Appendix C: Tiering Guidance

The Bureau of Ocean Energy Management (BOEM) has prepared this Draft Programmatic Environmental Impact Statement (PEIS) to evaluate the impacts that could result from wind energy development activities in the six New York Bight (NY Bight) lease areas, as well as the change in those impacts that could result from adopting programmatic avoidance, minimization, mitigation, and monitoring (AMMM) measures. The Proposed Action for the PEIS is the adoption of programmatic AMMM measures that BOEM may require as conditions of approval for activities proposed by lessees in Construction and Operations Plans (COPs) submitted for the six NY Bight lease areas. Project-specific National Environmental Policy Act (NEPA) analyses for individual COPs in the NY Bight lease areas will tier to or incorporate by reference this PEIS, in accordance with 40 Code of Federal Regulations (CFR) 1501.11-12. The project-specific NEPA analyses and consultations for each NY Bight lease area will focus on the impacts of approving a particular COP, including identification of additional AMMM measures that are best suited for consideration in the COP-specific NEPA analysis.

This appendix provides clarification on how BOEM anticipates using this PEIS to provide for greater efficiency and reduce duplication of analyses in complying with NEPA requirements for future COP-specific NEPA analyses. The information in this appendix is organized by resource topic in a tabular format. For each resource topic, an overview of the affected environment, impact analysis, and AMMM measure contents in the PEIS is provided. For each of these components of the analysis, this appendix also provides recommendations for information from the PEIS that could be incorporated by reference into the future COP-specific NEPA analyses and identifies general information about additional analysis that BOEM anticipates would need to be performed as part of the COP-specific NEPA analysis once detailed and site-specific project information is available. BOEM may determine additional analysis is needed during the COP-specific NEPA process.

Table C-1. PEIS and COP-specific NEPA tiering guidance

PEIS Section	Overview of Programmatic EIS Content	Additional Analysis for COP-Specific NEPA Analysis
Section 3.4.1, Air Quality and Greenhouse Gas Emissions	**Affected Environment.** Provides a discussion of the geographic analysis area, National Ambient Air Quality Standards (NAAQS), and attainment status of the area. PEIS Appendix B, *Supplemental Information and Additional Figures and Tables*, provides metocean and climate information and trends.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the relevant affected environment characterization in the PEIS. While it is anticipated that the geographic analysis area of a specific NY Bight lease area would be a subset of the geographic analysis area in the PEIS, additional characterization may be necessary if this is not the case. Additional characterizations of air quality in localized areas around onshore facilities will be warranted in the COP-specific NEPA analysis to the extent community-level air quality data are available.
	Impact Analysis. Provides quantitative analysis of project emissions, avoided health effects, social cost of greenhouse gases (GHGs), and a qualitative assessment of expected air quality/GHG impacts, based on generic or representative assumptions, for a highest-emissions scenario in accordance with the representative project design envelope (RPDE).	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the impact analysis in the PEIS. The COP-specific NEPA analysis should focus on what is unique about the project and how emissions and the locations of air quality impacts would differ from the PEIS. In addition, the COP-specific NEPA analysis should include quantitative modeling (dispersion and photochemical as applicable) to estimate ambient concentrations of criteria pollutants for comparison to the NAAQS and to assess impacts on Air Quality-Related Values. This modeling may be coordinated with the modeling required for the U.S. Environmental Protection Agency (USEPA) Outer Continental Shelf (OCS) air quality permit but should include all project emissions sources (not just those required for the permit). Air quality assessment for environmental justice communities affected by the project may also be appropriate.
	AMMM Measures. Includes the use of sulfur hexafluoride (SF_6)-free switchgear; incorporation of ecological design elements; use of alternative fuels; and use of low or zero emission technology.	**AMMM Measures.** If applicable, the lessee should provide descriptions of any planned use of measures such as Best Available Control Technology/Lowest Achievable Emission Rate technology, emissions offsets, alternative fuels or electrification for vessels/equipment/vehicles, Best Management Practices, fugitive dust controls, and vehicle traffic management.
Section 3.4.2, Water Quality	**Affected Environment.** Provides a regional overview of the current water quality conditions within the geographic analysis area. Data are gathered from publicly available information such as the USEPA Coastal Condition Assessments and World Ocean Database, BOEM NEPA documents and environmental studies, scientific papers, and other COPs (e.g., sediment transport modeling from Empire Wind (OCS-A 0512)).	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the water quality affected environment characterization in the PEIS for the offshore project area only. For the onshore project area, the COP-specific NEPA analysis will need to characterize water quality specifically in all areas where onshore components could be sited, including the cable landfall(s), onshore export cable routes, points of interconnection (POI), substations, operations and maintenance (O&M) facilities, ports, above ground transmission lines, or any other infrastructure proposed in the onshore environment that will support the project. The information should include a description of the water quality conditions in the onshore project area. At a minimum, the data from the state Section 305(b) Water Quality Reports and Section 303(d) List of Impaired/Total Maximum Daily Load (TMDL) Waters should be included.

