

SUPPORTING STATEMENT
Quantitative Assessment of Spatially-Explicit Social Values Relative to Wind Energy
Areas: Outer Continental Shelf Offshore North Carolina
OMB CONTROL NO. 0648-xxxx

A. JUSTIFICATION

1. Explain the circumstances that make the collection of information necessary.

This request is for a pre-test of a new collection to directly support decision-makers with the Department of the Interior’s Bureau of Ocean Energy Management’s (BOEM) Office of Renewable Energy Programs (OREP). A change request will follow for the final instrument.

OREP oversees development of offshore renewable energy projects on the Outer Continental Shelf (OCS). BOEM’s responsibilities include determining and evaluating the effects of OCS activities on natural, historical, and human resources and the appropriate monitoring and mitigating of those effects. This study is needed by BOEM's Environmental Studies Program, which develops, conducts, and oversees world-class scientific research specifically to inform policy decisions regarding development of OCS energy and mineral resources. Research covers physical oceanography, atmospheric sciences, biology, protected species, social sciences and economics, submerged cultural resources, and environmental fates and effects. BOEM is a leading contributor to the growing body of scientific knowledge about the nation’s marine and coastal environment.

This study is needed by BOEM to describe the social systems of coastal residents, and characterize and monitor the complex interactions between social systems and activities impacted by and associated with the offshore energy industries. Data are also required by the National Oceanic and Atmospheric Administration (NOAA) to meet its objectives related to ocean and coastal planning and management in support of resilient coastal communities and economies. Data to be collected are needed by regional NOAA resource managers responsible for NOAA and NOAA-affiliated assets, including the Monitor National Marine Sanctuary and the North Carolina National Estuarine Research Reserve. Finally, information collected will benefit state and local officials.

Per the [Outer Continental Shelf Lands Act \(OCSLA\)](#) (43 U.S.C. §§ 1331–1356), BOEM is responsible for the exploration and development of minerals along the OCS of the United States; however, BOEM is also required to identify, monitor, and mitigate negative impacts that manifest as a result of such development projects. NOAA’s mission is to provide science, service and stewardship for, among other activities, management of the nation’s oceans and coasts. NOAA supports “comprehensive ocean and coastal planning and management” in order to facilitate use of oceans and coasts, while also ensuring “continued access to coastal areas, sustained ecosystems, maintained cultural heritage, and limited cumulative impacts.”¹ NOAA is subject to and supports mandates of the [Coastal Zone Management Act \(CZMA\)](#) (16 U.S.C. § 1452 (303)(2)(D)), which encourages the wise use of coastal resources, including energy

¹ National Oceanic and Atmospheric Administration, Office of Program Planning and Integration. NOAA’s Next-Generation Strategic Plan. December 2010, 48 p.p. Available online at: http://www.ppi.noaa.gov/wp-content/uploads/NOAA_NGSP.pdf.

activity. The CZMA also encourages the inclusion and participation of the public in carrying out the tenets of the act (16 U.S.C. § 1452 (303)(4)). Further, the act requires inclusion of “a description of the economic, environmental, and social consequences of energy activity affecting the coastal zone” in the CZM biennial reports (16 U.S.C. § 1462 (316)(a)(10)). [The National Environmental Policy Act \(NEPA\)](#) (40 C.F.R. § 1502.6) mandates federal agencies to use social science data to assess the impacts of federal actions on the human environment. Consequently, up-to-date sociological data is needed to support federal agency obligations under each of these acts. Finally, both BOEM and NOAA are responding to the Executive Order for Using Behavioral Science Insights to Better Serve the American People, requesting federal agencies to, among other actions: “identify policies, programs, and operations where applying behavioral science insights may yield substantial improvements in public welfare, program outcomes, and program cost effectiveness” and “develop strategies for applying behavioral science insights to programs and, where possible, rigorously test and evaluate the impact of these insights.”²

BOEM has identified wind energy areas (WEAs) on the OCS of North Carolina and is in the process of identifying areas in South Carolina (Figure 1). In 2009, the University of North Carolina-Chapel Hill conducted an assessment of the OCS of North Carolina for feasibility of wind energy development. In addition to considering the biological, ecological, and physical feasibility of offshore wind energy development, the assessment team also considered possible conflicts between wind energy and other uses of the marine environment.³ The human activities found incompatible with wind energy development in the region were marine navigation and shipping, commercial fishing, low altitude aviation, some military activities, sand borrowing and dredging, and maritime cultural resources (i.e., shipwrecks). Other work sponsored by BOEM in the Carolinas has been specific to public tolerance of viewshed impacts and the associated influence on tourism.⁴ To date, research on relevant social values, importance of place/environment, level of support, and social action in the context of offshore wind energy development have not been systematically undertaken. Thus, objective data that allow for the assessment of spatially relevant, place-based social values, collected from a scientifically drawn sample of stakeholders or the public, are lacking. This gap in information significantly limits the understanding of BOEM and NOAA regarding the potential social impact of offshore wind energy development on coastal communities, as well as compromises the ability of each agency to facilitate the sustainable development and use of marine resources while at the same time ensuring the resilience of coastal communities.

² Executive Order for Using Behavioral Science Insights to Better Serve the American People. 9 Sept 15. Available online at: <https://www.whitehouse.gov/the-press-office/2015/09/15/executive-order-using-behavioral-science-insights-better-serve-american>.

³ University of North Carolina (UNC). 2009. Coastal Wind: Energy for North Carolina’s Future. Chapel Hill, NC: 371pp.

⁴ Landry, Craig E. and Allen, Tom and Cherry, Todd L. and Whitehead, John C., Offshore Wind Turbines and Coastal Recreation Demand (April 27, 2011). Available at SSRN: <http://ssrn.com/abstract=1824397> or <http://dx.doi.org/10.2139/ssrn.1824397>.

