Why Are Massive Amounts of the World's Most Potent Greenhouse Gas Being Ferried Out into the Ocean off the Eastern Seaboard?

Substack
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If there's anything Big Wind doesn't like to talk about it's sulfur hexafluoride (SF_6).

It is universally agreed that SF_6 is the most potent and devastating greenhouse gas yet known. This manmade fluorinated compound does not exist in nature. Used as an insulator in high- and medium-voltage switchgear in the electrical industry, once released, this long-lasting compound lives on in the atmosphere for a very long time — having a half-life of 3,200 years, according to the Environmental Protection Agency.

As pointed out by ecos, an environmental organization based in Brussels, in its report, **"Worst in class,"** SF_6 will remain 25,200 times more effective at trapping infrared radiation than an equivalent amount of carbon dioxide for over a century. However, "its growth and use continue virtually unabated."

Enter offshore wind.

Used in the switchgear (a collection of voltage-regulating tools) of both wind turbines and offshore and onshore substations, SF_6 will be utilized in all the wind-energy projects in various stages of development that will effectively **fence in** the East Coast from Maine to North Carolina.

Even the EPA doesn't have a handle on what's going on with Big Wind and SF_6. In 2023 the agency contracted with a company to provide an **"assessment"** to help the agency in "seeking a better understanding…" of SF_6 use in offshore wind.

As for the Bureau of Ocean Energy Management (BOEM), the lead federal agency for all the proposed turbine lease areas, it, too, would rather not have to answer to the public over the use of SF_6. So much so that in the draft Environmental Impact Statement, or EIS (which was open to public comment) for the Atlantic Shores South project, the agency stated that "BOEM would require Atlantic Shores to use switchgear that does not contain SF_6 but uses alternative insulating materials and technologies to eliminate leakage of SF_6 as a source of GHG (greenhouse gas) emissions."

But that wasn't exactly true.

The final EIS, issued by BOEM in May of 2024 **included a comment*** from Atlantic Shores, stating that the BOEM-proposed measure of SF_6-free switchgear "…is not technically or economically feasible," and "Atlantic Shores requests that BOEM revise these proposed mitigation measures to remove the requirement for SF_6-free switchgear…"

And BOEM complied, even offering an apology of sorts in its response that the measure was "erroneously included," and has been "removed." To cover its tracks, BOEM revised its language now saying Atlantic Shores won't use SF_6 "to the extent practicable based on technical, economic, and supply chain considerations." (It should be noted that the final EIS is not open to public comment.)

Don't Look Up

So just how much of this radiation-trapping gas will be used in these different projects?

Consulting the **assessment** prepared for the EPA that reviewed the permit applications for just six offshore lease areas reveals worrying numbers.

For example, Vineyard Wind 1, with 62 planned turbines 13 miles south of Martha's Vineyard, expects to use 11,949 pounds of SF_6 in its offshore equipment.

Revolution Wind, 15 nautical miles southeast of Point Judith, Rhode Island will use a total of 40,925 pounds of SF_6 among its onshore and offshore substations, and in each of the 65 planned turbines.

And within prime viewing distance of Long Beach Island — 8.7 miles offshore at the closest point — are the Atlantic Shores lease areas. According to BOEM, both Atlantic Shores projects (north and south), which will consist of up to 200 mammoth wind turbines rising to over 1,000 feet, will utilize more than 47,000 pounds of SF_6 in offshore substations.

Despite measures to keep this GHG from escaping, "leak rates" are fully expected during normal operations and maintenance of 0.5 to 1% per year. That, of course, is assuming that there are no accidental releases such as what happened at the Seagreen offshore wind area in the North Sea. Twenty-four pounds of SF_6 leaked during routine work in 2022, resulting in the evacuation of 80 workers. While 24 pounds doesn't sound like much, the EPA warns that a "relatively small amount can "have a significant impact on global climate change." And even if SF_6 use goes uneventfully, **BOEM expects** emission rates over the lifetime of the two Atlantic Shores projects to be 5.9 U.S. tons. (PDF page 45 at link.)

But the EPA has rules about using this gas, right?

In 2023 an air permit **"fact sheet"** was issued by EPA Region 1 for Sunrise Wind (30 miles east of Montauk, N.Y.). The agency stated that despite SF_6-free switchgear now being manufactured by Siemens and General Electric, most are only suitable for the European Union and Asian markets, and one made by Siemens that does operate on U.S. electrical standards is too big and heavy for offshore wind use.

The EPA did, however, request that repairs of leaky SF_6 switchgear be fixed within five "days of discovery." But even that was shot down by Sunrise Wind, saying that "a precise timeline for repair of SF_6 leaks" is not possible. We've got potential "adverse weather" and "mobilization logistics" to contend with, **it noted**. This is an "offshore location" after all.

Regardless of how many federal agencies write memos and fact sheets about this compound, which is rated as having the highest global warming potential of all greenhouse gasses, it's unlikely that the public will ever learn about leaks or accidents releasing SF_6 from these wind energy projects.

And no matter how "green" they try to paint offshore wind, there's no getting around the fact that it's an environmental disaster that will only succeed in making certain companies (mostly foreign) a whole lot of green paper.

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