

12.0 GLOSSARY

Acoustic backscatter device: Instrument that uses sound waves to collect measurement data to generate images (e.g., of the seafloor).

Airgun: A device that releases compressed air into the water column, creating an acoustical energy pulse with the purpose of penetrating the seafloor.

Air quality: Assessment of the health-related and visual characteristics of the air, often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances. Air quality standards are the prescribed levels of substances in the outside air that cannot be exceeded during a specific time in a specified area.

Alternating current (AC): A flow of electrical current that increases to a maximum in one direction, decreases to zero, and then reverses direction and reaches maximum in the other direction. The cycle is repeated continuously. The number of such cycles per second is equal to the frequency, measured in Hertz (Hz). U.S. commercial power is 60 Hz.

Alternative energy: For the purposes of this EIS, alternative energy is defined as energy derived on the OCS from other than what are generally considered conventional sources of energy (e.g., nuclear, fossil fuels). Possible sources include wind, solar, biomass, wave, ocean current, hydrogen, and tidal energy. The term is often used interchangeably with *renewable energy*.

Ambient noise level: Environmental background noise composed of contributions from various sources at both near and far distances.

Ambient ocean noise: The sound profile within the ocean composed of both far and near sound sources of both natural and anthropogenic origin. Ambient ocean noise is also referred to as *environmental background noise*.

Amplitude: The maximum absolute value of a periodic curve measured along its vertical axis. For sound waves, it is the maximum amount that the wave's pressure differs from ambient pressure in the medium through which the sound wave is propagating.

Anadromous: Pertaining to fish that spawn in freshwater after spending most of their lives in saltwater.

Anthropogenic: Human made; produced as a result of human activities.

Anticline: A fold in layers of rock caused by deformation. The older strata are found toward the center of the fold.

Anticyclone: Clockwise-rotating eddies in oceans of the northern hemisphere. Anticyclones generally migrate westward and transport large quantities of high-salinity, nutrient-poor water across the near-surface waters of the northern Gulf.

Aquaculture: Farming of organisms, such as fish, shellfish, and algae that live in water.

Areas of Special Concern: Areas managed by the Bureau of Land Management (BLM) and defined by the Federal Land Policy and Management Act of 1976 as having significant historical, cultural, and scenic values; habitat for fish and wildlife; and other public land resources, as identified through the BLM's land-use planning process.

Array: The layout or arrangement of objects in a specific pattern, often in rows and columns.

Attenuation: Reduction; in this document, reduction of the level or intensity of sound.

Attenuator: Wave energy conversion device with a long, multisegment floating structure oriented parallel to the direction of the waves. The differing heights of waves along the length of the device causes flexing where the segments connect, and this flexing is connected to hydraulic pumps or other converters.

Bathymetry: Topography of the ocean floor indicated by depth contours drawn at regular intervals.

Bathypelagic: Pertaining to the subzone of the pelagic zone that generally includes waters deeper than 1,000 m (3,300 ft). At this depth, there is little to no light, and photosynthesis is not possible. Consequently, there are no living plants, and most animals survive by consuming detritus falling from the pelagic zones above or by preying on other animals.

Benthic: Of, relating to, or occurring at the bottom of a body of water.

Biota: The combined flora and fauna of a region.

Bureau of Land Management (BLM): An agency of the U.S. Department of the Interior responsible for managing public lands.

Bycatch: Nontarget organisms caught in fishing or other harvest operations and usually discarded.

Candidate species: Plants and animals for which the U.S. Fish and Wildlife Service has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act, but for which development of a listing regulation is precluded by other higher-priority listing activities.

Capacity factor: The actual energy output of an electricity-generating device divided by the energy output that would be produced if it operated at its rated power output for the entire year.

Cape (spit): A type of sand bar or beach that is built out from the shore by deposition of sediment (typically sand) carried in the longshore current; these landforms have a characteristic “hook” shape when viewed from above (e.g., Cape Cod).

Carbon monoxide (CO): A colorless, odorless gas formed when carbon in fuel is not burned completely. Motor vehicle exhaust is a major contributor to nationwide CO emissions, followed by nonroad engines and vehicles. CO interferes with the blood’s ability to carry oxygen to the body’s tissues and results in numerous adverse health effects. CO is listed as a criteria air pollutant under Title I of the Clean Air Act.

Catadromous: Term used to describe fishes that spend most of their adult lives in freshwater but migrate to the marine environment to spawn.

