ANALYSIS GROUP
ECONOMIC, FINANCIAL and STRATEGY CONSULTANTS

Planning for Offshore Energy Development:

How Marine Spatial Planning Could Improve the Leasing/Permitting Processes for Offshore Wind and Offshore Oil/Natural Gas Development

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This paper represents the views of the authors, and not necessarily the views of NVF, FOER, or the employer of the authors.

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America's Offshore Energy Resources: Opportunities and Realities

At first blush, development of offshore fossil fuels (such as oil and natural gas) and renewable energy (like offshore wind) could not be more different. But when it comes to developing these varied offshore energy resources, they have more in common than initially meets the eye:

- The United States has a huge potential, domestic resource base for both offshore oil/gas and offshore wind.
- Private companies must obtain a complex set of federal government approvals in order to gain access to develop offshore energy resources located in the US Outer Continental Shelf (OCS).
- The Department of the Interior (DOI)/Bureau of Ocean Energy Management's (BOEM) leasing/plan-approval processes are still evolving. Important changes were introduced for oil and gas in the aftermath of the Macondo accident and oil spill in the Gulf of Mexico; similarly, the processes for permitting offshore wind continues to evolve in light of the relative immaturity of the industry in the United States.
- Some areas of the OCS are now off-limits for energy development, either because of congressional or presidential action or the fact that they were not included in the DOI's leasing program for 2012-2017. Most parts of the Atlantic, the Eastern Gulf of Mexico, and Pacific coast areas of the contiguous 48 states are now closed to development of oil and gas resources, and only a few designated Wind Energy Areas in the Northeast/Mid-Atlantic OCS are open for offshore wind development.
- Offshore energy development occurs in a very "busy" context, with energy resources located in areas where there are many other uses of the ocean (including valuable commercial fisheries, military areas, shipping lanes, recreational areas, and sensitive ecological areas).
- Offshore energy development is often controversial, in light of these multiple and overlapping uses.
- The federal leasing/permitting process is extremely complex and less efficient than it could be.
- Ocean energy development requires extreme tenacity because the process is so technically complex, time-consuming, and touched by so many federal and state laws and agencies.
- Typically, offshore energy development communities are not familiar with developments in ocean policy or marine spatial planning, which also may affect development (and vice versa).

The New Venture Fund's (NVF) Fund for Ocean Economic Research (FOER) engaged an Analysis Group team, led by Dr. Susan Tierney, to prepare an independent white paper analyzing the current regulatory environment for developing energy resources located in the ocean waters in the United States. A central issue of interest to FOER was the potential for ocean planning to provide for greater efficiency in the processes governing access to and permitting of energy infrastructure in the ocean without compromising environmental protection. The Analysis Group team examined these and other related issues by researching and analyzing current regulatory frameworks and processes for accessing ocean-based energy resources. For oil and gas development, the focus was on activities in the Gulf of Mexico, where there is a long history of development but where important changes have occurred after the 2010 Macondo accident and oil spill. For offshore wind, the focus was on the Mid-Atlantic region where there is strong interest in resource development. The Analysis Group team collected information from publicly available sources, and conducted interviews with individuals (from the private sector, from government agencies, and from environmental organizations) directly involved in or familiar with the relevant regulatory or planning processes. This paper contains the Analysis Group team's recommendations based on that research, which was completed in December 2012.

[1] Photo credits: Offshore oil rig, http://www.evworld.com/article.cfm?storyid=1153; Ocean photo, John T. Tierney; Offshore wind turbines, http://www.2050publications.com/140000-offshore-wind-turbines-enough-to-supply-one-third-of-us-power-needs-study- concludes/.

Marine Spatial Planning: Understanding What's Happening in the Oceans

Ocean planning, also known as Marine Spatial Planning (MSP) refers to a suite of approaches that provide for understanding, evaluating, assessing, and siting of ocean uses. In simplest terms, MSP involves transparent and open processes for fostering better understanding among stakeholders about what is happening in ocean areas, about what resources and human uses are located where, and about implications of changes in uses of the resources located in the ocean. MSP has been used around the world at the national, regional, and state level. MSP processes had already started in many states and regions of the United States prior to the July 2010 Presidential Executive Order that named MSP as one key component of the National Ocean Policy.

Connecting the Dots between Ocean Planning and Offshore Energy Development

Ocean planning could improve the efficiency of various aspects of the leasing and permitting processes for offshore energy development, even under current regulatory frameworks. This could occur through:

- Improved quality and quantity of location-specific technical information.
- Improved coordination and leveraging of information collection and mapping efforts across federal agencies, across states in regional contexts, and across federal/state efforts.
- Improved access to location-specific information for federal and private-sector decision makers, and for other interested stakeholders (including the states, other ocean industry groups, environmental organizations, and others).
- Improved quality and quantity of public and private participation in determining the disposition of ocean resources by bringing parties together early in the process and identifying issues that need to be addressed when determining whether and how to allow energy development projects.
- Improved efficiency of public and private expenditures devoted to information collection/analysis and project permitting, while reducing regulatory risk.
- Enhanced state/federal cooperation on ocean resource development and protection objectives.
- More proactive and less reactive government decision making.
- Constructive pathways through which the federal government could consider whether, and if so, how to open up particular areas of the OCS for energy development.

Recommendations: Better Planning for Better Permitting/Development of Offshore Energy Resources

Key recommendations for improving the efficiency of permitting with support from ocean planning:

- Convene members of the ocean energy development/ protection communities and those in ocean planning communities to share information and to educate each other on different perspectives.
- Use ocean energy issues to pilot new ocean planning processes of the National Ocean Council.
- Use ocean planning as a predicate to opening up areas of the OCS for offshore energy development, and as a critical pathway toward engaging stakeholders on access issues.
- Use ocean planning processes more formally, in structured and institutionalized manners, to identify ways to streamline and coordinate permitting processes across agencies.
- Use ocean planning to identify and prepare a roadmap to fill gaps in baseline scientific and technical information relevant for permitting of offshore energy facilities.
- Use ocean planning to consider changes in the BOEM wind area leasing process.

Areas for further research and inquiry beyond this study

Useful areas of further analysis include:

- Legal analysis and process roadmap relating to the potential for greater tiering of National Environmental Policy Act (NEPA) environmental reviews for offshore energy leases/development plans (including standards for determining whether, and if so, when and how to allow categorical exemptions from the NEPA process).
- Similarly, legal analyses and roadmaps to allow for tiering of applications and reviews under other statutes (such as Coastal Zone Management Act, Marine Mammal Protection Act).
- A study of best practices and lessons learned from state/regional/federal ocean-planning approaches, especially as applied in permitting contexts.
- Studies identifying ways to develop *quid pro quo* requirements and study protocols that accompany government decisions to allow companies to access off-limit areas for scientific studies and collection of technical data (e.g., seismic studies).

PLANNING FOR OFFSHORE ENERGY DEVELOPMENT: How Marine Spatial Planning Could Improve the Leasing/Permitting Processes for Offshore Wind and Offshore Oil/Natural Gas Development[2]

America's Offshore Energy Resources: Opportunities and Realities

Introduction: With so much attention focused in recent years on the tremendous growth in supply of shale gas and onshore wind energy around the United States, it would be easy to overlook the importance of offshore energy resources to the nation's energy future. A huge share of the nation's oil, gas, and renewable energy resources is located in the oceans of America's Outer Continental Shelf (OCS).[3]

At first blush, these offshore energy resources—fossil fuels (like oil and natural gas) and renewable energy (like wind)—could not be more different, and each has its own passionate and adamant supporters.

