

August 27, 2021

Michelle Morin  
BOEM Office of Renewable Energy Programs  
45600 Woodland Road  
Sterling, VA 20166

**Re: Notice of Intent to Prepare an Environmental Impact Statement (EIS) for the proposed Kitty Hawk Offshore Wind Project offshore North Carolina # BOEM-2021-0050-0001**

Dear Ms. Morin,

This letter is in response to the Public Notice issued July 30, 2021 (Federal Register Number 2021-16282) in which BOEM announced intent to prepare an EIS for the review of a construction and operations plan (COP) submitted by Kitty Hawk, LLC (Kitty Hawk) for the development, construction, and operation of a wind energy facility offshore North Carolina with export cables connecting to the onshore electric grid in Virginia Beach, Va., and desire for public comment regarding same.

I am an economist and senior fellow in regulatory studies for the John Locke Foundation, a public policy think tank located in Raleigh, North Carolina. My work frequently involves matters of energy and electricity policy, including the various seen and unseen costs and benefits involved in these matters. They are not small matters, given the overarching importance of electricity to civilization — things that impact the costs and reliability of electricity provision have great effects, good or ill, across the economy and people's lives.

I commend BOEM for seeking a wide range of factors to include in the EIS for this project, and I appreciate the opportunity to comment. For that purpose I respectfully propose that the following impacts be fully considered and weighed along with other factors under consideration. I furthermore suggest that the no-action alternative be given full due consideration in light of the seriousness of the impacts discussed herein.

Regarding Physical Resources and Air and Water Quality

**Intermittence necessitates greenhouse gas emissions from background generation.** Inherent in the nature of wind generation is the inescapable issue of nondispatchability, unreliability, and variability. A facility that generates power by wind is ipso facto also at the mercy of the wind. For such intermittent sources, their "maximum dependable capacity is 0 MW."<sup>1</sup> For that reason, a wind resource requires a backup generation source, which must be dispatchable and

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<sup>1</sup> Dan Way, "Solar energy output ratings misleading if not deceptive, critics say," *Carolina Journal*, May 20, 2019, <https://www.carolinajournal.com/news-article/solar-energy-output-ratings-misleading-if-not-deceptive-critics-say/>.

which is invariably a fossil-fuel source.<sup>2</sup> Reliance on such a source erases some if not all of the gains in reducing greenhouse gas (GHG) emissions, and it could even create greater GHGs than otherwise. For example, Duke Energy Progress in 2018 requested the North Carolina Division of Air Quality to modify its permit for a "relaxation of short term emission limit" of its Richmond County Combustion Turbine Facility to allow for its use in supplementing solar photovoltaic installations. Were this combustion turbine facility not to be used as backup generation for an intermittent source, Duke would not have needed to request permission from the state Division of Air Quality for greater GHG emissions. Instead, Duke's requested modification would have allowed the turbines to throttle on and off as needed at low-load idling operation instead of from being completely switched on and off. Duke's scenario was to emit 381 pounds of nitrous oxides daily, up from 264 lbs. (a 44.3 percent increase in NOx emissions), in order to avoid the greater increase of 624 lbs. (a 236 percent increase). In either scenario, addition of a nondispatchable source ostensibly to lower GHG emissions results in, owing to its inherent need for backup generation, markedly greater emissions.<sup>3</sup>

**Frequent reliance on diesel generators at the Block Island Wind Farm.** Experience from the nation's first offshore wind farm, the Block Island Wind Farm off Rhode Island, is highly suggestive of deleterious GHG emissions from backup generation. As of this writing, the facility's turbines are shut down again and have been for months.<sup>4</sup> The cause for Block Island's current ongoing shutdown is that four of the five turbines have developed stress lines. In shutdown situations, the facility reverts to old diesel generators.

**Ongoing problem of undersea cables being exposed.** The Block Island facility has also been plagued from the beginning by problems with undersea cables continually being exposed.<sup>5</sup> Consumers are charged with the cost of these reconstruction efforts through passthrough surcharges on their bills.<sup>6</sup> Block Island's cables are buried 4–6 feet beneath the surface, a depth comparable with that proposed for Kitty Hawk (1.5–2.5 kilometers; i.e., about 5–8 feet). Kitty

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<sup>2</sup> Thomas F. Stacy and George S. Taylor, *The Levelized Cost of Electricity from Existing Generation Resources*, Institute for Energy Research, June 2019, [https://www.instituteeforenergyresearch.org/wp-content/uploads/2019/06/IER\\_LCOE2019Final-.pdf](https://www.instituteeforenergyresearch.org/wp-content/uploads/2019/06/IER_LCOE2019Final-.pdf).

