, which are necessary for storing, processing, and managing large amounts of data and applications. They serve as the critical infrastructure backbone for IT operations.

Data centers are equipped with robust supporting infrastructure, including:

- **Power Subsystems:** Uninterruptible Power Supplies (UPS) and backup generators to ensure continuous operation.
- **Cooling Equipment:** Systems to dissipate the significant heat generated by the IT hardware.
- **Security Systems:** Physical and digital measures to protect critical assets and sensitive data.
- **Network Infrastructure:** High-bandwidth cabling, routers, and switches for data transfer.

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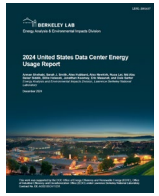
What could a data center look like?

Table 4.1. Data Center Space Types Considered in This Study

Space Type	Description
Telco Edge	Deployment of small closets/rooms to micro data centers and network infrastructure by communications companies as points of presence throughout their network
Commercial Edge	Network closets, server rooms, and micro-data centers deployed to support modern digital, infrastructure, and software delivery services to edge locations for commercial (focused on customer and business operations) and industrial (focused on supply chain and channel operations)
Small and Medium Businesses (SMB)	SMB deployments in their own internal facilities
Enterprise Branch	Classic remote and branch office (ROBO) deployments for large enterprises in their own internal facilities (network closets, server rooms)
Internal	Data centers run by enterprises, internally, for their own use
Communications Service Providers (Comms SPs)	Data centers run by telecommunications/cable companies to support internal services required to enable provision of communications technology services to their customers
Colocation – Sm/Med Scale	Data centers built by local colocation companies typically providing retail leasing at smaller scale
Colocation – Large Scale	Data centers built by major colocation companies providing wholesale and retail colocation leasing, typically deploying large and mega datacenters
Hyperscale	Data centers built by companies that deploy internet services and platforms at massive scale

Currently exist within the Delaware River Basin



Reference:

2024 United States Data Center Energy Usage Report

Arman Shehabi, Sarah J. Smith, Alex Hubbard, Alex Newkirk, Nuoa Lei, Md Abu Bakar Siddik, Billie Holecek, Jonathan Koomey, Eric Masanet, and Dale Sartor

Energy Analysis and Environmental Impacts Division, Lawrence Berkeley National Laboratory

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Water use on a national scale?

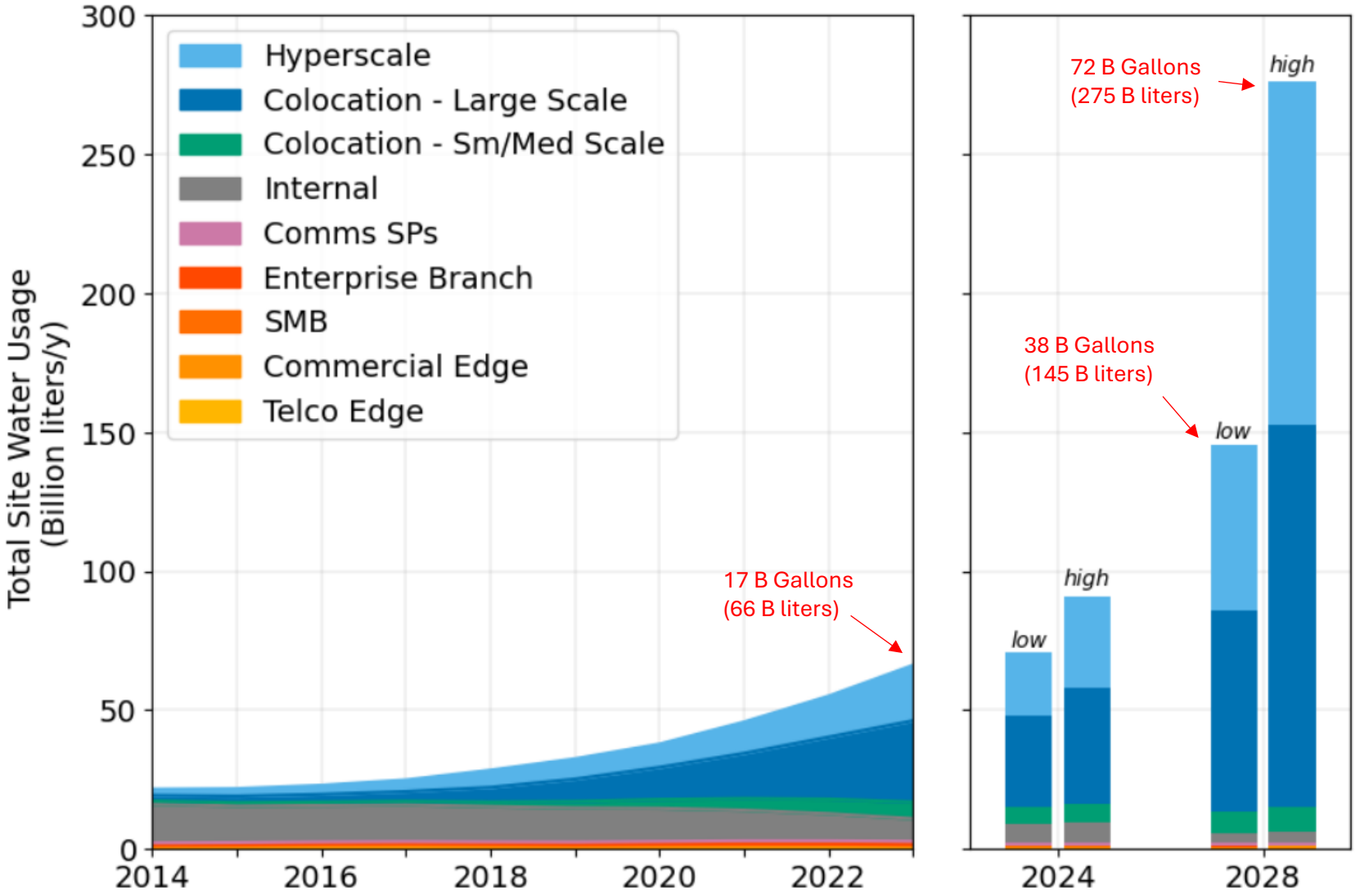
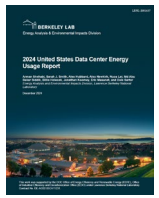


Figure 5.9. Direct water consumption by data center type.



