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January 25, 2016

Office of Renewable Energy Programs
Bureau of Ocean Energy Management
45600 Woodland Road (VAM-OREP)
Sterling, Virginia 20166

Re: Environmental Assessments; Availability, etc.: Commercial Wind Leasing and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore South Carolina, Docket ID: BOEM-2015-0125-0001

Dear Office of Renewable Energy,

We submit these comments on behalf of the Southern Alliance for Clean Energy, our members, and 80 additional South Carolina residents; as well as our partner groups Conservation Voters of South Carolina and South Carolina Sierra Club.

The Southern Alliance for Clean Energy (SACE) is a regional organization that promotes responsible energy choices that create global climate change solutions and ensure clean, safe and healthy communities throughout the Southeast. We welcome this opportunity to engage in a thoughtful discussion on offshore energy and thank you for your willingness to accept comments and incorporate feedback in the leasing process for wind energy offshore South Carolina. We would like to voice our support for offshore wind energy and the Bureau of Ocean Energy Management's (BOEM) initiatives in South Carolina, particularly the issuance of this notice of intent to prepare an environmental assessment.

The Southeastern U.S. coast is home to some of the best offshore wind resources in the world. This abundant resource represents a huge economic and environmental opportunity over the next several decades. The relatively shallow offshore waters in our region are ideal for developing wind farms. In addition to increasing our energy security, development of offshore wind energy will diversify our region's energy portfolio, promote local economic growth, reduce global warming pollution and conserve water resources for our region. Offshore wind energy from the Southeast can help our region achieve the Department of Energy's national vision of generating 20% of its electricity from wind power by the year 2030. Before our region can become home to offshore wind farms and a thriving center for wind innovation, important research needs to be completed and several barriers overcome. We respectfully submit the following suggestions to improve the permitting process for wind energy offshore South Carolina.

ENVIRONMENTAL, TECHNICAL, AND SOCIAL FACTORS MAKE THE GRAND STRAND CALL AREA SUPERIOR FOR OFFSHORE WIND ENERGY

The Grand Strand Call Area presents the greatest opportunity for environmentally-responsible, economically-sound development of offshore wind energy off of South Carolina's coast due to environmental, technical, and social factors. We ask BOEM to prioritize Grand Strand Call Area for inclusion in wind energy area identification, and minimize elimination of lease blocks within the call area as the area identification process advances.