<sup>3</sup> Dan Way, "Duke Energy application points finger at solar for increased pollution," *The North State Journal*, August 14, 2019, <https://nsjonline.com/article/2019/08/duke-energy-application-points-finger-at-solar-for-increased-pollution/>

<sup>4</sup> Mark Harrington, "Officials: Four of five Block Island wind turbines out for repair," *Newsday*, August 10, 2021, <https://www.newsday.com/long-island/politics/block-island-offshore-wind-power-1.50331182>

<sup>5</sup> Tim Faulkner, "Offshore Wind Cable Exposed at Block Island Beach," *EcoRI News*, May 24, 2019, <https://www.ecori.org/renewable-energy/2019/5/24/wind-farm-power-cables-exposed-at-block-island-beach>

<sup>6</sup> Alex Kuffner, "National Grid is making millions on wind power. You're paying extra for it." *The Providence Journal*, April 8, 2021, <https://www.providencejournal.com/story/news/2021/04/08/national-grid-reaps-46-m-excess-profits-ri-wind-surcharge/7123029002/>, and also see "National Grid Pauses Effort to Rebury Block Island Wind Farm Cable," *EcoRI News*, May 4, 2021, <https://www.ecori.org/renewable-energy/2021/5/4/national-grid-pauses-effort-to-rebury-block-island-wind-farm-cable>.

Hawk's undersea cables would be about twice the length of Block Island's, however — 80 km (50 miles) vs. 22 miles to Narragansett and six miles to Block Island.<sup>7</sup>

**Turbines are especially vulnerable to hurricane gusts, and the proposed location off the Outer Banks is particularly vulnerable to hurricanes.** A particular problem for Kitty Hawk would be hurricanes. Research has estimated that nearly half the turbines in a wind farm placed in the most vulnerable areas would face destruction from hurricanes within a 20-year period.<sup>8</sup> Turbines are especially vulnerable to wind gusts generated by major hurricanes (considered Category 3 or higher).<sup>9</sup> The National Hurricane Center uses a metric of "return period" of hurricanes, which is a measure of how frequently a site is visited by hurricanes. The site location off the Outer Banks of North Carolina is frequently visited by hurricanes — a return point of hurricanes at 5–7 years, and of major hurricanes at 16–25 years, some of the greatest frequencies along the Atlantic Coast.<sup>10</sup> Figures 1 and 2 provide a side-by-side comparison of the proposed Kitty Hawk site against the National Hurricane Center's graphic showing hurricane paths within 65 nautical miles of Cape Hatteras, North Carolina, and recall that damaging gusts can extend many miles from a storm's center.<sup>11</sup>

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<sup>7</sup> Faulkner, "Offshore Wind Cable Exposed at Block Island Beach," and also see "Construction and Operations Plan," Kitty Hawk Offshore, July 26, 2021, <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/KTH-Section-ES-Executive%20Summary.pdf>.