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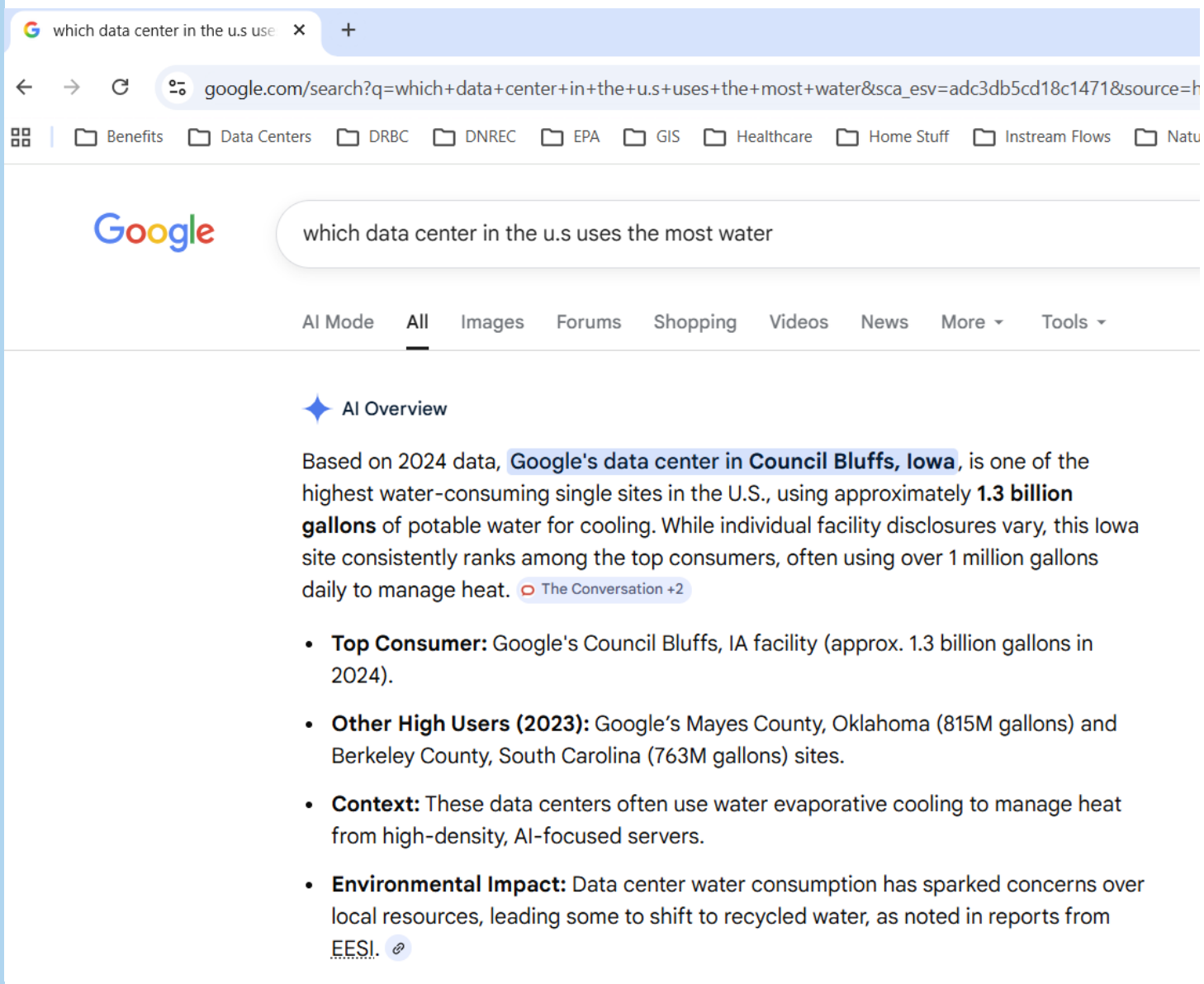
How much water does the largest data center use?



1.3 BGY = ~3.6 MGD

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Data centers electrical demand?

Increase in electricity consumption will likely impact water withdrawals for thermoelectric generation in DRB.

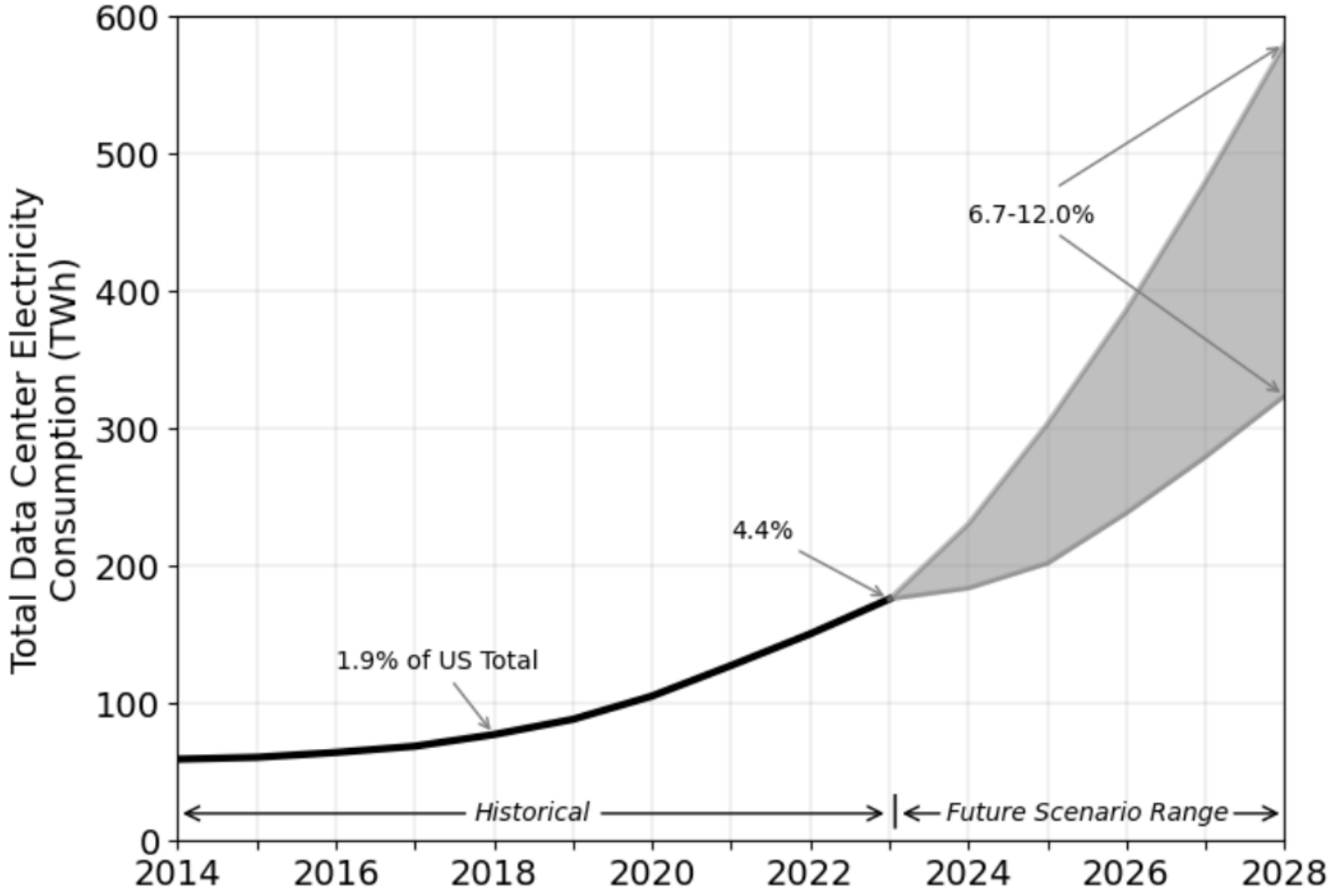
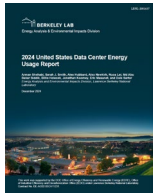


Figure ES-1. Total U.S. data center electricity use from 2014 through 2028.