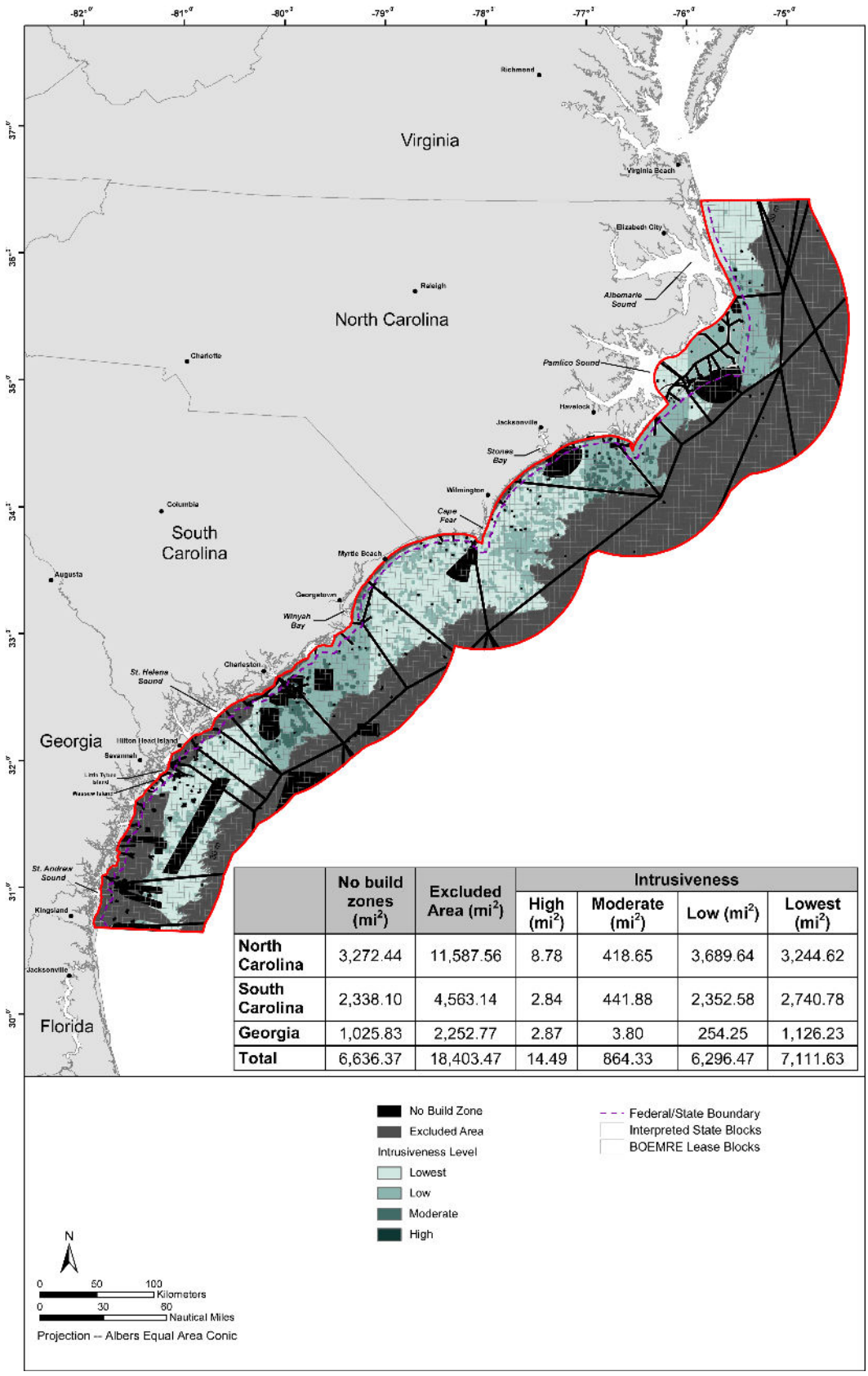
Environmental Factors

Numerous study efforts have produced a large amount of environmental data on the Grand Strand Call Area, much of which points toward the Grand Strand Call Area as an ideal site for offshore wind development.

In 2011, a study by Geo-Marine, Inc. (GMI),[1] on behalf of the Southern Alliance for Clean Energy, identified the most attractive sites along the coasts of North Carolina, South Carolina, and Georgia for large-scale wind farm development. The sites were identified according to compliance with technical requirements—areas in less than 30 meters of water depth, within 25 nautical miles of shore, the best wind regime in each state, and at least 27 contiguous square miles for economies of scale—compared against competing uses that would decrease the suitability of the areas for wind development—such as vessel traffic, military areas, biologically sensitive areas, fishing areas, reefs, SCUBA sites, cultural sites, and hard-bottom habitat. Of the nine most ideal sites identified in the three-state region, three sites[2] fall partially or wholly within the Grand Strand call area, which supports BOEM's findings of the suitability of the Grand Strand Call Area. Furthermore, GMI found that the majority of the area within the Grand Strand Call Area fell into the "least intrusive" category, when comparing competing ocean uses, while a minority of sites in the Grand Strand Call Area were categorized as "low intrusiveness" mainly due to the presence of essential fish habitat (EFH) and/or habitat area of particular concern (HAPC) for the coral, coral reefs, and live hard-bottom fishery management unit. No area within the Grand Strand Call Area was identified by GMI as "moderate" or "high intrusiveness."

[1] Geo-Marine, Inc. *Siting Analysis for Potential Near-Term Offshore Wind Farm Development: Georgia, South Carolina, and North Carolina*. 2011. [https://sites.google.com/site/sobreip/home/completed-reports].

[2] Specifically, the BOEM lease blocks falling into the Study Blocks identified by GMI were: GMI Study Block 4 (BOEM lease blocks 6430, 6431, 6479, 6480, 6481, 6482, 6528, 6529, 6432), GMI Study Block 5 (BOEM lease blocks 6474, 6475, 6523, 6524, 6424, 6573), and GMI Study Block 6 (BOEM lease blocks 6670, 6671, 6720).