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	Impact Analysis. Provides qualitative analysis of impacts on overall water quality by impact producing factor (IPF) (e.g., accidental releases, cable emplacement and presence of structures and discharges) based on the RPDE.	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the qualitative impact analysis in the PEIS for the offshore project area; however additional analysis such as sediment transport modeling associated with cable emplacement would be required to fully characterize the water quality impacts along the offshore export cable routes. In the onshore project area, the COP-specific NEPA analysis can incorporate by reference the general impacts on water quality associated with the IPFs. However, quantitative information is needed to address potential impacts associated with crossings of wetlands and waterbodies. This information would allow BOEM to provide a more accurate impact conclusion than that in the PEIS.
	AMMM Measures. Includes reducing potential for release of metal contaminants; submittal of oil spill response plan; submittal and approval of an anchoring plan to reduce or avoid impacts from turbidity and anchor placement; employment of methods to minimize sediment disturbance; use of upgrading or retrofitting technology, new and emerging technologies; and development of an Inadvertent Returns Plan.	**AMMM Measures.** The COP-specific NEPA analysis would include the recommended water quality AMMM measures specific to the IPFs. It would be expected that issuance of the Section 401 Water Quality Certificate from the state would include permit conditions including specific measures to avoid and minimize potential water quality impacts.
Section 3.5.1, Bats	**Affected Environment.** In the offshore environment, existing literature, and acoustic studies are used to describe bat species in the geographic analysis area. Bat information specific to the NY Bight lease areas is based on two New York State Energy Research and Development Authority (NYSERDA) meteorological buoys deployed in two of the NY Bight lease areas, as well as bat surveys conducted at nearby lease areas (e.g., Ocean Wind 1 (OCS-A 0498), Atlantic Shores South (OCS-A 0499), Empire Wind (OCS-A 0512)). Bat presence in the coastal onshore environment is primarily based on bat ranges that overlap with the coastal areas of New Jersey and New York.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the bat affected environment characterization in the PEIS for the offshore environment only. For the onshore environment, the COP-specific NEPA analysis will need to characterize habitats specifically in all areas where onshore components could be sited, including the offshore export cable landing(s), onshore export cable routes, POIs, substations, O&M facilities, ports, above ground transmission lines, or any other infrastructure proposed in the onshore environment that will support the project. The information should include a description of the forest habitat and acreage in the onshore project study area. At a minimum, an on-the-ground reconnaissance level field survey is recommended in order to map forest habitat at the onshore project components, including along all onshore export cable routes.
	Impact Analysis. In the offshore environment, the impact analysis is qualitative for the IPFs assessed. However, because current information on bat abundance/presence in the offshore environment indicates that bat presence is low, BOEM anticipates the exposure to any of the IPFs in the offshore environment to also be low, and, therefore, impacts on bats in the offshore environment are not anticipated to have any notable effect on bat populations. In the onshore environment, the impact assessment is qualitative and largely focuses on the land disturbance IPF.	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the qualitative impact analysis in the PEIS for the offshore environment. Because current information indicates low bat presence in the offshore environment, offshore development for the NY Bight lease areas would not be likely to have different impacts than those described in the PEIS. In the onshore environment, the COP-specific NEPA analysis can incorporate by reference the noise and presence of structures IPFs. However, quantitative information is needed to address potential impacts on bat habitat (forest areas). Ideally, the habitat areas mapped for the Affected Environment (see above) along with the potential locations of all onshore project components, would

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	Because the types and locations of onshore project components are not known, there could be a range of impacts that are dependent upon the type and amount of habitat that could be removed (forest habitat is of primary concern for bats). While BOEM anticipates that bat habitat impacts in the onshore environment would be minimal due to likely siting of project components in already disturbed areas (based on recent wind projects BOEM is reviewing), it is still possible that areas of forested habitat would be altered or removed. Therefore, BOEM cannot rule out more substantial bat habitat impacts without project-specific information.	allow for a quantitative assessment of forest impacts. Forest impacts should also differentiate between permanent (complete removal or conversion) and temporary impacts, as well as potential tree trimming. This information would allow BOEM to provide a more accurate impact conclusion than that in the PEIS, which currently states a range due to the fact that this forest impact is unknown.
	AMMM Measures. Includes post-construction monitoring; injured or dead bat reporting; and measures to use best available technology and to adjust project design to minimize impacts on bat habitat.	**AMMM Measures.** The lessees could provide details to support the measures that BOEM is proposing under Alternative C. For example, the lessees could provide specific information on what equipment, technology, and best practices would be used to limit and reduce noise or other impacts (MUL-5, MUL-23).
Section 3.5.2, Benthic Resources	**Affected Environment.** Provides a regional overview of the benthic resources present within the geographic analysis area. Data are gathered from publicly available information such as the Northeast Ocean Data Portal, the U.S. Geological Survey's (USGS's) SEABED database, seabed topography, habitat mapping, BOEM NEPA documents and environmental studies, scientific papers, and other COPs.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the benthic resources affected environment characterization in the PEIS. However, the COP-specific NEPA will need to characterize the specific benthic resources and habitats within the lease area (including along interarray cable routes) and along the offshore export cable routes, including acquiring benthic grab sampling and seafloor imagery consistent with BOEM's Benthic Habitat Survey Information Guidelines. This benthic information combined with multibeam and side scan sonar data would allow for accurate mapping and characterization of sediment types, benthic communities, and habitat types within the project area. These surveys could also include characterization and delineation of any submerged aquatic vegetation suspected to occur within nearshore and inshore project areas within export cable routes.
	Impact Analysis. Provides qualitative discussion of the typical types of impacts on benthic habitat from offshore wind developed based on the RPDE.	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the qualitative impact analysis in the PEIS. The COP-specific NEPA analysis would need to include a quantitative impact analysis that includes the calculation of benthic habitats (acres) disturbed by each of the offshore activities associated by relevant IPFs (e.g., anchoring, cable emplacement, and presence of structures) associated with the offshore project area as well as any other project-specific analysis and modeling done (e.g., sediment transport modeling, electromagnetic fields emissions).
	AMMM Measures. Includes avoidance of boulders and minimization of boulder relocation distance to reduce alteration of the seabed; scour protection performance monitoring; submittal and approval of an anchoring plan to reduce or avoid	**AMMM Measures.** The COP-specific NEPA analysis would include the recommended benthic resource AMMM measures specific to the project location.

