GUEST Column

WHAT ABOUT WATER?

Townships Must Consider Data Center Impacts on This Vital Natural Resource

As the push for large-scale data centers heats up in Pennsylvania, municipalities must be sure to consider the impacts these massive facilities may have on water resources, in addition to land use and energy demand. Millions of gallons a day may be necessary to cool the rows and rows of computer servers, so townships need to know where the water will come from and how it may impact residents.

BY **ANDREW D. DEHOFF** / EXECUTIVE DIRECTOR, SUSQUEHANNA RIVER BASIN COMMISSION

With the flurry of activity surrounding data centers in Pennsylvania, it is hard to miss the conversations about energy demand, land use, and other community concerns. We at the Susquehanna River Basin Commission (SRBC) are focused on an aspect of development that too often seems to take a back seat — the potential impact to our vital water resources.

An immediate concern is the demand for water supply that accompanies the energy demand. Unlike existing data centers and warehouses, the "hyperscale" facilities now being proposed have massive cooling needs to allow the servers to dissipate the extreme heat they generate. Traditionally, a very efficient and cost-effective method of dissipating such heat is through evaporative cooling using fresh water.

How much water are we talking about? Evidence from other parts of the country and early proposals in Pennsylvania tell us that a single hyperscale data center can use more than 5 million gallons of water per day, potentially putting a large demand on a community's water supply and local resources.

On top of that, energy demands are so high that new power plants are being proposed solely to meet them. Like the data centers, power plants also require extensive cooling and typically use water to achieve it. Consequently, we are facing a potential double impact to water supplies.

Meeting these water demands is only one tangible challenge. Local water resources can also be impacted by the land development associated with

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hyperscale data facility construction. Townships are well aware of the stormwater management needs of multi-acre developments. Also, shunting runoff

into stormwater infrastructure, rather than allowing it to infiltrate into the ground as it does pre-development, has an additional impact on local water resources.

Bypassing natural infiltration deprives our aquifers of much-needed water supply recharge. Our aquifers serve as water supply from groundwater wells, and the movement of water through aquifer fractures sources springs and other contributions to our streams and rivers. It is a critical piece of our natural hydrologic cycle.

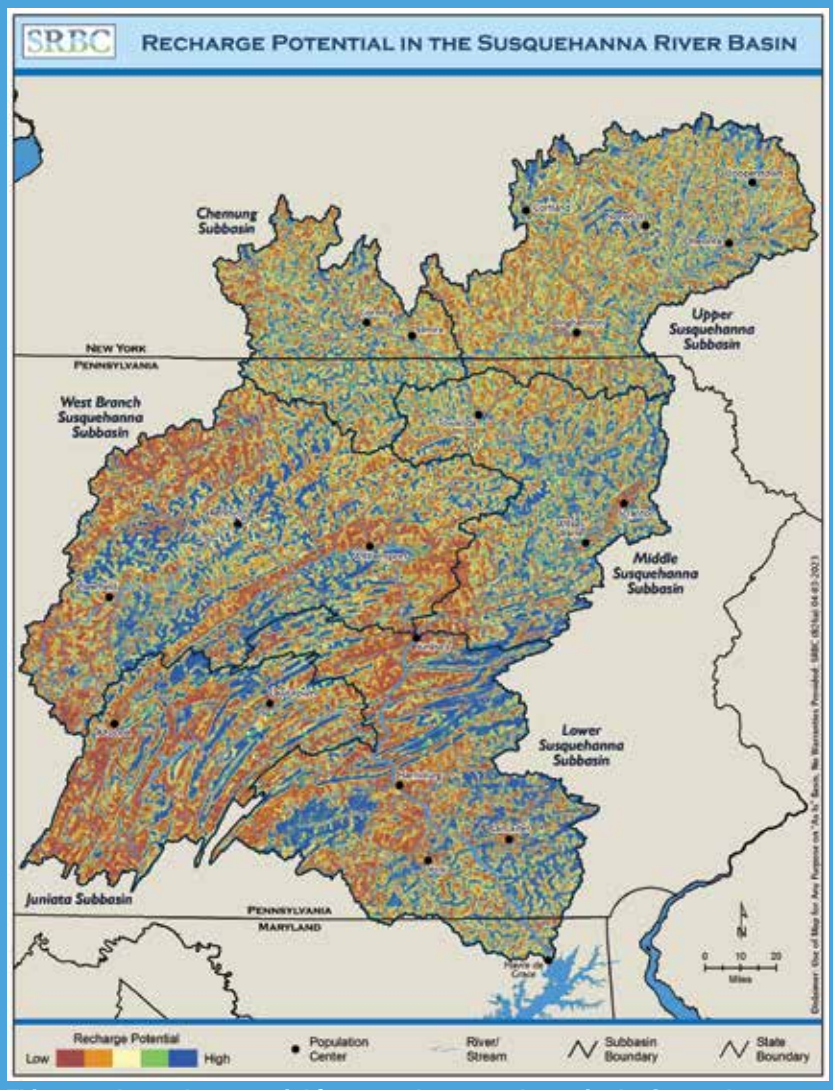
Get ahead of potential impacts

As townships consider how and where to site data centers, it is essential that we work together to balance strong economic growth with everyday human needs and a healthily functioning environment. To that end, SRBC is encouraging strong consideration of potential water resource impacts and how they can be minimized early in the development process.

As a Commission that regulates, manages, and plans for water use, SRBC is always looking for ways to conserve, reduce, and mitigate water use. On the supply side, the good news for our water resources is that there are alternatives to water-based cooling. Innovative technologies, such as dry and hybrid cooling, may greatly reduce the water demand at these facilities without compromising operations. Permitting incentives can help nudge operators to adopt these water-saving measures.

Working together to preserve water resources

For preserving natural hydrologic functions, SRBC is promoting its 2023 effort to identify optimal groundwater recharge areas *(see map)* as a planning tool to direct development away from the best recharge zones and preserve that function. While we focused on the Susquehanna basin, the methodology can be applied across the commonwealth. Such information, together with encouraging redevelopment of existing sites, can be powerful in ensuring that data centers don't unnecessarily disrupt the natural movement of water that our resources rely on. To learn more about this planning tool, see the SRBC fact sheet at **www.srbc.gov/our-work/fact-sheets/docs/optimal-groundwater-aquifer-recharge.pdf** or scan the QR code on this page.



This map shows the potential for groundwater recharge in the Susquehanna River Basin and its subbasins. ***(Map courtesy of SRBC.)***

SRBC and its counterpart Delaware River Basin Commission ***(nj.gov/drbc)***, exist so that users of Pennsylvania's water resources within our jurisdictions have reliable, conflict-free, and sustainable water supply for current and future generations. The Interstate Commission on the Potomac River Basin ***(potomacriver.org)*** is also witnessing tremendous data center growth in its territory and can serve as an informational resource.

We view local governments as our partners in our efforts, so before your community undertakes planning for an energy-intensive data center, please add water needs to the discussion. We, along with partners like PSATS and state agencies, are eager to be a source of information as we collectively strive to wisely manage one of the commonwealth's most precious natural resources. ✦

About the author: Andrew D. Dehoff began his career at the Susquehanna River Bain Commission as an engineering intern in 1993. After serving in several positions at the agency over the next 20 years, he was named executive director in 2013.

Scan this code for a fact sheet on groundwater recharge potential in the Susquehanna River Basin.