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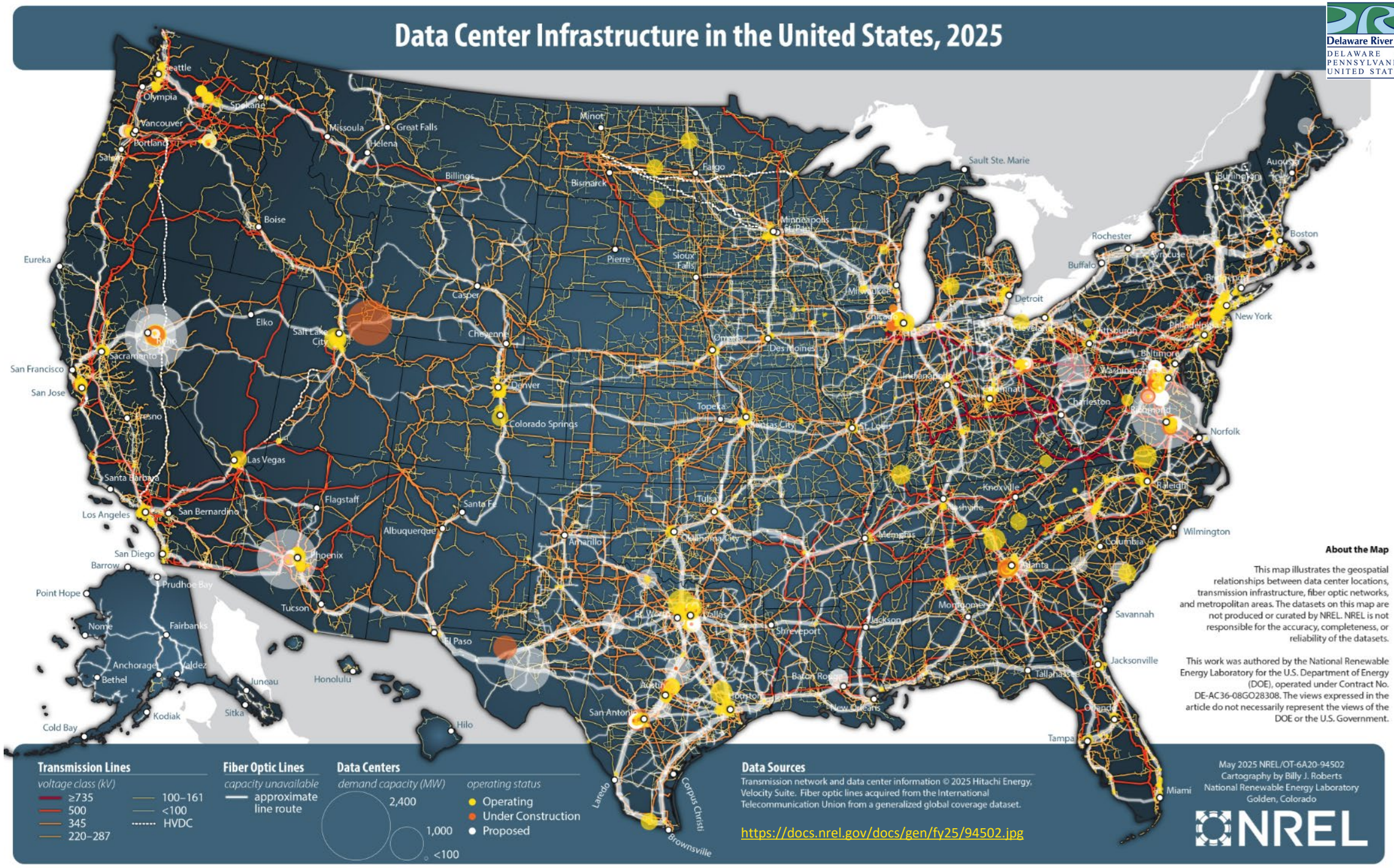
Data Center Infrastructure in the United States, 2025
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Seattle
Olympia
Spokane
Vancouver
Portland
Missoula
Great Falls
Helena
Minot
Billings
Bismarck
Fargo
Sault Ste. Marie
Boise
Eureka
Pierre
Sioux Falls
Casper
Elko
Salt Lake City
Cheyenne
Reno
Sacramento
San Francisco
San Jose
Fresno
Denver
Colorado Springs
Las Vegas
Santa Barbara
Los Angeles
San Bernardino
Flagstaff
Albuquerque
Santa Fe
Phoenix
San Diego
Tucson
Barrow
Prudhoe Bay
Point Hope
Nome
Fairbanks
Anchorage
Valdez
Bethel
Juneau
Kodiak
Sitka
Cold Bay
Honolulu
Hilo
El Paso
Amarillo
Tulsa
Oklahoma City
Topeka
Kansas City
Des Moines
Omaha
Minneapolis
Chicago
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Rochester
Buffalo
Boston
New York
Philadelphia
Baltimore
Washington
Norfolk
Charleston
Knoxville
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Columbia
Atlanta
Savannah
Jacksonville
Tampa
Miami
Orlando
Tallahassee
Montgomery
Jackson
Memphis
Shreveport
Baton Rouge
New Orleans
Houston
Austin
San Antonio
Laredo
Corpus Christi
Brownsville
About the Map
This map illustrates the geospatial relationships between data center locations, transmission infrastructure, fiber optic networks, and metropolitan areas. The datasets on this map are not produced or curated by NREL. NREL is not responsible for the accuracy, completeness, or reliability of the datasets.
This work was authored by the National Renewable Energy Laboratory for the U.S. Department of Energy (DOE), operated under Contract No. DE-AC36-08GO28308. The views expressed in the article do not necessarily represent the views of the DOE or the U.S. Government.
Transmission Lines
voltage class (kV)
≥735
500
345
220–287
100–161
<100
HVDC
Fiber Optic Lines
capacity unavailable
approximate line route
Data Centers
demand capacity (MW)
2,400
1,000
<100
operating status
Operating
Under Construction
Proposed
Data Sources
Transmission network and data center information © 2025 Hitachi Energy, Velocity Suite. Fiber optic lines acquired from the International Telecommunication Union from a generalized global coverage dataset.
https://docs.nrel.gov/docs/gen/fy25/94502.jpg
May 2025 NREL/OT-6A20-94502
Cartography by Billy J. Roberts
National Renewable Energy Laboratory
Golden, Colorado
NREL

NYC and NOVA hubs surround the DRB

Transmission Lines

voltage class (kV)

- ≥735
- 500
- 345
- 220–287
- 100–161
- <100
- HVDC

Fiber Optic Lines

capacity unavailable

- approximate line route

Data Centers

demand capacity (MW)

