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United States Coast Guard

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NVIC 02-23
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NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 02-23 – CHANGE 1

Subj: GUIDANCE ON THE COAST GUARD'S ROLES AND RESPONSIBILITIES FOR OFFSHORE RENEWABLE ENERGY INSTALLATIONS (OREI) ON THE OUTER CONTINENTAL SHELF (OCS)

Ref: (a) National Environmental Policy Act of 1969 (NEPA) (Pub. L. 91-190, 83 Stat. 852)
(b) Title 30 Code of Federal Regulations (CFR) Part 585, Regulations for Renewable Energy on the Outer Continental Shelf (OCS)
(c) Title 30 Code of Federal Regulations (CFR), Part 285, Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf
(d) Chapter 700, 46 United States (U.S.) Code, Ports and Waterways Safety
(e) Memorandum of Agreement Between the Bureau of Ocean Energy Management, Regulation, and Enforcement and the U.S. Coast Guard, OCS-06, 27 July 2011
(f) U.S. Coast Guard Navigation Center (NAVCEN) Work Instruction 2022-01
(g) Chapter 29, Subchapter III, 43 U.S. Code, Outer Continental Shelf Lands
(h) Marine Planning to Operate and Maintain the Marine Transportation System and Implement National Policy, COMDTINST 16003.2 series

1. PURPOSE. The purpose of this Navigation and Vessel Inspection Circular (NVIC) is to provide guidance to Coast Guard Program Offices, Unit Commanders, and Offshore Renewable Energy Installation (OREI) developers on the Coast Guard's roles and responsibilities throughout the Department of Interior's development of offshore renewable energy on the OCS. This NVIC identifies information the Coast Guard will use to evaluate and mitigate the potential impacts of OREI leasing, construction, and operations on the Marine Transportation System (MTS); navigation safety; vessel traffic; traditional uses of waterways; and Coast Guard missions. This guidance will assist the Coast Guard in streamlining intra- and inter-governmental information sharing. It also provides relationship expectations to provide Coast Guard input to the Bureau of Ocean Energy Management (BOEM) and the Bureau of Environmental Enforcement (BSEE) in the execution of authorities under reference (b) and (c), such as the review of OREI project plans and associated environmental reviews. Additionally, this Circular provides guidance to members of industry, port safety and security stakeholders, and the public on the Coast Guard's role and responsibilities in the OREI leasing and plan review process.

2. ACTION.

a. Coast Guard Headquarters Program Offices in Response Policy (CG-5R) and Prevention Policy (CG-5P); Area, District, and Sector Commanders; and Commanding Officers of units with equities in the leasing, construction, operations, and decommissioning of OREIs on the OCS should use this NVIC as guidance to understand the Coast Guard's

roles and responsibilities, and immediately implement applicable enclosures. This NVIC should be widely distributed and referenced whenever corresponding with potential OREI developers and Federal, State, Tribal, and local governments.

b. Developers of OREI within a lease area on the OCS are encouraged to use this NVIC to better understand the Coast Guard's roles and responsibilities in relation to OREI leasing activities. A general description of these roles can be referenced in enclosure (2). Developers should connect early in the process with the appropriate District Waterways Staff in relation to the location of their lease. A map of District area of responsibility (AOR) boundaries and a list of contact information can be found in enclosure (8).

c. OREI developers may be required by reference (b) to provide information to BOEM about resources, conditions and activities that could be affected by their proposed actions, such as impacts to recreational and commercial fishing and coastal and marine uses, including vessel traffic and military activities. To assist with the leasing and development of OREI on the OCS, the Coast Guard will provide recommendations based on its jurisdiction and subject matter expertise in a timely manner that will allow BOEM to develop its NEPA documents. As a cooperating agency, the Coast Guard has developed a standard process in enclosure (3) for preparing and reviewing a Navigation Safety Risk Assessment (NSRA) to identify and mitigate potential impacts to vessel traffic and navigation safety in and around a proposed OREI lease area. Developers planning to submit OREI construction and operations plans are encouraged to refer to this NVIC and its enclosures to better understand the NSRA preparation and review process. The Coast Guard will use this NVIC in its own review of a NSRA.

d. Developers should reference enclosure (6) for submitting private aids to navigation applications and compliance with marking, labeling, and signaling of OREI on the OCS.

e. The BOEM, BSEE, and other Federal, State, Tribal, and local governments are encouraged to widely distribute this NVIC to current and potential OREI developers and use this guidance as a reference to understand the Coast Guard's roles and responsibilities related to OREIs on the OCS.

3. DIRECTIVES AFFECTED. NVIC 01-19 is hereby cancelled.

4. BACKGROUND.

a. OREI History:

i. Although still in the early stages in the United States, offshore wind is now recognized globally as one of the principal energy sources to combat climate change. The number of countries generating power from offshore wind energy is expected to double over the next decade. According to the Department of Energy, U.S. offshore wind resources are abundant. Data on the technical resource potential suggest there are more than 4,000 gigawatts (GW) of capacity per year in federal waters and the

Great Lakes. With almost half of the U.S. population living near coastal areas where offshore winds are consistent, domestic offshore wind energy development is expected to follow global growth trends.

ii. The Energy Policy Act (EPAct) of 2005 (Pub. L. 109–58) amended the Outer Continental Shelf Lands Act (OCSLA) (43 U.S.C. § 1337) to authorize the Department of Interior to issue leases, easements, and Right of Ways (ROW) for energy installations from sources other than oil and gas on the OCS. BOEM is delegated the authority to oversee offshore renewable energy development and regulate activities that support the production, transportation, or transmission of energy sources other than oil and gas. In accordance with reference (b) BOEM is required to coordinate with other federal agencies including, in particular, those agencies involved in planning activities that are undertaken to avoid or minimize conflicts among users and to maximize the economic and ecological benefits of the OCS, including multifaceted spatial planning efforts.

iii. In March of 2021, the Biden administration established a national offshore wind energy target to deploy 30 gigawatts (GW) of offshore wind in the United States by 2030. This was followed by a second goal announced in September of 2022 to reach 15 GW of floating offshore wind capacity by 2035 and to lower floating technology costs by 70%. As of February 1, 2023, BOEM has awarded 34 commercial offshore wind leases off both the East and West Coasts and identified additional wind energy areas for future leasing in the Gulf of Mexico and the Gulf of Maine. In addition, the Inflation Reduction Act of 2022 (Pub. L. 117-169) removed a moratorium for renewable energy leasing off the coasts of North Carolina, South Carolina, Georgia, and Florida while expanding the jurisdiction of OCSLA to include U.S. Territories, such as Puerto Rico and the U.S. Virgin Islands.

iv. In January of 2023, the Department of Interior executed the reassignment of existing regulations governing safety and environmental oversight and enforcement of OCS renewable energy activities on the OCS from reference (b) under BOEM's purview, to reference (c) under BSEE's purview.

b. Coast Guard Authorities:

i. In accordance with reference (d), the Secretary of Homeland Security is required to provide safe access routes for the movement of vessel traffic proceeding to or from ports or places subject to the jurisdiction of the United States, the Secretary shall designate necessary fairways and traffic separation schemes for vessels operating in the territorial sea of the United States and in high seas approaches, outside the territorial sea, to such ports or places. Such a designation shall recognize, within the designated area, the paramount right of navigation over all other uses. In carrying out these statutory responsibilities, the Coast Guard is delegated the authority to undertake a study prior to establishing or adjusting fairways or traffic separation schemes, and to the extent practicable, reconcile the need for safe access routes with the needs of other reasonable uses of the area, such as OREI development. To meet this requirement, the Coast Guard conducts Port Access Route Studies, which can serve as justification for regulatory projects to safeguard navigation. Reference (d)

recognizes the potential for conflicting uses on the OCS and generally provides for the paramount right of navigation over all other uses, except for lease rights granted by another agency that have vested prior to the Federal Register Notice announcing a Port Access Route Study.

ii. Section 9503 of the William M. (Mac) Thornberry National Defense Authorization Act (NDAA) for Fiscal Year 2021 amended section 4(a)(1)(iii) of OCSLA (43 U.S. Code § 1333(a)(1)(A)(iii)) to extend the jurisdiction of the United States on the OCS to installations and other devices permanently or temporarily attached to the seabed, erected thereon for the purpose of exploring for, developing, or producing "non-mineral energy resources." Prior to this change, the Coast Guard's responsibility regarding non-mineral energy on the OCS was limited to navigation safety and providing marine safety advice to other federal agencies. The NDAA amendments to OCSLA provide the Coast Guard statutory authority, but not a statutory mandate, to promulgate and enforce such reasonable regulations with respect to lights and other warning devices, safety equipment, and other matters relating to the promotion of safety of life and property on OREI structures (artificial islands, installations, and other devices) permanently or temporarily attached to the seabed on the OCS, which may be erected for the purpose of exploring for, developing, or producing non-mineral energy resources.

c. Lead Agencies: In accordance with reference (a), a Lead Agency supervises the preparation of an Environmental Impact Statement (EIS) and/or an Environmental Assessment (EA). Currently BOEM, the Federal Energy Regulatory Commission (FERC), the U.S. Army Corps of Engineers (USACE), and the National Oceanic and Atmospheric Administration (NOAA) have been identified as lead agencies for leasing and permitting OREI projects and plan approval. Under the EPAct, BOEM has authority to issue leases, easements, or ROWs for offshore wind energy proposals and marine hydrokinetic projects more than three nautical miles (NM) seaward of the baseline (the low-water line along the coast). Within three NM, the USACE is the lead agency for OREI permitting. FERC has jurisdiction to issue licenses for all marine hydrokinetic projects regardless of their location. These federal agencies work together to ensure the proper leases, easements, ROWs, and licenses are issued as required by law. Due to the rapid expansion of offshore wind energy on the OCS, this NVIC primarily focuses on BOEM as the lead agency for OCS leasing of mineral and non-mineral energy resources.

d. Cooperating Agencies: In accordance with the implementing regulations of reference (a), upon request of the lead agency, several possible entities including any federal agency with special expertise with respect to an environmental issue may become a cooperating agency. In accordance with reference (e), the Coast Guard is a cooperating agency for proposed OREI activities on the OCS. As a cooperating agency, the Coast Guard's role is limited to providing the lead agency with an evaluation of the potential impacts a proposed activity may have on maritime safety, maritime security, maritime mobility (management of maritime traffic, commerce, and navigation), national defense, protection of the marine environment, and other activities identified by the lead agency. The Coast Guard does not have the authority to approve, disapprove, permit nor in any way authorize the issuance of a lease or associated plans required in reference (b).

5. DISCUSSION. This NVIC focuses on the Coast Guard's expectations for potential and current offshore wind energy developers and provides guidance for defining the Coast Guard's role in the offshore wind energy leasing and plan approval process. Future enclosures may be added as necessary to address other types of OREIs, such as hydrokinetic and solar.

a. Coast Guard: Under reference (e) as a member of Intergovernmental Renewable Energy Task Forces and a cooperating agency under NEPA, the Coast Guard's role is to provide subject matter expertise on maritime safety, maritime security, maritime mobility (management of maritime traffic, commerce, and navigation), national defense, and protection of the marine environment during the development of any Request for Interest (RFI), Call for Information and Nominations (Call), other planning notices prepared by BOEM, or during BOEM's review of any unsolicited lease or grant requests. It is critical for Coast Guard Headquarters Program Offices, Area, District, and Sector Commanders, and Commanding Officers to become familiar with this emerging industry and assist in identifying and managing impacts to both Prevention and Response operations in and around OREIs. Details on the process are outlined in enclosure (1).

b. Bureau of Ocean Energy Management: BOEM is responsible for carrying out the DOI's Renewable Energy Program in accordance with reference (b). BOEM is responsible for leasing and managing leases, easements, and ROWs for OREI activities on the OCS, including wind energy area identification, determinations of competitive interest, and resource analysis. The agency reviews and approves plans associated with an OREI project, such as site assessment and construction and operations plans, and enforces terms and conditions of a lease. BOEM is the lead agency for conducting environmental analyses under reference (a) for proposed OREI activities and is responsible for developing and imposing mitigation measures to avoid or minimize harm to the marine environment, navigation, and vessel traffic. BOEM and the Coast Guard should use this NVIC to develop intergovernmental processes and procedures for the execution of overlapping authorities governing OREIs on the OCS.

c. Bureau of Safety and Environmental Enforcement: BSEE is responsible for certain safety and environmental oversight, compliance, and enforcement regulations in reference (c). Within these authorities, BSEE is responsible for evaluating OREI design, fabrication, and installation, and Safety Management System (SMS) plans, including Emergency Response Procedures (ERP) and Oil Spill Response Plans (OSRP). The agency enforces operational safety and environmental protection through inspections, incident reporting, and investigation, and enforces compliance with applicable regulations, leases, and approved plans. BSEE also oversees decommissioning activities. BSEE should coordinate with the Coast Guard when reviewing plans that may affect its jurisdictional responsibilities. BSEE and the Coast Guard should use this NVIC to guide intergovernmental information sharing processes and expectations and collaborate on the development of federal partner agreements for the execution of overlapping authorities governing OREIs on the OCS.

d. OREI Developer: OREI developers may reference this NVIC in its entirety to assist in project planning, design, siting, layout, construction, operation, and decommissioning of structures on the OCS. Developers are encouraged to consult with the Coast Guard early

and often throughout the renewable energy authorization process. Specifically, the Coast Guard recommends the following:

i. As directed by BOEM, developers will submit a NSRA. Enclosure (3) provides details for conducting this assessment.

ii. Developers are encouraged to reference enclosure (4) to evaluate how the siting, design, layout, and operation of OREI structures may cause or contribute to an obstruction or hazard to navigation or emergency response.

iii. Developers are encouraged to reference enclosure (5) to implement recommended windfarm configuration, alignment, spacing, and shared borders criteria, and mitigations to eliminate or minimize impacts to navigation, vessel traffic, and other activities.

iv. Developers are also encouraged to reference enclosure (6) for the marking, labeling, and signaling of OREI structures. This guidance will influence concurrence from BOEM and BSEE in the Lighting, Marking, and Signaling Plan for OREI.

6. DISCLAIMER. Coast Guard Area, District, and Sector Commanders have the authority to address specific safety and security concerns within their respective AORs. Nothing in this NVIC is meant to override or subvert the discretion of Operational Commanders when addressing their unique safety and security concerns in relation to proposed OREIs within their AOR. While this NVIC may assist the Coast Guard, Federal, State, Tribal, and local governments, as well as members of industry, maritime stakeholders, and the public comprehend and apply statutory and regulatory requirements, it is not a substitute for applicable legal requirements, nor is it a regulation itself. This NVIC is not intended to, nor does it impose legally binding requirements on any party, including the Coast Guard.

7. MAJOR CHANGES.

1. This version expanded enclosures to allow for future updates as necessary to incorporate industry technological advancements.
2. A new NAVCEN work instruction, reference (f), explains how the data analysis for the traffic survey portion of the NSRA will be reviewed.
3. New detailed explanation of the Department of Interior's OREI planning, leasing, and development process is provided for Coast Guard waterway managers as Enclosure (1).
4. New detailed explanation of internal Coast Guard roles, responsibilities, and assignment expectations throughout the OREI planning, leasing, and development process is provided as Enclosure (2).
5. NVIC 01-19 Enclosure (2), Guidance on conducting and reviewing a Navigation Safety Risk Assessment and Enclosure (6), Checklist for NSRA Development and Review have been updated and combined into one document; Enclosure (3).
6. Changes to Coast Guard Marine Planning Guidelines, Enclosure (4), reflect updated guidance from the United Kingdom.
7. Enclosure (5) was updated to reflect layout recommendations and possible impacts to Navigation Safety, the Marine Transportation System (MTS), and Coast Guard Search and Rescue.

8. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATION. The Office of Environmental Management, Commandant (CG-47) reviewed this NVIC, and the general policies contained within and determined that this policy falls under the Department of Homeland Security (DHS) categorical exclusion A3. This NVIC will not result in any substantial change to existing environmental conditions or violation of any applicable federal, state, or local laws relating to the protection of the environment. It is the responsibility of the action proponent to evaluate all future specific actions resulting from this policy for compliance with the National Environmental Policy Act (NEPA), other applicable environmental requirements, and the U.S. Coast Guard Environmental Planning Policy, COMDTINST 5090.1 (series).

9. DISTRIBUTION. No paper distribution will be made of this NVIC. An electronic version will be located at https://www.dco.uscg.mil/Our-Organization/NVIC/

10. RECORDS MANAGEMENT CONSIDERATIONS. This NVIC has been thoroughly reviewed during the directives clearance process, and it has been determined there are no further records scheduling requirements, in accordance with Federal Records Act, 44 U.S. Code Chapter 31, NARA requirements, and Information and Life Cycle Management Manual, COMDTINST M5212.12 (series). This NVIC does not have any significant or substantial change to existing records management requirements.