PEIS Section	Overview of Programmatic EIS Content	Additional Analysis for COP-Specific NEPA Analysis
	impacts from turbidity and anchor placement; restoring berms to match natural contours; use of specific cable protection measures within complex hardbottom habitat to reduce impacts from cable emplacement on benthic resources; use of electrical shielding to control the intensity of electromagnetic fields (EMF); post-storm event monitoring; and employment of methods to minimize sediment disturbance.	
Section 3.5.3, Birds	**Affected Environment.** In the offshore environment, existing literature, modeling, and tracking information is used to describe bird species, abundance, and populations in the geographic analysis area. Bird information specific to the NY Bight lease areas is based on NYSERDA aerial digital surveys conducted between 2018 and 2019, and two NYSERDA meteorological buoys deployed in two of the NY Bight lease areas. Bird descriptions in the coastal onshore environment are very high level with little information on specific species or abundance due to unknown location of onshore project elements.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the bird affected environment characterization in the PEIS for the offshore environment only. For the onshore environment, the COP-specific NEPA analysis will need to characterize habitats specifically in all areas where onshore components could be sited, including the offshore export cable landing(s), onshore export cable routes, POIs, substations, O&M facilities, ports, above ground transmission lines, or any other infrastructure proposed in the onshore environment that will support the project. The information should include a description of the habitat types and amounts (e.g., acreages) in the onshore project study area, as well as identifying and describing any special habitat areas that are important to birds (e.g., sandy/dune beaches). At a minimum, an on-the-ground reconnaissance level field survey is recommended in order to map habitat types at the onshore project components, including along all onshore export cable routes.
	Impact Analysis. In the offshore environment, the impact analysis is largely qualitative for the IPFs assessed. The presence of structures IPF analysis does provide a conservative estimate of bird strike mortalities based on onshore wind farm data (where bird numbers are much higher). However, because current information shows bird abundance in the offshore environment to be low, BOEM anticipates the exposure to any of the IPFs in the offshore environment to also be low, and, therefore, impacts on birds in the offshore environment are not anticipated to have any notable effect on bird populations. In the onshore environment, the impact assessment is qualitative and largely focuses on the land disturbance IPF. Because the types and locations of onshore project components are not known, there could be a range of impacts that are dependent upon the type and amount of habitat that could be altered or removed. While BOEM anticipates that bird habitat impacts in the onshore environment would be minimal due to likely siting of project components in already disturbed areas	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the qualitative impact analysis in the PEIS for the offshore environment. Because current information indicates low bird presence in the offshore environment, offshore development for the NY Bight lease areas would not be likely to have different impacts than those described in the PEIS. For the presence of structures IPF, an estimate of bird mortality can be calculated with the number of wind turbine generators (WTGs) that are proposed for a specific lease area, but it will likely not change the ultimate impact assessment. In the onshore environment, the COP-specific NEPA analysis can incorporate by reference some of the qualitative impact analyses (e.g., noise, traffic [aircraft]). However, quantitative information is needed to address potential impacts to bird habitat (e.g., forest areas, sand/dune beach). Ideally, the habitat areas mapped for the Affected Environment (see above) along with the potential locations of all onshore project components, would allow for a quantitative assessment of habitat impacts. Habitat impacts should also differentiate between permanent (complete removal or conversion) and temporary impacts (e.g., cable placed in herbaceous areas that would regrow). This information would allow BOEM to

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	(based on recent wind projects BOEM is reviewing), it is still possible that areas of higher quality habitat (e.g., forest) would be altered or removed. Therefore, BOEM cannot rule out more substantial bird habitat impacts without project-specific information.	provide a more accurate impact conclusion than that in the PEIS, which currently states a range due to the fact that this impact is unknown.
	AMMM Measures. Includes post-construction monitoring, dead or injured bird reporting, bird perching deterrents, measures to minimize light, compensatory mitigation for Endangered Species Act (ESA) listed birds; and measures to adjust project design to minimize impacts on bird habitat.	**AMMM Measures.** The lessees could provide details to support the measures that BOEM is proposing under Alternative C. For example, the lessees could provide specific information on what equipment, technology, and best practices would be used to limit and reduce noise or other impacts (MUL-5, MUL-23).
Section 3.5.4, Coastal Habitat and Fauna	**Affected Environment.** Provides a regional overview of the coastal habitat and fauna present within the geographic analysis area. Data are gathered from publicly available information such as BOEM NEPA documents and environmental studies, scientific papers, and other COPs.	**Affected Environment.** Because the description of coastal habitat and fauna in the PEIS is regional, the COP-specific NEPA analysis will need to characterize specific coastal habitat and fauna within the onshore project areas based upon the location of onshore components. This characterization could include reconnaissance-level habitat and species surveys at the cable landfalls, onshore export cable routes, onshore substations, and POIs. Targeted habitat and species surveys would allow for accurate identification of beach nesting birds and sea turtles as well as ESA flowering plants within coastal habitats.
	Impact Analysis. Provides qualitative analysis of impacts on overall coastal habitat and fauna by IPF (e.g., accidental releases, noise, land disturbance, and traffic) based on the RPDE.	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference some of the qualitative impact analysis about the typical impacts from offshore wind development, and discuss any differences based upon project-specific details. However, because the analysis in the PEIS is regional, a more focused project-specific analysis will be needed based on the specific habitat types and flora and fauna present in the project area. The COP-specific NEPA analysis would need to include a quantitative impact analysis that includes the calculation of coastal areas (acres) disturbed by each of the onshore activities associated by relevant IPFs (e.g., cable emplacement and land disturbance). Ideally, the habitat areas mapped for the Affected Environment (see above) along with the potential locations of all onshore project components, would allow for a quantitative assessment of habitat impacts.
	AMMM Measures. Includes using both intra and interregional shared transmission infrastructure when possible; adjusting project design to minimize impacts; using technology and best practices to minimize noise and other impacts; and environmental monitoring.	**AMMM Measures.** The COP-specific NEPA analysis would include the recommended coastal habitat and fauna AMMM measures specific to the project location.
Section 3.5.5, Finfish, Invertebrates,	**Affected Environment.** Provides a regional overview of the finfish, invertebrates, and essential fish habitat (EFH) present within the geographic analysis area. Data are gathered from publicly available information such as the Marine Cadastre,	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the finfish, invertebrates, and EFH affected environment characterization in the PEIS. However, the COP-specific NEPA analysis will need to characterize finfish, invertebrates, and EFH within the project lease area