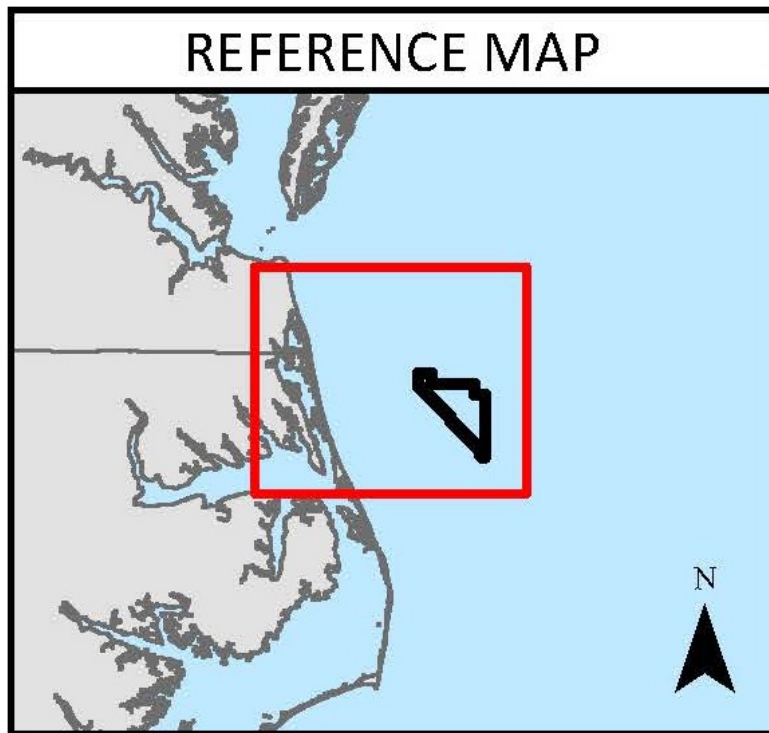
<sup>8</sup> Stephen Rose, Paulina Jaramillo, Mitchell J. Small, Iris Grossmann, and Jay Apt, "Quantifying the hurricane risk to offshore wind turbines," *Proceedings of the National Academy of Sciences*, February 2012, 109 (9) 3247-3252; DOI: 10.1073/pnas.1111769109, <https://www.pnas.org/content/109/9/3247.abstract>.

<sup>9</sup> Rochelle P. Worsnop, Julie K. Lundquist, George H. Bryan, Rick Damiani, and Walt Musial, "Gusts and shear within hurricane eyewalls can exceed offshore wind turbine design standards," *Geophysical Research Letters*, 44, 6413–6420, DOI:10.1002/2017GL073537, <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017GL073537>

<sup>10</sup> "Tropical Cyclone Climatology: Hurricane Return Period," National Hurricane Center and Central Pacific Hurricane Center, <https://www.nhc.noaa.gov/climo/#returns>, accessed August 23, 2021.

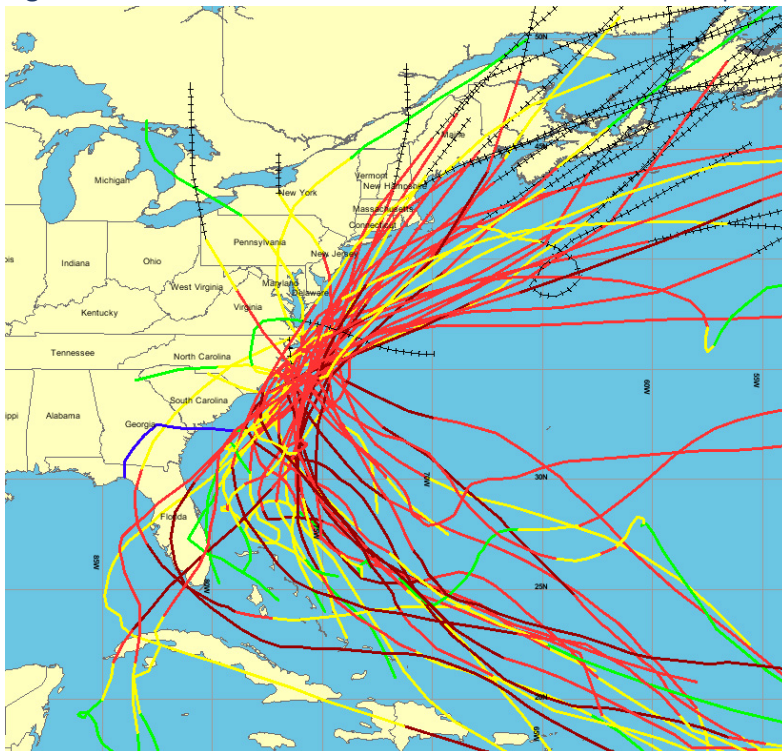
<sup>11</sup> "NOAA provides easy access to historical Atlantic hurricane tracks," Phys.org, October 1, 2010, <https://phys.org/news/2010-10-noaa-easy-access-historical-atlantic.html>.

