Managing Water Demands Associated with Data Centers

Public Information Session

July 22, 2026

Susquehanna River Basin

The Basin

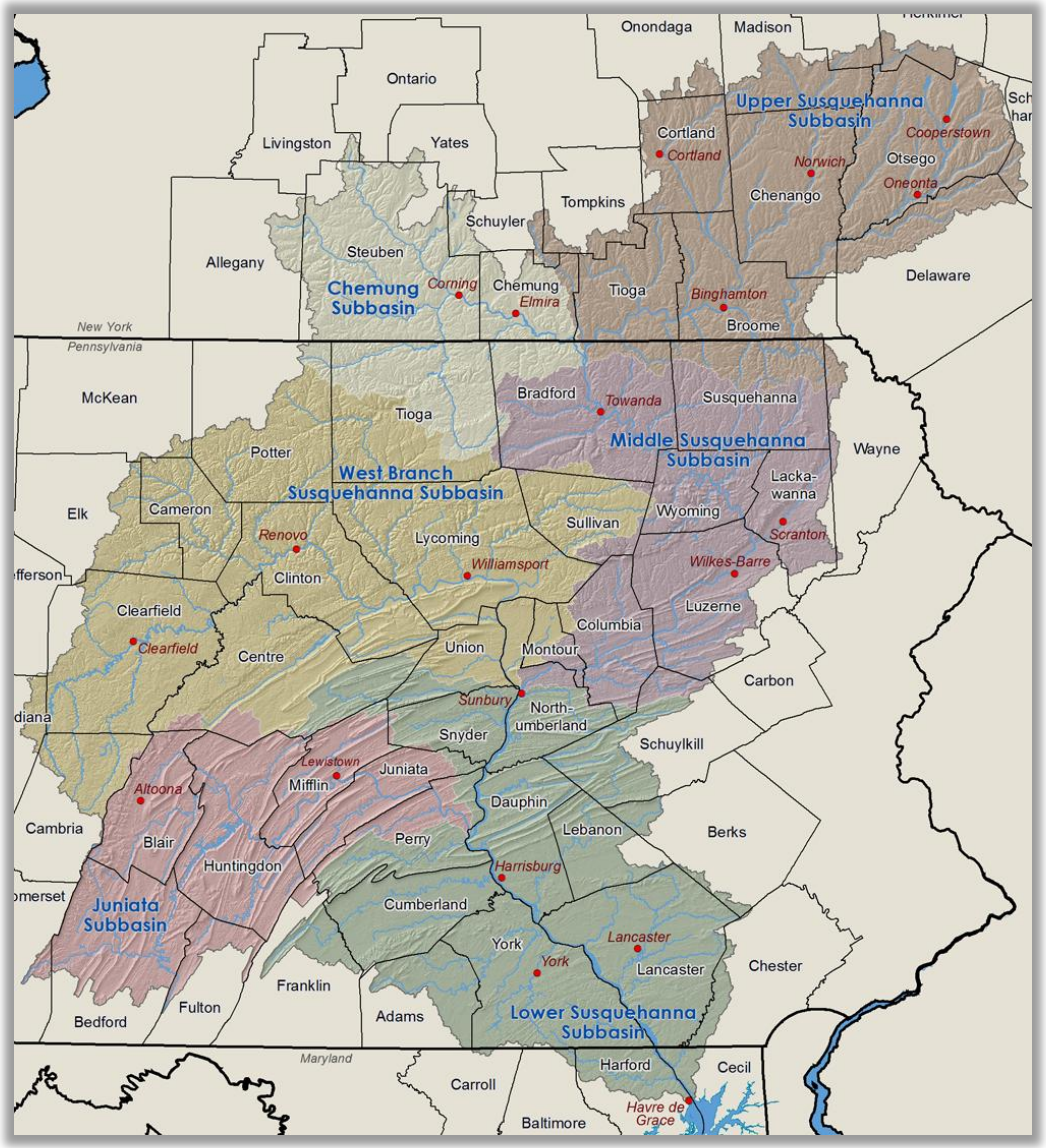
- 27,510-square-mile watershed
- About the size of South Carolina
- 4.2 million population
- Nearly 50,000 miles of waterways