PEIS Section	Overview of Programmatic EIS Content	Additional Analysis for COP-Specific NEPA Analysis
and Essential Fish Habitat	Northeast Ocean Data Portal, National Oceanic and Atmospheric Administration (NOAA) Essential Fish Habitat Mapper, BOEM NEPA documents and environmental studies, scientific papers, and other COPs.	(including along interarray cable routes) and along the offshore export cable routes, including acquiring benthic grab sampling and seafloor imagery consistent with BOEM's Benthic Habitat Survey Information Guidelines. This benthic information combined with multibeam, and side scan sonar data would allow for accurate mapping and characterization of fish habitat types within the project area. In addition, any information on finfish from otter trawl surveys, gillnet or trammel net surveys, beam trawl surveys, fixed gear surveys with ventless traps, and shellfish surveys can inform this resource within the project area.
	Impact Analysis. Provides qualitative analysis of impacts on finfish, invertebrates, and EFH by IPF (e.g., cable emplacement, EMF, noise, and presence of structures) based on the RPDE.	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the qualitative impact analysis in the PEIS and discuss any differences based upon project-specific details. The COP-specific NEPA analysis would need to include a quantitative impact analysis that includes the calculation of finfish, invertebrates, and EFH (acres) disturbed by each of the offshore activities associated by relevant IPFs (e.g., anchoring, cable emplacement, and presence of structures).
	AMMM Measures. Includes avoidance of boulders and minimization of boulder relocation distance to reduce alteration of the seabed; scour protection performance monitoring; implementation of measures to minimize noise impacts; submittal and approval of an anchoring plan to reduce or avoid impacts from turbidity and anchor placement; restoring berms to match natural contours; incorporation of ecological design elements where practicable; monitoring of cables after installation; use of electrical shielding to control the intensity of EMF to reduce impacts on sensitive species or their prey; implementation of post-storm event monitoring; developing an adaptive management plan for National Marine Fisheries Service (NMFS) trust resources to address unanticipated issues; and employing methods to minimize sediment disturbance.	**AMMM Measures.** The COP-specific NEPA analysis would include the recommended finfish, invertebrates, and EFH AMMM measures specific to the project.
Section 3.5.6, Marine Mammals	**Affected Environment.** Provides a regional overview of the marine mammals present within the geographic analysis area. Data are gathered from publicly available information such as the Marine Cadastre, Northeast Ocean Data Portal, NMFS stock assessment reports, Atlantic Marine Assessment Program for Protected Species (AMAPPS), habitat-based density models, regional digital aerial baseline marine wildlife surveys, BOEM NEPA documents and environmental studies, scientific papers, and other COPs.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the regional marine mammal affected environment characterization in the PEIS. However, the COP-specific NEPA analysis will need to characterize the occurrence of marine mammals within the lease area and along the offshore export cable routes, including implementing surveys consistent with BOEM's Marine Mammals and Sea Turtles Information Guidelines. These surveys could include seasonal vessel-based and aerial surveys for determining spatial temporal distribution and abundance of marine mammal species and Passive Acoustic Monitoring (PAM) to gather ambient sound and presence of vocalizing marine mammals.

PEIS Section	Overview of Programmatic EIS Content	Additional Analysis for COP-Specific NEPA Analysis
	Impact Analysis. Provides qualitative analysis of impacts on marine mammals by IPF (e.g., noise, presence of structures, and traffic) based on the RPDE.	**Impact Analysis.** The COP-specific NEPA analysis would need to include a qualitative and quantitative impact analysis that includes the specific characterization of the intensity, geographic extent, frequency, and likelihood of impacts on marine mammals associated with each of the offshore activities associated by relevant IPFs (e.g., noise, presence of structures, and traffic). This impact analysis for marine mammals would include results from underwater acoustic modeling from proposed activities (e.g., pile-driving, unexploded ordnance [UXO], surveys) and from using BOEM's Risk Assessment to Model Encounter Rates Between Large Whales and Sea Turtles and Vessel Traffic from Offshore Wind Energy on the Atlantic OCS.
	AMMM Measures. Includes implementation of a PAM system to reduce the risk of vessel strike and impacts from project activities (e.g., pile-driving); submittal and approval of pile-driving monitoring plans; protected species observer (PSO) requirements; measures to minimize vessel noise; measures to limit temporal and spatial extent of noise exposure; real-time and near-real-time monitoring to inform adaptive mitigation measures; trainings; collection of baseline information used to better anticipate potential impacts and further mitigate effects on marine mammals in the future; seasonal vessel speed requirements; measures to reduce marine debris and impacts from entanglement, ingestion, and pollutants; use of electrical shielding to control the intensity of EMF to reduce impacts on sensitive species or their prey; post-storm event monitoring; and reporting of potential takes of protected species.	**AMMM Measures.** The COP-specific NEPA analysis would include the recommended marine mammal AMMM measures specific to the IPFs. It would be expected that issuance of the Incidental Harassment Authorizations or Letter of Authorizations for construction activities from NMFS would include permit conditions, including specific measures to avoid and minimize potential marine mammal impacts.
Section 3.5.7, Sea Turtles	**Affected Environment.** Provides a regional overview of the sea turtles present within the geographic analysis area. Data are gathered from publicly available information such as the Marine Cadastre, Northeast Ocean Data Portal, NMFS stock assessment reports, AMAPPS, habitat-based density models, regional digital aerial baseline marine wildlife surveys, BOEM NEPA documents and environmental studies, scientific papers, and other COPs.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the regional sea turtle affected environment characterization in the PEIS. However, the COP-specific NEPA analysis will need to characterize the occurrence of sea turtles within the lease area and along the offshore export cable routes, including implementing surveys consistent with BOEM's Marine Mammals and Sea Turtles Information Guidelines. These surveys could include seasonal vessel-based and aerial surveys for determining spatial temporal distribution and abundance of sea turtle species. Targeted habitat and species surveys would allow for accurate identification of nesting sea turtles, if any, suspected to occur along the offshore export cable routes and at landfall sites.
	Impact Analysis. Provides qualitative analysis of impacts on sea turtles by IPF (e.g., noise, presence of structures, and traffic) based on the RPDE.	**Impact Analysis.** The COP-specific NEPA analysis would need to include a quantitative and qualitative impact analysis that includes the specific characterization of the intensity, geographic extent, frequency, and likelihood of impacts on sea turtles associated with each of the offshore activities associated