- 2,400
- 1,000
- <100

operating status

- Operating
- Under Construction
- Proposed

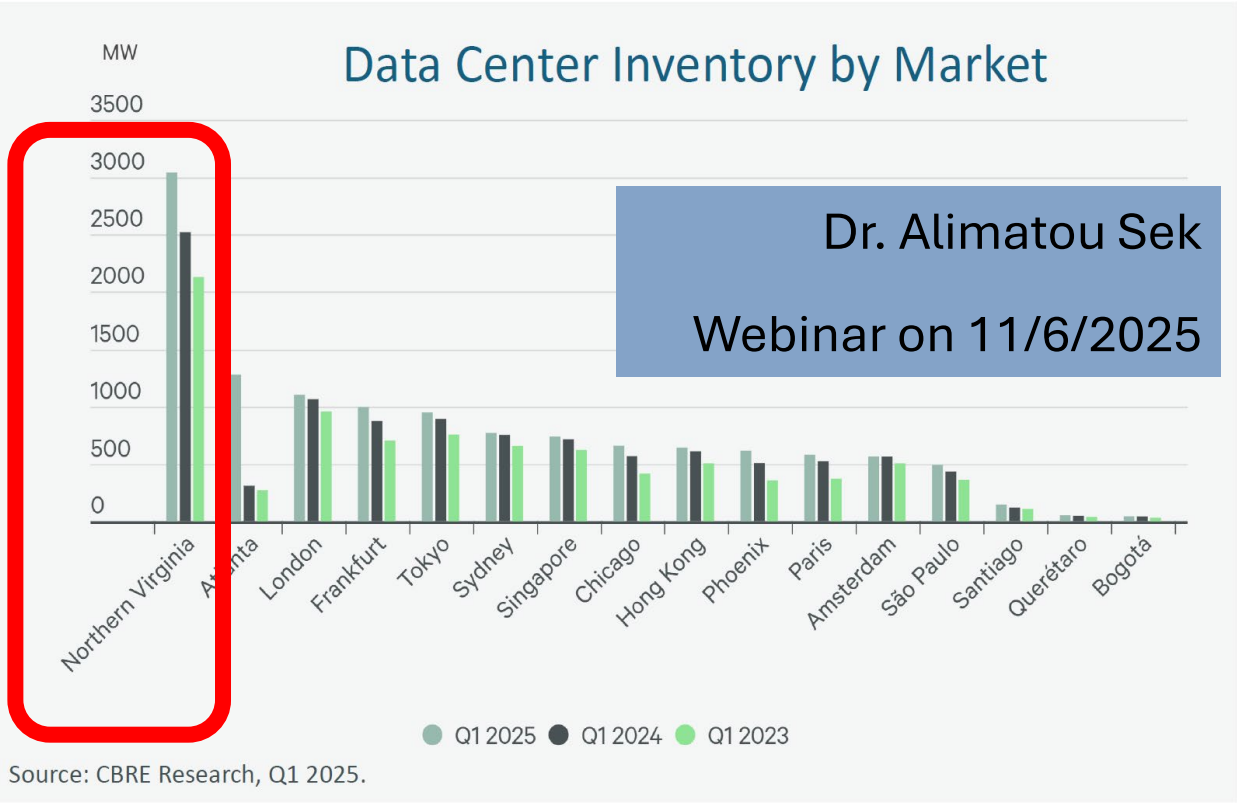
https://docs.nrel.gov/docs/gen/fy25/94502.jpg

ICPRB & Data Centers – what have they learned?

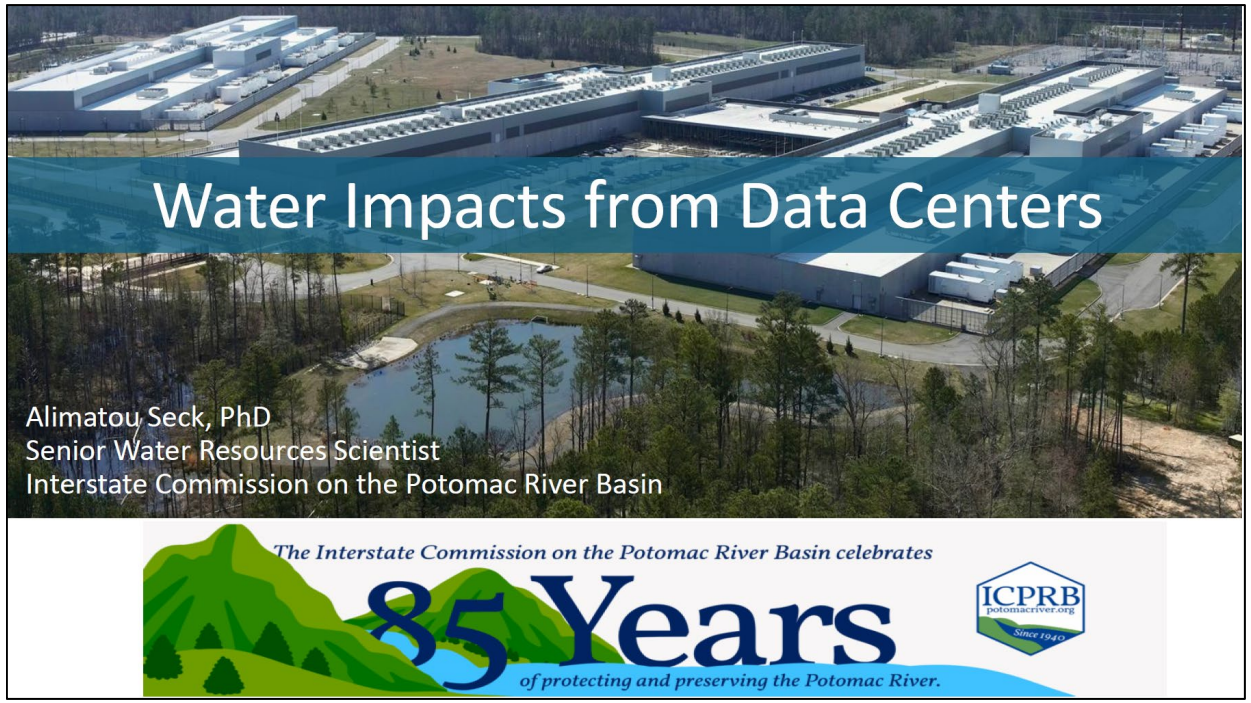
- NOVA is data center capital of the **world**
- In VA, Data Center estimates for CY2023:
  - ~ 6.3 mgd total water use (19.8 mgd peak)
  - ~ 4.7 mgd consumptive use (14.8 mgd peak)

~75 % Consumptive Use Ratio

- Most sites in VA use ~40,000 gpd; a few > 140,000 gpd
- Estimate derived from assumptions between back-up generator capacity and water use per kw
- By 2050, 22 mgd of CU (~30% of total CU)



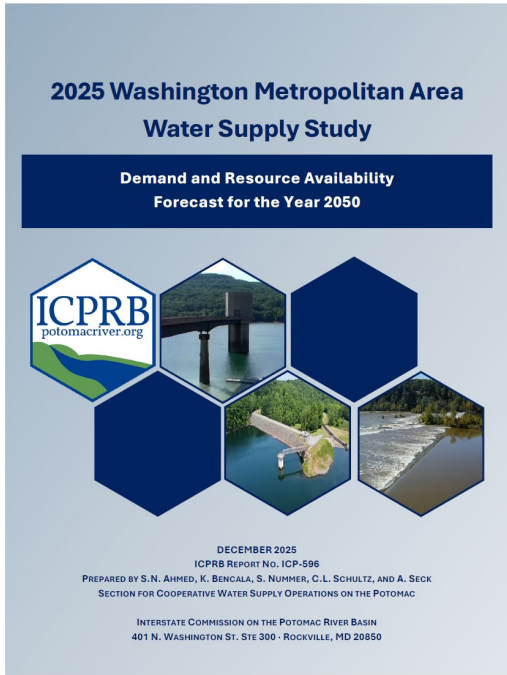
Source: CBRE Research, Q1 2025.



https://www.potomacriver.org/wp-content/uploads/2025/11/seck_icprb_11062025_vfs2.pdf

ICPRB & Data Centers – what have they learned?

