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

June 2013



Susan F. Tierney, PhD

With Stephen Carpenter

Analysis Group, Inc.

This white paper was commissioned by the New Venture Fund's (NVF) Fund for Ocean Economic Research (FOER).
This paper represents the views of the authors, and not necessarily the views of NVF, FOER, or the employer of the authors.

Table of Contents

EXECUTIVE SUMMARY[1]

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

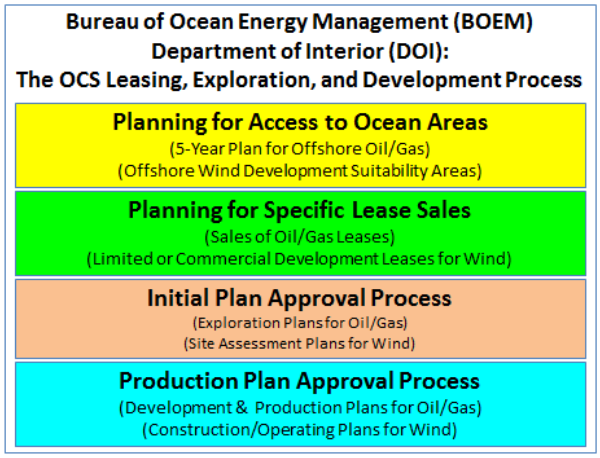
[2] The New Venture Fund's (NVF) Fund for Ocean Economic Research (FOER) engaged an Analysis Group team, led by Dr. Susan Tierney, to prepare an independent white paper analyzing the current regulatory environment for developing energy resources located in the ocean waters in the United States. (Dr. 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

---

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

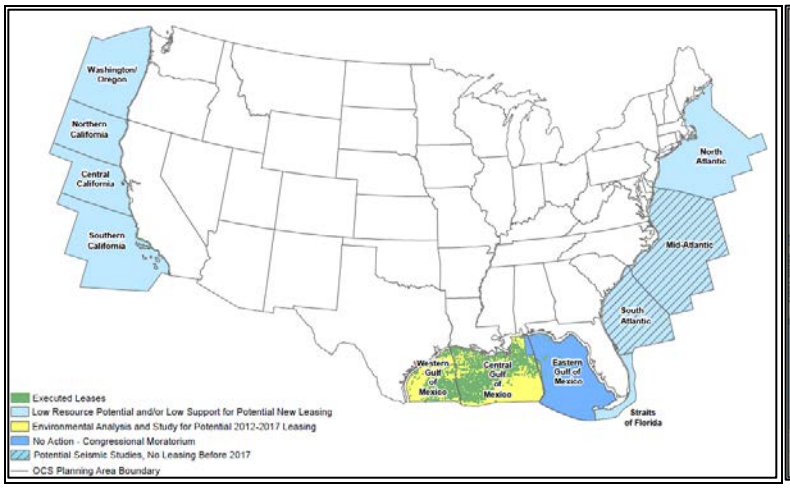
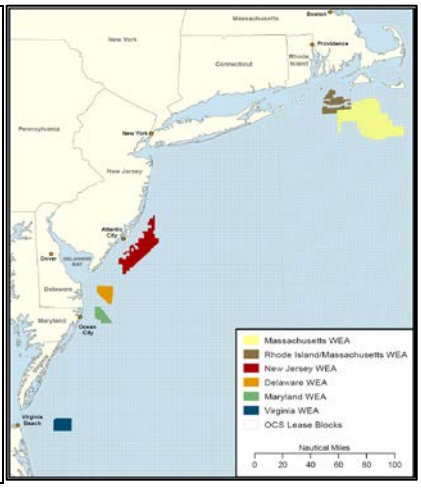


Figure 1.b
OCS Wind Energy Areas: Mid-Atlantic



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.

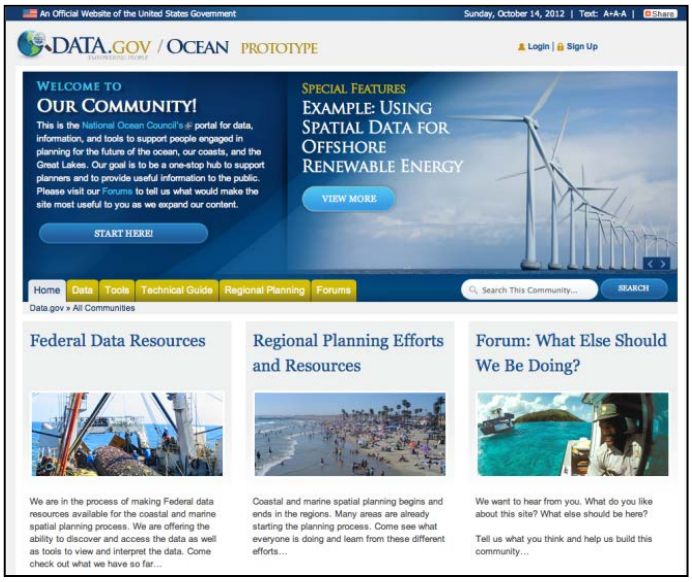
[13] "Businesses, communities, and governments that rely on ocean resources need high-quality scientific information and data. Greater access to high-quality data and information will enable maritime industries, resource managers, and decision makers at all levels of government to make responsible and 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.

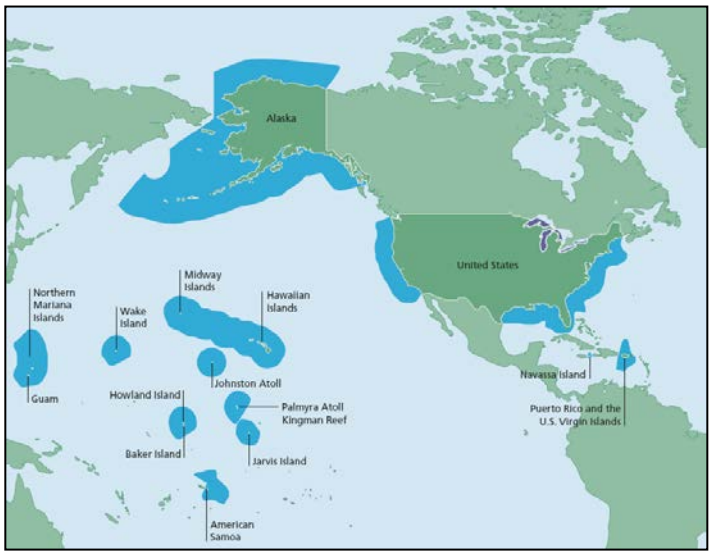
APPENDIX 1
BACKGROUND ON THE REPORT

1. INTRODUCTION

The nation's oceans are among our country's most valuable ecological and economic assets. Our oceans span a great variety of marine environments, from rocky intertidal zones to coral reefs, and from shallow beaches to the deepwater areas far away from shore. A vast portion of Americans' economic wellbeing, whether viewed locally, regionally, or nationally, depends upon coastal and ocean areas. A decade ago, ocean-related activities were estimated to contribute more than $117 billion annually to the American economy.[1] More recent estimates put that figure at $223 billion,[2] or far higher ($14.5 trillion) when taking into account all economic activities occurring in the United States' coastal areas.[3] Even these estimates understate the value of the nation's oceans, however, because they do not reflect the "intangible values associated with healthy ecosystems, including clean water, safe seafood, healthy habitats, and desirable living and recreational environments."[4]

A significant share of the nation's oil, gas, and renewable energy resources is located in offshore ocean areas subject to federal and state jurisdiction—an area of the ocean called the United States' Exclusive Economic Zone (EEZ).[5] (See Figure A1-1.) The US EEZ, at approximately 4.5 million square miles, is about 23 percent larger than the total land

Figure A1-1:
US Exclusive Economic Zone/Outer Continental Shelf



Source: National Ocean Commission, Ocean Blueprint, 2004.

---

[1] US Commission on Ocean Policy, "An Ocean Blueprint for the 21st Century," 2004 (hereinafter "Ocean Blueprint"), p. 2.

[2] According to the National Ocean Service, "In 2009, the ocean economy, which includes six economic sectors that depend on the ocean and Great Lakes, contributed over $223 billion annually to the US gross domestic product (GDP) and provided more than 2.6 million jobs. Tourism and recreation is the largest sector of the ocean economy, contributing to 72 percent of employment and 28 percent of GDP." http://oceanservice.noaa.gov/facts/oceaneconomy.html.

[3] National Ocean Economics Program Market Guide. http://www.oceaneconomics.org/Market/FAQ/FAQpage.asp.

[4] Ocean Blueprint, p. 31.

[5] Under the United Nations Convention on the Law of the Sea, a country has "(a) sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds…" http://www.un.org/Depts/los/convention_agreements/texts/unclos/part5.htm.

area of the United States.[6] This area includes the Outer Continental Shelf (OCS),[7] the area of submerged lands, subsoil, and seabed, lying beyond the states' oceans (generally three miles out from shore) and out to the edge of the United States' EEZ.

In some areas of our oceans, such as the Gulf of Mexico, oil and gas production has been underway for more than a half century, where it co-exists in waters with enormously productive and environmentally valuable fisheries, active shipping lanes, vibrant recreational activities, and priceless ecological systems. In other areas, drilling is off-limits. Many of these areas contain sensitive ecological systems. The moratorium on drilling in most parts of the OCS has been the subject of decades-old debates about environmental and economic considerations associated with allowing private companies access to explore and develop hydrocarbons located in these offshore areas. The 2010 Macondo accident and oil spill in the deepwater Gulf of Mexico sharpened the public's attention on the risks of developing offshore energy resources, as well as on the need to ensure that development occurs in an environmentally responsible and safe manner.[8]

Offshore wind has also proven controversial, although some coastal states are eager to launch and support this new renewable energy industry. While well established in Europe, the offshore wind industry is still in its infancy in the United States. As of this writing, there is no offshore wind energy project under construction in the United States despite a decade of rocky permitting activity. The US offshore renewable energy market finally "opened" in September 2012, as the first commercial tidal power production, located in Cobscook Bay in Maine, began injecting power into the New England grid.[9]

As decisions about development of the nation's rich offshore energy resources continue to unfold in the future, conflicts will inevitably arise, as they have in the past. Ocean energy resources exist in places with countless other concurrent activities and processes—from recreation, to scientific research, to commercial fishing, to shipping, to national security activities, to complex ecological processes, to contributions to the global and local climate systems. Federal and state decisions on particular plans to develop energy projects within their jurisdictions take place within this larger context. Given the complexity of oceans and their public nature, a complicated set of federal and state policies governs the abilities of private parties to develop these energy resources.

The number of public entities touching one or another feature of energy infrastructure in the ocean is large (as shown in Table 1 of this report—"Key Federal Statutes Affecting the Permitting of Offshore

---

[6] "[The] United States Exclusive Economic Zone (EEZ) [is] the area of the oceans over which the United States exercises exclusive environmental and economic jurisdiction. The U.S. EEZ was established by Presidential Proclamation in 1983. The establishment of an EEZ extending 200 nautical miles from the shoreline of a coastal nation is recognized and accepted under the United Nations Convention on the Law of the Sea." Pew Ocean Commission, "America's Living Oceans: Charting a Course for Sea Change—Summary Report," May 2003, p. vii.

[7] The "rights of the United States to the natural resources of that portion of the subsoil and seabed of the Continental Shelf lying seaward and outside of the area of lands beneath navigable waters,…all of which natural resources appertain to the United States, and the jurisdiction and control of which by the United States is confirmed." 43 USC § 1302 – Resources Seaward of Continental Shelf.

[8] National Petroleum Council, "Prudent Development: Realizing the Potential of North America's Abundant Natural Gas and Oil Resources," September 2011 (hereinafter, NPC Prudent Development Report), p. 7; Cover letter to Energy Secretary Steven Chu, September 15, 2011. http://www.npc.org/NARD-ExecSummVol.pdf.

[9] David Sharp, "1st Tidal Power Delivered to US Grid off Maine," Associated Press, September 14, 2012. http://finance.yahoo.com/news/1st-tidal-power-delivered-us-230817883.html.

Oil/Gas or Wind Development Projects"). Government decisions are shaped through processes involving consideration of significant technical and scientific information, analyses, different perspectives and values, commercial and economic interests, time, money, and—often—politics.

Agencies sometimes have overlapping and often times conflicting (or at least inconsistent) mandates when considering an individual project. Many in the development community have criticized these regulatory processes as delay-ridden, unduly burdensome, costly, duplicative, poorly coordinated among relevant federal and state agencies, and lacking in transparency for applicants, other stakeholders, and the public. These factors can chill investor and developer interest, make the process more reactive than proactive, and weaken public understanding of and engagement in the process.

Increasingly, public decisions about marine energy development issues and projects are being made against an evolving backdrop of ocean management policies and marine spatial planning. Where such ocean planning has occurred in the past in the United States, it has taken place mainly at the state level. But the federal government is also starting to implement a new National Ocean Policy (NOP) grounded in ocean planning principles.

2. STUDY PREMISE AND PURPOSE

This study explores the potential for ocean planning to support greater ***efficiency*** in the processes governing access to and permitting of energy infrastructure in the ocean. It also examines other possible benefits such as establishing a platform for healthy energy infrastructure investment that provides appropriate environmental and ecosystem protection and safety assurances. The study deliberately avoids taking a position on whether any particular offshore energy resources *should* be developed. Rather, it focuses on process issues that are important for how the government makes decisions about whether to allow development in particular places and, if so, how such development may occur. While this study approaches the issues surrounding offshore energy development from multiple perspectives, often the primary viewpoint illustrated is that of the developers. This stems from the purpose of the study: to examine potential business-related or investment-related benefits of ocean planning.

"Efficiency"

The concept of e*fficiency* can be defined as the quality of being efficient, 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 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* 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.

The New Venture Fund's Fund for Ocean Economic Research (FOER) engaged an Analysis Group team, led by Dr. Susan Tierney,[10] to prepare an independent white paper analyzing the current regulatory

[10] 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. The engagement of the Analysis Group team was based on its ability to conduct an independent study, and Dr. Tierney retained full editorial control of this report.

environment for development of offshore energy resources in the United States. Of central interest to FOER was the potential for ocean planning to provide for greater efficiency in the processes governing access and permitting of energy infrastructure in the ocean without compromising environmental protection. Such efforts ideally could provide for additional benefits such as establishing a healthy platform for energy infrastructure investment that also provides appropriate environmental and ecosystem protection. The Analysis Group team was asked to analyze and highlight potential business-related benefits of ocean planning in the area of renewable energy development and other offshore energy resources.

Even recognizing the underlying business focus of this study and its deliberate attempt to explore issues of interest to private energy investors, the authors started from a premise grounded firmly on the need for prudent regulation and resource management. This is essential for protecting, if not for taking steps to enhance, the health of marine ecologies and systems. Human uses of the ocean must be in balance with environmental protections. This environmental imperative is critical not only to the environmental health of our oceans, but also to the economic health of the nation, as the two are inexorably intertwined.

In developing this report, Analysis Group was asked to explore several specific questions, among them:

- Where are the inefficiencies in the current regulatory system?
- Within the context of existing law, how might comprehensive ocean planning change the permitting process?
- What would the benefits of such changes be?
- What systems and processes need to be in place to achieve those benefits?

The study authors examined these issues by researching and analyzing current federal and state regulatory frameworks and processes for accessing ocean-based energy resources in two settings: offshore oil and natural gas development in the Gulf of Mexico in the era following the 2010 Macondo oil spill,[11] and offshore wind development in the ocean off of the Mid-Atlantic states in the past few years.[12] The focus is on the permitting environment as it stands today, which is in many ways quite different from just a few years ago.[13] In the context of both offshore oil and gas, and offshore wind development, the report reviews the recent history and current status of policies and practices relating to ocean planning.

Without concluding that the process is or is not "efficient," this study started from the premise that there are opportunities for improvements that could positively affect the investment climate for both offshore wind and offshore oil and natural gas development, without sacrificing environmental protection in those particular areas where the government has decided to allow energy development to occur.

---

[11] We used this lens because this study was intended as a forward-looking assessment of the potential benefits of incorporating ocean planning principles and practices into offshore energy development and regulation. The regulatory environment currently faced by oil and gas developers, post-Macondo, is in many ways substantively different than it was pre-Macondo. Among other things, it includes more detailed information requirements, additional safety planning, increased regulatory lag, and more judicious use of categorical exclusions within the environmental review process. We focus on current processes because we do not want to imply that the government should return to the old way of doing business.

[12] Because no wind project has moved all the way through the regulatory process and into construction and commercial operation, and only one—Cape Wind, offshore of Massachusetts, a highly litigated and contentious project—has received all of its permits, the analytic challenge was to assess wind-access and permitting processes that are not yet routine, and also to keep views of these processes from getting colored by the particular history of the Cape Wind project.

[13] The Analysis Group team's research concluded in December 2012.

By necessity, this review involved examining activities in state ocean areas (typically extending three miles offshore) and in federal waters (e.g., extending out through the 200 miles of the United States' EEZ). The Analysis Group team collected information from publicly available documents, and conducted interviews with individuals directly involved in, or familiar with, the relevant regulatory and planning processes.[14] Given the nature of this study and its underlying business-related questions, many of the perspectives highlighted herein are those of developers and other industry participants.

Although the permitting processes are different for the two main types of energy resources relevant here, there are also commonalities. In both, developers observe many instances of overlapping and duplicative filing and study requirements that are necessary for gaining different agency approvals; lack of sufficient coordination across jurisdictions; uncertainties in agency requirements and information gaps that often lead to multiple sequential rounds of information filing and reviews, and often to delays; and various chicken-and-egg problems that exacerbate the challenges investors and developers already face under the best of circumstances. Some of these inefficiencies raise costs and create other burdens for the government (and taxpayers), developers, and the interested public.

This white paper identifies some potential benefits of applying comprehensive ocean planning principles and practices within existing statutory arrangements and the current offshore ocean energy development regulatory process. The report also makes several recommendations about possible process changes that might improve the efficiency of leasing and permitting processes for government agencies, developers, and other interested parties. These opinions and recommendations are supported by appendices detailing the recent history of and policy context for development of offshore oil and gas resources in the Gulf of Mexico, for development of offshore wind resources in the Mid-Atlantic region, and for ocean planning and management at both the state and federal levels. (See Appendices 2-4, and a list of acronyms in Appendix 5.)

3. WHY IS THIS IMPORTANT?

The nation's oceans represent an invaluable set of assets, spanning the range of environmental and economic systems. As described in 2004 by the US Commission on Ocean Policy:

> Energy from beneath the seabed helps fuel our economy and sustain our high quality of life. The oceans host great biological diversity with vast medical potential and are a frontier for exciting exploration and effective education. The importance of our oceans…cannot be overstated; they are critical to the very existence and wellbeing of the nation and its people.…Millions of families depend on paychecks earned directly or indirectly from the value of the sea, including the magnetic pull of the nation's coasts and beaches.

The current national debate on domestic energy development includes a wide range of views. Some seek a lower-carbon energy economy and see development of offshore wind as a vital part of such as strategy. Others who seek US energy independence view extraction of domestic offshore ocean-based oil and gas resources as a pathway towards that goal. Regardless of one's standpoint about such offshore energy

[14] This white paper contains excerpts from multiple interviews performed by Analysis Group, and unless the interviewees gave explicit permission, interviewees will remain anonymous and excerpts will be attributed using only general non-identifying information. Additionally, the quoted statements of interviewees reflect the gist of the person's comments, which in some cases have been edited for context, grammar, and so forth.

development aspirations, the processes through which public decisions are made about such matters inevitably involves wading into the realities of a very busy, crowded, and valuable marine environment, with a myriad of other pressures, concerns, and conditions besides energy development. It seems unlikely that such decisions about offshore energy development can reasonably occur without deep respect for these other issues.

Ocean planning may provide a way to consider how the options unfold. This is a powerful reason why the recent federal initiative to develop a NOP and plan provides benefits that—in the view of the authors—should be supported over time. 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 better 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 their plans in the context of strong scientific and technical information; and to the NGOs, to give them the benefit of a seat at the table and an opportunity to help influence sound governmental decisions.

APPENDIX 2

INDUSTRY VIEW OF PERMITTING PROCESSES FOR OFFSHORE OIL AND GAS RESOURCE DEVELOPMENT

1. BRIEF HISTORY OF OFFSHORE OIL AND GAS DEVELOPMENT, PRODUCTION AND USE IN THE UNITED STATES

Offshore oil drilling began at the end of the 19th century, off the coast near Santa Barbara, California. After a period of significant technological improvement, in 1947 Kerr-McGee Oil Industries drilled the first producing well beyond the sight of land, about 10.5 miles off the Louisiana coast.[1] As oil and gas development was set to take off in relatively shallow areas in the Gulf of Mexico (GOM), President Truman asserted federal jurisdiction over the outer continental shelf, a position upheld by the US Supreme Court. With this ruling, states could no longer issue far-offshore leases; however, there was no statutory basis for the federal government to do so.

In 1953, Congress' enactment of the Submerged Lands Act (SLA) and the Outer Continental Shelf Lands Act (OCSLA) remedied this stalemate by giving the Department of the Interior (DOI) authority to issue leases in the area that formally became known as the Outer Continental Shelf (OCS). Offshore oil production rose from only 133,000 barrels per day (bpd) in 1954 (only two percent of total US production), to 1.7 million bpd in 1971 (about 20 percent of US production at the time).[2]

Production moved farther offshore as new platform, drilling, seismic, and other technologies improved over time. The move from shallow to deepwater (i.e., more than 1,000 feet below the surface of the ocean) began over 35 years ago. One of the first major deepwater discoveries was by Shell Oil Company in 1975. Shell also drilled one of the first ultra-deepwater wells (i.e., beyond 5,000 feet below the surface of the ocean) in 1986, with many other companies (e.g., Conoco, British Petroleum, ExxonMobil), following suit.

The trend into deeper water has continued over time. The vast majority of offshore oil and gas production in the United States has historically come from the GOM, and this trend continues today. According to the recent National Petroleum Council (NPC) report,

> [T]he year 2000 marks a transition from predominantly shallow water oil production to deepwater production. In 2000, annual deepwater crude oil production amounted to 271 million barrels, while shallow water production was 252 million barrels. By 2007, annual crude oil production from the shallow water had dropped to 140 million barrels while in deepwater regions of the Gulf of Mexico production rose to 328 million barrels. Since 2005, the deepwater Gulf of Mexico has contributed about 70% of the total Gulf of Mexico OCS crude oil production. This trend is expected to continue as more discoveries and drilling activities occur in the deepwater and ultra-deepwater areas of the Gulf of Mexico. Given this history, the deepwater area of the Gulf of Mexico represents an important part of U.S. oil supply, and it is viewed as one of the

---

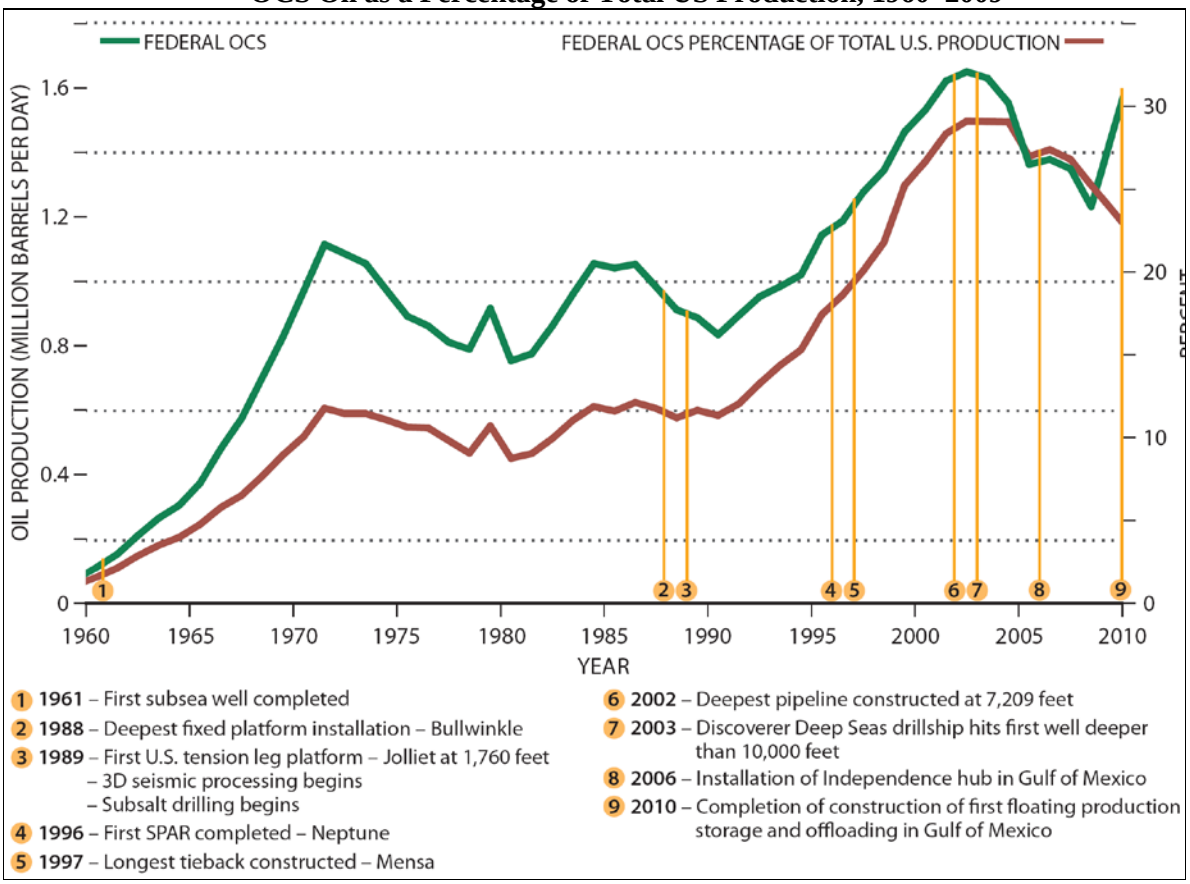
[1] "National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, Draft Staff Working Paper No. 1 – A Brief History of Offshore Oil Drilling," August 23, 2010 (hereinafter "Brief History"), p. 1.

[2] Brief History.

most important world oil and gas provinces. All this has been made possible by means of technological breakthroughs that have allowed oil and gas companies to operate out in these harsh and challenging environments.[3]

Figure A2-1 shows the changes in oil production in the OCS from 1960 to 2009:

Figure A2-1
OCS Oil as a Percentage of Total US Production, 1960–2009



Source: NPC Prudent Development Report, Figure 1-20.