PEIS Section	Overview of Programmatic EIS Content	Additional Analysis for COP-Specific NEPA Analysis
		by relevant IPFs (e.g., noise, presence of structures, and traffic). This impact analysis for sea turtles would include results from underwater acoustic modeling from proposed activities (e.g., pile-driving, UXO, surveys) and from using BOEM's Risk Assessment to Model Encounter Rates Between Large Whales and Sea Turtles and Vessel Traffic from Offshore Wind Energy on the Atlantic OCS.
	AMMM Measures. Includes submittal and approval of pile-driving monitoring plans; PSO requirements; measures to minimize vessel noise; measures to limit temporal and spatial extent of noise exposure; real-time and near–real-time monitoring to inform adaptive mitigation measures; trainings; collection of baseline information used to better anticipate potential impacts and further mitigate effects on marine mammals in the future; seasonal vessel speed requirements; measures to reduce marine debris and impacts from entanglement, ingestion, and pollutants; use of electrical shielding to control the intensity of EMF to reduce impacts on sensitive species or their prey; post-storm event monitoring; and reporting of potential takes of protected species.	**AMMM Measures.** The COP-specific NEPA analysis would include the recommended sea turtle AMMM measures specific to the IPFs.
Section 3.5.8, Wetlands	**Affected Environment.** Wetlands in the geographic analysis area (which is limited to the onshore environment) are described using publicly available New Jersey and New York state wetland geographic information system (GIS) layers, as well as the National Wetlands Inventory (NWI). The geographic analysis area in the PEIS is much larger than the geographic analysis area of a specific NY Bight lease area.	**Affected Environment.** The COP-specific NEPA analysis will need to characterize wetlands specifically in all areas where onshore components could be sited, including the offshore export cable landing(s), onshore export cable routes, POIs, substations, O&M facilities, ports, or any other infrastructure proposed in the onshore environment that will support the project. The information should include a description of the wetland types and acreages in the onshore project study area, as well as information on the functions the wetlands may provide. At a minimum, an on-the-ground reconnaissance level field survey should be conducted in order to map all wetlands at the onshore project components, including along all onshore export cable routes. A wetland delineation would need to be conducted per the U.S. Army Corps of Engineers' wetland delineation manual where access can be obtained.
	Impact Analysis. The wetland impact assessment is qualitative and largely focuses on the land disturbance IPF. Because the types and locations of onshore project components are not known, there could be a range of wetland impacts that are dependent upon the type and amount of wetland that could be affected. While BOEM anticipates that wetland impacts would be minimal due to likely siting of project components in already disturbed areas (based on recent wind projects BOEM is reviewing), it is still possible that wetlands would be temporarily	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the accidental releases IPF and the applicable qualitative analysis in the land disturbance IPF. However, quantitative information is needed to address potential impacts on wetlands. Ideally, the wetlands mapped for the Affected Environment (see above) along with the potential locations of all onshore project components would allow for a quantitative assessment of wetland impacts. The quantitative wetland impact analysis should also differentiate between permanent (wetland filling or conversion) and temporary impacts. This information would allow BOEM to provide a more accurate impact conclusion