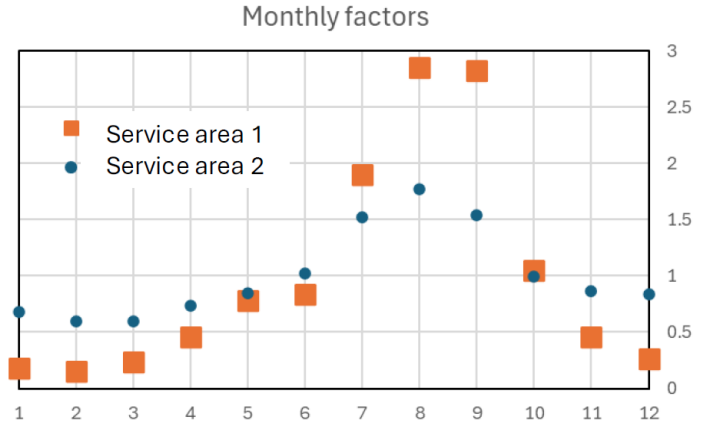
	2023	2030	2050
Total Water Use	6.3 mgd (19.8 mgd peak)	13.5 mgd	29.8 mgd
Consumptive Use	4.7 mgd (14.8 mgd peak)	11.4 mgd (40 mgd peak)	26.8 mgd (94 mgd peak)



New Report published 12/5/2025

https://www.potomacriver.org/wp-content/uploads/2025/12/2025_WMA_Water_Supply_Study_ICPRB_Dec-2025.pdf

Seasonal Data Center Water Use Patterns



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Section 4

Data centers and the DRB

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What is DRBC doing?

Research existing data centers in the DRB

- Establish a list using resources such as data portals, internet searches, and NAICS
- Assess location intersection with public water supply service areas*
- Review industry characteristics (e.g. EIA, other agencies)

Track proposed data centers in the DRB

- No self-supplied applications to date
- Review news releases & stay "in-the-know"
- Several under construction as customers to PWS
- Municipalities likely get first detailed information on projects
- Model ordinances for data centers

Evaluate ways to reduce impacts

- This means understanding the potential impacts as well!

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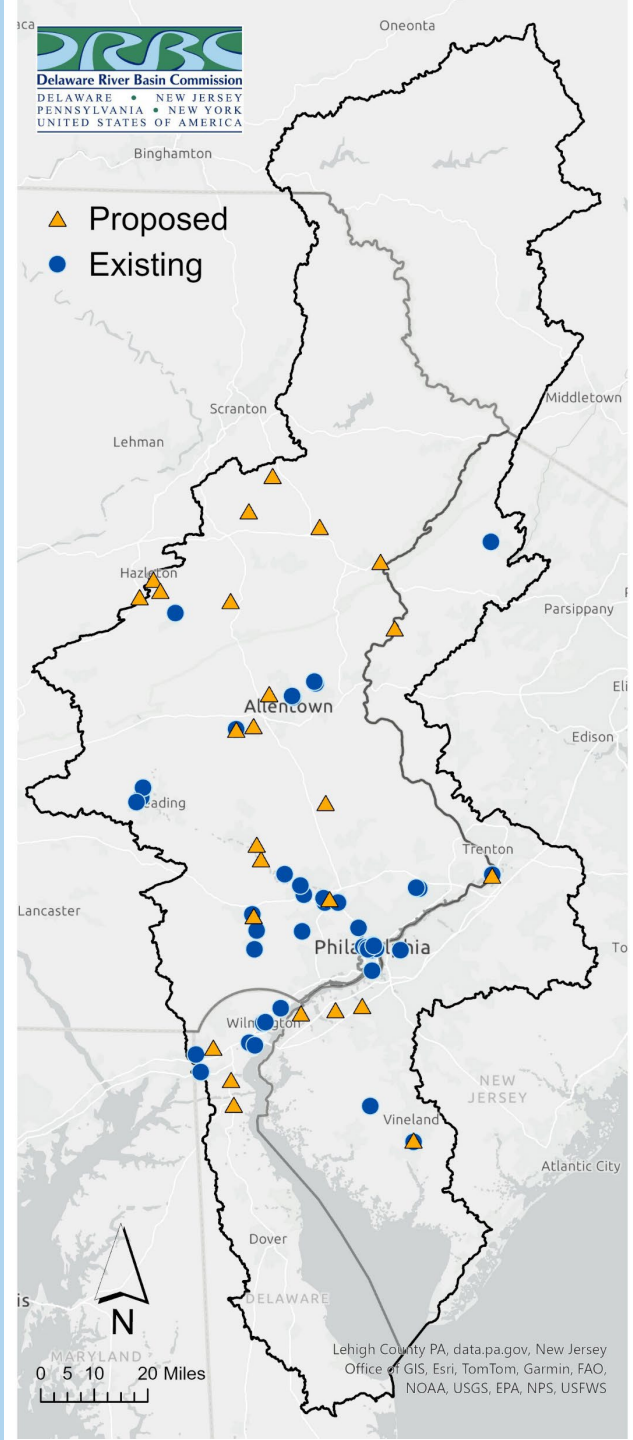
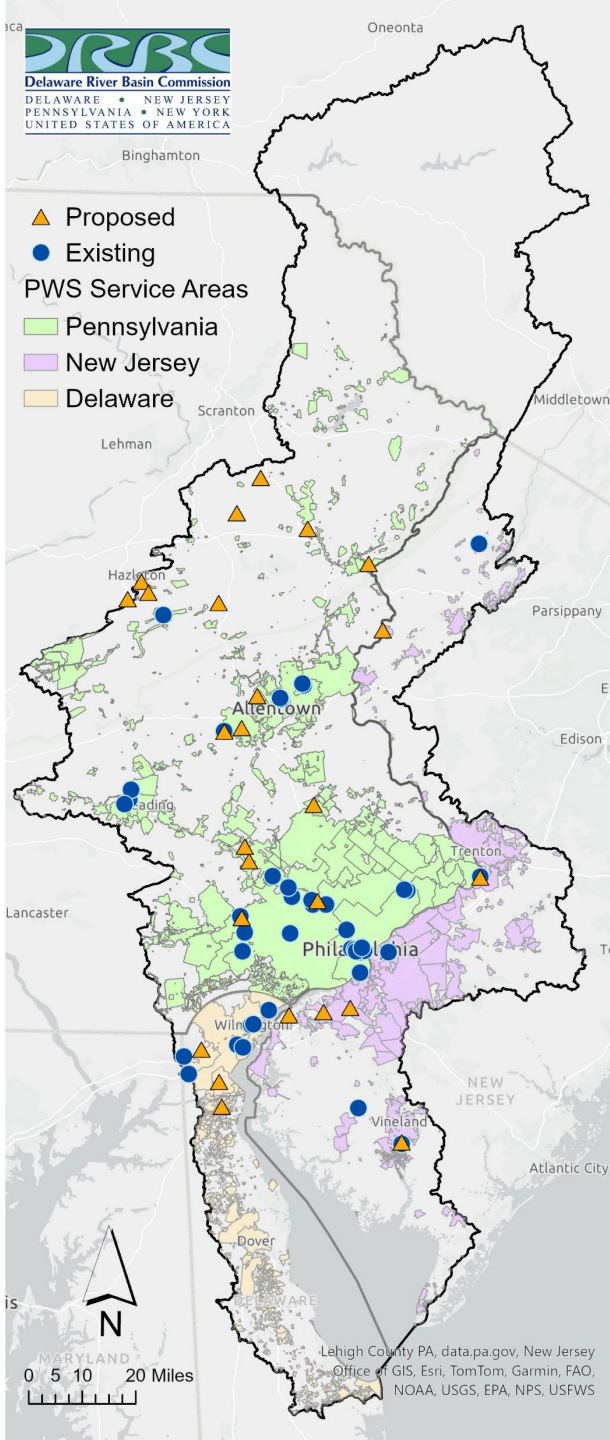
* *DRBC reviews water withdrawals above 100,000 gpd (or 10,000 gpd in the SEPA-GWPA). There are currently no approvals for self-supplied data centers.*