	No build zones (mi^2)	Excluded Area (mi^2)	Intrusiveness			
			High (mi^2)	Moderate (mi^2)	Low (mi^2)	Lowest (mi^2)
North Carolina	3,272.44	11,587.56	8.78	418.65	3,689.64	3,244.62
South Carolina	2,338.10	4,563.14	2.84	441.88	2,352.58	2,740.78
Georgia	1,025.83	2,252.77	2.87	3.80	254.25	1,126.23
Total	6,636.37	18,403.47	14.49	864.33	6,296.47	7,111.63

Figure 1. Comparison of various ocean uses and intrusiveness levels for potential offshore wind energy development (Source: Geo-Marine, 2011)

A series of studies adjacent to the Grand Strand Call Area have yielded meteorological, geologic, and geophysical data that may be useful for eventual development. From 2009 to 2010, a research collaborative of Santee Cooper, Coastal Carolina University, Clemson University, Savannah River National Laboratory, and the University of South Carolina gathered meteorological and oceanographic data from six buoys deployed in Long Bay and two land-based meteorological data gathering sites.[3] Currently, three wind turbines in North Myrtle Beach are collecting publicly-available data.[4] Santee Cooper, with the assistance of Vaisala Corporation and the Southeast Wind Coalition, has immediate plans to deploy a Vaisala Triton SoDAR unit to gather hub-height meteorological data, although the exact deployment location is not yet publicly known.[5] From 1999 to 2003, the United States Geological Survey conducted an extensive sea floor mapping study along the entirety of the Grand Strand Call Area, from < 1 to 10 km offshore, using sonar and seismic-reflection systems along with various ground-truthing methods.[6] Two substantial areas, almost entirely within the Grand Strand Call Area, are now being examined to produce seafloor maps by a collaborative research project between South Carolina Sea Grant Consortium, Coastal Carolina University, and the University of South Carolina, which will bear highly useful information for eventual leasing and development for wind energy.[7]

Technical Factors

Two notable technical studies that address the issue of offshore wind interconnection with the electrical grid point to good ability for substations adjacent to the Grand Strand Call Area to offtake electricity from offshore wind farms. Clemson University Electric Power Research Association concluded in their 2010 study that at least 1,080 megawatts of offshore could conditionally be accommodated by existing transmission infrastructure along the Grand Strand and Winyah Bay (conditioned upon reduced load elsewhere on the system).[8]

In 2011, EnerNex, on behalf of the Southern Alliance for Clean Energy, completed a transmission study. The EnerNex study incorporates findings from the previously mentioned Geo-Marine, Inc. study and evaluates transmission costs and performance of the nine study blocks. The study evaluates radial transmission connections directly from each study block to the nearest onshore substation, as well as a looped transmission system that interconnected all study blocks from Georgia, South Carolina and North Carolina before interconnecting onshore. The five

[3] Kimberly Moore. "Blowin' in the Wind." *The Sun News*, January 13, 2011. [http://www.myrtlebeachonline.com/latest-news/article16611743.html].

[4] City of North Myrtle Beach. Press Release: "City of NMB Adopts Memorandum of Understanding Regarding a Beach Access Wind Energy Grant." February 22, 2011. [http://northstrandcoastalwindteam.org/wp-content/uploads/2011/03/MOU-News-Release-Wind-Turbines.pdf].

[5] Vaisala Corporation. Press Release: "Vaisala Paves the Way for Southeastern Wind Development." January 5, 2016. [http://www.vaisala.com/en/press/news/2016/Pages/Page_1976130.aspx]