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	or permanently altered, or permanently filled. Therefore, BOEM cannot rule out more substantial wetland impacts without project-specific information.	than that in the PEIS, which currently states a range due to the unknown locations of onshore project components and wetlands.
	AMMM Measures. Includes commitments to adjust project design and use shared transmission infrastructure to reduce impacts on wetlands.	**AMMM Measures.** While state and federal wetland permitting would include many measures to avoid and reduce wetland impacts, the lessees could provide details to support the measures that BOEM is proposing under Alternative C. For example, the lessees could specifically describe how they are using existing infrastructure or disturbed areas to reduce impact on wetlands (see MUL-18).
Section 3.6.1, Commercial Fisheries and For-Hire Recreational Fishing	**Affected Environment.** Provides a regional overview of the commercial fisheries and for-hire recreational fishing within the geographic analysis area. Data are gathered from publicly available information such as the Marine Cadastre, Northeast Ocean Data Portal, NMFS Commercial Fisheries Landings Statistics, NMFS Descriptions of Selected Fishery Landings and Estimates of Vessel Revenue from Areas, NMFS Landing and Revenue Data for Wind Energy Areas, NMFS Recreational Fisheries Statistics Queries, BOEM NEPA documents and environmental studies, scientific papers, and other COPs.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the commercial fisheries and for-hire recreational fishing affected environment characterization in the PEIS. However, the COP-specific NEPA analysis will need to characterize commercial fisheries and for-hire recreational fishing within each lease area (including along interarray cable routes) and along the offshore export cable routes, including acquiring fishery information consistent with BOEM's Fishery Information Guidelines. This could include data from otter trawl surveys, gillnet or trammel net surveys, beam trawl surveys, fixed gear surveys with ventless traps, and shellfish surveys.
	Impact Analysis. Provides qualitative analysis of resource and socioeconomic impacts on commercial fisheries and for-hire recreational fishing by IPF (e.g., cable emplacement, EMF, noise, and presence of structures) based on the RPDE.	**Impact Analysis.** The COP-specific NEPA analysis would need to include a qualitative impact analysis that incorporates the characterization of impacts on commercial fisheries and for-hire recreational fishing associated with each of the offshore activities by relevant IPFs (e.g., cable emplacement, EMF, noise, and presence of structures). This impact analysis for commercial fisheries and for-hire recreational fishing would include the socioeconomic effects on fishing vessel maneuverability, reduction in fishing activities and fishing revenue, entanglement and damage or loss of commercial and recreational fishing gear, and an estimate of the amount of commercial fishing revenue that would be "exposed."
	AMMM Measures. Includes implementation of a gear loss and damage compensation plan to reduce negative impacts from loss of gear from seabed obstructions; implementation of a Scour and Cable Protection Plan and associated protection methods to ensure that the materials reflect the pre-existing conditions; development and execution of a monitoring plan for scallop populations compatible with other regional data collection methods; implementation of fisheries mitigation including design of static cables to minimize risk of fishery gear snags and the planning of project design to minimize space use conflicts with fisheries; adherence to BOEM's Fisheries Survey	**AMMM Measures.** The COP-specific NEPA analysis would include the recommended commercial fisheries and for-hire recreational fishing AMMM measures specific to the IPFs.

PEIS Section	Overview of Programmatic EIS Content	Additional Analysis for COP-Specific NEPA Analysis
	Guidelines; compensation to commercial and for-hire recreational fishermen for loss of income due to unrecovered economic activity and to shoreside businesses for losses indirectly related to the expected development; post-storm event monitoring; and implementation of surveys to monitor and adaptively mitigate for lost fishing gear accumulated at WTG foundations to reduce marine debris.	
Section 3.6.2, Cultural Resources	**Affected Environment.** Provides a regional overview of the cultural context and resource types in the geographic analysis area and any knowable, individual historic properties identified in a Programmatic Area of Potential Effects (APE) developed for National Historic Preservation Act (NHPA) reviews of the six NY Bight lease areas. Data are gathered from the 2021 NY Bight Environmental Assessment and NY Bight *NHPA Section 106 Summary* (Appendix I).	**Affected Environment.** The COP-specific NEPA and NHPA analysis will need to identify and characterize cultural contexts, cultural resource types, and specific historic properties in a project-specific geographic analysis area and APE. This includes completion of associated cultural resource and historic property identification efforts per BOEM guidelines. Identification of cultural resources and historic properties would allow for accurate impact analysis and development and implementation of sufficient AMMM measures.
	Impact Analysis. Provides qualitative analysis of impacts on cultural resources overall by IPF (i.e., accidental releases, anchoring, cable emplacement and maintenance, survey gear utilization, land disturbance, lighting, and presence of structures) based on the RPDE. Qualitative analysis is supported by limited quantitative data derived from BOEM's background research on the affected environment.	**Impact Analysis.** The COP-specific NEPA and NHPA analysis would need to include both a qualitative and quantitative analysis of impacts on the specific cultural resources and historic properties identified in the project-specific geographic analysis area and APE. Impact analysis would involve NHPA consultations with State Historic Preservation Officers (SHPOs), federally recognized Tribes, lessees, and other identified consulting parties to sufficiently assess effects on historic properties identified in a COP-specific APE. Identification of and assessments of effects on historic properties are required to develop and implement sufficient AMMM measures.
	AMMM Measures. Includes requirements to establish and comply with marine cultural resource buffers, implement monitoring and post-review discovery plans for marine and terrestrial resources, avoid impacts on terrestrial archaeological resources, develop historic property treatment plans for effects on historic properties that cannot be avoided, and contribute to a compensatory mitigation fund to address impacts on historic properties.	**AMMM Measures.** The COP-specific NEPA and NHPA analysis would include sufficient AMMM measures to avoid, reduce, or resolve adverse effects on historic properties as agreed upon by federally recognized Tribes, Advisory Council on Historic Preservation (ACHP), SHPOs, lessees, and other consulting parties. The AMMM measures may include those identified in the PEIS and additional measures identified during the COP-specific NEPA and NHPA process.
Section 3.6.3, Demographics, Employment, and Economics	**Affected Environment.** Provides a county-level overview of population, housing and employment data from the U.S. Census Bureau and NOAA.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the relevant affected environment characterization in the PEIS. While it is anticipated that the geographic analysis area of a specific NY Bight lease area would be a subset of the geographic analysis area in the PEIS, additional county-level characterization may be necessary if this is not the case. Additionally, depending on the timing of the COP-specific NEPA document, it may be warranted to provide more recent data than what is provided in the PEIS. More