11. FORMS/REPORTS. None.

12. REQUEST FOR CHANGES. All requests for changes and questions regarding implementation of this NVIC should be directed to contact Coast Guard Headquarters, Office of Navigation Systems, Navigation Standards Division (CG-NAV-2), using the contact information provided in the above letterhead.

W. R. Arguin
Rear Admiral, U. S. Coast Guard
Assistant Commandant for Prevention Policy

Encl: (1) Coast Guard Responsibilities in the Key Steps of BOEM's Offshore Commercial Lease Process
(2) Internal Coast Guard Roles and Responsibilities
(3) Guidance for Industry Preparation and Coast Guard Review of a Navigation Safety Risk Assessment
(4) Marine Planning Guidelines
(5) Windfarm Configuration and Impact Consideration Guidance
(6) Guidance for Marking, Labeling, and Signaling of Windfarm Structures
(7) Glossary and Acronyms
(8) U.S. Coast Guard Areas of Responsibility and Unit Information

COAST GUARD RESPONSIBLITIES IN THE KEY STEPS OF BOEM's OFFSHORE COMMERCIAL LEASE PROCESS

As general guidance, the following tables provide an outline of roles and responsibilities at key steps throughout BOEM's *offshore commercial leasing process* for which information exchanges and cooperative engagements are most appropriate, pursuant to reference (c). Lessees and Coast Guard Districts are encouraged to inquire with CG-NAV-2 regarding roles and responsibilities for non-competitive commercial, and competitive and non-competitive limited leasing processes. Due to frequency of use, this guidance focuses on the competitive commercial leasing process.

BOEM's renewable energy program occurs in four distinct phases:

Phase 1: Planning and Analysis

The Planning and Analysis phase seeks to identify suitable areas for wind energy leasing consideration through collaborative, consultative, and analytical processes that engage stakeholders, Tribes, and State and Federal government agencies. BOEM also conducts environmental compliance reviews in this phase.

PHASE 1: Planning & Analysis				
		Role		
Key Steps	Action	BOEM	LESSEE	USCG
Intergovernmental Renewable Energy Task Force	State Governor(s) request BOEM establish a Task Force consisting of federally recognized tribes, federal agencies, states, and local governments.	Invites USCG to join Task Force to identify potential sites for renewable energy leasing on the OCS.		Formally acknowledges invitation and participates in Task Force meetings to provide input related to jurisdiction by law or special expertise, particularly relating to navigation safety.
Request for Interest (RFI)	Issued to assess interest in, and invites public comment on, possible commercial wind energy leasing on the OCS.	Publishes notice in the Federal Register.		Reviews potential leasing area for conflicts relating to navigation safety, site conditions, resources, and other uses in proximity or within possible lease areas. Provides public comment as necessary.
Call for Information & Nominations (Call)	Issued to determine competitive interest in acquiring a commercial lease to develop offshore wind energy within a Call Area.	Publishes notice in the Federal Register.		Provides input directly to BOEM, and publishes public comments as necessary, relating to navigation safety, site conditions, resources, and other uses in proximity or within Call Area.
Identify Wind Energy Areas (WEA)	Identify WEA most suitable for wind energy leasing prior to initiating an Environmental Assessment (EA).	Publishes WEA Identification Memorandum. Requests public comment if necessary.		Participates in BOEM's WEA Identification consultation process. Provides public comment as necessary if solicited.
NEPA Process				
Notice of Intent (NOI) to conduct an Environmental Assessment (EA)	The purpose of the proposed action is to issue leases in the WEA. To provide for the responsible development of wind energy resources, environmental analyses are completed prior to a lease sale, to determine the impacts of future site characterization and site assessment activities.	Publishes NOI in the Federal Register. Lead Agency for completing NEPA process for the proposed action to issue leases within the WEA.		Participates in the NEPA and scoping process as a Cooperating Agency. Provides input related to jurisdiction by law or special expertise, particularly relating to navigation safety associated with the proposed action to issue leases and approve plans for conducting site characterization activities.
Draft EA	The Draft EA analyzes potential environmental consequences of site characterization activities (i.e., biological, archeological, and geophysical surveys) and	Provides Cooperating Agencies a draft copy *of relevant sections* for review and comments prior to publication.	Submits comments as necessary.	Reviews relevant sections of Draft EA (prior to publication) and provides input to BOEM related to jurisdiction by law or special expertise, particularly relating to

	site assessment activities (i.e., installation of meteorological buoys) associated with issuing leases in the WEAs.	Publishes Draft EA in the Federal Register.		mitigating potential impacts to navigation safety associated with site characterization activities. Provides public comments as necessary.
Final EA	The Final EA should conclude that reasonably foreseeable environmental effects associated with the commercial wind lease issuance and site-assessment activities would not significantly impact the environment.	Publishes an availability notice in the Federal Register once the Final EA is completed. Prepares a Finding of No Significant Impact (FONSI).		Archives Final EA for future reference.

Supplementary Information

Intergovernmental Renewable Energy Task Force: To inform the planning and analysis process, BOEM establishes a Task Force with states that express interest in development of offshore renewable energy. The Task Force is the primary mechanism for coordinating with governmental partners consisting of representatives from federally recognized Tribes, Federal agencies, and State and Local governments. The role of each Task Force is to collect and share relevant information useful to BOEM during its decision-making process. Task Forces are neither a decision-making nor an approval body, and the Secretary of Interior maintains authority for offshore renewable energy leasing activities. BOEM's Task Forces serve as a forum to coordinate planning, solicit feedback, educate members about processes, permitting, and statutory requirements, and exchange information. Task Forces help identify suitable areas for potential development and provide early identification of potential conflicts.

Request for Interest: The EPAct of 2005 requires BOEM to issue leases on a competitive basis, unless it determines there is no competitive interest in the proposed lease. Therefore, the first step in the wind leasing process is for BOEM to issue a Request for Interest (RFI) in the Federal Register. Whether the initiation of the leasing process is from an unsolicited request or through BOEM, the RFI is intended to help BOEM determine if there is competitive interest in a potential lease area. BOEM will consider information received in response to an RFI to determine whether there is competitive interest for scheduling lease sales and issuing leases. If BOEM determines competitive interest exists, the process moves forward with a Call for Information and Nominations. If competitive interest is not found, then BOEM can proceed with a noncompetitive leasing process.

Call for Information and Nominations (Call): After BOEM has determined that competitive interest exists, the agency publishes a Call in the Federal Register for leasing in specified areas. The Call solicits public input on areas of interest or concern and specifically solicits industry interest on areas that should be considered for leasing. In this document, BOEM may suggest areas to be considered by the respondents for leasing and/or request comments on areas that should receive special consideration and analysis; geological conditions (including bottom

hazards); archaeological sites on the seabed or nearshore; multiple uses of the proposed leasing area (including navigation, recreation, and fisheries); and other socioeconomic, biological, and environmental information.

Area Identification: After the Call, BOEM completes the Wind Energy Area (WEA) Identification, which determines the discrete area that will be considered for leasing and for further environmental analysis. BOEM does this in consultation with appropriate Federal, State, Tribal, and local governments, and other interested parties. BOEM may consider for lease those areas nominated in response to the RFI and Call, or discussed through the Task Force, together with other areas that BOEM determines are appropriate for leasing. BOEM will evaluate the potential effect of leasing, site characterization, and site assessment activities on the human, marine, and coastal environments, and develop measures through consultation to mitigate adverse impacts on the environment, including lease stipulations. Based on information gathered from the Task Force and responses to the RFI and Call, BOEM will also identify the proposed action to be analyzed in accordance with NEPA. BOEM publishes the WEA Identification decision in a memorandum and press release on its website.

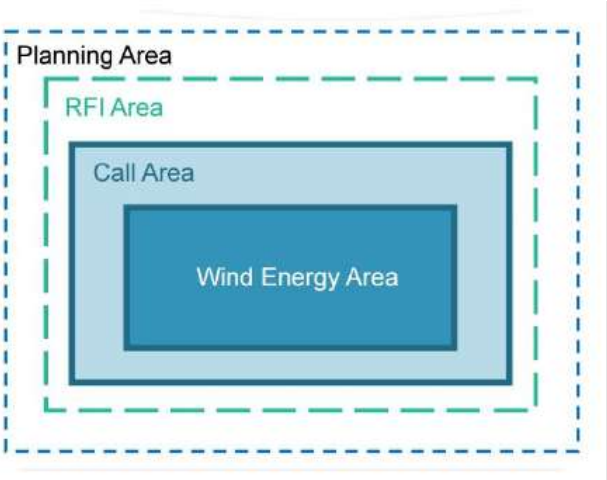


Figure 1: Illustration of Phase 1 of BOEMs Commercial Competitive Lease Process.

NEPA Process

Notice of Intent (NOI) to prepare an Environmental Assessment (EA): The purpose of the proposed action is to issue leases in the WEA to provide for the responsible development of wind energy resources. The purpose of the NOI is to obtain public input for determining significant issues and alternatives to be analyzed in an Environmental Assessment (EA) of the WEA. The EA considers potential environmental and socioeconomic impacts associated with issuing commercial leases and analyzes the impact future Site Characterization/Site Assessment activities may have on the entire WEA.

Draft Environmental Assessment: Following the notice to stakeholders and public comment period, BOEM develops the Draft EA. The EA analyzes the potential environmental consequences of activities associated with the issuance of a lease, such as site characterization activities (i.e., biological, archeological, geological, and geophysical surveys and core samples) and site assessment activities (i.e., installation of meteorological buoys), along with other

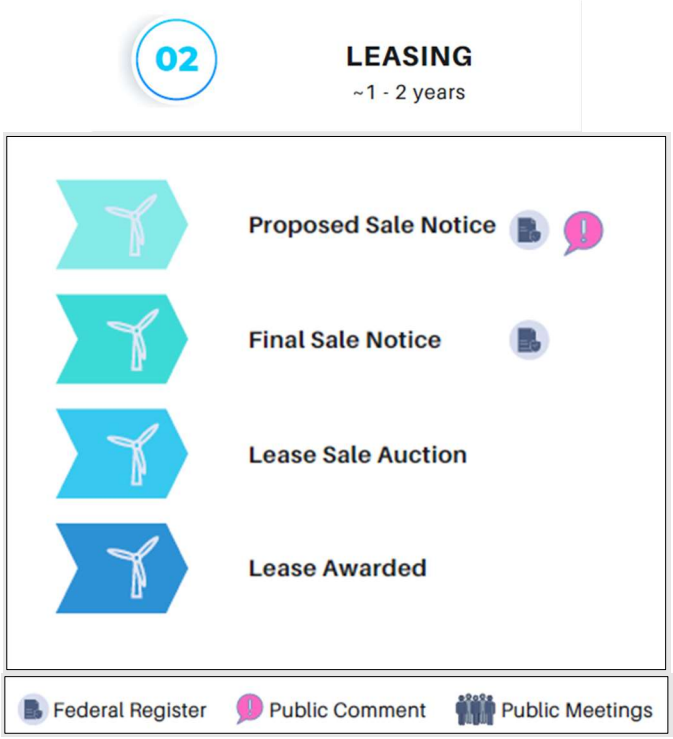
concerns identified during internal and external scoping. The EA also considers project easements associated with each potential lease issued, and grants for subsea cable corridors.

Once the Draft EA is completed, a notice to stakeholders is announced by BOEM, along with a minimum 30-day public comment period, which can be extended at the discretion of the agency. During the public comment period, BOEM will solicit public input through various techniques that could include any or all of the following: social media; press releases; newspaper ads; conferences; mailing lists; and/or public meetings or "open-house" style forums (virtual or in-person as prudent). Any *significant* impacts identified in an EA must be analyzed in an Environmental Impact Statement (EIS).

Final Environmental Assessment: The Final EA addresses public comments received during the comment period for the Draft EA and includes a summary of all comments and BOEM's responses. After the comments on the Draft EA are reviewed, BOEM revises the document to correct technical errors and update the analysis based on stakeholder input and any other relevant new information that became available since publication of the Draft EA. Once completed, the Final EA is published with a Finding of No Significant Impact (FONSI), if applicable. A FONSI concludes that reasonably foreseeable effects associated with the commercial wind lease issuance and site assessment activities would not significantly impact the environment. The majority of EAs will result in a FONSI and the process moves to Phase 2.

Phase 2: Leasing

The leasing phase results in the issuance of a commercial wind energy lease. A commercial lease gives the lessee the exclusive right to subsequently seek BOEM approval for the development of the leasehold. The lease does not grant the lessee the right to construct any OREI; rather, the lease grants the right to use the lease area to develop plans, which must be approved by BOEM before the lessee can move on to the next stage of the process. Prior to holding a renewable energy lease sale, BOEM must ensure all necessary reviews and opportunities for public comment have taken place under OCSLA and NEPA.



PHASE 2: Leasing				
		Role		
Key Steps	Action	BOEM	LESSEE	USCG
Proposed Sale Notice (PSN)	Announce the competitive lease sale process and public comment period.	Publishes PSN in the Federal Register.	Submits comments as necessary.	If necessary, provides public comments based on jurisdiction or special expertise, particularly relating to concerns for navigation safety, site conditions, and other uses in proximity or within proposed lease area(s).
Final Sale Notice (FSN)	Published at least 30 days prior to the date of sale.	Publishes FSN in the Federal Register.		Reviews BOEM's responses to USCG comments.
Lease Sale	BOEM holds an auction to accept/reject bids for lease(s).	Conducts Lease Sale.	Participates in lease sale.	
Accept Bid(s) and Execute Lease(s).	BOEM and Lessee execute the awarded lease(s).	Executes lease on behalf of U.S.	Complies with relevant 30 CFR Part 585 regulations as directed by BOEM.	Archives copy of final lease for reference.

Supplementary Information

Proposed Sale Notice (PSN): The PSN is published in the *Federal Register* and contains information pertaining to the size and location of areas available for leasing, proposed lease provisions and conditions, auction details, criteria for evaluating competing bids, award procedures, and terms and conditions proposed for the lease sale. The PSN does not constitute an approval of project-specific plans to construct OREI. The PSN is the final document published for public comments before a lease area is auctioned.

The PSN is the final opportunity to comment on public record before a lease area is auctioned and awarded. The Coast Guard responds to the PSN "Questions for Stakeholders" and provides reference to enclosures (4), (5), and (6) of this NVIC to disclose recommendations for proposed size, orientation, and layout of wind turbine generators (WTG) or other renewable energy collection devices, measures to mitigate impacts to navigation, and vessel traffic, considerations pertaining to potential impacts to the Marine Transportation System and Search and Rescue, as well as reference to the most current Port Access Route Studies to identify potential impacts associated with the location of a lease area in relationship to designated fairways, traffic separation schemes, and other uses of the waterway.

Final Sale Notice (FSN): BOEM will publish a FSN in the *Federal Register* at least 30 days before a lease sale is held. The FSN incorporates the relevant comments from the PSN and provides final information regarding the lease sale.

Accept Bid(s) and Execute Lease(s): BOEM awards lease(s) to the winning bidder and enters into a contractual agreement with a lessee to have exclusive right to submit plans for the lease area. The awarded lease(s) are published on BOEM's website.

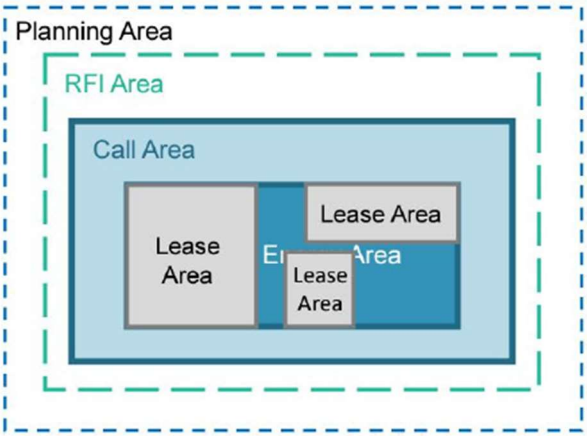
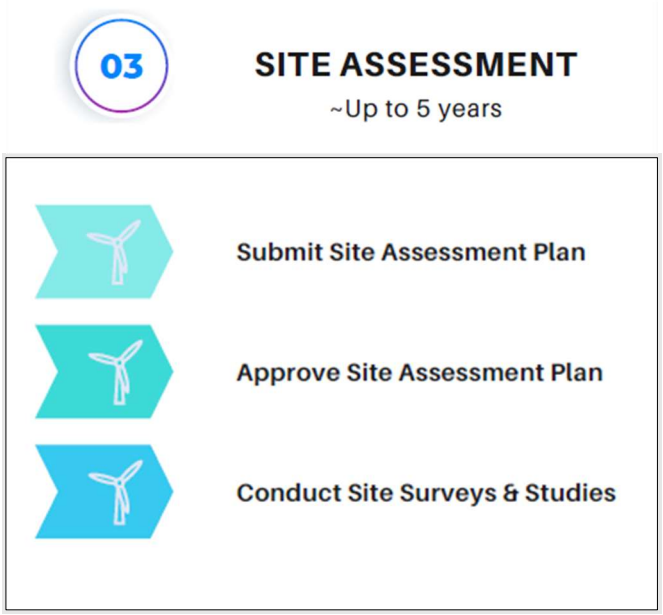


Figure 2: Illustration of Phase 2 "Lease Areas" of BOEM's Commercial Competitive Leasing Process.