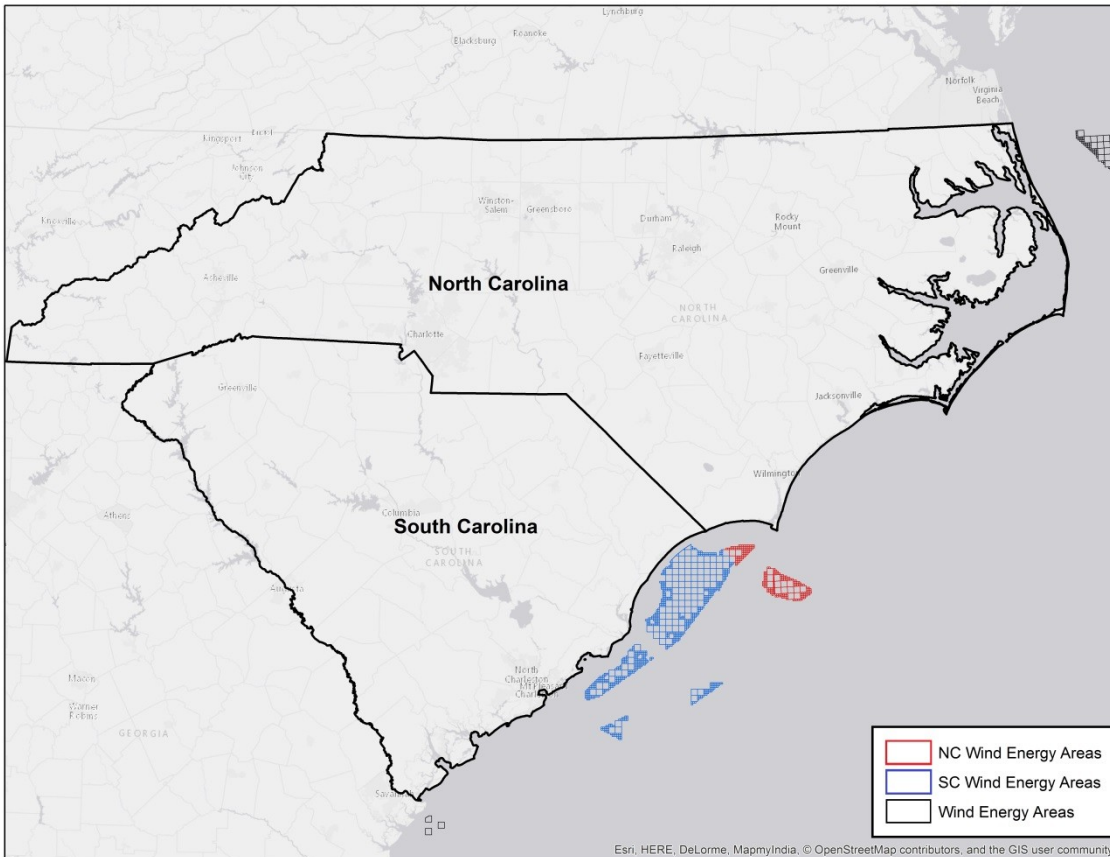


Figure 1: Wind energy areas proposed by BOEM for North Carolina, and areas under consideration currently for South Carolina

The National Ocean Service (NOS) proposes to pre-test and then collect data on the values, attitudes, and perceptions (social and environmental) held by North Carolina and South Carolina residents relative to marine and coastal geographies, alternative energy production options, and offshore wind energy development in the region. Investigators propose collection of spatially-relevant, value orientation and other data to learn how value orientations are correlated with the resident perceptions, beliefs, and reported activities. This study will provide BOEM decision-makers with an enhanced understanding about the relationship between marine space use/non-use, the type and intensity of place-based attachments and value orientations in regions adjacent to WEAs, and the likelihood of local engagement in action to support or oppose renewable energy projects. The study will help BOEM and NOAA understand the social importance of areas targeted for alternative energy projects.

2. 1Explain how, by whom, how frequently, and for what purpose the information will be used. 1If the information collected will be disseminated to the public or used to support information that will be disseminated to the public, then explain how the collection complies with all applicable Information Quality Guidelines.

General Overview

Awareness of the constellation of social and environmental values across affected communities will enable agencies to better understand and contextualize the (perceived) social and cultural benefits and costs related to offshore energy development in the area. The information will be

collected by contractors in close coordination with NCCOS in accordance with the methodology set forth in Part B. The entities contracted to implement the surveys will be asked to demonstrate their competence in survey administration techniques. This would include providing past examples of survey work.

The required information will be used to objectively assess the level of support for offshore wind energy development in the region relative to documented value orientations and place-attachment, as well as to identify the perceived costs and benefits most salient to residents. The information will be used to ascertain the probable social and cultural outcomes of offshore wind energy development in the region, such as an enhancement or reduction in enjoyment of the coastal and marine environments.

Information from the pre-test will be used to make changes, if necessary, to the survey and/or study design.

Who will use this information?

This study will provide BOEM and NOAA with enhanced understanding of the relationship between marine space use/non-use, the type and intensity of place-based attachments and value orientations in regions adjacent to WEAs, and the likelihood of local engagement in action to support or oppose renewable energy projects. The study also will help BOEM and developers understand the social importance of areas targeted for alternative energy projects. Objective data that allow for the assessment of spatially relevant, place-based social values, collected from a scientifically drawn sample of stakeholders or the public, are lacking. The present study will fill this gap. The data collected and derived informational products have potential for use by regional and local natural resource managers and policy-makers as well, such as managers of the Monitor National Marine Sanctuary, who will be reviewing options for adjusting the boundaries of their sanctuary in the near future.

How frequently will this information be used?

This is a one-time information collection. Data and derived informational products will be provided to BOEM at the conclusion of the full project period. It is anticipated that these data and derived products will be used by BOEM on an as-needed basis.”

For what purpose will the information be used?

Activity related to offshore wind energy development in the Carolinas requires an assessment of potential environmental, human, and social impacts by BOEM. BOEM’s responsibilities include determining and evaluating the effects of OCS activities on natural, historical, and human resources, and the appropriate monitoring and mitigating of those effects. This study is one of many in which BOEM is working through the BOEM Environmental Studies Program (ESP) to collect information to be used in this assessment. The ESP was established by the OCSLA, as amended in 1978, to provide information for sound decision-making and management. BOEM is partnering with Federal agencies, including NOAA, to acquire the information to meet this mandate. BOEM’s decision-making process is subject to environmental review under NEPA. When performing environmental reviews, BOEM uses publicly-available information, such as the results of BOEM studies like this one. Finally, data and derived products could be used by NOAA to inform management activities relative to jurisdictional assets in the region of the Carolinas. Information collected could be used to improve communication, outreach, and education efforts targeted to residents who are most likely to be concerned about offshore wind

energy development in their area.