For the fossil fuels, offshore oil and natural gas production has been underway for more than a half century in some areas such as the Gulf of Mexico. As of mid-2012, oil production there contributed a fifth of all domestic oil production, and has provided a higher share in other years. Many of the companies that produce in this area are among the world's largest corporations, and sell their output into global energy markets. Offshore oil/gas production accounts for a sizeable portion of the Gulf states' economies and it coexists alongside other ocean uses, such as tourism and commercial and recreational fishing. (See Appendix 2 for more information about offshore oil/natural gas development and permitting.)

By contrast, the offshore wind industry in the United States is still in its infancy. Although offshore wind is already a big renewable energy supply source in many European countries, there are currently no operational offshore wind farms in the United States. American offshore wind developers are much smaller companies with much more modest balance sheets. They must sell and deliver their output into local electricity systems where key attributes of the energy technology (such as its zero greenhouse gas emission profile) is not fully valued in commercial energy markets. (See Appendix 3 for more information about offshore wind energy development and permitting.)

Offshore Energy Resources—More in Common than Meets the Eye: But on closer inspection, permitting and development of offshore oil/gas and offshore wind have many things in common:

- ***A huge offshore energy resource base***: The untapped resources associated with each type of offshore energy have the potential to contribute substantially to the nation's energy supply. For oil, a recent assessment by the Department of Interior's Bureau of Ocean Energy Management (BOEM) concluded that the United States' unproven technically recoverable base of conventional oil resources is nearly three times as large as that located in onshore areas,[4] and amounts to over four decades of

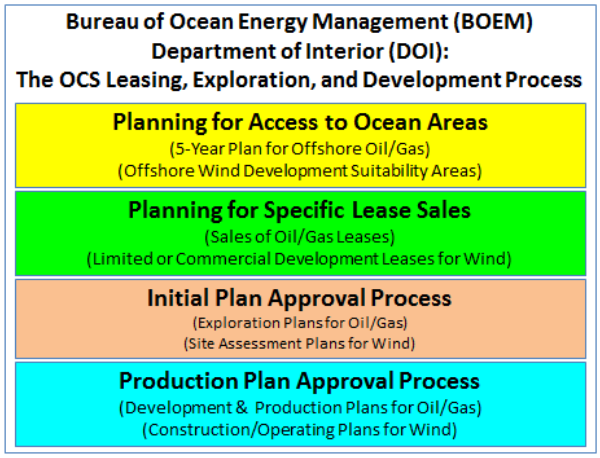
[2] The New Venture Fund's (NVF) Fund for Ocean Economic Research (FOER) engaged an Analysis Group team, led by Dr. Susan Tierney, to prepare an independent white paper analyzing the current regulatory environment for developing energy resources located in the ocean waters in the United States. (Dr. Tierney has extensive experience in policy and permitting issues relating to renewable energy and oil/natural gas resources, as well as in ocean planning.) A central issue of interest to FOER was the potential for ocean planning to provide for greater efficiency in the processes governing access to and permitting of energy infrastructure in the ocean without compromising environmental protection. The Analysis Group team examined these and other related issues by researching and analyzing current regulatory frameworks and processes for accessing ocean-based energy resources. For oil and gas development, the focus was on activities in the Gulf of Mexico, where there is a long history of development but where important changes have occurred after the 2010 Macondo accident and oil spill. For offshore wind, the focus was on the Mid-Atlantic region where there is strong interest in resource development. The Analysis Group team collected information from publicly available sources, and conducted interviews with individuals (from the private sector, from government agencies, and from environmental organizations) directly involved in or familiar with the relevant regulatory or planning processes. This paper contains the Analysis Group team's recommendations based on that research, which was completed in December 2012. (See Appendix 1 for background on the study.)

[3] The National Oceanic and Atmospheric Administration (NOAA) defines the OCS as including "the sea-bed and subsoil beyond the continental margin out to a distance of 200 nautical miles from the baseline. The U.S. has sovereign rights and exclusive jurisdiction over the exploration and exploitation of the continental shelf." http://www.csc.noaa.gov/mbwg/pdf/products/US.Continental,Shelf.pdf.

[4] The size of the nation's oil and gas resource base can be viewed through multiple lenses, with characterizations expressed in various technical ways: For example, the "unproven technically" recoverable oil resources mentioned here are equivalent to "undiscovered technically recoverable resources" (those that have yet to be discovered but, regardless of economic feasibility, are assumed to be extractable given current technologies). (Total US undiscovered technically recoverable conventional oil resources: 88.6 billion barrels of oil (BBO) in the OCS; 32 BBO in the other

crude oil at current levels of US field production.[5] Similarly, a recent assessment by the National Renewable Energy Laboratory of the technical potential for offshore wind indicates that there are more than 4,150 gigawatts (GW) of offshore wind generating capacity;[6] this compares to approximately 45 GW of current onshore wind capacity, and total installed generating capacity for all US electric sources of 1,055 GW in 2011.[7]

- ***Federal government approvals are required for private companies' access to develop the resource:*** Private firms seeking to develop energy resources in the US OCS must request and receive the right to do so from the federal government, which manages the area extending outward from the states' ocean territories (typically three miles out from shore) to the edge of the United States' 200-mile "exclusive economic zone" (EEZ). BOEM administers the leasing, permitting and development processes for both offshore oil/gas and wind. Gaining access occurs through different processes for wind as compared to oil/natural gas. However, both involve multi-year processes that start with high-level decisions about which areas of the OCS will be open for development, then continue through issuance of leases to specific companies, and finally move to review/approval of operators' exploration/site assessment plans, to review/approval of specific project development plans.



BOEM's leasing/plan-approval processes are still evolving: Although BOEM (with predecessor agencies[8]) has been issuing leases and plan approvals for many decades, much of the processes for leasing, permitting, exploration, and development of offshore oil and gas has significantly changed in the aftermath of the April 2010 Macondo accident and the oil spill that followed. Thus, like wind project leasing/permitting, some parts of the process could be considered somewhat new and immature. Some have likened it to the "first child syndrome"—that is, "wanting the process to be

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parts of the United States. (BOEM, "Assessment of Undiscovered Technically Recoverable Oil and Gas Resources of the Nation's Outer Continental Shelf," November, 2011.) The same assessment found that offshore gas resources were 30 percent higher than onshore resources (i.e., 398 trillion cubic feet (Tcf) of gas in the OCS versus 291 Tcf of gas in other areas of the United States.) Undiscovered economically recoverable resources (undiscovered but economically profitable to extract given a particular market price for the resources) are a subset of technically recoverable estimates. "Proven" (or "proved") reserves are those that have been technically discovered with a very high (e.g., 90 percent) likelihood of being present in a known field. (Gene Whitney, Carl Behrens, and Carol Glover, Congressional Research Service, "U.S. Fossil Fuel Resources: Terminology, Reporting, and Summary," November 30, 2010, CRS 7-5700, R40872, p. 20.) Proved reserves are much smaller than the seemingly vast unproven reserves, and as of 2010, the Energy Information Administration (EIA) estimated that the Gulf of Mexico OCS had only about 4.1 BBO of proved oil reserves, and 14.2 Tcf of proved natural gas reserves. The differences between proved and undiscovered reserves make clear the motivation to continue exploration and production in the GOM. (EIA, Annual Energy Outlook 2012 – Oil and Gas Supply Module, 2012, pp. 112-113.) Typically, offshore resources must be well proven and capable of producing greater volumes per well to justify the added cost of their development relative to onshore resources. (National Petroleum Council (NPC), "Prudent Development: Realizing the Potential of North America's Abundant Natural Gas and Oil Resources," September 2011 (hereinafter "Prudent Development Report"), Chapter 2 (Operations and Environment), p. 189.)