Figure 1. Site of Proposed Kitty Hawk Offshore Wind Project



Source: *Kitty Hawk*

Figure 2. Hurricane Paths Within 65 Nautical Miles of Cape Hatteras, North Carolina



Sources: NOAA/Phys.org

**Retired or damaged turbine blades are a significant and growing environmental waste problem.** A large array of up to 69 turbines and sizeable risk of damages from frequent hurricanes as well as Block Island's stress lines mere years into operation are all suggestive of Kitty Hawk's potential for contribution to an already significant waste problem: retired turbine blades. In brief, the blades are unrecyclable, they require specialized equipment to cut into pieces that must be hauled away by tractor-trailers (one per blade), and unless they are burned in kilns, they are exhausting landfill space already even though the bulk of U.S. blade retirements has yet to occur.<sup>12</sup> Blade retirements therefore require increased trucking emissions as well as pose serious problems needing to convert land for landfill use or else contribute even more GHG emissions through kilning.

### Regarding Socioeconomic Impacts

**"Commercial viability" amid captive consumers and multiple government interventions is not the same as actual, competitive viability.** Interest in the commercial viability of the project is not the same as the competitive viability of such a project and must be tempered, indeed sobered, by the facts that consumers are highly limited in ability to choose electricity utility service, especially regarding least-cost providers, and that wind-power projects currently benefit from several targeted government interventions, subsidies, and mandates; i.e., thumbs on the competitive scales that hide their actual costs (still paid by electricity consumers, but in their roles as taxpayers) but as products of political whim rather than true market choice cannot be counted on as indicative of actual viability. Furthermore, economic impact studies offered by parties with a direct financial or political interest in such a project cannot be regarded as reliable.

**Project analysis requires a true cost/benefit analysis by a disinterested third party with expertise in the economic analysis of issues involved in such a project.** In general, any analysis into such a project as Kitty Hawk needs to be a true cost/benefit analysis conducted by a disinterested third party who knows to account for opportunity costs, what economic activity will occur and — just as important — what won't, and unintended consequences. Numbers generated by professional consulting firms using proprietary economic impact modeling that relies on input/output analysis conducted by analysts whose formal training was not in economics but in using those models are typically large and notoriously unreliable. A project such as Kitty Hawk would need "highly specialized economists who truly understand the nature of this kind of analysis."<sup>13</sup>

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<sup>12</sup> Christina Stella, "Unfurling The Waste Problem Caused By Wind Energy," National Public Radio, September 10, 2019, <https://www.npr.org/2019/09/10/759376113/unfurling-the-waste-problem-caused-by-wind-energy>, and also see Jon Sanders, "Waste problems from wind and solar? Yes, it's why we need proper decommissioning," Research Brief, John Locke Foundation, February 13, 2020, <https://www.johnlocke.org/update/waste-problems-from-wind-and-solar-yes-its-why-we-need-proper-decommissioning/>

<sup>13</sup> Roy Cordato, "Economic Impact Studies: The Missing Ingredient Is Economics, Spotlight No. 489, John Locke Foundation, March 30, 2017, <https://www.johnlocke.org/research/economic-impact-studies-the-missing-ingredient-is-economics/>.

**Whether the project meets a state's political goal should be given zero weight.** One item that should not be a factor in any impact study is whether it helps achieve a political goal. BOEM's Notice of Intent makes reference that the Kitty Hawk project would, among other things, "facilitat[e] achievement of State renewable energy goals (e.g., Virginia's goal of developing 5.2 gigawatts of offshore wind energy by 2034; North Carolina's goal of developing 2.8 gigawatts of offshore wind energy off its coast by 2030)." Existence of a goal is not an actionable justification for weighting the impact of projects like Kitty Hawk. At best it would be coincidental, but it should be given zero weighting. (Inclusion of North Carolina's goal suggests the futility of accounting for such political targets, given that North Carolinians would bear the brunt of the ecological, environmental, and oceanographic costs while nearly all ostensible benefits would accrue to Virginia and other PJM states.)