Data centers across the DRB

Basin State	Existing	Proposed
Pennsylvania	51	18
New Jersey	6	4
Delaware	9	3
New York	0	0
	66	**25**

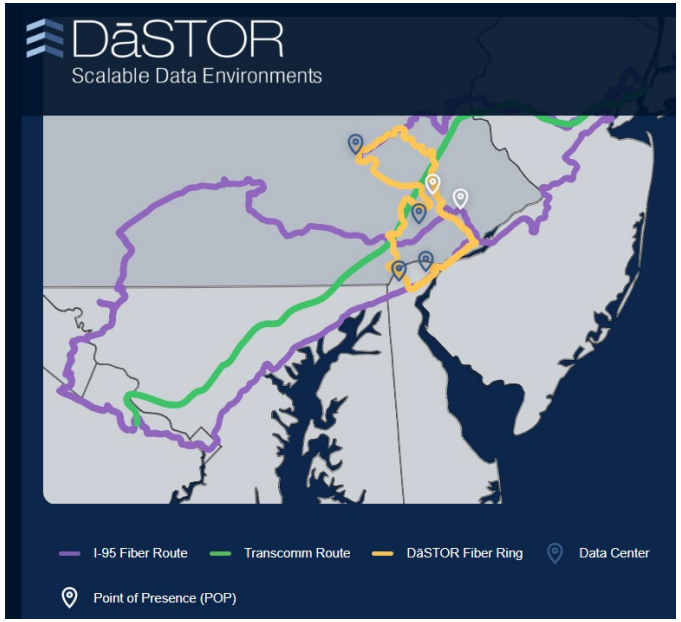




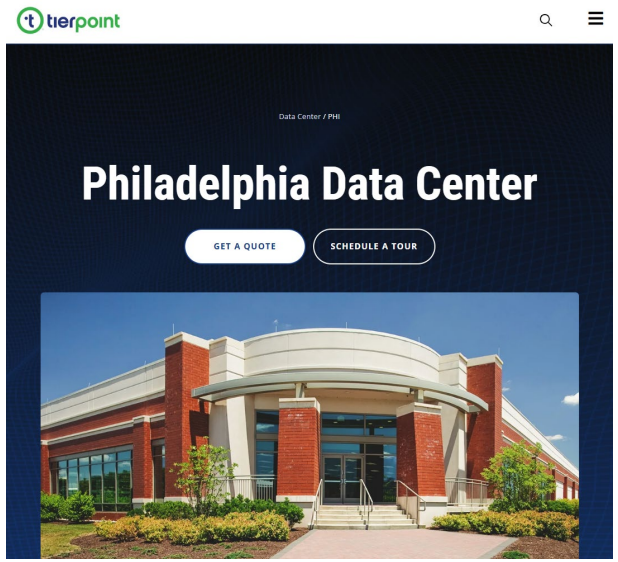
Who are operating DCs in the DRB?

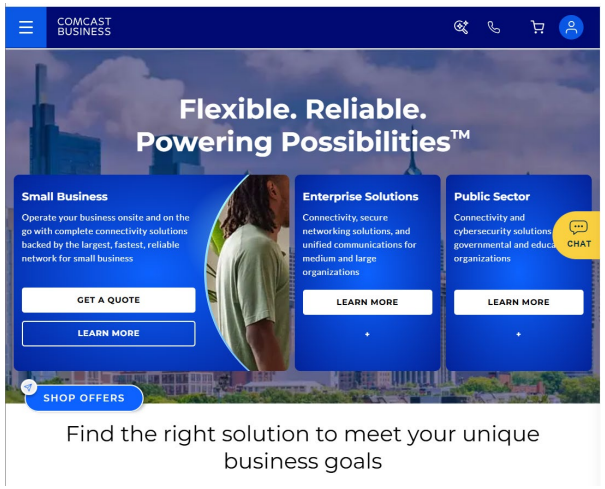
- Colocation America – 3
- Comcast – 3
- DaSTOR – 5
- Lumen – 6
- TierPoint – 5

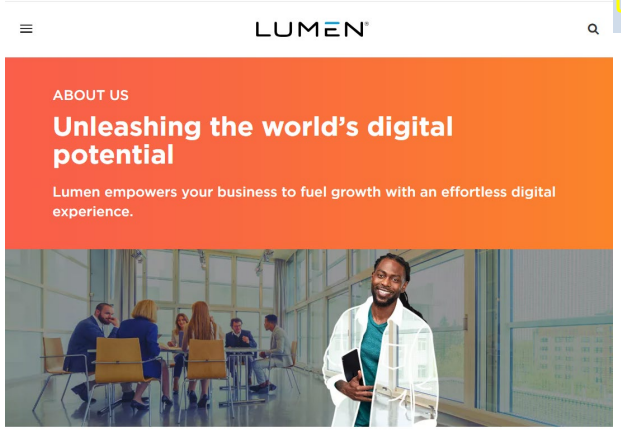
https://www.colocationamerica.com/data-center-locations/philadelphia