[5] Field production in 2011 is estimated to have been 5.662 million BBO per day, or roughly 2.066 BBO per year. The US OCS has an estimated 88.6 BBO of undiscovered technically recoverable conventional oil resources. At current field production levels and using current technology, this would be roughly 42 years of crude oil production in the U.S. oceans. Analysis Group calculation based on information from the EIA.

[6] Estimated technical potential of offshore wind resources within 50 miles of the US shore. National Renewable Energy Laboratory (NREL), "Large-Scale Offshore Wind Power in the United States, Assessments of Opportunities and Barriers," September 2010, p. 3.

[7] EIA, "Annual Energy Review 2011," September, 2012, Table 8.11a: Electric Net Summer Capacity, p. 256.

[8] Predecessor agencies include the Minerals Management Service (MMS) and the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE).

perfect, with legally defensible decisions, but ending up with one that is ultra-attentive, cautious, and super careful."[9]

- ***Some areas of the OCS are now off-limits for development***: In the case of offshore oil and gas development, parts of the OCS are currently off limits, subject to congressional and administrative policy decisions. Most of the Eastern Gulf of Mexico is under a moratorium for development/leasing until 2022 (under the Gulf of Mexico Energy Security Act of 2006).[10] BOEM's five-year lease plans currently allow no oil/gas development in the areas off of the Pacific (except for parts of Alaska), or off the Atlantic coast (except for potential seismic assessments in certain Atlantic areas). (See Figure 1.a.) For offshore wind, BOEM's "Smart from the Start" process for approving development identifies "Wind Energy Areas" (WEAs) of the Atlantic OCS—places where the agency could make a "finding of no significant impacts" for wind development and where BOEM could then offer leases. At present, there are several WEAs in the ocean from Virginia to Massachusetts. (See Figure 1.b.)

Figure 1.a
Oil and Gas OCS Planning Areas: Lower 48 States

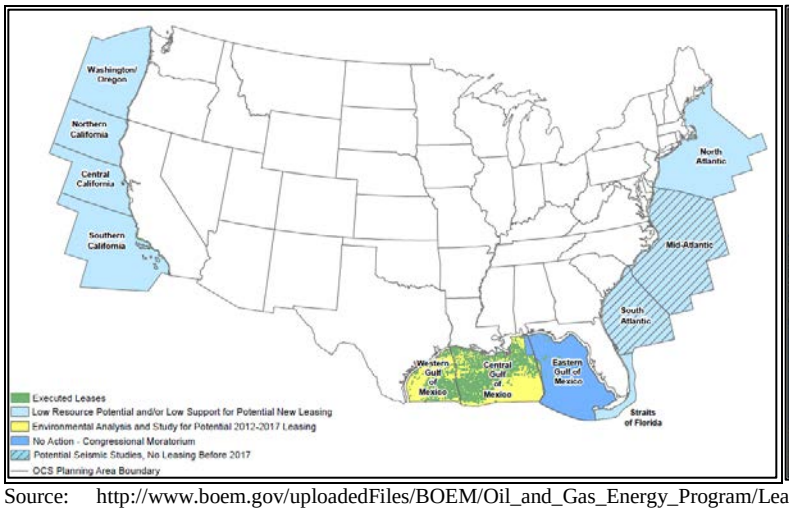
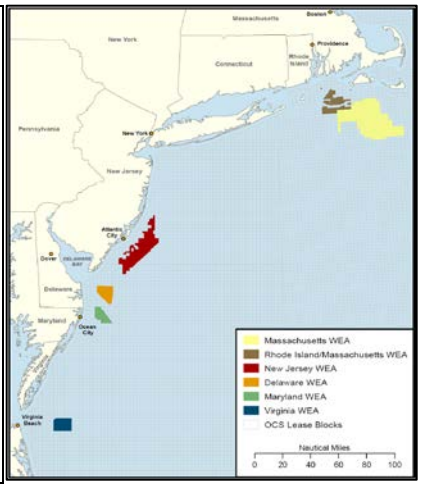


Figure 1.b
OCS Wind Energy Areas: Mid-Atlantic



Source: http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Leasing/Five_Year_Program/2012-2017/Program_Area_Maps/Lower%2048%20State%20Planning%20Areas%20with%20restrictions.pdf; http://www.boem.gov/uploadedFiles/BOEM/Renewable_Energy_Program/Smart_from_the_Start/Wind_Energy_Areas0607.pdf.

- ***Offshore energy development occurs in a very busy context:*** Offshore energy resources tend to be located in areas where there are many other active uses of the ocean. The Gulf of Mexico is one of the nation's most valuable fisheries, for example, and oil/gas development takes place in the midst of active shipping lanes, vibrant recreational activities, priceless ecological systems, and many other human uses. Offshore wind resources in the Mid-Atlantic area exist in areas crowded with many preexisting activities and many important ecological assets.

- ***Development is often controversial:*** In part because the ocean is so filled with diverse resources and activities, there are many different communities with an interest—supportive, cautious, opposing, and so forth—in energy development. These include constituencies concerned with fisheries, ecological protection, shipping, recreational boating, aviation, defense activities, endangered species, and others. States take a keen interest in activities off their shores, even if such occur beyond a state's own three-mile ocean jurisdiction. As a result, development of energy resources—whether renewable or fossil—

[9] This quotation is from one of the senior persons in the oil/natural gas industry interviewed by Analysis Group as part of this study process.

[10] Department of Interior BOEM, "Proposed Final Outer Continental Shelf Oil & Gas Leasing Program, 2012-2017" (hereinafter "2012-2017 OCS Lease Plan"), June 2012, p. 2 footnote 6. This plan was approved by Interior Secretary Ken Salazar on August 27, 2012.

is often accompanied by strongly held differences of opinion. The experience is mixed, principally as a result of whether different user communities are experienced working together. In some areas where oil/gas development has been underway for decades (e.g., in the Western and Central Planning Areas of the Gulf of Mexico), for example, stakeholders on all sides tend to have significant experience working together. There is considerable publicly available information concerning the ocean environment, ecology, geology, and bathymetry. In other parts of the Gulf or in parts of the Atlantic, there is less experience and less trust in how to resolve differences, share information, and so forth.

- ***The leasing/permitting process is extremely complex and less efficient than it should be:*** Although BOEM has primary responsibility to issue leases and plan approvals for offshore energy projects in the OCS, many other federal governmental entities have an interest—each with its own responsibility to implement federal statutes that may touch on some aspect of a project's footprint on the ocean. The table below lists the key federal laws that relate directly or indirectly to offshore energy resource development, and for which a project developer must make applications/filings and receive approvals or sign-offs in one form or another. Typically, these reviews are not coordinated, and the agencies have sometimes overlapping and often times conflicting (or inconsistent) mandates when considering an individual project. Often, implementation of some of these statutes involves rounds of consultation across agencies through processes that are sometimes parallel, sometimes serial or circular, and sometimes introducing fresh concerns or issues, and/or requirements for new studies and technical information late in the process. Such inconsistencies and lack of coordination combine with other features to introduce inefficiency, complexity, and delays in the permitting processes. From the perspective of offshore energy developers (both fossil and renewable developers), for example, one of the largest sources of inefficiency in the permitting process is the repetition of multiple steps, sometimes without the introduction of materially new or different information. This is said to occur frequently with the multiple rounds of environmental review under the National Environmental Policy Act (NEPA) and additional rounds of consistency reviews under the Coastal Zone Management Act (CZMA) with respect to development in a particular locale. There are also many instances of overlapping and duplicative filing and study requirements, uncertainties in agency requirements, and information gaps that often lead to multiple sequential rounds of information filing and reviews, all of which can significantly delay development. While important policy and legal (including due process) issues may underpin the value of these reviews, inefficiencies in administering the reviews may raise costs and create other burdens for the government (and taxpayers), developers, and the interested public.

