Company # 15055

Public Version

UNSOLICITED APPLICATION FOR AN OUTER CONTINENTAL SHELF RENEWABLE ENERGY COMMERCIAL LEASE UNDER 30 CFR 585.230

Morro Bay Offshore
A Trident Winds' project

Submitted To:
U.S. Department of the Interior
Bureau of Ocean Energy Management (BOEM)
Pacific Region

770 Paseo Camarillo, Second Floor Camarillo, CA 93010

January 14, 2016

Submitted By:
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1 OVERVIEW

Trident Winds LLC (TW, or Trident) is pleased to submit this unsolicited request for a United States Outer Continental Shelf (OCS) commercial lease in accordance with the requirements of 30 CFR § 585.230.

Trident has initiated development of a commercial scale offshore wind farm off the coast of Pt. Estero, California with a grid connection in Morro Bay (MBO). The initial project is planned with the nameplate capacity of 765 megawatts (MW), and a net capacity of 650 MW. The wind farm capacity may be expanded to 1,000 MW at a later date, if additional transmission capacity and market off-take can be obtained. The MBO Project will consist of approximately 100 floating offshore wind systems (FOWS) that will harvest the vast offshore wind resources for the benefit of the California electric consumers. The exact nameplate capacity and the corresponding number of FOWSs will be determined during the development phase of the Project

The MBO Project will be deployed in deep waters, allowing development to occur in the area with reduced environmental or commercial conflicts. Preliminary analysis of known environmental and stakeholder constraints suggests that the proposed location is favorable for the Project development and provides for reduced or no visual impacts.

The Project will deploy FOWSs consisting of competitively selected and commercially available floating support structures with large offshore wind turbine generators (OWTG). Each FOWS is moored using conventional properly sized, vertical load, drag imbedded, or torpedo anchors, a technology that requires no piling and is well suited for deep and variable seabed conditions. The installation is completely reversible, i.e. no permanent infrastructure is left on the sea bed upon decommissioning and perfomed with minimal acoustic disturbances. Individual FOWS are electrically interconnected with inter-array cables to form an offshore wind farm.

The exact number of FOWS will be defined at a later date as it will depend on a) confirmation of the available capacity in the California Independent System Operator (CAISO) transmission lines, and b) the nameplate capacity of the selected OWTG. The competitive selection of the floating support structure supplier will be conducted in parallel with the development of the Site Assessment Plan (SAP), i.e. within 12 months after receipt of the non-competitive lease; while competitive selection of the OWTG supplier will be conducted during Construction and Operation Plan (COP) development – see Project schedule, Figure 9.

On October 7 2015, the California legislature passed SB-350, known as the Clean Energy and Pollution Reduction Act that requires 50% of the state's generation to come from renewable energy by 2030. The Chairman of the California Energy Commission (CEC), Robert Weisenmiller, has stated that the State needs to reach an interim goal of 40% renewable energy as soon as 2020. While filings and reports prepared for and by the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) show that the state utilities will meet the current Renewable Portfolio Standard (RPS) requirements, substantial additional renewable energy supplies are needed to meet RPS requirements in the future. Projections indicated that over 15,000 MW of additional renewable capacity would be needed to meet the SB-350 requirements by 2030.

The MBO Project stands on the shoulders of the DOE's offshore wind demonstration projects, which paved the way and demonstrated a well-defined permitting regime for offshore wind installations in Federal waters. The Project schedule coincides with the floating foundations technology maturity and the market demand for additional renewable energy sources in California. The Project is poised to be the first floating, commercial scale installation on the West Coast of the US, which could lead to further exploitation of the unlimited offshore wind resources, while creating a new industry.

The MBO offshore wind farm is planned to be located approximately 33 miles offshore, taking advantage of a consistent wind resource with an average speed of 8.5 miles/sec. The proposed site location is in a vicinity of the ODAS buoy 46028. Based on over 27 years of data from the buoy, the expected energy generation from the offshore resources could surpass 50% capacity factors. The MBO Project will be sited in 800-1,000 meters (400 – 500 fathoms) of water approximately 26 nautical miles (nmi) (48 km) from Point Estero, California. Each FOWS is spaced approximately 1,000 meters (0.54 nmi) a part to reduce, or eliminate, the wind shadow effects. Energy produced from all FOWSs is brought to an offshore, floating substation and delivered to shore via one or more (for redundancy purposes) export cable(s) using the same cable route and connecting to the Morro Bay substation owned by Pacific Gas and Electric (PG&E) - Figure 1.