Summary of Survey Questions

Below are summaries and justifications for items included on the proposed survey instrument.

1. To what extent do you agree or disagree with the following statements?

Information: This question asks respondents to provide information to ascertain the degree of “place attachment” to the Carolina Coast.

Concept: Place attachment refers to the emotional bond that individuals develop with their local geographic context, including natural areas.^{5,6,7} Place attachment can be decomposed into place identity and place dependence. Place identity is the mixture of feelings about specific physical settings,⁸ including how these settings provide meaning and purpose to one’s life.^{9,10,11} Place dependence are the connections based specifically on activities that take place in a setting, reflecting the importance of a place in providing conditions that support an intended use,¹² as well as the ability for the area to adequately provide for that use.¹³

Place identity and place dependence measures are suitable predictors of social conflict resulting from competing uses or management of natural resources in localities.^{14,15} The willingness of people to engage in place-protective actions, meaning activities undertaken to change or stop a perceived threat to one’s important place, is contingent upon the strength of place attachment and the adoption of specific meanings related to that place.¹⁶ Individuals who feel more weakly attached to a place, for example those who feel a sense of ‘alienation’ or negative attachment,¹⁷ may feel less motivated to attend to and engage with proposed change. Thus, they may exhibit or express indifference about the outcomes

⁵ Irwin Altman and Setha M. Low, *Place attachment* (New York: Plenum Press, 1992).

⁶ Daniel R. Williams, Michael E. Patterson, Joseph W. Roggenbuck, and Alan E. Watson, “Beyond the commodity metaphor: Examining emotional and symbolic attachment to place,” *Leisure Sciences* 14 (1992):29-46.

⁷ Roger L. Moore and Alan R. Graefe, “Attachment to recreation settings: The case of rail-trail users,” *Leisure Sciences* 16 (1994):17-31.

⁸ Harold M. Proshansky, Abbe K. Fabian, and Robert Kaminoff, “Place-identity: Physical world socialization of the self,” *Journal of Environmental Psychology* 3 (1983):57-83.

⁹ Daniel R. Williams and Joseph W. Roggenbuck, “Abstracts of the 1989 Symposium on Leisure Research, chapter Measuring place attachment: Some preliminary results,” *National Recreation and Park Association* (1989): 32.

¹⁰ Shmuel Shamai, "Sense of place: An empirical measurement," *Geoforum* 22(1991):347-358.

¹¹ M. Vittoria Giuliani and Robert Feldman, "Place attachment in a developmental and cultural context," *Journal of Environmental Psychology* 13 (1993):267-274.

¹² Richard Schreyer, Gerald R. Jacob, and Robert White, "Environmental meaning as a determinant of spatial behaviour in recreation," *Proceedings Applied Geography Conference* 4 (1981):294-300.

¹³ Gerald R. Jacob and Richard Schreyer, “Conflict in outdoor recreation: A theoretical perspective,” *Journal of Leisure research* 12 (1980):368-380.

¹⁴ Gerard Kyle, James D. Absher, and Alan R. Graefe, "The moderating role of place attachment on the relationship between attitudes toward fees and spending preferences," *Leisure Sciences* 25 (2003):33-50.

¹⁵ Gerard Kyle, Alan Graefe, Robert R. Manning, and James Bacon, “Effect of activity involvement and place attachment on recreationists’ perceptions of setting density,” *Journal of Leisure Research* 36 (2004):209-231.

¹⁶ Richard C. Stedman, "Toward a social psychology of place: Predicting behavior from place-based cognitions, attitude, and identity," *Environment and Behavior* 34(2002):561-581.

¹⁷ Lynne C. Manzo, “For better or worse: Exploring multiple dimensions of place meaning,” *Journal of Environmental Psychology* 25 (2005):67-86.

of technology siting, such as the installation of wind energy arrays. Alternatively, place attachment may positively correlate with technology siting when projects are interpreted as place-enhancing,¹⁸ meaning that the development will result in some degree of positive benefit. This item was constructed in consultation with collaborating scientists, as well as existing scholarship related to place attachment and natural resource management.¹⁹

Use: We hypothesize that stronger place attachment positively affects respondents' participatory planning intentions.²⁰ We also hypothesize that respondents who are further from the coast will have weaker place attachment for the coast. To test these hypotheses, an index of place attachment will be created and used to assess the relationship to place with dependent variables gleaned from other survey questions. Specifically, we will assemble data collected in this survey instrument that operationalize a respondent's participatory planning intentions. We will then couple those data with the respondent's place attachment variables, perform confirmatory factor analysis on both data sets, and conclude with structural equation modeling procedures to estimate the respondents' level of support or opposition toward offshore wind energy development as well as their intentions to participate in planning processes.

2. Could you tell us how important you think the Carolina coast is for_____?

Information: This question asks the respondents to rate the importance of various uses of the coastal and marine environment along the Carolina coast. The uses range from technological to recreational to cultural.

Use: We hypothesize that the importance ranking of technological versus other uses of the coastal and marine environment will be related to level of support/opposition to wind energy development.

3. For ONLY the recreational activities that you ENGAGE IN along the Carolina coast, please indicate how important each is to you.

Information: This question asks the respondents to rate the level of importance of each recreational activity in which they engage along the Carolina coast.

Concept: This question will be used to further elucidate place attachment by assessing respondents' place dependence based on recreational activity. Persons engaging in multiple activities more frequently exhibit stronger place attachment. Additionally, those who engage in activities in a particular area are more likely to have strong place

¹⁸ Patrick Devine-Wright, "Rethinking NIMBYism: The Role of Place Attachment and Place Identity in Explaining Place-protective Action," *Journal of Community & Applied Social Psychology* 19 (2009): 426-41.