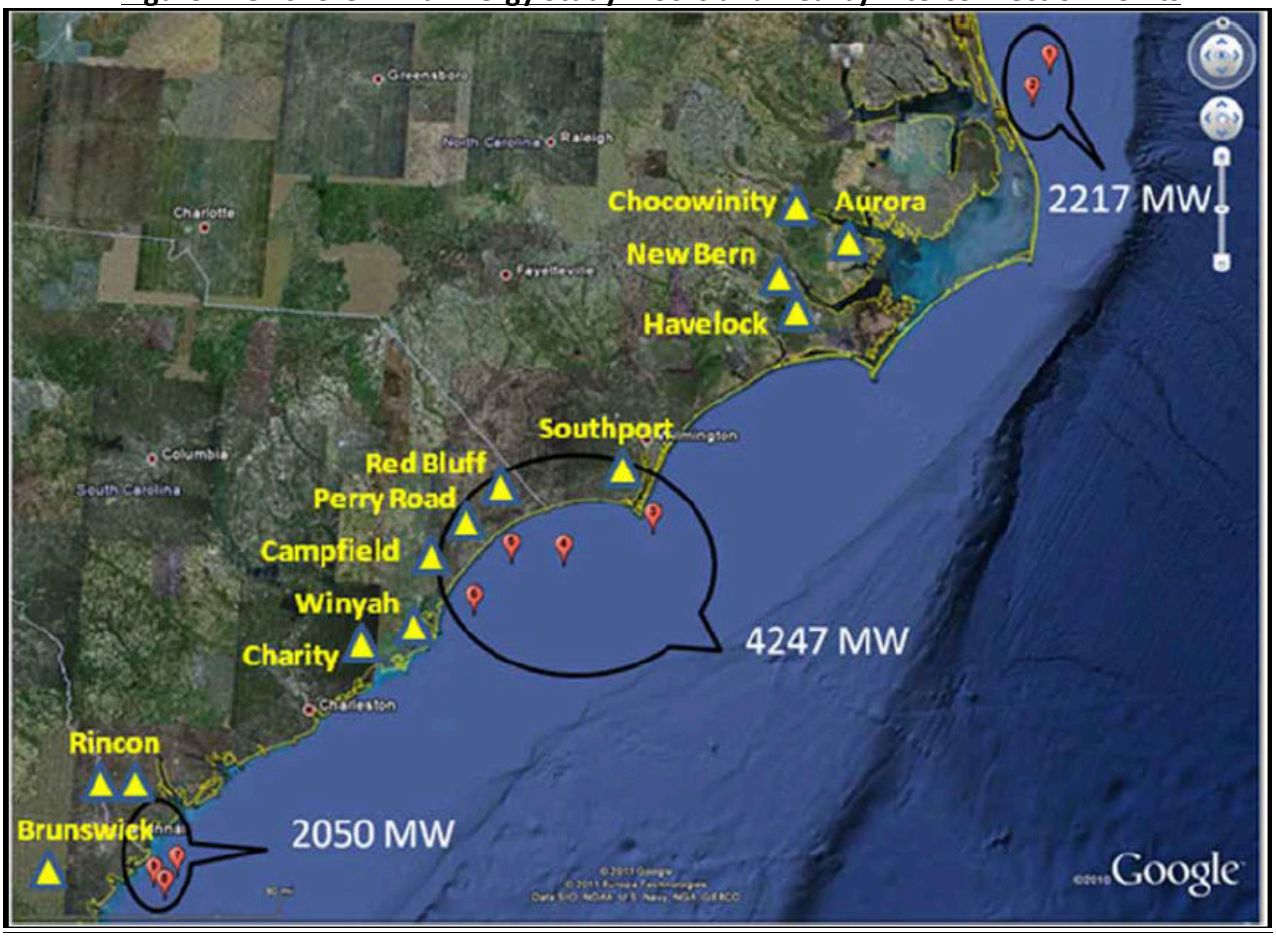
[6] United States Geological Survey, Woods Hole Coastal and Marine Science Center. *South Carolina Coastal Erosion Study*. [http://woodshole.er.usgs.gov/project-pages/scarolina/html/geomap.htm].

[7] South Carolina Energy Office, South Carolina Sea Grant Consortium. Atlantic Offshore Wind Energy Development: Geophysical Mapping and Identification of Paleolandscapes and Historic Shipwrecks Offshore South Carolina. December 16, 2014. [http://www.energy.sc.gov/files/GeoMapping12-16-14Final.pdf].

[8] Clemson University Electric Power Research Association, Clemson University Institute for Energy Studies. *Offshore Wind Transmission Study*. June 2010.

interconnection points in South Carolina are the Charity, Winyah, Campfield, Perry Road, and Red Bluff substations.[9] All five of these substations are northeast of Charleston.

Figure 2. Offshore Wind Energy Study Blocks and Nearby Interconnection Points



Source: EnerNex, 2011

[9] EnerNex. *Building an Infrastructure for Ocean Based Renewable Energy in the Southeast U.S.: Phase 2C – Offshore Wind Energy Transmission Study.* September 9, 2011. [https://sites.google.com/site/sobreip/home/completed-reports].