Phase 3: Site Assessment Phase

The site assessment phase includes the submission of a Site Assessment Plan (SAP), which contains the lessee's detailed proposal for the construction of meteorological towers and/or the installation of meteorological buoys, or other site assessment activities on the leasehold. The

lessee's SAP must be approved by BOEM before conducting "site assessment" activities on the leasehold. BOEM may approve, approve with modification, or disapprove a lessee's SAP. It is also during this phase that the lessee would conduct site characterization surveys and studies (e.g., avian, marine mammal, archeological).



PHASE 3: Site Assessment				
		Role		
Key Steps	Action	BOEM	LESSEE	USCG
Submit SAP	Lessee submits SAP to BOEM along with detailed information to assist with NEPA compliance and other relevant laws.	Consults with lessee about SAP submission requirements.	Prepares and submits SAP as required by regulation for commercial leases.	Responds to SAP lessee consultations.
Review SAP	BOEM reviews the SAP and additional information provided to determine if it contains the necessary information to conduct technical and environmental reviews.	Reviews SAP for completeness; if necessary, request missing information.	If necessary, provides missing information requested by BOEM.	Upon request, reviews SAP and provides recommendations to BOEM as necessary.
Approve SAP	BOEM approves, disapproves, or approves with modifications.	Specifies terms and conditions incorporated into the SAP.	Complies with terms and conditions.	Archives SAP for reference.

Begin Site Assessment Activities	Once the SAP is approved, the lessee conducts site assessment activities and begins drafting the Construction & Operations Plan (COP).	Advises lessee to conduct a Navigation Safety Risk Assessment (NSRA) for inclusion in the COP.	Conducts a NSRA and site assessment activities in accordance with the SAP.	As necessary, issues Notices to Mariners regarding site assessment activities, reviews and approves Private Aids to Navigation applications, and recommends BOEM direct lessees to conduct a Navigation Safety Risk Assessment in accordance with enclosure (3).

Supplementary Information

Site Assessment Plan (SAP): The SAP contains a detailed proposal for construction of meteorological towers/ buoys, and site characterization surveys and studies on the leasehold. The lessee's SAP must be approved by BOEM before it conducts these site assessment activities. The surveys required for the SAP assist the developer in proper siting and design of the site assessment infrastructure to be used.

SAP Lessee Consultations: The Coast Guard will provide designated personnel available to assist lessees with questions concerning jurisdiction or subject matter expertise applicable to the development of their SAP and subsequent NSRA. Coast Guard roles and responsibilities are further outlined in enclosure (2).

Notice to Mariners & Private Aids to Navigation (PATON) Applications: When conducting Site Assessment activities, such as survey work or meteorological buoy deployment, the lessee must coordinate with the appropriate Coast Guard District and Sector Waterways Management staff on PATON applications and the issuance of appropriate Notices to Mariners as required.

Navigation Safety Risk Assessment (NSRA): The lessee will complete a NSRA in accordance with enclosure (3) at BOEM's direction in support of the Construction and Operations Plan. As subject matter experts for navigation safety, the Coast Guard reviews the NSRA on behalf of BOEM.

Phase 4: Construction and Operations

The construction and operations phase consists of the submission of a Construction and Operations Plan (COP), which is a detailed plan for the construction and operation of a wind energy project on the lease. BOEM conducts environmental and technical reviews of the COP and decides whether to approve, approve with modification, or disapprove the COP. Prior to the end of the lease term, the developer must also submit a plan to decommission its facilities.

04
CONSTRUCTION & OPERATIONS
~2 years
Submit Construction & Operations Plan (COP)
NEPA
Notice of Intentet (NOI) to Prepare Draft Environmental Impact Statement (EIS)
NEPA
Preliminary Draft EIS Shared with Cooperating Agencies
NEPA
Notice of Availability of Draft EIS
NEPA
Final EIS
Record of Decision
Approve Construction & Operations Plan
T&C
Terms & Conditions
Commence Construction
Federal Register
Public Comment
Public Meetings

PHASE 4: Construction and Operations				
Key Steps	**Action**	**BOEM / BSEE**	**LESSEE**	**USCG**
Submit COP	Lessee submits COP and NSRA.	BOEM may provide a copy of the COP to USCG.	Prepares and submits COP to BOEM.	Receives and Archives copy of the COP.
Review COP	BOEM reviews COP.	BOEM reviews COP to determine if it contains required information necessary to conduct technical and environmental reviews.	If necessary, provides any missing information requested by BOEM.	Upon request from BOEM, reviews relevant sections of the COP, including proposed cable routing design, and provides input to BOEM for which it has jurisdiction by law or special expertise.
Review NSRA	USCG recommends BOEM direct Lessees to conduct a NSRA to meet the information requirements of 30 CFR 585.627(a)(8).	BOEM provides copy of NSRA to USCG for review and comment.	Prepares and submits NSRA to BOEM.	Reviews NSRA and provides BOEM recommendations on the content of the NSRA.
Review OSRP	BSEE conducts OSRP review in accordance with 30 CFR Part 254.	Once BSEE determines the plan is complete, a copy of the OSRP may be provided to the USCG.	Prepares and submits OSRP to BSEE.	Upon request from BSEE, and in accordance with applicable Memorandum of Agreement/Understanding, reviews OSRP for consistency with National/Area Contingency Plan(s) and provides advice to BSEE.
Review SMS	BSEE conducts SMS review in accordance with 30 CFR 285.810.	Once BSEE determines the plan is complete, a copy of relevant sections of the SMS may be provided to the USCG.	Prepares and submits SMS to BSEE.	Upon request from BSEE, reviews relevant sections of the SMS and provides input, particularly relating to inspections, safety equipment, casualty investigations, and Emergency Response Procedure (ERP) coordination.
NEPA Process				
NOI to prepare a Draft Environmental Impact Statement (DEIS)	BOEM announces the EIS scoping process and intent to prepare a DEIS for the review of the COP. Scoping processes identify issues and alternatives for consideration.	BOEM publishes a NOI to prepare a DEIS in the Federal Register and initiates the NEPA public scoping process.		Acknowledges BOEM's intent to prepare a DEIS and provides input as a Cooperating Agency for NEPA analyses for which it has jurisdiction by law or special expertise. Provides public comments as necessary.

Preliminary Draft EIS (PDEIS)	BOEM coordinates and consults with relevant Tribal, Federal, State, and local agencies.	BOEM provides Cooperating Agencies with a draft copy of the PDEIS for their review and input prior to its publication.		Receives copy of the PDEIS; reviews and provides BOEM recommendations based on jurisdiction by law or special expertise.
Notice of Availability (NOA) of Draft EIS (DEIS)	BOEM Announces DEIS availability and solicits and responds to public comments.	BOEM publishes DEIS in the Federal Register and provides USCG and all other Cooperating Agencies with a copy of the DEIS for review and input.	Submits comments as necessary.	Reviews *relevant sections* of the DEIS and provides input to BOEM based on jurisdiction by law or special expertise, particularly relating to impacts, alternatives, and mitigations affecting navigation safety, vessel traffic, and Coast Guard missions. Provides public comments as necessary.
Final EIS (FEIS)	Approve, approve with modifications, or disapprove COP proposing the construction and installation, operations and maintenance, and decommissioning of an OREI in the Lease Area.	BOEM publishes FEIS availability notice in the Federal Register.		Archives copy of FEIS for reference.
Record of Decision (ROD)	A ROD will be completed no sooner than 30 days after the FEIS.	BOEM completes NEPA analyses and consultations and publishes the ROD in the Federal Register.		Archives copy of ROD for reference.
End of NEPA Process				
COP Approved	BOEM approves or disapproves the COP.	If the COP is approved, BOEM may provide "Terms and Conditions" to maintain compliance with the approved COP. Prepares and sends decision memo and letter to the lessee.		Upon request from BOEM, provides input on Terms & Conditions for which it has jurisdiction by law or special expertise.
Submit Facility Design Report (FDR) and Fabrication and Installation Report (FIR)	After approval of the COP, but before construction can begin, BSEE must not object to the lessee's FDR/FIR.	BSEE reviews the FDR/FIR and may provide a copy of relevant sections pertaining to final cable routing design to the USCG.	Prepares and submits the FDR/FIR to BSEE.	Upon request from BSEE, reviews relevant sections pertaining to cable routing design to ensure there are no conflicts with navigation safety. Archives copy of relevant FDR/FIR ssections for reference is necessary.

Begin Construction	Once BSEE issues a statement of no objection for the FDR/FIR, or if no objections are received from BSEE within 60 days, the lessee may begin construction.		Conducts construction activities per the approved COP, Terms & Conditions, and FDR/FIR.	Facilitates approval of PATON applications for OREI marking and lighting, issues Notices to Mariners for construction activities, and evaluates the need to establish limited access areas, such as Safety Zones, as necessary.

Supplementary Information

Construction and Operations Plan (COP): The COP describes how the lessee will construct and operate a commercial wind project on a commercial lease. The COP includes a description of all planned facilities as well as a description of proposed construction activities, commercial operations, and conceptual decommissioning plans. BOEM must approve the COP before the lessee can install facilities or conduct commercial activities described in the COP.

Oil Spill Response Plan (OSRP): The Coast Guard serves as the pre-designated Federal On-Scene Coordinator (FOSC) for oil and hazardous substance pollution incidents that threaten the coastal zone of the U.S., as defined in 40 CFR 300.5. As the FOSC, the Coast Guard leads oil spill planning efforts for the coastal zone to identify, assess and verify threats, risk of harm to waters, shoreline and natural resources, and strategies necessary to mitigate the threats, minimize the risk, and respond to an incident or event should it occur. In accordance with the National Contingency Plan, the FOSC directs response efforts and coordinates all other effort at the scene of a discharge or threat of a discharge of oil or hazardous substance. While the Coast Guard is not the regulatory agency responsible for approving OREI OSRPs, the agency is the subject matter expert for the coastal zone Area Contingency Plans and would be responsible for overseeing the response to a spill from an OREI. For these reasons, BSEE is encouraged to request the Coast Guard's assistance in reviewing OSRPs and providing input.

Recognizing each agency has separate authorities and responsibilities for oil spill preparedness and response, the Coast Guard and BSEE are encouraged to coordinate on OSRP consistency reviews. For the Coast Guard, the Office of Marine Environmental Response (CG-MER) is best situated to identify Headquarters and District representatives to conduct OSRP consistency reviews. For BSEE, the Oil Spill Preparedness Division is responsible for identifying appropriate Headquarters and Regional representatives. A further description of CG-MER roles and responsibilities is included in enclosure (2).

NEPA Process

Notice of Intent to Prepare a Draft Environmental Impact Statement (EIS): Consistent with the regulations implementing NEPA, BOEM announces its intent to prepare a Draft EIS for the review of a COP submitted by a lessee. The NOI announces the EIS scoping process for the COP and BOEM holds public scoping meetings and invites written public comments. The purpose of this action is to determine whether to approve, approve with modifications, or disapprove a lessee's COP. BOEM will make this determination after weighing the factors in subsection 8(p)(4) of OCSLA that are applicable to plan decisions and in consideration of the Federal

agencies with shared goals to deploy 30 GW of offshore wind energy capacity by 2030, while protecting biodiversity and promoting ocean co-use.

The Draft EIS will identify, describe, and analyze the potential effects of the *Proposed Action* and the alternatives on the human environment that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action and the identified alternatives. Potential impacts to resources include, but are not limited to, impacts (*whether beneficial or adverse*) on air quality, water quality, benthic habitat, essential fish habitat, birds, marine mammals, terrestrial and coastal habitats, sea turtles, wetlands and other waters of the U.S., commercial fisheries and for-hire recreational fishing, cultural resources, demographics, employment, economics, environmental justice, land use and coastal infrastructure, ***navigation and vessel traffic***, ***other marine uses,*** recreation and tourism, and visual resources.

Additionally, a windfarm project could cause conflicts with air traffic, land-based radar services, cables and pipelines, and scientific surveys. The EIS will analyze measures that would avoid, minimize, or mitigate identified adverse impacts.

Federal agencies, Tribal, State, and local governments, and other interested parties are requested to comment on the scope of a Draft EIS, significant issues that should be addressed, and alternatives that should be considered. BOEM requests data, comments, views, information, analysis, alternatives, or suggestions relevant to the proposed action, and the agency provides a list of specific topics for which it seeks comments, such as potential effects to commercial fisheries and for-hire recreational fishing, navigation, vessel traffic, military use, and aviation.

As a Cooperating Agency, the Coast Guard responds to BOEM's request for identification of potential alternatives, information, and analyses relevant to the proposed action. Responsible Coast Guard entities shall determine if the proposed action impacts missions for which it has jurisdiction by law or special expertise, such as navigation safety, vessel traffic, search and rescue (SAR), and marine environmental protection (MEP), and provide recommendations to BOEM for consideration.

Preliminary Draft EIS: Cooperating Agencies are provided a Preliminary Draft EIS prior to publication in the Federal Register. Applicable Coast Guard Headquarters Offices, Areas, Districts, and Sectors should coordinate their review, and prepare and submit input directly to BOEM. A further description of Coast Guard EIS review roles and responsibilities are included in enclosure (2).

Notice of Availability (NOA) of Draft EIS: BOEM announces the public availability of the Draft EIS and solicits public comments. The Draft EIS will include a summary of identified alternative, information, and analyses for consideration by BOEM and Cooperating Agencies. Responsible Coast Guard entities listed in enclosure (2) will review relevant sections of the EIS to determine if alternatives and mitigations sufficiently address equities and missions for which it has jurisdiction by law or special expertise. Recommended mitigations are outlined in enclosure (5). If necessary, the Coast Guard will submit public comments.

Final EIS: BOEM approves, approves with modifications, or disapproves the Proposed Action (the COP) proposing the construction and installation, operations and maintenance, and conceptual decommissioning of an OREI in the lease area(s).

Record of Decision (ROD): A ROD will be issued and published in the *Federal Register* no sooner than 30 days after the Final EIS. The Coast Guard requests timely access to construction plans, such as Facility Design Reports and Fabrication Installation Reports (FDR/FIR) and WTG installation schedules to identify activities that require Coast Guard facilitation or involvement to safeguard and minimize impacts to the MTS, especially, access to Cable Burial Plans and their associated risk and feasibility assessments. Early and easy access to documents and plans approved post-ROD may prevent conflicts with planned activities and Coast Guard missions.

Marking and Lighting: Detailed instructions for marking and lighting OREI in accordance with U.S. law and international conventions are found in Enclosure (6).

Terms and Conditions (T&Cs): The Coast Guard will request to be involved in the preparation of T&Cs in relation to jurisdiction by law or subject matter expertise. The Coast Guard will also propose modifications should unforeseen circumstances arise that alter the conditions that were present during the approval process of the original T&Cs.

Safety Zones: Coast Guard District Commanders may consider the establishment and enforcement of safety zones around the construction of WTGs within a lease area on a case-by-case basis in accordance with 33 CFR Part 147. OREI lessees should send a request for the establishment of safety zones to the cognizant District Commander for consideration. Safety zones will generally not be granted for the sole purpose of keeping project construction on schedule, nor should the authority be utilized as a mitigation measure when considering potential risks and impacts in the EIS.

INTERNAL COAST GUARD ROLES AND RESPONSIBILITIES

Various Coast Guard organizational elements have unique roles and responsibilities for evaluating proposed offshore renewable energy projects and engaging with other agencies, the public, and the project proponents regarding Coast Guard equities potentially affected by such projects. Below is the assignment of roles and responsibilities internal to the Coast Guard.

Coast Guard Headquarters

Coast Guard Headquarters Prevention (CG-5P) and Response (CG-5R) Program Offices: In addition to providing overall policy guidance, Coast Guard Headquarters Program Offices are responsible for ensuring consistency across operational boundaries and providing consistent recommendations and messaging to agency partners and OREI developers. At the headquarters level, the following summarizes CG-5P and CG-5R program office responsibilities in relation to OREI leasing.