The River

- 444 miles
- Supplies 26 billion gallons per day to the Bay
- That's about 50% of the freshwater inflow

The Commission

- Interstate gov't agency – NY, PA, MD & the USA
- Compact signed by President Nixon 12/24/1970



Susquehanna River Basin Commission

- Mission: enhance public welfare by balancing economic development with conservation of water resources and aquatic ecosystems
- Fill gaps; avert conflicts; foster cooperation
- Sixty-five staff (45 technical)

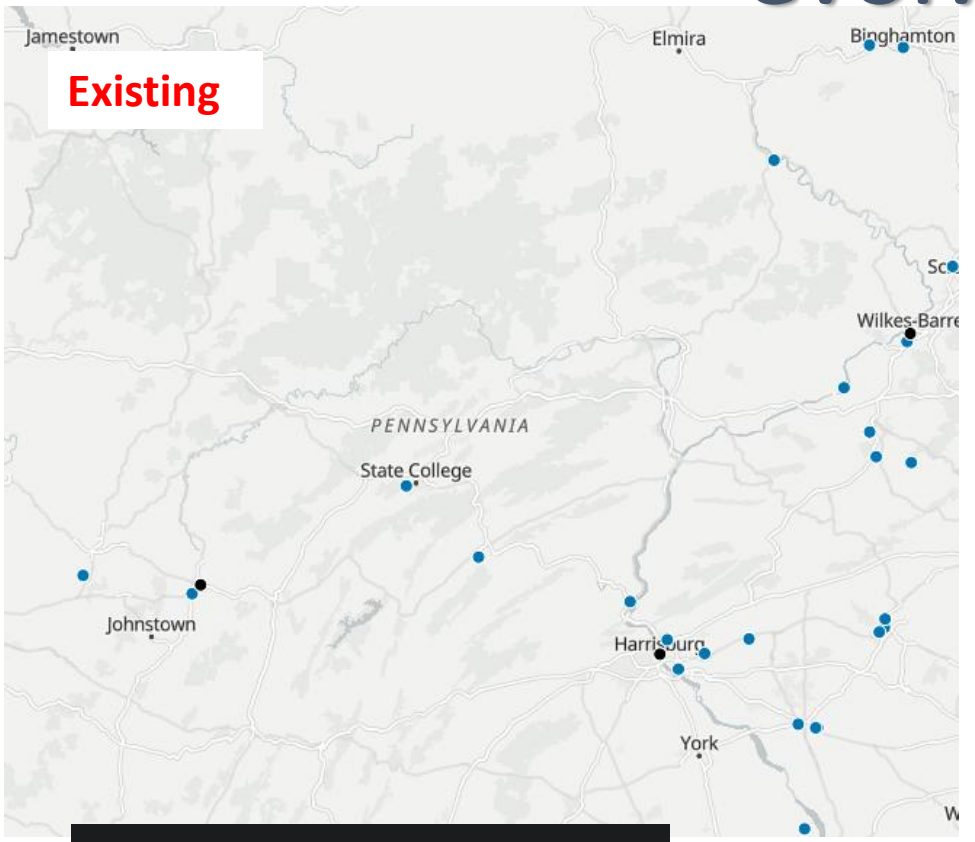
What We Do

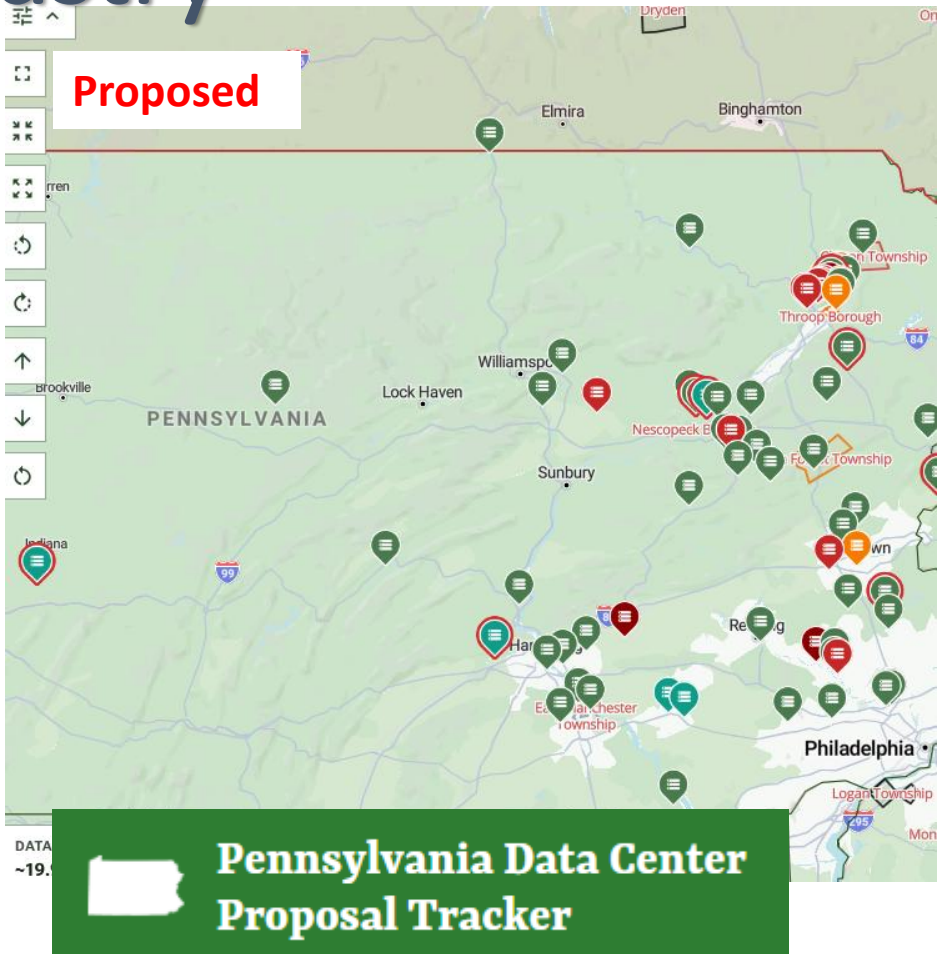
- Water Supply – regulate large water users
- Water Quality – nutrient trends, monitoring network, abandoned mine drainage, invasives
- Flooding and Drought – build community resilience to extreme events, inundation maps
- Watershed Management – promote practices that allow for healthy watersheds

Underpinned by Planning, Coordination and Outreach

What are data centers?

Data Centers – a rapidly growing and evolving industry





Water impacts associated with development