¹⁹ B.S. Jorgensen and R.C. Stedman, "Sense of Place as an Attitude: Lakeshore Owners Attitudes Toward Their Properties," *Journal of Environmental Psychology* 21(2001): 233-248; Jordan Smith, Christos Siderelis, Roger L. More, and Dorothy H. Anderson, "The Effects of Place Meanings and Social Capital on Desired Forest Management Outcomes: A Stated Preference Experiment," *Landscape and Urban Planning* 106 (2012): 207-218; Daniel R. Williams, and Jerry J. Vaske, "The Measurement of Place Attachment: Validity and Generalizability of a Psychometric Approach," *Forest Science* 49 (2003): 830-840.

²⁰ Namyun Kil, Stephen Holland, and Taylor Stein, "Place meanings and participatory planning intentions," *Society and Natural Resources* 27 (2014):475-491.

attachments.²¹ Further, this question will be used to examine the influence of activity type on dependent variables. For example, individuals engaging in photography may be more likely to value the viewshed than hunters, whereas birdwatchers may be more concerned about environmental risks than those who visit the beach for snorkeling. By asking respondents to indicate the level of importance of each activity, we are also able to develop a ranking of activities for each individual as well as the entire sample. This question is adapted from the U.S. Fish & Wildlife Service's National Survey of Fishing, Hunting and Wildlife Associated Recreation²² and the U.S. Department of Agriculture's National Survey on Recreation and the Environment.²³

Use: We hypothesize that the intensity of recreational use and importance of recreational activities affects support/opposition and action. Additionally, we hypothesize that certain recreational activities may affect support/opposition and action differently than others. For example, respondents who actively engage in "Nature, landscape or scenic photography" or "Birdwatching" may not be supportive of the wind energy development because they believe it will directly impact their activities.

4. Please draw an arrow connecting each happy face to one favorite place in the area shown on this map. After drawing each arrow, please circle all of the reasons why you value the place, using the list shown in each square. Definitions for the values are provided below.

Information: We ask the respondent to draw an arrow connecting each "happy face" icon to a favorite place within the map of the study region (for a total of three locations). After drawing each arrow, we ask the respondent to circle all of the reasons why they value each place, using a list of values provided.

Concept: This question uses a variation of the volunteered geographic information (VGI) data collection method. VGI is a method used to capture non-expert spatial information in order to determine public opinion on a variety of land use issues.²⁴ Spatially explicit value attribution for landscapes was demonstrated in Clement's doctoral dissertation²⁵, and has since been used in multiple VGI studies.²⁶ From a participant perspective, this method is non-threatening, non-controversial, and easy to use. By using this modified version of VGI methods to collect respondent spatial data, we hope to increase response rates. The chosen values were adapted from Rolston and Coufal's original ten value types.²⁷ We have limited the list to six values (i.e., "reasons") to facilitate ease of use and potentially

²¹ Daniel R. Williams, Michael E. Patterson, Joseph W. Roggenbuck, and Alan E. Watson, "Beyond the commodity metaphor: Examining emotional and symbolic attachment to place," *Leisure Sciences* 14 (1992):29-46.

²² U.S. Department of the Interior, U.S. Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

²³ National Survey on Recreation and the Environment (NSRE): 2000-2002. The Interagency National Survey Consortium, Coordinated by the USDA Forest Service, Recreation, Wilderness, and Demographics Trends Research Group, Athens, GA and the Human Dimensions Research Laboratory, University of Tennessee, Knoxville, TN.

²⁴ Greg Brown and Marketta Kyttä, "Key issues and research priorities for public participation GIS (PPGIS): A synthesis based on empirical research," *Applied Geography* 46 (2014):122-136.

²⁵ Jessica M. Clement, "Spatially explicit values on the Pike and San Isabel National Forests in Colorado," Doctoral dissertation, (Colorado State University: ProQuest/UMI, AAT 3246268, 2008).

²⁶ Jessica M. Clement and Anthony S. Cheng, "Using analyses of public value orientations, attitudes and preferences to inform national forest planning in Colorado and Wyoming," *Applied Geography* 31 (2010):393-400.

²⁷ Holmes Rolston and James Coufal, "A forest ethic and multivalued forest management," *Journal of Forestry* 89 (1991):35-40.

increase response rates. We provide definitions of the “reasons” to the respondent for clarification purposes.

Use: Upon completion, a transparent, numbered grid cell network and county boundary overlay will be placed over each map. The grid cell number and county name associated with the end-point of the respondent’s line segment will be recorded. The results will then be analyzed in conjunction with results from other survey questions in an effort to determine respondents’ level of support or opposition towards offshore wind energy development and their participatory planning intentions.

5. Please answer each of these questions in terms of **THE WAY YOU GENERALLY FEEL**. There are no right or wrong answers; simply select a response for each statement that represents what you generally feel as honestly and candidly as you can.

Information: This question asks the respondents for their level of agreement or disagreement with items from the connectedness to nature scale (CNS).

Concept: The CNS is designed to measure individuals’ experiential sense of oneness with the natural world in order to understand the extent to which people experientially view themselves as egalitarian members of the broader natural community; feel a sense of kinship with it; view themselves as belonging to the natural world as much as it belongs to them; and view their welfare as related to the welfare of the natural world. This scale has been shown to predict lifestyle patterns and ecological behavior²⁸.

Use: Respondents with higher CNS scores tend to have greater environmental concern and vice versa. We hypothesize that environmental concern influences support/opposition and action.

6. Please indicate whether you have **EVER** done any of the following activities to express your **SUPPORT FOR OR OPPOSITION TO** the potential for offshore wind energy development in **YOUR** city, county or state.
7. In the **NEXT 12 MONTHS**, do you plan to do any of the activities listed above in Question 6 in response to the potential for offshore wind energy development in your city, county or state?

Information: Question 6 will collect information on respondents’ self-reported activity undertaken to either support or oppose an environmental issue or offshore wind energy development in the past 12 months. Question 7 will ascertain whether respondents intend to engage in any form of action in the future, specifically related to offshore wind energy development.

Concept: Research indicates that individuals in a community may engage in “protective action” when there is an environmental or other issue that elicits their concern, such as

²⁸ Mayer, F. stephan, and Cynthia Mcpherson Frantz. 2004. "The Connectedness to Nature Scale: A Measure of Individuals’ Feeling in Community with Nature." *Journal of Environmental Psychology* 24(4): 503-15.

the siting of a wind farm.^{29,30} Such “protective action” can take the form of support of or opposition to a given cause, and, in either case, can range from filing lawsuits, writing letters to legislators and newspapers, attending public meetings, etc. Together, these questions will measure the degree to which respondents engage in some form of action and whether they intend to continue engagement.