Cavitation: The sudden formation and subsequent collapse of low-pressure bubbles of air in fluids that are moving as a result of applied mechanical forces. The phenomenon of cavitation is the single largest contributor to underwater sound from ship propellers.

Cetacean: Any of various aquatic, chiefly marine mammals of the order Cetacea, including the whales, dolphins, and porpoises, which are characterized by a nearly hairless body, anterior limbs modified into broad flippers, vestigial posterior limbs, and a flat notched tail.

Clastic: Sediments composed of pieces of pre-existing rock.

Clathrate: Layer of frozen gas hydrate on the seafloor.

Clean Air Act (CAA): An act that establishes National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: sulfur oxides (SO_x), nitrogen dioxide (NO₂), carbon monoxide (CO), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), and lead (Pb). Collectively, the criteria pollutants are indicative of the quality of the ambient air. The Act requires facilities to comply with emission limits or reduction limits stipulated in State Implementation Plans (SIPs). Under this Act, construction and operating permits, as well as reviews of new stationary sources and major modifications to existing sources, are required. The Act also prohibits the Federal Government from approving actions that do not conform to SIPs.

Clean Water Act (CWA): An act that requires National Pollutant Discharge Elimination System permits for discharges of effluents to surface waters, permits for stormwater discharges related to industrial activity, and notification of oil discharges to navigable waters of the United States.

Coastal: An imprecise area of land and water located at the interface between the shore and the ocean, where physical, chemical, and biological processes occur as interactions between these two ecosystems or because of their proximity to each other.

Coastal State: A State bordering the Atlantic or Pacific Oceans, or the Gulf of Mexico.

Coastal Zone Management Act (CZMA): 16 USC 1451 et seq. The CZMA regulates development in coastal areas to protect their unique resources.

Coastal Zone Management Act Consistency Determination: A finding that an activity that affects land or water uses or natural resources in a State's coastal zone is in compliance with that State's Federally approved Coastal Zone Management Act Program. Federal Agencies must be consistent to the maximum extent practicable.

Code of Federal Regulations (CFR): A compilation of the general and permanent rules published in the *Federal Register* by the executive departments and agencies of the United States. Each volume of the CFR is updated once each calendar year and is issued quarterly.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): The Federal law that guides cleanup of hazardous waste sites. Also known as Superfund.

Continental margin: A collective term referring to the continental shelf and continental slope.

Continental rise: A broad, gently dipping depositional plain that extends from the base of the continental slope from a depth of about 2,000 m (6,600 ft) to more than 5,000 (16,400 ft).

Continental shelf: The shallow, gradually sloping seabed around a continental margin, usually no deeper than 200 m (660 ft) and formed by the submergence of part of a continent.

Continental slope: Region of the outer edge of a continent between the generally shallow continental shelf and the deep ocean floor, usually demarcated by the 200-m (660-ft) isobath (the line on a map or chart that connects all points having the same depth below the surface of a body of water).

Criteria air pollutant: A group of very common air pollutants whose presence in the environment is regulated by the U.S. Environmental Protection Agency (EPA) on the basis of certain criteria (information on health and/or environmental effects of pollution). Criteria air pollutants are widely distributed all over the United States.

Critical habitat: The specific area within the geographical area occupied by a species at the time it is listed as an endangered or threatened species. The area in which physical or biological features essential to the conservation of the species is found. These areas may require special management or protection.

Cumulative impacts: In an environmental impact statement, cumulative impacts are impacts that result from incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or nonfederal), private industry, or individual undertakes these actions. They are impacts that can result from individually minor but collectively significant actions over a period of time.

Decibel (dB): A standard unit for the measure of the relative loudness or intensity of sound. The relative intensity is the ratio of the intensity of a sound wave to a reference intensity. In general, a sound doubles in loudness with every increase of 10 dB. By convention, the intensity level of sound at the threshold of hearing for a young healthy individual is 0 dB.

Decibel A-weighted: A sound measurement scale biased toward sounds with frequencies within the average auditory range of humans.

Decibel B-weighted: A sound measurement scale biased toward loud high and middle frequency sound.

Decibel C-weighted: A sound measurement scale biased toward very loud frequency sound.

Decibel D-weighted: A sound measurement scale biased toward very loud sounds particularly associated with aircraft.

Decommissioning: The activities necessary to take out of service and dispose of a facility after its useful life.

Delta: An area formed from the deposition of sediments at the mouth of a river.

Demersal fishes: Those fishes that spend at least the adult portion of their life cycle in association with the ocean bottom.

Dendritic drowned river valleys: River valleys, currently under water, that have a multibranching, tree-like form when viewed from above (e.g., Chesapeake Bay).