Office of Navigation Systems (CG-NAV): The Navigation Standards Division (CG-NAV-2) is the clearinghouse for the Coast Guard's involvement with OREI and ensures Coast Guard policy guidance is applied consistently nationwide. CG-NAV-2 is the national-level OREI project liaison to BOEM and the navigation safety program office for District-level OREI project managers. CG-NAV-2 is responsible for providing BOEM an evaluation of the potential impacts the proposed activities may have on the MTS, navigation safety, vessel traffic, and the traditional uses of the waterway. Additionally, CG-NAV-2 facilitates the collection of guidance to assess and mitigate the potential impacts OREI may have on Coast Guard missions like Search and Rescue (SAR) and Marine Environmental Protection (MEP). CG-NAV-1 serves as the program office responsible for supporting and developing OREI marking and lighting technical guidance and Private Aids to Navigation (PATON) applications and approvals. CG-NAV-3 serves as the program level subject matter experts for providing review and technical expertise for Automatic Identification System (AIS).

Office of Search and Rescue (CG-SAR): The Office of Search and Rescue Policy Division (CG-SAR-1) is responsible for the development and maintenance of a comprehensive body of national-level search and rescue doctrine, policy, and tactics, techniques, and procedures (TTP). CG-SAR-1 provides national level requirements, guidance, and information to the capabilities that support the SAR system, including facilities and assets. At the request of CG-NAV-2, CG-SAR-1 provides subject matter expertise during the review of OREI plans and associated documents.

Office of Marine Environmental Response Policy (CG-MER): CG-MER develops policy and guidance for Coast Guard Federal On-Scene Coordinators (FOSCs) and other Special Teams responsible for marine environmental response and preparedness activities. CG-MER provides guidance for oil spill planning efforts for the coastal zone to identify, assess and verify threats (spill potential), risk of harm to waters, shoreline and natural resources, and strategies necessary to mitigate the threats, minimize the risk and respond to an incident or event should it occur. At the request of BSEE, CG-MER participates in Oil Spill Response Plan (OSRP) reviews to

facilitate alignment with applicable Area Contingency Plans. CG-MER provides this support in their areas of expertise during review of OSRPs for offshore facilities (i.e. oil and gas, or non-mineral) as agreed upon by CG-MER and BSEE. CG-MER may also lend their expertise to Coast Guard input on associated NEPA documents at the request of CG-NAV-2.

Assistant Commandant for Capabilities (CG-7): CG-7 is responsible for identifying and providing capabilities, competencies, and capacity, and developing standards for the staffing, training, equipping, sustaining, maintaining, and employing Coast Guard forces to meet mission requirements. CG-7 provides support in program areas of expertise during the review of OREI plans and associated documents at the request of CG-NAV-2.

Director of Inspections and Compliance (CG-5PC): CG-5PC is responsible for developing and maintaining policy, standards, and program alignment for all prevention activities related to the safe operation of vessels and facilities. CG-5PC manages policy development for foreign and domestic commercial vessel compliance inspections, ports and facilities safety and security, vessel documentation, and marine casualty investigations. CG-5PC provides support in program areas of expertise during the review of OREI plans and associated documents at the request of CG-NAV-2.

The Navigation Center (NAVCEN): NAVCEN is responsible for supporting CG offices in the aggregation, formatting, analysis and distribution of data to support OREI activities. NAVCEN also assists OREI lessees (and designated representatives) during their development of Navigation Safety Risk Assessments (NSRA) by providing technical consultation on the analysis and modeling design of submissions. NAVCEN also supports certain aspects of OREI plans and associated document review at the request of CG-NAV-2.

Coast Guard Areas

Atlantic and Pacific Area Commands: Areas maintain visibility on all OREI projects within their Area of Responsibility (AOR), maintain awareness of all pertinent issues or concerns, and review project documents and official correspondence for regional consistency. Area review of projects is concurrent with District and CG-NAV reviews. Area input is particularly important and pertinent where OREI projects involve cross-District boundaries with respect to Coast Guard missions and authorities. Areas provide support during the review of OREI plans and associated documents at the request of CG Headquarters Program Offices or District.

Coast Guard Districts

District Commands: District Commanders have operational authority over their respective AOR. Districts ensure consistency across Sector boundaries and provide recommendations to Area and Headquarters offices. District Prevention and Response staff will provide much of the input associated with identifying the most suitable areas for offshore wind leasing and conducting review of OREI project plans and NEPA documents. The following summarizes recommended District responsibilities as they relate to OREI leasing and plan review. This summary is not exhaustive. District Commands are encouraged to further develop functional statements to better capture their broad responsibilities with respect to OREI.

District Project Manager (DPM): Usually a member of a District's Waterways Management (dpw) staff, the DPM is the ***primary point of contact*** for BOEM and OREI developers. DPMs are the lead for the Coast Guard's involvement throughout BOEM's four phases of commercial leasing. DPMs participate as members of Intergovernmental Task Forces and ensure the Coast Guard fulfills its responsibilities as a NEPA cooperating agency. DPMs provide consultation to BOEM and OREI developers based on jurisdiction and subject matter expertise, and they ensure project consistency throughout their AOR. DPMs track all OREI project tasks and milestones throughout every phase of the leasing and construction and operations process and maintain oversight after OREI is operational. DPMs are also responsible for coordinating the assessment of impacts each OREI project may have on the MTS, navigation safety, vessel traffic, traditional uses of the waterway, and the Coast Guard's ability to conduct its missions within their AOR. DPMs are responsible for coordinating review of OREI plans and NEPA documents with District Response and Prevention Divisions to ensure proper evaluation of Coast Guard equities are completed prior to making recommendations to Headquarters Offices, BOEM, or developers.

District Response Division: In coordination with the DPM, the District Response Division (dr) reviews proposed OREI project plans and NEPA documents to ensure potential impacts to Coast Guard response missions are adequately addressed. Upon request from the Bureau of Safety and Environmental Enforcement (BSEE), and in coordination with the DPM and applicable Headquarters Program Office, dr staff review OREI project Oil Spill Response Plans (OSRP), Safety Management System (SMS) plans, including Emergency Response Procedures (ERP) to ensure consistency with national policy, Area and Regional Contingency Plans, and other Coast Guard plans to manage incidents involving all threats and hazards.

District Prevention Division: In coordination with the DPM, and in consultation with the cognizant Officer in Charge, Marine Inspection (OCMI), the District Prevention Division (dp) reviews proposed OREI project plans and NEPA documents to ensure potential impacts to Coast Guard prevention missions are adequately addressed. Upon request from BSEE, and in coordination with the DPM and applicable Headquarters Program Office, dp staff may review an OREI project's Construction and Operations Plan, SMS, and ERP to ensure consistency with national policy.

Coast Guard Sectors

Sector Commands: In coordination with the DPM, Sector Command staff provide local waterway characteristic information during the planning and analysis phase of identifying suitable wind energy areas and facilitate appropriate safety measures during site assessment activities. Upon request from BOEM and/or BSEE, Sector staff may also review proposed OREI project plans and associated documents in coordination with the DPM to ensure local AOR concerns, trends, and waterway features are considered and adequately addressed.

Refer to the next page for a detailed illustration of Coast Guard roles and responsibilities.

MATRIX TO ILLUSTRATE ROLES AND RESPONSIBILITIES WITHIN THE COAST GUARD THROUGHOUT THE OREI APPROVAL PROCESS.

A Responsible, Accountable, Consulted, and Informed (RACI) matrix, like the one below, is used to clarify the roles and responsibilities of each Coast Guard (USCG) entity involved in an OREI project as it relates to the Key Steps in BOEM's Competitive Commercial Lease Process (enclosure (1) of NVIC 02-23). The following tables ensure all USCG team members understand their role, and that of others, in the OREI leasing process and plan approval process.

In a RACI matrix, every task has at least one Responsible person, but there is only one Accountable party assigned to each task to allow for clear decision making.

Associate Roles with Responsibilities

Roles are not to be confused with job titles. — Roles are associated with responsibilities, rather than with specific people. This ensures the RACI matrix isn't affected by people changing jobs or leaving a department/division. One USCG Program Office, District, or Sector may have multiple divisions or branches responsible for a task within its organizational structure. For example, the RACI matrix does not delineate which District divisions (i.e., dpw, dpi, dr) are specifically responsible; however, the guidance preceding this matrix outlines the preferred roles and responsibilities at each District, with an assigned DPM taking lead.

Each USCG entity listed in the matrix should assign and maintain primary points of contact (POC) responsible for supporting OREI tasking and delegation within its organizational structure. The timely dissemination of information to appropriately designated personnel is critical, especially for all requests for interagency review. CG-NAV-2 will maintain a list of USCG POCs associated with this matrix. Further development of internal processes related to responsibilities within the matrix, such as standard operating procedures and tactics, techniques, and procedures, is highly encouraged.
These roles and responsibilities are internal to Coast Guard processes only.

Definitions and Best Practices

Abbreviation	Stands For	Definition	Best Practice
R	Responsible	The entity who does the work.	One or more entities must be responsible
A	Accountable (Approver)	**The entity who approves the work.**	**One** entity must be accountable.
C	Consulted	The subject matter experts who are consulted and may contribute.	Several entities may be consulted. Two-way communication is essential.
I	Informed	The entity who is informed when a deliverable is complete.	Several entities may be informed. Communication only goes one way.

Phase 1: Planning & Analysis		**USCG Roles**								
Key Step	**Action**	**NAV**	**MER**	**SAR**	**CG-7**	**5PC**	**NAVCEN**	**AREA**	**DISTRICT**	**SECTOR**
Intergovernmental Renewable Energy Task Force	Formally acknowledge participation	R/A	I	I	I	I	I	I	R	I
	Assign CG member to Task Force	R/A	I	I	I	I	I	I	R	R
RFI	Review RFI area for conflicts with navigation safety, site conditions, resources, and other uses within or in proximity.	R/A	I	I	I	I	C	C	R	R
	Prepare Coast Guard Comment Letter	R/A	I	I	I	I	C	C	R	C
	Sign & Publish Comment Letter in Federal Register	R/A	I	I	I	I	I	I	I	I
CALL	Review Call area for conflicts relating navigation safety, site conditions, resources, and other uses within or in proximity.	R/A	I	I	I	I	C	C	R	R
	Draft Public Comment Letter	R/A	I	I	I	I	C	C	R	C
	Sign & Publish Comment Letter in Federal Register	R/A	I	I	I	I	I	I	I	I
Identify WEA	Participate in BOEM's Area Identification consultation process.	R/A	I	I	I	I	C	C	R	R
	Draft Public Comment Letter (if applicable)	R/A	I	I	I	I	C	C	R	C
	Sign & Publish Comment Letter in Federal Register (if applicable)	R/A	I	I	I	I	I	I	I	I
NEPA Process										
NOI to conduct an EA	Participate in the NEPA scoping process as a Cooperating Agency.	C	I	I	I	I	I	C	R/A	C

	Draft Public Comment Letter	A/C	I	I	I	I	I	C	R	C
	Sign & Publish Comment Letter in Federal Register	A	I	I	I	I	I	I	R	I
Draft EA	Review relevant sections and provide input to BOEM related to CG authority or subject matter expertise; particularly relating to navigation safety associated with site assessment activities.	A/C	I	I	I	I	I	C	R	C
	Draft Coast Guard Comment Letter	A/C	I	I	I	I	I	C	R	C
	Sign & Publish Comment Letter in Federal Register	A	I	I	I	I	I	I	R	I
Final EA	Archive w/in CG files for future reference.	I	I	I	I	I	I	I	R/A	I

Phase 2: Leasing		USCG Roles								
Key Step	**Action**	**NAV**	**MER**	**SAR**	**CG-7**	**5PC**	**NAVCEN**	**AREA**	**DISTRICT**	**SECTOR**
PSN	Review and provide input to BOEM.	R	I	I	I	I	C	C	R/A	R
	Draft Public Comment Letter	A/C	I	I	I	I	C	C	R	C
	Sign & Publish Comment Letter in Federal Register	A/C	I	I	I	I	I	I	R	I
FSN	Review BOEM's responses to comments.	I	I	I	I	I	I	I	R/A	I
Executed Lease(s)	Review and Archive lease information for future reference.	R	I	I	I	I	I	I	R/A	I

Phase 3: Site Assessment		USCG Roles								
Key Step	**Action**	**NAV**	**MER**	**SAR**	**CG-7**	**5PC**	**NAVCEN**	**AREA**	**DISTRICT**	**SECTOR**
Submit proposed SAP	Respond to SAP lessee consultations.	C	I	I	I	I	I	C	R/A	R
Review SAP	Review proposed SAP and provide recommendations to BOEM	C	I	I	I	I	I	C	R/A	R
BOEM approval of Approve SAP	Review and Archive SAP for reference.	I	I	I	I	I	I	I	R/A	I
Begin Site Assessment Activities	Review and approve PATON applications.	R	I	I	I	I	I	I	R/A	C
	Issue Notices to Mariners	I	I	I	I	I	I	C	R/A	R
	Recommend BOEM direct lessees to conduct a NSRA.	C	I	I	I	I	I	I	R/A	I

Phase 4: Construction & Ops		USCG Roles								
Key Step	**Action**	**NAV**	**MER**	**SAR**	**CG-7**	**5PC**	**NAVCEN**	**AREA**	**DISTRICT**	**SECTOR**
Review COP	Upon request, review proposed COP and provide input to BOEM.	R	R	R	R	R	C	C	R/A	R
Review NSRA	Review NSRA and provide	R	C	C	C	C	C	C	R/A	R

	input to BOEM in accordance w/ Enclosure (3)									
Review OSRP	Conduct consistency review in coordination with BSEE.	I	R	I	I	I	I	C	R/A	C
Review SMS	Upon request, conduct consistency review in coordination with BSEE.	I	R	R	R	R	I	I	R/A	C

Phase 4: Construction & Ops		**USCG Roles (cont'd)**								
NEPA Process										
Key Step	**Action**	**NAV**	**MER**	**SAR**	**CG-7**	**5PC**	**NAVCEN**	**AREA**	**DISTRICT**	**SECTOR**
NOI to prepare Draft EIS	Participate in public scoping process and provide input to BOEM as a CA.	C	I	I	I	I	I	I	R/A	C
	Draft Coast Guard Comment Letter	A/C	I	I	I	I	I	I	R	C
	Submit Coast Guard Comment Letter	A/C	I	I	I	I	I	I	R	I
Preliminary Draft EIS	Review relevant sections and provide input based on CG jurisdiction and subject matter expertise.	R	R	R	R	I	C	C	R/A	R
	Collect CG input and submit to BOEM.	I	I	I	I	I	I	I	R/A	I
NOA of Draft EIS	Review relevant sections and provide CG input to BOEM	R	R	R	R	I	C	C	R/A	R
	Draft Public Comment Letter	A/C	C	C	C	C	C	C	R	C
	Sign & Publish Comment Letter in Federal Register	A/C	I	I	I	I	I	I	R	I
Final EIS (FEIS)	Review and Archive copy of FEIS.	I	I	I	I	I	I	I	R/A	I
Record of Decision (ROD)	Review and Archive copy of ROD	I	I	I	I	I	I	I	R/A	I
End of NEPA Process										

COP Approved by BOEM	Provide input to BOEM on Terms and Conditions.	R	C	C	C	C	I	C	R/A	C
Submit Facility Design Report (FDR) & Fabrication and Installation Report (FIR)	Review for cable routing awareness and archive copy of relevant sections if necessary.	I	I	I	I	I	I	I	R/A	I
Begin Construction	Review and approve PATON applications and review Marking, Lighting & Signaling plans in accordance w/ Enclosure (6)	R	I	I	I	I	C	C	R/A	C
	Issues Notices to Mariners for construction activities.	I	I	I	I	I	I	C	R/A	R
	Issue and enforce limited access areas, such as Safety Zones for construction activities if necessary.	C	I	I	I	I	I	C	R/A	C

Guidance for Public Comments and Official Correspondence:

Phase 1 and 2: Throughout the offshore renewable energy authorization process (RFI, Call, WEA Identification) up to lease execution, it is recommended CG-NAV maintain signature authority for Coast Guard comment letters and official correspondence with BOEM. This approach will ensure consistency with national policy for all OREI projects in the planning and lease phases nationwide. However, as experts in their AOR, Districts are responsible for ensuring all necessary regional and site-specific information is captured in comment letters and correspondence during the NEPA process, where it is recommended signature and submission authority shift to District Commanders, after Headquarters clearance.

Phases 3, and 4: It is recommended District Commanders maintain comment letter and official correspondence signature and submission authority after Headquarters clearance.