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		detailed community-level characterizations of populations with the potential to be affected by specific landings or cable routes, POIs, O&M facilities, or port utilization will be warranted in the COP-specific NEPA analysis.
	Impact Analysis. Provides qualitative analysis of impacts and benefits of development of offshore wind projects on populations, employment, and the economy based on the RPDE.	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the qualitative impact analysis in the PEIS. This analysis should focus on what is unique about the project and how it is different from what is discussed in the PEIS. Additionally, an economic analysis using quantitative modeling is warranted to support the COP-specific NEPA analysis. This analysis would provide: • Estimates of direct, indirect, induced jobs by project phase during construction and operations. • Estimates of economic benefits (Gross Domestic Product) generated by project phase during construction and operations. • Estimate of local expenditures during construction and operations. • Estimates of economic benefits associated with tax revenue (local, state, and federal) during construction.
	AMMM Measures. No AMMM measures specific to demographics, employment, and economics are included in the PEIS.	**AMMM Measures.** If applicable, the analysis should provide descriptions of any local commitments or investments in workforce training and development to support the offshore wind industry.
Section 3.6.4, Environmental Justice	**Affected Environment.** Provides a county-level overview of low-income and minority populations in the geographic analysis area based on data from the U.S. Census Bureau. Provides county-level mapping of the commercial and recreational fishing engagement or reliance of coastal communities based on NOAA's social indicator tool and provides a description of the social stressors experienced by low-income or minority populations in coastal communities. Identifies tribal communities within the geographic analysis area.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the relevant affected environment characterization in the PEIS. While it is anticipated that the geographic analysis area of a specific NY Bight lease area would be a subset of the geographic analysis area in the PEIS, additional county-level characterization may be necessary if this is not the case. Additionally, depending on the timing of the COP-specific NEPA document, it may be warranted to provide more recent data than what is provided in the PEIS. More detailed community-level characterizations of low-income and minority populations with the potential to be affected by specific landings or cable routes, POIs, O&M facilities, or port utilization will be necessary for the COP-specific NEPA analysis.
	Impact Analysis. Provides qualitative analysis of impacts and benefits of development of offshore wind projects on environmental justice populations based on the RPDE.	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the qualitative impact analysis in the PEIS. The analysis should focus on what is unique about the project and how it is different from what is discussed in the PEIS. Site-specific analysis of the project impacts on environmental justice populations in areas surrounding ports, cable landings, substations, onshore construction, O&M facilities, or any other infrastructure proposed in the onshore environment that will support the project will be necessary for the COP-specific NEPA analysis. The analysis will incorporate more detailed impact analyses by resource topic (e.g., project-level air quality assessments for environmental

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		justice populations affected by the project). The COP-specific NEPA analysis will analyze and provide a determination as to whether the project has disproportionately high and adverse human health or environmental effects on low-income and minority populations when compared to the project's effect on the overall population.
	AMMM Measures. Includes an environmental justice communications plan, an environmental justice mitigation resources plan, regular progress reporting on these plans, and a compensatory mitigation fund to address impacts on environmental justice populations that have not been addressed through other mitigation measures.	**AMMM Measures.** The environmental justice AMMM measures will be further defined during the COP-specific NEPA review. For example, whether any impacts are identified that cannot otherwise be mitigated, the specific impacts targeted for mitigation by the compensatory mitigation fund, and the amount contributed to the compensatory mitigation fund would be determined by BOEM, in coordination with the NY Bight lessee, during COP-specific NEPA review and updated, as appropriate, during construction and operations.
Section 3.6.5, Land Use and Coastal Infrastructure	**Affected Environment.** Provides a regional overview of the potentially affected onshore areas, the areas where representative ports are located, and the areas closest to the NY Bight lease areas that may be affected by construction and O&M.	**Affected Environment.** Site-specific level characterizations of land use and coastal infrastructure (e.g., zoning, county/municipal-level plans) in areas surrounding ports, cable landings, substations, onshore construction, O&M facilities, or any other infrastructure proposed in the onshore environment that will support the project will be warranted with COP-specific NEPA analysis.
	Impact Analysis. Provides a qualitative analysis of the typical impacts and benefits associated with onshore development of offshore wind projects on land use and coastal infrastructure such as port improvement and expansion, vehicle traffic, and visibility of offshore structures. Because the location of onshore infrastructure is not yet known, the analysis is general and not location specific.	**Impact Analysis.** Site-specific analysis of project impacts on land use and coastal infrastructure in areas surrounding ports, cable landings, substations, onshore construction, O&M facilities or any other infrastructure proposed in the onshore environment that will support the project will be necessary for the COP-specific NEPA analysis. For example, the analysis will need to describe the specific locations that would be affected, the acreage of disturbance, and consistency with local zoning and other ordinances (e.g., noise requirements).
	AMMM Measures. Includes notifying residents of construction activities, construction outside of summer months, and use of best available technology to limit noise.	**AMMM Measures.** The lessees could provide details to support the measures that BOEM is proposing under Alternative C. For example, the lessees could provide specific information on what equipment, technology, and best practices would be used to limit and reduce noise.
3.6.6, Navigation and Vessel Traffic	**Affected Environment.** Provides an overview of the current navigational setting for shipping and other maritime users in the geographic analysis area, including shipping channels, traffic schemes and fairways, and historical vessel traffic volumes within each NY Bight lease area based on 3 years of Automatic Identification System data.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the relevant affected environment characterization in the PEIS. While the geographic analysis area of a specific NY Bight lease would be a subset of the geographic analysis area in the PEIS, additional characterization may be necessary depending on the location of export cable routes and the location of ports to be used by the projects. Information from the COP-specific Navigation Safety Risk Assessment can be used to supplement the information in the PEIS related to vessel traffic and safety (e.g., search and rescue incident data, accident frequency data).
	Impact Analysis. Provides a qualitative analysis of the impacts associated with the development of the NY Bight projects based	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the qualitative impact analysis in the PEIS. The additional analysis should focus