Use: Action is a dependent variable in our model. We will determine which independent variables are most strongly related to self-reported and intended actions. Additionally, we hypothesize that respondents who have engaged in activism are more likely report intent to do so in the future. Finally, these questions, in combination with Question 8, which measures level of support or opposition to wind energy development, will enable researchers to assess the degree of activism relative to reported support versus opposition to wind energy development, as well as relative to the degree of that reported support or opposition.

8. Please rate your level of opposition or support to the following:

Information: This question asks whether respondents support or oppose offshore wind farms in various geographies in the US.

Concept: NIMBYism (Not In My Back Yard) is a pejorative characterization of opposition by residents to a proposal for a new development because it is close to them, often with the connotation that such residents believe that the developments are needed in society but should be further away. It is also described as the gap between general public support and local opposition to wind farms^{31, 32, 33, 34, 35}.

There is evidence in support of an “inverse NIMBY syndrome,”³⁶ where residents living closer to developments have more positive views than those living farther away. Some local people actually prefer development to take place in their locality in comparison to other regions³⁷. Other studies, however, have found no link between distance from residential location to the nearest turbine and negative public perceptions³⁸.

²⁹ Richard Stedman, “Toward a social psychology of place: Predicting behaviour from place-based cognitions, attitude, and identity,” *Environment and Behaviour* 34 (2002): 561–581.

³⁰ Patrick Devine-Wright, “Rethinking NIMBYism: The Role of Place Attachment and Place Identity in Explaining Place-protective Action,” *Journal of Community & Applied Social Psychology* 19 (2009): 426–41.

³¹ Devine-Wright, Patrick. 2005. Beyond NIMBYism: Towards an integrated framework for understanding public perceptions of wind energy.” *Wind Energy* 8(2): 125–39.

³² Bell, Derek, Tim Gray, Claire Haggett, and Joanne Swaffield. 2013. Re-visiting the ‘social Gap’: Public opinion and relations of power in the local politics of wind energy.” *Environmental Politics* 22(1): 115–35.

³³ Kempton, Willett, Jeremy Firestone, Jonathan Lilley, Tracy Rouleau, and Phillip Whitaker. 2005. The offshore wind power debate: Views from Cape Cod. *Coastal Management* 33(2): 119–49.

³⁴ Schively, C. 2007. Understanding the NIMBY and LULU phenomena: Reassessing our knowledge base and informing future research. *Journal of Planning Literature* 21(3): 255–66.

³⁵ Wolsink, Maarten. 2007. Wind power implementation: The nature of public attitudes; equity and fairness instead of ‘backyard motives’. *Renewable and Sustainable Energy Reviews* 11(6): 1188–207.

³⁶ Warren, Charles R., Carolyn Lumsden, Simone O’Dowd, and Richard V. Birnie. 2005. ‘Green On Green’: Public perceptions of wind power in Scotland and Ireland. *Journal of Environmental Planning and Management* 48(6): 853–75.

³⁷ Wolsink, Maarten. 2000. Wind power and the NIMBY-myth: Institutional capacity and the limited significance of public support. *Renewable Energy* 21(1): 49–64.

³⁸ Anderson et al. 1997. Rapport om hvordan en dansk kommune blev selvforsynende med ren vindenergi og skabte

Use: This is the key dependent variable in our model – support/opposition for offshore wind energy development. Additionally, we hypothesize that levels of support may vary by geography. We will also be able to use information about support/opposition to determine if the actions taken in Questions 6 and 7 are in support for or opposition to offshore wind energy development.

9. Please rate your level of support or opposition to the following:

Information: This question asks whether respondents support or oppose offshore oil or natural gas wells in various geographies in the US.

Use: Offshore oil and natural gas are the main forms of offshore non-renewable energy extraction in North and South Carolina. We would like to learn if respondents have different preferences for non-renewable offshore energy than renewable offshore energy and if those preferences vary by geography.

10. Would your level of support for the development of offshore windfarms in your state increase, decrease or remain the same if you knew that the energy produced by the turbines would be used exclusively by residents:

Information: Question 10 asks respondents if their level of support/opposition would change if the energy produced would be used by residents within or outside of their state.

Concept: The role of perceived fairness or justice is important in shaping public attitudes towards wind farms^{39, 40, 41}. The two components of procedural fairness are unbiased decisions and fair treatment of stakeholders. Community members may feel that outside interests are profiting or benefiting from the electricity produced and providing little benefit to the host community^{42, 43}. The development process has much to do with public attitudes towards wind farms^{44, 45, 46, 47} and local involvement tends to have positive affects upon public perceptions of wind farms⁴⁸.

ny indkomst til kommunens borgere. Nordvestjysk Folkecenter for Vedvarende Energi, In: Krohn, S. & Damborg, S. (Eds.) On Public Attitudes to Wind Power.

³⁹ Warren, Charles R., Carolyn Lumsden, Simone O'Dowd, and Richard V. Birnie. 2005. 'Green On Green': Public perceptions of wind power in Scotland and Ireland. *Journal of Environmental Planning and Management* 48.(6): 853-75.

⁴⁰ Wolsink, Maarten. 2007. Wind power implementation: The nature of public attitudes; equity and fairness instead of 'backyard motives'. *Renewable and Sustainable Energy Reviews* 11(6): 1188-207.

⁴¹ Wüstenhagen, R.; Wolsink, M.; Bürer, M.J. 2007. Social acceptance of renewable energy Innovation: An introduction to the concept. *Energy Policy* (35); pp. 2683–2691.

⁴² Szarka, J. 2006. Wind power, policy learning and paradigm change. *Energy Policy* 34(17):3041–3048.

⁴³ Warren, C. R., and R. V. Birnie. 2009. Re-powering Scotland: Wind farms and the "energy or environment" debate. *Scottish Geographical Journal* 125(2): 97–126.

⁴⁴ Walker, Gordon. 1995. Renewable energy and the public. *Land Use Policy* 12: 49-59.

