



From: Craig Rucker, President
CFACT

By email to Gwendolyn K. Supplee at supplee.gwendolyn@epa.gov

Re: EPA Draft Permit Number OCS-R3-01
Outer Continental Shelf Preconstruction Air Permit
Coastal Virginia Offshore Wind Commercial Project
Dominion Energy

Upon looking with greater scrutiny at the draft EPA Outer Continental Shelf Air Permit referenced above, we have three major concerns which are outlined below with each followed by our recommendations:

1. Contrary to the Clean Air Act requirements, the Best Available Control Technology (BACT) is not being applied. The emissions in this case are from marine vessels used in both the construction phase and the operation and maintenance phase of the project.

EPA's BACT analysis only considers vessels powered by internal combustion engines. They ignore or have missed the fact that electrically powered vessels are now being used in offshore wind construction and operation in other countries. Thus, this technology is clearly available and feasible.

See, for example, "*Electric Boats To Jumpstart Japan's Floating Offshore Wind Industry*"
<https://cleantechnica.com/2023/04/10/electric-boats-to-jumpstart-japans-floating-offshore-wind-industry/>

In fact, we now have electric service vessels specifically designed to charge from the wind facility they serve.

See, for example, "*In a first, this electric SOV is charged by offshore wind turbines*"
<https://electrek.co/2023/11/28/electric-sov-offshore-wind/>

Using electric vessels where feasible would dramatically reduce emissions which is exemplary of the BACT. Moreover, using vessels that charge from the operational wind facility would also eliminate the emissions that might otherwise be created generating the electricity.

The EPA needs to carefully assess the BACT of electric vessels.

2. The EPA should assess the impact of the Coastal Virginia Offshore Wind (CVOW) project's operational wake effect on Virginia's state implementation plan (SIP) for maintaining the ozone National Ambient Air Quality Standards (NAAQS) in the Norfolk-Virginia Beach-Newport News (Hampton Roads), VA Area.

The wake effect is the well-established fact that the air flow downwind of an operating wind turbine has significantly less energy than the air flow upwind. This is because the turbine's job is to remove energy from the air flow converting it into electricity. By some estimates, 50% of the energy is removed.

The basic science of offshore wind wake effects and some of their adverse impacts is presented, together with numerous useful references, in the National Academies' recent publication "*Potential Hydrodynamic Impacts of Offshore Wind Energy on Nantucket Shoals Regional Ecology: An Evaluation from Wind to Whales*," National Academies of Sciences, Engineering, and Medicine. 2024.

<https://nap.nationalacademies.org/catalog/27154/potential-hydrodynamic-impacts-of-offshore-wind-energy-on-nantucket-shoals-regional-ecology>

The CVOW project is huge with turbines drawing energy from the air flow over roughly 150 square miles. This will create a massive, reduced energy air plume (REAP) that may extend for many miles from the project. When the flow is onshore, it may well reach the Hampton Roads SIP area.

Ozone is an unstable molecule that has a longer half-life in low-energy air at a given temperature. High ozone levels in the Hampton Roads Area during hot weather are often characterized by onshore flow because the land is much hotter than the ocean.

Thus, it is possible that the CVOW REAP could significantly increase these high ozone levels, including causing non-attainment with the ozone NAAQS.

The EPA and the Virginia Department of Environmental Quality need to carefully assess the threat to Hampton Roads' air quality from the CVOW wake effects.

3. While not an air quality issue, we note that the National Academies of Sciences, Engineering, and Medicine (NASEM) report referenced above also says projects like CVOW are likely to produce large plumes of suspended sediments. This should be a

Clean Water Act (CWA) assessment issue, but we see no evidence that it has been addressed. The National Marine Fisheries Service should be involved in this assessment.

In summation, the draft EPA Outer Continental Shelf Air Permit does not apply the BACT to electric vessels, does not take the wake effect into account, and presents issues in conflict with the CWA which are not even addressed in the proposal.

Thank you for taking the time to read over our concerns and recommendations, and it is our hope that you will give them serious consideration before approving EPA Draft Permit Number OCS-R3-01.