"Efficiency"

The concept of e*fficiency* can be defined as the quality of producing a desired effect without waste. In this study, the idea of e*fficiency* is central to the discussion of offshore energy development in ways that also assure appropriate environmental protections. We identify *inefficiencies* in permitting processes, and propose ways to increase *efficiency* in those instances where the government has decided to allow development to occur. A focus on *efficiency* does not equate with a focus on lowering standards of environmental protection, or a goal of removing regulation or supporting opening up of all offshore areas for development. Rather, the focus on *efficiency* in this study is premised on the possibility that ocean planning might be a tool to enhance the efficiency of decision making about where to allow development, where to constrain it, and why.

Table 1
Key Federal Statutes Affecting the Permitting of Offshore Oil/Gas or Wind Development Projects

Act	Act Name	Subject Matter	Responsible Agency
NEPA	National Environmental Policy Act	Environmental reviews	Council on Environmental Quality (CEQ); each lead agency for project/program review
CZMA	Coastal Zone Management Act	Consistency reviews	National Oceanic and Atmospheric Administration (NOAA)
OCSLA	Outer Continental Shelf Lands Act	Marine resource extraction lease issuance and development plan approvals	BOEM
NHPA	National Historic Preservation Act	Accounting for historic resources	Each lead agency for project/program review; Department of Interior (DOI)
SLA	Submerged Lands Act, Territorial Submerged Lands Act	Title to submerged land	NOAA, Department of State
OPA	Oil Pollution Act	Spill prevention, remediation	Environmental Protection Agency (EPA)
CWA	Clean Water Act	Discharge permitting, dredge materials disposal	EPA; Army Corps of Engineers (ACOE)
CAA	Clean Air Act	Air permits	EPA (and BOEM for projects in certain offshore areas)
RCRA	Resource Conservation and Recovery Act	Hazardous waste permits and control	EPA
MPRSA	Marine Protection, Research, and Sanctuaries Act (Ocean Dumping Act)	Dredge materials disposal	EPA
MMPA	Marine Mammal Protection Act	Protecting marine mammals	National Marine Fisheries Service (NMFS), which is part of NOAA
ESA	Endangered Species Act	Protection of listed species	NMFS; US Fish and Wildlife
RHA	Rivers and Harbors Act	Protection of structures located in navigable waters of the United States	ACOE
PWSA	Ports and Waterways Safety Act	Protection of US ports and waterways	Coast Guard
FAA	Federal Aviation Act	Protection of navigable US airspace	Federal Aviation Administration
NPGA	Natural Gas Policy Act	Siting of natural gas pipeline infrastructure	Federal Energy Regulatory Commission (FERC)

- ***Ocean energy development requires extreme tenacity:*** As a result of such issues, the overall offshore energy leasing/development process requires significant tenacity by companies seeking to develop offshore energy resources, as well as by the many other stakeholders with interests in the process.

- ***Typically, members of the offshore energy development community are not familiar with ocean planning and how it might affect development***: In recent years many coastal states (including California, Florida, Massachusetts, Oregon, Rhode Island, Virginia, and Washington), coastal regions (Mid-Atlantic states such as New York, New Jersey, Maryland, Delaware, and Virginia), and Gulf coast states (Texas and Alabama) have been deploying strategies to better plan for and manage their own ocean areas. In 2010, President Obama issued an executive order establishing a federal National Ocean Council (NOC)—an interagency council made up of federal officials—thus adopting a national ocean policy and signaling a new role for coastal and marine spatial planning (CMSP), or more simply, marine spatial planning (MSP). Although some in the offshore energy development community are familiar with the fact that the executive order was issued, there does not appear to be deep understanding of either the history of ocean planning efforts in various parts of the United States, the many international examples of MSP, or the potential ways in which ocean planning might evolve at the federal level. Similarly, the ocean planning community is not well versed in the practicalities of ocean energy leasing and permitting. (See Appendix 4 for more information about ocean planning.)

Marine Spatial Planning: Possibilities for Improving the Efficiency of Offshore Energy Leasing/Permitting/Development?

What is Marine Spatial Planning? Although there are many forms that ocean planning can (and does) take in the United States, in simplest terms MSP involves transparent and open processes for fostering better understanding among stakeholders about what resources and human uses are occurring in ocean areas. The process typically involves a forum for parties to consider and weigh in on new opportunities and challenges that are facing the ocean environment, and what uses will or might occur in the future.

More technically, MSP has been defined as "a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean… [It] identifies areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives."[11]

The NOC's approach highlights certain core elements relevant to the discussion of offshore energy development: providing better information and making it broadly available for use in development planning and in decision making, bringing various stakeholder perspectives to the table early enough to make a difference, enhancing coordination across agencies to provide greater certainty in the regulatory environment, and building stronger alignment across state and federal boundaries. The NOC's National Ocean Policy Implementation Plan[12] sets out ways to implement MSP through collaboration with regional ocean entities, including existing groups—such as Mid-Atlantic Regional Council on the Oceans (MARCO)—or new ones.

How different federal and state entities put the concept of ocean planning into effect varies considerably. There is no single recipe for making it work. Rather, ocean planning involves a set of principles that have been applied in many ways in different settings. As one observer has stated, "there is no right way or one way to do ocean planning. It's about 'how' to build better information bases for decisions, including scientific information and information about the perspectives of various stakeholders. There's no particular outcome…to accomplish, except bringing more relevant information to bear [on the decisions of governments, private parties, and the public]."

Different MSP approaches: There are three core approaches in play:

- ***Comprehensive marine spatial planning***

  Comprehensive MSP tends to include: broad-based and inclusive stakeholder involvement; directly addressing ocean use conflicts; studying and characterizing ocean resources, uses, and potential conflicts through the use of detailed spatial mapping; and clear coordination among various relevant regulatory and permitting agencies. Two states that have adopted ocean planning statutes (Rhode Island and Massachusetts) have proposed, developed, and are now implementing comprehensive state marine spatial plans. Washington passed its MSP statute in 2010 and will begin implementation in 2013. North Carolina and South Carolina have proposed comprehensive marine spatial plans, but are still early in the process. (See Appendix 4 for more details.)

- ***Marine spatial mapping, but no ocean plan***

  Several clusters of states have joined together to address ocean issues, focusing more on information collection and dissemination than on planning or management. Three such groups include: the MARCO states in the Mid-Atlantic region (New York, New Jersey, Maryland,

[11] White House Council on Environmental Quality ("CEQ"), "Final Recommendations of the Interagency Ocean Policy Task Force," July 19, 2010 (hereinafter "Interagency Ocean Policy Task Force Recommendations"), p. 41.

[12] The NOC's National Ocean Policy Implementation Plan was in draft form during the period when the Analysis Group team conducted research for this study. The final plan was approved by the NOC in April 2013.