Figure 3. Locational Marginal Price Changes at Landing Points Due to Added Offshore Wind (Scenario 1 – Radial Transmission)

	2024 On Peak LMP Average ($/MWH)			2024 Off Peak LMP Average ($/MWH)		
Bus Name	Base	Scenario 1	Difference	Base	Scenario 1	Difference
6AURORA	76.79	67.76	-9.03	43.74	39.34	-4.40
6CHOCWNT	75.47	67.17	-8.30	43.02	38.88	-4.14
6NEW BER	78.61	68.57	-10.03	44.73	39.97	-4.75
6HAVELOC	64.45	64.64	0.19	37.30	37.65	0.34
6BRUN 1	75.29	64.73	-10.56	41.82	38.26	-3.56
6BRUN 2	75.18	64.67	-10.51	41.70	38.24	-3.46
6REDBLUF	76.07	59.47	-16.60	41.03	34.77	-6.26
6PERRY R	76.66	59.23	-17.43	41.06	34.68	-6.38
6CAMPFLD	78.82	57.20	-21.62	41.13	34.13	-7.00
6WINYAH	71.43	57.75	-13.68	40.79	34.81	-5.98
6CHARITY	71.19	55.28	-15.92	40.74	33.90	-6.84
8WMCINTS	69.96	64.79	-5.17	40.65	38.26	-2.39
8MCCALLR	69.91	64.70	-5.21	40.66	38.24	-2.41
8THALMAN	71.71	68.47	-3.24	41.65	40.51	-1.14

Source: EnerNex, 2011

Of the five interconnection points evaluated for South Carolina, Redbluff, Perry, and Campfield represent some of the most significant potential savings associated with interconnecting substantial quantities of offshore wind energy. With cost savings of $7 per megawatt hour ($/MWh) for off-peak locational marginal prices (LMPs), and cost savings of $21/MWh for on-peak LMPs, the Campfield, South Carolina interconnection point represents the greatest LMP reductions out of any interconnection point evaluated along the southeastern coast. High LMPs signify important market signals that attract energy production and development, and high LMP cost reductions would represent significant savings for ratepayers. As such, the Grand Strand offshore call area is likely to be closest in proximity to the most attractive electricity market.

Social Factors

Offshore wind energy already enjoys significant support in the Grand Strand. The most scientific documentation of this support is a 2012 Clemson study of the attitudes of Georgetown and North

Myrtle Beach beach-goers, boaters, and other marine recreationists toward offshore wind.[10] The findings are that in Georgetown, 46% of those surveyed are offshore wind supporters while 11 % are opponents, and in North Myrtle Beach, 53% are supporters while just 5% are opponents. In both communities the level of support is high and opposition low, but North Myrtle Beach recreationists are more supportive than those in Georgetown.

Accordingly, the City of North Myrtle Beach and its residents have proactively pursued bringing offshore wind energy to the community. Since at least 2009, a coalition called the North Strand Wind Team has built public awareness and acceptance of offshore wind energy, with the goal of deploying offshore wind near North Myrtle Beach. In 2010, the City passed an onshore small wind turbine ordinance to allow for small wind systems to be installed within the City and in 2012 the City Council passed a resolution in support of offshore wind energy, declaring the city a "wind-powered economic zone" as a step toward powering the city with offshore wind.[11] Citizens, elected officials, and businesses in North Myrtle Beach welcome the prospect of offshore wind as an economic development strategy.

While the Town of Pawley's Island expressed initial skepticism about offshore wind energy due to viewshed concerns early in the wind energy area identification process, it seems that the proposed 10-mile viewshed buffer around the town has successfully mitigated a good deal of the concern.[12] Apart from Pawley's Island, there has been no organized opposition to wind energy development in the Grand Strand Call Area.

The Grand Strand Call Area is a superior area for potential wind development due to its environmental and technical suitability for accommodating wind farms, and the relatively high level of social acceptance of offshore wind energy. There has been great investment of effort by many parties into growing a broad understanding about the area, which is unrivaled by the other South Carolina call areas.

As such, we ask BOEM to consider this information in the environmental assessment, prioritize Grand Strand Call Area for inclusion in wind energy area identification, and minimize elimination of lease blocks within the call area as the area identification process advances.

POTENTIAL USE CONFLICTS WITH CAPE ROMAIN CALL AREA AND CHARLESTON CALL AREA

In light of the proposed action (prepare an environmental assessment), we wish to highlight relevant issues for BOEM to consider in the environmental assessment and area identification.