As of 2011 the United States was the largest global consumer of petroleum products (18.8 million bpd).[4] That year, United States demand dwarfed domestic crude oil production (5.7 million bpd), as in most years in recent decades.[5] Moreover, US domestic production is quite small compared to global crude oil

[3] National Petroleum Council ("NPC"), "Prudent Development: Realizing the Potential of North America's Abundant Natural Gas and Oil Resources" (hereinafter, NPC Prudent Development Report), pp. 82-83.

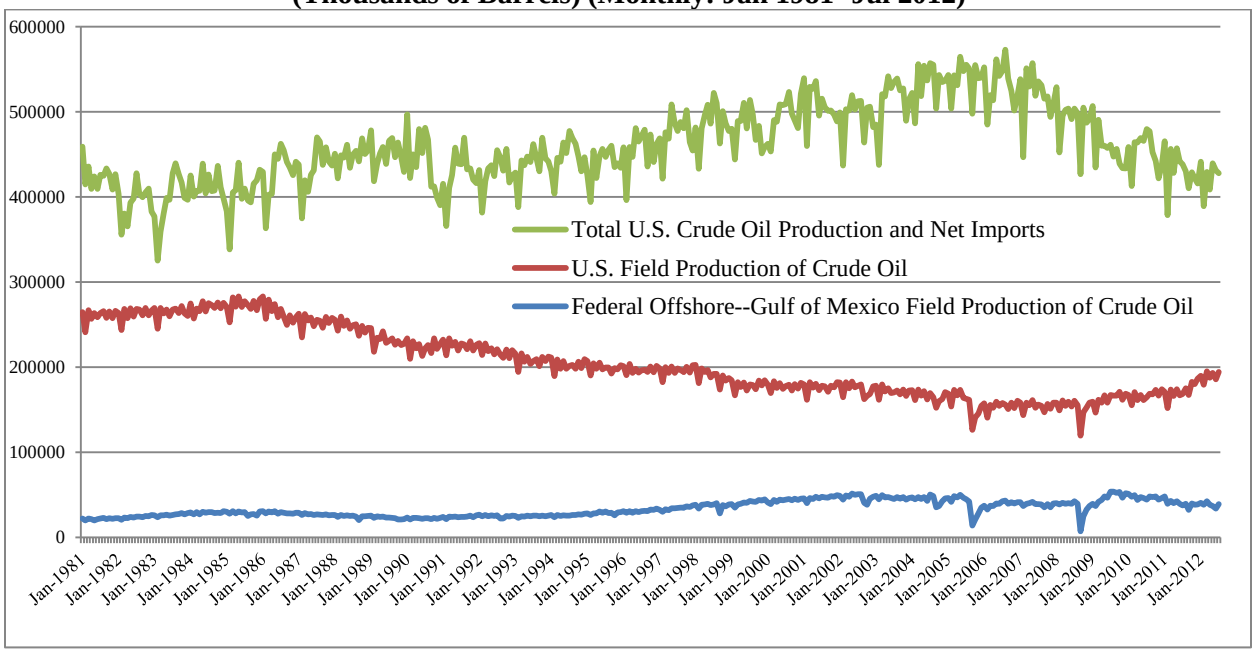
[4] Energy Information Administration ("EIA"), "Oil: Crude and Petroleum Products Explained." http://www.eia.gov/energyexplained/index.cfm?page=oil_home#tab2.

[5] EIA, "Gulf of Mexico Fact Sheet – Energy Data." http://www.eia.gov/special/gulf_of_mexico/data.cfm# petroleum_fuel_facts

production (87.0 million bpd in 2011).[6] Although three-quarters of US crude oil production comes from onshore, the vast majority of US offshore crude oil production comes from the GOM (1.3 million bpd from the GOM vs. 1.4 million bpd for total US OCS production).[7]

As of mid-2012, GOM production accounted for approximately a fifth of total crude oil production in the United States, down from its height in 2009 when it made up a third of total US production. Since the beginning of 2011, GOM production made up approximately nine percent of total crude oil (domestic production plus net import), with US production accounting for approximately 42 percent of total crude oil produced and imported (on a net basis) into the United States.[8] (See Figure A2-2, below.)

Figure A2-2
US and Federal Offshore Crude Oil Production, and Total US Crude Oil Including Net Imports
(Thousands of Barrels) (Monthly: Jan 1981- Jul 2012)



Source: EIA. (Note that GOM production is US field production from offshore GOM locations. US field production is all production in the US (including GOM production). Total US crude oil production is US field production plus net imports of crude oil into the US)

Natural gas production also occurs in the offshore GOM. The United States is a major global producer of natural gas, with approximately 20 percent of global output—112.9 trillion cubic feet (Tcf)—in 2011.[9] With natural gas consumption (24.4 Tcf) relatively close to domestic production, the United States is now

---

[6] EIA, "Oil: Crude and Petroleum Products Explained."

[7] EIA, "Gulf of Mexico Fact Sheet – Energy Data."

[8] EIA, data on crude oil production and net imports by month and by location. http://tonto.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRFPUS1&f=M; http://tonto.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MTTNTUS2&f=M.

[9] EIA, "Natural Gas Explained."

only slightly a net importer.[10] Most of American natural gas production comes from onshore sources (92 percent) and increasingly from "unconventional" sources (e.g., shale gas, tight gas, coal bed methane), but the majority of offshore natural gas production comes from the GOM (1.7 Tcf from the GOM vs. 1.8 Tcf for total US OCS).[11] Looking ahead, the GOM offers further opportunities for unconventional natural gas production.

2. OIL AND GAS RESERVES IN THE OFFSHORE OCEANS OF THE UNITED STATES

The size of the nation's oil and gas resource base can be viewed through multiple lenses. The characterizations vary in technical ways: "Proven" (or "proved") reserves are those that have either been technically discovered in a known field, or have a very high (e.g., 90 percent) likelihood of being present. "Undiscovered economically recoverable reserves" (UERR) are those that are undiscovered but economically profitable to extract given a particular market price for the resources. "Undiscovered technically recoverable reserves" (UTRR) are those that have yet to be discovered but, regardless of economic feasibility, are assumed to be extractable given current technologies.[12]

Using any of these lenses and based on current estimates, the GOM holds the majority of all oil and gas reserves when compared to all other OCS areas off the coast of the United States. In 2011 the Bureau of Ocean Energy Management (BOEM) developed an assessment of UTRR along the US OCS.[13] Of the approximate total of 90 billion barrels of oil (BBO) and 400 Tcf of natural gas, nearly 50 BBO and 220 Tcf reside in the GOM. Within the GOM, more than 60 percent of these reserves are located within the Central GOM planning area, about 30 percent are in the Western GOM area, and the rest are in the Eastern GOM area. (See Table A2-1 below for more details.)

---

[10] Ibid.

[11] EIA, "Gulf of Mexico Fact Sheet – Energy Data."

[12] "Undiscovered technically recoverable resources (UTRR). Oil and gas that may be produced as a consequence of natural pressure, artificial lift, pressure maintenance, or other secondary recovery methods, but without any consideration of economic viability. They are primarily located outside of known fields. Undiscovered economically recoverable resources (UERR). The portion of the undiscovered technically recoverable resources that is economically recoverable under imposed economic and technologic conditions." Gene Whitney, Carl Behrens, and Carol Glover, Congressional Research Service, "US Fossil Fuel Resources: Terminology, Reporting, and Summary," November 30, 2010, CRS 7-5700, R40872, p. 20.

[13] DOI, "Oil and gas lease utilization, onshore and offshore," May 2012 (hereafter "DOI Lease Utilization"). http://www.doi.gov/news/pressreleases/upload/Final-Report.pdf.

Table A2-1
Undiscovered Technically Recoverable Resources in the GOM

Region	Undiscovered Technically Recoverable Conventional Oil and Gas Resources (UTRR) - Mean Estimates	
	Oil (Bbo)	Gas (Tcfg)
Gulf of Mexico OCS		
Western Gulf of Mexico	12.38	69.45
Central Gulf of Mexico	30.93	133.90
Eastern Gulf of Mexico	5.07	16.08
Straits of Florida	0.02	0.02
Total Gulf of Mexico OCS	48.40	219.46
Total Alaska OCS	26.61	131.45
Total Other OCS	13.50	47.38
Total U.S. OCS	*88.59*	*398.37*
*Total U.S., excluding federal OCS**	*32.00*	*291.00*

* 10 Bb of natural gas liquids not included in this table

Source: BOEM, "Assessment of Undiscovered Technically Recoverable Oil and Gas Resources of the Nation's Outer Continental Shelf, 2011." "Tcfg" stands for trillion cubic feet of gas.

BOEM has also characterized the UERR for the GOM at various oil and natural gas (equivalent) price levels, as shown in Table A2-2. At low commodity prices, the vast majority of UERR will come from the GOM. As commodity prices increase, resources from other OCS areas will become more economical. The GOM thus contains undiscovered resources that are less expensive to extract than in those in other OCS areas.

Table A2-2
Undiscovered Economically Recoverable Resources in the GOM

Region	Undiscovered Economically Recoverable Oil and Gas Resources (UERR)											
	$30/Bbl $2.14/Mcf		$60/Bbl $4.27/Mcf		$90/Bbl $6.41/Mcf		$110/Bbl $7.83/Mcf		$120/Bbl $8.54/Mcf		$160/Bbl $11.39/Mcf	
	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas
Gulf of Mexico OCS	32.74	129.92	40.29	172.06	42.80	185.94	43.64	190.46	43.97	192.25	44.93	197.53
Western GOM	8.28	43.72	10.29	57.44	10.96	61.46	11.19	62.71	11.28	63.20	11.53	64.59
Central GOM	21.17	78.09	25.95	103.99	27.52	112.77	28.04	115.61	28.25	116.74	28.85	120.05
Eastern GOM	3.28	8.12	4.05	10.62	4.31	11.71	4.40	12.13	4.43	12.31	4.54	12.88
Total U.S. OCS	39.91	144.62	60.39	212.93	70.19	253.15	73.65	274.08	74.94	283.52	78.40	311.89

Source: BOEM, "Assessment of Undiscovered Technically Recoverable Oil and Gas Resources of the Nation's Outer Continental Shelf," 2011.

Proved reserves are much smaller than the seemingly vast unproven reserves, and as of 2010 the Energy Information Administration (EIA) estimated that the GOM 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.[14] Typically,

[14] EIA, Annual Energy Outlook 2012 – Oil and Gas Supply Module, 2012, pp. 112-113.

offshore resources must be highly proven and capable of producing greater volumes per well to justify the added cost of their development relative to onshore resources.[15]

Estimates of reserves depend on policies of the US government with regard to access. Currently, parts of the OCS are off limits for development, subject to congressional and administrative policy decisions. For example, a "portion of the Central Gulf of Mexico Planning Area (CPA) and most of the Eastern Gulf of Mexico were placed under moratoria by the Gulf of Mexico Energy Security Act of 2006 and restricted from leasing until 2022."[16] The NPC Prudent Development Report suggests that "[a]dditional development potential exists in areas that have largely been under exploration and development moratoria for most of the past two decades, in particular the Eastern Gulf of Mexico and the Atlantic and Pacific OCS.…[A] significant resource base remains available for future offshore oil production."[17]

3. CHALLENGES OF OFFSHORE OIL AND GAS DEVELOPMENT

Developing oil and natural gas in offshore areas poses a number of unique environmental challenges. As described in the NPC's recent Prudent Development report which examined operational and environmental issues associated with developing oil and gas in onshore and offshore/OCS locations, activity in the latter involves significant complexity:

> 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

---

[15] NPC Prudent Development, Chapter 2, p. 189.

[16] DOI 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.

[17] NPC Prudent Development Report, pp. 82-83. According to some industry observers, government estimates tend to be conservative. For example, a report prepared for the American Petroleum Institute (API) by ICF observes that: "An important issue in forecasting potential production from restricted areas that has been inadequately addressed is the dynamic nature of oil and gas assessments through time. Analysis of historic US assessments shows that there is a strong tendency for assessments to increase through time as more is learned about an area through exploration and development activity. For example, assessed resources in the Gulf of Mexico have increased greatly since the 1970s. The most important factor behind this trend is that as a basin is developed, more becomes known about the habitat of oil and gas in that area, including the nature of plays and prospects, and the discovery of new productive trends that were not previously anticipated. This increased understanding tends to lead to higher assessments of potential. Upstream technologies are also constantly improving. For example, the seismic data used decades ago to evaluate the potential from the Atlantic OCS does not compare in quality to modern seismic. The collection of modern seismic data would result in a much better understanding of the subsurface, and hence an improved resource assessment. In addition to providing better information for the assessment, new technologies for drilling and production might reduce costs and allow the development of some of the more marginal resources that would not have previously been economic. Since industry has not been allowed to explore the Atlantic OCS, Pacific OCS, and Eastern Gulf of Mexico for decades, assessments of remaining potential have largely been 'frozen in time.' The MMS Atlantic assessment has changed little since the 1980s and the Pacific OCS assessment has been relatively unchanged. The assessments of these areas stand in contrast to that of the developed portion of the Western and Central Gulf of Mexico, which has seen large increases in assessed volumes, with substantial increases even within the past few years. A big reason for this is that new concepts and new play trends are being discovered—trends that were not conceptualized in prior assessments. Such trends are the result of geologic understanding that only comes through extensive exploration." ICF International report prepared for API: Harry Vidas and Bob Hugman, "Strengthening Our Economy: The Untapped US Oil and Gas Resources," prepared for API, December 5, 2008, pp. 10-11.

> 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….
>
> 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.[18]

4. IMPORTANCE OF OFFSHORE OIL AND GAS AND OTHER OCEAN-BASED RESOURCES TO THE GULF OF MEXICO ECONOMY

For decades, thriving oil and gas industries have been able to coexist with other ocean users, such as tourism and commercial and recreational fishing.[19] In 2009, for example, three of the largest six commercial fishing ports in the United States were located in the GOM.[20] In the five states that touch the GOM, 128,000 seafood industry jobs (an eighth of the total US seafood industry jobs) existed, and a sixth of the nation's total landing revenues for commercial fishermen was generated there.[21] Over a quarter of the total recreational fishing jobs in the United States were located in Western Florida and the other four states in the GOM (with a total of 92,000 jobs there in 2009), and total recreational fishing sales here amounted to $9.88 billion, or a fifth of the nation's total recreational fishing industry sales that year.[22] The National Marine Fisheries Service (NMFS), which is part of the National Oceanic and Atmospheric Administration (NOAA), has estimated that the total economic value added from commercial and recreational fishing industries in the five GOM states was $11.3 billion in 2009.[23]

The contribution of the GOM oil and gas industries to the local economy is also enormous. In 2009 the offshore oil and gas industry contributed an estimated total of more than 382,250 jobs, nearly $70 billion

---

[18] NPC Prudent Development Report, Chapter 2, pp. 189-190.

[19] This coexistence has been tenuous at times when oil discharges have disrupted other users, such as with the Macondo accident that began in April 2010.

[20] As measured by pounds landed. NOAA, "NOAA's State of the Coast – The Gulf of Mexico at a Glance," 2011, p. 22.

[21] Source: NMFS – NOAA, "Fisheries Economics of the United States 2009, Economics and Sociocultural Status and Trends Series," May 2011.

[22] Ibid.

[23] Ibid.

in added value, and $30 billion in labor income.[24] Additionally, the offshore oil and gas industries contribute a substantial amount of money to states, as well as the federal government, in the form of tax receipts (primarily personal, corporate, and royalties). In 2009 these amounts were estimated to be approximately $7.2 billion in federal taxes, $5.7 billion in state and local taxes, and $6 billion in federal royalty payments.[25]

Many regional oil and gas markets in the United States depend upon output of energy supplies from the GOM. When hurricanes Katrina and Rita hit the GOM and coastal states in the summer and fall of 2005, American consumers outside the GOM saw energy prices rise and stay high for quite some time:

> Perhaps no economic sector was more affected than the energy sector by the hurricanes… but the impacts on energy supply and prices have been far from local…. The paths of Katrina and Rita sliced right through the heart of the Gulf Coast's fossil fuel infrastructure. Hundreds of petroleum and natural gas production wells and import facilities were destroyed, set adrift, or damaged, as was the extensive web of pipelines that carry oil and gas to processing facilities or ultimate customers…. The combined effect of the two hurricanes took out virtually all of this capacity for a short period of time, and an unprecedented level of capacity for a more extended period of time….The havoc wrecked on U.S. energy markets in the wake of the two hurricanes was unprecedented.… The vast majority of the petroleum and natural gas products consumed in the eastern half of the country find their origin in markets, storage, processing, and pipeline capacity concentrated in Gulf states. The sheer magnitude of fossil fuel operations in the Gulf make them the centerpiece of U.S. natural gas and refined petroleum product supply and pricing.[26]

These economic metrics for several industries in the GOM (i.e., commercial and recreational fisheries, and offshore oil and gas) hardly begin to fully value the ocean resources in the GOM. For example, they do not reflect the value of other tourism activity beyond recreational fishing, and they do not capture shipping or other activities that use the GOM oceans. They are incomplete and understate the monetary value of that ocean region. Moreover, these metrics do not reflect at all the difficult-to-estimate non-monetary values of ocean-based activities and natural systems located in the GOM. Even so, they point to the enormous impact of multiple human uses of the ocean resources in the GOM.

---

[24] Includes direct, indirect, and induced effects; IHS Global Insight, "The Economic Impact of the Gulf of Mexico Offshore Oil and Natural Gas Industry and the Role of the Independents," July 2010.

[25] Ibid.

[26] Paul Hibbard, "US Energy Infrastructure Vulnerability: Lessons From the Gulf Coast Hurricanes," report to the National Commission on Energy Policy, March 2006, pp. 2-3.

5. THE FRAMEWORK FOR PERMITTING OIL AND GAS FACILITIES IN OFFSHORE WATERS

A. The Federal Role: the Department of the Interior's Bureau of Ocean Energy Management

Overview

The DOI has responsibility for managing real estate and other resources owned by the US government. Within DOI, responsibility for managing oil and gas resources under federal jurisdictions falls to the BOEM.[27]

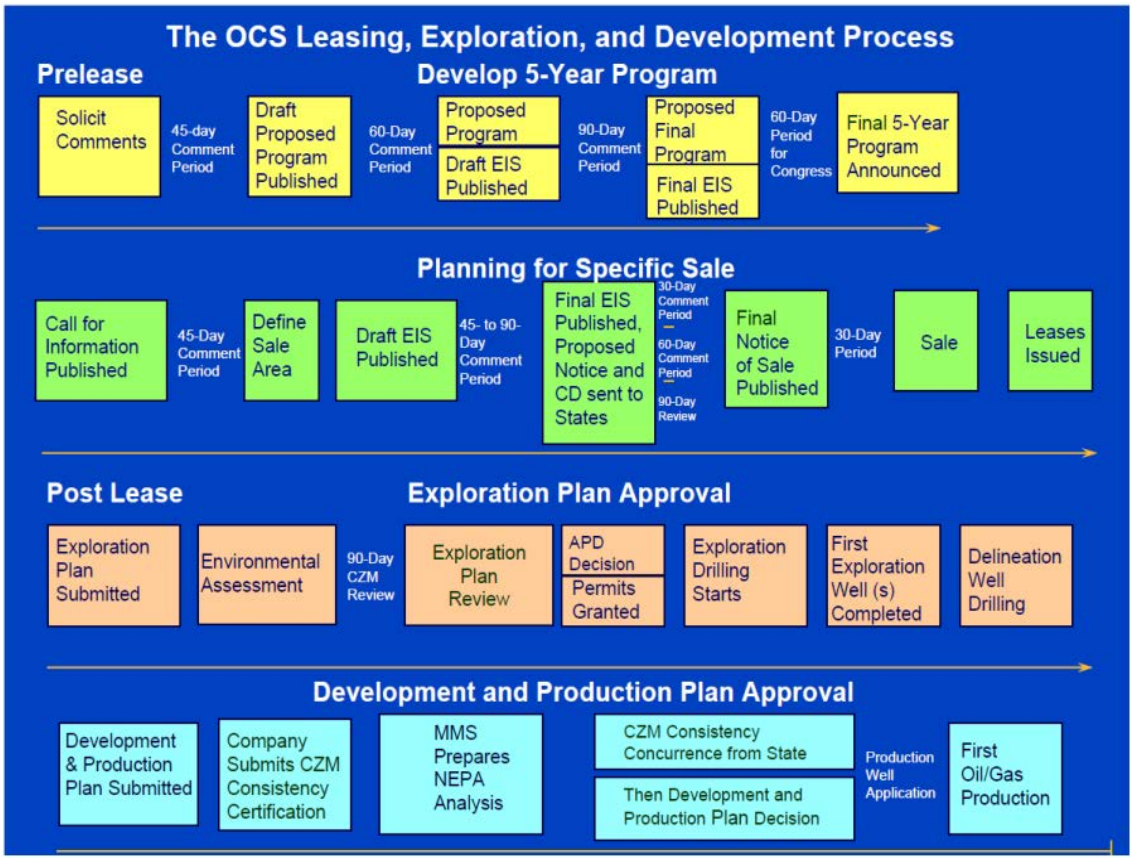
Figure A2-3 The Access Framework for Oil and Gas Resources in the OCS

Private parties obtain the ability to extract oil and natural gas resources located in federal offshore waters through a formal process involving four sets of activities. The heart of the access process is the lease: the instrument the federal government uses to allow a particular party to hold rights in a particular geographic area of the OCS. After acquiring a lease, a leaseholder prepares and submits plans to explore that area to determine whether to commercially develop resources potentially located there. Such plans must take place within a specified time period or the lease holder in effect must abandon the lease. Post-exploration, the leaseholder then determines whether to proceed with commercial development of any oil and gas resources existing within the leased area. If the leaseholder decides to proceed toward commercial development, he then must prepare a development plan for review and approval by BOEM.

The overall process—shown in simplified form in Figure A2-3—actually begins with a planning process through which BOEM develops an overall program for OCS leasing over a future five-year period. The first two steps (developing the five-year program plan and planning for specific lease sales) set up the opportunity for private parties to gain access to a lease area. The second two steps occur after the issuance of leases, and reflect actions a leaseholder takes to move toward exploration and development of oil and gas in their OCS lease(s). The leasing process for oil and gas in the OCS has evolved over many years and is now a well-established process, with continued fine tuning over time. A more detailed depiction of the process is shown in Figure A2-4 below.

[27] Previously, the agency responsible for managing offshore oil and gas resources was the Minerals and Management Service (MMS). This office and its various functions were reconfigured by the Secretary of Interior after the Macondo accident. Initially, he established the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE). In October of 2011, BOEMRE was replaced by two different units: BOEM; and the Bureau of Safety and Environmental Enforcement (BSEE). http://www.boemre.gov/

Figure A2-4



Source: http://www.gomr.boemre.gov/images_opt/graphics/Nepaoutline.jpg.

Formulation of plan governing oil and gas leasing on the OCS

For each consecutive five-year period, the Secretary of the Interior approves a five-year OCS leasing program for oil and gas (OCS Lease Plan), prepared with the BOEM.[28] The currently approved OCS Lease Plan is for the 2012-2017 period, and was finalized in August 2012. The 2012-2017 OCS Lease Plan covers the entire US OCS, including all 26 OCS planning areas, shown in Figure A2-5 below.

The OCS Lease Plan consists of a schedule indicating the size, timing, and location of proposed leasing activity "the Secretary determines will best meet national energy needs."[29] Lease areas must be included in an OCS Plan in order to be offered for auction. Inclusion in an OCS Plan, however, does not mean that a lease area must be offered. In other words, a lease area cannot be added to an OCS plan after the fact, but it may be removed from public offering.

[28] 2012-2017 OCS Lease Plan.

[29] DOI, Lease Utilization.

OCS Lease Plans are also subject to annual revision,[30] involve "extensive public comment," and require the Secretary to balance (a) oil and natural gas discovery potential, (b) potential environmental damage, and (c) potential for adverse effects on the coastal zone.[31] The preparation of the 2012-2017 OCS Lease Plan, for example, took approximately four years, and BOEM received over 280,000 written comments and held public hearings in three different regions.[32] Before issuing a plan, the Secretary must solicit and consider comments from the governors of affected states. The Attorney General is also authorized to submit comments after its publication regarding potential effects on competition.[33] The overall process requires an environmental impact statement (EIS) as required under the National Environmental Policy Act (NEPA).[34]

Figure A2-5

Source: http://ocsenergy.anl.gov/.

The 2012-2017 OCS Lease Plan specifically responds to concerns about the possibility of future Macondo-like events. BOEM has explained that a more "region-specific" and less "one-size-fits-all" approach has been taken with regard to planning areas compared with previous programs.[35] Moreover, when deciding whether to put an area or individual lease up for auction, BOEM determined that its decisions "must be based on the unique combination of resource potential, and environmental and social factors specific to individual OCS areas."[36]

---

[30] BOEM, "Five-Year OCS Oil and Gas Leasing Program," (hereinafter "Five-Year OCS Leasing Program"). Accessed August 7, 2012, http://www.boem.gov/5-year/2012-2017/.

[31] DOI, Lease Utilization.

[32] 2012-2017 OCS Lease Plan.

[33] Five-Year OCS Leasing Program.

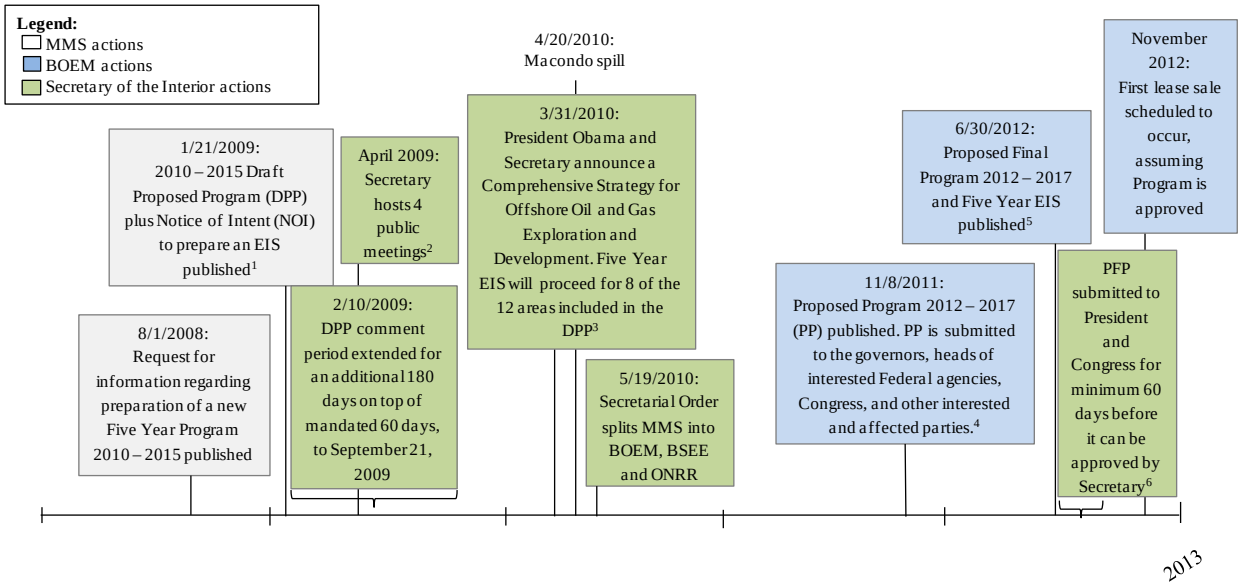
[34] DOI, Lease Utilization.