https://dastorllc.com/locations/





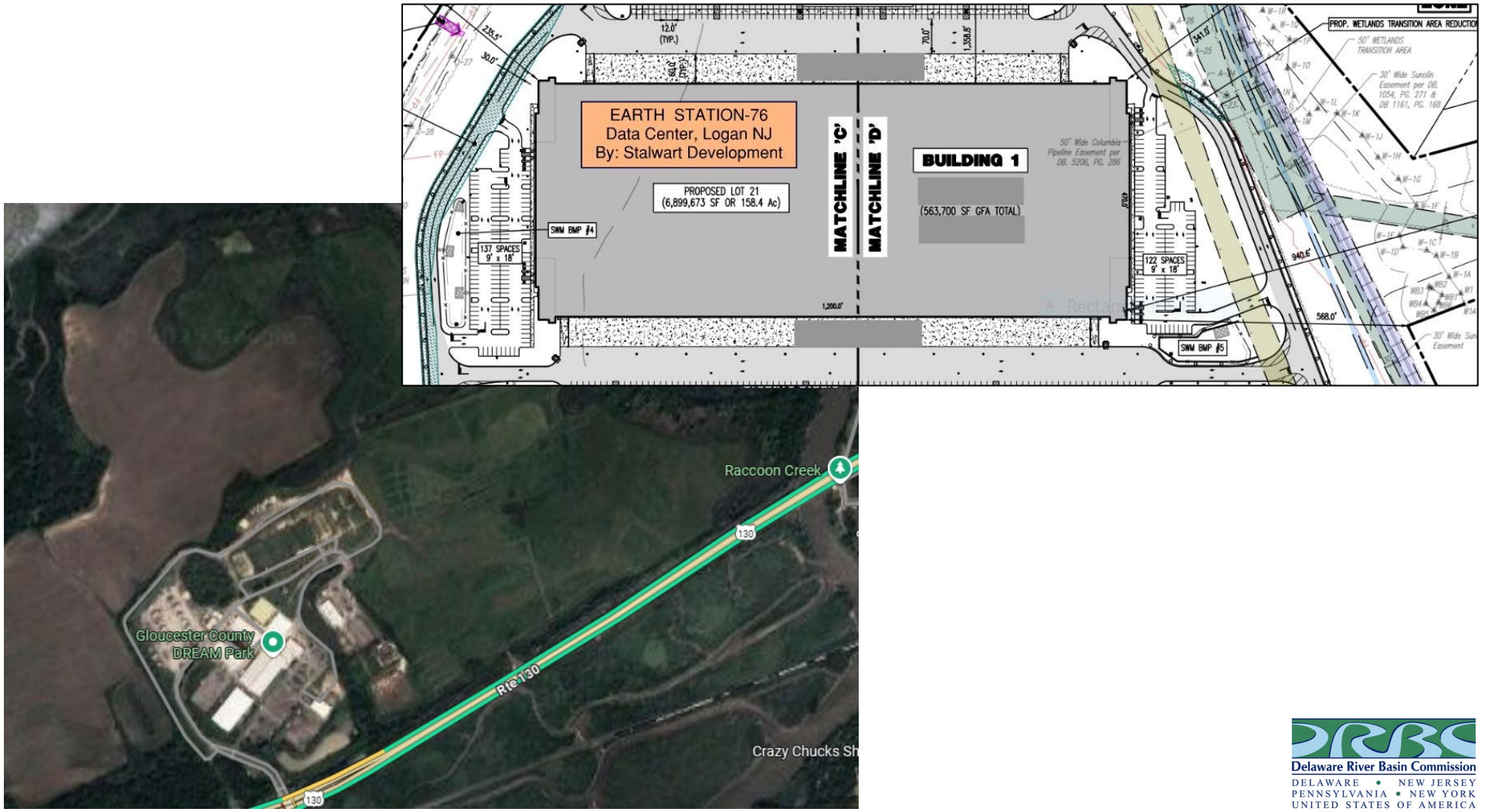


Proposed data centers

18	Pennsylvania
4	New Jersey
3	Delaware
0	New York

Earth Station 76

Address: Along Route 130, Logan Township, Salem County
Parent Company: Energy Concepts
Space: 100-150 MW, 560,000 sq ft (2 stories)
Nearby PWS: NJ American (Logan or Penns Grove)



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Proposed data centers

18	Pennsylvania
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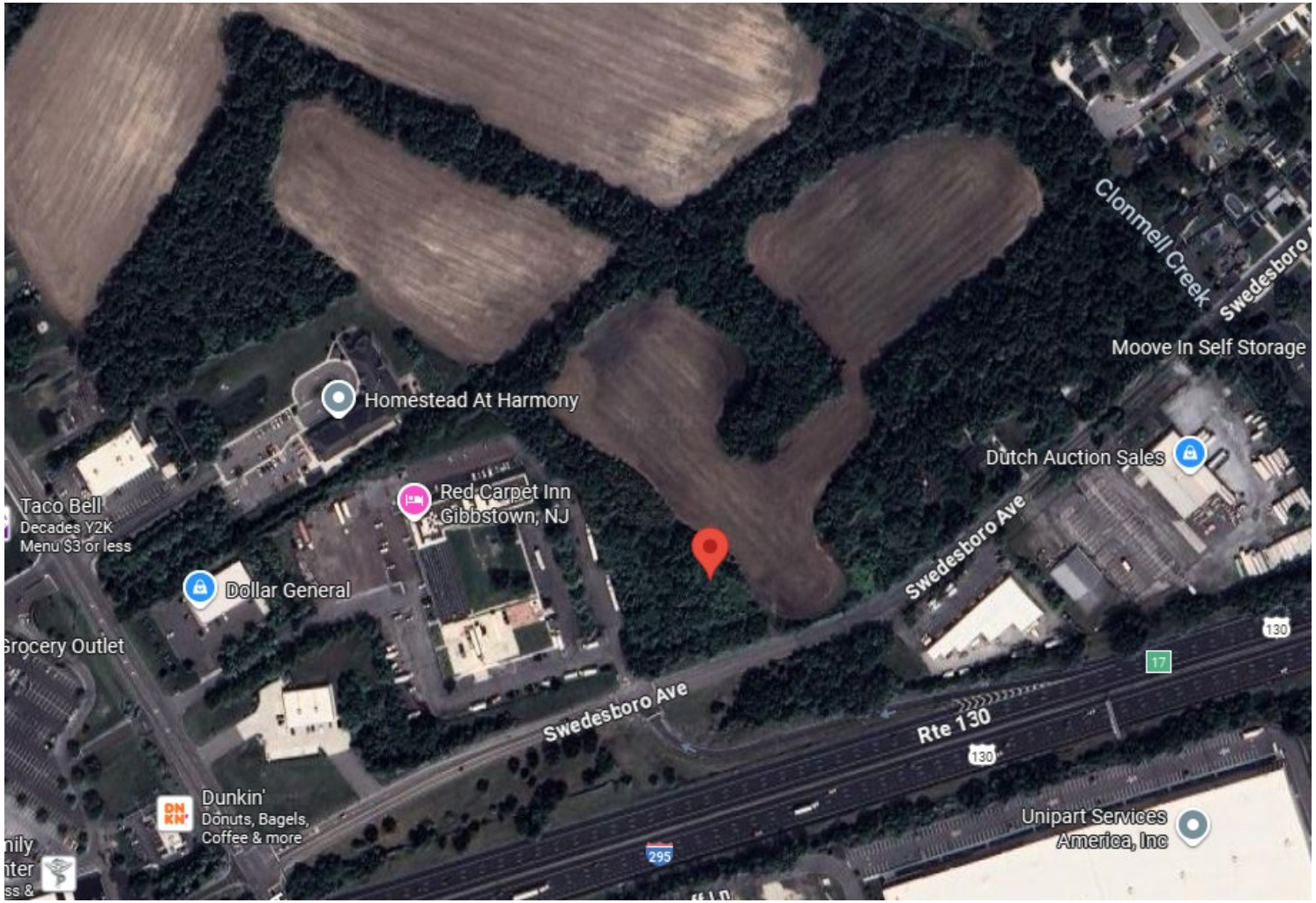
0	New York

Metrobloks: Philadelphia Metro/ PHL MB01 DC2

Address: 285 Swedesboro Avenue, Gloucester County
Parent Company: Metrobloks
Space: 100 MW, 12 acres, 370,000 sq ft
Nearby PWS: NJ American-Bridgeport



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Proposed data centers

18	Pennsylvania
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Data One: Vineland *Expansion*

Address: 805 Sheridan Ave, Vineland, Cumberland County
Parent Company: Data One
Space: 2,400,000 sqft, 350MW expanding to 1GW (tripling)
Nearby PWS: Vineland W&SU