**Socioeconomic impact from this project would necessarily include the higher electricity rates arising from it.** True accounting for the socioeconomic impacts of Kitty Hawk would require accounting for the economic effects of higher electricity rates commensurate with this project and its intermittent output. Above was mentioned the ongoing problems with cable exposure at the nation's first offshore wind power facility, Block Island, and how the costs of those repairs are being passed through to ratepayers.<sup>14</sup> As demonstrated by the Institute for Energy Research, the levelized cost of new wind resources using fleet-average capacity factors and accounting for costs imposed by necessary backup generation resources is the most expensive among all intermittent or dispatchable resources, new or existing.<sup>15</sup> Incorporating such a resource into the grid would increase unreliability into the system, which would require accounting for the higher risk of California-style blackouts. A key factor identified in the "Root Cause Analysis" of the blackouts from the California Independent System Operator, the California Public Utilities Commission, and the California Energy Commission was "2. In transitioning to 'clean' energy, the State's dispatchable generating capacity had 'not kept pace' with the state's needs."<sup>16</sup>

**These impacts would fall very hard on poor families.** Incorporating more wind into the grid would also necessarily displace lower-cost energy, which would necessarily cause higher rates on all consumers, from industrial users to small businesses to families. Given that electricity is a factor in the production of virtually every good and service provided across the economy, changes to electricity rates resound through the economy much the same way as do changes to tax rates. The disparate effects of this higher-priced electricity would fall especially the poor,

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<sup>14</sup> Kuffner, "National Grid is making millions off wind power."

<sup>15</sup> Stacy and Taylor, "The Levelized Cost of Electricity from Existing Generation Resources."

<sup>16</sup> "Root Cause Analysis" Mid-August 2020 Extreme Heat Wave," California Independent System Operator (CAISO), California Public Utilities Commission (CPUC), and California Energy Commission (CEC), January 13, 2021, <http://www.caiso.com/Documents/Final-Root-Cause-Analysis-Mid-August-2020-Extreme-Heat-Wave.pdf>. Also see Michael D. Shellenberger, "Testimony before the United States Senate Committee on Energy and Natural Resources," March 11, 2021, <https://static1.squarespace.com/static/56a45d683b0be33df885def6/t/604a16beb87f2c53968a4857/1615468222711/Senate+Energy+Testimony+by+Michael+Shellenberger+FINAL.pdf>. See also Donald R. van der Vaart, "Cooper is Steering North Carolina Towards Electricity Blackouts," Research Brief, John Locke Foundation, February 10, 2021, <https://www.johnlocke.org/update/cooper-is-steering-north-carolina-towards-electricity-blackouts/>.



however. Because electricity is a basic human need, energy poverty is a serious threat to health and incomes of the poor across America. As studies have demonstrated, poor families devote as much as one-third of their take-home pay to energy costs — money they cannot use for food, clothing, rent or mortgage, savings, or other important ways to help their families. The problem expands beyond energy needs being somewhat constant despite incomes varying dramatically. Poor families are more likely to live in less energy-efficient housing, have older, less efficient appliances, and be less able to take advantage of programs to meet government goals of boosting renewable sources of energy (e.g., not only can poor families often not be able to take advantage of net metering, but also they must shoulder the costs of such programs along with other nonparticipating ratepayers).<sup>17</sup> Concerning California's "transitioning" as mentioned above, that state has the nation's highest poverty rate, and research finds rising electricity prices there to be a contributing and growing factor "disproportionately impact[ing] lower- and middle-income families who are lack the disposable income to absorb the extra costs."<sup>18</sup>

**Exacerbating energy poverty risks increasing mortality.** Such disparities and risks are not merely academic or unfortunate; they are dangerous. The burden of energy poverty is not stable across the four seasons; instead, it is at its worst during climate extremes. So too are blackouts. Families having to economize on heating and cooling bills during temperature extremes place themselves in greater danger (beyond the obvious, researchers cite "higher risk of respiratory problems, heart disease, arthritis, and rheumatism" as well as risks of carbon monoxide poisoning and other adverse outcomes from seeking alternative sources of relief.<sup>19</sup> The U.S. Energy Information Administration in 2018 found that "Nearly one-third of U.S. households (31%) reported facing a challenge in paying energy bills or sustaining adequate heating and cooling in their homes." Worse, the EIA found that "about one in five households reported reducing or forgoing necessities *such as food and medicine* to pay an energy bill" (emphasis added).<sup>20</sup> A retiree in North Carolina struggling to heat his 1,000-square-foot