Figure 1 - MBO Export Cable will use the Existing Discharge and connect to the PG&E Substation

Trident Winds will seek a long-term power purchase agreement or a build-own-transfer transaction with one or more load serving utilities. Initial commercial operation for the project is expected in the 2025 time frame.

Location selection for the final assembly, hull load-out, turbine installation, and future maintenance base will be performed during COP as such is dependent on the chosen OWTG and the floating support structure.

Today, two OWTG suppliers, Siemens and MHI-Vestas, have commercially available large, 7 MW and 8 MW respectively, OWTGs. Two floating support structures, Statoil's Hywind and Principle Power's WindFloat, are expected to be available for commercial use after 2020.

The Hywind, outfitted with Siemens 2.3MW OWTG has been in operation since October 2009 (Figure 2) off the coast of Norway. In November 2015, Statoil announced a 30MW project in Scotland that will see deployment of Hywind systems using 5 Siemens 6 MW OWTGs (Statoil, 2015).

Figure 2 - Hywind Prototype

Figure 3 - WindFloat Prototype

The WindFloat (Figure 3), outfitted with Vestas V-80, 2MW OWTG, has been in operation since October 2011 off the coast of Portugal. In November 2015, Principle Power announced a 25MW project in Viana do Castelo, Portugal that will see deployment of 3 to 4 MHI-Vestas 8MW OWTGs (PrinciplePower, 2015).

Either the Hywind, or the WindFloat floating support structure, is suitable for the deployment in the MBO Project.

Trident Winds has conducted broad initial stakeholder outreach during the pre-submittal phase of the Project and will conduct comprehensive stakeholder outreach and environmental/existing-use analyses prior to final site selection.

Once assembled, the final Project team will include participants from the shipbuilding and high-tech manufacturing industries, offshore construction, and offshore O&G. The proposed Project will leverage the collective know-how of these industry professionals.

Trident Winds has actively engaged in communications and information exchange with federal and state agencies and stakeholders regarding the development of the Project near Morro Bay, CA. To-date, Trident Winds has either met or conducted telephone discussions with several California state agencies, including CPUC, CEC, CA Coastal Commission (CCC) and the Ocean Protection Council.

Representatives of Trident Winds have also held a number of conversations with the Morro Bay Commercial Fishing Organization (MBCFO), whose inputs were taken into consideration in selecting the proposed project area. Based on the input from MBCFO, Trident Winds has relocated the MBO site area further offshore past 800 meter (400 fathoms) water depth.

The Trident Winds team has initiated discussions with non-governmental organizations (NGO) interested in the intersection of energy development and environmental protection in California, including the Audubon Society, the Sierra Club, the Natural Resources Defense Council (NRDC), the Nature Conservancy, the Environmental Defense Fund (EDF), the Ocean Conservancy and the Community Environmental Council of Santa Barbara.

2 INFORMATION REQUIRED FOR AN UNSOLICITED REQUEST FOR A COMMERCIAL LEASE

Regulations of the Bureau of Ocean Energy Management (BOEM) allow for the submission of an unsolicited request for a commercial lease. The following information addresses each of the elements required, under 30 CFR 585.230, for a commercial lease. Trident Winds will establish a Project company, Morro Bay Offshore LLC to which the requested lease may be assigned in the future.

2.1 Area Requested for Lease - 30 CFR 585.230(a)

The MBO Project proposes the deployment of a multi-turbine floating wind farm off the coast of Morro Bay, California, at a location that is approximately 800 to 1,000 meters (400 to 500 fathoms) deep and approximately 25 nmi (46.3 km) from Pt. Estero (Figure 4). A more detail map is included in the confidential Annex B.