[35] Ibid.

[36] Ibid. The 2012-2017 OCS Lease Plan notes that the Central and Western GOM planning areas, which have "the most abundant proven and estimated oil and natural gas resources as well as broad industry interest and mature infrastructure" will have all legally available unleased acreage made available in 2012 and 2013, whereas the more newly-opened Eastern GOM will only see two sales held later (in 2014 and 2016). The 2012-2017 OCS Plan includes other changes in response to similar concerns: annual progress reports; mitigation tracking tables; and new stakeholder communication vehicles to ask stakeholders about areas of concern related to lease sales that "could warrant consideration for mitigation measures or removal from the sale."

Preparation of a new OCS Lease Plan usually is supposed to take two-and-a-half to three years, although it can take longer, as occurred for the most recent five-year OCS Leasing Program[37] (see Figure A2-6, below).

Figure A2-6



Notes:
[1] The DPP includes Section 18 Analysis on all 26 OCS planning areas. Section 18 of the Outer Continental Shelf Lands Act requires, amongst other things, consideration of energy needs, the values of other OCS resources, impact on marine, coastal and human environments, and laws and policies of affected states.
[2] These meetings, along with the DPP public comment extension, were intended "to provide additional time for input from states, affected communities, and other stakeholders."
[3] These areas include the Beaufort Sea, Chukchi Sea, and Cook Inlet off the coast of Alaska; Western, Central, and Eastern GOM; and the Mid- and South Atlantic. They exclude the North Atlantic; the two areas offshore California; and the North Aleutian Basin.
[4] PP states that "in light of the comment period extension and BOEM's evaluation of existing policies and regulations in light of lessons learned from the *Deepwater Horizon* event on April 20, 2010, the time period to be covered by the new program shifted from 2010-2015 to 2012-2017." Comments received during the DPP comment period are summarized in Appendix A of the PP
[5] Comments received during the comment period for the PP are summarized in Appendix A of the PFP. The PFP also includes an explanation of the responses to any recommendations received from state and local governments and Federal agencies.
[6] Once approved, the Program is effective immediately.
Source: BOEM, June 30, 2012, "Proposed Final Outer Continental Shelf Oil & Gas Leasing Program 2012-2017," available at http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Leasing/Five_Year_Program/2012-2017_Five_Year_Program/PFP%2012-17.pdf

The process of developing the 2012-2017 OCS Plan, for example, began with a Request for Information on August 1, 2008. There were two draft versions, each followed by public comment periods. The Macondo accident and subsequent regulatory reorganization resulted in a 180-day extension in the public comment period as well as other regulatory delays.[38] On June 28, 2012, the Secretary announced the third version: the Proposed Final Program (PFP). The PFP was submitted on June 30, 2012 to the president and Congress for a minimum of 60 days for review.[39] The PFP was approved by Secretary Salazar on August

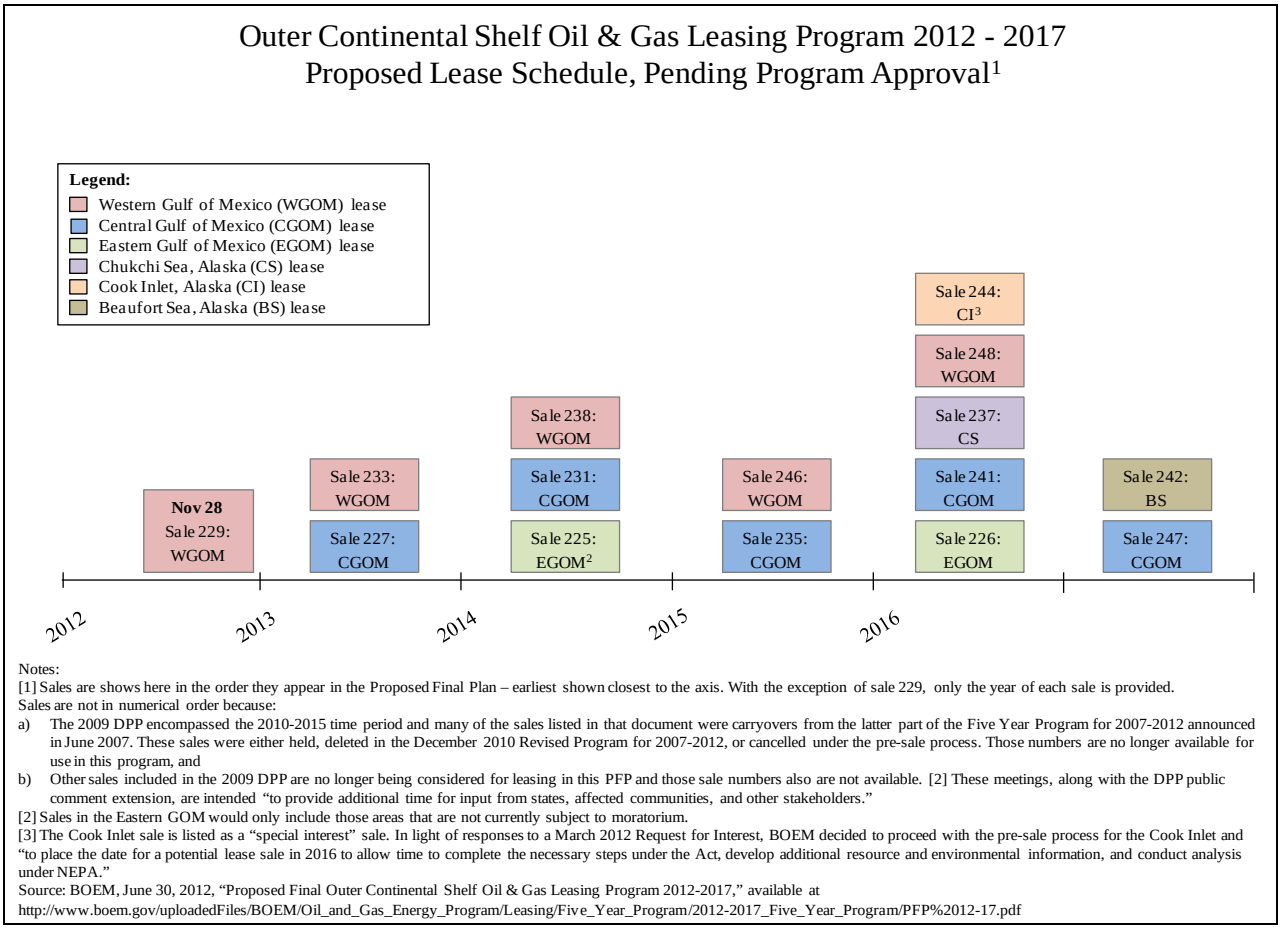
[37] 2012-2017 OCS Lease Plan.

[38] Ibid.

[39] DOI Lease Utilization.

27, 2012, and the first lease sale was scheduled for November 2012. Fifteen sales have been scheduled for 2012 through 2017.[40] (See Figure A2-7 below for more details).

Figure A2-7



Notes:
[1] Sales are shows here in the order they appear in the Proposed Final Plan – earliest shown closest to the axis. With the exception of sale 229, only the year of each sale is provided.
Sales are not in numerical order because:
a) The 2009 DPP encompassed the 2010-2015 time period and many of the sales listed in that document were carryovers from the latter part of the Five Year Program for 2007-2012 announced in June 2007. These sales were either held, deleted in the December 2010 Revised Program for 2007-2012, or cancelled under the pre-sale process. Those numbers are no longer available for use in this program, and
b) Other sales included in the 2009 DPP are no longer being considered for leasing in this PFP and those sale numbers also are not available. [2] These meetings, along with the DPP public comment extension, are intended "to provide additional time for input from states, affected communities, and other stakeholders."
[2] Sales in the Eastern GOM would only include those areas that are not currently subject to moratorium.
[3] The Cook Inlet sale is listed as a "special interest" sale. In light of responses to a March 2012 Request for Interest, BOEM decided to proceed with the pre-sale process for the Cook Inlet and "to place the date for a potential lease sale in 2016 to allow time to complete the necessary steps under the Act, develop additional resource and environmental information, and conduct analysis under NEPA."
Source: BOEM, June 30, 2012, "Proposed Final Outer Continental Shelf Oil & Gas Leasing Program 2012-2017," available at http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Leasing/Five_Year_Program/2012-2017_Five_Year_Program/PFP%2012-17.pdf

Oil and gas lease sale process, terms and conditions

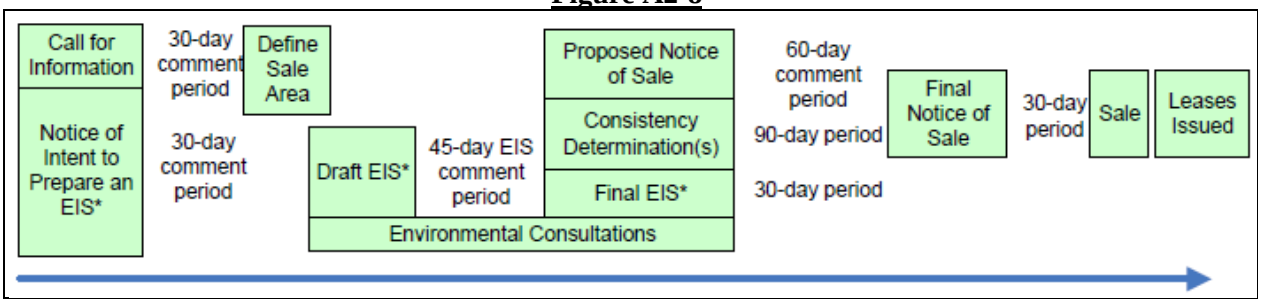
The lease sale process begins well before leases are actually sold. This process may take two or more years[41] and typically follows the steps shown in Figure A2-8 below.[42]

[40] 2012-2017 OCS Lease Plan.

[41] BOEMRE, "Oil and Gas Leasing on the Outer Continental Shelf."

[42] 2012-2017 OCS Lease Plan.

Figure A2-8



Source: 2012-2017 OCS Lease Plan, p. 39.

This process contains multiple regulatory steps, with numerous opportunities for public comment. Among the more important regulatory steps are the preparation of an EIS and the consistency determination. The EIS is part of the NEPA review process and evaluates the potential environmental impacts of proposed actions and alternatives, and the potential effectiveness of mitigating measures. The consistency determination is the outcome of a federal review within which the proposed sale is evaluated against the relevant state's Coastal Zone Management (CZM) plan, and a determination is made regarding whether the proposed lease sale is consistent to the maximum extent practicable with that federally approved state CZM plan.

The NPC Prudent Development report summarizes these various review processes:

- Requirements: Proposals for potential uses of the OCS must be published for public review and comment pursuant to specified statutory and regulatory provisions.
- NEPA Compliance: 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.
- State and Local Government Roles: The CZMA requires federal agencies to provide state and local governments the opportunity to review leasing and permit proposals. If states disagree, an elaborate mechanism for ensuring consistency with state coastal zone plans is provided.
- OCSLA Programmatic Process: Pursuant to Section 18 of the OCSLA, no area of the OCS may be offered for leasing unless the Secretary of the Interior complies with the requisite scientific, analytical, and deliberative process requirements.
- OCSLA Lease Sale Process: Once a Five-Year OCS Leasing Program is approved in accordance with Section 18 (above), specific lease sale proposals are subject to the process provisions of Section 19 of the OCSLA.
- OCSLA Exploration Process: Once a lease is obtained, site-specific exploration proposals (seismic and exploratory drilling) must be subjected to further analysis.
- OCSLA Development and Production Process: If oil or natural gas is discovered in commercial quantities during the exploration process, site-specific development and production plans must be subjected to further analysis, NEPA compliance, state and local government CZMA review, MMPA authorization, Clean Air Act (CAA) compliance, Clean Water Act (CWA) discharge permitting, and public consultation and review prior to plan approval.

> To provide checks and balances in its regulatory program, the DOI and other agencies have the opportunity to review and comment on proposed rules and the Five-Year OCS Leasing Program. There are existing Memoranda of Understanding and Memoranda of Agreements with other agencies (e.g., US Coast Guard, US Fish and Wildlife Service, Department of Energy, and Department of Transportation), with states, and with other countries to accomplish this.
>
> The DOI is also held accountable to the White House, and Congress via multiple avenues such as: (a) the Five-Year OCS Leasing Program's planning documents and press releases on specific lease sales; (b) forms that are submitted to the House, Senate, and the Government Accountability Office alerting them of imminent final rules; (c) information collection packages (new and updates) that are submitted to the Office of Management and Budget for approval and that provide cost and hour burdens of new and existing rules; (d) an annual publication notice in the Federal Register listing civil penalties; and (e) annual appropriation reports to Congress on the agency's performance over the past year and its future goals.[43]

OCS oil and gas leases are made up of blocks that are generally nine square miles (e.g., three miles by three miles). Leases may be transferred or resold only with the approval of BOEM.[44] If production has not begun by the end of the initial lease term, the lease reverts to the government for use in a future sale, unless an extension is granted. (This has been called "use it or lose it.") Producing leases remain valid for as long as commercial quantities of oil or gas are being extracted.[45] Under current law, the primary offshore lease terms are five, eight, or ten years depending on water depth.

BOEM is required to ensure the government receives fair market value for lease rights granted and the minerals conveyed. Fair market value at the time of the lease sale is not based on the value of the actual resources, but rather the value of the right to explore an area and extract hydrocarbons if they are present. BOEM sets this value based on an interpretation of geologic and geographical data.[46] Minimum bid levels exist for various lease depth ranges, with the purpose being to help ensure receipt of fair market value for areas where there is insufficient data for BOEM to accurately estimate resource values.[47] When a lease is acquired, the successful lessee pays a bonus bid, or an up-front cash payment, to secure the lease.[48] Lessees also pay annual rental fees during the initial period of a lease before commencement of royalty-bearing production. These can be fixed or escalating—escalating rentals are used to encourage faster exploration and development and earlier relinquishment if exploration is unlikely.

The federal government begins to collect royalties once a lease starts commercial production. There are price thresholds that suspend royalty payments if commodity market prices are low.[49] States share in

---

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

[44] Ibid.

[45] Ibid., p. 19.

[46] Ibid.

[47] 2012-2017 OCS Lease Plan.

[48] BOEM, "Oil and Gas Leasing on the Outer Continental Shelf," CRS Oil and Gas Report.

[49] BOEMRE, "Oil and Gas Leasing on the Outer Continental Shelf."

these financial revenues, as defined by statute. States with federal leases within three miles from shore receive 27 percent of the royalty-related revenue generated from those leases. Alabama, Louisiana, Mississippi, and Texas share 37.5 percent of the revenues from leases in designated areas in the GOM. In addition to this revenue sharing, states with federal oil and gas leasing activities off their coasts also receive a lump sum from the federal government each year.[50]

Exploration planning

Prior to conducting any exploratory drilling activity, the operator must prepare and submit an Exploration Plan (EP) to BOEM for approval. The EP describes exploration activities planned by the operator, the timing of exploration activities, information concerning drilling rigs, the location of each well, and so forth.[51] (See Figure A2-9 for more details.)

Each EP must certify that it is consistent with approved CZM programs of affected states. To obtain such consistency determinations, the operator submits its EP to adjacent coastal states, which may take up to six months for their consistency reviews. If a state determines that an EP is inconsistent with its CZM, the lessee may either revise and resubmit its plan, or appeal to the secretary of Commerce.[52]

In parallel, BOEM analyzes the environmental impacts of the proposed exploration activities under NEPA. BOEM is required to complete its review of completed plan submissions within 30 days (after a submission is deemed complete).[53] If BOEM does not approve a proposed EP, the agency must provide the lessee with a list of necessary modifications and the lessee may resubmit a plan that addresses those issues.

Once an EP has been approved, a lessee must file an Application for Permit to Drill (APD) before drilling can begin on a lease. This involves analysis of even more-specific drilling plans.[54] BOEM often attaches conditions of approval to these permits to address lease-specific and area-specific matters such as administrative, technical, and environmental issues.[55]

---

[50] Ibid.

[51] DOI, Lease Utilization.

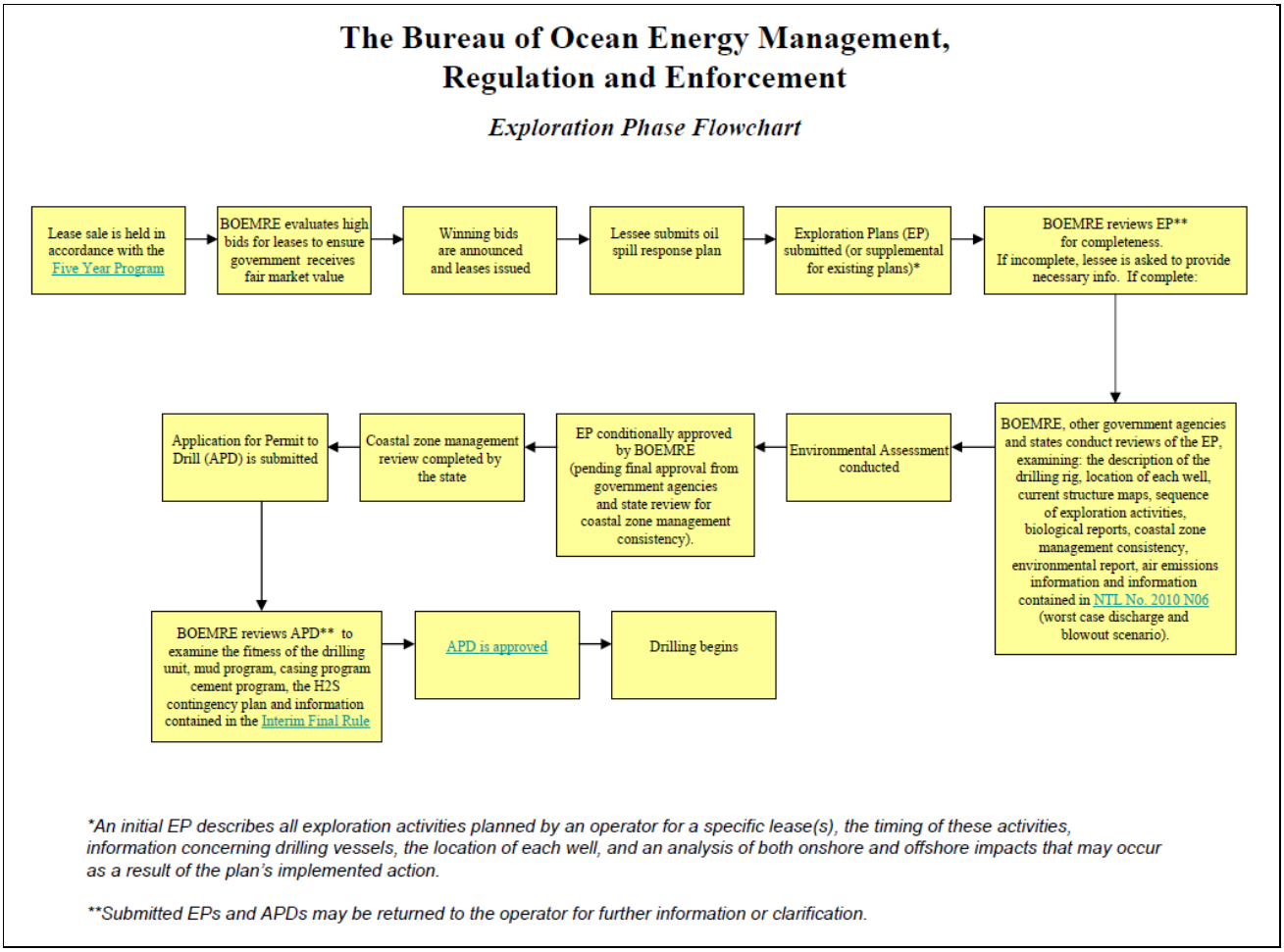
[52] CRS Oil and Gas Report.

[53] Ibid.

[54] Ibid.

[55] Ibid.

Figure A2-9



Development planning

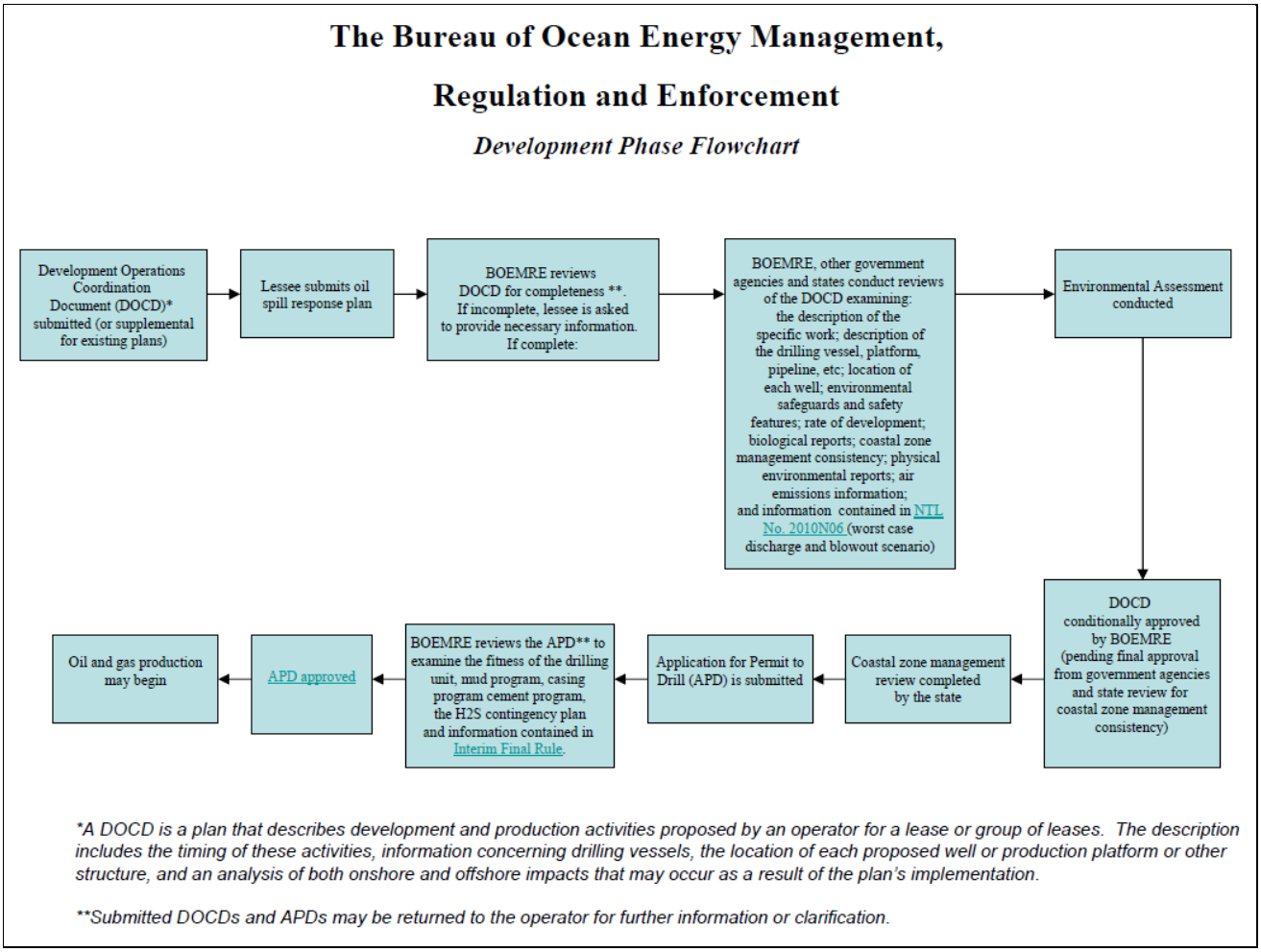
Upon discovering oil and natural gas through exploration activities in a leased area, an operator must submit to BOEM a Development and Production Plan (for areas where significant development has not occurred before) or a Development Operations Coordination Document (where significant activities have already taken place). The operator must obtain BOEM approval before commencing development or production activities. [56] These plans "describe a schedule of development activities, platforms, or other facilities including environmental monitoring features and other relevant information."[57] They specify how many wells will be drilled, their locations, what type of structure(s) will be used, and how the gas or oil will be brought to shore.[58] (See Figure A2-10 for more details.)

[56] Ibid.

[57] DOI, Lease Utilization.

[58] BOEMRE, "Oil and Gas Leasing on the Outer Continental Shelf."

Figure A2-10



The information requirements at the development stage are quite similar to those at the exploration stage, but cover a much-larger scale of operations. The required documents must complement prior NEPA documents prepared for this area by or for BOEM. In some cases the necessary environmental impact analyses may piggyback on previously submitted NEPA documents, but in other cases BOEM will require supplementary or even new EIS materials to satisfy NEPA.[59]

Affected states may submit comments on proposed Development and Production Plans, and those with approved CZM plans must issue CZM consistency determinations. If the drilling project involves "non-conventional production or completion technology, regardless of water depth," applicants must also submit a Deepwater Operations Plan (DWOP) and a Conceptual Plan.[60] Lessees are also required to submit Oil Spill Response Plans to the BOEM for approval by the time they submit Exploration Plans or

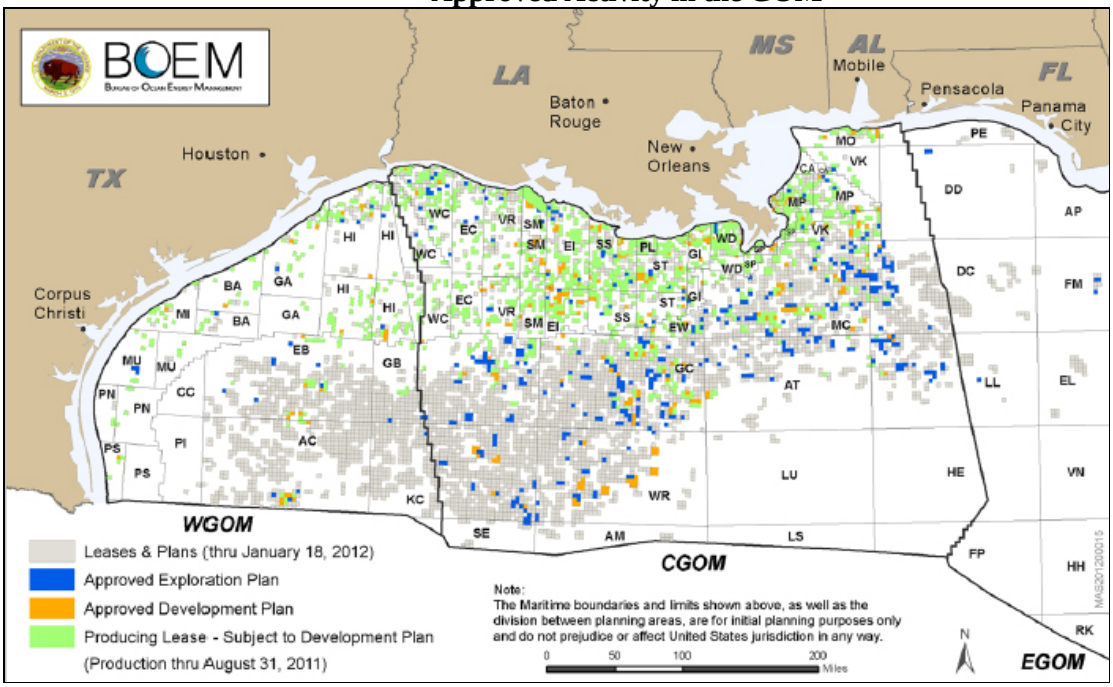
[59] CRS, "Offshore Oil and Gas Development: Legal Framework," September 20, 2012 (hereinafter "CRS Legal Framework Report").