Site development

- altered infiltration and pathways
- stormwater runoff
- wetland disturbance
- discharge of used water

Facility water demand

- drinking water
- process water and cleaning
- cooling: water-based systems are convenient and cost effective

Authority over land development matters such as discharges and encroachments is held by the individual states and the federal government

Smart siting and/or the use of conserving technology can greatly reduce water impacts!

Data Centers and Water Demand

Water Demands

- High speed computing generates a lot of heat
- Traditionally, cooling can evaporate millions of gallons of water per day

Consumptive use of water

- Water that is used but not returned to the supply
- Water lost through evaporation in the cooling process

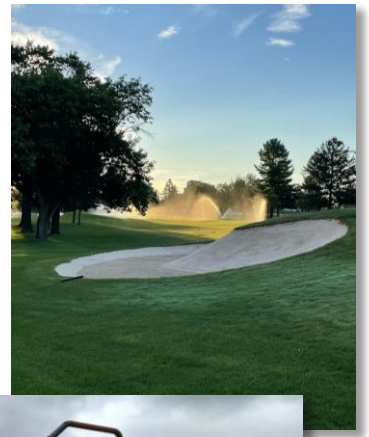
Amazon data center campus in New Albany, Ohio. (CoStar)

Consumptive Water Use

Water that is used but not returned to rivers and streams because it is evaporated, transpired, incorporated into products, or otherwise lost.