Delaware, and Virginia); several Gulf states (Alabama, Florida, Louisiana, Mississippi, and Texas) have formed the Gulf of Mexico Alliance (GOMA); and the six New England states whose governors have set up the Northeast Regional Ocean Council (NROC). In these states, there are significant efforts to perform detailed marine spatial mapping of resources, uses and potential conflicts. The goal is to provide better information and tools for decisions of private parties, regulators, and other policymakers.

- ***Resource conservation-focused ocean planning***

  Other states undertaking ocean-planning efforts have focused more specifically on resource conservation. Within this approach, planning efforts are less focused on the coordination of the spatial aspects of different ocean resources users and uses, and more on finding the most effective means to conserve particular resources in ways that are acceptable to relevant stakeholders. This approach is being used, for example, in Oregon and Hawaii, and in selected areas in Florida.

At the federal level (and even at the state and regional level), the ocean-planning process is still relatively new. Because both it and the current permitting processes for oil/gas and wind are still evolving, there is little empirical experience about specific ways that ocean planning may have already been helpful in rendering the offshore-ocean permitting process more efficient. Moreover, the newness of the ocean planning process has caused some in the development community to be skeptical and concerned that it will make the process more, rather than less, inefficient.

It is therefore necessary to rely upon informed speculation about the potential for ocean planning to improve the efficiency of offshore energy development. This speculation is influenced by detailed research into and analyses of the current processes used to issue leases and obtain plan/permit approvals for offshore energy development processes.

Connecting the Dots between Ocean Planning and Offshore Energy Development

Ocean planning has the potential to improve the efficiency of leasing and permitting processes for offshore energy development, even under current regulatory frameworks: Permitting of energy facilities in the OCS is important to get right, for countless economic and environmental reasons. The enormous renewable and fossil-fuel energy resources located in the OCS offer large, domestic supplies with potential to meet consumer demand, create economic opportunities, bring value to local and national economies, and (in the case of offshore renewable energy) provide a low-carbon energy resource. Major investment is required to bring such domestic energy supplies to market, and allowing private parties the opportunity to tap these resources for broader use depends upon efficient and effective management as well as considerable attention to avoiding and mitigating environmental impacts. These resources occupy public lands, for which the federal government holds significant stewardship responsibility. These offshore resources share a location with many other users and uses of natural resources in the ocean. The potential development risks are real and environmental impacts can be large. Access to these resources should clearly depend upon responsible permitting and prudent development, in which environmental standards are not compromised.

It is hard to overstate the extent to which projects to develop oil/gas resources and wind energy in the OCS are major undertakings, from a technical, economic, and risk-management point of view. Therefore, the process to obtain access to the OCS for developing oil and gas resources is inherently complex, expensive, time-consuming, and still evolving. Even so, the existence of inefficiencies in the process introduces unnecessary costs for those portions of the OCS where federal officials seek to make energy resources available for development.

Ocean planning has the potential to address many of these issues in many ways:

Improved quality and quantity of location-specific technical information: A core element of ocean planning is to improve the scientific and other technical information available on resources, uses, conditions, and other attributes located in specific areas of the ocean. There are several ways in which ocean planning can be used as a tool to improve location-specific information of value to those interested in offshore energy development, even without necessarily being prescriptive about any particular development outcomes. For example:

- ***Improved data quality and quantity:*** Many of the ongoing state and regional processes focus in particular on improving the quality and quantity of ocean-related technical information, including marine spatial mapping. Most of the regional initiatives (e.g., MARCO, GOMA) and the National Ocean Policy Implementation Plan[13] share this objective.

- ***Improved coordination and leveraging of information collection and mapping efforts across the federal agencies, across states in regional contexts, and across federal/state efforts.*** Specifically, the National Ocean Council's plan calls for "greater accessibility to data and information to support commercial markets and industries, such as commercial fishing, maritime transportation, aquaculture, and offshore energy. Agencies will take a series of actions to facilitate the availability of relevant ocean data to provide easier access to information for research, planning, and decision support."[14] The plan also aspires to strengthen the ability to acquire marine data and provide information, in part by developing "an integrated ocean and coastal data and information-management system to support real-time observations,"[15] and providing "high-quality data and tools necessary to support science-based decision-making and ecosystem-based management."[16]

  Ocean planning initiatives elsewhere also include actions to link up existing databases and provide a place to house newly collected information as it unfolds over time. Such information will help parties find relevant data, and provides a way for various parties to see what information is available, what is not, and to weigh in on what new information collection is needed. In Rhode Island, for example, the state planning effort involved developing data-collection agreements to help guide information collection by third parties, to develop agreed-upon sampling protocols, and to bring down data costs. This is an example of where more coordinated ocean-planning efforts led to cost savings by leveraging access to a single ocean-going survey vessel for multiple users.

  Similarly, one particular area of potential mutual (e.g., public/private) benefit might arise through a *quid pro quo* approach to access and data collection. Various private interests might be granted expedient access to certain unexplored or previously off-limits ocean areas where data gaps exist for the purpose of detailed data collection efforts. This access might be granted on the presumptive condition that the data acquired subsequently be shared publically for the betterment of a potentially wide range of stakeholders, including government agencies and civil society.

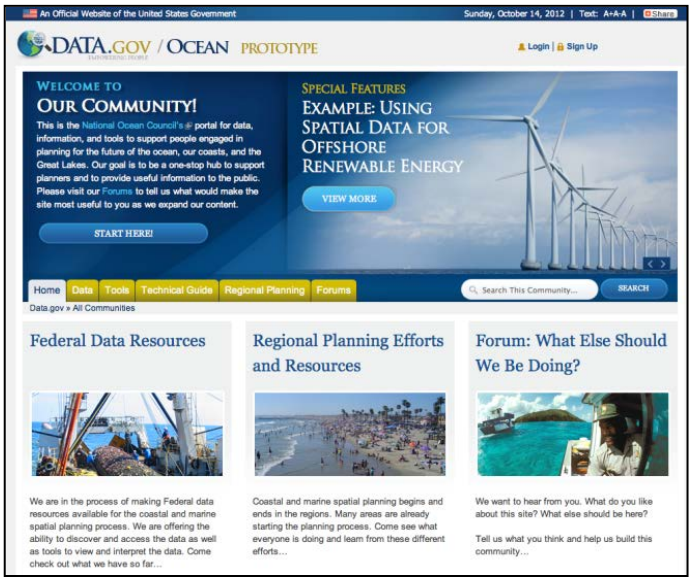
[13] "Businesses, communities, and governments that rely on ocean resources need high-quality scientific information and data. Greater access to high-quality data and information will enable maritime industries, resource managers, and decision makers at all levels of government to make responsible and effective decisions. Federal agencies will take the following actions that strengthen the national economy through enhanced accessibility to data and information and robust, sustained observing systems: Advance our mapping and charting capabilities and products to support a range of economic activities. … Provide greater accessibility to data and information to support commercial markets and industries, such as commercial fishing, maritime transportation, aquaculture, and offshore energy. ..Sustain and further develop observing systems for the economic benefit of maritime commerce and marine industry." NOC, "National Ocean Policy Implementation Plan," April 2013, pp. 6-7. See more generally, pp. 24-28

[14] National Ocean Policy Implementation Plan, p. 7.

[15] National Ocean Policy Implementation Plan, p. 27.

[16] National Ocean Policy Implementation Plan, p. 27.