[60] CRS Legal Framework Report.

Development Plans.[61] Actual drilling requires approval of an Application for Permit to Drill (APD) providing specifics of particular wells and associated machinery.[62]

Figure A2-11 below shows areas of the Western and Central GOM regions where there are leases, approved exploration plans, approved development plans, and producing leases as of August 2011.

Figure A2-11
Approved Activity in the GOM



Source: http://www.gulfmex.org/wp-content/uploads/2012/06/art_GOM_lease_Map.jpg.

Post-Macondo changes

Numerous changes to the oil and gas permitting process occurred after the Macondo accident. The earliest, and most impactful, was an executive order issued in May 2010 that placed a six-month moratorium on issuance of permits for drilling new deepwater wells in the GOM.[63] Other changes included new and modified rules aimed at increasing drilling-related safety. Among the key changes that have occurred since Macondo are: a reduction in the number of lease sales;[64] a higher level of scrutiny in permitting with more tailoring of applications and reviews to conditions in particular areas; diminished use of categorical exclusions (CE) for deepwater operations, which has meant that developers have had to prepare and file more environmental studies, even though the environmental context in which activities

[61] BOEMRE, "Oil and Gas Leasing on the Outer Continental Shelf."

[62] CRS Legal Framework Report.

[63] http://www.rigzone.com/news/article.asp?a_id=113101.

[64] BOEM, Couvillion Presentation, "2007-2012 Lease Sale Schedule."http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Five-Year-Program/2007-2012-Lease-Sale-Schedule.aspx.

were being reviewed did not change from one step to the next;[65] a new Drilling Safety Rule addressing well-bore integrity and well-control equipment with the intention to decrease the risk of a blowout during drilling operations in the OCS;[66] a new Workplace Safety Rule requiring a number of new or additional mandatory safety practices;[67] a new review of whether each operator has submitted sufficient information to demonstrate that "it has access to and can deploy containment resources that would be adequate to promptly respond to a blowout or other loss of well control;"[68] and a new requirement that operators submit information detailing "Worst Case Discharge Scenario" calculations.[69]

These changes aim to increase safety and reduce environmental risks of oil and gas development on the OCS. On both the applicant's and the agency's sides, the process requires more labor and higher costs to carry out these changes. Other stakeholders must bear greater burdens to participate in the process. One study has suggested that the new Drilling Safety Rule will increase annual costs for each major OCS operator by more than $183 million.[70]

Additionally, the permitting process now takes more time than it did pre-Macondo. According to the "Gulf Permit Index"—which tracks a number of metrics related to permitting and based on data from BOEM, the Bureau of Safety and Environmental Enforcement (BSEE) and using information from the consulting firm, IHS CERA—the average time it took BOEM's predecessor agency (Mineral and Management Service (MMS) to review exploration and development plans in the five years prior to the oil spill was 61 days, compared to the 109 days it took in August 2012.[71] Based on the monthly data in Figure A2-12, the post-Macondo average was approximately 102 days, or 79 percent longer that the pre-Macondo average review period.[72]

---

[65] A CE enables a leaseholder to receive an exemption from fulfilling certain NEPA requirements during the permitting process. Dinsmore & Shohl LLP, "Shake-Up in Deepwater Permitting Continues Over a Year After BP Spill," October 31, 2011. http://www.dinsmore.com/deepwater_permitting_continues/.

[66] BOEM, "Fact Sheet: The Reorganization of the Former Minerals Management Service" (hereinafter "MMS Reorganization Fact Sheet"). http://boem.gov/uploadedFiles/Reforms%20Fact%20Sheet.pdf; K. McAndrews, "Consequences of Macondo: A Summary of Recently Proposed and Enacted Changes to US Offshore Drilling Safety and Environmental Regulation," 2011. http://www.jsg.utexas.edu/news/files/mcandrews_spe_143718-pp.pdf.

[67] Ibid.

[68] BOEMRE, "National Notice to Lessees and Operators (NTL) of Federal Oil and Gas Leases, Outer Continental Shelf: NTL No. 2010-N10," November 8, 2010. http://www.gomr.boemre.gov/homepg/regulate/regs/ntls/2010NTLs/10-n10.pdf.

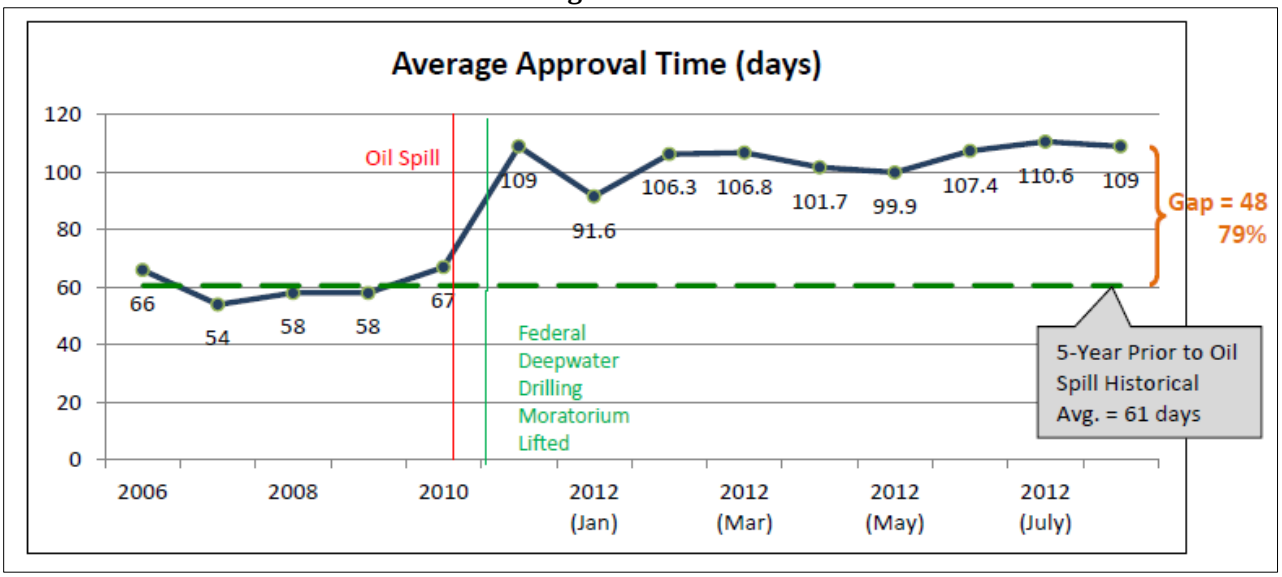
[69] Society of Petroleum Engineers, "Guidance for Complying with BOEM NTL No. 2010-N06 on Worst Case Discharge for Offshore Wells," August 26, 2010. http://www.spe.org/notes/wp-content/uploads/2010/08/spe_wcdstandards_aug262010.pdf; MMS Reorganization Fact Sheet.

[70] MMS Reorganization Fact Sheet; K. McAndrews, "Consequences of Macondo: A Summary of Recently Proposed and Enacted Changes to US Offshore Drilling Safety and Environmental, 2011.

[71] http://gnoinc.org/wp-content/uploads/GPI+-2012.08.24.pdf. The GPI reports that it relies on data sourced from BSEE, BOEM, and IHS Drilling Data.

[72] This calculated average reflects an average of 109 days in each of the months of 2011, plus the month specific average days for each month of 2012 up through July (i.e., 91.6 in January; 106.3 in February; 106.8 in March; 101.7 in April; 99.9 in May; 107.4 in June; 110.6 in July; and 109 in August). http://gnoinc.org/wp-content/uploads/GPI+-2012.10.10.pdf.

Figure A2-12



Source: http://gnoinc.org/wp-content/uploads/GPI+-2012.10.10.pdf.

B. Other key permitting processes and reviews

Key statutes and agency reviews

Within the context of existing law, many other permitting or reviewing agencies besides BOEM play some role in overseeing proposed offshore oil and gas development in US waters. Some of the procedural steps that developers must follow involve generic requirements, affecting not just oil and gas development projects but a wide variety of federal actions more generally. Examples include NEPA and CZM document requirements and reviews. Other permitting reviews vary, depending upon the profile (e.g., environmental impacts) of certain types of projects; examples of such include the requirement to obtain approval under the CWA if the project seeks to discharge substances into federal waters. Some other statutes, regulations and policies place constraints or other requirements on a project proposal if it were proposed to occur in a particular place: examples include policies that guide development towards an area (such as the DOI leasing plan under the OCSLA) or away from an area (e.g., the National Marine Sanctuaries Act). Another statute (the SLA) sets out the framework in which states have jurisdiction over certain parts of the ocean (typically extending three miles from shore). These are but a few examples of the federal laws, regulations, and policies affecting offshore oil and gas development.[73] The principle statutory authorities are shown below in Table A2-3.

[73] Table 1 in this Report lists the key federal statues and authorities relating to coastal and marine spatial planning, and identifies a large number that touch oil and gas development.

Table A2-3

Key Federal Statutes Affecting the Permitting of Oil and Natural Gas Development Projects

NEPA	National Environmental Policy Act	Environmental reviews
CZMA	Coastal Zone Management Act	Consistency reviews
OCSLA	Outer Continental Shelf Lands Act	Marine resource extraction plans
NHPA	National Historic Preservation Act	Accounting for historic resources
SLA	Submerged Lands Act, Territorial Submerged Lands Act	Title to submerged land
OPA	Oil Pollution Act	Spill prevention, remediation
CWA	Clean Water Act	Discharge permitting; dredge materials disposal
CAA	Clean Air Act	Air permits
MPRSA	Marine Protection Research, and Sanctuaries Act	Dredge materials disposal
ODA	Ocean Dumping Act	Dredge materials disposal
MMPA	Marine Mammal Protection Act	Protecting marine mammals
ESA	Endangered Species Act	Protection of listed species
Source: National Ocean Council. Legal Authorities Relating to the Implementation of Coastal and Marine Spatial Planning, 2011.		

These and other federal statutes cause a large number of federal agencies to have an interest in a particular action (see Table A2-4), and they require applicant efforts to design a project to align with sometimes inconsistent or contradictory provisions of multiple statutes. The statutes do not themselves create a coordinated framework for project review by different agencies. 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 new issues or requirements for new studies and technical information late in the process.

Table A2-4
US Government Agencies Involved in Offshore Natural Gas and Oil Regulations

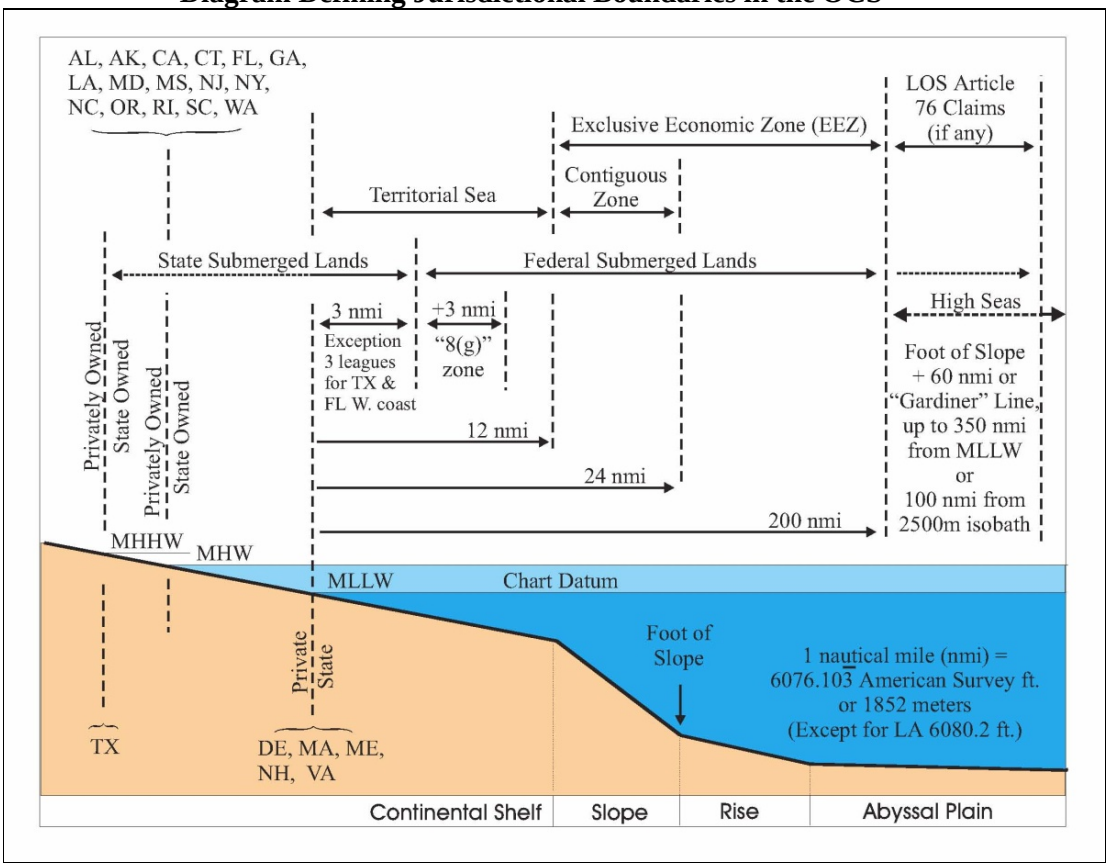
		Offshore Natural Gas and Oil Project Phase			
Regulatory Agency	Federal Statute	Predevelopment Phase (Exploration)	Development Phase (Design, Construct)	Production Phase (Operations)	Divestiture Phase (Decommissioning)
Bureau of Ocean Energy Management (DOI)	OCSLA, NEPA, NFEA CAA, NHPS	*	*	*	*
Coast Guard	OPA, PWSA	*	*	*	*
Department of Transportation	HMTA			*	
Environmental Protection Agency	CWA, CAA, RCRA	*	*	*	*
National Oceanic and Atmospheric Administration	CZMA	*		*	
National Marine Fisheries Service	MMPA, ESA, MFC	*		*	*
Federal Energy Regulatory Commission	NGPA			*	
US Fish and Wildlife	ESA	*		*	*
US Army Corps of Engineers	CWA, RHA			*	

Notes: CAA = Clean Air Act; CWA = Clean Water Act; CZMA = Coastal Zone Management Act; ESA = Endangered Species Act; HMTA = Hazardous Materials Transportation Act; MFC = Marine Fisheries Commission; MMPA = Marine Mammal Protection Act; NEPA = National Environmental Policy Act; NFEA = National Fishing Enhancement Act; NGPA = Natural Gas Policy Act of 1978; NHPA = National Historic Preservation Act; OCSLA = Outer Continental Shelf Lands Act; OPA = Oil Pollution Act; PWSA = Ports and Waterways Safety Act; RCRA = Resource Conservation and Recovery Act; RHA = Rivers and Harbors Act.

Source: NPC, Prudent Development Report, Table 2-8.

In practice, these various acts affect both the work requirements of federal agencies, but also those of interested states, members of the development industries, and other interested stakeholders. From a federal/state jurisdictional point of view, the SLA establishes whether a particular energy resource falls under state versus federal control. This act established that coastal states have title to natural resources located within three miles of a state's coast line (with certain notable exceptions). As shown in Figure A2-13 below, prepared by NOAA, jurisdictional boundaries are far more complex in practice. States regulate access to energy resources within their state waters directly, and also administer a wide range of federally delegated statutes along with their own state's statutory requirements.

Figure A2-13
Diagram Defining Jurisdictional Boundaries in the OCS



Source: http://www.gc.noaa.gov/gcil_maritime.html.

6. OIL AND GAS COMPANIES' OBSERVATIONS ABOUT INEFFICIENCIES IN THE EXISTING OIL AND GAS LEASING AND PERMITTING PROCESSES

It is hard to overstate the extent to which projects to develop oil and gas resources in the OCS are major undertakings, from a technical, economic, and risk-management point of view. The basic fact is that the process to obtain access to the OCS for developing oil and gas resources is inherently complex, expensive, time-consuming, and still evolving.

Much in the DOI's process for issuing leases and approving exploration and development plans has changed in the aftermath of the Macondo accident. Some observers, particularly in industry, have complained that the post-Macondo process is more complicated, frustrating and costly, and takes much more time than it previously did. These new aspects of the current regulatory framework were introduced, however, so that the federal government could better ensure appropriate environmental protection and regain the confidence of the American public.

These perspectives shed light on the statistics that characterize the time it takes to get permits in the period before the Macondo accident versus after the accident. The metrics tracked by the Gulf Permit Index show that the approval process now takes longer than it did before the Macondo accident. This is hardly surprising. As one operator said in an interview:

> The process is definitely very different after Macondo. It's the new normal, and it's not reasonable to compare permitting periods before and after the spill. For example, you could look at the length of permitting processes now and find that it is taking longer now compared to pre-Macondo. If you went down that path, the result would be 'duh,' it takes longer with a new process. But it's apples and oranges, and it is what it is. Comparing the old to new doesn't have meaning. The permitting process is very different.

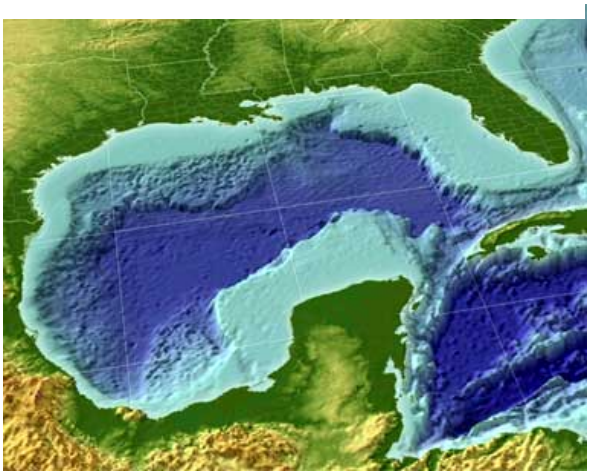
In our study, we did not attempt to assess the substantive merits of BOEM's current requirements. Rather, we examined whether there are procedural inefficiencies that might be improved while still assuring that energy resource development occurs in a safe, environmentally protective, and publically acceptable fashion.

Our review of the process of permitting oil and gas facilities suggests several areas where inefficiencies arise in the current regulatory process. These issues, which reflect the broader federal/state permitting process, rather than just BOEM's, include the following, which are described more fully below:

- Overlapping and duplicative requirements to provide technical information;
- Information requirements in applications and administrative processes that create substantial difficulties for many applicants who are smaller than the major oil companies;
- Inconsistencies across various agency permitting requirements;
- Delays in obtaining timely administrative action;
- Costs introduced for interested parties due to administrative opaqueness and lack of coordination among agency reviews;
- Uncertainties with regard to agency requirements that lead to multiple rounds of information provision with follow-up requests for additional submissions (referred to as "recycling" of information requirements);
- Chicken-and-egg problems, such as not having information about potential resources and impacts associated with drilling without gaining access to the OCS to explore, and not being able to gain access to explore without knowing about and mitigating impacts in advance.

One of the largest sources of inefficiency in the oil and gas permitting process, from the perspective of industry, is the repetition of multiple steps, sometimes without the introduction of materially new or different information. For example, applicants report that they must submit and obtain consistency reviews under the CZMA on multiple occasions with respect to development in a particular locale: such reviews occur when BOEM offers lease sales (when an EIS occurs, and for which a CZM review is required), when an exploration or development plan is filed and approved, and when a drilling rig is placed. Repetitive archeological study requirements represent another example of this type of inefficiency. An archeological study may be required first in one location, and then again for activity located a very short distance away, even when the study areas may be nearly identical.

Figure A2-14: Gulf of Mexico



Source: http://www.gulfbase.org/facts.php

Developers appear to find NEPA compliance, and the required studies and expenditures, even more frustrating than CZM compliance. For NEPA, developers must prepare documents multiple times, with respect to anticipated environmental impacts of oil and gas development in particular places, without apparent changes in either the environmental conditions or development activities expected. As one operator expressed it:

> Let's say that there's an exploration plan for three to four wells. There's an EA [environmental assessment] for each one. If you're doing work in the deepwater and move a well more than 500 feet, then you have to do another EA. It's too much. Every five years, there's a full EIS for the leasing plan. Things don't really change that much—either over time or in 500 feet. It's very frustrating….We need something better that what's there now. All of the EAs begin to look exactly alike. Also, even though the agency has only 30 days to review an EA and plan, that only begins after the application is deemed complete. There's lots of rounds of questions, submissions, questions, submissions before it's deemed complete.

As a practical matter, more applicants' plans now require the preparation of an EIS or an EA in light of the fact that BOEM has determined that too many of the projects prior to the Macondo accident were granted CEs. BOEM has since placed its policy for granting CEs under review, and has halted issuance of CEs in deepwater until further notice. Even assuming that such changes were entirely warranted when they were introduced, they nonetheless introduced costs into the process, and there may be opportunities in the future to allow for more surgical use of CEs.

"Recycling" is also a source of frustration, delay, and redundancy at times. This issue arises, apparently, from the fact that in the current regulatory process there is evolving learning with respect to what information should be provided by applicants as part of the review process. As one interviewee stated, "they ask, you answer; they ask for more, you give them more; and then they ask again… Also, some of the information they ask for is not important, but the agency is finding its way." This operator was not complaining that such information wasn't useful or required, but rather that the very process of asking for such information in a serial fashion extends the process and raises costs as a consequence. The more information provided by an applicant in an initial filing, the less likely the risk of recycling and the more likely that an approval will be issued in a timely way. Providing more information up front, however, comes with a price in both time and cost. According to one operator:

> It's possible to get every permit in a timely way. But you have to start with the assumption that you have to give them everything they want—and more—from the beginning. You have to be very transparent and open. Right now, the average permit application is about 250 pages; it used to be closer to 50. We haven't had a day of delay in getting our permits. If you fight the system by trying to minimize what you turn over, then it will take much longer in the end.…Now, the big thing is to get as efficient and effective as possible—with a balance of speed and quality. The best way to do that is through submitting good, solid documentation.

Industry interviewees consistently reported that it was difficult if not impossible to estimate the full cost of going through the permitting process, in light of the number of outsourced data collection efforts and studies, hiring of vessels to do surveys, the involvement of staffing and services from so many company departments, the impact of permitting time periods on entry into commercial markets, and so forth.

One example of inconsistency across regulations was related to offshore rig supply boat emissions. For offshore rigs where supply boats are needed to provide materials and equipment and other supplies to the rig, the air emissions from such boats are counted as the rig's emissions if the boats are tied to the rig in

the central or western GOM, but in the eastern GOM, the boats' emissions count toward the rig's emissions if the boats are within 25 miles of the rig. This particular example may arise due to the fact that BOEM has authority to implement the CAA in some parts of the OCS, and the EPA has such authority in others. Such differences in rules create opportunities for confusion and uncertainty by operators.

Observations about the different burdens placed on large and small companies point as much to the inherent cost of doing business in offshore areas, particularly in deep water areas, as they do to any practical inefficiency in the process of obtaining government approvals. One observer noted that because of the high upfront costs associated with doing the preparations and analyses necessary to bid on lease, submit exploration plans, and apply for approval of development plans, the roles for independents, as opposed to major oil and gas companies, are much more limited in terms of exploration and development in the GOM. From a process efficiency point of view, smaller companies may face longer review periods for their plans because they may have done less work prior to this point, and find themselves filing thinner applications, which in turn could lead to recycling, or requests for supplemental information by the agency.

Source: http://newyork.olx.com/offshore-employment-aboard-gas- and-oil-rigs-iid-54624024.

Regarding public participation in the processes to review oil and gas development in the GOM, in particular in areas where such development has been underway for many decades (e.g., in the Western and Central Planning Areas), stakeholders on all sides tend to have a great deal of experience working together. There is considerable publicly available information concerning the GOM ocean environment, ecology, geology, and bathymetry. In such areas, many we interviewed did not view ocean planning as offering much in the way of helping to bring parties to the table to collaborate. In other parts of the GOM, where oil and gas resources have not been heavily developed (such as in the Eastern GOM Planning Area, on in parts of the Atlantic, or even in ultra-deepwater across the GOM), ocean planning efforts could potentially add value by introducing much more information, bringing parties together to discuss development issues, and identifying ways to direct development toward some areas and away from others.

A final observation: reducing the overall length of the leasing/permitting process may 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.