SRBC Regulatory Authority

- Consumptive Use
  - 20,000 gallons per day (gpd)
- Groundwater Withdrawals
  - 100,000 gpd
- Surface Water Withdrawals
  - 100,000 gpd



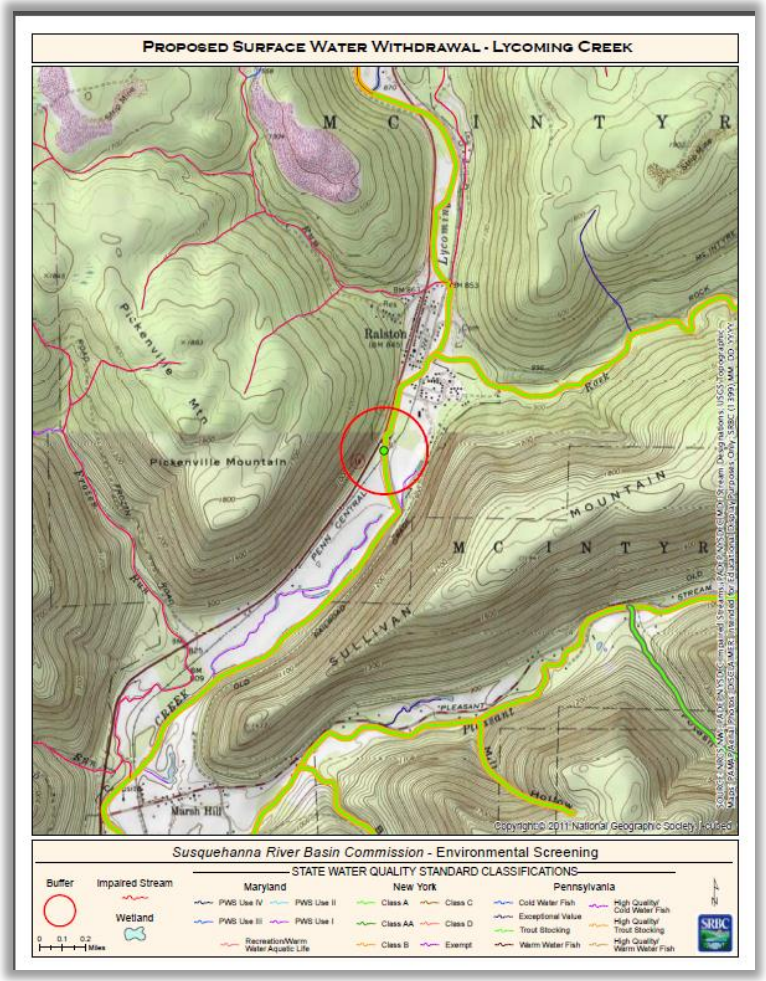
Non-Duplicative

Our agency was designed to be non-duplicative of other agencies… we do not regulate water quality issues and land development issues

ANY INDUSTRY THAT EXCEEDS COMMISSION THRESHOLDS IN THE BASIN WILL REQUIRE APPROVAL AND REPORTING OF DAILY WITHDRAWAL AND CONSUMPTIVE USE