Depauperate fauna: A fauna, especially common on islands, lacking many species found in similar habitats elsewhere.

Deposition: The laying down of matter by a natural process (e.g., the settling of particulate matter out of air or water onto soil or sediment surfaces).

Detritus: Dead, decaying plant material.

Dewater: To remove or drain water from an area.

Diadromous fishes: Those fishes that spend a portion of their life cycle in freshwater and a portion in saltwater.

Diapir: Intrusion of fluid rock (e.g., molten rock, salt, or mud) caused by the difference in buoyancy and pressure between it and the overlying rock.

Direct current (DC): Electric current that flows in one direction only.

Dissolved oxygen concentration: The concentration of oxygen in a water sample.

Distinct Population Segment (DPS): “Population” or “distinct population segment” are terms with specific meaning under the Endangered Species Act when used for listing, delisting, and reclassification purposes to describe a discrete vertebrate stock that may be added or deleted from the list of threatened and endangered species.

Diurnal: Having a daily cycle or occurring every day.

Domestic: Produced in or indigenous to a particular country.

Earthquake: A sudden ground motion or vibration produced by a rapid release of stored energy; may occur on land or on the seafloor (submarine).

Easement: Authorization for the use, for a specified purpose, of land that is not owned by the user. For the OCS, a right of use and easement usually refer to the authorization by the Minerals Management Service (MMS) to an operator for the construction and maintenance of a structure or structures on OCS lands not subject to a lease granted to the operator.

Echolocation: The use of reflected sound waves by some animals to gather critical information such as the location of obstructions, predators, or food, or for purposes of reproduction.

Ecoregion: A geographically distinct area of land that is characterized by a distinctive climate, ecological features, and plant and animal communities.

Ecosystem: A group of organisms and their physical environment interacting as an ecological unit.

Eolian sediments: Sediments or structures (sand dunes) deposited by wind.

Electrical Service Platform (ESP): A stationary structure located approximately in the center of the wind farm. It is the common electrical interconnection point for all of the turbines in the array. The ESP provides electrical protection and voltage step-up transformers

Electromagnetic field (EMF): The field of energy resulting from the movement of alternating electric current (AC) along the path of a conductor, composed of both electrical and magnetic components and existing in the immediate vicinity of, and surrounding, the electric conductor. Electromagnetic fields exist in both high-voltage electric transmission power lines and in low-voltage electric conductors in homes and appliances.

Embayment: A small bay or any small semi-enclosed coastal water body in which the opening to a larger body of water is restricted.

Endangered Species Act of 1973 (ESA): An act that requires consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service to determine if endangered or threatened species or their habitats would be affected by a proposed activity and what, if any, mitigation measures are needed to address the impacts.

Endangered species: Any species, plant or animal, that is in danger of extinction throughout all or a significant part of its range. Requirements for declaring a species endangered are found in the Endangered Species Act.

En-echelon fold: The steplike configuration of folded rock units at the continental margin formed by compressional tectonic forces.

Energy Policy Act of 2005: A bill passed in August 2005 that includes new authority (Section 388) for the MMS to regulate alternative energy resources on the Outer Continental Shelf.

Energy: The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy) or heat.

Environmental Impact Statement (EIS): A document required of Federal agencies by the National Environmental Policy Act for major proposals or legislation that would or could significantly affect the environment.

Environmental Justice: The fair treatment of people of all races, cultures, incomes, and educational levels with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Epibenthic: Living on the bottom surface of lakes or the ocean.

Epifaunal: A community of marine organisms that live attached to hard substrates or move around and live on hard substrates

Epipelagic: Pertaining to a subzone of the pelagic zone where there is enough light for photosynthesis. Generally includes waters from the surface to approximately 200 m (660 ft) in depth.

Essential Fish Habitat (EFH): Waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity. The term is specifically associated with the Magnuson-Stevens Fishery Conservation and Management Act.

Estuary: A transitional zone along the coastline where ocean saltwater mixes with freshwater from the land. Two prominent estuaries in the mid-Atlantic region are the Chesapeake and Delaware Bays.

Eutrophication: A condition in an aquatic ecosystem where high nutrient concentrations stimulate blooms of algae (e.g., phytoplankton). Algal decomposition may lower dissolved oxygen concentrations. Although eutrophication is a natural process in the aging of lakes and some estuaries, it can be accelerated by both point and nonpoint sources of nutrients.

Evaporite: A sedimentary rock formed when a saline solution evaporates. Evaporites are typically formed when a saline lake dries up or evaporation occurs in tidal marshes in hot, arid climates.