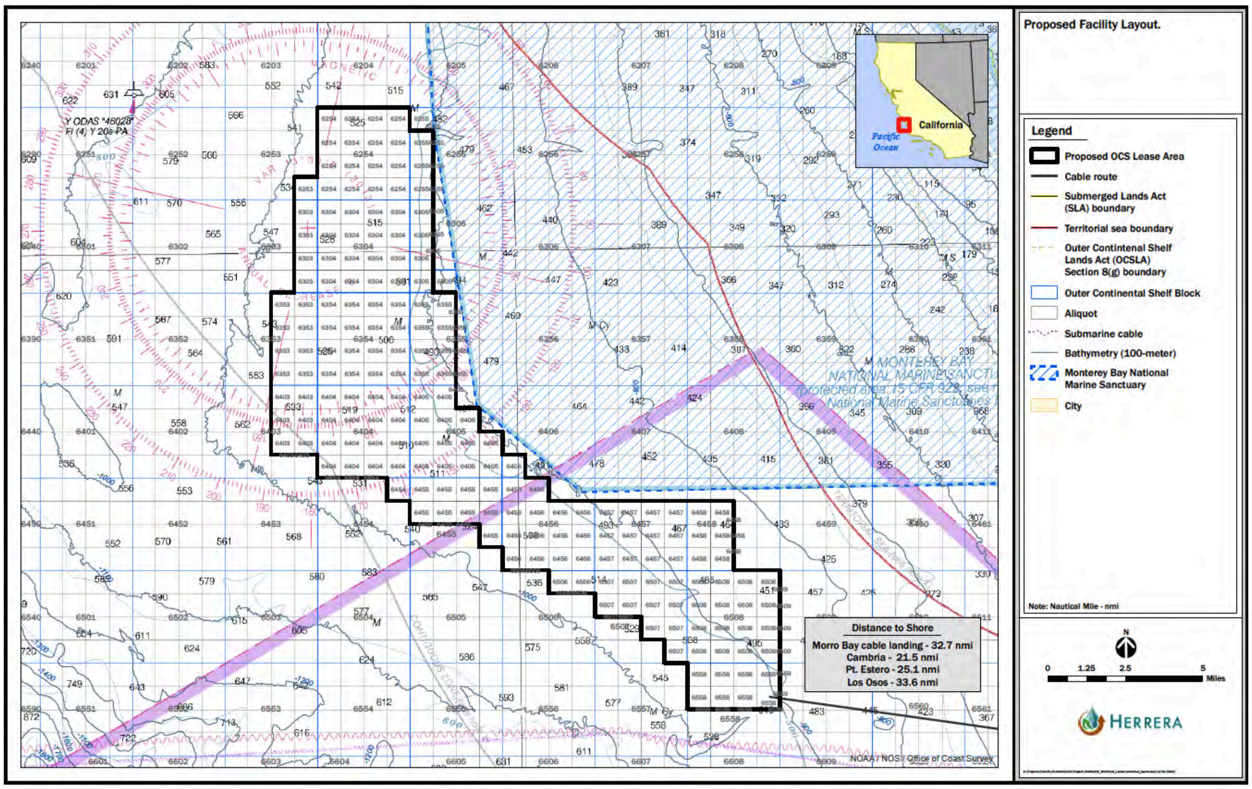

Figure 4 - Proposed MBO Project Site location

Table 1 provides the legal description of the proposed area for the lease within the OCS official Protraction Diagram NK10-01. The actual aliquots from the following blocks are included in the spatial file compatible with ArcGIS 9.3 (geographic information system shape files) in a geographic coordinate system (North American Datum of 1983 [NAD 83]) that forms part of this submittal.

Table 1 OCS Lease Area Blocks (Partial and Full)

Block Number	Partial Block (Aliquot) Designation	Qty of Alqts
6253	P	1
6254	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P	16
6255	E, I, M	3
6303	D, H, L, P	4
6304	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P	16
6305	A, E, I, M	4
6353	C, D, G, H, K, L, O, P	8
6354	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P	16
6355	A, B, E, F, I, J, M, N	8
6403	C, D, G, H, K, L	6
6404	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P	16
6405	A, B, E, F, G, I, J, K, L, M, N, O, P	13
6406	M	1
6454	D	1
6455	A, B, C, D, E, F, G, H, L	9
6456	A, B, E, F, G, H, I, J, K, L, M, N, O, P	14
6457	E, F, G, H, I, J, K, L, M, N, O, P	12
6458	E, F, I, J, M, N	6
6506	C, D	2
6507	A, B, C, D, E, F, G, H, K, L, P	11
6508	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P	16
6558	A, B, C, D, E, F, G, H	8
Total quantity of Aliquats		**191**

The gross size of the area consists of 191 aliquots corresponding to 275.04 km^2 (106.17 sq mi or 67,962 ac). The area will be reduced in size by approximately 50% following the completion of the detailed assessments of geophysical, oceanographic, and seabed conditions. The final wind farm size will be approximately 144 km^2 (55.58 sq mi or 35,582.40 ac).

2.1.1 Screening Process Used to Select Site

Trident Winds has followed a systematic effort to select the site for the MBO Project. The site selection included the following approach:

- Assessment of wind resources, met ocean conditions, and sea floor profile;
- Assessment of the available on-shore infrastructure;
- Proximity to existing interconnection facilities with CAISO and minimal need for development and construction of new, land-based transmission lines and facilities;
- Assessment of environmental conditions and conflicting uses of space;
- Consultation with local stakeholders and the City of Morro Bay officials.