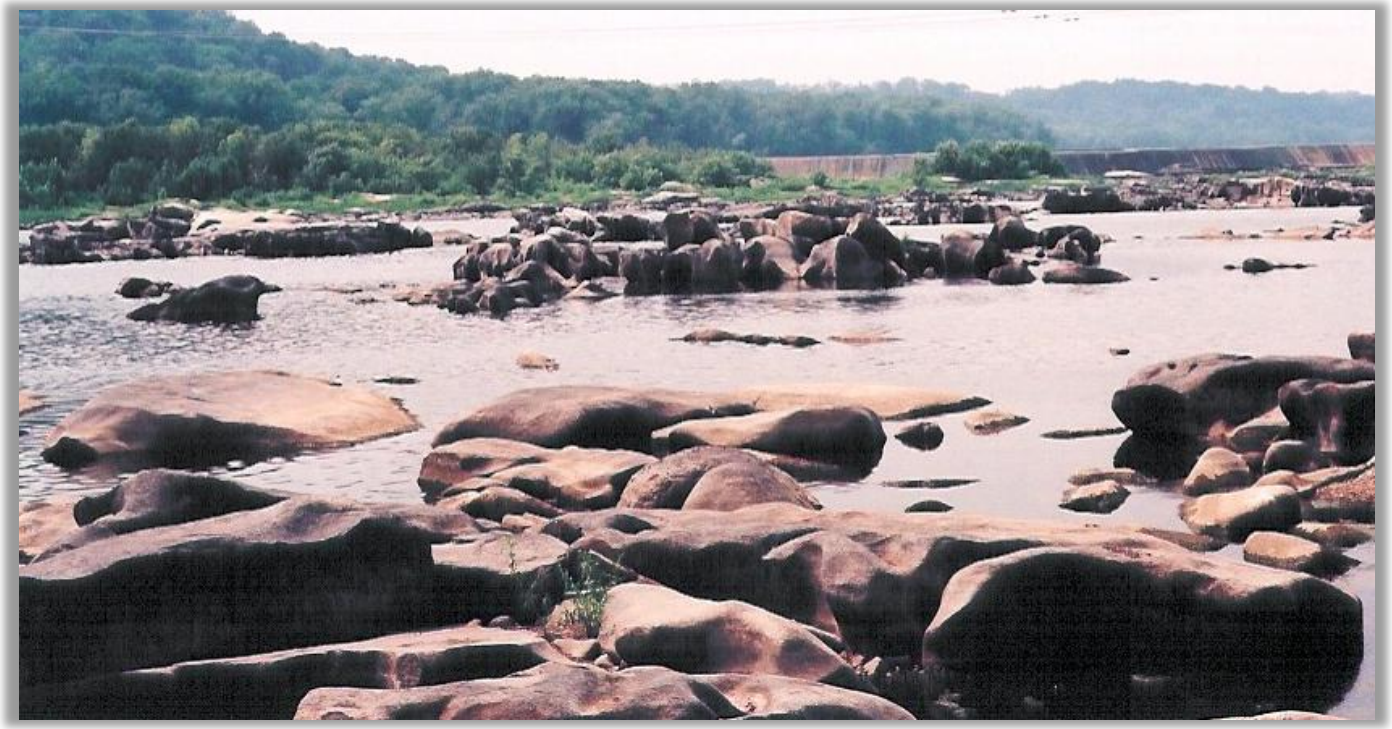
SRBC Requirements and Review Standards

- Public Notice
- Agency Coordination
- Applying Water Science:
  - Groundwater - Hydrogeologic Evaluation (Aquifer Testing)
  - Yield and Availability Analysis
  - Desktop Environmental Screening & Site Assessments
  - Cumulative and Individual Impact Analysis



Environmental and Water Availability Concerns

- Sustainability for Multiple Uses and Users
- Cumulative Impacts
- Preservation of Water Quality
- Loss of Fishery Habitat
- Impacts on Recreational Uses



Approval Conditions and Compliance

Permits are not One-Size-Fits-All

- Metering and Reporting
- Groundwater Elevations
- Inspections – dedicated staff
- Mitigation for Adverse Impacts
- Water Conservation
- Low Flow Protection
- Special Monitoring
- Expiration/Approval Term

Data Centers and Water Demand

Cooling technology dictates water demand

- Evaporative – millions of gallons per day
- Hybrid systems – 100s of thousands of gallons
- Dry – minimal/seasonal demand

Source of water?