Phase 1 - Under construction

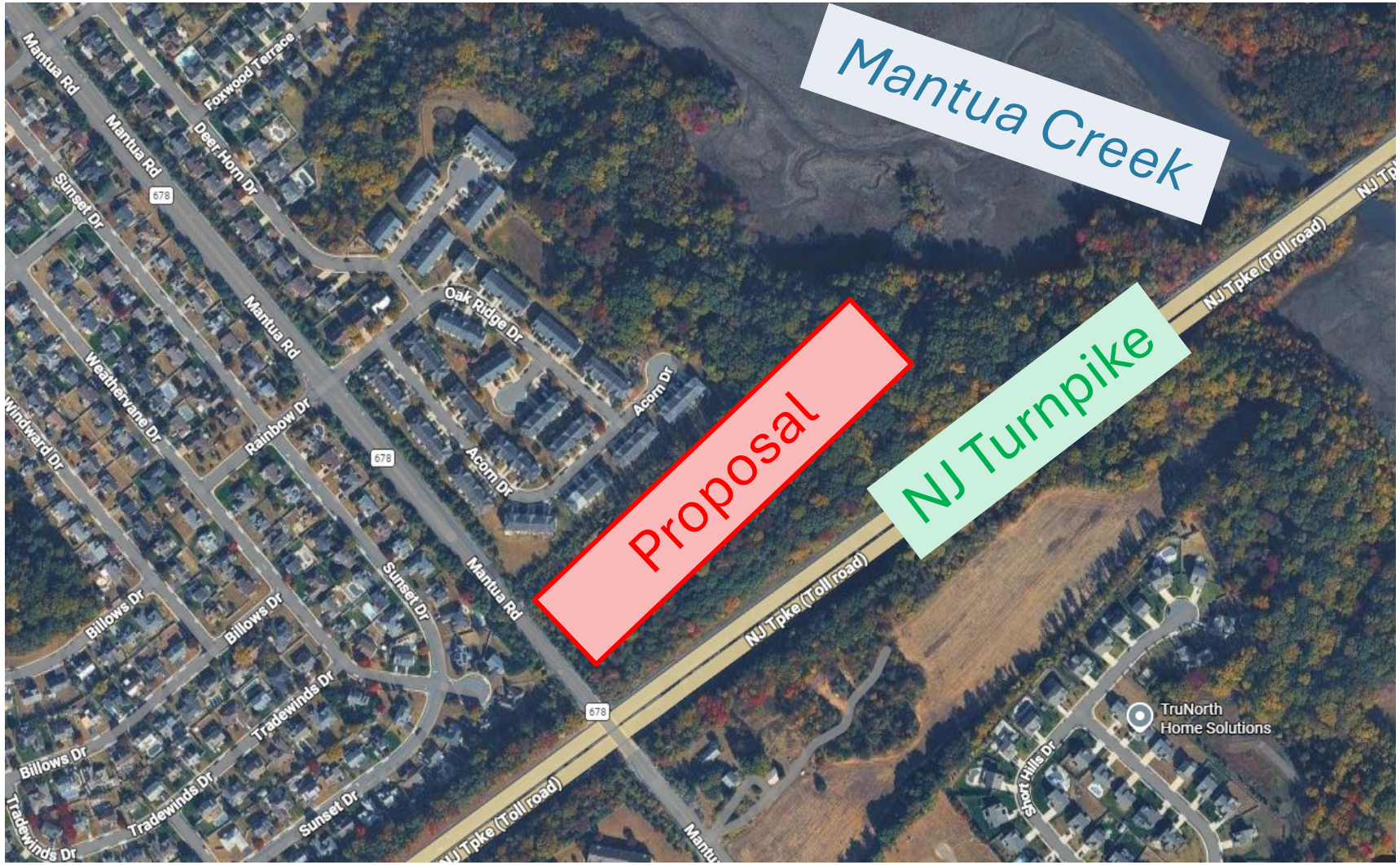
Phase 2 & Phase 3 - Planned

Proposed data centers

18	Pennsylvania
4	New Jersey
3	Delaware
0	New York

American Tower: East Greenwich

Address: 114 Mantua Road, East Greenwich, Gloucester County
Parent Company: American Tower
Space: 17,000 sqft, 4MW
Nearby PWS: East Greenwich Township Water Department



What has DRBC learned in the last year?

There are about 60 operating in the DRB

- All served by public water supply
- Not hyperscale - yet
- Amazon's Bucks County facility under construction

Public water supply utilities likely have Non-Disclosure Agreements (NDAs) with hyperscale data center developers

Facility level water use data is almost non-existent & difficult to obtain

- Quarterly meetings with ICPRB, SRBC, Aqua, American Water, Veolia are helpful
- Extensive outreach with elected officials (state & municipal); webinars
- Numerous inquiries from citizens, etc.

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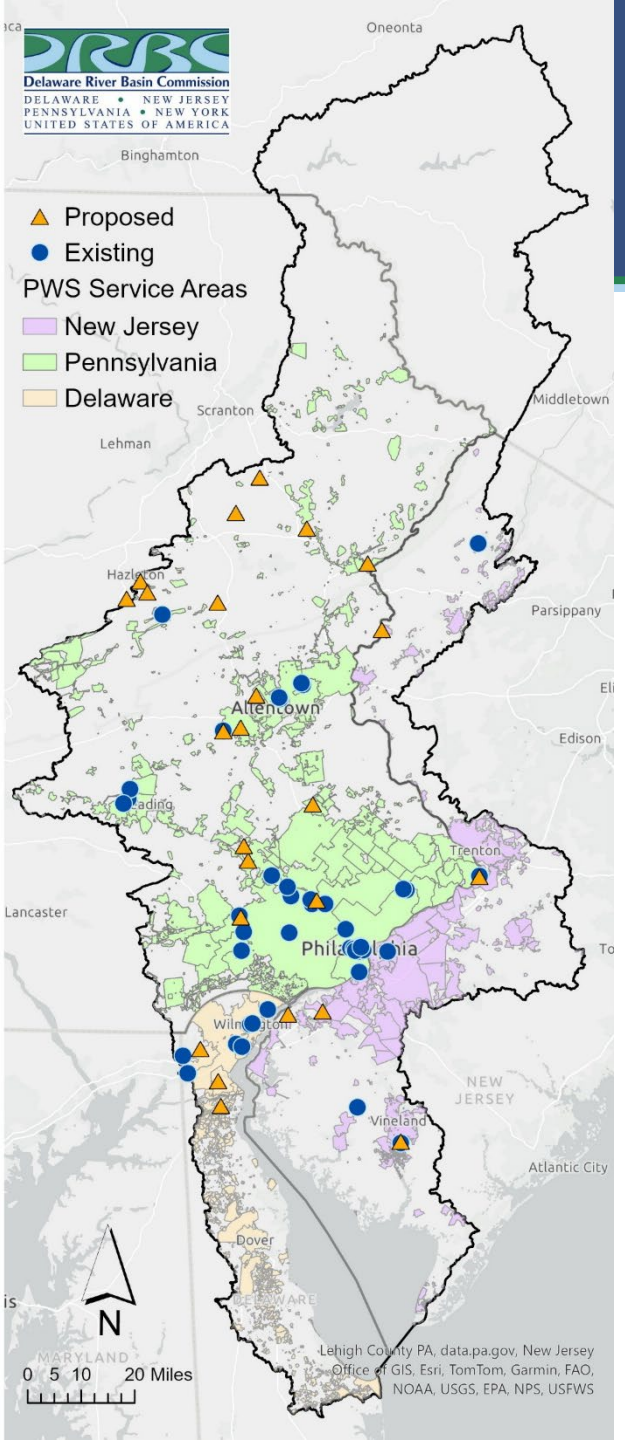
https://www.nj.gov/drbc/programs/supply/datacenters.html

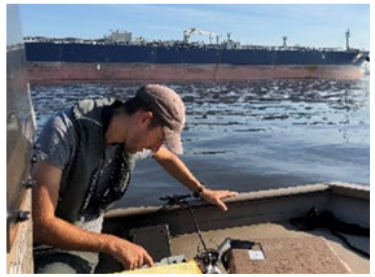


Primary Water Resource Considerations

Water Source	• Large customer of PWS system? • Develop their own water source?
Cooling Technology	• Evaporative cooling = larger water demand, lower power demand • Closed loop cooling = less water • Air cooling = higher power demand, less water
Consumptive Use	• Depends on cooling technology • Does DC consumptive use change PWS 10% CU assumption?
Power	• Increase power generation = consumptive use?
Emergency Response Planning	• How do Regulatory Agencies / Public Water Supply Systems factor in DCs in emergencies and drought?

Thank you!

DRBC website



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