GUIDANCE FOR INDUSTRY PREPARATION AND COAST GUARD REVIEW OF A NAVIGATION SAFETY RISK ASSESSMENT

Introduction. The number of Offshore Renewable Energy Installations (OREIs) on the Outer Continental Shelf (OCS) of the United States is increasing. Many of these installations will be close to shipping routes, making navigation safety a priority for all OREI projects. Navigation safety requires, among other things, that mariners be able to determine their position, determine a safe course to steer, be alert to unseen dangers, be able to determine if risk of collision exists, and be able to take action to avoid collision. Navigation safety would be impacted by an offshore installation, facility or structure (IFS) if it impairs or enhances the mariner's ability to do any of the above.

This enclosure provides guidance for developers in preparing their Navigation Safety Risk Assessment (NSRA) and a checklist for cooperating agency (CA) review. In addition to this enclosure, the Coast Guard (USCG) recommends using, reference (e), https://www.navcen.uscg.gov/sites/default/files/pdf/waterways/nsra/navcen_work_instruction_2022-01.pdf to inform major portions of the NSRA. Although these guidance documents are not mandatory, their use is strongly recommended.

Scope. To assess the impact on navigation safety, the developer should perform a systematic assessment of the risks to navigation safety associated with the proposed project leveraging existing studies, standard industry practices, or guidelines from other recognized sources[1] such as governmental agencies or classification societies that may be applicable to their specific IFS or the characteristics of the waterway. The developer should consider the marine planning guidelines in enclosure (4) during the area identification phase for both unsolicited and solicited development areas and configuration guidance found in enclosure (5) when determining the siting of IFS within existing leased areas. As part of the assessment, the developer should identify impacts on navigation safety, subsequent Search and Rescue (SAR) impacts, assess the change in risk (incident frequency and consequence) associated with the proposed IFS and identify appropriate mitigations that address these impacts.

Data analyzed by the NSRA includes analysis of 10 years of Reportable Marine Casualties, as defined in 46 CFR 4.05-1, *excluding* incidents resulting solely from onboard injuries or deaths 46 CFR § 4.05-1(a)(5) and (6) (examples of exclusions would be cardiac arrests or trips/falls of passengers or crew that do not result in any subsequent damage to the vessel for the defined project area). Analysis of 10 years of SAR case data in the project study area should also be analyzed. All requests for USCG data should be submitted via email to OREIDataRequests@uscg.mil.

In assessing a proposed IFS impact on vessel navigation and other safety concerns, the developer should address, at a minimum, the following.

Other Stakeholders: The NSRA process should be conducted in cooperation and consultation with a wide range of Federal, State, Tribal entities, and local agencies, local maritime industry representatives, and the general public. Specific groups to consider include representatives of the

[1] International Maritime Organization. "Revised guidelines for formal safety assessment (FSA) for use in the IMO rulemaking process." (2018).

commercial fishing industry, recreational boating, passenger vessels, tug and barge companies, large commercial vessels, pilots, port authorities, harbor safety committees, waterfront facility owners and operators, maritime law enforcement personnel, emergency responders, environmental groups, and any other stakeholders for the waterway in which the OREIs will be placed.

Site and Installation Coordinates (Project Layout): Different companies with individual leases throughout the OCS will develop OREIs. Developers should ensure that estimated coordinates and subsequent variations of site perimeters and individual IFS are available to all interested parties at all relevant project stages. Coordinate data should be supplied as authoritative Geographical Information System (GIS) data, preferably in Environmental Systems Research Institute (ESRI) compatible format. Metadata should facilitate the identification of the data creator, its date and purpose, and the geodetic datum used. For mariners' use, appropriate data should also be provided with latitude and longitude coordinates in WGS84 datum. These coordinates should be provided to appropriate charting agency for inclusion in chart updates.

Each OREI layout design will be assessed on a case-by-case basis. The size and shape of each lease area will be different, the size and spacing of IFS within individual leases will be different based on several factors including bathymetry, power generation contracts, and the number of IFS needed to make the project viable. In accordance with reference (a), the USCG provides recommendations to the LA regarding OREI layouts. Recommended OREI layouts and configurations can be referenced in enclosure (5).

Technological advances in OREIs continue to move forward rapidly. This guidance may be adjusted, as appropriate, in the future. NSRAs should present information to enable the USCG to adequately understand how the risks associated with the proposed layout have been reduced to As Low as Reasonably Practicable (ALARP). More detail on type of assessment and ALARP can be found in reference (f).

Facility Characteristics and Design Requirements: Specific guidance for lighting and marking IFS can be found in enclosure (6). The developer should review reference (c) for further facility characteristics and operational design requirements applicable to the Safety Management System (SMS), including Emergency Response Procedures.

Existing Aids to Navigation: Developers must identify and determine if the proposed project will impact any existing Aids to Navigation (ATON) in the lease, along the export cable route, and all easements. In accordance with 33 CFR Part 70, no person, excluding the Armed Forces, shall obstruct or interfere with any ATON established and maintained by the USCG, or any private ATON established and maintained in accordance with 33 CFR Subchapter C. To reduce navigation safety risk, projects and planned cable routes should preserve a minimum safe distance (MSD) to any ATON to the maximum extent possible. The MSD is essential to protect ATON from project installation vessels and equipment, and to protect project components from damage that could result from contact with ATON components or Coast Guard ATON servicing vessels. Additional agreements between the USCG and developers may need to be considered if federal aids require relocation at any time. The USCG DPM should be contacted if these agreements need to be made. A list of contact information is found in enclosure (8).

1) Floating ATON:

   a) The MSD is calculated by starting from the Assigned Position of the ATON (as published in the USCG Light List) to avoid interference. Established navigational aids have a specific Positioning Tolerance wherein the aid is defined to be on station by waterway type (e.g., Deepwater – Maintained).

   b) The MSD is determined by the following calculation:

MSD ≥ Position Tolerance + Chain Length + Length of Servicing Vessel (+ Shoaling Consideration)
**All units in feet*

   c) In areas where shifting shoals are frequent, an additional safety distance may be added at District Commander discretion.

   d) In the event cables cannot be routed outside of the MSD, developers shall coordinate with respective District Command staffs to determine acceptable cable burial depths with the goal of burying to at least 2.5 meters below stable seabed with consideration of existing environmental conditions to include shifting shoals. Additional formal agreements between the Coast Guard and developers may need to be considered.

2) Fixed ATON:

   a) In the event cables cannot be routed outside of the MSD, reasonable efforts should be made to bury cables to at least 2.5 meters below stable seabed with consideration of existing environmental conditions to include shifting shoals and no less than 25 yards from the structure's foundation or as specified by the respective District Commander.

<u>Traffic Survey</u>: In order to make appropriate recommendations on the impacts to navigation safety, OREI developers should provide the USCG the characteristics and number of waterway users, the routes used, the channel dimensions, hydrographic conditions, and meteorological conditions in the area of the proposed OREI. A recent (within 12 months of the start of site survey activities) traffic survey of the area for the proposed OREI, including IFS, should be conducted. This survey should include all vessel types and cover at least one year duration. Seasonal variations should be validated by consultation with representative recreational and fishing vessel organizations, pilot organizations, the commercial maritime industry and, where appropriate, port authorities. If unforeseen project delays result in traffic data being older than one year before site survey activities, the DPM will review and determine on a case-by-case basis if updated traffic data is required.

The NSRA should include a section that discusses anticipated increases in vessel traffic and changes in vessel types both during construction and after. These changes should be determined in consultation with the commercial marine industry that will be providing services to these future OREIs, pilots association, and local port authorities.

While recognizing that site-specific factors need to be taken into consideration, any such survey should, in general, address those items found in the checklist.

Effects of Installations, Facilities and Structures (IFS) on the Outer Continental Shelf (OCS): The NSRA should determine how IFS affect the tidal and current streams in the waterway. The NSRA should also determine IFS impacts on vessel activity and incident frequency in the study area. The checklist breaks down individual items for study and assessment. The NSRA should determine whether any features of the offshore above water or underwater IFS pose any type of difficulty or danger to vessels underway, performing normal operations, or anchoring. It should further be determined whether underwater structures pose a risk to unique vessel navigation conditions/operations such as:

- Fishing vessels engaged in fishing or trawling with gear types shown to be present in the project area,
- Towing vessel areas where tows are lengthened or shortened,
- Vessels engaged in underwater mineral extraction/mining activities, or
- Other novel surface vessel operations that could create a navigation hazard with subsea structure interaction(s).

Based on the data collected in the traffic survey, an evaluation should be conducted to determine if the incident frequency of collision between vessels, allision with IFSs, or groundings increases with the introduction of IFS on the OCS. This assessment should be based on standard methodology[2]. The evaluation should include a model of traffic pattern changes resulting from the introduction of structure in the waterway. More detail can be found in reference (f) and the checklist in this enclosure.

The NSRA must assess the extent to which IFS may block or hinder the view of other vessels underway on any route, the view of the coastline or of any other navigation feature such as ATON, landmarks, or promontories. In the United States vessels may navigate through OREIs subject to any limited access areas (safety zones or security zones, regulated navigation areas) or formal routing measures (areas to be avoided). The NSRA must determine the extent IFS limit the ability of vessels to maneuver in order to avoid collisions and provide adequate mitigations, such as setbacks, to address these limitations.

The NSRA should provide a researched opinion of a generic and, where appropriate, site-specific nature concerning whether IFS could produce interference to RADAR such as shadows, blind spots, or reflections. Interference to marine positioning, navigation, or communication systems, including AIS, should also be addressed. Where the presence of IFS impacts communications, radar and positioning systems, the NSRA should propose adequate mitigations to ensure navigation and vessel safety is preserved.

To determine the impact on USCG and other emergency responder missions, the NSRA must assess the inclusion of IFS on SAR and MEP missions.

[2] Ibid.

- SAR: The USCG is required to provide SAR services in and around OREIs in U.S. waters. The NSRA should include a review of impacts to USCG SAR asset response. Spacing of less than one nautical mile may be unavoidable and may impact SAR decisions. Recommended minimum requirements for the assessment of impacts from the project on the Emergency Response Procedures are outlined in the NSRA checklist.

- MEP: The NSRA should include impacts to USCG or commercial Marine Environmental Response (Marine Environmental Response entities serve within the mission area of MEP). The results of the traffic survey will provide baseline vessel types and data for the study area. The NSRA should provide assessment and potential traffic changes that may impact this data in the future within the study area.

Data for USCG activities will be provided by request. All data requests for NSRA development should be made to OREIDataRequests@uscg.mil. NSRAs should analyze at least 10 years of SAR case data and 10 years of casualty data to ensure a large enough sample to increase confidence. Original data should be returned as part of the NSRA input for review.

CHECKLIST FOR NSRA DEVELOPMENT AND REVIEW

If the Lead Agency (LA) directs the applicant to perform a Navigation Safety Risk Assessment (NSRA), the Coast Guard will use this checklist to review the developer's NSRA and to prepare its recommendations to the LA.

#	ITEM	Included	Location	Completed by Coast Guard Office Indicated on the Issue Section Line
		Yes/No	Page #	Concerns, Comments, and Recommendations
1. SITE LOCATION AND INSTALLATION COORDINATES – District				
1.1	Has the developer ensured that proposed or draft coordinates and subsequent variations of site perimeters and individual structures are made available, upon request, to interested parties at all, relevant project stages?	Y - N		
1.2	Has the coordinate data been supplied as authoritative GIS data, preferably in ESRI format with metadata that facilitates the identification of the data creator, its date and purpose? Appropriate data should also be provided with latitude and longitude coordinates in WGS84 datum.	Y - N		
1.3	Have proposed cable routes addressed any potential conflicts and avoided all ATON (federal and private)?	Y - N		
2. TRAFFIC SURVEY – NAVCEN Reference (f), Coast Guard Navigation Center Work Instruction 2022-01 will be used to review and validate the data analysis and safety assessment provided by the NSRA on all vessel traffic in the study area.				
2.1	Does the data include an assessment of historical users of a waterway via analysis of AIS data within one year of commencement of site survey operations?	Y - N		
2.2	Does the survey include all vessel types?	Y - N		
2.3	Does the NSRA cover a period of at least 12 months duration?	Y - N		
2.4	Does the survey include consultation with recreational vessel organizations?	Y - N		

2.5	Does the survey include consultation with fishing vessel organizations?	Y - N		
2.6	Does the survey include consultation with pilot organizations?	Y - N		
2.7	Does the survey include consultation with commercial vessel organizations?	Y - N		
2.8	Does the survey include consultation with port authorities?	Y - N		
2.9	Does the survey include proposed IFS location relative to areas used by any type of vessel?	Y - N		
2.10	Does the survey include numbers, types, sizes and other characteristics of vessels presently using such areas?	Y – N		
2.11	Does the survey include types of cargo carried by vessels presently using such areas?	Y - N		
2.12	Does the survey identify non-transit uses of the areas (for example, fishing, day cruising of leisure craft, racing, marine regattas and parades, aggregate mining)?	Y - N		
2.13	Does the survey include whether these areas contain transit routes used by coastal or deep-draft vessels, ferry routes, and fishing vessel routes?	Y - N		
2.14	Does the survey include proposed alignment and proximity of the site relative to adjacent shipping route?	Y - N		
2.15	Does the survey include whether the nearby area contains routing measures or precautionary areas?	Y - N		
2.16	Does the survey include whether the site lies on or near a traffic separation scheme?	Y - N		
2.17	Does the survey include the proximity of the site to anchorage grounds or areas, safe havens, port approaches, and pilot boarding or landing areas?	Y - N		
2.18	Does the survey include the feasibility of allowing vessels to anchor within the vicinity of the project?	Y - N		

2.19	Does the survey include the proximity of the site to existing fishing grounds, or to routes used by fishing vessels to such grounds?	Y - N		
2.20	Does the survey include whether the site lies within the limits of jurisdiction of a port and/or navigation authority?	Y - N		
2.21	Does the survey include the proximity of the site to offshore firing/bombing ranges and areas used for any marine or airborne military purposes?	Y - N		
2.22	Does the survey include the proximity of the site to existing or proposed offshore OREIs/gas platform or marine aggregate mining?	Y - N		
2.23	Does the survey include the proximity of the site to existing or proposed OREI developments?	Y - N		
2.24	Does the survey include the proximity of the site relative to any designated areas for the disposal of dredging material or ocean disposal site?	Y - N		
2.25	Does the survey include the proximity of the site to ATON and/or Vessel Traffic Services in or adjacent to the area and any impact thereon?	Y - N		
2.26	Does the survey include a researched opinion using computer simulation techniques with respect to the displacement of traffic, mixing of vessel types that were previously segregated; changes in traffic density and resultant change in vessels encounters; and the creation of 'choke points' in areas of high traffic?	Y - N		
2.27	Does the survey include whether the site lies in or near areas that will be affected by variations in traffic patterns as a result of changes to vessel emission requirements?	Y - N		
3. OFFSHORE ABOVE WATER INSTALLATION, FACILITY or STRUCTURE (IFS)– Sector or District				
3.1	Does the NSRA contain a proposed layout and estimated location of all IFS?	Y - N		

3.2	Does the NSRA denote whether any features of the offshore above water IFS, including auxiliary platforms outside the main generator site and cabling to the shore, could pose any type of difficulty or danger to vessels underway, performing normal operations, or anchoring? Such dangers would include clearances of wind turbine blades above the sea surface, the burial depth of cabling, and lateral movement of floating wind turbines.	Y - N		
3.3	Does the NSRA denote whether minimum safe (air) clearances between sea level conditions at Highest Astronomical Tide and wind turbine blade are suitable for the vessel types identified in the traffic survey? Depths, clearances, and similar features of other IFS which might affect navigation safety and other Coast Guard missions should be determined on a case-by-case basis.	Y - N		
3.4	Does the NSRA denote whether any feature of the installation could impede or assist emergency rescue services, including the use of lifeboats, helicopters and emergency towing vessels?	Y – N		
3.5	Does the NSRA denote how rotor blade rotation and power transmission, etc., will be controlled by the designated services if required in an emergency?	Y - N		
3.6	Does the NSRA denote whether any noise or vibrations generated by an IFS above and below the water column would impact navigation safety or affect other Coast Guard missions?	Y - N		
3.7	Does the NSRA denote the ability of an IFS to withstand collision damage by vessels without toppling for a range of vessel types, speeds, and sizes?	Y - N		