- ***Improved access to location-specific information for public and private decision makers, potential developers, and other interested stakeholders:*** One example is the NOC's/federal government's new gateway website at *ocean.data.gov* web portal, which is part of the national initiative to enhance MSP. Other examples are: the National Oceanic and Atmospheric Administration's (NOAA) Gulf of Mexico Atlas, accessible through the "GOMA Portal;" Rhode Island's "map viewer" portal that is part of the state's Ocean Special Area Management Plan (Ocean SAMP or OSAMP); MARCO's Mid-Atlantic Ocean Data Portal; and Massachusetts's Ocean Resource Information System (MORIS). Making information more broadly accessible has a number of benefits, including helping to improve the efficiency of information collection and avoiding redundant or duplicative data efforts. Providing open access leverages public and private dollars spent on information collection, and can lower the cost for prospective developers' entry to markets by allowing them access to others' prior investments in information collection and dissemination. It can help to inform decisions of energy companies with respect to the prospects for developing energy projects in some areas (and not others). It can help to identify areas where different uses are more or less compatible, or areas which require special protections, or cumulative impacts of multiple forms and types of development. It can lessen the likelihood that developers will pursue projects in particular areas with conflicting uses, or highly sensitive resources—or at least will give notice to developers of relative investment/permitting risks for different areas.



Improved quality and quantity of public and private participation in determining the disposition of ocean resources: Another fundamental premise of ocean planning is stakeholder involvement. With access to better information and when invited to have a seat at the table, stakeholders can participate more effectively in the processes affecting ocean energy development. There are many examples where it has worked (e.g., where more inclusive engagement ended up saving time and avoiding conflicts later in the process) or where parties have identified instances where the development process might have been improved had ocean planning been used in the past. Ocean planning can help identify areas of particular interest or sensitivity—from either a development point of view (e.g., areas with robust wind resources and appropriate undersea conditions for wind projects; areas with particularly rich shallow-water or deep water hydrocarbon basins under the ocean seabed), or from an ecosystem protection perspective (e.g., presence of endangered species or valuable marine habitats), or from broader economic point of view (e.g., areas with already established industries, like commercial or recreational fishing, or intense ship traffic). This does not necessarily lead to determinations that "you must develop here" or "you must protect there." But it does raise the level and quality of information that public and private decisions makers would have in determining their own choices with respect to ocean plans/projects, and in defending them. In the end, ocean planning is not so much about determining in advance what should or should not be developed or protected in a particular area, but rather, it is about providing mechanisms, tools, venues, and information so that decision makers can make better decisions.

Improved efficiency of public and private expenditures devoted to permitting while reducing regulatory risk: By sharing information and enabling more effective coordination across agencies, ocean planning can help reduce redundant efforts, and identify gaps and inconsistencies. Such efficiency

improvements can redound to public and private participants. From the point of view of permitting agencies, ocean planning may allow them to use previously adopted ocean plans as a lens through which to help evaluate the goodness-of-fit of specific project proposals. It may help the agency meet statutory deadlines in a more timely and cost-effective way. It might allow for agencies' greater reliance on more tiered environmental assessments so that they only need to add more specific and incremental information as relevant, rather than starting from a blank page. This might result from more deliberate use of prior agency and governmental plans as foundations for their reviews and permitting actions. Agency managers may be able to determine whether to approve project plans in a less-cautious and timelier fashion, while both standing on stronger grounds to defend their decisions and not compromising environmental protection.

Such actions have benefits from the point of view of energy developers, too, by: providing information to help them understand how their project options align or conflict with other uses of the ocean; avoiding development sites that are likely to raise irreconcilable conflicts among stakeholders, or at least giving them advance indication that their preferred site will need to have outstanding benefits to offset the risks and tensions associated with other nearby activities; obtaining faster agency action (either yes or no); and realizing reduced risk of permitting delays as approvals are tied up in court review. Echoing the comments of many in the industry, a senior oil and gas developer said, the "biggest inefficiency for oil and gas permitting is duplication of work. There are multiple consistency reviews at multiple stages, and similarly [we] have to do the same things for a project right next to an existing project. There are multiple archeological studies needed. Getting sign-offs from many agencies in a serial fashion is very time consuming…For oil and gas, especially when developing new areas, ocean planning could speed up the permitting process—increased speed and certainty is clearly more important than reducing costs. Paperwork costs can be absorbed, but there has to be a light at the end of the tunnel."

Given the relatively new aspects of the BOEM's reviews of both oil/gas leases and plans as well as offshore wind areas/projects, ocean planning may be a way to reduce the regulatory risk associated with the agency's "first child syndrome" (its desire for the process to be perfect, but ending up with an ultra-attentive, cautious, and "super careful" approach that often translates into a slow process). In certain locales (including parts of the Atlantic where, in theory, there could be both wind energy as well as fossil energy development) the overall risk is exacerbated in some cases by lack of detailed pre-existing information about ocean-based resources, conditions and activities. This means at times that the applicants must conduct many years of data collection to characterize systems in the potential lease areas. The fact that initial site assessments (for wind, or for oil/gas) do not confer a right to develop any resources found to exist in an area means that the leaseholder may undertake those years of study, and carry out the related environment reviews, without an expectation of being able to develop in the area. This creates significant investment risk for the prospective wind developer or oil/gas developer. Ocean planning processes might provide a vehicle for raising confidence in the process.

Enhanced state/federal cooperation on ocean resource development and protection objectives: Ocean planning has already proven to strengthen state/federal cooperation. As one observer put it, "a state that has its act together can use ocean planning as a way to influence things in federal waters." A prime example is Rhode Island's Ocean SAMP—an ocean plan borne out of the state's interest in better managing competing uses of its ocean and for facilitating the siting of offshore wind energy projects. The state's plan stands on its own statutory authorities, extends its reach through a SAMP approach under a Coastal Zone Management (CZM) plan that has been approved by NOAA, and then provides a platform through which the state has a stronger voice in actions taking place in federal waters some 30 miles off the shore of the state.

More proactive and less reactive government decision-making processes: Ocean planning will undoubtedly provide different contributions in different regions. In coastal and offshore areas where there is not now significant energy infrastructure development, ocean planning may be a way for states and the federal government to play a more proactive role in facilitating development—in places where such is

desired. For example, for offshore wind in the Mid-Atlantic area (or other parts of the eastern United States), ocean planning may be quite helpful for creating greater information about the opportunities and constraints that might affect developers of offshore energy resources. In the "old way," as one state official described it, a new energy development project would emerge through the commercial development lens of a particular developer, and then the government and other parties would react: "We sit around and wait until a project proponent decides where he wants to put his project, and then we engage." In the new way, ocean planning can be a means to signal better information to prospective developers ahead of time: "This could allow the government to put information out there: not to tell developers where they shouldn't necessarily go, but rather to indicate where there are, say, shipping lanes, that a pipeline or a wind project might want to avoid. Reductions to the overall serial nature of proposal, reaction, information requests, answers, project redesign, re-proposal, and so forth."

In oil/gas, the opportunities for proactive planning also vary by geography: In the parts of the Gulf of Mexico where offshore oil/gas development has co-existed with other uses for decades, there are relatively well-established relationships and locations for activities (such as shipping lanes vis-à-vis offshore rigs). There is already a substantial body of information on the composition and locations of natural resources, human uses, and impacts of different activities, with current efforts underway to amplify this knowledge base (e.g., for coastal restoration and clean-up). But in other areas of the OCS, where moratoria have made the ocean off-limits for energy development, ocean planning could provide a more proactive approach.