According to offshore wind siting analysis by Geo-Marine, Inc. (GMI), none of the Cape Romain Call Area falls into the "lowest intrusiveness" category when evaluating suitability of the area for wind

[10] Clemson University Parks, Recreation, and Tourism Management. *2011 Survey of Marine Recreationists' Attitudes Towards Potential Offshore Wind Energy in South Carolina*. January 2014.

[11] City of North Myrtle Beach. Offshore Wind Energy Resolution. November 19, 2012. [http://www.nmb.us/files/pdf/uploads/agendaMinutes/665-Nov%2019%20AGENDA.pdf].

[12] Anita Crone. "Federal agency discusses wind energy off SC coast," *South Strand News*, January 14, 2016. [http://www.southstrandnews.com/article/20160113/GTT06/160119984/1126].

development compared to other uses for the same area.[13] GMI identifies three primary competing uses for the Cape Romain Call Area. Firstly, there seems to be a no-build zone in the southwest portion of the call area due to conflicting uses with the Navy, which uses the area for explosives operations or may contain unexploded ordnance from historical exercises.[14] Secondly, the Cape Romain call area coincides with a highly productive commercial fishery that annually lands two million live pounds of seafood.[15] The third conflict is a modest amount of essential fish habitat (EFH) and/or habitat area of particular concern (HAPC) for the coral, coral reefs, and live hardbottom fishery management unit. Put together, the Cape Romain Call Area falls into "no build," "moderate" and "low intrusiveness" levels according to GMI, with none of the call area qualifying as "least intrusive."

While not noted by Geo-Marine, another potential use conflict for the Cape Romain Call Area is the Cape Romain wilderness area. The Cape Romain National Wildlife Refuge is home to 22 miles of wilderness area, the only wilderness area at that scale along the entire U.S. east coast.

While not a conflict, we wish to point out that an additional challenge to eventual development of potential wind farms in the Cape Romain Call Area would be the lack of appropriate onshore transmission infrastructure for electrical offtake. Land adjacent to the Cape Romain Call Area is not highly developed and much of it lacks electric transmission infrastructure. EnerNex's transmission study identified the Charity substation (near Huger) and Winyah Station (near Georgetown) as the closest potential interconnection points.[16] The EnerNex study evaluates potential congestion constraints and finds that interconnecting significant quantities of offshore wind energy into the Charity substation would likely lead to fairly significant transmission congestion, as well as congestion charges. In the radial transmission connection evaluation (Scenario 1), adding significant quantities of offshore wind energy into the Charity substation results in $51.4 million of congestion charges annually; however, in the looped transmission connection evaluation (Scenario 2), the congestion charges are just $0.9 million, because power would be able to flow to less-congested areas around the Southeast. These congestion charges may make the call area less attractive for offshore wind development, while the other substations in South Carolina represent better markets for offshore wind interconnection. The lack of coastal development along the Cape Romain Call Area would also result in additional costs associated with project construction as well as ongoing operations and maintenance, making the call area less attractive for offshore wind development.

The Charleston Call Area also has the use conflict of being within the same highly productive fishery as Cape Romain Call Area, and has some modest essential fish habitat (EFH) and/or habitat area of particular concern (HAPC) for the coral, coral reefs, and live hard-bottom fishery management unit. Altogether, Geo-Marine, Inc. categorizes the areas within the Charleston Call Area as "moderate"

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[13] Geo-Marine, Inc. *Siting Analysis for Potential Near-Term Offshore Wind Farm Development: Georgia, South Carolina, and North Carolina*. 2011. [https://sites.google.com/site/sobreip/home/completed-reports].

[14] BOEM lease blocks 6260, 6210, 6160, 6161, 6211, 6261, 6212, 6162, 6163.

[15] Geo-Marine, Inc. *Siting Analysis for Potential Near-Term Offshore Wind Farm Development: Georgia, South Carolina, and North Carolina*. 67.

[16] EnerNex. *Building an Infrastructure for Ocean Based Renewable Energy in the Southeast U.S.: Phase 2C – Offshore Wind Energy Transmission Study.* September 9, 2011. [https://sites.google.com/site/sobreip/home/completed-reports].

and "low intrusiveness," with none of the call area qualifying as "least intrusive," as well as some blocks falling outside of 30-meter depth guideline for wind farms.

