

# SUSQUEHANNA RIVER BASIN COMMISSION: MANAGING WATER DEMAND IN THE AGE OF DATA CENTERS





# Water Use and Data Centers

## Rapidly Growing/Evolving Industry

- “Hyperscale” - Artificial Intelligence, Cryptocurrency

## Water Demands

- High speed computing generates a lot of heat
- Traditionally, water-based cooling systems are convenient/cost effective but can use millions of gallons of water per day

## Cooling Technologies

- Evaporative (high water demand)
- Hybrid (less)
- Dry (minimal)

## By Comparison

- Power Generation - 10s of thousands to 10s of millions gpd
- Food Industry, Facility Cooling – 100s of thousands gpd
- Golf Course Irrigation, Snowmaking – 10s of thousands to 100s of thousands gpd

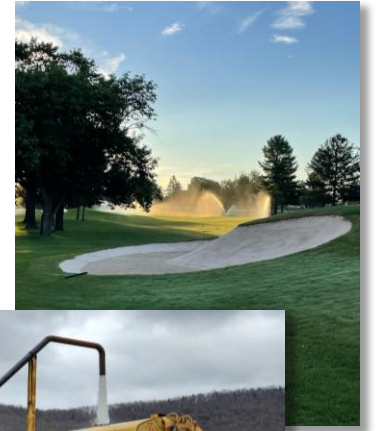
*When considered as a whole, hyperscale data centers, using millions of gallons per day, would be among the largest consumers of water in the basin*



**A DATA CENTER, OR ANY INDUSTRY, THAT EXCEEDS COMMISSION THRESHOLDS IN THE BASIN WILL REQUIRE APPROVAL AND REPORTING OF DAILY WITHDRAWAL AND CONSUMPTIVE USE**

# SRBC Regulatory Thresholds

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



**WE ARE AN INTERSTATE  
GOVERNMENT AGENCY  
THAT REGULATES LARGE  
WATER USERS.**

## Permits are not One-Size-Fits-All

- Approvals have site specific conditions
  - Low flow restriction (passbys)
  - Reporting requirements
- Compliance department
- Time limits/renewals aren't automatic

## Non-Duplicative

Our agency was designed to be non-duplicative of other agencies... we do not regulate water quality issues, including discharges and encroachments, as that authority is held by the individual states and the federal government



# 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
  - That's less than average golf course irrigation
  - No withdrawal permit/Using public water supply
- One other application in house; project stalled
  - 67,000 gpd consumptive use of municipal wastewater
- One application withdrawn/under threshold due to dry cooling technology chosen



## Power Demands

- New power plants proposed in future?
- Water can take a double hit – power generation also requires cooling

*Water use varies greatly based on the cooling technology used – from millions of gallons per day to under SRBC thresholds.*

*Many large corporations are interested in water saving technologies and the industry is evolving quickly.*

*SRBC encourages water conservation technologies!*

# Cooling Alternatives, Water Conservation Techniques & the Benefits

*The use of dry/hybrid cooling and/or smart siting can greatly reduce water demands!*

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

**SRBC adopted a Dry Cooling Resolution to encourage water conservation**