Provide enhanced integrity for high-level decisions about ocean energy resource use: Ocean planning has the potential to build stronger support for agencies' permitting decisions—or even for the integrity of the planning processes in which they decide whether and, if so, how to open up (or close, or maintain restrictions on) areas of the OCS for energy development. This has worked in practice to bring to the table stakeholders initially suspicious of what the process would entail, but who ended up accepting the decisions of government as a result of having been part of the process and seeing more closely the information and criteria the government used to make its decisions.

Constructive pathways through which the federal government could consider whether and, if so, how to open up particular areas of the OCS for energy development: In a state where there is interest in considering offshore energy development, ocean planning could provide a pathway—perhaps the best and only pathway—for the state, the federal government, and interested parties to sit down and explore opportunities for development in the future.[17] For the areas of the OCS that are off-limits for either type of energy development, different stakeholders have historically held (and in many cases still do hold) strong views about access. This is as true for renewable energy development as it is for development of traditional energy sources. Conversations about whether and, if so, how to open up the OCS for energy development are typically charged with passion, and often suffer from a lack of sound scientific and technical geospatial information, either about the energy resources themselves, other activities in the ocean, or specific sensitive areas deserving special protections. As a result, broader and less flexible action is often taken, where more surgical approaches might be appropriate and could allow greater use without compromising environmental protection standards.

[17] This view was endorsed by the members of the Energy Project of the Bipartisan Policy Commission, in a report published in February 2013: "The [2010 Presidential] executive order calls for reliance on coastal and marine spatial planning (processes similar to land-use planning but directed at coastal and marine resources) as a platform to better inform actions affecting the ocean and development of the resources located there, because such planning relies on ecosystem-based management, using the "best available science and knowledge to inform decisions affecting the ocean, promoting efficiency and collaboration, and strengthening regional efforts. Coastal and marine spatial planning identifies areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives….Coastal and marine spatial planning offers a promising framework to provide greater transparency and collaboration that could lead to increased access to the areas of the Outer Continental Shelf not now open for development. Engaged stakeholder processes will have an important role to play in developing the discipline of Ecosystem Based Management. They should include balanced participation from all affected interests." "America's Energy Resurgence: Sustaining Success, Confronting Challenges," A Report from the Bipartisan Policy Center's Strategic Energy Policy Initiative, February 2013, p. 26.

Rhode Island's Ocean SAMP process provides a good model for how ocean planning has the potential to build stronger bases for aligning the goals of state and federal ocean resource managers. In announcing the SAMP, Interior Secretary Ken Salazar recognized the potential for smoother permitting of offshore wind projects: "throughout this process, we have also benefitted tremendously from the rigorous analysis conducted in Rhode Island in conjunction with the development of the Special Area Management Plan….[B]ased on extensive consultation and analysis, BOEM narrowed the focus of the WEA by excluding commercially important fishing grounds from the area" in light of the findings of the Rhode Island Ocean SAMP.[18]

Also, in the many US coastal states that have an approved CZM plan, there is an opportunity to combine MSP and CZM tools so that states can build a science-based, ecosystem-based case for what they hope to accomplish in or near their waters, and then work through existing authorities to influence it. This might be a means by which federal ocean resource management agencies could explore whether, where, and how to allow an opening up of offshore areas for development of renewables and oil/gas that have been off limits. Such is likely to occur only where a state has indicated an interest in doing so and uses tools of ocean planning to work with federal agencies to investigate options. As one observer said, "if there is ever going to be drilling in the [areas of the] OCS that are now off-limits, the only way that can occur is through an ocean planning process."

Recommendations: Better Planning for Better Permitting and Development of Offshore Energy Resources

The National Ocean Policy Implementation Plan aims to increase efficiencies in executive-branch decision-making by

> improving permitting processes and coordinating agency participation in planning and approval processes. A key goal of the Policy is to improve efficiency across Federal agencies, including permitting, planning, and approval processes to save time and money for ocean-based industries and decision makers at all levels of government while protecting health, safety, and the environment….Marine plans produced by regional planning bodies can provide information about specific issues, resources, or areas of interest to better inform existing management measures…. Examples of potential focus areas for marine planning could include, but are not limited to: [d]eveloping information that facilitates more effective review and permitting among State, Federal, and tribal authorities for a specific class of activity such as offshore energy infrastructure; [and c]haracterizing environmental conditions and current and anticipated future uses of marine space to assist in siting offshore renewable energy."[19]

The current national debate on domestic energy development includes those who seek energy independence, and for many of them, ocean-based oil and gas resources are critical to that outcome. Others seek a different energy strategy with lower carbon emissions and see development of offshore wind as vital to that goal. For either of these constituencies, such aspirations can only happen in the context of a very busy, crowded, and valuable marine environment, with myriad other pressures and conditions besides energy development options.

Ocean planning provides a way to frame a discussion and decision-making process to consider how these options unfold. Maintaining and furthering the goal of improving the efficiency of ocean and coastal permitting sends a strong signal to many players: to federal agencies, to coordinate the use of their increasingly limited resources; to the states, to participate through various means in the local and regional issues that affect their state's interests; to the energy development and investment community, to prepare

[18] Rhode Island Coastal Resources Management Council, "BOEM, RI Officials name Wind Energy Area," February 27, 2012.

[19] National Ocean Policy Implementation Plan, pp.18, 22.

their plans in the context of strong scientific and technical information; to the NGOs, to give them the benefit of a seat at the table.

Specifically, several recommendations point to actions that could help unleash ocean planning to help lessen some of the permitting and regulatory inefficiencies related to offshore energy development:

Convene stakeholders in the ocean energy development communities with those in ocean planning communities to share information and educate each other on issues. Typically, those who participate actively in offshore energy development (e.g., leasing, permitting, plan approval, site assessments) are not familiar with the principles and practices of marine spatial planning, and vice versa. The lack of experience often leads to suspicions, distrust, and resistance (on both sides). A concerted effort by interested players (e.g., governors of coastal states interested in offshore energy development, industry and/or environmental associations with a similar interest, a broad group of diverse foundations) to create a neutral setting in which to educate players in this area could produce greater understanding and willingness to experiment with new planning and permitting approaches.

Use ocean energy to pilot new ocean planning processes of the National Ocean Council. The National Ocean Policy Implementation Plan points to aquaculture as a place to pilot the process. There might be other rich opportunities to pilot ocean-planning initiatives in the energy area—either in regions with rich offshore wind resources or fossil energy resources. Currently, in many parts of the OCS, there are insufficient scientific and technical data about such resources and the conditions of the ocean in which they are located. This does not allow policymakers and other stakeholders to make informed decisions about development and to equip developers with information on which to base commercial plans. Part of the ocean planning process should be used to help build such a technical platform for future decisions.

Use ocean planning as a predicate to opening up areas of the OCS for offshore energy development, and as a critical pathway for engaging stakeholders on the access issues. Given the many strongly-held views on allowing access to energy resources in the OCS, ocean planning could be a vehicle for engaging interested parties in a constructive dialogue on the value of potential benefits of opening up areas for energy developments. The federal government—perhaps though the NOC—should consider piloting an ocean planning exercise in an area where there is strong state support, good information, and openness to use this process for exploring offshore energy development options. It could examine the panoply of relevant issues, including what information gaps need to be filled, a game plan for developing that information, and a set of issues that need to be considered as part of the process. This process might result in narrowing the areas of public concern, identifying areas where research could be most useful, and otherwise contributing to the baseline of scientific and other technical information and value preferences that are needed to inform the public debate.