The Charleston area does not, however, share the use conflict of Cape Romain Call Area of the naval detonation area. Similar to North Myrtle Beach, offshore wind enjoys strong public support in the Charleston area, evidenced by the passage of a support resolution by the Charleston City Council[17] and a proclamation of support by North Charleston Mayor Keith Summey,[18] as well as numerous pieces of written support published in local print media. Call Area Charleston's primary challenge will likely be economic given its great distance from shore and suitable transmission infrastructure.

INVESTIGATE AND PRIORITIZE ADVANCED TURBINE LIGHTING STRATEGIES

As we recommended in our comments to BOEM in response to the North Carolina Notice of Intent to Prepare an Environmental Assessment[19] and the North Carolina Environmental Assessment,[20] we urge BOEM to investigate advanced turbine lighting strategies and include their use in the environmental assessment, and consider recommending them as a best management practice, as they may significantly mitigate aesthetic concerns and potential avian impacts associated with eventual offshore wind energy development. We recommend that BOEM evaluate turbine and met tower lighting strategies that both minimize aesthetic concerns and improve protections for migratory bird species. Such strategies may include radar-sensing audio/visual warning systems (like the Obstacle Collision Avoidance System[21]), LED rapid-discharge lights, synchronous lighting, visibility/fog sensors[22] or other technologies and techniques to minimize light impacts.

Additionally, we request BOEM to include these types of advanced lighting strategies into any visualization studies that are carried out for South Carolina's call areas. We were disappointed that such lighting strategies were excluded from the nighttime scenarios of BOEM's visualization studies for North Carolina and thus may have given an unrealistic simulation of the visual impacts of potential wind farms.

IMPROVE VIZUALIZATION STUDIES WITH MORE ACCURATE SCENARIOS

If visualization studies are to be conducted for South Carolina, we request that such studies use the most realistic scenarios possible. For example, visualizations should include simulations of low-

[17] City of Charleston. "Off Shore Wind Energy Development." [http://www.charleston-sc.gov/index.aspx?NID=1005]. Accessed January 22, 2016.

[18] Southern Alliance for Clean Energy. "North Charleston Proclaims Support for Offshore Wind Energy." October 13, 2011. [http://blog.cleanenergy.org/2013/10/11/north-charleston-proclaims-support-for-offshore-wind-energy]. Accessed January, 22, 2016.

[19] Southern Alliance for Clean Energy. *Comments on North Carolina Notice of Intent to Prepare and Environmental Assessment*. March 7, 2013. [http://www.regulations.gov/#!documentDetail;D=BOEM-2012-0090-0020].

[20] Southern Alliance for Clean Energy. *Comments on North Carolina Environmental Assessment.* February 23, 2015. [http://www.regulations.gov/#!documentDetail;D=BOEM-2015-0001-0181]

[21] State of Vermont Public Service Board. Docket No. 7628. May 31, 2011. [http://psb.vermont.gov/sites/psb/files/orders/2011/7628FinalOrder%20CPG%20Attachment%20A-2.pdf].

[22] Biral. "Wind Energy." [http://www.biral.com/windenergy].

visibility, mid-visibility, and high-visibility days, rather than just a single reference case. Additionally, as mentioned previously, visualization studies should include advanced lighting scenarios, including radar-sensing lighting and lighting systems that adjust brightness according to real-time visibility conditions.

CONTINUE PROTECTION OF NORTH ATLANTIC RIGHT WHALES WITH SOCs AND SEASONAL MITIGATION MEASURES

The North Atlantic right whale is perhaps the most endangered species along the Atlantic Coast and among the most endangered whale species in the world, with only 300-400 individuals alive. Development of South Carolina's offshore wind resources must be done responsibly for the environment and economy, and to this end, we believe BOEM must prioritize protection of the North Atlantic right whale and other marine mammals.