APPENDIX 3

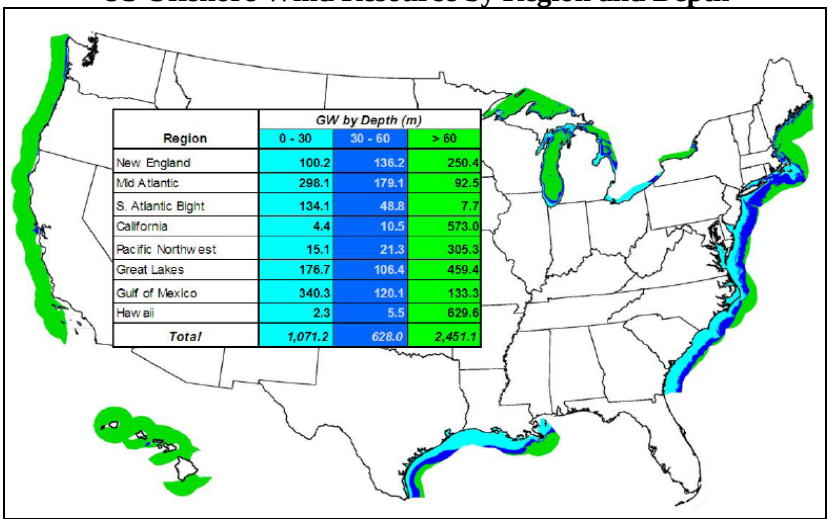
INDUSTRY VIEW OF PERMITTING PROCESSES FOR OFFSHORE WIND DEVELOPMENT

1. CONTEXT FOR OFFSHORE WIND ENERGY DEVELOPMENT

A. Technical potential for and status of offshore wind development

The offshore wind industry in the United States is still in its infancy. There are currently no operational offshore wind installations here. The lack of offshore wind development in the United States belies the fact that there are abundant offshore wind resources along the coast of much of the country. A 2010 study performed by the National Renewable Energy Laboratory (NREL) estimated that the total technical potential of US offshore wind resources within 50 miles of shore is more than 4,150 GW, which equates to approximately 13.5 million gigawatt-hours (GWh) per year.[1] (See Figure A3-1.) For context, in 2011, the installed electric-generating capacity in the United States amounted to 1,054 GW, with wind capacity at 45.2 GW, natural gas capacity at 413 GW, and with other fuel-and-technology combinations accounting for the rest.[2] Total electricity generated in the United States in 2011 was 3.9 million GWh.[3]

Figure A3-1
US Offshore Wind Resource by Region and Depth



Source: NREL, "Large-Scale Offshore Wind Power in the United States, Assessments of Opportunities and Barriers," September 2010, Figure 1-2. The figure show annual average wind speed sites above 7.0 m/s.

---

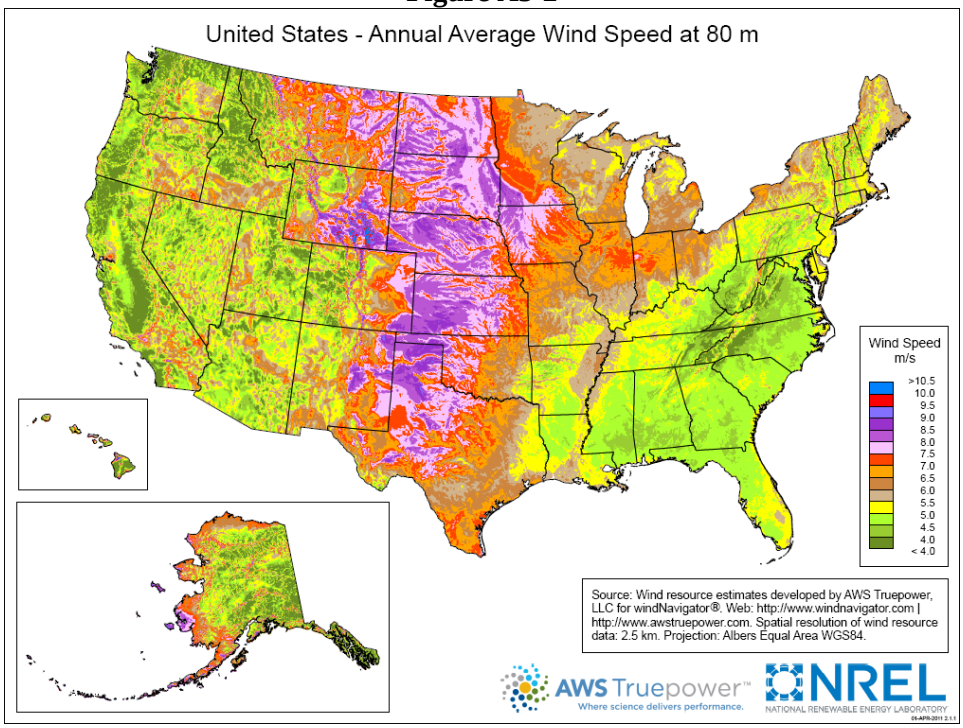
[1] This calculation of GWh output from potential capacity assumes a capacity factor of 40 percent; NREL, "Large-Scale Offshore Wind Power in the United States, Assessments of Opportunities and Barriers," September 2010, p. 19.

[2] Energy Information Administration (EIA), Annual Energy Review, 2011, Table 8.11a.

[3] Ibid., Table 8.9.

Wind resources are not only located in offshore ocean waters, but also on land. (See Figure A3-2.) A 2010 study performed by NREL and AWS Truepower estimated that the United States has the technical potential for nearly 11,000 GW of installed onshore wind capacity, with a possible generating capacity of more than 38.5 million GWh per year.[4] In 2011, utility-scale onshore wind energy totaled approximately 0.12 million GWh in 2011,[5] which is only a small fraction of US net electricity generation.

Figure A3-2



Source: EIA, "DOE Provides Detailed Onshore Wind Resource Map," January 19, 2012. http://www.eia.gov/todayinenergy/detail.cfm?id=4630.

The onshore wind industry in the United States is relatively mature and growing rapidly. By contrast, the offshore wind industry in the combined European Union (EU) countries is far beyond the United States'. In 2011, offshore wind accounted for more than 14,400 GWh in generation in EU countries,[6] and technical potential for European offshore wind is estimated to be approximately 3.4 million GWh per year.[7]

Unlike thermal generating facilities which have flexibility regarding their proximity to fuel sources, wind turbines must be sited in windy areas. In general in the United States, the most abundant onshore wind

---

[4] NREL and AWS Truepower, "Estimates of Windy Land Area and Wind Energy Potential, by State, for areas ≥ 30% Capacity Factor at 80M," February 2010.

[5] EIA, Annual Energy Review, 2011, Table 8.2a.

[6] European Wind Energy Association, "Wind in our sails, the coming of Europe's offshore wind energy industry," 2011, p. 15.

[7] European Environment Agency, "Europe's onshore and offshore wind energy potential," 2009 (hereinafter "EEA Study"), p. 18.

resources tend to be located in places where many people are not, and therefore require substantial investment in transmission to connect load centers and wind turbine capacity. By contrast, offshore wind resources tend to be located relatively near coastal population centers. Transmission is still needed to interconnect offshore wind projects to the onshore grid, but the distances are much shorter and often cross many fewer jurisdictions and utility service territories than exists between, for example, the upper Midwestern states and distant population centers. This latter fact complicates the investment environment affecting many high-quality onshore wind resources, while other factors complicate the siting of wind turbines in offshore areas with high-quality wind resources.

Depth of water in the Outer Continental Shelf (OCS) affects the quality of wind, as well as difficulties in accessing it for power generation. Wind resource potential tends to improve with distance from the shore, but depth tends to also increase with distance, and greater depths mean higher costs and technical barriers.[8] (See Figure A3-1 above.) This is an important reason why the Mid-Atlantic region is prime territory for near-term offshore wind development: the ocean floor remains relatively shallow for quite a distance from shore. In contrast, coastal California, Washington, Oregon, Hawaii, and Maine all have viable offshore wind resources from a wind-speed point of view, but water depths currently tend to prohibit economically or technically feasible development.[9]

When considering high-quality offshore wind resources (e.g., wind speed greater than 8.0 m/S at 90 meters elevation), the Mid-Atlantic possesses by far the greatest potential, with nearly 210 GW in 0-30 meter depth, and nearly 180 GW in 30-60 meter depth (see Table A3-1). In the 0-30 meter depth zone, where there is the most likely near-term potential for development given current technology, the second best areas (e.g. New England and the Great Lakes) have only about 35 percent the resource potential as the Mid-Atlantic. In the 30-60 meter depth, New England is second with about 74 percent the potential of the Mid-Atlantic.[10]

---

[8] EEA Study, Tables 6.3 and 6.4, pp. 38-39.

[9] NREL, "Large-Scale Offshore Wind Power in the United States, Assessments of Opportunities and Barriers," September 2010, p. 5.

[10] Ibid., p.59.

Table A3-1
Offshore Wind Resource Potential by Region and Water Depth for Areas with Annual Average

Region	GW by Depth (m)			Total (GW)
	0–30	30–60	>60	
New England	73.5	132.2	250.1	455.8
Mid-Atlantic	209.4	179.0	92.5	480.9
South Atlantic Bight	39.1	48.8	7.7	95.6
California	0.9	6.9	521.2	529.0
Pacific Northwest	3.3	18.8	304.1	326.2
Great Lakes	74.6	72.2	388.8	535.6
Gulf of Mexico	55.5	89.3	57.6	202.4
Hawaii	1.2	1.7	328.6	331.5
Total	457.4	548.9	1,950.7	2,957.0

Source: Large-Scale Offshore Wind Power in the United States, Assessments of Opportunities and Barriers," NREL, September 2010, Table 4-1, p. 59. Wind speeds 8.0 m/s or greater at 90m elevation.

B. Public Policy and Private Investors' Aspirations for Offshore Wind Developments

Policy Conditions

Due to the abundance of offshore wind located close to population centers in the United States, there has been significant interest in developing this energy resource in recent years. In many ways, technology, economics and regulatory policy have been playing catch-up.

Advocacy for offshore wind started in earnest well over a decade ago. For example, in 2001 the United States Offshore Wind Collaborative (USOWC) was organized after several years of informal efforts to advance opportunities to tap offshore wind. "After exploring Europe's decade-plus experience with wind energy in the marine context, learning about the potential of our domestic offshore wind resources, and gaining first-hand experience in the initial permitting process around Cape Wind, the Massachusetts Technology Collaborative joined with the US Department of Energy (DOE) and GE Wind Energy..." to set up the collaborative.[11] Partners include state energy agencies in coastal states (e.g., Maine, Massachusetts, and New York) as well as other organizations including foundations, energy equipment and project development companies, and many non-governmental organizations.[12] The goal is to "help coastal and Great Lakes states move to a clean, sustainable, and secure energy future by adding offshore

[11] USOWC, "A Brief History of the US Offshore Wind Collaborative." http://usoffshorewind.org/about/history/.

[12] Partners include the Massachusetts Clean Energy Center, the New York State Research and Development Administration (NYSERDA), Maine Wind Industry Initiative, Clean Energy States Alliance, including the Northeast Regional Ocean Council,, the American Wind Energy Association, and others). Source: USOWC, "Partners." http://usoffshorewind.org/about/partners/.

wind to America's energy portfolio," supported by analyses of economics, siting and technology for ocean wind development.[13]

Source: "Regional Cooperation for Southeastern Offshore Wind," Southern Alliance for Clean Energy. http://blog.cleanenergy.org/2012/03/15/regional-cooperation-for-southeastern-offshore-wind/.

Additionally, the governors of nearly half of the nation's states have banded together in a bipartisan group—the Governors' Wind Energy Coalition to advocate for policies that will advance the nation's wind energy resources.[14] Every state along the Eastern coast of the United States north of South Carolina has adopted a Renewable Portfolio Standard (RPS), requiring that an increasing share of electricity sold in the state come from renewable energy sources. Governors in many of these states have attempted to advance local development of wind and other renewables.

Why is the development of offshore wind a priority for many state and federal policymakers? It is a clean renewable and domestic energy source, which can help the United States decarbonize its power mix, and also stimulate the economy through the creation of new jobs, tax receipts, and other effects.[15]

In 2008 the DOE released a report that focused on the potential benefits and costs associated with increasing offshore and onshore wind energy generation to 20 percent of total US power generation by 2030. This study assumed the addition of about 240 GW of onshore wind and 54 GW of offshore wind. In total, between onshore and offshore wind, cumulative economic activity would reach more than $944 billion in direct, indirect, and induced economic activity, and would support on average 250,000 workers per year, including 70,000 full-time workers in construction-related positions.[16] Specifically relating to offshore wind, a more recent study describes its potential jobs benefits, estimating that offshore wind would create nearly 21 jobs per MW installed. Installing 54 GW would thus result in more than 43,000 permanent operations and maintenance jobs and would require more than 1.1 million job-years to

---

[13] USOWC, "USOWC Mission and Organizing Principles." http://usoffshorewind.org/about/.

[14] Governors' Wind Energy Coalition. http://www.governorswindenergycoalition.org/.

[15] An example of the kinds of aspirations can be found in the New England Governors' Renewable Energy Blueprint, dated September 15, 2009, p. 5: "New England has a significant quantity of untapped renewable resources, on the order of over ten thousand (10,000) Megawatts (MW) combined of on-shore and off-shore wind power potential, as well as other low-carbon resources. Developing far less than the maximum potential would enable New England to meet its renewable energy goals and reduce reliance on carbon-emitting generation resources. More aggressive development of generation resources—with corresponding transmission infrastructure investment—would enable New England to export clean power to our neighbors. Developing these new renewable resources will help to diversify our power mix and has the potential to put downward pressure on the marginal prices for energy within the New England electricity market." Another example is a recent document published by the National Wildlife Federation, "The Turning Point for Atlantic Offshore Wind Energy: Time for Action to Create Jobs, Reduce Pollution, Protect Wildlife, and Secure America's Energy Future," 2012.

[16] DOE, Office of Energy Efficiency and Renewable Energy (EERE), "20% Wind Energy by 2030 – Increasing Wind Energy's Contribution to U.S. Electricity Supply," July 2008, pp. 199-211.

manufacture and install the necessary turbines. This study also notes how many of these jobs would likely be created in economically depressed port and shipyard areas, helping to support these local economies.[17]

Offshore wind also has the potential to contribute significantly to state efforts to meet RPS requirements with local resources. In fact, some state RPS policies give offshore wind a special advantaged status relative to other renewable energy. One example is New Jersey, where in 2010 the state enacted a mandate requiring that electricity suppliers source at least 1.1 GW of electricity specifically from offshore wind sources. New Jersey also created an "Offshore Wind Renewable Energy Credits" (ORECs) market, which creates renewable energy credits (RECs) specifically for offshore wind energy. In Delaware, offshore wind generation is eligible to receive 350 percent the normal amount of RECs per unit of electric output.[18]

Market and Other Conditions

Currently, the immaturity of the US offshore wind market, combined with the relatively high capital investment requirements and other attributes of offshore projects, leads to costs that are too high to support development without some type of financial support, usually in the form of tax credits and other financial instruments such as long-term contracts. The federal investment tax credit (ITC) and production tax credit (PTC) have been important for the development of onshore wind and all signs point to their need to support investment in offshore wind. As experience and learning is gained through development of actual projects, economies of scale, and technological innovation, the economics of offshore wind will improve. Other policies, such as those that more directly internalize the costs of greenhouse gas emissions and that reflect the value of low-carbon generating resources will further stimulate the market for renewables.

The 2011 DOE National Offshore Wind Strategy pointed out "key challenges to the development and deployment of offshore wind technology [that] include the relatively high cost of energy, technical challenges surrounding installation and grid interconnection, and permitting challenges related to the lack of site data and lack of experience with permitting processes for projects in both federal and state waters."[19] The strategy also indicated that "offshore wind projects face new and untested permitting processes, which contribute to the uncertainty and risk faced by potential project developers and financiers, in turn potentially impacting investment in both offshore wind power projects and development of the supply chain and other supporting infrastructure. Estimates for project approvals on the OCS vary based on the amount and quality of data collected for the project, environmental studies, site characterization, and diligence of the developer."[20]

Offshore wind developers in many respects operate in a different set of market conditions than do typical companies involved in offshore oil and gas development. Major multinational oil companies are among the largest companies in the world, have significant balance sheets that support development in various hydrocarbon basins in the US and elsewhere, and have resources to invest in buying leases that require

---

[17] DOE, EERE, "A National Offshore Wind Strategy: Creating an Offshore Wind Energy Industry in the United States," February 2011 (hereinafter "DOE National Offshore Wind Strategy"), p.7.

[18] DOE, Database of State Incentives for Renewables and Efficiency, "Delaware: Incentives/Policies for Renewables & Efficiency." http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NJ05R.

[19] DOE National Offshore Wind Strategy, p. iii.

[20] Ibid., p. 10.

significant financial opportunity (as well as risk).[21] By contrast, developers of offshore wind projects tend to be much smaller, have more modest balance sheets with more limited equity to invest in development activities, expect to rely on project finance for individual wind project developments once fully permitted, and must interconnect into highly regulated land-based electric systems. These facts, combined with an emerging technology with attributes (such as zero-carbon emissions) not fully valued in local commercial power markets, complicate the ability of developers and investors to sustain in a protracted permitting environment.

Despite these challenges, several projects have commenced development in the past few years. Unquestionably the closest to construction and operation is Cape Wind, the only commercial-scale project to have received its permits and regulatory approvals needed to advance. With the recent approval of a second power purchase agreement, bringing total sales commitments to approximately 77.5 percent, Cape Wind is moving toward financing and construction.[22]

Other offshore wind projects currently in the development and permitting process in the Mid-Atlantic area, (the area besides New England with the most active interest in offshore wind), include:

- Fisherman's Energy Atlantic City Windfarm (FACW) is under development by Fisherman's Energy of New Jersey, LLC, for a location 2.8 miles off the coast of Atlantic City, New Jersey.[23] The project is expected to use six wind turbines to produce up to 25 MW for interconnection with the regional transmission grid (the PJM system).[24] FACW is fully permitted, with all necessary state permits as well as a permit from the US Army Corps of Engineers (ACOE), although FACW still awaits approval from the New Jersey Board of Public Utilities.
- Deepwater Wind, LLC, has proposed projects in Rhode Island, New Jersey, and New York, and has obtained an interim policy lease for its Block Island Wind Farm project. This demonstration project would include five turbines with a total of 30 MW of capacity, and be located three miles southeast of Block Island. The permitting process for this project remains ongoing, with construction optimistically estimated to commence sometime in 2013.[25]
- Bluewater Wind, LLC, acquired by NRG in November 2009, has proposed multiple projects off the coast of New York, Maryland, Massachusetts, Delaware, and New Jersey. Bluewater received interim policy leases from federal regulators at the DOI for the Delaware, New Jersey, and New York projects, with the one in Delaware being the furthest along. NRG has recently indicated that it is

[21] Seven of the top ten largest corporations worldwide in 2012 include Royal Dutch Shell (#1), ExxonMobil (#2), BP (#4), Sinopec Group (#5), China National Petroleum (#6), Chevron (#8), ConocoPhillips (#9). Source: CNN Money, "Global 500." http://money.cnn.com/magazines/ fortune/global500/2012/full_list/.

[22] Cape Wind's long-term contract to sell half of the output to National Grid's electric utilities in Massachusetts was approved by the Massachusetts Department of Public Utilities (DPU) in 2010, and upheld by the Massachusetts Supreme Judicial Court in December 2011. On November 26, 2012, the DPU approved another long term-contract, for Cape Wind to sell 27.5 percent of its output to NSTAR. http://www.env.state.ma.us/dpu/docs/electric/12-30/112612dpuord.pdf.

[23] Analysis Group interview communications, August 14, 2012.

[24] "FAQ," Fishermen's Energy. http://www.fishermensenergy.com/faq.html.

[25] "Block Island Wind Farm," *Deepwater Wind*. http://dwwind.com/block-island/block-island-project-overview.

putting all of its Bluewater actions on hold due primarily to uncertain financing and tax credit situations.[26]

- Another relevant offshore infrastructure important for offshore wind development is the proposed Atlantic Wind Connection (AWC). Although not a wind farm, it would be a first-of-its-kind offshore transmission line that would run along the Mid-Atlantic coast for 790 miles and have the ability eventually to collect and deliver up to 7 GW of wind generation. (See Figure A3-3.) The AWC is far from being a reality yet, but the Bureau of Ocean Energy Management (BOEM) recently determined that there is no competitive overlapping interest in the proposed right-of-way grant area, clearing the way for the AWC to proceed with its environmental impact statement.[27] If built, the AWC would help address the chicken-and-egg problem of needing offshore transmission to interconnect offshore wind projects, and needing an offshore wind market to support the investment in offshore transmission. Additionally, its scale economies promise to lower the transmission-cost hurdle for new offshore wind projects.

Figure A3-3
Atlantic Wind Connection

Source: Atlantic Wind Connection, "AWC Intro." http://atlanticwindconnection.com/web/aws-intro/.

There are a large number of other projects proposed for offshore areas, including some in the Gulf of Mexico. These projects, however, appear somewhat speculative at this point.

[26] NRG, "NRG to Put Offshore Wind Development on Hold for the Near Term," News Release, December 12, 2011; Phil Taylor, "First Competitive Atlantic Lease Bumped to 2013 – Interior Official," E&E News, posted on Governors' Wind Energy Coalition website, October 12, 2012, http://www.governorswindenergycoalition.org/?p=3577.

[27] DOI, "Fact Sheet on Atlantic Wind Connection," Press Release, May 14, 2012.

2. THE FRAMEWORK FOR PERMITTING OFFSHORE WIND FACILITIES

A. The Federal Role: The DOI/BOEM Processes

Overview of the Planning/Permitting Process

The Department of the Interior's BOEM has responsibility to determine the terms and conditions under which offshore wind projects may gain access to, and be permitted in, the federal OCS. But unlike the oil-and-gas leasing process, which has had decades of experience and gradual evolution of the formal pre-lease and post-lease processes, the federal government's mechanisms for offshore wind reflect the relative newness of the entire enterprise. No requests for access to the OCS's wind resources had been filed even a decade ago, and only one project has made its way deeply through the process.

Private parties interested in developing offshore wind (or other offshore energy resources) must navigate a wide range of different processes, studies, and permits before gaining access and initiating construction. The complicated, costly, and time-consuming nature of this process exacerbates the other challenges faced by offshore wind developers and helps to keep industry's development still at such an early stage in the United States.

In November 2007, the DOI's Minerals and Management Service (MMS), the predecessor agency of BOEM, announced an "Interim Policy" that was designed for the "authorization of the installation of offshore data collection and technology testing facilities in federal waters." The intention was to enable the testing of renewable energy facilities, allowing both prospective leaseholders and the agency to gain more information about the potential of renewable energy development.[28] To date, there have been four executed Interim Policy leases, all issued in November 2009.[29]

The primary current framework for renewable energy development was established in April 2009 with MMS's issuance of the Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf: Final Rule.[30] Under authorities established in the Energy Policy Act of 2005 (EPACT), which amended the OCS Lands Act, MMS developed regulations "to provide a regulatory framework for leasing and managing OCS renewable energy project activities and authorizing activities that involve the alternate use of OCS Lands Act-permitted facilities. These regulations seek to encourage orderly, safe, and environmentally responsible development of renewable energy sources on the OCS. At the time of issuances, MMS expected that renewable energy projects in the near term would involve the production of electricity from wind, wave, and ocean current."[31] An update to this final rule was published in October 2011.[32]

---

[28] BOEM, "Interim Policy." http://www.boem.gov/Renewable-Energy-Program/Regulatory-Information/Interim-Policy.aspx.

[29] BOEM, "Interim Policy Projects." http://www.boem.gov/Renewable-Energy-Program/Current-Projects/ Index.aspx.

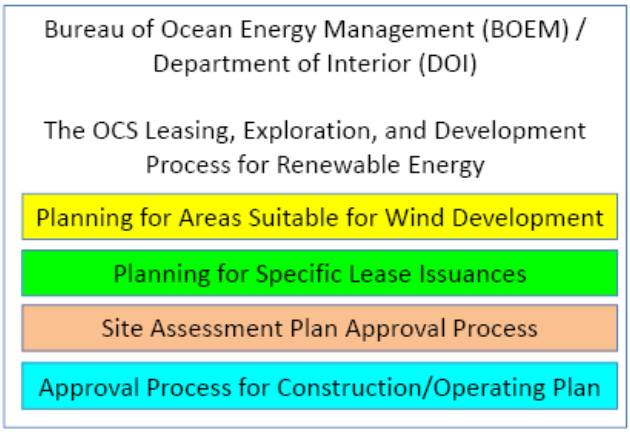
[30] MMS, "Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf; Final Rule," Federal Register, Vol. 74, No. 81, April 29, 2009 (hereinafter "MMS Renewable Energy Final Rule").

[31] MMS Renewable Energy Final Rule, p. 19646. The rule also states on page 19636 that in "the future, other types of renewable energy projects may be pursued on the OCS, including solar energy and hydrogen production projects. These regulations were developed to allow for a broad spectrum of renewable energy development, without specific requirements for each type of energy production."

[32] BOEM, "Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf," Federal Register – Rules and Regulations, Vol. 76, No. 201, October 18, 2011 (hereinafter "BOEM October 2011 Federal Register Notice").

Now administered by BOEM, this ocean renewable energy rule outlines all necessary steps for developers from the initial planning stages up to construction.[33] The process (shown in Figure A3-4) parallels the one used by BOEM for granting access to private parties to develop offshore oil and gas resources in the OCS.

Figure A3-4 OCS Renewable Energy Leasing Process



For example, BOEM conducts a planning process to identify areas suitable for renewable energy development and to make leases available to third parties who seek the right to develop those resources in the OCS. A developer with a lease then prepares a site-assessment plan (SAP), and subsequently a construction and operation plan (COP) for the project.

In approving a SAP, BOEM grants the lessee the right to construct or install a meteorological (Met) tower for the purposes of site assessment activities. The SAP must demonstrate the activities that the lessee plans to perform once issued a commercial lease, and must demonstrate how equipment will be tested for commercial renewable energy generation.[34,35] A lessee may not proceed with any site activities without an approved SAP. In order to complete a SAP, the lessee must provide the results of geophysical and geological surveys (e.g., rock borings), hazards surveys, archaeological surveys, and baseline collection studies. In addition, the lessee must provide several aspects of project information including general structural and project design components, deployment activities, decommissioning and site clearance procedures and other financial assurance information.[36]

In the final phase of the leasing process, BOEM's approval of a COP grants the lessee the rights to begin formal construction of the commercial wind energy facility. The COP must outline a detailed plan for constructing and operating the project.[37] Similar to the SAP approval requirements, the COP approval requirements indicate that the lessee must provide information pertaining to hazards, water quality, biological resources, threatened or endangered species, sensitive biological resources or habitats, and other archaeological and coastal and marine resources. These aspects are required as defined by the Endangered Species Act (ESA), National Historic Preservation Act, and the Coastal Zone Management Act (CZMA).[38]

---

[33] BOEM "Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New Jersey, Delaware, Maryland, and Virginia – Final Environmental Assessment," January 2012 (hereinafter "Final EA: Commercial Wind Development in the OCS"), p. iii.

[34] BOEM October 2011 Federal Register Notice, p. 64756.

[35] Final EA: Commercial Wind Development in the OCS, p. iii.

[36] BOEM October 2011 Federal Register Notice, pp. 64757-64759.

[37] Final EA: Commercial Wind Development in the OCS, p. iii.

[38] BOEM October 2011 Federal Register Notice, pp. 64760-64763.