Executive Order 12898: An executive order, signed in 1994, establishing environmental justice as a Federal Government priority and directing all Federal agencies to make environmental justice part of their mission. Environmental justice calls for fair distribution of environmental hazards.

Executive Order 13158: An executive order, signed in 2000, establishing the National Marine Protected Areas Initiative.

Extralimital: Known on the basis of only a few records that probably resulted from unusual wanderings of animals into the region.

Fault: A fracture in the earth's crust accompanied by displacement of one side of the fracture with respect to the other and in a direction parallel to the fracture.

Fluvial: Pertaining to rivers. Fluvial sediments are deposited by rivers.

Fouling: A generic term for the invertebrate community that grows attached to hard substrates, including such organisms as sponges, tunicates, hydroids, bryozoans, serpulid worms, etc.

Frequency (pitch): For sound waves, frequency is the rate at which the source-producing sound wave is vibrating or the rate at which the sound-producing body completes one vibration cycle. Frequency is expressed in units of Hertz (Hz), where one Hz is equal to one complete vibration cycle per second.

Gas hydrates: Gas molecules (e.g., methane) trapped in water-ice "cages" in subsea deposits.

Gauss: Unit of magnetic induction; pronounced "gows," abbreviated "G."

Geology: The study of the materials, processes, environments, and history of the earth, including rocks and their formation and structure.

Gulf Stream: The powerful, warm, and swift Atlantic Ocean current that is the western boundary current of the North Atlantic subtropical gyre (the clockwise circulation pattern produced by the earth's rotation). After passing Cape Hatteras, the Gulf Stream flows northeast toward Europe.

Habitat: The place where a plant or animal lives.

Haulout: An area where marine mammals such as seals regularly come out of the water to rest. These typically occur on beaches, offshore rocks, and islands. In urban areas, structures such as docks may be used. Once established, haulouts may be used on a seasonal or year-round basis by up to several thousand individuals, depending on the species.

Hazardous materials: Materials, including nonwaste substances, that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or the environment if they are improperly managed or released into the environment. Such materials may be transported to and from, stored at, and/or used at alternative energy and alternate use project sites approved on the OCS.

Hummock-and-hollow microtopography: A feature of tidal swamp habitats where areas above the highest tide level provide stable substrates for the establishment of trees and microhabitats for forest herbs adapted to moderately moist environments.

Hydrocarbon: Any compound or mix of compounds—solid, liquid, or gas—composed of carbon and hydrogen (e.g., coal, crude oil, and natural gas).

Hypoxia: The condition of having low dissolved oxygen concentration; in water, it is caused by excessive nutrients and other oxygen-demanding contaminants.

Infrasound: Low-frequency sound, including frequencies below the lower limit of human auditory response; by convention, sound with frequencies of less than 16 Hz.

Intensity: For sound, intensity is the measure of the amount of energy that is transported over a given area per unit of time. Sound intensity is expressed in units of W/m^2 .

Intertidal zone: The area of the foreshore and seabed that is exposed at low tide and submerged at high tide (i.e., the area between tide marks).

Invertebrate: An organism lacking a backbone or spinal column. Any animal other than a fish, amphibian, reptile, bird, or mammal.

Inverse Square Law: The mathematical expression describing the decrease in the mean square pressure level of a sound wave over distance. Under ideal conditions, sound pressure levels decrease by 6 dB for every doubling of distance from the sound source.

Jacketed Structure: Steel framed tubular structure attached to the seafloor with piles that are driven into the seafloor.

Jetting: The process of injecting high pressure water into sediments to loosen and liquefy them as a means of creating seafloor conditions that allow a cable or pipeline to sink below the bottom as an alternative to dredging a trench.

Lacustrine: Pertaining to the sedimentary environment of a lake.

Lead (Pb): A gray-white metal that is listed as a criteria air pollutant. Health effects from exposure to lead include brain and kidney damage and learning disabilities.

Lease: A legal document executed between a landowner, as lessor, and a company or individual (as lessee) that conveys the right to exploit the premises for minerals or other resources for a specified period of time over a given area.

Liquefaction: Process by which wet sediments are transformed into an unstable, dense fluid during an earthquake.

Littoral: Of or pertaining to the shore, especially of the sea; coastal.

Localized: In close proximity to where work is being conducted.