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<sup>17</sup> See, e.g., "Energy Burden Report: Low-Income, Black, Hispanic, and Native American Households Face High Energy Burdens," American Council for an Energy-Efficient Economy, September 10, 2020, <https://www.aceee.org/energy-burden>; Philippe Benoit and David R. Hill, "The poor pay more for energy — the US can correct the imbalance," *The Hill*, July 20, 2021, <https://thehill.com/opinion/energy-environment/563849-the-poor-pay-more-for-energy-the-us-can-correct-the-imbalance>; Adam Chandler, "Where the Poor Spend More Than 10 Percent of Their Income on Energy: Hint: almost everywhere in the United States," *The Atlantic*, June 8, 2016, <https://www.theatlantic.com/business/archive/2016/06/energy-poverty-low-income-households/486197/>; and Michael Isaac Stein, "The Uneven Gains of Energy Efficiency: Low-income Americans are more likely to live in housing that wastes energy, which saddles them with disproportionately high energy costs," *Bloomberg CityLab*, February 13, 2018, <https://www.bloomberg.com/news/articles/2018-02-13/energy-efficiency-is-out-of-reach-for-some-americans>.

<sup>18</sup> Robert Bryce, "The High Cost of California Electricity Is Increasing Poverty," Foundation for Research on Equal Opportunity, July 8, 2020, <https://freopp.org/the-high-cost-of-california-electricity-is-increasing-poverty-d7bc4021b705>.

<sup>19</sup> Stein, "The Uneven Gains of Energy Efficiency."

<sup>20</sup> "One in three U.S. households faces a challenge in meeting energy needs," U.S. Energy Information Administration, September 19, 2018, <https://www.eia.gov/todayinenergy/detail.php?id=37072>.

apartment told a local reporter the choice he often faced was "Do I stay warm or eat?"<sup>21</sup> A March 2019 Working Paper published by the National Bureau of Economic Research (NBER) found that higher heating bills in the winter increased exposure to cold and mortality risk and depressed spending on items needed for good health, while "a lower heating price reduces winter mortality, driven mostly by cardiovascular and respiratory causes."<sup>22</sup> An October 2019 NBER Working Paper found that higher electricity prices in Japan following nuclear plant closures in the wake of the Fukushima Daiichi nuclear accident resulted in higher electricity prices that reduced consumption and "caused an increase in mortality during very cold temperatures" — and worse, that "the increase in mortality from higher electricity prices outnumbers the mortality from the accident itself."<sup>23</sup>

**Kitty Hawk threatens disruption of the mid-Atlantic Cold Pool and poses several potential impacts on habitats, ecology, and oceanography, the extents of which are yet unknown.** As BOEM anticipates, the Kitty Hawk project could have significant impacts on wildlife and the natural environment. Note that those impacts would also have socioeconomic impacts on the coastal economies, especially from such a large project of up to 70 separate underwater constructions. Research from Rutgers University in February 2021 reviewing experiences with smaller offshore wind turbine arrays in Europe raised serious questions about potential impacts of projects like Kitty Hawk on the mid-Atlantic boreal fauna and the critical annual "Cold Pool" process. As described in *National Fisherman*, the Cold Pool is "seasonal stratification of cooler water close to the bottom, peaking in summer and turning over in fall and spring. It's important to the survival of key, commercially important species including scallops and surf clams, and is a driver of primary production and nutrients for the ocean food web."<sup>24</sup> This research questioned impacts on the Cold Pool of large arrays of wind turbines, mostly describing great uncertainty in the ability to model and forecast given that the arrays are smaller in Europe than what are proposed for the mid-Atlantic and that the hydrodynamic forces are different in waters around Europe than in the mid-Atlantic, where seasonal stratification is much more pronounced. Among the questions raised are what effects will turbines have on mixing in the water column, what impacts might they have on current velocity, what effects would loss of wind energy have on sea surfaces, what combined impacts would those factors have, and what all of those potential effects would mean for the Cold Pool and dependent ecology.<sup>25</sup>

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<sup>21</sup> Bryan Mims, "Anticipation of lower power bills lights up smiles across eastern NC," WRAL, April 2, 2015, <http://www.wral.com/anticipation-of-lower-power-bills-lights-up-smiles-across-eastern-nc/14556574/>.

<sup>22</sup> Janjala Chirakijja, Seema Jayachandran, and Pinchuan Ong, "Inexpensive Heating Reduces Winter Mortality," Working Paper 25681, National Bureau of Economic Research, March 2019, <https://www.nber.org/papers/w25681.pdf>.