⁴⁵ Devine-Wright, Patrick. 2005. Beyond NIMBYism: Towards an integrated framework for understanding public perceptions of wind energy. *Wind Energy* 8(2): 125-39.

⁴⁶ Schively, C. 2007. Understanding the NIMBY and LULU Phenomena: Reassessing Our Knowledge Base and Informing Future Research." *Journal of Planning Literature* 21(3): 255-66.

⁴⁷ Van Der Horst, Dan, and David Toke. 2010. Exploring the landscape of wind farm developments: Local area characteristics and planning process outcomes in rural England. *Land Use Policy* 27(2): 214-21.

⁴⁸ Hinshelwood, E. (2000) Whistling in the wind: the role of communities in renewable energy development.

Use: This is another dependent variable in our model – support/opposition for offshore wind energy development. We hypothesize that respondents will perceive the development of offshore windfarms as “fair” if the energy produced would be used exclusively by residents of their state and that the perception of fairness positively affects support.⁴⁹

11. How adequate do you feel the opportunities have been for members of the public to participate in meetings or other parts of the planning process for potential offshore wind development **IN YOUR STATE**?

Information: This question asks respondents to indicate if there have been adequate opportunities to participate in meetings or other parts of the planning process for potential offshore wind development.

Concept: Significant empirical work exists to show that unsupported coastal management decisions are unlikely to be successfully implemented.^{50, 51, 52, 53, 54, 55, 56, 57, 58, 59}

Use: We hypothesize that opportunities to participate in meetings or other parts of the planning process will positively affect support.

12. Please indicate the **TYPE OF IMPACT** you think development of offshore wind along the Carolina coast would have on each of the following items.

13. For the same items listed above, now please tell us **HOW IMPORTANT** each item is to you in terms of your quality of life on the Carolina coast.

Information: Question 12 asks respondents to indicate whether they believe the development of offshore windfarms will have a negative, positive, or no impact on a variety of items. Question 13 asks respondents how important those same items are to

Network for Alternative Technology and Technology Assessment Newsletter 127: (Sept-Oct); pp. 17-20.

⁴⁹ Firestone, Jeremy, and Willett Kempton. Public opinion about large offshore wind power: Underlying factors. *Energy Policy* 35.3 (2007): 1584-598.

⁵⁰ Olsen, S.B., 1993. Will integrated coastal management programs be sustainable: The constituency problem. *Ocean and Coastal Management* 21, 201–225.

⁵¹ Cheung, C., 1994. Lessons from Vietnam’s first marine park. *Naga, the ICLARM Quarterly* 1994, 13–14.

⁵² Ticco, P.C., 1995. The use of marine protected areas to preserve and enhance marine biological diversity: A case study approach. *Coastal Management* 23, 309–314.

⁵³ Alder, J., 1996. Have tropical marine protected areas worked? An initial analysis of their success. *Coastal Management* 24, 97–114.

⁵⁴ Lock, N., 1997. Transboundary protected areas between Mexico and Belize. *Coastal Management* 24, 445–454.

⁵⁵ Luttinger, N., 1997. Community-based coral reef conservation in the Bay Islands of Honduras. *Ocean and Coastal Management* 36, 11–22.

⁵⁶ Tacconi, L., 1997. Property rights and participatory biodiversity conservation: lessons from Malekula Island, Vanuatu. *Land Use Policy* 14, 151–161.

⁵⁷ Sudara, S., 1999. Who and what is to be involved in successful coastal zone management: a Thailand example. *Ocean and Coastal Management* 42, 39–47.

⁵⁸ Tompkins, E.L., Adger, W.N., Brown, K., 2002. Institutional networks for inclusive coastal management in Trinidad and Tobago. *Environment and Planning A* 34, 1095–1111.

⁵⁹ Tompkins, Emma L., Roger Few, and Katrina Brown. "Scenario-based Stakeholder Engagement: Incorporating Stakeholders Preferences into Coastal Planning for Climate Change." *Journal of Environmental Management* 88.4 (2008): 1580-592.

them personally.

Concept: Perceived environmental harm and economic benefits shape public attitudes toward all electricity sources, including wind.⁶⁰ While some of the public response to commercial wind farms may be based on exaggerated perceptions of impacts⁶¹, the construction and operation of wind farms have real impacts on local communities.^{62,63} Not all anticipated effects are negative, with common expectations that wind farm development will improve environmental conditions, create short-and long-term jobs, and contribute to the tax base of communities⁶⁴; however, undesirable effects have received more attention as shapers of public opinion.

Use: We hypothesize that perceived effects on important items affect support/opposition and action. It is important to know which of these items are important to the respondent because we hypothesize that perceived effects on unimportant items are unlikely to affect support/opposition and action.

14. What is your sex?⁶⁵

15. In what year were you born?⁶⁶

16. Which best describes your marital status?⁶⁷

17. Which best describes your ethnicity?⁶⁸

18. Which best describes your race (select one or more)?⁶⁹

19. What is the highest degree or level school you have completed?⁷⁰

Information: Questions 14-19 are standard Census sociodemographic questions.

Use: We hypothesize that certain personal characteristics affect support/opposition and action, as well as our other independent variables, such as ecological worldview. This information will also be used to ensure we have a representative sample or, if our sample is not representative, it will allow us to develop sampling weights and to correct for non-

⁶⁰ Ansolabehere, S., and D. M. Konisky. "Public Attitudes Toward Construction of New Power Plants." *Public Opinion Quarterly* 73.3 (2009): 566-77.

⁶¹ Warren, Charles R., Carolyn Lumsden, Simone O'Dowd, and Richard V. Birnie. "'Green On Green': Public Perceptions of Wind Power in Scotland and Ireland." *Journal of Environmental Planning and Management* 48.6 (2005): 853-75.

⁶² Breukers, S., & Wolsink, M. (2007). Wind power in changing institutional landscapes: An international comparison. *Energy Policy*, 35, 2737–2750.

⁶³ Wüstenhagen, R.; Wolsink, M.; Bürer, M.J. (2007). "Social Acceptance of Renewable Energy Innovation: An Introduction to the Concept." *Energy Policy* (35); pp. 2683–2691.

⁶⁴ Jessup, B. 2010. "Plural and hybrid environmental values: a discourse analysis of the wind energy conflict in Australia and the United Kingdom." *Environmental Politics* 19(1):21–44.