Logarithmic: A mathematical term for the ratio of values expressed by the base 10 or e. If the base is 10, the logarithm is called *common*. If the base is e, the logarithm is called *natural*. Human perception of the amplitude or “loudness” of sound follows a logarithmic, rather than a linear, relationship. For every increase in sound loudness perceived as a simple additive quantity, the loudness or amplitude actually increases as a multiplier of the initial amplitude.

Longitudinal wave: A wave in which the deformation of the medium through which the wave is passing involves motion of individual particles comprising the medium only in the direction in which energy wave is moving. Sound propagates through liquids and gases primarily as longitudinal waves.

Longshore (littoral) current: A current generated by waves intersecting the coastline at an oblique angle. It travels along the coastline.

Longshore (littoral) drift: Material (e.g., gravel, sand, and shell fragments) that is moved along the shore by a littoral current.

Loop Current: The principal current in the Gulf of Mexico.

Marine Protected Area (MPA): A marine area established as protected under Executive Order 13158.

Marine transgression: The influx of seawater over previously exposed land.

Mass movement: The geomorphic process by which soil or rock move down slope under the force of gravity; examples include slumping or landslides.

Meander: To wander between two points; to not follow a straight line.

Megawatt: A unit of power equal to 1,000 watts.

Meiofauna: A nontaxonomic term for invertebrates larger than microfauna but smaller than macrofauna. Generally defined as organisms that can pass through a 1-mm mesh sieve but would be retained by a 45- μ m mesh, interstitial meiofauna are those invertebrates that live between (i.e., within the interstices of) sediment particles.

Mesoscale variability: Variability that occurs within a time frame of one to two months, with a horizontal scale of a few hundred kilometers.

Meteorological tower: A tower containing equipment designed to measure wind speeds and determine whether a site is suitable for a wind turbine.

Monopile: A long, hollow, steel tube driven into the seabed to support a wind turbine or current generator.

Moratorium: Delay; a period during which certain proceedings or obligations are suspended.

Mysticetes: The suborder of whales that includes baleen whales.

Nacelle: The housing of a wind turbine that protects the major components (e.g., generator and gear box).

National Ambient Air Quality Standards (NAAQS): Air quality standards established by the Clean Air Act, as amended. The primary NAAQS specify maximum outdoor air concentrations of criteria pollutants to protect public health within an adequate margin of safety. The secondary NAAQS specify maximum concentrations that would protect the public welfare from any known or anticipated adverse effects of a pollutant.

National Environmental Policy Act of 1969 (NEPA): An act requiring Federal agencies to prepare a detailed statement on the environmental impacts of proposed major actions significantly affecting the quality of the environment.

National Historic Preservation Act: A Federal statute that established a Federal program to further the efforts of private agencies and individuals in preserving the nation's historic and cultural foundations.

National Marine Fisheries Service (NMFS): A Federal agency that is a part of the U.S. National Oceanic and Atmospheric Administration, or NOAA. NMFS is responsible for the management, conservation, and protection of living marine resources within the United States' Exclusive Economic Zone. NMFS is currently referred to as NOAA Fisheries.

National Oceanic and Atmospheric Administration (NOAA): A Federal agency that manages commercial and recreational fisheries within Federal waters and designates Essential Fish Habitat to help conserve Gulf fishery resources.

Nitrogen dioxide (NO₂): A reddish-brown gas that is a strong oxidizing agent, produced by combustion (as of fossil fuels). The reactive oxides of nitrogen in the atmosphere are largely NO and NO₂, known together as NO_x. During the day, there exists a rapid interconversion of NO and NO₂ (see "Nitrogen oxides [NO_x]"). NO₂ is one of the six criteria air pollutants specified under Title I of the Clean Air Act.

Nitrogen oxides (NO_x): Nitrogen oxides include various nitrogen compounds, primarily nitric oxide (NO) and nitrogen dioxide (NO₂). They form when fossil fuels are burned at high temperatures and react with volatile organic compounds to form ozone, the main component of urban smog. They are also precursor pollutants that contribute to the formation of acid rain and to impairment of visibility.

Noise: Unwanted sound; a subjective term reflective of societal values regarding what constitutes unwanted or undesirable intrusions of sound.

Nonattainment area: The EPA's designation for an air quality control region (or portion thereof) in which ambient air concentrations of one or more criteria pollutants exceed National Ambient Air Quality Standards.

Nonhazardous waste: Routinely generated waste, including general facility refuse such as paper, cardboard, glass, wood, plastics, scrap, metal containers, dirt, and rubble. Nonhazardous waste is segregated and recycled whenever possible.

Nonlisted species: Species that are not listed as threatened or endangered by State or Federal agencies.