- surface water or groundwater wells
- public water supply
- treated wastewater
- inactive mines

High Power Demands

- New water demand associated with new potential power plants

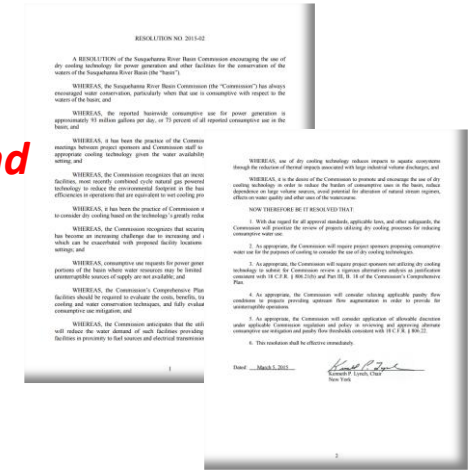
Key Considerations in Development and Management: Siting and Cooling Technology

Smart siting and/or the use of dry/hybrid cooling can greatly reduce water impacts!

- Siting is a primary factor in water availability
- Reducing water reliance can increase siting flexibility (i.e. minimizing transmission extensions, existing site redevelopment, brownfields, Keystone Opportunity Zones, etc.)
- Increased opportunities for the use of lesser quality waters (wastewater, abandoned mine drainage, etc.)
- Environmental operational resiliency (i.e. one less utility to fail, drought impact avoidance)
- Lower operational costs

- Potential avoidance of SRBC permitting entirely
- Lower application fees
- Quicker permitting through prioritized reviews
- Decreased consumptive use liability and mitigation requirements

Via formal Resolutions, SRBC encourages water conservation and the use of impaired waters



RESOLUTION NO. 2015-02

A RESOLUTION of the Susquehanna River Basin Commission encouraging the use of dry cooling technology for power generation and other facilities for the conservation of the waters of the Susquehanna River Basin (the "Basin").

WHEREAS, the Susquehanna River Basin Commission (the "Commission") has always encouraged water conservation, particularly when that use is consumptive with respect to the waters of the basin; and

WHEREAS, the reported basinwide consumptive use for power generation is approximately 53 million gallons per day, or 75 percent of all reported consumptive use in the basin; and

WHEREAS, it has been the practice of the Commission during project review meetings between project sponsors and Commission staff to encourage the use of appropriate cooling technology given the water availability setting; and

WHEREAS, the Commission recognizes that an increasing number of thermoelectric facilities, most recently combined cycle natural gas powered facilities, employ wet cooling technology to reduce the environmental footprint in the basin by achieving greater efficiencies in operations that are equivalent to wet cooling projects; and

WHEREAS, it has been the practice of Commission staff during project review meetings to consider dry cooling based on the technology's generally redundant nature; and

WHEREAS, the Commission recognizes that securing adequate water supplies for power generation has become an increasing challenge due to increasing and competing water demands which can be exacerbated with proposed facility locations in areas with limited water supply settings; and

WHEREAS, consumptive use requests for power generation facilities located within portions of the basin where water resources may be limited or where uninterruptible sources of supply are not available; and

WHEREAS, the Commission's Comprehensive Plan encourages that power generation facilities should be required to evaluate the costs, benefits, and feasibility of dry cooling and water conservation techniques, and fully evaluate and mitigate for consumptive use mitigation; and

WHEREAS, the Commission anticipates that the utilization of dry cooling technology will reduce the water demand of such facilities providing additional flexibility in facilities in proximity to fuel sources and electrical transmission infrastructure; and

WHEREAS, use of dry cooling technology reduces impacts to aquatic ecosystems through the reduction of thermal impacts associated with large industrial volume discharges; and

WHEREAS, it is the desire of the Commission to promote and encourage the use of dry cooling technology in order to reduce the burden of consumptive uses in the basin, reduce dependence on large volume sources, avoid potential for alteration of natural stream regimes, effects on water quality and other uses of the watercourse.

NOW THEREFORE BE IT RESOLVED THAT:

1. With due regard for all approval standards, applicable laws, and other safeguards, the Commission will prioritize the review of projects utilizing dry cooling processes for reducing consumptive water use.

