



County of Fairfax, Virginia

MEMORANDUM

DATE: March 13, 2023

TO: Board of Supervisors

FROM: Larry J. Zaragoza, DEnv, Chair
Environmental Quality Advisory Council (EQAC)

SUBJECT: Data Centers: VA DEQ Request for Comment and Future Planning

EQAC has two requests. First, we want to inform you of the Virginia Department of Environmental Quality (DEQ) request for comment on the proposed use of diesel generators preceding periods of a PJM¹ declared emergency. Second, we recommend that the county develop a plan to minimize the impacts of data centers on community health and the environment, including the potentially significant impacts on water quality and wastewater treatment in the county.

VA DEQ Data Center Notice for Public Comment

On January 25, 2023, DEQ published a notice requesting comments for a draft order and variance for data centers in Fairfax, Loudoun, and Prince William counties. The notice was recently revised to apply only to Loudoun County and the comment period was extended until April 21. The draft order and variance were proposed because of a potential transmission constraint issue that may affect the ability to provide enough electricity to data centers through 2025.

The impacts of this draft order and variance should be considered by the county. Diesel power emissions will contribute to the exacerbation of the federal ozone standard, which our region does not officially meet. Because we are in a nonattainment area for ozone, emissions from the diesel power operations must be offset by reductions from other sources in the State

¹ "PJM" means PJM interconnect, the independent system operator and regional transmission organization that coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia.

Implementation Plan. These emissions may also contribute to an exceedance of the nitrogen dioxide standard.

If the order is issued, nearby residents would be burdened with noise and the region would be impacted by the diesel emissions. While Dominion Energy had said that there was sufficient power to support data centers before they were built, Dominion Energy stated that there is a transmission constraint that will limit power transmission in July of 2022. Should the order not be issued then power outages are predicted. Given that power outages are no longer expected in Fairfax County resulting from this transmission constraint, we do not think it is essential to comment on this specific order but do recommend the county undertake an effort to evaluate siting requirements for data centers as many more data centers may be coming to northern Virginia.

Planning for Data Centers in the County's Future

On May 11, 2022, former EQAC Chairman Stella Koch sent you a memorandum asking that the energy and environmental concerns of data center growth be addressed. This request has grown more urgent as the Governor has recently announced that \$35 billion is being directed to develop data centers in Virginia. In addition to their air quality impacts and significant electrical use (along with the associated greenhouse gas emissions), data centers can be huge consumers of water. Data centers that use evaporative cooling generate significant quantities of wastewater, which will concentrate any pollutants. For this reason, pretreatment of wastewater, especially materials that would not easily be treated by county wastewater treatment facilities, should be required when appropriate. The attachment to this memorandum provides recommendations to be included in a county data center plan.

Actions to mitigate threats to community health and minimize the need for future cleanup of water by County wastewater treatment facilities and Fairfax Water should be undertaken. Moreover, these steps are important to provide the data centers with clear expectations to reduce environmental impacts. Planning and communicating goals will help all parties understand expectations and reduce the environmental impacts of data centers.

Furthermore, options to reduce the impacts of power usage and harmful emissions should be pursued. The use of hydrogen to power data centers should eliminate harmful emissions and the strain that data centers place on the electrical grid.

We thank you for considering this issue and welcome any questions.

cc: Rachel Flynn, Deputy County Executive
Tracy Strunk, Director, Department of Planning and Development (DPD)
Christopher Herrington, Director, Department of Public Works and Environmental Services (DPWES)
John Morrill, Acting Director, Office of Environmental and Energy Coordination (OEEC)
EQAC

Attachment:

Virginia has over 100 data centers and many more are expected to be developed. A plan to guide data center siting and limit environmental impacts is needed. In addition to the actions recommended in the May 11, 2022 EQAC memorandum, the following actions are recommended for inclusion in a county data center plan:

1. Data centers should be required to employ solar panels and other forms of renewable energy to the extent feasible.
2. Because natural gas is a cleaner source of power than diesel, data centers should use natural gas for emergency operations when renewable energy and energy storage are not sufficient. Natural gas is already used by some data centers in Virginia.
3. Data center energy use, water use, and all emissions, including air emissions of nitrogen oxides, hydrocarbons, and sulfur should be reported. Contaminants in wastewater should also be reported.
4. Dissolved solids in water may include a variety of pollutants but standards have not yet been established for many of these components/pollutants. Standards currently in development will require treatment of many of these components/pollutants in the future. Given the significant use of water by data centers, the components/pollutants in their wastewater that could threaten water quality should be reported in terms of effluent concentration. Moreover, these pollutants should be evaluated to determine if they should be pretreated before leaving data centers to protect drinking water quality.