BOEM also is the lead federal agency responsible for conducting NEPA analyses for federal permitting of renewable projects, with the primary purpose of having "an understanding of environmental consequences and take actions that protect, restore, and enhance the environment."[39] BOEM produces NEPA documents for each of the major stages of the energy development planning process. In theory, these steps can trigger an EIS, an EA or a Categorical Exclusion Review (CER), depending upon the character of incremental impacts of a particular step's action on the environmental (taking into consideration the evolving state of scientific and other technical information).

BOEM provides two kinds of lease access rights for renewable development: a limited lease, which conveys access and operational rights for activities on the OCS that support but do not result in a commercial energy product; and the other type of lease for commercial development, which conveys the access and operational rights necessary to produce, sell, and deliver power over a long-term (e.g., 30-year period).[40] Limited leases (up to five years) allow for site assessment and testing of experimental equipment, without the presumption that the lease would be converted to a commercial lease.[41] EPACT requires that the agency award leases through competitive processes unless it made a determination of "no competitive interest" (NCI).[42] A NEPA review accompanies the leasing processes.

DOI has just recently indicated that its first competitive lease for offshore wind will be postponed into 2013, which is two years later than the original goal of having such a sale occur in the Mid-Atlantic region before 2012. Reportedly, this delay in issuing first competitive leases results from an attempt to ensure that the format for the offshore auctions is not so complicated and costly for developers that they would not be able to participate.[43]

---

[39] BOEM, "BOEM and the National Environmental Policy Act." http://www.boem.gov/ Environmental-Stewardship/ Environmental-Assessment/NEPA/boem-and-nepa.aspx.

[40] MMS Renewable Energy Final Rule 2009.

[41] The leases that accompany offshore wind development are different from leases issues for oil and natural gas development. In the latter, the leaser confers a right to develop the energy resources, and in fact there is a "use it or lose it" quality to the lease. For offshore wind resources, by contrast, the initial lease confers the right to conduct a site assessment, to survey the wind energy resource and the potential impacts of developing it for other uses, resources, and systems. The site assessment plan may be approved, conditioned, or rejected, with the latter meaning that the lease did not lead to the right to develop the resource.

[42] "After receiving a request for a lease or grant and MMS determining that it will proceed with the lease or grant issuance process, MMS will put forth a request for interest, designate the lease or grant area, and publish in the Federal Register all other notices and calls relating to the sale. If, after putting forth a request for interest, MMS determines that there is no competitive interest in that particular OCS area, MMS may proceed in issuing a lease or grant noncompetitively. Whether a project proponent acquires a lease or grant competitively or non-competitively, it must comply with all MMS lease stipulations or conditions in the grant." MMS, "Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf: Final Rule, Environmental Assessment," April, 2009, p. 5.

[43] Phil Taylor, "Offshore Wind: Industry Bullish, Despite Political Turbulence," E&E News, posted on website of Governors Wind Energy Coalition, October 11, 2012. http://www.governorswindenergycoalition.org/?p=3566.

DOI/BOEM Wind Planning Areas

In November 2010, Ken Salazar, then Secretary of the Interior, announced the "Smart from the Start" Atlantic wind energy initiative to facilitate the siting, leasing, and construction process for offshore wind development on the Atlantic OCS.[44] As its name suggests, this initiative was designed to create a framework to encourage timely and efficient development of offshore wind and to identify areas on the Atlantic OCS most suitable for the development of offshore wind energy activities, and with the fewest "apparent environmental and user conflicts."[45] Secretary Salazar noted that the identification of such Wind Energy Areas (WEAs) would enable the United States to harness offshore wind energy, and would help add structure to the leasing and permitting process for the parties interested in developing offshore renewable energy resources.

The development of the WEAs involved coordination across various local, state and federal bodies, and involved extensive data collection initiatives to "inform government and industry assessments and planning" for the most appropriate leasing areas.[46] One of the key steps in the identification of WEAs was the finding of no significant impacts for wind development in the proposed WEA, a finding that would result from the NEPA environmental assessment that BOEM would conduct for the areas. Once such a finding was made for a proposed WEA, BOEM could then offer leases in these specific areas.[47]

BOEM identified WEAs offshore of several states along the East Coast: Massachusetts, Rhode Island, New Jersey, Delaware, Virginia, and most recently, North Carolina. (See Figure A3-5.) The process to identify new WEAs has continued since the initial set was identified: For example, intergovernmental task forces are currently working towards establishing a WEA in South Carolina,[48] and a new WEA is being announced for an area off the coast of Massachusetts.[49]

---

[44] Kendra Barkoff and Nick Pardi, "Salazar Launches 'Smart from the Start' Initiative to Speed Offshore Wind Energy Development off the Atlantic Coast," DOI Press Release, November 23, 2010 (hereinafter "Smart from the Start Press Release").

[45] DOI, BOEM, Office of Renewable Energy Programs, "Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New Jersey, Delaware, Maryland, and Virginia – Final Environmental Assessment," January 2012, p. iv.

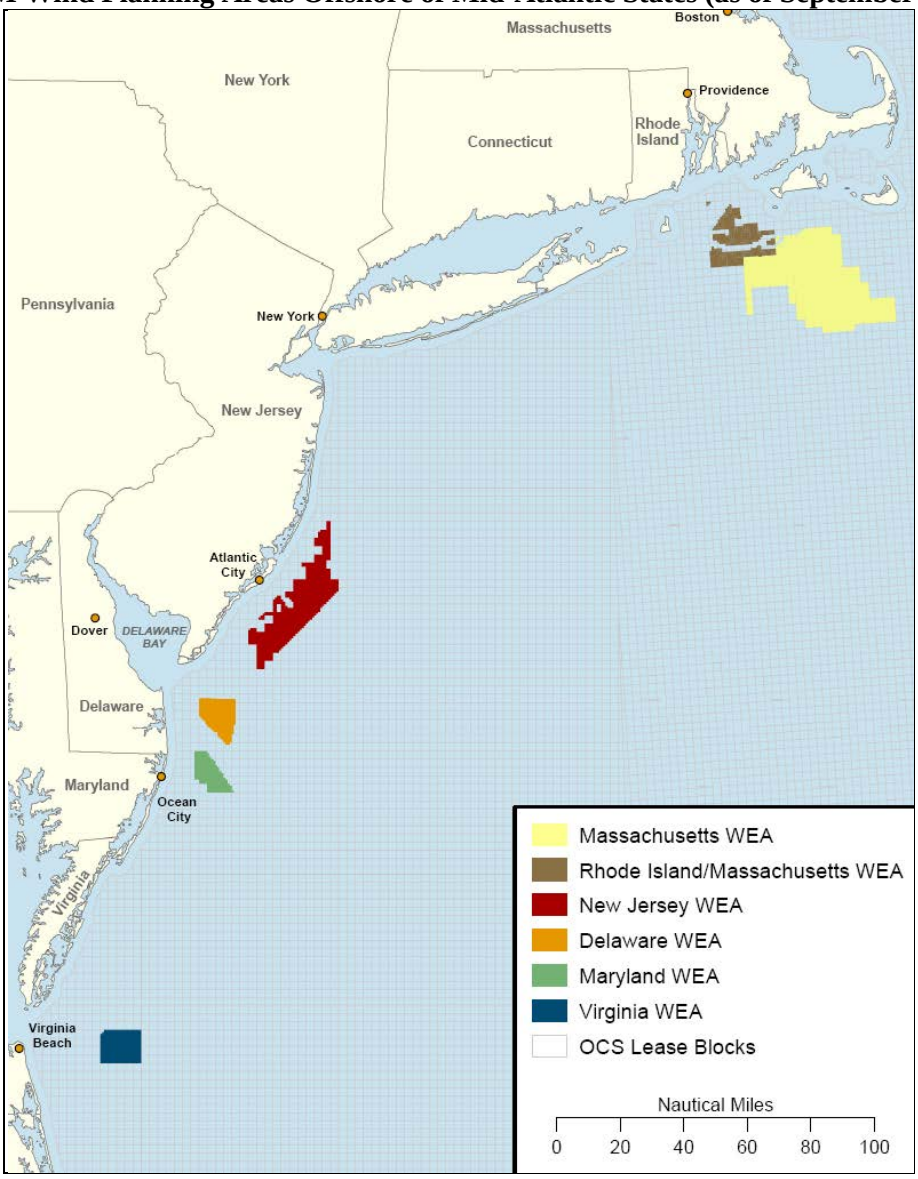
[46] Smart from the Start Press Release.

[47] Ibid.

[48] "BOEM's Renewable Energy Program – South Carolina Renewable Energy Task Force Meeting," *Bureau of Ocean Energy Management*, Charleston, South Carolina, March 29, 2012.

[49] BOEM, "Smart from the Start." http://www.boem.gov/Renewable-Energy-Program/Smart-from-the-Start/Index.aspx.

Figure A3-5
BOEM Wind Planning Areas Offshore of Mid-Atlantic States (as of September 2012)



Source: "Atlantic OCS Wind Energy Areas (WEAs)." http://www.boem.gov/uploaded Files/BOEM/Renewable_Energy_Program/Smart_from_the_Start/Wind_Energy_Areas0607.pdf.

B. Other key permitting processes and reviews

One of the primary differences between permitting for offshore wind in federal versus state waters is that in federal waters BOEM is the lead agency, and in state waters the ACOE is the lead agency.[50] In state

[50] DOE National Offshore Wind Strategy, pp. 10-11.

waters, ACOE issues permits, interacts with states in the CZM consistency review, and otherwise reviews applications and permitting issues under federal jurisdiction.

States also have a role in permitting of development in federal waters. First, under the framework of public utility law, states typically have the responsibility to regulate the siting of electric transmission facilities. Therefore, states may have to directly approve transmission lines for offshore wind projects located in federal waters that must interconnect with the onshore grid via a corridor located in state waters.

Second, for wind projects located in federal water, a state can play a role through the state's federally approved coastal plan under CZMA. The act authorized a framework somewhat akin to a partnership, in which federal, state, and local governments interact to help lead to a balanced consideration of competing coastal resource uses. Although no coastal state is required to develop a coastal zone management plan, most coastal states have. By offering a combination of financial carrots to support CZM planning and the commitment that federal activities will need to be consistent with approved state plans, CZMA has encouraged state coastal plans, with review and approval by the federal government (through the National Oceanic and Atmospheric Administration (NOAA). Approval of planning depends upon the state having adopted a planning process to manage resource use, human uses of the coastal and ocean areas, and protect the coastal environmental, ecological, historical, esthetic, and recreational value.[51]

CZMA's "consistency review" process gives an affected state the right to review federal activities (e.g., licenses, permits, and other actions) in advance of the action taking place.[52] Federal consistency requires that any federal agency activities (such as lease sales) must be "consistent to the maximum extent possible" with the state's approved coastal zone management plan's enforceable polices, but private activities requiring a federal permit or OCS activities (such as exploration or development) must be "fully consistent" with enforceable policies.[53] If an activity in federal waters is found to be likely to affect the coastal zone, the activity may be subjected to federal consistency under the state's CZM plan,[54] and state approval of a project remains an important part of the permitting process in both state and federal waters in project development and review, regardless of the extent of federal consistency.[55] While the CZM process is non-trivial, the NEPA process, as described earlier, is generally far more costly and onerous in the eyes of developers.

---

[51] Environmental Law Institute, "Marine Spatial Planning in U.S. Waters: An Assessment and Analysis of Existing Legal Mechanisms, Anticipated Barriers, and Future Opportunities," December, 2009 (hereinafter "ELI Marine Spatial Planning"), p. 48.

[52] Michael Burger, "Consistency Conflicts and Federalism Choice: Marine Spatial Planning Beyond the States' Territorial Seas," July, 2007 ("Burger Consistency Conflicts"), p. 10605.

[53] BOEMRE, "Environmental Compliance: CZMA." http://www.boemre.gov/eppd/compliance/czma/#What_is_"Federal_Consistency" (hereinafter "BOEMRE Federal Consistency").

[54] Ibid.

[55] Burger Consistency Conflicts, p. 10604.

3. WIND DEVELOPERS' OBSERVATIONS ABOUT INEFFICIENCIES IN THE EXISTING OFFSHORE WIND PERMITTING PROCESSES

The permitting of new offshore wind projects occurs in a context in which there have already been centuries of other uses of the ocean in areas both near and far from proposed project development sites. This reality has had myriad impacts on the resource-management and regulatory processes to date.

On top of this, the entire planning/regulatory process is still in the steep portion of its learning curve, and any observations about the process reflect the fact it is still a work in progress. One interviewee observed, "No one has been through all of the new regulations yet, so it is difficult to pinpoint the places where there will be issues, and where things could be streamlined, but it is clear that there is still some uncertainty and lack of understanding between developers and regulators."

Practically, developers, government officials, and others interviewed for this study identified a number of things that hold up permitting processes for offshore wind, including:

- the learning curve faced by agencies, developers and the interested public as they discover what they need to know in order to permit first-of-a-kind projects in new areas;
- chicken-and-egg problems (e.g., where developers need to gather information prior to bidding on leases but need leases in order to have access to areas where they can gather information); and
- many sources of redundancies, delays and overlaps in multiple, uncoordinated administrative reviews by federal agencies.

Regulatory risks associated with the new process complicate and tend to extend the timeline for offshore wind project development in several ways. First, as agencies make their way in applying statutes, regulations, and guidance in cases of first impression, they are reported to use processes that, in the words of one interviewee, "suffer from first child syndrome." The agency understandably wants the process to be perfect, with legally defensible decisions, and ends up using a regulatory process that is ultra-attentive, cautious, and "super careful." This often translates into a slow process. One example cited was the unusually long time it took (reportedly more than a year) for BOEM to determine that there was "no competitive interest" in the proposal to build a multi-billion dollar, long-distance, high-voltage offshore transmission system to interconnect a large number of prospective wind projects in the future to the onshore transmission grid (i.e., the Atlantic Wind Connection project).[56]

The newness of the regulatory process raises questions about informational requirements, with attendant uncertainty and inefficiencies in the process. One wind developer reported, "It is difficult for developers to figure out what is the reality vs. the intent of what BOEM wants and has written into the regulations. It is not clear how much information the agencies need, and at what stage, and what the cost will ultimately be." Questions about what ocean-related information and data are available and what information is relevant to or needed for decisions tend to lengthen the process. This is a source of delay—perhaps of necessity, as data are collected and analyzed. The lack of detailed geospatial information in a wide variety of locations increases regulatory risk for offshore energy project development, because of the potential for the discovery of activities, systems, resources, and uses with inherent tensions or conflicts.

The overall risk is exacerbated in some cases by lack (or unavailability) of detailed pre-existing information about ocean-based resources and activities. This means at times that the applicants must

---

[56] Governors' Wind Energy Coalition, "Interior announces progress on Atlantic transmission 'backbone'," May 15, 2012. http://www.governorswindenergycoalition.org/?p=2227.

collect data for many years to characterize systems in the lease areas. The fact that the initial site-assessment (e.g., "limited") lease does not confer a right to develop any resources found to exist in the lease area means that the leaseholder may undertake those years of study and carry out the related environment reviews, without an expectation that he, as opposed to some other developer, will have the exclusive ability to make use of those data to prepare a construction and operating plan for a project on that site. This creates significant investment risk for the prospective wind developer.

The staging of lease issuance, versus collection of detailed wind resource data, represents a clear "chicken and egg" problem noted by multiple interviewees. Developers need to obtain leases before being able to install Met towers. These installations enable them to collect the types of longitudinal data the developer needs to prepare environmental studies, to understand the potential costs and impacts of a proposed wind-project development at a particular site, and to prepare a site assessment plan. But without a lease, it may be difficult to understand, much less characterize, the nature of site-specific environmental impacts that are the heart of the initial state of the process. In the absence of detailed geospatial information, companies seeking to bid on and obtain leases have to make ill-informed guesses about the development prospects and the potential commercial value of those future leases. Various interviewees commented on this particular issue:

> A developer needs a lease to initiate an environmental review, but without a SAP it is impossible to really understand or demonstrate both that there is an ability to produce revenue, and the magnitude of such revenue potential…. Offshore wind developers are in a unique situation compared to other generators [with whom they would eventually compete in wholesale power markets], because they really do not know their actual construction costs or revenue potential until well into the permitting process.….
>
> With the SAP, developers need to have already done work out in the water (geophysical research) to put the plan together and fulfill regulatory requirements, but it doesn't make sense to have to do all this work just to figure out where you can put a Met tower. And in the regulations, for completion of a COP it appears that BOEM requires geotechnical boring to be performed at every single proposed wind turbine location. These data are feeding into a NEPA document, and until that NEPA review is completed, you won't even know where you can actually put your turbines. This comes at a substantial cost. The rule of thumb is that it costs about $1 million per core sample, although there may be some economies of scale here… you may get 20 cores for $10 million. Getting the drill ship out there in the first place is the most expensive part of the process.

The up-front costs of preparing analyses reportedly may amount to tens of millions of dollars, for collecting and studying years of data, "without even getting on the water." The majority of the costs and up-front time commitments for developers are associated with the information requirements needed as part of the NEPA process. The regulatory risk might be reduced with development of better geospatial information in areas of interest. One interviewee said, "We could absorb a large amount of costs up front if we knew that there was a light at the end of the tunnel." Additional information might also enable federal regulators to proceed to issue findings of no significant impacts (FONSI) for an area, and thus reduce the load of potential developers in the pre-lease stage.

These various attributes of the regulatory process raise technical risk, market risk, and competitive risk for potential developers. With the lengthy and contentious permitting process experienced by Cape Wind, many observers have sought ways to reduce the regulatory risk, administrative inefficiencies, and permitting costs.

A good example can be found in the Rhode Island Wind Energy Area. In his message announcing it, Secretary 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." Additionally, he noted that "based 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 Special Area Management Plan (Ocean SAMP).[57]

Because of these legal and other complications, greater collaboration between federal and state agencies would be beneficial.[58] In many respects, the DOI's "Smart from the Start" initiative exemplifies the type of collaborative process that is the hallmark of ocean planning. In its focus on particular geographic areas and its consultative process, the "assessment of WEAs will use many of the principles of coastal and marine spatial planning, such as comprehensive interagency coordination, and provide information that can be referenced in future decision-making regarding wind power development."[59] Even so, early questions were raised about "how the Department [of the Interior] will implement its new regulatory framework and the potential for a very lengthy approval process for any proposed project. For instance, substantial concerns have been raised about the prospect of a 7-10 year timeline for a new and untested approval process, primarily because early indications were that two environmental impact statements pursuant to the National Environmental Policy Act would be required for each and every project."[60]

To date, interest in BOEM's identification of WEAs as part of the "Smart from the Start" program has been relatively strong: Ten companies have expressed interest in developing offshore wind projects in the WEA off the coast of Massachusetts.[61] In addition, a total of nine unsolicited applications have been received by BOEM for renewable energy commercial leases in the identified WEAs offshore Rhode Island, New Jersey, Virginia, North Carolina, Maine, and New York.[62] BOEM released a document indicating the specific blocks nominated for development by interested wind developers. Interested developers have identified the specific blocks they seek to pursue, and maps have shown that a large number of blocks on offer within the Massachusetts WEA have been claimed.[63]

Even so, such interest might be even stronger if some of the inefficiencies, risks, and uncertainties of the process were addressed though such means as ocean planning. The 2011 DOE National Offshore Wind

---

[57] Rhode Island Coastal Resources Management Council, "BOEM, RI Officials name Wind Energy Area," February 27, 2012. http://www.crmc.ri.gov/news/2012_0227_wind.html.

[58] ELI Marine Spatial Planning, p. 49.

[59] BOEM "Smart from the Start Atlantic OCS Offshore Wind Initiative – Frequently Asked Questions" ("Smart from the State FAQs"), p. 3.

[60] Ibid., p. 1.

[61] These companies include Arcadia Offshore Massachusetts, Condor Wind Energy, Deepwater Wind New England, Energy Management Inc., enXco Development Corporation, Fishermen's Energy, Iberdrola Renewables, Neptune Wind, Offshore MW, and US Mainstream Renewable Power Offshore. "Patrick-Murray Administration Announces 10 Companies Interested in Offshore Wind Development in Federal Waters off Massachusetts Coast," *Mass.gov – Energy and Environmental Affairs*, June 4, 2012. http://www.mass.gov/eea/pr-2012/120604-pr-offshore-wind.html.

[62] BOEM, "Budget Justifications and Performance Information – Fiscal Year 2013," p. 40.

[63] BOEM, "Commercial Leasing for Wind Power on the Outer Continental Shelf Offshore Massachusetts – Call for Information and Nominations," Docket No. BOEM-2011-0097, April 26, 2012.

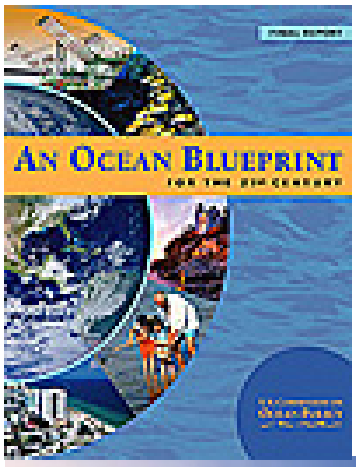
Strategy recognizes the importance of streamlining some of these processes, indicating that "Coordinated and concurrent project review processes can lead to efficiency gains in the permitting of offshore wind projects. In some cases, these opportunities for increased efficiency are already recognized and can be quickly adopted. In other cases, collaboration is needed to identify the potential efficiencies to be gained through coordinated and concurrent project review. Adoption of such process efficiencies, including implementation of the National Ocean Policy and coastal and marine spatial planning, can help protect natural resources, protected areas, and competing uses when permitting offshore wind energy facilities in the nation's ocean and Great Lakes waters."[64]

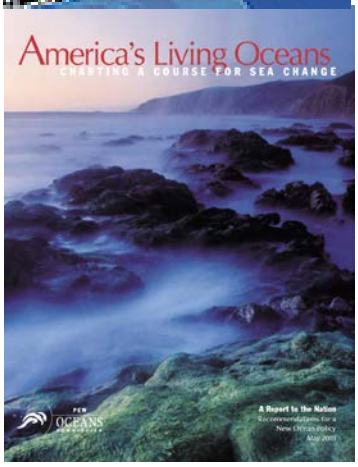
[64] DOE National Offshore Wind Strategy, p. 11.

APPENDIX 4
OCEAN PLANNING

1. HISTORY AND CONTEXT FOR OCEAN PLANNING AND MANAGEMENT

The roots of ocean policy and planning go back at least several decades. In 1969, in response to Congressional concerns about foreign threats to the US oceans, the Stratton Commission issued its report, *Our Nation and the Sea*, with recommendations addressing a wide range of issues: the federal government's organizational structure for addressing ocean issues; the value of realizing the potential economic contributions of oil, gas, and other marine resources; the importance of protecting coastal and marine environments; and the need to support American fisheries.[1]





This coincided with a major oil spill off the coast of Santa Barbara, and helped to fuel a larger public movement with rising demands for stronger environmental protection and safeguarding of natural resources. Congressional and executive branch actions led to the enactment of the National Environmental Policy Act (NEPA) in 1969, the establishment of National Oceanic and Atmospheric Administration (NOAA) in 1970, and the passage of the Coastal Zone Management Act (CZMA) in 1972.

Together, these had important implications for ocean management, as described in the 2004 Ocean Blueprint of the National Ocean Commission:

> The stewardship ethic embodied by NEPA—the idea that the government should study, plan, and offer the opportunity for public comment before acting—was applied to the oceans. This principle was at the heart of the new law dealing with America's increasingly populous coastal zone. The CZMA constituted a marriage of federal activism and states' rights. Entirely voluntary, the program offered grants to states to help develop and implement coastal management plans tailored to local needs but reflecting broad national interests. To encourage states to enforce their plans, the federal government agreed to honor them as well.[2]

Several other bodies reached similar conclusions. For example, the Pew Oceans Commission wrote in its 2003 report ("America's Living Oceans") that: "The public has entrusted the government with the stewardship of our oceans, and the government should exercise its authority with a broad sense of responsibility toward all citizens and their long-term interests…Decisions should be founded upon the best available science and flow from processes that are equitable, transparent, and collaborative."[3]

---

[1] US Commission on Ocean Policy, "An Ocean Blueprint for the 21st Century," 2004 (hereinafter "Ocean Blueprint"), p. 50.

[2] Ibid., p. 51.

In 2004, the Massachusetts Ocean Management Task Force issued "Waves of Change," calling for the application of "six basic principles of ocean resource management…[embodying] an ethic of ocean stewardship" that: (1) protects the public trust, (2) values biodiversity, (3) respects the interdependence of ecosystems, (4) fosters sustainable uses, (5) makes use of the best available information, and (6) encourages public participation in decision making.[4] Other states, including those as varied as Florida, Rhode Island, California, North Carolina, Oregon, and Virginia, have taken steps to advance the concept of ocean management.

Finally, the two most recent presidents have issued executive orders addressing the need for stronger ocean policy: On December 17, 2004, President Bush issued Executive Order Number 13366 establishing the Committee on Ocean Policy within the Council of Environmental Quality.[5] This order was strengthened in January of 2007 with the *U.S. Ocean Action Plan Implementation Update*.[6] In July 2010, President Obama issued an Executive Order adopting recommendations of an interagency ocean policy task force and establishing a national ocean council to support the development of coastal and marine spatial plans "that build upon and improve existing Federal, State, tribal, local, and regional decision-making and planning processes."[7]

2. ELEMENTS OF OCEAN PLANNING

President Obama's 2010 Executive Order calls for a national ocean policy to be designed to accomplish multiple objectives, including objectives relating to ocean ecosystem protection and restoration, sustainable ocean and coastal economies, and coordination with national security and foreign policy interests. A comprehensive marine spatial planning goal aspires to a "more integrated, comprehensive, ecosystem-based, flexible, and proactive approach to planning and managing sustainable multiple uses across sectors and improve the conservation of the ocean."[8]

The elements of ocean planning rest on several core principles embodied in the Draft National Ocean Policy Implementation Plan of the newly established National Ocean Council: (1) adopt ecosystem-based management, (2) obtain, use, and share the best science and data, (3) promote efficiency and collaboration, and (4) strengthen regional efforts. These four core elements are said to rely upon two other things—one a tool (coastal and marine spatial planning (CMSP)) and the other a core principle (fiscal responsibility).[9]

[3] Pew Ocean Commission, "America's Living Oceans: Charting a Course for Sea Change – A report to the Nation and Recommendations for a New Ocean Policy," May 2003, p. x.

[4] Massachusetts Ocean Management Task Force, "Waves of Change: Report and Recommendations," March 2004, p. 6.

[5] The Pew Ocean Commission released its final report, "America's Living Oceans: Charting a Course for Sea Change," on June 4, 2003. This report outlined national agendas for ocean protection. See also Harold Upton and Eugene Buck, "Ocean Commissions: Ocean Policy Review and Outlook," Congressional Research Service, July 20, 2010, pp. 7-9.