Ocean current: Continuous forward movement of ocean water driven by wind and solar heating of the waters near the equator, although some ocean currents result instead from variations in water density and salinity.

Outer Continental Shelf (OCS): The part of the continental shelf beyond the line that marks State ownership; that part of the offshore lands under Federal jurisdiction.

Outer Continental Shelf (OCS) lands: Offshore lands located outside of State coastal waters. Generally, OCS lands begin approximately 3.3 geographical mi offshore with respect to coastal States, except in the cases of Texas and the west coast of Florida, where OCS lands begin approximately 10.2 geographical mi offshore.

Outer Continental Shelf Lands Act (OCSLA), as amended: An act authorizing the U.S. Department of the Interior to regulate activities related to the development of mineral resources on the OCS.

Outfall: Structure (e.g., pipe) that discharges wastewater to a natural water body.

Overtopping device: A wave energy conversion device with reservoirs that are filled by incoming waves to levels above the average surrounding ocean. The water is then released, and gravity causes it to fall back toward the ocean surface. The energy of the falling water is used to turn hydroturbines.

Ozone (O₃): A strong-smelling, reactive gas consisting of molecules composed of three oxygen atoms. It is formed in the atmosphere by chemical reactions involving nitrogen oxides and volatile organic compounds in sunlight. A major constituent of smog, it can impair the respiratory system and damage plants and ecosystems. Ozone is a criteria air pollutant under the Clean Air Act.

Pascal (Pa): A unit of pressure equivalent to one newton of force applied evenly over 1 m². The unit is named after Blaise Pascal, the eminent French mathematician, physicist, and philosopher.

Pelagic: Living or growing near the surface of the ocean.

Pelagic fishes: Fish that spend most of their lives swimming in the water column, as opposed to on or near the bottom.

Pelagic muds: Marine sediments derived from floating organic matter (e.g., plankton) that accumulates on the seafloor.

Photovoltaic: The process of converting sunlight into electricity.

Physical oceanography: The scientific study of ocean physics, including ocean currents, waves, and tides.

Physiographic: Pertaining to the physical features of the land, in particular its slope and elevation.

Pinnipeds: An order of carnivorous marine mammals, including harbor seals, sea lions, walruses, and elephant seals.

Pitch: A property of sound; sound wave frequency as perceived by the receptor. In music, two tones whose frequencies make a 2:1 ratio are said to be separated by an octave interval; a frequency ratio of 5:4 ratio defines a third; a frequency ratio of 4:3 defines a fourth; a frequency ratio of 3:2 defines a fifth.

Pitch Regulated: A cross flow wind turbine comprising a rotor mounted for rotation about a vertical axis and a plurality of blade assemblies mounted on the rotor.

PM₁₀: Particles with an aerodynamic diameter of less than or equal to 10 micrometers (0.0004 in.). These can be inhaled through the upper airways and deposited in the lower airways and gas-exchange tissues in the lung. PM₁₀ is one of the six criteria air pollutants specified under Title I of the Clean Air Act.

PM_{2.5}: Particles with an aerodynamic diameter of less than or equal to 2.5 micrometers (0.0001 in.). A greater fraction of particles in this size range can penetrate and be deposited deep in the lungs, and smaller portions of PM_{2.5} (e.g., < 0.1 micrometer) can enter the bloodstream. PM_{2.5} is one of the six criteria air pollutants specified under Title I of the Clean Air Act.

Pneumatic: Operated by pressurizing air.

Point absorber: A wave energy conversion device with a floating structure and components that move relative to each other because of wave action (e.g., a floating buoy inside a fixed cylinder). The relative motion is used to drive electromechanical or hydraulic energy converters.

Polychlorinated biphenyls (PCBs): A class of chemical substances formerly manufactured as an insulating fluid in electrical equipment. PCBs are highly toxic to aquatic life and, in the environment, exhibit many of the characteristics of dichloro-diphenyl-trichloroethane (DDT). PCBs persist in the environment for a long time and accumulate in animals.

Polynuclear aromatic hydrocarbons (PAHs): A group of organic compounds, some of which are known to be potent human carcinogens.

Population: A group of individuals of the same species occupying a defined locality during a given time that exhibit reproductive continuity from generation to generation.

Prevention of Significant Deterioration (PSD): An EPA program, specified in the Clean Air Act and required by State and/or Federal permits. The goal of the program is to prevent air quality from deteriorating significantly by restricting emissions from new or modified sources of pollutants in areas that are presently meeting the ambient air quality standards.