<sup>23</sup> Matthew J. Neidell, Shinsuke Uchida, and Marcella Veronesi, "Be Cautious with the Precautionary Principle: Evidence from Fukushima Daiichi Nuclear Accident," Working Paper 26395, National Bureau of Economic Research, October 2019, [https://www.nber.org/system/files/working\\_papers/w26395/w26395.pdf](https://www.nber.org/system/files/working_papers/w26395/w26395.pdf)

<sup>24</sup> Kirk Moore, "Offshore wind turbines could affect Mid-Atlantic 'cold pool,' study shows," *National Fisherman*, February 1, 2021, <https://www.nationalfisherman.com/mid-atlantic/offshore-wind-turbines-could-affect-mid-atlantic-cold-pool-study-says>

<sup>25</sup> Travis Miles, Sarah Murphy, Josh Kohut, Sarah Borsetti, and Daphne Munroe, "Could federal wind farms influence continental shelf oceanography and alter associated ecological processes? A literature review," *Science*



**The Cold Pool is a distinct feature of enormous ecological and economic importance.** As researchers noted, "The Cold Pool sustains a fauna whose range extends farther south than would be anticipated by its latitude and supports vast fisheries, including the most lucrative shellfish fisheries in the U.S. The region is highly productive, notably supporting the largest non-symbiotic clams on ocean shelves anywhere in the world and the second most lucrative single-species fishery, sea scallops, in the western Atlantic Ocean. The Cold Pool also regulates migratory behavior of fish that constitute the most important finfish fisheries in this region."<sup>26</sup>

**So much uncertainty amid potential for great ecological and economic damage calls for much more study.** Given this great importance of the Cold Pool and the great uncertainty over how much large wind turbine arrays could alter it and other oceanographic processes, the researchers suggest prioritizing research to study these effects and their potential scale further and along several other lines of inquiry.

**Fishing communities fear loss of marine habitats and biodiversity, disruption of physical oceanography, and loss of their livelihoods.** Along those lines, the BOEM on April 7, 2021, was the recipient of a letter signed by 1,665 members of fishing communities urging transparency and full consideration of ocean ecosystems, better science, a more inclusive strategy, a clear process for permitting, a more circumspect approach than the "aggressive" development vowed by President Joe Biden, and an extensive list of mitigation measures. Signatories noted that offshore wind energy is "an ocean use that directly conflicts with fishing and imposes significant impacts to marine habitats, biodiversity, and physical oceanography."<sup>27</sup>

## Summary

The items listed above constitute questions that the EIS should evaluate fully amid a good-faith effort to review the proposed Kitty Hawk project. As discussed above, the speculative benefits of the project are uncertain once extended beyond the direct beneficiaries of Kitty Hawk, LLC and any political gains from a topical ability to count state goals as having been achieved or administration want for aggressive action having been slaked. When considered in full, even the project's expected environmental benefits could be more than offset. Costs are more certain and potentially far-reaching, including economic costs from higher electricity in general, but on poor families in particular. Potential impacts of Kitty Hawk on the mid-Atlantic's Cold Pool, rich marine habitats, oceanography, and industries built up around them — especially fishing — are potentially great but are still mostly unstudied. For these reasons, the no-action alternative

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Center for Marine Fisheries, Rutgers School of Environmental and Biological Sciences, December 1, 2020, <https://scemfis.org/wp-content/uploads/2021/01/ColdPoolReview.pdf>.

<sup>26</sup> Ibid.

<sup>27</sup> Responsible Offshore Development Association et al., "Fishing Communities' Letter on Offshore Wind Advancement," April 7, 2021, <https://rodafisheries.org/letter-to-boem/>; also see discussion at Maddie Stone, "'I can see the industry disappearing': US fishermen sound alarm at plans for offshore wind," *The Guardian*, July 24, 2021, <https://www.theguardian.com/environment/2021/jul/24/offshore-wind-development-new-jersey-us-fishermen-ocean-life>

should be given full due consideration to allow circumspect science the time to consider, anticipate, evaluate, and quantify the various ecological, environmental, and economic issues at stake.

Respectfully,

A handwritten signature in black ink, appearing to read 'JS', with a long, sweeping horizontal line extending to the right.

Jon Sanders  
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