We applaud BOEM for setting protection measures for the North Atlantic right whale in the North Carolina environmental assessment and urge continuity in the South Carolina environmental assessment. The South Carolina EA should include the mitigation measures presented in the North Carolina EA as Standard Operating Conditions (SOCs), including vessel strike avoidance measures such as speed restrictions, visibility requirements and protected-species observers (PSOs). In addition, BOEM should seasonally disallow certain activities such as pile driving and other construction activities with heavy boat traffic, as well as high-resolution geophysical and geotechnical surveys, to accommodate the right whale's migration schedule. Such activities should be seasonally limited to when right whales are less likely to be present. Meanwhile, biological surveys specifically designed to aid in the detection of the North Atlantic right whale, as well as other important fauna, should be allowed to proceed year around. Other SOCs to include in South Carolina's EA could include requiring pile-driving technology designed to reduce noise, including vibratory pile driving, press-in pile driving, bubble curtains, cushion blocks, cofferdams, and noise attenuation piles.

At this stage in the area identification process and considering the proposed action (preparation of an environmental assessment), we urge BOEM to prioritize seasonal mitigation measures over outright area eliminations for right whale protection. Area elimination for right whale protection may be deemed necessary later in the process due to the proposal of an action with more serious consequences, however at this point would be premature.

MAKE CLEAR THE PROCESS FOR FUTURE OPPORTUNITIES TO OPEN AREAS FOR LEASING

As the area identification process has played out in North Carolina and South Carolina, it is important to make clear what the potential future is for offshore areas not selected as wind energy areas in this round of identification. There has been concern expressed by some stakeholders that once an area is taken away from consideration due to conflicts in this initial round of lease offerings, it will not be reevaluated for future leasing. We would like to see the establishment of a program for offshore wind energy areas to be reconsidered every five years, similar to BOEM's existing 5-year program process for oil and gas.

ENCOURAGE OPERATIONS THAT ENHANCE DATA COLLECTION FOR FUTURE OFFSHORE WIND ENERGY FACILITY SITING

While this EA only covers site assessment activities, the intent of meteorological towers or buoy devices is to delineate the appropriateness for offshore wind farm development. As such, any reasonable activities that may be undertaken with the site assessment technologies that may aide in the future planning and development of wind energy facilities ought to be encouraged. For example, preconstruction studies of birds, bats, and ecological and biological impacts are important before wind turbines are built. The migration of the North Atlantic right whale needs to be factored into wind farm siting decisions, therefore additional monitoring devices, which may aide in the detection of the North Atlantic right whale, should be encouraged. If possible, BOEM should work to reward lease applications by prioritizing applicants that express an intent to conduct thorough assessments.

EVALUATE FUTURE ENVIRONMENTAL BENEFITS FROM WIND FARM DEVELOPMENT

All energy generation sources produce some kind of environmental footprint, even sources that are predominantly renewable. Dirty and dangerous sources of energy, such as coal and nuclear, require destructive mining practices in order to obtain the fuel required to generate electricity and produce waste products in generation. A wind turbine's fuel is not dependent on mining since wind is the fuel source that produces electricity. Wind energy does not create harmful pollutants such as nitrogen oxides (NO_x), sulfur oxides (SO_x), carbon dioxide (CO_2), nor particulate matter or radioactive waste as a result of its electrical generation. Nor does wind energy require massive amounts of water in order to generate electricity in the way traditional generation sources, such as coal and nuclear, do. The National Renewable Energy Laboratory estimates, for example, that 1,000 MW of wind power development in Georgia would bring annual water savings of 1,628 million gallons and substantially reduce carbon dioxide emissions.[23] Some European studies suggest offshore wind farms act as habitat for fish and other wildlife, and may actually improve the marine ecosystem.[24] Findings from the EnerNex study from 2011 concluded that the energy displaced by offshore wind energy would be up to 80% from coal-fired power plants.[25] Any negative impacts associated with offshore wind energy development ought to be compared to existing impacts associated with "no construction" alternatives.

[23] National Renewable Energy Laboratory. "Economic Benefits, Carbon Dioxide (CO_2) Emissions Reductions, and Water Conservation Benefits from 1,000 Megawatts (MW) of New Wind Power in Georgia." June 2008. [http://www.windpoweringamerica.gov/pdfs/economic_development/2008/ga_wind_benefits_factsheet.pdf].

[24] Vella, Gero. "The Environmental Implications of Offshore Wind Generation."

[25] EnerNex. *Building an Infrastructure for Ocean Based Renewable Energy in the Southeast U.S.: Phase 2C – Offshore Wind Energy Transmission Study.* September 9, 2011.

Thank you for the opportunity to comment. We hope you find these comments helpful. We are happy to provide any additional information you might like.

Respectfully submitted,

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