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	on the location of the lease areas, including impacts from structures, increased vessel traffic, and cable placement. Analysis uses information from COPs of nearby projects to quantitatively estimate project vessel traffic and projected increases in accident frequencies.	on what is unique about the project and how it is different from what is discussed in the PEIS based on the site-specific location, project details, and the assessment provided in the Navigation Safety Risk Assessment. The analysis should provide additional discussion regarding the following project-specific details: • Anchoring plans. • Navigation Safety Risk Assessment analysis results of the potential increases in accident frequencies. • Cable route locations and construction methods and timing. • Port utilization. • Number of WTG/OSS, spacing/layout, and construction methods and timing. • Project vessel traffic.
	AMMM Measures. Includes boulder relocation reporting, using shared transmission infrastructure when possible, using grid patterns and avoidance measures that minimize navigation hazards, increasing spacing between structures, and communicating effectively with affected entities.	**AMMM Measures.** The lessees could provide details to support the measures that BOEM is proposing under Alternative C. For example, the lessees could provide details regarding the proposed shared transmission infrastructure.
3.6.7, Other Uses (Marine Minerals, Military Use, Aviation, Scientific Research and Surveys)	**Affected Environment.** Provides an overview of the current marine minerals extraction, national security and military use, aviation and air traffic, cables and pipelines, radar systems, and scientific research and surveys in the geographic analysis area. Data are gathered from publicly available information from the Marine Minerals Information System, Mid-Atlantic Regional Council on the Ocean, and Northeast Regional Ocean Council.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the relevant affected environment characterization in the PEIS. While it is anticipated that the geographic analysis area of a specific NY Bight lease area would be a subset of the geographic analysis area in the PEIS, additional site-specific characterization may be necessary, especially regarding proposed offshore export cable routes and landfall locations. Site-specific characterization of other uses potentially affected by existing cables, national security and military uses, radar systems, and scientific research and surveys in the vicinity of the geographic analysis area will be warranted with COP-specific NEPA analysis.
	Impact Analysis. Provides an analysis of the impacts associated with the development of offshore wind projects on other uses, including accessibility of marine mineral borrow areas, navigational traffic, and radar interference.	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the impact analysis in the other uses section of the PEIS. This analysis should focus on what is unique about the project and how it is different from what is discussed in the PEIS. For example, the analysis should include a discussion of impacts from cable routes and a quantitative assessment of the potential interference of WTGs with radar systems, national security and military uses, and scientific research and surveys.
	AMMM Measures. Includes operational modifications and mitigation agreements for radar systems, infrastructure removal at decommissioning, survey mitigation agreement between NMFS and lessee, and coordination agreements to reduce long-term impacts on marine mineral extraction.	**AMMM Measures.** If applicable, the lessees should provide descriptions of any planned crossings of existing cables and pipelines, and use of best practices or available technology to mitigate or decrease radar interference and avoid or minimize impacts on marine mineral resources.

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3.6.8, Recreation and Tourism	**Affected Environment.** Provides a county-level description of recreation and tourism and recreational fishing activities in the geographic analysis area based on data from NOAA and other state and local sources.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the recreation and tourism affected environment characterization in the PEIS. However, the COP-specific NEPA analysis will need to characterize recreation and tourism and recreational fishing within the lease area (including along interarray cable routes), along the offshore export cable routes, and in areas surrounding cable landings, substations, onshore construction, O&M facilities, or any other infrastructure proposed in the onshore environment.
	Impact Analysis. Provides qualitative analysis of impacts and benefits of development of offshore wind projects on recreation and tourism and recreational fishing based on the RPDE.	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the qualitative impact analysis in the PEIS. The analysis should focus on what is unique about the project and how it is different from what is discussed in the PEIS. Site-specific analysis of the project impacts on recreation and tourism and recreational fishing activities in the lease area, along the offshore export cable routes, and in areas surrounding cable landings, substations, onshore construction, O&M facilities, or any other infrastructure proposed in the onshore environment that will support the project will be necessary for the COP-specific NEPA analysis.
	AMMM Measures. Includes measures to minimize nighttime lighting associated with aviation obstruction lights; scheduling nearshore construction activities outside of the summer months to avoid tourist season; and use of equipment, technology, and best practices to reduce noise impacts.	**AMMM Measures.** The lessees could provide details to support the measures that BOEM is proposing under Alternative C. For example, the lessees could provide specific information on what equipment, technology, and best practices would be used to limit and reduce noise.
3.6.9, Scenic and Visual Resources	**Affected Environment.** Provides mapping and descriptions of seascape character area, open ocean character area, and landscape character area and key observation points.	**Affected Environment.** The COP-specific NEPA analysis can incorporate by reference the relevant affected environment characterization in the PEIS for the offshore environment. The COP-specific NEPA analysis would incorporate additional mapping and descriptions of seascape character area, open ocean character area, and landscape character area and key observation points developed specifically for the COP. The COP-specific NEPA analysis would need to provide location-specific characterization of the onshore environment based upon where the proposed landfalls, onshore cable routes, substations, and O&M facilities would be sited.
	Impact Analysis. Provides mapping and descriptions of project viewsheds for each of the six lease areas and for the six lease areas combined and presents impacts on seascape character area, open ocean character area, and landscape character area and key observation points from offshore structures. Impacts from onshore infrastructure are discussed qualitatively and are not location specific.	**Impact Analysis.** The COP-specific NEPA analysis can incorporate by reference the analysis of impacts on seascape character area, open ocean character area, and landscape character area and key observation points by lease area from offshore structures. The analysis should describe how the impacts would differ from those in the PEIS based on different turbine heights and layout and may include project-specific visual simulations. For the onshore environment, the COP-specific NEPA analysis would need to assess impacts on landscape character area and key observation points from onshore facilities, such as substations.

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	AMMM Measures. Includes measures to minimize nighttime lighting associated with aviation obstruction lights and measures to minimize visual contrast with onshore infrastructure.	**AMMM Measures.** The COP-specific NEPA analysis may include other project-specific measures to minimize visual effects.