⁶⁵ ACS Census 2015

⁶⁶ *ibid*

⁶⁷ *ibid*

⁶⁸ Census ACS 2014/conforms to OMB guidance

⁶⁹ OMB Guidance

⁷⁰ ACS Census 2015

response bias. For item 14, researchers have opted to use the term “sex” as opposed to “gender,” following Census standards:

“Distinction between the concepts of gender and sex--In general discussions, the concept of gender is often confused with the concept of sex, and the terms are used interchangeably. The meanings of these two concepts are not the same: sex is based on the biological attributes of men and women (chromosomes, anatomy, hormones), while gender is a social construction whereby a society or culture assigns certain tendencies or behaviors the labels of masculine or feminine. These assignments may differ across cultures and among people within a culture, and even across time. Gender may or may not correspond directly to sex--depending on the society or culture or period. That means, for example, that people may associate themselves with femininity (as defined by their culture) while being biologically male. At the Census Bureau, the sex question wording very specifically intends to capture a person's biological sex and not gender. Ambiguity of these two concepts interferes with accurately and consistently measuring what we intend to measure--the sex composition of the population.”⁷¹

20. What is your ZIP Code?

21. What is your county of residence?

Information: Questions 20-21 ask the respondent questions about the location of their residence.

Concept: The question will be used to explore possible NIMBYism, as described above for item 8.

Use: We hypothesize that proximity affects support/opposition and action. The information from questions 20 and 21 will also be used to ensure we have a representative sample or, if our sample is not representative, it will allow us to develop sampling weights.

22. Would you describe yourself as a permanent, temporary or seasonal resident of this county?

23. How long have you resided in this county as a permanent, temporary or seasonal resident? (years and months)?

24. Which best describes the ownership status of your housing in this county?⁷²

Information: Questions 22-24 ask the respondent about housing tenure and ownership.

Use: We hypothesize that housing tenure and ownership affects support/opposition and action.

25. How many people currently live in your household?⁷³

⁷¹ <https://www.census.gov/population/age/about/>

⁷² *ibid*

⁷³ *ibid*

26. How many people under the age of 18 currently live in your household?
27. What was the total income of your household during 2015 before taxes and other deductions?⁷⁴
28. Which best describes your current employment status?⁷⁵

Information: Questions 25-28 are standard Census sociodemographic questions.

Use: We hypothesize that certain personal characteristics affect support/opposition and action, as well as our other independent variables, such as ecological worldview. This information will also be used to ensure we have a representative sample or, if our sample is not representative, it will allow us to develop sampling weights.

Compliance with Information Quality Guidelines

It is anticipated that the information collected will be disseminated to the public or used to support publicly disseminated information. NOAA National Ocean Service, National Centers for Coastal Ocean Science will retain control over the information and safeguard it from improper access, modification, and destruction, consistent with NOAA standards for confidentiality, privacy, and electronic information. See response to Question 10 of this Supporting Statement for more information on confidentiality and privacy. The information collection is designed to yield data that meet all applicable information quality guidelines. Prior to dissemination, the information will be subjected to quality control measures and a pre-dissemination review pursuant to [Section 515 of Public Law 106-554](#).

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological techniques or other forms of information technology.

Personal Use
Q3

This collection will not involve the use of automated, electronic, mechanical, or other technological techniques or other forms of information technology.

4. Describe efforts to identify duplication.

Personal
Characteristics
Q18-23, Q30-

In 2011, BOEM began efforts to solicit and gather public comment on possible interest in offshore wind development in North Carolina. BOEM sponsored visualization studies to help members of the public understand varying levels of interruptions to viewshed aesthetics.⁷⁶ The agency facilitated public information outreach⁷⁷ and public comment⁷⁸ opportunities. Materials

⁷⁴ *ibid*

⁷⁵ *ibid*

⁷⁶ Lavalley, T. Visualization Study for Offshore North Carolina--Task 6: Document and Analyze Meteorological Conditions Prepared for Bureau of Safety and Environmental Enforcement (BSEE) and the Bureau of Ocean Energy Management (BOEM). LPES, Inc. December 2012, 107 p.p.

⁷⁷ After an outreach event allowing local residents to visualize offshore wind arrays, a 2013 news media article reported some public concern about the prospect of wind energy off North Carolina's coast, related to aesthetics. See: Murawski, J. Aug 14, 2013. Coastal Residents of NC Get Glimpse of Proposed Offshore Wind Farm. The News & Observer (newsobserver.com). Online at: http://www.newsobserver.com/2013/08/14/3108097_coastal-residents-get-glimpse.html?rh=1. Accessed on September 30, 2014.

⁷⁸ BOEM received thirty-seven public comments during an open comment period in 2013, most of which expressed

and products from these activities were reviewed by the project team in preparation for this study.

Researchers conducted a thorough review of research studies at the national, regional, and local level focused on public knowledge, attitudes, and beliefs related to wind energy development, both terrestrial and offshore. Additionally, researchers reviewed studies published specific to the North Carolina and South Carolina contexts. This scholarship was used to appropriately avoid duplication of effort, both in terms of research methods⁷⁹ and data collection. Scientists from other research teams working in this substantive area of study were also consulted to learn of possible duplication of effort or investigative synergies. Institutions consulted included: Utah State University, Lawrence Berkeley National Laboratory, University of North Carolina-Chapel Hill (UNC)-Institute of Marine Sciences, and Stanford University. Scientists from UNC, who conducted the initial feasibility studies for North Carolina, expressed support for the present study because the data were greatly needed and not duplicative of previous work.

Researchers consulted with officials with BOEM OREP to learn of any studies funded by BOEM in the Mid-Atlantic or Southeast regions. Through this consultation, we became aware of a University of Delaware study under review with OMB entitled “Atlantic Offshore Wind Energy Development–Public Attitudes, Values, and Implications for Tourism and Recreation OMB Control Number 1010-XXXX.”⁸⁰ This study is topically oriented to “future recreation and visitation choices” with particular focus on the effect of viewshed aesthetics on beach visitation, a different research question and data collection goal from the collection proposed herein. Together, both of these studies will provide substantial insights into different aspects of possible impact from offshore wind energy development on the public.