3.8	Does the NSRA contain specific layout and location of all IFS including moorings and anchors?	Y - N		
4. ASSESSMENT OF. ACCESS TO, AND NAVIGATION AROUND OR NEAR AN INSTALLATION, FACILITY OR STRUCTURE (IFS) – District				
4.1	Does the NSRA address and discuss navigation around or near the IFS by different vessel types and sizes?	Y - N		
4.2	Does the developer suggest mitigations to improve safety of navigation where IFS obstruct traffic or change vessel traffic patterns?	Y - N		
4.3	Does the NSRA suggest mitigations for impacts to SAR near and around the IFS?	Y - N		
4.4	Does the NSRA address impacts of IFS creating a visual obstruction?	Y - N		
4.5	Does the NSRA discusses impacts to electronic navigation from the IFS presence?	Y - N		
4.6	Does the NSRA contain enough information for the Coast Guard to determine whether or not exclusion from the site could cause navigation, safety, or transiting problems for vessels operating in the area?	Y - N		
5. THE EFFECT OF TIDES, TIDAL STREAMS, AND CURRENTS – Sector or District				
5.1	Does the NSRA address current maritime traffic flows and operations in the general area affected by the depth of water in which the proposed IFS is situated at various states of the tide? That is, whether the installation could pose problems at high water which do not exist at low water conditions, and vice versa?	Y - N		
5.2	Does the NSRA address if current maritime traffic flows and operations in the general area are affected by existing currents in the area in which the proposed IFS is situated?	Y - N		

5.3	Does the NSRA address if the set and rate of the tidal stream, at any state of the tide, would have a significant effect on vessels in the area of the IFS?	Y - N		
5.4	Does the NSRA address how/if current directions and velocities might aggravate or mitigate the likelihood of allision with the IFS?	Y - N		
5.5	Does the NSRA address the effect of the maximum rate tidal stream and its direction?	Y - N		
5.6	Does the NSRA address if set is across the major axis of the layout at any time, and, at what rate?	Y - N		
5.7	Does the NSRA address, in general, whether engine failure or other circumstances could cause vessels to be set into danger by the tidal stream or currents?	Y - N		
5.8	Does the NSRA address if IFS cause changes in the set and rate of the tidal stream or direction and rate of the currents?	Y - N		
5.9	Does the NSRA address if IFS in the tidal stream produce siltation, deposition of sediment or scouring, any other suction or discharge aspects, which could affect navigable water depths in the IFS area or adjacent to the area?	Y - N		
5.10	Does the NSRA provide mitigations that provide data to support search and rescue planning in the area where IFS impede this original data?	Y - N		
5.11	Does the NSRA suggest mitigations that provide updated data feed of currents, tides, seas, and water temperatures for the area impacted by the projects?	Y – N		
6. WEATHER – Sector or District The NSRA should provide an analysis of expected weather conditions, water depths and sea states that might aggravate or mitigate the likelihood of allision with the structure by vessels.				
6.1	Does the NSRA adequately address all weather conditions and the difficulties or dangers to vessels, which might pass near the IFS?	Y - N		

6.2	Does the NSRA adequately address the effects of the IFS in the area for vessels under sail, such as wind masking, turbulence, or sheer?	Y - N		
6.3	Does the NSRA adequately address the effects of the prevailing winds in the study area, whether engine failure or other circumstances could cause vessels to drift into danger, particularly if in conjunction with a tidal set such as referenced above?	Y - N		
6.4	Does the NSRA adequately address the effects the location of the IFS and the influence of tropical weather and high winds on the IFS?	Y - N		
6.5	Does the NSRA adequately address the effects of the location of the IFS and the presence of cold weather?	Y - N		
6.6	Is there an opportunity for sea ice and/or icing of the IFS and if so, does the NSRA adequately address the effects of how the presence of the IFS would mitigate or exacerbate icing?	Y - N		
6.7	Does the NSRA adequately address the effects of the ability for IFS to withstand anticipated ice floes be conducted by the applicant, if applicable?	Y - N		
6.8	Does the NSRA adequately address the effects and the likelihood that ice may form on the IFS, especially for those types that have rotating blades such as a (WTG)? This should include an analysis of the ability of the IFS to withstand anticipated ice accumulation on the IFS, the potential for ice to be thrown from the blades, and the likely consequences of that happening and possible actions to mitigate that occurrence.	Y - N		
6.9	Does the NSRA adequately address the effects of the IFS on weather data as it feeds into the Search and Rescue Optimal Planning System and weather buoy data or provide mitigations to supplement that lost or impacted weather data?	Y - N		

7. CONFIGURATION AND COLLISION AVOIDANCE – District The NSRA, based on the data collected in the Traffic Survey, provides an evaluation to determine the likely frequency of collision between vessels, of allisions with IFSs, or grounding because of the establishment of a IFS. This may include but is not limited to a researched opinion using computer simulation techniques with respect to the displacement of traffic, mixing of vessel types that were previously segregated; changes in traffic density and resultant change in vessels encounters; particularly, the creation of 'choke points' in areas of high traffic around the OREI.				
7.1	Does the NSRA address 10 years of marine casualty data in the study area to provide an incident change analysis resulting from the project development in the waterway? Are the data and analysis included in the NSRA to be validated by the Coast Guard?	Y - N		
7.2	Does the incident change analysis build on earlier work conducted as part of the NSRA and the mitigations identified as part of that process? Reference (f) should be used as guidance in this evaluation. The original data and traffic survey should be referenced to confirm where information or the analysis remains the same or can be further refined due to the later stages of project development.	Y - N		
7.3	Does the incident change analysis present information to enable the USCG to adequately understand how the risks associated with the proposed layout have been reduced to ALARP?	Y - N		
7.4	Does the NSRA consider and analyze frequency of collision (vessel to vessel) by type (crossing, meeting, overtaking) including the likely vessel type involved in a collision?	Y – N		
7.5	Does the NSRA consider and analyze the likely location of allision (vessel to structure), and likely vessel type involved in allision?	Y – N		
7.6	Does the NSRA consider and analyze frequency of allision and consequences of allision ("What if" analysis)?	Y – N		

7.7	Does the NSRA consider and analyze any likely location of grounding and likely vessel type involved in grounding?	Y - N		
7.8	Does the NSRA analyze the frequency of grounding and consequences of grounding ("What if" analysis)?	Y - N		
7.9	Does the IFS layout conform to guidance presented by the Coast Guard to OREI developers (i.e. IFS are aligned and in straight rows or columns and shared border issues are adequately addressed)?	Y - N		
7.10	Has the developer conducted additional site-specific assessments, if necessary, to assess the proposed locations of individual turbine devices, substations, platforms and any other IFS within the study area?	Y - N		
8. VISUAL NAVIGATION – District The NSRA should consider and evaluate the impact on surface visual navigation resulting from the introduction of IFS on the OCS.				
8.1	Could the IFS (singly or as a development) block or hinder the view of other vessels underway on any route near the project?	Y - N		
8.2	Could the IFS block or hinder the view of the coastline or of any other navigational feature such as ATON, landmarks, promontories?	Y - N		
8.3	Could the IFS locations limit the ability of vessels to maneuver in order to avoid collisions?	Y - N		
9. COMMUNICATIONS, RADAR AND POSITIONING SYSTEMS – NAVCEN The NSRA should consider the impact from IFS on all electronic systems in and around the project.				
9.1	Could the IFS produce interference such as shadowing, reflections or phase changes, with marine positioning, navigation, or communications, including AIS, Direction Finding Capabilities, GPS, and Digital Selective Calling (DSC) whether ship borne, ashore, or fitted to any of the proposed IFS?	Y - N		

9.2.a	Could the IFS produce radar reflections, blind spots, shadow areas or other adverse effects in the following interrelationships? • Vessel to vessel	Y - N		
9.2.b	• Vessel to shore	Y - N		
9.2.c	• Vessel Traffic Service radar to vessel	Y - N		
9.2.d	• Radar Beacons (RACONS) to/from vessel	Y - N		
9.2.e	• Aircraft and Air Traffic Control	Y - N		
9.3	Do the IFS comply with current recommendations concerning electromagnetic interference?	Y - N		
9.4	Does the NSRA consider whether IFS produce acoustic noise or noise absorption or reflections that mask or interfere with prescribed sound signals from other vessels or ATON?	Y - N		
9.5	Does the NSRA consider whether IFS, generators, and the seabed cabling within the site and onshore might produce electro-magnetic fields affecting compasses and other navigation systems?	Y - N		
10. FACILITY CHARACTERISTICS – District The NSRA should identify and describe how IFS are marked to ensure visual identification and avoidance.				
10.1	Does the NSRA illustrate how the site is marked by day and night, including details on perimeter marking?	Y - N		
10.2	Does the NSRA show, if the site is marked with one or more RACONS or, an AIS transceiver, or both and if so, what AIS data it will transmit?	Y - N		
10.3	If the site is fitted with a sound signal, does the NSRA show characteristics of the sound signal, and where the signal or signals are sited?	Y - N		
10.4	Does the NSRA show how the proposed site and/or its individual generators comply in general with markings for such IFS, as required by the Coast Guard?	Y - N		

10.5	Does the NSRA illustrate how the marking, lighting or signaling of the IFS impacts existing Federal ATON in the vicinity of the IFS?	Y - N		
11. DESIGN REQUIREMENTS – Sector or District The NSRA contains sufficient information to ensure:				
11.1	Are all above surface IFS proposed to be marked in accordance with NVIC 02-23-CH 1 Enclosure (6)?	Y - N		
11.2	Are all generators and transmission systems equipped with control mechanisms that can be operated from an operations center 24/7?	Y - N		
11.3	Throughout the design process, are appropriate assessments and methods for safe shutdown established and agreed to through consultation with the Coast Guard and other emergency support services?	Y - N		
11.4	Are there control mechanisms that allow operations center personnel to fix and maintain the position of the any appropriate moving parts of an OREI? Enclosed spaces such as nacelle hatches in which personnel are working should be capable of being opened from the outside to allow rescuers (for example, helicopter winch-operators) to access the space if occupants are unable to assist or when sea-borne approach is not possible.	Y - N		
12. OPERATIONAL PROCEDURES – Sector The NSRA contains sufficient detail to ensure connectivity and collaboration with local emergency responders.				
12.1	Can the operations center immediately initiate shut-down procedures for WTG as requested by the SAR Mission Coordinator (SMC) and maintain the WTG in the appropriate shut-down position until notification from the SMC that it is safe to restart the WTG?	Y - N		
12.2	Is there a plan to test communication and shutdown procedures at least twice each year?	Y - N		

12.3	Does the plan include a process for the operator to submit documentation that verifies the structural integrity of the IFS following an allision?	Y - N		
13. EXISTING AIDS TO NAVIGATION – DISTRICT The NSRA adequately addresses export and inter array cable routes.				
13.1	Does the NSRA determine if the proposed project impact any existing ATON in the leased area or along the export cable route?	Y – N		
13.2	Have developers calculated the Minimum Safe Distance (MSD) to existing ATON and ensured cables and IFS do not intrude into the MSD?	Y - N		

MARINE PLANNING GUIDELINES

Overview. These guidelines are intended for developers, require judicious application, and should be evaluated and applied on a case-by-case basis**.** These recommendations should be used to evaluate all navigational possibilities, that could be reasonably foreseeable, by which the siting, construction, operation, and de-commissioning of an Offshore Renewable Energy Installation (OREI) could cause or contribute to an obstruction of, or danger to, navigation or emergency response. These guidelines should also be used to assess possible changes to traffic patterns and the most favorable options to be adopted, including those of operational site monitoring. These recommendations do not encourage a differentiation to be made between any types of seagoing watercraft, operations, or mariners. Application of these guidelines should be used in conjunction with reference (h) to support development of a Navigation Safety Risk Assessment (NSRA).

Recommended Guidelines for General Assessment of Areas for Potential Development

Purpose. These guidelines are provided to assist offshore developers and marine planners in the evaluation of navigation impacts by projects with permanent fixed structures. The guidelines consider sea space necessary for ships to maneuver safely and other factors to be considered when determining appropriate separation distances for the siting of offshore structures near shipping routes and other multiple use areas.

These guidelines are not regulatory. They do not impact the boundaries of any existing leases for site characterization and site assessment activities but do inform suitability of siting structures within a lease area. These guidelines should be considered during the area identification phase for both unsolicited and solicited development areas and when determining the siting of structures within existing lease areas. These guidelines also serve as one of the references to inform the NSRA conducted by developers. If the Lead Agency directs the applicant to perform a NSRA, the Coast Guard will review the developer's NSRA to prepare its recommendations to the Lead Agency.

Discussion. There is no international standard that specifies minimum distances between shipping routes and fixed structures; however, it is widely accepted that fixed structures in the offshore environment should not interfere with navigation. Specifically, the following documents or input from the below organizations and governments were used in the development of U.S. guidelines:

- United Kingdom Maritime and Coastguard Agency (UK MCA) Marine Guidance Note MGN-654, Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response Issues;
- The Confederation of European Shipmasters' Associations;
- The World Shipping Council;
- Federal Waterways and Shipping Administration (Germany) Guidelines for the Design, Marking and Operation of Wind Generators in the AOR of the Federal Waterways and Shipping Directorates North-West and North to Guarantee the Safety and Efficiency of Vessel Traffic; and
- Article 60, United Nations Convention on the Law of the Sea (UNCLOS)

Planning Guidelines**.** This enclosure provides general guidelines for the placement of structures near shipping routes and established ships routing measures, and other multiple use areas. These guidelines will result in the lowest level of acceptable risk because they are based on minimum distances for the largest vessels (400m length overall) to maneuver safely. Additional mitigation measures should be considered to achieve a low level of navigational safety risk.

Recommended Navigation Safe Distances

Port Approaches and Traffic Separation Schemes (TSS). The table below provides guidance and recommended distances between OREI lease boundaries and shipping routes. It is published in United Kingdom's Marine Guidance Note 654 and is consistent with international practices and risk determination. This guidance should be used on a case-by-case basis in consultation with CG-NAV, Districts, Sectors, and relevant stakeholders. This template is not prescriptive and provides multiple factors to consider in making a risk determination.

Distance of turbine boundary from shipping route (90% of traffic)	Factors for consideration	Risk
<0.5nm (<1000 yds)	X-Band radar interference: vessels and aircraft may generate multiple echoes on shore-based radars	Very High
0.5nm to <1nm (1000 yds to <2000 yds)	Vessel and aircraft size and maneuverability	High
1nm to <2nm (2000 yds to <4000 yds)	Minimum recommended distance to parallel an International Maritime Organization (IMO) routing measure S-Band radar interference Automated target tracking (ARPA) affected	Medium
2nm to 3.5nm (4000 yds to 7000 yds)	Preferred distance to parallel boundary of an IMO routing measure Compliance with International Regulations for Preventing Collisions at Sea and/or Inland Navigation Rules becomes less challenging	Low
>3.5nm (>7000 yds)	Minimum separation distance between turbines on opposite sides of a route	Low
>5nm (>10,000 yds)	Adjacent wind farm introduces cumulative effect Minimum distance from TSS entry/exit*	Very Low

***Note.** The >5 NM mile separation buffer from the terminus of a TSS is necessary to provide vessels sufficient sea room in an area where several vessels may be converging and diverging from and to multiple directions. The "fanning/funneling" effect of traffic in conjunction with in-line traffic and vessel arrival/destination (international/ domestic) should be considered. Developers should not seek to place wind farms directly in line with designated traffic lanes. Refer to footnote 1.

Coastwise or Coastal Shipping Routes. Vessels that tend to follow the coastline are typically smaller vessels that cannot safely transit too far offshore due to sea state limitations. The necessary sea space for vessels to navigate safely is determined by the size and maneuverability of vessels, and density of vessel traffic. When determining routes near shore, the depth of water and location of underwater obstructions must be considered, especially if vessel routes will be displaced by the introduction of fixed structures. Vessels towing astern on a wire are of particular concern. In this configuration their footprint may be large, maneuvering ability may be constrained, and the catenary of the tow wire may dictate significantly larger water depths than the drafts of the tug or barge.

Planning Guidelines:

1. Identify a navigation safety corridor to ensure adequate sea area for vessels to transit safely;
2. Provide inshore corridors for coastal ships and tug/barge operations;
3. Minimize displacement of routes further offshore;
4. Avoid displacing vessels where it will result in mixing vessel types; and
5. Identify and consider cumulative and cascading impacts of multiple OREIs, such as wind farms.

Offshore Deep Draft Routes. Offshore deep draft routes can be more flexible in terms of the location of the routes. It is still necessary to have adequate sea area for safe navigation, but less critical to preserve existing routes to achieve safe conditions.

Planning Guidelines. It is important to avoid obstructing or creating hazards on both sides of a vessel route. However, if it is not possible, the route should provide enough sea space to safely accommodate the largest vessels. It is essential to consider that large ships often operate at high speeds, making maneuvering difficult. The following factors should be taken into account when determining the route:

Cross Track Error (CTE). CTE is the difference between the intended and actual track. Factors leading to a vessel deviating from intended track include:

1. Environmental Forces (include wind, currents, and sea state):

    a. Leeway, wind can set a vessel in the downwind direction. The impacts of the wind will vary according to the size and shape of the vessel;

    b. Currents, particularly cross currents, can significantly affect the maneuverability of a vessel and space required to navigate safely; and

    c. Sea state, including size and direction of waves, can cause vessels to pitch, heave, and roll. Yawing motions could result in the vessel drifting off course. Following seas can impact the ability of the vessel to steer a steady course.