[6] Harold Upton and Eugene Buck, "Ocean Commissions: Ocean Policy Review and Outlook," Congressional Research Service, July 20, 2010, p. 9.

[7] Executive Order 13547 Stewardship of the Ocean, Our Coasts, and the Great Lakes, July 19, 2010 (hereinafter "National Ocean Policy Executive Order").

[8] National Ocean Policy Executive Order.

[9] National Ocean Council, "Draft Nation Ocean Policy Implementation Plan," January, 2012, (hereinafter "National Ocean Council Draft Plan"), pp. 2-5.

The final National Ocean Policy Implementation Plan adopted "a common-sense, science-based approach to achieve these benefits through resource management that considers entire ecosystems. The goal of ecosystem-based management supported by this Plan is to maintain a healthy, productive, and resilient ocean that can continue to provide the benefits and resources humans want and need."[10] "Fundamentally, the National Ocean Policy coordinates, through establishment of the National Ocean Council, the ocean-related activities of Federal agencies to achieve greater efficiency and effectiveness, with a focus on reduced bureaucracy, improved coordination and integration, and fiscal responsibility. The Policy does not create new regulations, supersede current regulations, or modify any agency's established mission, jurisdiction, or authority. Rather, it helps coordinate the implementation of existing regulations and authorities by all Federal agencies in the interest of more efficient decision-making." [11]

3. VARIATION IN OCEAN PLANNING FRAMEWORKS AND OCEAN PLANS

Variation in ocean planning approaches

Different federal and state entities put the concept of ocean planning into effect in various ways. There is no singular recipe for making ocean planning work. 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 that [ocean planning aims] to accomplish, except bringing more relevant information to bear" on the decisions of governments, private parties, and the public.

Some coastal states have fully adopted comprehensive marine spatial plans, while other states are moving in that direction although still early in the process. Others are performing extensive data collection and spatial mapping, but are not intending to create comprehensive marine spatial plans. Still others have ocean planning processes focused less on spatial planning and more squarely on resource conservation. Finally, many states have not taken substantive ocean planning steps at all. The following is a roadmap to the approaches now in play:

- *Approach 1: Comprehensive marine spatial planning*

  Comprehensive marine spatial planning 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; clear coordination among various relevant regulatory and permitting agencies. As two of the states that have adopted ocean planning statutes, Rhode Island and Massachusetts have proposed, developed, and are now implementing comprehensive state marine spatial plans. North Carolina and South Carolina have proposed comprehensive marine spatial plans, but are still early in the process.

- *Approach 2: Marine spatial mapping, but no ocean plan*

  Several Mid-Atlantic states, such as New York, New Jersey, Maryland, Delaware, and Virginia, as well as Gulf coast states Texas and Alabama, have focused more on information collection and presentation than on ocean planning. In these states, there are significant efforts to perform

[10] National Ocean Council, National Ocean Policy Implementation Plan, April 2013, p. 3.

[11] Ibid., p. 2.

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. However, there is no controlling ocean planning model (with or without statutory support), and there has been less emphasis on a formal public stakeholder process. In some cases, mapping and data collection efforts have tended to be coordinated across a region rather than just individual states. The Mid-Atlantic Regional Council on the Oceans (MARCO) (discussed further below) was created as a broad coalition tasked with coordinating ocean resource planning efforts across the region.

- *Approach 3: 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. This approach is being used, for example, in Oregon and Hawaii, and in selected areas by Florida.

- *Approach 4: Wait and see approach*

  Many states are watching what is happening elsewhere, and are managing their marine resources without utilizing comprehensive ocean-planning principles and actions. In many such states, including many located on the Gulf coast (e.g., Louisiana, Mississippi, Georgia) there is a long history of mixed uses of ocean resources, with significant, detailed information available about such uses and resources.

Highlights of State Ocean Planning Practices

Rhode Island: In 2004 Rhode Island adopted a target of obtaining 16 percent of its power from renewable energy by 2019. In 2007, the state's Office of Energy announced that offshore wind would be necessary to meet this goal given available state resources, and then-Governor Carcieri subsequently ordered that offshore wind resources would be required for 15 percent of the state's electrical power by 2020. There were reports of the possibility of a new, large offshore wind farm being proposed near the state. Partly as a consequence, in 2005 the state mandated that the Rhode Island Coastal and Resource Management Council (CRMC) prepare a Marine Resources Development Plan to balance the growing needs for development with the existing uses and the protection of marine ecosystems. Ultimately, Rhode Island enacted a statute to authorize the creation of the Rhode Island Ocean Special Area Management Plan (Ocean SAMP or OSAMP)[12] with the provision that any development proposed within the state's jurisdiction "shall be required to demonstrate that its proposal would not conflict with any resource management plan or program."[13]

Rhode Island's Ocean SAMP, published in 2010, exemplifies the CMSP approach and was developed through extensive stakeholder involvement. The process used a robust and transparent stakeholder process, facilitated by a neutral third party as a way to facilitate open dialogue and discussion. With its study area reaching all the way out to 30 nautical miles from shore (see Figure A4-1), the Ocean SAMP

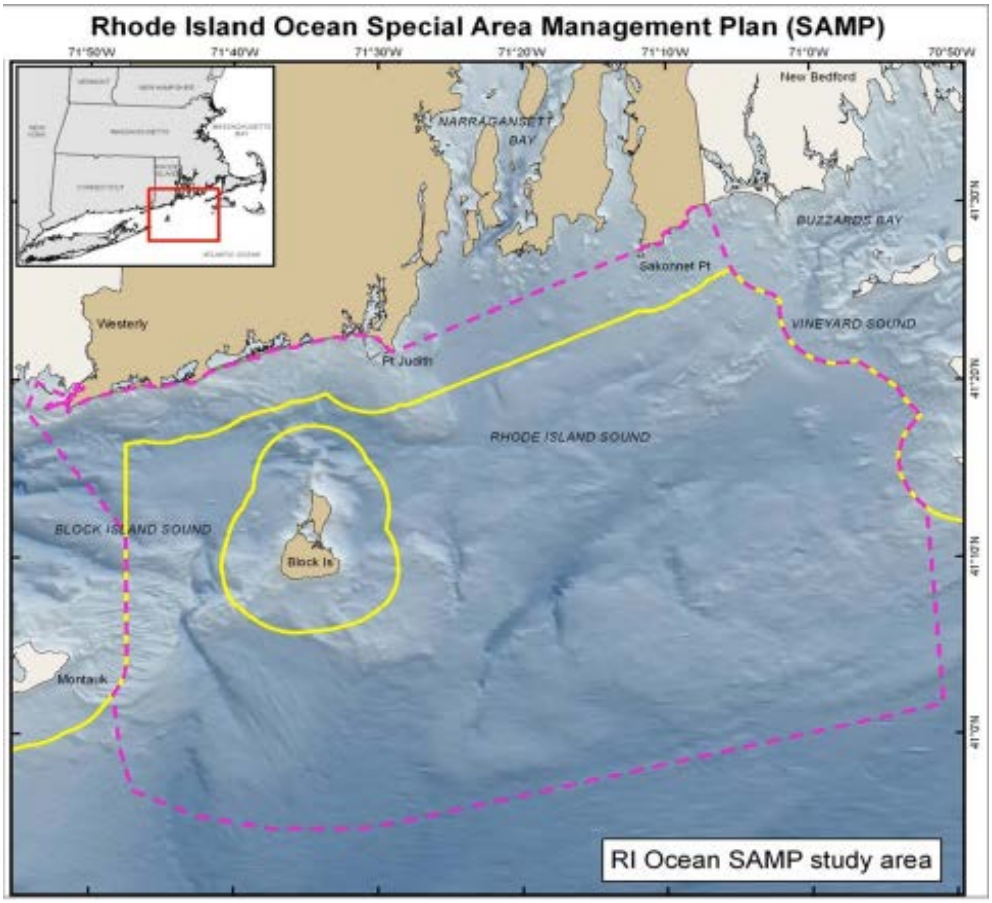
---

[12] Rhode Island Coastal Resources Management Council, "Rhode Island Ocean Special Area Management Plan, October 19, 2010, (hereinafter "RI OSAMP") Ch, 1, p.11.

[13] Title 46: Waters and Navigation. Chapter 46-23 Coastal Resource Management Council, §46-23-6.

provides maps with detailed information about a variety of ocean uses, including transportation and shipping routes, recreational uses, aquaculture, fisheries, tourism, disposal sites, transmission and other lines, and also potential offshore energy generation. The study also includes biological features such as vulnerable habitats and migration patterns, ecological features such as flora, physical features such as wave and tidal information, and geophysical features of the ocean floor.[14]

Figure A4-1
Rhode Island Ocean SAMP



Source: "Ocean SAMP Science Research Agenda," Stakeholder meeting, June 21, 2012.

In 2011, NOAA approved the inclusion of the OSAMP as part of Rhode Island's CZM plan. This meant that any developments in waters off the coast of Rhode Island would trigger a consistency review, and any development in question would have to be deemed consistent with Rhode Island's CZM plan and

[14] RI SAMP, Ch. 2-9.

with the OSAMP.[15] Typically, states only have the power of consistency review for federal activities that would directly affect their coastal zone (e.g., state waters within three miles from shore). Rhode Island's approach has allowed the state to claim power of consistency review for federal activities anywhere within the OSAMP study area (e.g., up to 30 nautical miles offshore).[16]

Massachusetts: A decade ago, Massachusetts was facing growing tensions over traditional and new uses of the ocean. Traditional uses included recreational and commercial fishing, dredging, shipping, and many other long-standing activities. New uses included new natural gas pipelines, proposals for new LNG facilities, new undersea transmission lines, new wind farms, aquaculture, and others. The state was interested in figuring out ways to navigate these multifaceted pressures in sensible ways.

Following the recommendations of the Ocean Management Task Force in 2004, in 2008, the Massachusetts legislature enacted the Oceans Act. This law required that the state to prepare an ocean management plan with the advice of an Oceans Advisory Commission and a Science Advisory Council. The Ocean Management Plan was adopted in December 2009, supporting a number of the statutory goals set out in the Oceans Act,[17] including: (a) balancing and protecting the natural, social, cultural, historic, and economic interests of the marine ecosystem through integrated management; (b) recognizing and protecting biodiversity, ecosystem health, and the interdependence of ecosystems; (c) supporting wise use of marine resources, including renewable energy, sustainable uses, and infrastructure; and (d) incorporating new knowledge as the basis for management that adapts over time to address changing social, technological, and environmental conditions.[18] (See Figure A4-2 for an illustration of the Massachusetts Ocean Management Planning Area.) The plan includes extensive information about patterns of uses of the state's ocean waters, and identifies a number of areas for special protection, other areas identified as particularly attractive for certain new economic activities (e.g., wind development), and other areas amenable to a variety of uses. In Massachusetts, permitting and other approvals issued by state agencies must be consistent with the Ocean Plan.

---

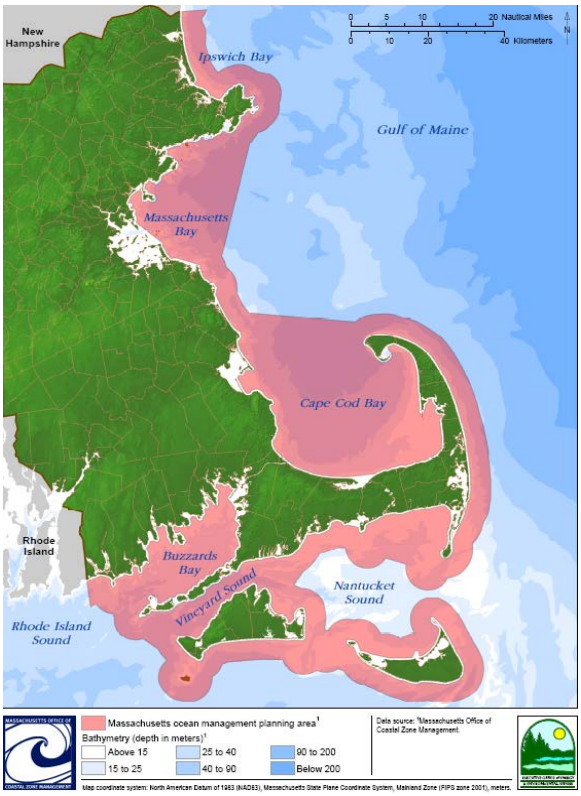
[15] "NOAA approves RI plan for offshore energy development, job creation, and ocean stewardship," July 22, 2011. http://www.noaanews.noaa.gov/stories2011/20110722_rhodeisland.html.

[16] Rhode Island Coastal Resources Management Council, "CRMC's GLD approved for Ocean SAMP," December 6, 2011, http://www.crmc.ri.gov/news/2011_1206_gld.html.

[17] These goals were articulated in the state's ocean plan: "(i) set forth the commonwealth's goals, siting priorities and standards for ensuring effective stewardship of its ocean waters held in trust for the benefit of the public; and (ii) adhere to sound management practices, taking into account the existing natural, social, cultural, historic and economic characteristics of the planning areas; (iii) preserve and protect the public trust; (iv) reflect the importance of the waters of the commonwealth to its citizens who derive livelihoods and recreational benefits from fishing; (v) value biodiversity and ecosystem health; (vi) identify and protect special, sensitive or unique estuarine and marine life and habitats; (vii) address climate change and sea-level rise; (viii) respect the interdependence of ecosystems; (ix) coordinate uses that include international, federal, state and local jurisdictions; (x) foster sustainable uses that capitalize on economic opportunity without significant detriment to the ecology or natural beauty of the ocean; (xi) preserve and enhance public access; (xii) support the infrastructure necessary to sustain the economy and quality of life for the citizens of the commonwealth; (xiii) encourage public participation in decision-making; (xiv) adapt to evolving knowledge and understanding of the ocean environment; and (xv) identify appropriate locations and performance standards for activities, uses and facilities allowed under the Ocean Sanctuaries Act, including but not limited to renewable energy facilities, aquaculture, sand mining for beach nourishment, cables, pipelines." Massachusetts Ocean Management Plan, December 21, 2009 (hereinafter "Massachusetts Ocean Plan"), pp. 1-1 to 1-2.

[18] Massachusetts Ocean Plan, pp. 1-3 and 1-4.

Figure A4-2
Massachusetts Ocean Management Planning Area



Source: Massachusetts Ocean Plan, 2009, Figure 1-1.

Massachusetts' plan has been called "state centric," in that it was developed as a result of a state statute which directed attention on uses of and resources in state waters. Nonetheless, Massachusetts has incorporated the Ocean Plan into its CZM plan, which has been approved by NOAA. This provides a mechanism for the state to comment on the consistency of actions in bordering and close-in federal waters with the aspirations of the state.

North Carolina: Ocean management has been a topic of interest in North Carolina for many years.[19] In 1984, the state published the "North Carolina and the Sea: An Ocean Policy Analysis," later updated in 1994 by the North Carolina Division of Coastal Management (DCM) and the North Carolina Sea Grant College Program. The updated report, "North Carolina's Ocean Stewardship Area: A Management Study," addressed contemporary ocean management issues. The North Carolina DCM in 2005 released its five-year plan, which placed emphasis on protecting ocean resources.

In 2007, the North Carolina DCM created the Ocean Policy Steering Committee, giving it the responsibility to make policy recommendations about ocean issues. This report was released to the

[19] Ocean Policy Steering Committee, "Developing a Management Strategy for North Carolina's Coastal Ocean," April, 2009, p. ix.

Coastal Resource Commission (CRC) in April 2009; CRC is the main permitting agency for ocean development under the DCM. The report discusses such topics as offshore sand resources, Critical Habitat Protection Areas, offshore wind development, aquaculture, and some implications of a possible lifting of the moratorium on oil and gas offshore exploration in the ocean near North Carolina.[20] The Ocean Policy Steering Committee recommended that due to the growing interests in ocean resource development and the potential for overlapping activities, the development of a comprehensive ocean plan is needed to manage North Carolina's oceans. The Ocean Policy Steering Committee also encourages the North Carolina Coastal Habitat Protection Plan, as it can play a big role in the mapping of marine resources.[21]

While North Carolina has recognized that mapping of ocean resources and current uses is a crucial next step towards this goal of a comprehensive marine spatial plan, the state is still early in this process, and it is unclear when or how subsequent actions will proceed.

South Carolina: South Carolina has also been concerned with ocean management for years. In response to expanding interest and activities within state ocean waters, in 2008 the South Carolina Department of Health and Environmental Control's Office of Ocean and Coastal Resource Management (OCRM), the state agency for ocean management, created the Ocean Planning Work Group (OPWG).[22] Its goal was to (1) improve understanding of ocean issues by facilitating informational exchange and (2) to develop recommendations for the state to manage increasingly expanding and overlapping activities, such as sand extraction for beach replenishment and offshore energy development.[23] The OPWG also addresses issues such as artificial reefs, military exercises, navigation, dredging material disposal, storm-water discharge, and aquaculture.[24]

In its 2012 Final Draft Report, the OPWG recommends the development of an Ocean Action Plan to balance the emerging needs and uses of the ocean in a sustainable way.[25] This plan will require and address coordination with stakeholders, officials, and the public; reducing use conflicts and impacts on marine resources from new activities; facilitation of offshore wind energy development; creation of a leasing framework for energy development in state waters; management of sand resources, and aquaculture; and ocean mapping and monitoring.[26] In essence, OPWG is recommending a CMSP. Moreover, the Regulatory Task Force, created by the South Carolina Energy Office to make recommendations for the development of offshore alternative energy in state waters, also stressed the need for the state to develop a marine spatial plan to "allow predictability in decision making and protection of existing ocean uses."[27]

---

[20] Ibid., p. ix-x

[21] Ibid., p. 66.

[22] South Carolina Ocean Planning Working Group, "Final Draft Report: South Carolina Ocean Report," July, 2012, p. 14-15.

[23] Ibid., p. 15.

[24] Ibid., pp. 13-14.

[25] Ibid., p. 145.

[26] Ibid., pp. 145-151.

[27] South Carolina Regulatory Task Force for Coastal Clean Energy, "Recommendations to the Wind Energy Production Farms Feasibility Study Committee," 2009, p. 3.

Virginia (and other MARCO states): Virginia has followed a model that relies in part on a regional ocean planning framework. As part of MARCO, Virginia works with other Mid-Atlantic coastal states to generate marine spatial mapping data and a publically available planning tool.[28] Within MARCO, Virginia is leading the sub-group focused on marine spatial mapping.

In response to rising development pressures, various state and local agencies in Virginia had expressed a need for a comprehensive vision for sustainable development of the state's coastal resources. Mapping of coastal ocean areas was seen as critical. With funding from NOAA's CZM program, Virginia started to collect data to be compiled in an online mapping tool, the Virginia Coastal Geospatial and Educational Mapping System (GEMS). In 2007 the first version of the Coastal GEMS became available online, and the state's Department of Environmental Quality is launching its third version of this tool.[29] The Coastal GEMS is used by multiple federal, state, and local agencies to assist in conservation, development, and coastal project planning (e.g. public access plans, roads, and other facilities), and to serve as a starting point in the environmental review process.[30]

While this mapping project focuses on the coast, the MARCO initiative includes mapping of the ocean out to the end of the federal EEZ, 200 nm from shore. The CZM program assessment and strategy report submitted to NOAA in 2011 indicates that the three main issues for 2011-2016: are (1) cumulative and secondary impacts of growth and development, (2) Special Area Management Plans (SAMPs), and (3) ocean resources.[31] The Virginia CZM program has proposed a five-year plan to develop a Virginia Ocean Marine Spatial Plan that is consistent with the MARCO and National Ocean Council initiative.[32,33] This Marine and Coastal Spatial Plan will cover waters from the coast out to the 200 mile Economic Exclusion Zone and will include habitat, geographical, and human use data.

A principal difference between the MARCO ocean planning framework and that of Rhode Island, Massachusetts, South Carolina, and North Carolina, is that the Mid-Atlantic states are stepping forward in conjunction with the impending regional comprehensive marine spatial planning processes of the National Ocean Council (NOC). (In fact, South Carolina has explicitly stated that it has a right to develop its own plan, regardless of whether its plan is consistent with the relevant NOC regional plan.)[34]

---

[28] As noted previously, MARCO is the regional ocean management coalition in the Mid-Atlantic. One of the integral pieces to their regional initiative is to create a comprehensive ocean mapping tool that will be made publically available on line and will be used as a management and decision-making tool.

[29] Virginia Coastal Zone Management Program, Chapter 7.5, p. 314.

[30] Virginia Department of Environmental Quality, "Virginia Coastal Geospatial and Educational Mapping System." http://www.deq.virginia.gov/Programs/CoastalZoneManagement/CoastalGEMSGeospatialData.aspx.

[31] Virginia Coastal Zone Management Program, "Section 309 Needs, Assessment, and Strategy," 2011, p. 5.

[32] Ibid., p. 187.

[33] Ibid., p. 191.

[34] Concurrent Resolution H. 4703, adopted May 31, 2012. This resolution "affirm[s] the authority of the State of South Carolina in determining appropriate activities and uses of resources in waters controlled by the state and to recognize the critical role of states in federal ocean planning, including the gathering of coastal and marine spatial information."

4. NATIONAL AND REGIONAL OCEAN PLANNING

National Ocean Council plans

NOC published its draft National Ocean Policy Implementation Plan in January 2012. The draft plan set out the first comprehensive federal framework under which different federal, state, local, and other authorities could work together through cohesive and collaborative actions, to better manage ocean resources and uses.[35]

The NOC Plan, in place for over a year until the NOC published the National Ocean Policy Implementation Plan in April 2013, anticipated that the following actions will occur in the next few years.

- Between now and 2015: Regional ocean planning bodies (such as existing ones, like MARCO or the NROC, or newly established ones in different coastal regions of the United States) have been asked to identify initial steps, develop work plans to be approved by the NOC, and initiate the CMSP process as described by NOC.[36]
- By 2015: All data will be compiled into the National Information Management System and Data Portal and made publicly available.[37] (The data portal, called Ocean.Data.Gov, is already operating as a prototype as of this writing: http://www.data.gov/ocean/community/ocean. It has links to a wide variety of data housed in federal, regional, state, and other websites.)
- 2015-2019: Within five years of a Regional Planning Body's establishment, it is asked to complete an initial CMS Plan to be submitted for NOC review. All regions should complete plans by 2019.[38]

(See Figure A4-3 for more details about the timeline of events for the National Ocean Council's roll-out of ocean planning, as reflected in the National Ocean Council Draft Plan.)

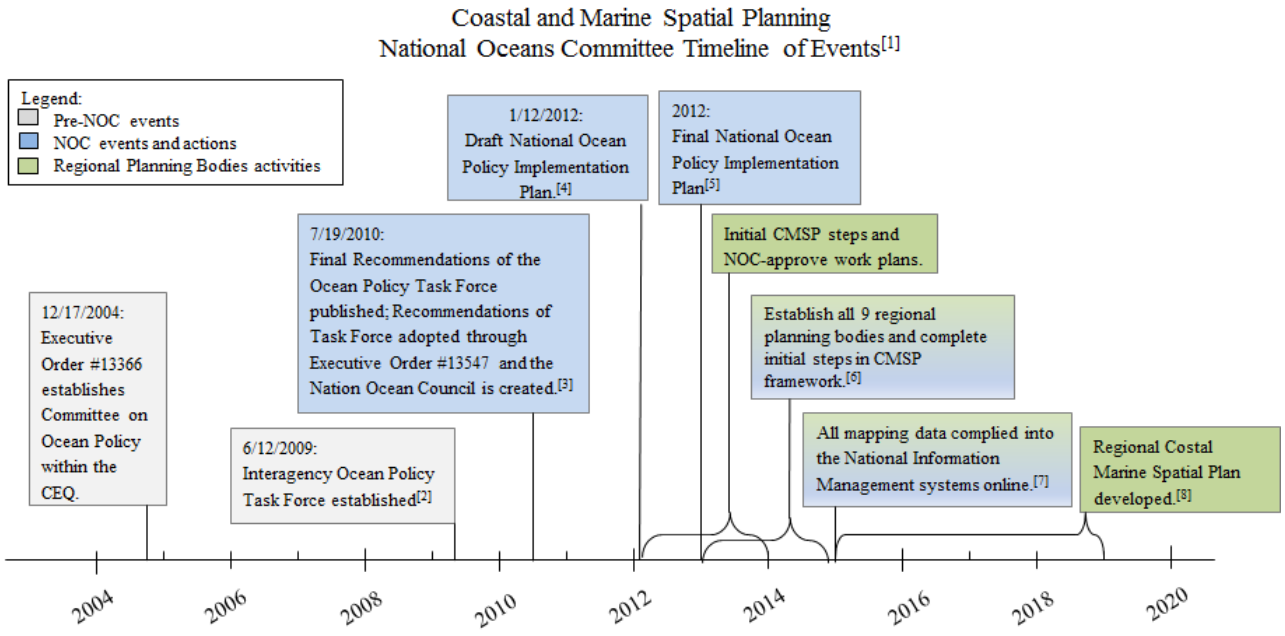
[35] National Ocean Council Draft Plan, p. 1.

[36] Ibid., pp. 91-92.

[37] Ibid., pp. 90-91.

[38] Ibid., p. 92.

Figure A4-3



Notes:
[1]The National Ocean Committee has developed goals and milestones for every focus area. This map focuses on the main events for Marine and Coastal Spatial Planning. A much more detailed step-by-step process in included in the NOC Implementation Plan.
[2] Established through Presidential Memorandum.
[3] Executive Order #13547 adopts the recommendations of the Task Force, thereby establishing the National Ocean Council and directs all executive agencies to implement the recommendations of the Task Force under the guidance of the National Ocean Council.
[4] Draft Implementation plan was released on 1/12/12 for public comment. The public comment period closed 3/28/2012.
[5] Final Implementation plan has not been released, but was originally due out in Spring of 2012.
[6] Some Regional Bodies were already established before this time period.
[7] To be completed by 2015. All data will be located at ocean.data.gov.
[8] Regional Planning Bodies are to complete CMS Plan for NOC certification within 3-5 years of the establishment of the Regional Planning Body. All plans should be completed by 2019.
Sources:
[1] White House Council on Environmental Quality. "Final Recommendations of the Interagency Ocean Policy Task Force." July 19, 2012.
[2]National Ocean Council. "Draft National Ocean Policy Implementation Plan." Jan 12, 2012.
[3] Executive Order # 13547, Stewardship of the Oceans, Our Coasts, and the Great Lakes, (Issued on July 19, 2010).