2. As appropriate, the Commission will require project sponsors proposing consumptive water use for the purposes of cooling to consider the use of dry cooling technologies.

3. As appropriate, the Commission will require project sponsors not utilizing dry cooling technology to submit for Commission review a rigorous alternatives analysis as justification consistent with 18 C.F.R. § 806.21(b) and Part III, D. 18 of the Commission's Comprehensive Plan.

4. As appropriate, the Commission will consider relaxing applicable passby flow conditions to projects providing upstream flow augmentation in order to provide for uninterruptible operations.

5. As appropriate, the Commission will consider application of allowable discretion under applicable Commission regulations and policy in reviewing and approving alternate consumptive use mitigation and passby flow thresholds consistent with 18 C.F.R. § 806.22.

6. This resolution shall be effective immediately.

Dated: March 5, 2015

Kenneth P. Lynch, Chair
New York

Dry Cooling Resolution Success Story

In 2015, existing power generation = 73% of regulated consumptive use; 93 mgd

- Six new natural gas-fired power plants were proposed

SRBC adopted a Dry Cooling Resolution

- Use of ambient air (instead of water) to cool (think car radiator)
- Regulatory and financial incentives

Four new power plants are using dry cooling in the basin for more than 7 years with impressive results!

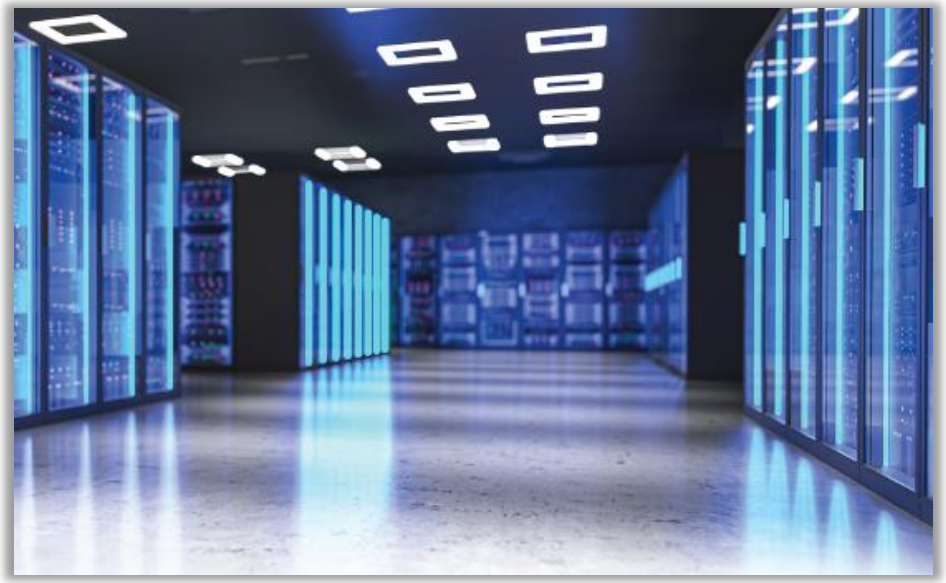
- Dry cooling uses 98% less water than evaporative cooling
- Water savings of 5.8 billion gallons of water every year
  - 16 million gallons per day
  - 2x the water use by the natural gas industry

We recently expanded the resolution to encourage data centers and other large water users

Observed Data Center Water Use

A lot of talk, Not a lot of action – yet?

- One SRBC permit issued – Amazon Data Services
  - Approved for 129,000 gpd consumptive use
    - less than average golf course irrigation
  - No withdrawal permit – using public water supply
- One other application in house; project stalled at the local level
  - 67,000 gpd consumptive use of municipal wastewater
- One application withdrawn/under threshold due to dry cooling technology chosen
- One application expected soon ~400,000 gpd
- Maintaining a tracking list of over 20 proposed projects