Pro Forma: An economic analysis that captures the revenues and the expenditures associated with an undertaking to determine the level of profitability.

Raptor: Bird of prey, such as an eagle, owl, or hawk.

Rebound: The rise of a land mass that was depressed by the weight of ice sheets during the last glacial period.

Red tides: Blooms of single-cell algae that produce potent toxins harmful to marine organisms and humans and are a natural phenomenon in the Gulf of Mexico, occurring primarily off southwestern Florida and Mexico.

Region: In this document, geographic areas on the OCS off the coast of the United States where the MMS has jurisdiction to regulate actions, including oil and gas development and development of mineral resources.

Relict: A remnant or fragment of the vegetation of an area that remains from a period when the vegetation was more widely distributed.

Renewable energy: Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include biomass, hydrological, geothermal, solar, wind, ocean thermal, wave action, and tidal action.

Rift zone: A long, narrow trough bounded by normal faults, often associated with volcanism.

Rifting: A geologic process involving the pulling apart (extension) of the earth's crust, which creates a linear series of faults along which the central portion is dropped relative to either side (forming a rift valley).

Right-of-Way (ROW): In property law, an easement to use another's land for passage. For the OCS, a right-of-way is most commonly used for pipelines that cross lands that the operator does not control entirely by lease.

Rigs-to-Reef Program: A program under which obsolete gas and oil structures are converted to artificial reefs. The owners of the structures may make financial donations to the States from any savings related to avoided disposal costs.

Riverine: Relating to or associated with a river or other flowing freshwater body.

Rock armor: Pieces of rock, sized according to the anticipated erosional force, placed around a structure to prevent erosion of looser sediments.

Rugosity: Roughness or three dimensional relief of a surface

Salinity: A measure of the salt content of water, usually expressed in parts per thousand (ppt).

Salt diapirism: The phenomenon of salt intrusion into rock caused by the difference in buoyancy and pressure between the salt and overlying rock.

Salt marshes: Intertidal wetlands that occur on the margins of estuaries, protected bays, and the landward side of barrier islands.

Sand Wave: A sediment formation that forms underwater ridges and troughs because currents are sufficient to physically cause sediments to move in a consistent manner. The size can range from a few inches to many feet tall.

Scouring: The rapid erosion of sediment caused by the movement of water.

Scour mats: Typically square or rectangular sheets of an artificial material with vertical relief features intended to trap sediments when anchored on the seafloor, in an attempt to prevent scour.

Sediment: Materials that sink to the bottom of a body of water, or materials that are deposited by wind, water, or glaciers.

Sedimentary basin: A geologically (but not necessarily topographically) depressed area with thick sediments (sedimentary rocks) in the interior and thinner sediments at the edges.

Seeps: Natural releases of material from the sediment to the water column, often in discrete locations.

Seismic: Of, subject to, or caused by an earthquake or earth vibration.

Shoal: The sandy elevation of the bottom of a body of water, constituting a hazard to navigation; a sandbank or sandbar.

Short-term: Lasting for a limited time (not permanent).

Solid wastes: In this document, wastes classified as either hazardous or nonhazardous under the Resource Conservation and Recovery Act (RCRA) that may be generated by technology testing, site characterization, construction, operation, and decommissioning activities associated with alternative energy or alternate use projects likely to be proposed on the OCS.

Sound power level (SPL): The level of a sound wave's power relative to a reference value, expressed in decibels and averaged over time. The SPL represents the total sound power emitted by a source in all directions. Sound power is measured in watts, and SPLs are traditionally given in decibels with 1 dB of sound power equaling one picowatt (represented as: 1 dB re 1 pW). Whereas the sound pressure level

represents the pressure of the sound wave reaching a receptor at a specific distance and in one direction from the sound source, the SPL represents all of the sound emanating from the source in all directions. To avoid confusion between the two terms, SPLs are often expressed in “bels” rather than decibels where one bel = 10 dB.

Sound pressure level: The relative magnitude of a sound wave’s pressure compared to a reference pressure value. The pressure of the sound wave is proportional to the square of the sound’s intensity and is measured in decibels.

Species of (Special) Concern: A species that may have a declining population, limited occurrence, or low numbers for any of a variety of reasons.

Stratification: The formation, accumulation, or deposition of materials in layers, such as layers of fresh water overlying higher salinity water (saltwater) in estuaries.

Submarine bank (shoal): A shallow place in a body of water.

Subtidal: That portion of the ocean that occurs below the low tide elevation, and therefore is continuously under water.