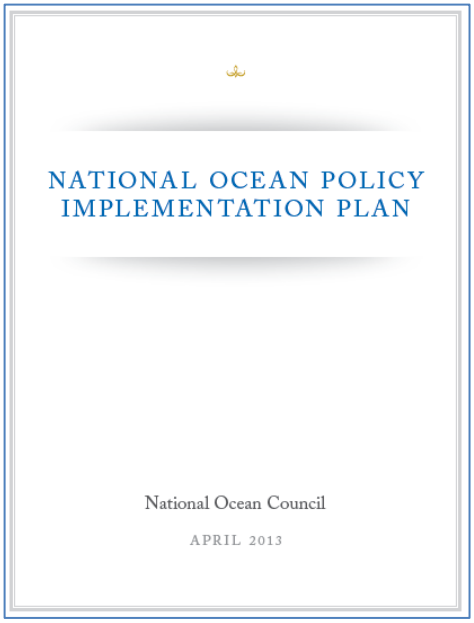
One of the recommended actions in the NOC's draft implementation plan specifically addressed the efficiency of permitting activities in the ocean and coastal areas: Action 5 states that there "are a number of overlapping, redundant, and sometimes conflicting permit review processes that result in unnecessary delays, increased costs, and lack of predictability for commercial investments. Relevant agencies, offices, and departments represented on the NOC will work together to review permitting processes to determine how these processes may be better coordinated."[39]

Although the NOC identified aquaculture as the initial focus, or pilot, of such coordinated permitting, the idea could apply to other federal permitting areas, where there are significant opportunities to coordinate across federal agencies and with states, to rely on evolving knowledge, and to improve the efficiency of permitting for public agencies, developers, and stakeholders. A hoped-for outcome is that "[e]fficient,

[39] Ibid., p. 40.

coordinated permitting processes will allow ocean industries to save time and money and encourage economic development and growth without compromising Federal agency responsibilities to protect health, safety, and the environment. Improved coordination and decreased redundancies will also reduce administrative waste and burden on Federal agencies."[40]

The final National Ocean Policy Implementation Plan (April 2013) provides further detail on an undated set of milestones, including the following ones (among many others) that are notably relevant for permitting of offshore energy resources:[41]



- *Advance our mapping and charting capabilities and products to support a range of economic activities.*

  2013: Integrate existing and emerging coastal and seafloor mapping guidelines, best practices, and standards to ensure interoperability of data.

  2014: Improve and implement technology and techniques for acoustic characterization of seafloor properties to enable multiple uses of data for nautical charting and marine habitat mapping.

  2017: Develop an annually updated National Ocean and Coastal Mapping Plan.

- *Provide greater accessibility to data and information to support commercial markets and industries, such as commercial fishing, maritime transportation, aquaculture, and offshore energy.*

  2013: Develop, evaluate, and expand an integrated geospatial database of Federal and non-Federal, certified and non-certified ocean observation data to provide access to public information and provide extracts or contact information for privately held information.

- *Increase efficiencies in decision-making by improving permitting processes and coordinating agency participation in planning and approval processes.*

  2013: Identify pilot projects, in collaboration with relevant stakeholders, to streamline permitting processes and reduce duplicative efforts, while ensuring appropriate environmental and other required safeguards.

- *Establish a framework for collaboration and a shared set of goals to promote ecosystem-based management.*

  2013: Develop ecosystem-based management (EBM) principles, goals, and performance measures; produce a policy statement; and coordinate adoption by NOC member agencies…. Develop guidance for all Federal agencies about how to implement EBM under existing regu-

[40] Ibid., p. 40.

[41] National Ocean Policy Implementation Plan Appendix, April 2013.

latory and legislative authorities, such as the National Environmental Policy Act (NEPA), into agency-specific programs and associated actions (e.g., risk analyses and permit reviews).

2016: Incorporate EBM into Federal agency environmental planning and review processes using a phased approach.

- *Identify and implement pilot projects that use an integrated ecosystem-based approach to partnering in the stewardship of ocean and coastal resources.*

  2013: Develop criteria for identifying priority geographic areas for pilot implementation of ecosystem-based management, and use those criteria to identify three locations for pilot projects.

  2016: Determine what additional data and tools are needed for implementing EBM in the selected pilot project locations, and conduct EBM pilot projects in the identified areas, ensuring that EBM data and tools (e.g., integrated ecosystem assessments) are available for use, data/tool gaps are filled, and data are collected in accordance with ocean.data.gov requirements.

- *Expand and improve discovery of and access to non-classified Federal data and decision-support tools, including ocean and coastal mapping products, to support local, tribal, State, and regional decision-making.*

  2013: Continue to build out the national marine planning data portal (ocean.data.gov), and develop and implement a governance strategy for the national information management system that ensures high data quality and standards-based data management for maximum data utility and interoperability. Develop and complete an assessment of existing and needed decision-support tools, and training to support ocean and coastal decision-makers. Continue to make non-classified agency data, decision-support tools, and visualization capabilities of relevance to marine planning publicly available in machine-readable formats through ocean.data.gov.

- *Support regional priorities and enhance regional partnerships' ability to address issues of regional importance.*

  2013: Identify grant and non-monetary opportunities (including tools, resources, and in-kind services) to support the continued development and organization of regional alliances and existing Regional Ocean Partnerships (ROPs), including data collection and analysis needed to advance regional efforts. In coordination with ROPs, compile best management practices (BMPs) that are broadly applicable for all ROPs (e.g., how to effectively engage stakeholders, develop partnerships, identify priorities, develop regional action plans, and measure success).

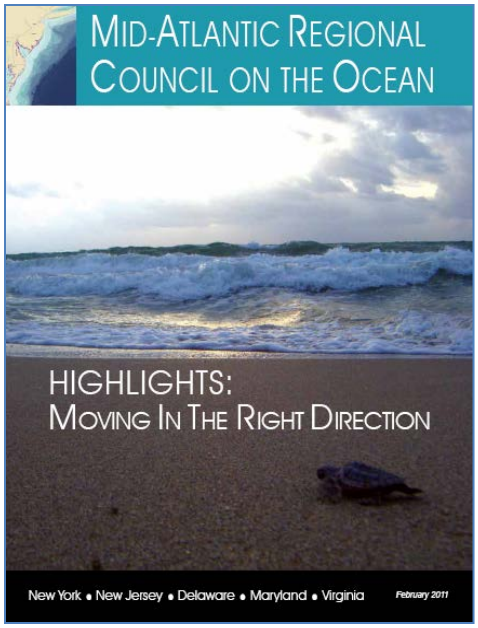
- *Support marine planning to advance regionally determined economic, social, environmental, and cultural interests.*

  2013: Provide guidance and information to Federal, State, and tribal agency Regional Planning Body co-leads and regional planning body members; make available to stakeholders and the public. Assist regional, State, and tribal partners who want to hold marine planning workshops. Federal agencies will participate on and work with Regional Planning Bodies, to determine initial steps needed to support regional planning to advance regional interests.

Multi-State / Regional Collaborations

Mid-Atlantic Regional Council on the Oceans (MARCO): MARCO was created in 2008 through an agreement by the Governors of the Mid-Atlantic States (New York, New Jersey, Delaware, Maryland, and Virginia)[42] to collaborate regionally and promote common coastal and ocean-related goals.

MARCO's five main goals include: (a) coordinated protection of sensitive habitats; (b) support for offshore renewable energy; (c) preparing coastal communities for impacts of climate change; (d) improving coastal water quality; and (e) marine spatial planning.[43] While MARCO has no statutory authority and is not working toward a formal marine spatial plan for the integrated multi-state ocean, it is progressively compiling marine spatial data that can be used in and is critical for ocean planning.



For example, MARCO aims to perform benthic and resources mapping all the way out to 200 miles (e.g., the line between United States and international waters). Each MARCO state has applied for funding for ocean mapping efforts through its respective CZM plan.[44] Such funds would be used to support MARCO mapping activities.

While there is still much mapping to be completed, there is already a working online interactive tool where users can view a wealth of ocean data.[45] Moreover, MARCO exemplifies a collaborative process similar to those envisioned by the NOC for the regional CMSP bodies. The MARCO Action Plan, developed in 2009, created interstate working groups and has assigned each a different issue.[46] More recently, MARCO has again enlisted stakeholder input to finalize their 2011-2012 Work Plan document. (Table A4-1 describes state-specific efforts by individual states that participate in MARCO.)

---

[42] MARCO, "Highlights: Moving in the Right Direction," February, 2011 ("MARCO Highlights"), p. 2.

[43] MACRCO, "2011-2012 MARCO Workplan," June 15, 2011, p. 1.

[44] MARCO Highlights, p. 2.

[45] MARCO's online interactive mapping tool is available at: http://www.midatlanticocean.org/map_portal.html.

[46] MARCO Highlights, p. 2.

Table A4-1
MARCO States' Action on Ocean Planning

Delaware[47]	In its last report to NOAA, Delaware indicated its intention to create a more comprehensive ocean plan. Concerns over conflicting use as well as uncertainties in permitting were made apparent by the development interest in offshore wind energy. A comprehensive ocean plan is necessary "to ensure the wide use of this resource in the manner that minimizes user conflicts and avoidable damage to fragile ocean resources." The Marine Management Plan for Delaware's Atlantic Coast would also streamline the permitting process for development. The Delaware Coastal Program laid out a three-year plan for developing this ocean plan. In order to achieve these goals the Coastal Program has proposed to first map the area of interest (consistent with MARCO's mapping efforts) and to research the current policy gaps in ocean management.
Maryland[48]	In its last report to NOAA, Maryland indicated its intention to create a comprehensive CMSP that aligns with MARCO's mapping initiative. In 2010 a local/state/federal task force had been created at the DOI the request of the governor of Maryland to evaluate and site offshore wind projects. This effort required some spatial mapping and planning and has spurred interest in creating a more comprehensive CMSP. The CMSP will be used to improve assessment of overlapping resource uses in Maryland's coast and ocean. When complete, the CMSP will be integrated into existing state and local management programs. Maryland's energy and natural resource agencies collaborated to build the publically accessible *Maryland Coastal Atlas* tool to help developers and policy makers to determine where there are conflicting areas of interest.
New Jersey[49]	The state is undertaking a five-year plan to finish full CMSP/ Ocean SAMP, and is coordinating with MARCO states. There is potential interest in opening up offshore areas to oil and gas exploration and drilling. The *New Jersey Ocean Atlas* is similar to Maryland's. Some efforts have been made to encourage renewable energy. In 2008, New Jersey's Energy Master Plan was released with the goal of installing 1000 MW of offshore wind by 2012 and at least 3000 MW by 2020.
New York[50]	Proposed new comprehensive planning in the siting of energy facilities (mostly wind), transmission lines that also protects marine and estuary environments. This proposal is aligned with MARCO's regional plan.
Virginia[51]	In 2001, due to the rising development pressures, State and Local agencies expressed a need for a comprehensive vision of Virginia's coast in order to ensure sustainable development of resources. Central to this need was coastal mapping to better understand the current status of resources. With NOA funding (CZMA), Virginia built an online mapping tool, the Virginia Coastal Geospatial and Educational Mapping System (GEMS). GEMS is used by a multitude of federal, state, and local agencies to assist in conservation, development and coastal project planning (public access plans, roads and other facilities), and to serve as a starting point in the environmental review process. Virginia's CZM Program has proposed a five-year plan to develop a Virginia Ocean MSP consistent with the MARCO and NOC initiative. Additionally the DOI formed a local/state/federal task force to determine areas best suited for offshore wind development. The taskforce will also provide guidance in the leasing of these designated WEA. There has already been interest expressed by two wind developers are seeking leases about 12 miles off the coast.

---

[47] Delaware Department of Natural Resources and Environmental Control, "Delaware Coastal Programs Section 309 Enhancement Assessment and Strategy," 2011, p. 49-50.

[48] Maryland Energy Administration, "Maryland Offshore Wind Energy Act of 2011: Facts and Figures," p. 2; Maryland Chesapeake & Coastal Program, Office of Ocean and Coastal Resources Management, "Maryland's Coastal Zone Enhancement Plan: Coastal Zone Management Act Assessment and Strategy 2011-2015," February, 2011, p. 106.

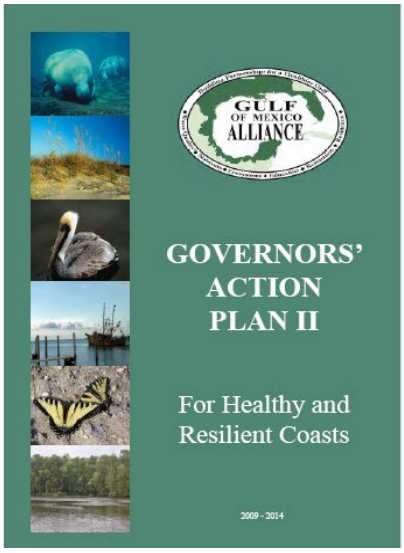
[49] New Jersey Costal Management Program, "Assessment and Enhancement Strategy 2006-2010," June, 2006, pp. 37-38, and "309 Assessment 2011-2015," November 2010, pp. 31, 109.

[50] New York Costal Management Program, "309 Assessment and Strategy 2011-2016," November, 2010, p. 109.

[51] Virginia Department of Environmental Quality, "Virginia Coastal Geospatial and Educational Mapping System." http://www.deq.virginia.gov/Programs/CoastalZoneManagement/CoastalGEMSGeospatialData.aspx; Virginia Coastal Zone Management program, "Section 309 Needs, Assessment, and Strategy," 2011, pp. 5, 119, 187, 191.

Northeast Regional Ocean Council (NROC): In 2005, the governors of the six New England states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) entered into an agreement to create the NROC as part of a large effort to work collaboratively on ocean issues. Its purpose was to "assist the region's governors identify coastal and ocean management priorities that require a coordinated regional response and to foster collaboration that effectively addresses these issues."[52] Its activities include information collection and exchange, supporting partnerships to advance renewable energy development in marine settings; and fostering international cooperation and collaboration on all aspects of marine and oceans-related research and development, education, exploration and observation, and oceans management."[53] NROC has indicated its goal to cooperate with the national ocean policy initiatives. NROC has focused on providing a forum for proactive discussion of ocean issues that are larger than a particular project development, and on helping to build better spatial information about ocean activities in the region, with recent work on mapping out patterns of fishing and engaging the industry and other stakeholders (including energy companies, environmental organizations, and others) to do so.

Gulf of Mexico Alliance (GOMA): In 2004, the Gulf of Mexico Alliance was formed as a collaborative regional group that includes Alabama, Florida, Louisiana, Mississippi, and Texas. GOMA aimed to increase regional collaboration to enhance the ecological and economic health of the Gulf of Mexico and to identify regional goals and objectives.[54] Like MARCO, GOMA stresses open communication and collaboration, and incorporates a comprehensive approach to ocean planning (including spatial mapping components). GOMA's stated mission is to "promote the protection, restoration, enhancement, understanding, awareness and wise use of the natural resources of the Gulf of Mexico through aligned and cooperative efforts involving research, planning, management, information and resource sharing, public education, and informed support."[55]



In 2006, GOMA issued the first Governors' Action Plan for Healthy and Resilient Coasts, covering the 2006-2009 period. An updated action plan was published in 2009 with goals for years 2009-2014. In the later action plan, one of the actions under the "Ecosystems Integration and Assessment" goal is a Gulf of Mexico Master Mapping Plan (GMMMP) which will gather, reproduce, and fill in gaps of region-wide information of coastal environments and natural resources. This information will ultimately be complied in an online interactive mapping tool.[56]

---

[52] "NROC Terms of Reference," Northeast Regional Ocean Council. http://collaborate.csc.noaa.gov/nroc/about/nroc-terms/default.aspx.

[53] Ibid.

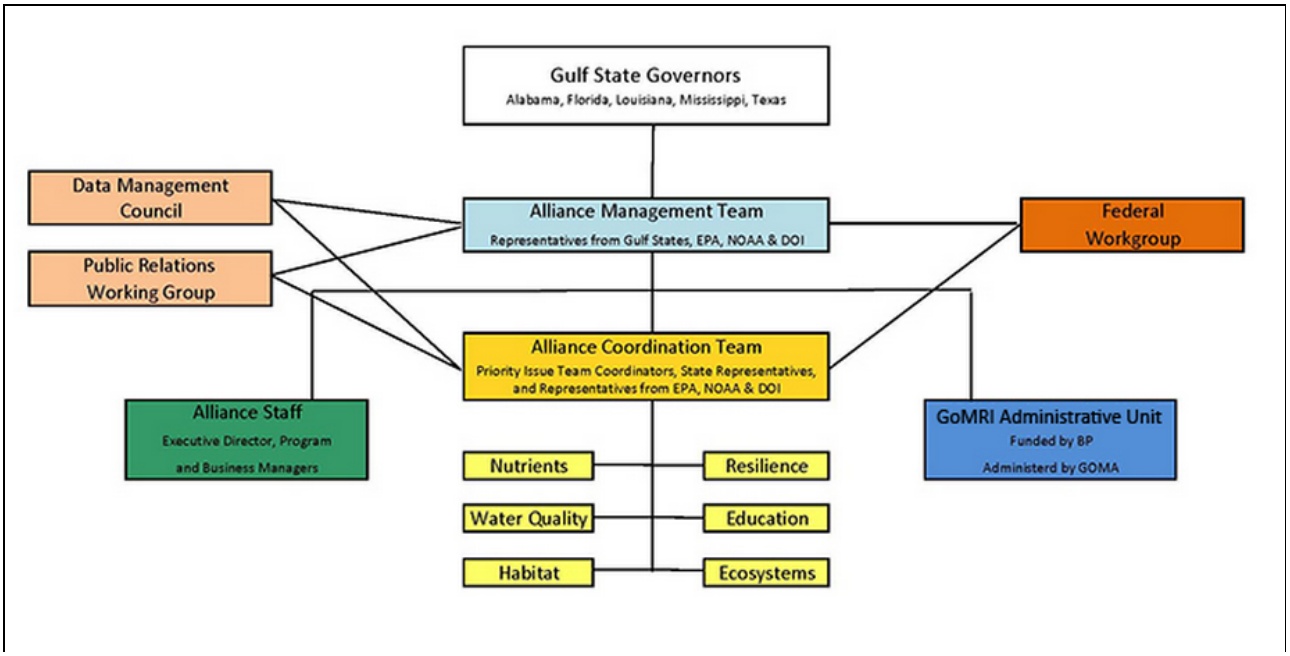
[54] Gulf of Mexico Alliance. "Governors' Action plan I For Health and Resilient Coasts: 2006-2009," March, 2006, p. 6.

[55] Gulf of Mexico Alliance. "Gulf of Mexico Alliance Constitution," August 2012, p. 1.

[56] Gulf of Mexico Alliance. "Governors' Action plan II For Health and Resilient Coasts: 2009-2014," 2009, p. 19.

In 2011, in conjunction with the GOMA, NOAA launched the Gulf of Mexico Atlas Pilot, which is an online mapping tool for the GOM: http://gulfatlas.noaa.gov/. This atlas includes economic (oil and gas rigs), environmental (geological and other features), and ecological layers (protected habitats and important species) that was previously collected by NOAA's National Ocean Service. This information is similar to the impending GMMMP atlas and is meant to support the Gulf of Mexico Alliance.[57] In the wake of the Macondo accident, the Gulf of Mexico Ecosystem Restoration Taskforce was created to oversee the recovery of the area. In a report from December, 2011, the taskforce recognized the need for research and development of a spatial marine plan in order to protect important habitats in the GOM.[58] (Figures A4-4 and A4-5 provide more details about GOMA).

Figure A4-4
Gulf of Mexico Alliance

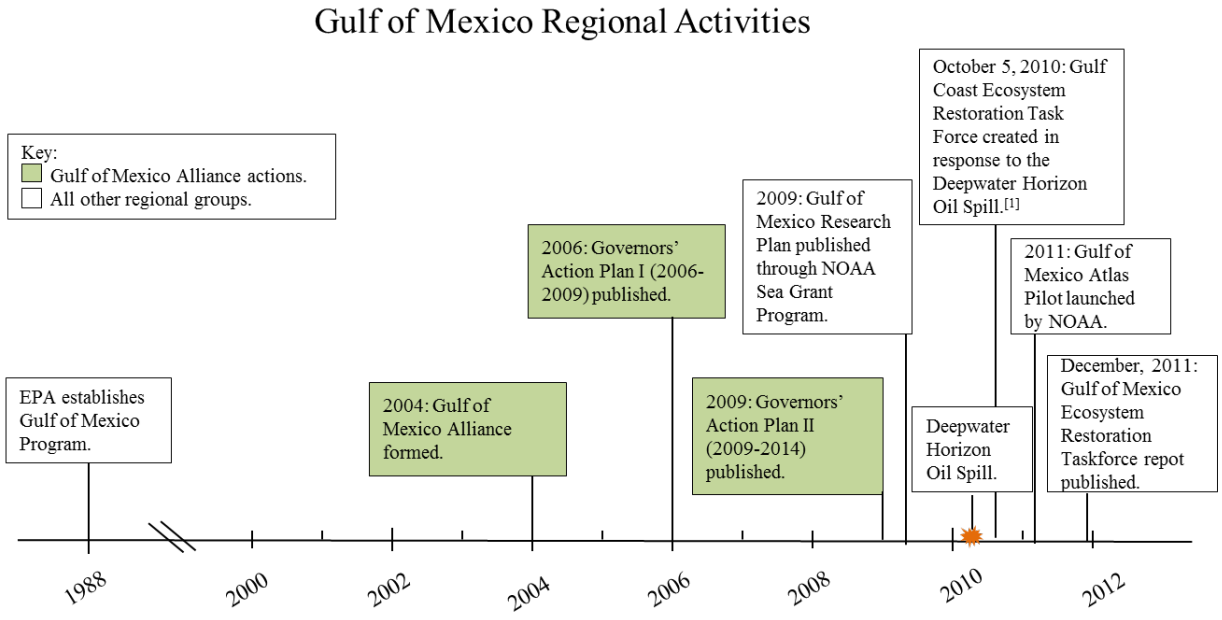


Source: GOMA, "About the Alliance.".http://www.gulfofmexicoalliance.org/about/about.html.

[57] NOAA, "About the Next Generation Atlas." http://gulfatlas.noaa.gov/about/.

[58] Gulf Coast Ecosystem Restoration Taskforce. "Gulf of Mexico Regional Ecosystem Restoration Strategy," December, 2011, p. 87.

Figure A4-5



Notes:
[1] The Restoration Task Force was created via executive order.
Sources:
[1] "What is the Gulf of Mexico Program." EPA, available at: http://www.epa.gov/gmpo/about/whatisgmp.html.
[2] Gulf of Mexico Alliance. Governors' Action plan I For Health and Resilient Coasts: 2006-2009. March, 2006.
[3] Gulf of Mexico Alliance. Governors' Action plan II For Health and Resilient Coasts: 2009-2014. 2009.
[4] NOAA Sea Grant Program. "Gulf of Mexico Research Plan." September, 2009.
[5] Gulf Coast Ecosystem Restoration Taskforce. "Gulf of Mexico Regional Ecosystem Restoration Strategy." December, 2011.

APPENDIX 5

LIST OF ACRONYMS USED IN THE REPORT

ACOE Army Corps of Engineers
APD Application for Permit to Drill
API American Petroleum Institute
AWC Atlantic Wind Connection
BBO Billion Barrels of Oil
BOEM Bureau of Ocean Energy Management
BOEMRE Bureau of Ocean Energy Management Regulation and Enforcement
BPD Barrels per day
BSEE Bureau of Safety and Environmental Enforcement
CAA Clean Air Act Amendments
CE Categorical Exclusion
CER Categorical Exclusion Review
CEQ Council on Environmental Quality
CMSP Coastal and Marine Spatial Planning
COP Construction and Operation Plan
CPA Central Gulf of Mexico Planning Area
CRS Coastal Resources Council
CRMC Coastal and Resources Management Council
CWA Clean Water Act
CZM Coastal Zone Management
CZMA Coastal Zone Management Act
DCM Division of Coastal Management
DOE Department of Energy
DOI Department of the Interior
DP Development Plan
DPU Department of Public Utilities
DWOP Deepwater Operation Plan
EA Environmental Assessment
EERE Energy Efficiency and Renewable Energy
EEZ Exclusive Economic Zone
EIA US Energy Information Administration
EIS Environmental Impact Statement
EP Exploration Plan
EPA Environmental Protection Agency
EPACT Energy Policy Act
ESA Endangered Species Act
EU European Union
FAA Federal Aviation Act
FACW Fishermen's Energy Atlantic City Windfarm
FERC Federal Energy Regulatory Commission
FOER Fund for Ocean Economic Research
FONSI Finding of No Significant Impact
GDP Gross Domestic Product
GEMS Geospatial and Educational Mapping System
GMMMP Gulf of Mexico Master Mapping Plan
GOM Gulf of Mexico
GOMA Gulf of Mexico Alliance
GW Gigawatt
GWh Gigawatt-hour
HMTA Hazardous Material Transportation Act
ITC Investment Tax Credit
LNG Liquefied Natural Gas
LOS Convention United Nations Convention on the Law of the Sea
MARCO Mid-Atlantic Regional Council on the Oceans
MFC Marine Fisheries Commission
MMPA Marine Mammal Protection Act
MMS Minerals and Management Service
MOA Memorandum of Agreement
MORIS Massachusetts Ocean Resources Information System
MPRSA Marine Protection, Research, and Sanctuaries Act
MSP Marine Spatial Planning
NCI No Competitive Interest
NEPA National Environmental Policy Act
NGPA National Gas Policy Act of 1978
NHPA National Historic Preservation Act
NMFS National Marine Fisheries Service
NMSA National Marine Sanctuaries Act
NOAA National Oceanic and Atmospheric Administration
NOC National Ocean Council
NOI Notice of Intent
NOP National Ocean Policy
NPC National Petroleum Council
NREL National Renewable Energy Lab
NRG NRG Energy Inc.
NROC Northeast Regional Ocean Council
NVF New Venture Fund
NYSERDA New York State Energy Research and Development Authority
OCRM Ocean and Coastal Resource Management
OCS Outer Continental Shelf
OSAMP Ocean Special Area Management Plan
OCSLA Outer Continental Shelf Lands Act
ODA Ocean Dumping Act
OPA Oil Pollution Act
OPWG Ocean Planning Work Group
OREC Offshore Renewable Energy Credit
OSAMP Ocean Special Area Management Plan
PFP Proposed Final Plan
PTC Production Tax Credit
PWSA Ports and Waterways Safety Act
RCRA Resource Conservation and Recovery Act
REC Renewable Energy Credit
RHA Rivers and Harbors Act
RPS Renewable Portfolio Standard
SAMP Special Area Management Plan
SAP Site Assessment Plan
SLA Submerged Lands Act
Tcf Trillion cubic feet
Tcfg Trillion cubic feet of gas
UERR Undiscovered Economically Recoverable Resource
UTRR Undiscovered Technically Recoverable Resource
USGS U.S. Geological Survey
WEA Wind Energy Area