Finally, researchers participated in informational meetings with federal, state and local level officials to inform them of the study, and learn of possible synergies or duplication of effort. Agencies and organizations consulted included: North Carolina Sea Grant; NOAA Office of National Marine Sanctuaries Program; North Carolina National Estuarine Research Reserve; North Carolina Division of Coastal Management; North Carolina Division of Energy, Mineral and Land Resources; Baldhead Association; and the Town of Caswell Beach.

No duplication of research effort or activity was identified.

5. If the collection of information involves small businesses or other small entities, describe the methods used to minimize burden.

This collection involves residents. It does not involve small businesses or other small entities.

support for wind energy development in the state, although many with caveats requesting agency efforts to mitigate potential problems related to aesthetic impairment from shore, impacts to wildlife, particularly marine mammals, and wildlife habitat.

⁷⁹ The present research team took great care to ground the present study in existing scholarship, both federally funded and academic work, to avoid use of methods, survey questions/scales, or analytical techniques found to be of dubious value or problematic by other researchers in similar studies.

⁸⁰ We were also alerted to this study by our OMB desk officer and NOAA PRA Clearance officer.

6. Describe the consequences to the Federal program or policy activities if the collection is not conducted or is conducted less frequently.

If this collection is not conducted, relevant agencies will have reduced data and information to meet evaluative requirements set forth by NEPA and CZMA relative to wind energy development activities in North Carolina and South Carolina. Moreover, without this collection, residents of the region will lack a collective voice regarding the possible benefits or detriments to their environment and community as a result of wind energy development. Thus, their collective participation in the decision-making process will be reduced. Finally, should this collection not proceed, NOAA will fail to fulfill its contractual obligations established with BOEM under Interagency Agreement M15PG00022.

7. Explain any special circumstances that require the collection to be conducted in a manner inconsistent with OMB guidelines.

Data collection will be consistent with OMB guidelines.

8. Provide information on the PRA Federal Register Notice that solicited public comments on the information collection prior to this submission. Summarize the public comments received in response to that notice and describe the actions taken by the agency in response to those comments. Describe the efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

Example: A Federal Register Notice published on January 5, 2016 (81 FR 227) solicited public comments. No public comments were received.

Consultation

As a part of project scoping and development, individuals from the following institutions were consulted for their views on the data collection in terms of priority elements, best survey practices for surveying the public on wind and other energy issues; and possible duplication of research effort or collaborative opportunities: BOEM, Utah State University, Lawrence Berkeley National Laboratory, University of North Carolina-Chapel Hill (UNC)-Institute of Marine Sciences, and Stanford University. Feedback from these individuals was used in further scoping of the research project, study design, and survey development.

Individuals from these local and regional agencies were consulted on the need for the collection as well as regarding important contextual or site considerations: North Carolina Sea Grant; NOAA Office of National Marine Sanctuaries Program; North Carolina National Estuarine Research Reserve; North Carolina Division of Coastal Management; North Carolina Division of Energy, Mineral and Land Resources; Baldhead Association; and the Town of Caswell Beach. Feedback from these consultations was used to better understand, anecdotally, public sentiment regarding the issues as well as the type of data already available on relevant topics, along with data needs from the perspective of local and regional agencies. Information from these consultations was used during project scoping and development.

Individuals from the following institutions were consulted on the survey design and proposed implementation: NOAA National Marine Fisheries Service-Southeast Regional Office; Utah State University; University of Delaware; NOAA Office of National Marine Sanctuaries-Northeast and Great Lakes Region; University of Montana; and University of North Carolina at Chapel Hill. From these individuals, we received review relative to: survey length; appropriate mode of survey administration (i.e., mail back versus online administration); problematic survey items in terms of utility, clarity, etc.; item order on the survey instrument; item format and presentation; and opportunities to leverage this survey with previous or existing research efforts. Comments and suggestions provided from this group were used to revise and improve the survey instrument, primarily.

9. Explain any decisions to provide payments or gifts to respondents, other than remuneration of contractors or grantees.

No payments or gifts will be given to respondents.

10. Describe any assurance of confidentiality provided to respondents and the basis for assurance in statute, regulation, or agency policy.

Access to raw data collected during the data collection process will be restricted to project managers. In final datasets and products that are released, data provided by individual respondents will be aggregated and not linked to personally identifiable information.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private.

No questions of a sensitive nature will be asked during this data collection.

12. Provide an estimate in hours of the burden of the collection of information.

a. Estimation of Respondent Burden

For the pre-test, we estimate the number of respondents to be 300 persons. We estimate the response time for the survey to be 20 minutes. Therefore, we request 100 burden hours for the pretest. For the final collection, we estimate that the number of respondents will be 2,925 and the time per response will be approximately 20 minutes. As such, we are requesting 975 burden hours for the final collection. The total request for burden hours is 1075 for the study as a whole. The 20 minute per response burden includes the time for reading the instructions, reviewing the questions, and completing the survey instrument. This estimate is based on the type of questions asked, length of the survey instrument, and the researcher's experience conducting similar surveys.

13. Provide an estimate of the total annual cost burden to the respondents or record-keepers resulting from the collection (excluding the value of the burden hours in Question 12 above).

No additional cost burden will be incurred by respondents beyond response time.

14. Provide estimates of annualized cost to the Federal government.

The cost to the Federal government for contract services, supplies, equipment, travel, etcetera, is approximately \$257,000 for FY2016, \$110,000 for FY2017 and \$31,160 for FY2018, for an annualized cost of \$132,720. The total annual cost for Federal labor on the project is approximately \$60,000 for FY2016, \$40,000 for FY2017 and \$60,000 for FY2018, for an annualized cost of \$53,333. The total annualized cost is \$186,053.

15. Explain the reasons for any program changes or adjustments.

This is a new collection.

16. For collections whose results will be published, outline the plans for tabulation and publication.

Data will be collected by a contract vendor and analyzed by the research team. Findings will be presented in a variety of formats, including tables, graphs and maps. Upon completion of the project, the research team will produce a final report that will be provided to BOEM. Research findings may be presented at professional conferences and published in peer reviewed social science or multi-disciplinary journals.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons why display would be inappropriate.

Not applicable.

18. Explain each exception to the certification statement.

Not applicable.