Sulfur dioxide (SO₂): A pungent, colorless gas formed when a fossil fuel containing sulfur, such as coal and oil, is burned. Of SO_x, only SO₂ is found at appreciable levels in the ambient gas phase (see also “sulfur oxides [SO_x]”).

Sulfur oxides (SO_x): A collective term for oxides of sulfur, of which the principal air pollutants are sulfur dioxide (SO₂), sulfur trioxide (SO₃), and sulfur mist generated by the combination of the sulfur oxides with water in the air. These gases are formed primarily by fossil fuel combustion. SO_x contributes to respiratory illness, particularly in children and the elderly, and aggravates existing heart and lung diseases. It also contributes to the formation of acid rain and to visibility impairments. SO_x is one of the six criteria air pollutants specified under Title I of the Clean Air Act.

Surficial: Pertaining to or lying on the surface of the earth.

Syncline: A fold in the layers of rock caused by deformation of the earth’s crust; younger strata are found toward the center of the fold.

Talus: Small, broken rock found on mountain slopes and at the base of cliffs as a result of mass movement (e.g., a landslide).

Tectonic: Pertaining to forces within the earth that cause the earth’s plates to move relative to one another; these include extension (when plates move apart), subduction (when plates converge and one plate is pushed below the other, and transverse movement (when plates move past each other, as along the San Andreas Fault).

Temporary: Lasting for a limited time (not permanent).

Terminator: A wave energy conversion device that extends perpendicular to the direction of wave travel and captures or reflects the power of the wave. These devices are typically installed onshore or near shore; however, floating versions have been designed for offshore applications. The oscillating water column is a form of terminator in which water enters through a subsurface opening into a chamber with

air trapped above it. The wave action causes the captured water column to move up and down like a piston to force the air through an opening connected to a turbine.

Terrace: A flat, wave-cut platform of various unconsolidated sedimentary deposits.

Terrestrial biota: Plant, animal, or other life living in or on land.

Terrigenous: Pertaining to sediments derived from land sources.

Terrigenous clastic sediments: Sediments derived from pre-existing, land-derived sources, delivered to the ocean by rivers and streams.

Threatened species: Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Requirements for declaring a species threatened are contained in the Endangered Species Act.

Topography: The elevation or slope of the land surface.

Transverse wave: Wave in which the deformation of the medium through which an energy wave is passing involves motion of individual particles composing the medium in directions that are perpendicular to the direction in which energy wave is moving. Sound propagates in solids as transverse waves.

Tsunami: An ocean wave generated when an earthquake displaces the seafloor.

Turbine: A device in which a stream of water or gas turns a bladed wheel, converting the kinetic energy of the flow into mechanical energy available from the turbine shaft. Turbines are considered the most economical means of turning large electrical generators. They are typically driven by steam, fuel vapor, water, or wind.

U.S. Environmental Protection Agency (EPA): The independent Federal agency, established in 1970, that regulates Federal environmental matters and oversees the implementation of Federal environmental laws.

Upwelling: The process by which warm, less-dense surface water is drawn away from a shoreline by offshore currents and replaced by cold, denser water brought up from the subsurface.

Velocity: For acoustics, the speed at which a sound wave (a longitudinal wave) travels through a medium. Velocity is measured in units of distance/time. The velocity or speed of a sound wave in any medium is dependent on both the inertial and elastic properties of the medium. In air, the speed of sound is dependent on the air's pressure (a measure of its inertial property of density) and its temperature (a measure of the air's elastic property of deformation in response to an applied force—in this case, the sound wave). At one atmosphere of pressure and a temperature of 20°C (68°F), the speed of sound is approximately 343 m/s (750 mph).

Vibratory: Operated by causing rapid, small movement in a back and forth manner.

Visual impact: The creation of an intrusion or perceptible contrast that affects the scenic quality of a landscape.

Water quality: The condition of water with respect to the amount of impurities in it.

Watt: An International System unit of power equal to one joule per second.

Wavelength: The distance from any point in the wave to the corresponding point in the next cycle of the wave. Longer wavelengths are perceived by the human ear as low tones, shorter wavelengths as high tones.

Wetlands: Areas that are soaked or flooded by surface or groundwater frequently enough or long enough to support certain species of plants, birds, animals, and aquatic life. Wetlands generally include swamps, marshes, bogs, estuaries, and other inland and coastal areas and are Federally protected.

Yaw: The wind turbine yaw mechanism is used to turn the wind turbine rotor against the wind.

Zonation: Distribution of plants or animals arranged in zones or bands, caused by gradations of biotic (living) and/or abiotic (e.g., physical and chemical) factors.