2. Swept Path - (the sum of various factors to determine the total width of the tug and barge path) will depend on the abilities of the vessel operator and the maneuvering characteristics of the vessel and are a secondary cause of CTE:

    a. Vessel Operator Response - the time for the vessel operator to recognize deviation from an intended track and to take corrective action; and

    b. Vessel Response - the speed that the vessel responds to rudder and main engines.

Closest Point of Approach (CPA). CPA is the safe distance at which a vessel can pass a fixed or moving object accounting for existing conditions. In complying with the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS), the captain of a vessel is required to consider all dangers of navigation and collision and any special circumstances, including limitations of the vessels involved, which may make a departure from the COLREGS necessary to avoid immediate danger per Rule 2, Responsibility. When determining an appropriate CPA, all factors of weather, maneuvering capability, visibility, etc. must be considered, as well as potential emergency situations. Under ideal conditions with low sea states, good visibility, and good communications between vessels to arrange a passing agreement, a CPA of ½ to 1 NM may be acceptable. Under less ideal weather and sea conditions, higher vessels speeds, or both, a CPA of 2 NM or more may be necessary to ensure safe passage. By increasing the planned CPA, the risk of collision or allision will be decreased.

Traffic Density. The amount of traffic along a route will dictate the likelihood of vessels sharing sea space in meeting, overtaking, or crossing situations. With good communications and early actions, mariners can plan to limit vessel to vessel interactions. However, there will be times when multiple vessels converge on the same location, such as in a cluster of OREIs, and additional sea space is necessary to maneuver safely and maintain safe CPAs for all vessels. The longer the route is constrained, the more likely multiple vessels will meet along a route. Crossing traffic such as fishing vessels or offshore support vessels transiting to/from offshore installations will further complicate vessel interactions. A navigation safety corridor should be designed to accommodate an appropriate number of vessels passing abeam of one another and other vessel operations in the area. In low density situations, with less than 4,400 vessels per year, a minimum of two vessels may be appropriate. For moderate vessel density situations, between 4,400 and 18,000 vessels per year, a minimum of three vessels should be used for planning purposes[3].

Note. The factors are interrelated and should be considered in the context of the maximum most probable weather and sea state conditions. The types of operations requiring the most sea space for maneuvering under normal and emergency situations should be used as the reference point.

Other site-specific considerations.

1. Potential contributions to risk:

[3] The World Association for Waterborne Transport Infrastructure. "Interaction Between Offshore Wind Farms and Maritime Navigation". 2018.

a. High traffic areas with converging or crossing routes; similar to port entrances, areas where vessels are approaching from different directions into a smaller area will produce complex vessel interactions and reduce navigation safety. This could occur in natural choke points or offshore of a cape, peninsula, or other obstruction that vessels must go around.

b. Obstructions/hazards on opposite side of a route; if hazards or obstructions are present on the opposite side of a route from a development area, the impact will be the constriction of vessel traffic and reduced time for vessel operators to determine the risk of collision and act in a close-quarters situation.

c. Severe weather/sea state conditions; severe weather and sea state conditions can impact visibility, maneuverability, and navigation, all of which would negatively impact navigation safety.

d. Severe currents; Severe currents will impact maneuverability of a vessel and ability to maintain intended track, thus negatively impact navigation safety.

e. Mixing of vessel types; smaller or slow-moving vessels will tend to avoid major shipping lanes containing larger, faster moving vessels. When these vessels are displaced into the routes of other vessel types the number of overtaking situations will increase, thereby increasing risk, particularly if sea space is limited.

f. Complexity of vessel interactions; in areas where interactions are more complex, impacts due to new obstructions could be amplified. Complexity can be driven by several factors, such as those previously discussed above where routes are converging/crossing or mixing of vessel types. Complexity could also be driven by other operations being conducted in the area such as fishing, recreational traffic, or pilot boarding areas.

g. Large distances along a route; the longer the distance of obstructions along a route, the greater the risk. Increased distance equates to increased exposure to the hazard.

h. Undersized routing measures; if an existing TSS or other routing measure was not designed to accommodate existing or future density and size of vessels, additional separation may be appropriate.

2. <u>Potential mitigations of risk</u>:

a. Mitigating factors may include fairways, aids to navigation, pilotage, vessel traffic services, precautionary areas, areas to be avoided, anchorages, limited access areas, and other routing measures. Mitigating factors can be used to lower risk in many ways, such as increasing predictability of vessel traffic, increasing local knowledge and expertise, increasing situational awareness, or improving navigation. Proper marking and lighting of the structures of a wind farm can be used for navigation purposes, improving the ability to fix a vessel's position.

b. Low traffic, less than 4,400 vessels per year: Low traffic will decrease vessel interactions and allow for more space for transiting vessels to maneuver.

c. Predominantly smaller vessels. If only smaller vessels call on a port or if large vessel transits are very infrequent, smaller planning distances may be appropriate; especially if other mitigations are in place for the large vessel transits, such as tug escorts.

d. Distance from ports, shoals, and other obstructions. If there are large distances to other hazards, vessels will be able to adjust their route to ensure safe transits.

e. Aids to Navigation may assist vessels in more accurately determining their position as well as identifying potential hazards.

3. Other Critical Routes. This refers to routes that may not be obvious when looking at regular traffic patterns and may involve specific or unique requirements, such as:

a. Natural Deepwater Approaches – Natural deepwater approaches may not be used by the majority of vessels but may be necessary for some vessels to enter or depart port at present or in the future.

b. Seasonal Transits – There are additional necessary requirements, such as sea space and draft, that ensure the safe transit of infrequent but significant vessel transits. This includes the periodic provisioning of remote communities.

WINDFARM CONFIGURATION AND IMPACT CONSIDERATION GUIDANCE

General: The primary concerns for the U.S. Coast Guard (USCG) in relation to the siting, design, layout, and construction of Offshore Renewable Energy Installations (OREIs) are impacts to navigation safety, vessel traffic, other traditional uses of the waterway, including USCG missions such as Search and Rescue (SAR) and Marine Environmental Protection (MEP). The USCG acknowledges all projects are subject to risk. This enclosure identifies possible impacts to Navigation Safety and SAR. It provides recommended windfarm configuration to reduce impacts to navigation safety. Throughout the Bureau of Ocean Energy Management (BOEM)'s OREI leasing process the USCG will implement this guidance as a member of Intergovernmental Renewable Energy Task Forces and as a cooperating agency during National Environmental Policy Act (NEPA) review.

Preferred Windfarm Configurations

Overview: Different companies within individual lease areas throughout the Outer Continental Shelf will develop windfarms. The size and shape of each lease area will be different, and the size and spacing of wind turbines within individual lease areas will be different based on various factors including bathymetry, power generation contracts, and the number of Wind Turbine Generators (WTG) needed to make the project viable. The USCG recommends BOEM require certain configuration consistencies in the development of windfarms.

Alignment: Each windfarm should be organized in straight rows and columns, creating a grid pattern consisting of two or more lines of orientation. This alignment provides the mariner with a single course heading to transit through the structures.

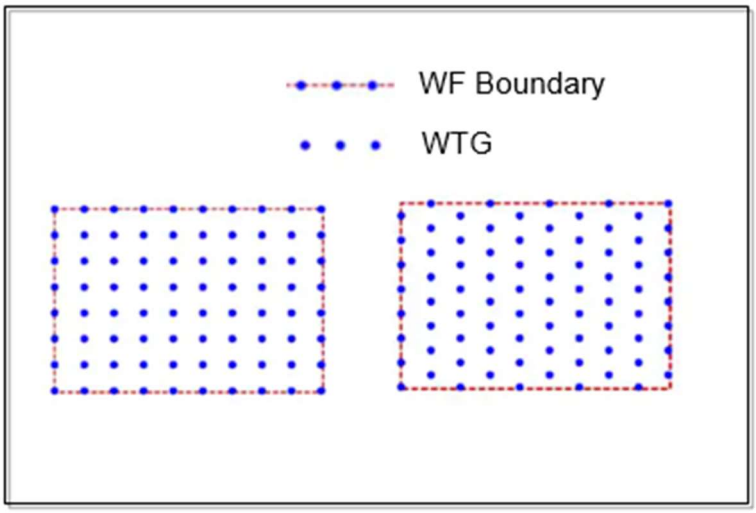


Figure 3: Illustrative example of potential WTG layout

Shared borders: When wind projects share a border, developers should either adopt a common spacing and layout scheme across the project borders or ensure a gap between different layout patterns. Adopting the same spacing and layout is the preferred outcome, as it has the effect of providing mariners the predictability of a single farm with consistent straight-line routes

throughout the entire area. Common WTG spacing, and layout best facilitates navigation safety, vessel traffic, consistent and continuous marking and lighting, SAR response, and where necessary, other traditional uses of the waterway such as commercial and recreational fishing.

In the absence of a common spacing and layout scheme across project borders, a design gap between shared borders is an acceptable risk mitigation strategy and can be requested by developers. Based on the circumstances of the project, the space between projects should be noticeably greater than the WTG spacing within either windfarm to provide a clear visual reference for mariners to easily distinguish the presence of two separate projects. If a noticeable design gap is not feasible, additional marking and lighting, to include Automatic Identification System (AIS) Aids to Navigation (ATON) should be used to alert mariners of the change in spacing, orientation, or both.

When two or more windfarms are near or adjacent to each other, developers should also analyze the cascading impacts caused by displacing vessel traffic in the proximal wind energy areas and identify appropriate mitigations found in this enclosure as part of their Navigation Safety Risk Assessment (NSRA).

Spacing: The ideal spacing for USCG aviation assets to conduct SAR within a windfarm is recommended to be at least 1 NM between turbines. Because each windfarm's bathymetric circumstances are different, spacing of less than 1 NM may be unavoidable, which may impact USCG aviation SAR capabilities, particularly in adverse weather conditions. The District Project Manager (DPM) and/or District Response staff should facilitate communication between USCG SAR policy and capabilities program offices and windfarm project developers to identify suitable mitigations that lower the impact to USCG operations related to spacing.

Possible Impacts to Navigation Safety and the Marine Transportation System (MTS)

Impacts to Navigation Safety and the MTS may include, but are not limited to:

- As the OCS is leased and developed by OREI, vessel traffic may be displaced or funneled into smaller areas. This increased vessel density may also cause the mixing of vessel types and speeds while also changing the geometry of interactions as vessels come within close range of each other. These changes may increase the risk of collisions and allisions due to the reduction of sea-room or water depth for maneuvering, and result in loss of property, loss of life, and environmental damage. Evaluating these impacts via the NSRA is critical to ensuring appropriate mitigations are in place to ensure navigation safety within the MTS.

- Navigation safety may be affected by the presence of windfarms if it impairs or enhances the mariner's ability to determine their position, determine a safe course to steer, detect unseen dangers, determine risk of collision, and take action to avoid an allision.

- Existing uses of the waterway may be affected by the placement of windfarms within proximity of traditional maritime navigation routes.

- Emergency responders may be affected by the location and orientation of windfarms.

- Vessel traffic patterns and historical shipping routes may be impacted if vessels deviate from normal routes or recreational vessels enter commercial shipping routes to avoid the location of windfarms.

- The ability of vessels to anchor in an emergency may be affected by cable routes.

- Windfarms may affect the performance of electronic navigation systems used in the maritime environment, including radars and communications systems.

Possible Impacts to Coast Guard Search and Rescue (SAR)

The Coast Guard's statutory authority to plan for and conduct SAR is outlined in Title 14 United States Code sections 102, 521, and 701. The statutes require the Coast Guard to develop, establish, maintain, and operate SAR facilities; authorize the rendering of aid to distressed persons; and protect and save property on and under the high seas and waters subject to the jurisdiction of the United States. The existence of OREIs within the Coast Guard's jurisdiction does not affect the agency's statutory authority to conduct SAR; however, the presence of a OREIs may affect how the Coast Guard plans and executes its SAR mission.

SAR mission effectiveness is evaluated based on accepted search planning methodology outlined in the International Aeronautical and Maritime Search and Rescue Manual and the USCG SAR Addendum to that manual. The presence of OREI introduces new risks to mariners and aviators and presents new challenges to offshore SAR planning and execution. The Office of Search and Rescue has several lines of effort underway to investigate the impacts wind energy areas may have on the SAR mission, including joint-agency and international partner research and development projects to analyze impacts of wind energy areas on oceanographic data and SAR sensor performance. These ongoing studies will aid in the validation of new models, incorporating the impacts of wind energy areas, and may be used to inform future collaborative agreements between partner agencies to better assess and mitigate SAR planning and execution impacts.

In accordance with reference (c) BSEE possesses sole authority, oversight, and enforcement of OREI Safety Management System (SMS) plans. An SMS is the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk, including, safety of personnel, remote monitoring and shut down, Emergency Response Procedures (ERP), fire suppression, testing of the SMS, and personnel training. Most notably, ERPs are a set of written procedures for OREI developers to deal with emergencies to minimize the impact of the event and facilitate recovery from the event.

Although BSEE possesses regulatory approval of these plans, items contained within the SMS and ERP may have a direct impact or coordination responsibility affecting Coast Guard SAR mission planning and execution. In accordance with enclosures (1) and (2), upon request, the Coast Guard will review SMSs and ERPs and provide input for BSEE's consideration in the approval of such plans. In addition, as a cooperating agency under NEPA, the Coast Guard will

provide recommended alternatives to avoid, mitigate, and/or minimize potential mission impacts identified during environmental assessments of proposed OREI activities to BOEM.

The effectiveness of a search for persons and vessels in distress within an OREI lease area is of the Coast Guard's utmost concern. Applicable Coast Guard Headquarters Offices will continue to research potential impacts from OREI development on SAR mission capabilities and execution, as well as pursue the wise development of federal partner agreements for effective intergovernmental collaboration as it relates to Coast Guard SAR jurisdiction and/or subject matter expertise.

GUIDANCE FOR MARKING, LABELING, AND SIGNALING OF WINDFARM STRUCTURES

Overview: Offshore Renewable Energy Installation (OREI) developers must file an application (Form CG-2554), with the Commander of the U.S. Coast Guard (USCG) District that the lease area falls within to establish a private aid to navigation (PATON), per 33 C.F.R Part 66. Upon receipt of the application, the Commander of the USCG District will provide an information sheet outlining the Lessee's responsibilities for the establishment, maintenance, discontinuance, or transfer of ownership of the PATON. The following guidance provides additional information to augment compliance with lighting and marking of OREIs on the Outer Continental Shelf (OCS).

Lighting and Marking: USCG policy follow the International Association of Marine Aids to Navigation and Lighthouse Authorities Guideline G1162 on The Marking of Offshore Man-Made Structures, except as follows:

Uniform Alphanumeric Marking of Installations, Facilities and Structures (IFSs): Each IFS in an OREI lease area should be marked with its unique alphanumeric character, a National Oceanic and Atmospheric Administration charted designator, enabling quick recognition and reference for search and rescue, law enforcement, and other purposes. Markings on each IFS should be at least 8 feet (ft.) (2.5 meters (m)) and as close to 10 ft. (3 m) in height as possible, posted between 30 to 50 ft. above Mean Higher High water, such that they are visible all-round (360-degree arc) from the water's surface. Use of retro-reflective paint or materials for lettering and numbering is highly recommended. Each IFS' unique marking should be duplicated on top of its nacelle to aid identification from the air.

Lighting and Sound Signals of Significant Peripheral Structure: As illustrated in Figure 1, a corner structure and other significant points on the boundary of the wind farm is called a Significant Peripheral Structure (SPS). The distance between SPSs and any adjacent SPS or Intermediate Peripheral Structure should not exceed 3 nautical miles (NM). In addition to its marking, each SPS should be fitted with the following:

1. Quick flashing yellow light (QY, 0.3s on/0.7s off) that is visible at least 5NM and synchronized with all other SPS lights; and

2. A sound signal in reduced visibility should sound every 30 seconds (4s blast, 26s off) with rated range of 2NMs. A Mariner Radio Activated Sound Signal (MRASS) activated by keying VHF-FM Channel 1083 (157.175 MHZ, previously 83A) five times within ten seconds activating the sound signal for 45 minutes is preferred. If a MRASS is not used, the sound signal should operate when the visibility in any direction is less than 5NM.

Lighting of Intermediate Peripheral Structures: Outer boundary non-SPS IFS are called Intermediate Peripheral Structures (IPS). IPS should be fitted with a 2.5 second flashing yellow light (FL Y 2.5s, 1.0s on/1.5s off) that is visible at least 3NM away and synchronized with all other IPS lights.