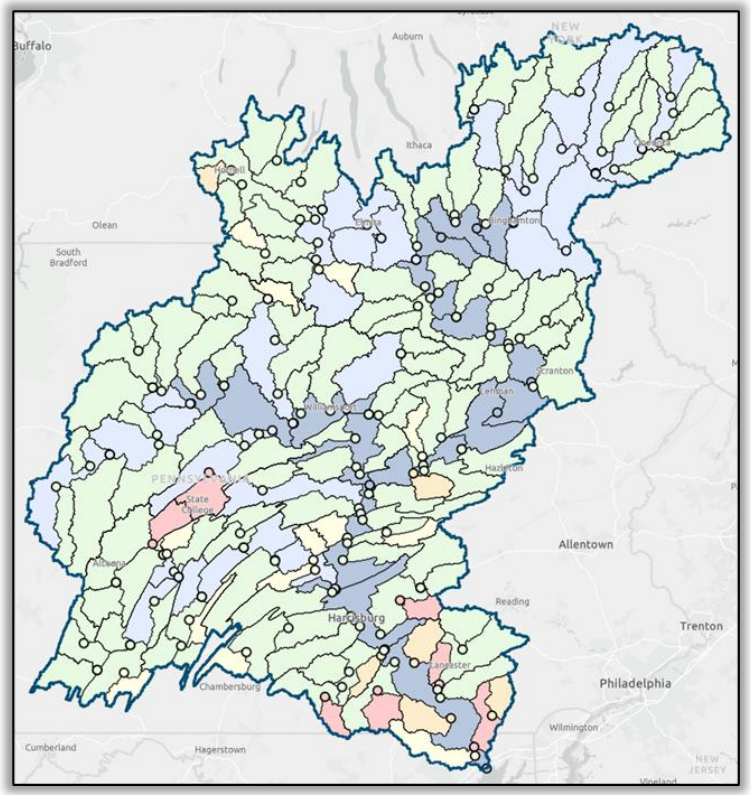


New power plants?

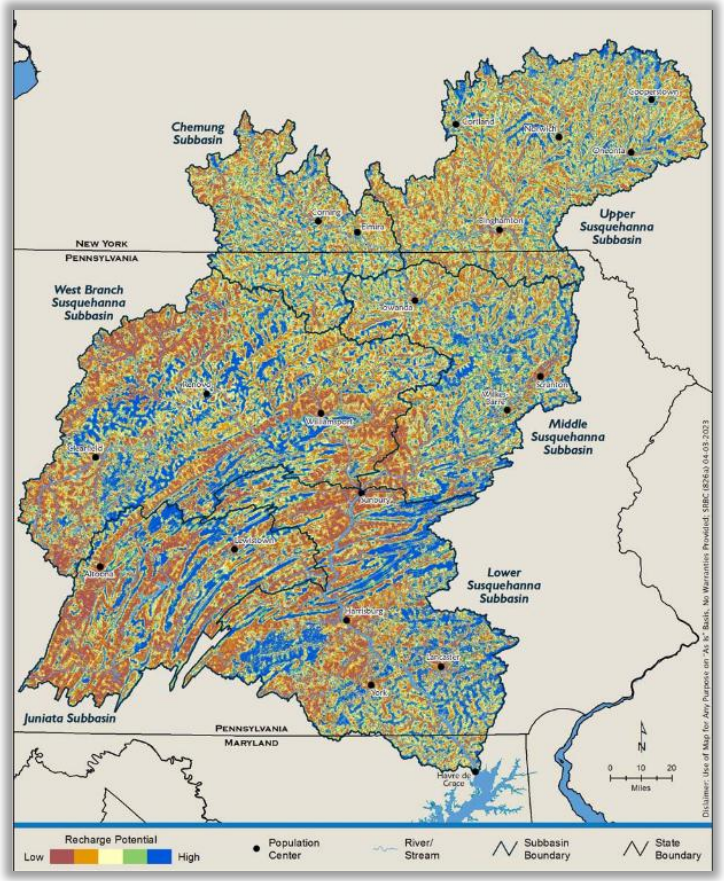
- *will also require cooling technology*

SRBC as a Resource

Water Availability



Groundwater Recharge Potential



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