Use ocean planning processes more formally to identify ways to streamline, coordinate, and shorten the permitting processes across agencies. The goal should be to identify ways to reduce time lags and redundancies, to streamline the process, and to get more expeditiously to "yes," "no," or "yes, if these conditions are met." The goal would not be to lessen attention to identifying, avoiding, or mitigating environmental impacts of offshore energy development, which "poses a number of unique environmental challenges."[20] Rather, the goal would be to reduce the overall length of the leasing/permitting/plan

[20] As described in the NPC's recent report which examined, among other things, operational and environmental issues associated with developing oil and gas in offshore/OCS locations:

> Seismic noise generated by offshore natural gas and oil exploration activities is recognized as a concern for whale populations and other marine life, including fish. Other considerations germane to offshore operations include special health and safety precautions; physical and other logistical constraints affecting the offshore management of drilling fluids, cuttings, and wastewater; noise and air emissions generated from the drilling equipment and support vessels and aircraft; industrial or solid waste including paint, spent solvents, and packing materials; subsea pipeline integrity; harmful aquatic organisms introduced from vessels traveling from other geographic regions; decommissioning offshore platforms; and ice-related environmental adaptations in arctic environments….

approval process. This might ultimately provide more value than reducing the out-of-pocket costs incurred by the operator to participate, submit a bid for a lease, prepare exploration and production plans with associated environmental assessments, and file an application for a permit to drill. In commercial markets, time of entry into markets is critical—and spending money for studies to reduce the entire regulatory processing time may be well worth it. Or, at least having the option for a developer to trade off more intensive applications with, for example, plans that exceed minimum performance standards, in exchange for a quicker review, may be an opportunity for addressing inefficiencies in the process.

One suggestion is to develop and use ocean planning processes to identify and implement approaches for developing environmental studies and assessments in ways that comport with NEPA objectives and requirements, while also leveraging a body of existing information more effectively.[21] The premise of ocean planning (that it builds a stronger body of geospatial information about resources, activities, and systems in the ocean) may provide an opportunity for such layering of environmental reviews.

Use ocean planning to identify and prepare a roadmap to fill gaps in baseline scientific and technical information relevant for permitting of offshore energy facilities. Development of a roadmap of needed information could enable a variety of players (including states, academic institutions, foundations, NGOs, and private companies) to support studies, research, information collection and analysis outside of funding constraints of federal agencies. The roadmap could facilitate, and be supported by, agreements on information protocols, and on ways to use survey vessels, seismic tests, and other methodologies for multiple data collection efforts. One possible option could be to implement a sort of *quid pro quo* approach to access and data collection. Private parties might be granted special access to certain unexplored or previously off-limits areas where data gaps exist for the purpose of detailed data collection efforts. Such access could be granted on the condition that the data acquired would subsequently be shared publically for the betterment of a potentially wide range of stakeholders.

Use ocean planning to consider changes in the BOEM wind area leasing process to reduce regulatory and investment risk, and reduce permitting barriers that add to an already difficult set of market, technology, and other conditions that raise the risk for offshore wind development. For example, ocean planning might enable wind leases to look more like those available for offshore oil and gas development, which confer a right to develop the resources in the leased area. This might overcome some of the challenges in the two-part site-assessment lease and construction/operating plan lease. BOEM has already shown interest in and a willingness to improve its processes (e.g., for auctioning competitive leases) to make them more workable commercially.

> Quickly detecting and responding to spills is one of the biggest challenges for offshore production, given the remote location of these facilities and the fact that drilling is occurring under water and out of human sight….The high volume of production from offshore wells means that large quantities of hydrocarbons can be released in a relatively short time, affecting aquatic, terrestrial, and avian wildlife. Stationary and bottom-dwelling aquatic organisms can be especially vulnerable. Terrestrial wildlife can be affected when oil is washed ashore, and birds can be affected both by oil that is washed ashore and by oil floating in the sea. Mitigating harmful impacts requires that spill response capabilities are in place and can be rapidly deployed. In arctic environments, periods of prolonged darkness, subzero temperature, and the presence of ice requires that response equipment and strategies are adequately developed to be effective under these challenging conditions.

NPC, Prudent Development Report, pp. 189-190.

[21] "The NEPA process can ensure Federal agencies consider environmental impacts on the numerous uses and activities within coastal and marine spatial plans. The NEPA process can be used to integrate ecosystem-based CMSP into a comprehensive consideration of environmental impacts and ensure that CMS Plans are better informed through public involvement. A comprehensive NEPA analysis can facilitate project-specific decisions by providing for tiered environmental impact statements or environmental assessments. Tiered environmental documents allow agencies to apply broad-scale environmental impact statements into programs, plans, or actions that have related impacts. A coordinated decision-making system, based on NEPA analyses that are tiered to a programmatic environmental impact statement, can decrease user conflict, improve planning and regulatory efficiencies, decrease their associated costs and delays, and preserve critical ecosystem functions and services." NOC. "Legal Authorities Relating to the Implementation of Coastal and Marine Spatial Planning," 2011, p. 3.

Areas for further research and inquiry

Many of the recommendations above would benefit from further research and analysis (even though such could take place within the context of the recommended ocean planning activities themselves, rather than in a serial process). Specifically:

- **Legal analysis and roadmaps to allow for greater "tiering" of NEPA analyses with respect to offshore energy development plans in particular areas:** At present under NEPA, federal agencies and subsequently energy developers must prepare documents multiple times, with respect to anticipated environmental impacts of energy development in particular places, without apparent changes in either the environmental conditions or development activities expected. "Each successive step in the process is subject to NEPA analyses, for five-year program proposals, lease sale proposals, Marine Mammal Protection Act (MMPA) authorizations, seismic exploration proposals, exploration proposals, and development and production proposals."[22] A "tiering" approach might allow for studies that build incrementally off of what was presented and approved in any prior environmental impact statements (EIS) for the same location. The NOC has recognized this as a potential benefit of ocean planning. A detailed legal analysis and roadmap for implementing such an approach by BOEM would be helpful for advancing this potential for tiering of NEPA analyses.
- **Similarly, legal analyses and roadmaps to allow for tiering of applications and reviews under (or in conjunction with) other statutes:** Offshore energy development in any particular geographic area undergoes multiple rounds of other sign-offs, as the process moves from long-term plans (e.g., five-year leasing plans for oil/gas development; WEA plans) through to specific reviews of project plans. These sign-offs include consistency reviews under CZM, as well as reviews under the Endangered Species Act (ESA) and MMPA. A legal analysis of how ocean planning might facilitate tiered reviews under these and other statutory schemes would be useful for providing a guide to shaping a more streamlined approach for such review, consistent with an ocean planning framework.
- **A study of best practices and lessons learned for ocean planning approaches, as applied in permitting contexts:** By now, several states and regions have developed ocean planning approaches where the process has guided development decisions and permitting practices. A study to assess the effectiveness of different approaches would be useful in better informing various government agencies (including those that participate in the NOC) as they implement ocean planning and attempt to integrate it into their regulatory and permitting processes.
- **Identifying ways to develop commercially workable *quid pro quo* requirements and, where appropriate, standardized study protocols** that accompany government decisions to allow companies access to off-limit areas for scientific studies and collection of technical data (e.g., seismic studies). Such requirements might be a way to optimize data collection, improve the quality and quantity of information about areas not yet well assessed, and provide greater information transparency to various parties. Such activities could be designed to accompany ocean planning processes.

[22] NPC, Prudent Development Report, pp. 242-243.