Lighting of Interior IFS: Interior IFS should be fitted with a 6 second flashing yellow light (FL Y 6s, 1.0s on/5.0s off) or a 10 second flashing yellow light (FL Y 10s, 1.0s on/9.0s off) that is visible at least 2NM away and should be synchronized with all other Interior IFS lights.

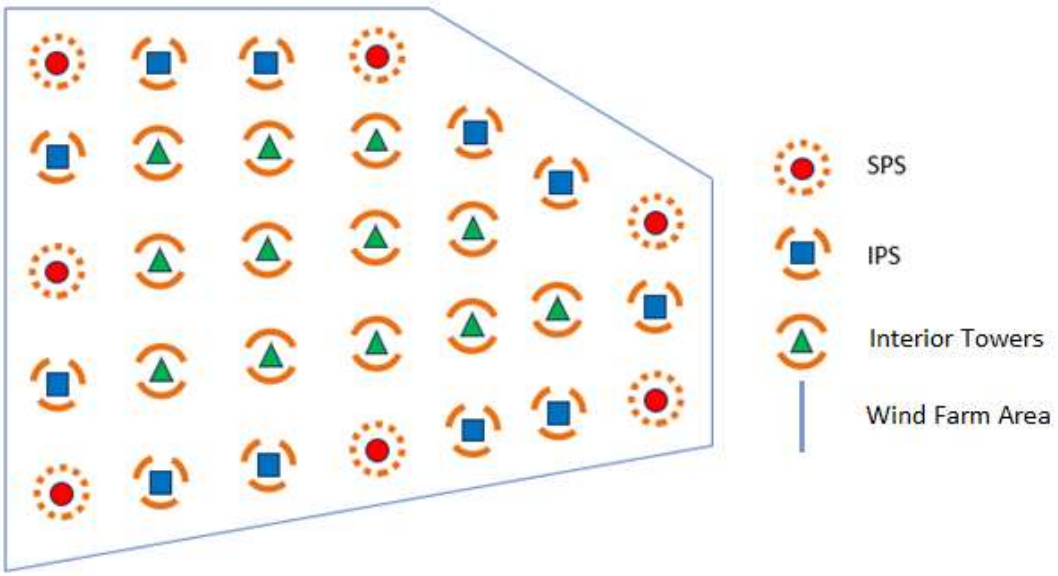


Figure 1: Example of SPS and IPS identified in a windfarm layout (not to scale).

Structure	Light Characteristic	Light Range
SPS	Quick Flashing Yellow	5 NM
IPS	Flashing 2.5 Seconds Yellow	3 NM
Interior Towers	Flashing 6 or 10 Sec. Yellow	2 NM

Table 1: IFS light ranges.

Automatic Identification System (AIS) Aids to Navigation (ATON) Stations: Each SPS, and IPS adjacent to a fairway or used to identify a designated vessel transit route through the farm or closely adjacent farms, shall be identified by a properly encoded AIS Message 21. These broadcasts shall be made autonomously and continuously (99 percent availability), at least every 6 minutes, alternating on AIS channel 1 and 2, at sufficient power to provide a relatively uniform

coverage recommended to extend at least 8NM beyond the periphery of the wind farm to allow suffient time for ship operators to detect and make any necessary course or speed alterations.

IPS, or other IFS within the farm, may be additionally marked with physical or synthetic AIS Message 21 if circumstances warrant; but not such to overload the VHF data link in or near congested waters. Such circumstances may include but are not limited to when there is a distance of greater than 12NM between SPS, or the need to temporarily mark an IFS of navigational concern due to some other factor (e.g. discrepant light signal).

AIS Message 21 broadcasts should indicate current "AtoN status" (i.e., good health, light discrepancies, etc.). AtoN status "alarms" may be accompanied by an AIS Safety Related Broadcast (AIS Message 14).

Use of AIS requires submission of a USCG AIS Private AtoN Application (see Form CG-4143) and subsequent Federal Communications Commission licensing. For further guidance on the process see USCG Navigation Center's AIS Frequently Asked Question 21.

GLOSSARY AND ACRONYMS

Allision: The act of striking against or upon a stationary object or the running of one vessel upon another vessel that is stationary - distinguished from *collision*.

Area to Be Avoided (ATBA): A routing measure comprising an area within defined limits in which either navigation is particularly hazardous, or it is exceptionally important to avoid casualties, and which should be avoided by all vessels, or certain classes of vessels.

Coast Guard Missions: The Coast Guard's 11 Missions are Marine Safety; Search and Rescue; Aids to Navigation; Living Marine Resources; Marine Environmental Protection; Polar, Ice, and Alaska Operations ("Ice Operations"); Ports, Waterways and Coastal Security; Drug Interdiction; Migrant Interdiction; Defense Readiness; and Other Law Enforcement.

Cooperating Agency: Any Federal agency (and a State, Tribal, or local agency with agreement of the lead agency) other than a lead agency that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action that may significantly affect the quality of the human environment.

Environmental Impact Statement (EIS): An environmental impact statement is a document required by the NEPA for certain actions "significantly affecting the quality of the human environment." An EIS is a tool to promote informed decision making by federal agencies while making detailed information available to agency leaders and the public. It describes the positive and negative of a proposed action, and it usually also lists one or more alternative actions that may be chosen instead of the action described in the EIS. A Draft EIS (DEIS) is a document made publicly available for comment before releasing a Final EIS (FEIS). The FEIS is prepared based on the comments received and announces the Proposed Action.

Installation, Facility or Structure (IFS): Any installation, facility or structure to include, but not limited to, Wind Turbine Generators, Offshore Sub-Stations, Electrical Service Platforms used in the renewable energy collection on the Outer Continental Shelf of U.S Waters.

Lead Agency (LA) (may be referred to as the Lead Federal Agency): The agency or agencies, in the case of joint lead agencies, preparing or having taken primary responsibility for preparing the environmental impact statement.

Marine and Hydrokinetic Energy Technologies: Marine and hydrokinetic energy technologies convert the energy of waves, tides, and river and ocean currents into electricity.

Nacelle: The cover that sits atop the tower and contains the generating components in a wind turbine, including the generator, gearbox, drive train, and brake assembly.

Navigation Safety Risk Assessment (NSRA): A comprehensive, systematic report used for identifying hazards to navigation and their consequences that could be created by the proposed OREI. Coordinated by the developer, it evaluates the magnitude of the risks associated with the hazards and identifies and evaluates the effectiveness of control measures that can be used to

mitigate the risks. The Coast Guard reviews the NSRA and provides recommendations concerning the level of risk and mitigation measures the assessment identifies.

National Environmental Policy Act (NEPA): Signed into law on the first day of 1970, NEPA is a federal statute (42 U.S.C. 4321)) establishing the broad national framework to assure all branches of government conduct environmental assessments and prepare environmental impact statements prior to undertaking major federal actions having a significant effect on the environment.

Offshore Renewable Energy Installation (OREI): A wind, wave, or tidal energy device placed in the navigable waters of the U.S. to generate electricity from non-mineral ocean-based resources.

Outer Continental Shelf (OCS): Means all submerged lands lying seaward and outside of the area of "lands beneath navigable waters" as defined in section 2(a) of the Submerged Lands Act (43 U.S. Code 1301(a)) and of which the subsoil and seabed appertain to the United States and are subject to its jurisdiction and control.

Packed Boundaries or Dense Boundaries: Means a wind farm that has more turbines located on the edges of its leased boundary than turbines located internal of the boundary.

Right of Way (ROW): An authorization by BOEM to use a portion of the OCS for the construction and use of a cable or pipeline for the purpose of gathering, transmitting, distributing, or otherwise transporting electricity from renewable energy, but does not constitute an easement.

Safety Zone: In accordance with 33 CFR Part 147, a restricted area established around facilities being constructed, maintained, or operated on the OCS to promote the safety of life and property on the facilities, their appurtenances and attending vessels, and on the adjacent waters within the safety zones.

Security Zone: In accordance with 33 CFR 165.30, an area of land, water, or land and water which is so designated by the Captain of the Port or District Commander for such time as is necessary to prevent damage or injury to any vessel or waterfront facility, to safeguard ports, harbors, territories, or waters of the U.S. or to secure the observance of the rights and obligations of the U.S.

Vessel: Every description of water craft, including non-displacement craft, WIG craft and seaplanes, used or capable of being used as a means of transportation on water.

Windfarm: A collection of Installations, Facilities and Structures (IFS) that use wind energy to create electricity.

ACRONYMS

ACRONYM	LONG TITLE
AIS	Automatic Identification System
AOR	Area of Responsibility
ATBA	Area to Be Avoided
AtoN	Aid to Navigation
BOEM	Bureau of Ocean Energy Management
BSEE	Bureau of Safety and Environmental Enforcement
CFR	Code of Federal Regulations
CG-NAV-2	Office of Navigation Systems, Navigation Standards Division
COP	Construction and Operations Plan
CPA	Closest Point of Approach
CTE	Cross Track Error
ESP	Electrical Service Platform
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
GW	Gigawatts
IMO	International Maritime Organization
IFS	Installation, Facility or Structure
IPS	Intermediate Peripheral Structure
MTS	Marine Transportation System
NAVCEN	U.S. Coast Guard Navigation Center
NEPA	National Environmental Policy Act
NM	Nautical Mile
NOAA	National Oceanic and Atmospheric Administration
NSRA	Navigation Safety Risk Assessment
NVIC	Navigation and Vessel Inspection Circular
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
OREI	Offshore Renewable Energy Installation
OSRP	Oil Spill Response Plan
PARS	Port Access Route Study
SAP	Site Assessment Plan
SPS	Significant Peripheral Structure
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
WEA	Wind Energy Area
WTG	Wind Turbine Generator

U.S. COAST GUARD AREAS OF RESPONSIBILITY AND UNIT INFORMATION

Overview: The following illustrations represent each USCG Area, District, and Sector command locations. For a precise listing of command boundaries, refer to 33 CFR Part 3, Coast Guard Areas, Districts, Sectors, Marine Inspection Zones, and Captain of the Port Zones. Divided into two geographic areas, the Atlantic Command (LANTAREA) consists of five Districts covering the Eastern U.S., the Atlantic Ocean, Great Lakes, and the Gulf of Mexico. The Pacific Area (PACAREA) contains four Districts covering the Western U.S. and the Pacific Ocean Coast.

Figure 1: Illustration of USCG District Boundaries

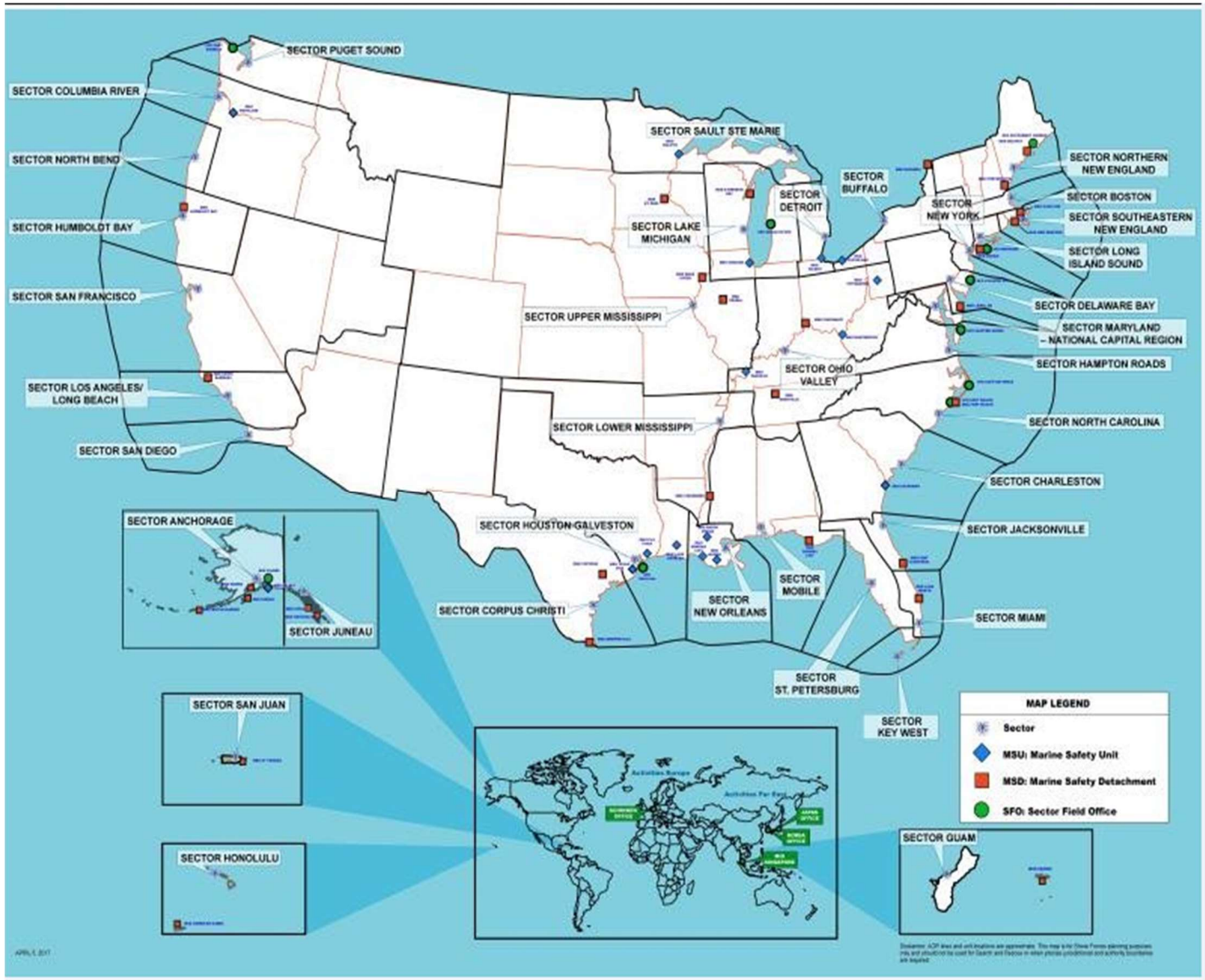


Figure 2: Illustration of USCG Sector Boundaries

USCG HEADQUARTERS, AREA, AND DISTRICT CONTACT LIST

District Commands (dp)

Tel: (617) 799-2042 First Coast Guard District Capt. John Foster Williams Bldg 408 Atlantic Avenue Boston, MA 02110-3350 24-Hour Command Center (866) 842-1560	Tel: (510) 437-3968 Eleventh Coast Guard District Coast Guard Island Bldg 52 Alameda, CA 94501-5100 24-Hour Command Center (510) 437-3701
Tel: (757) 398-6000 Fifth Coast Guard District 431 Crawford Street Federal Bldg. Portsmouth, VA 23704-5004 24-Hour Command Center (757) 398-6231	Tel: (206) 310-6932 Thirteenth Coast Guard District Jackson Federal Bldg 915 Second Avenue Seattle, WA 98174-1067 24-Hour Command Center (206) 220-7001
Tel: (305) 415-6727 Seventh Coast Guard District Brickell Plaza Federal Bldg 909 SE First Avenue Miami, FL 33131-3050 24-Hour Command Center (305) 415-6800	Tel: (808) 535-3402 Fourteenth Coast Guard District Prince Kalanianaole Federal Bldg 9th Floor 300 Ala Moana Boulevard Honolulu, HI 96850-4982 24-Hour Command Center (808) 535-3333
Tel: (504) 671-2174 Eighth Coast Guard District Hale Boggs Federal Building 500 Poydras Street, Suite 1240 New Orleans, LA 70130-3310 24-Hour Command Center (855) 485-3727	Tel: (907) 463-2802 Seventeenth Coast Guard District P.O. BOX 25517 Juneau, AK 99802-5517 24-Hour Command Center (907) 463-2000
Tel: (216) 902-6047 Ninth Coast Guard District 1240 East 9th Street Cleveland, OH 44199-2060 24-Hour Command Center (216) 902-6117	United States Coast Guard Website: United States Coast Guard (uscg.mil)

Area and Headquarters Commands

Tel: (757) 398-6746 Coast Guard Atlantic Area (LANT-54) 431 Crawford Street Federal Bldg. Portsmouth, VA 23704-5004 24-Hour Command Center (510) 437-3701 United States Coast Guard (USCG) Atlantic Area	Tel: (510) 437-5839 Coast Guard Pacific Area (PAC-54) Coast Guard Island Bldg. 51-5 Alameda, CA 94501-5100 24-Hour Command Center (510) 437-3701 United States Coast Guard (USCG) - Pacific Area
Team email: CGNAV@uscg.mil COMMANDANT (CG-NAV-2) U.S. Coast Guard Stop 7418 2703 Martin Luther King Jr Ave SE Washington, DC 20593-7418 24-Hour Command Center (202) 372-2100	

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