2.1.1.1 Wind and Infrastructure Resources

The site selection process was based on applying a number of filters that eventually led to the selected site. Specifically, the site selection process started with a wind resource characterization along California coast, followed by the availability of an existing substation and CAISO grid interconnection capable of delivering 1,000 MW and the local infrastructure capabilities/constrains.

The top level assessment of the California wind data was compiled by NREL specifically for Trident Winds under a Cooperative Agreement put in place in August 2015. Though the assessment indicated that the strongest wind resources are present in northern California, that area lacks transmission lines suitable for delivering 1,000 MW of energy to the CAISO backbone.

Elimination of the northern California locations was then followed by a closer look at Central California coast, with a specific focus on areas with greater than 8.5m/sec wind regime, proximity to coastal thermal plants that were being shutdown as a result of Once-Through Cooling regulations – see Figure 5. Out of the seventeen coastal sites with retired generation facilities,Trident Winds selected the Morro Bay location.

In July and August 2015 Trident Winds met with various elected officials from the City of Morrow Bay to present the proposed project. These meetings and discussions culminated in approval by the City Council of a Cooperation Agreement dated October 5, 2015 between Trident Winds and the City of Morro Bay.

At the same time, Trident Winds has initiated discussions with the Morro Bay Commercial Fishermen's Organization (MBCFO, 2015) that since 1972 has been the voice for the commercial fishing industry in San Luis Obispo County. Trident Winds continued an active dialog with MBCFO to incorporate their inputs to the site location and to ensure that the site area would be least intrusive on the productive fishing grounds.

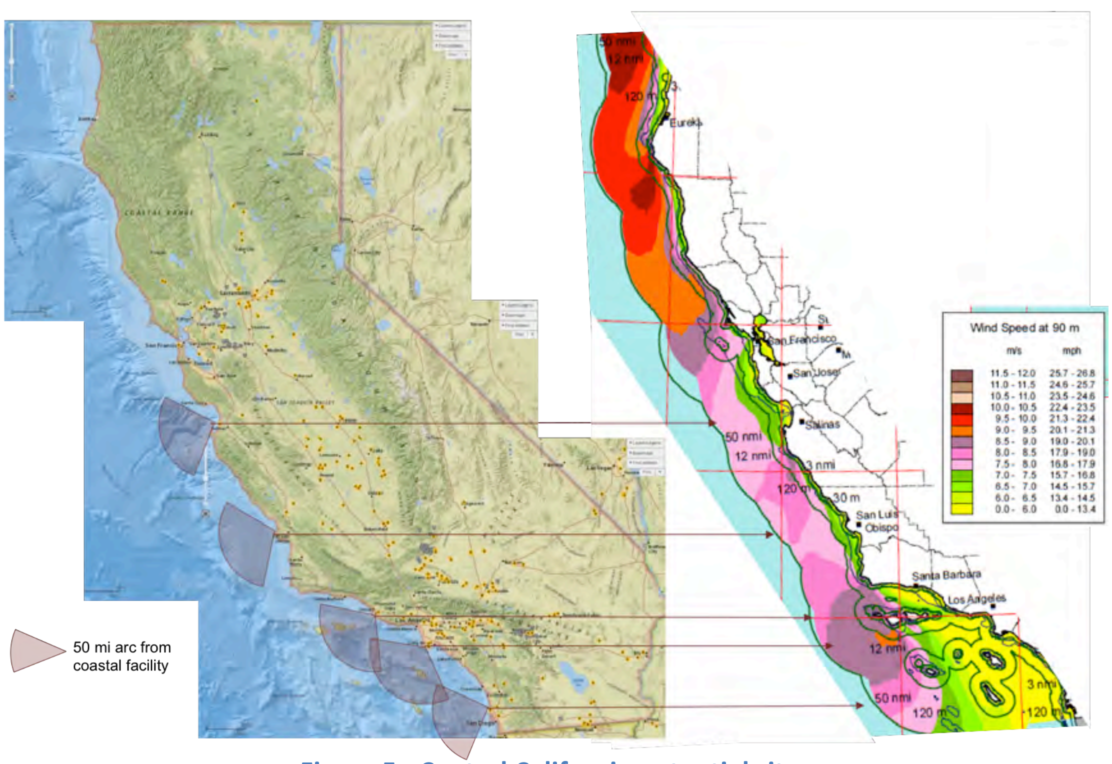

Figure 5 - Central California potential sites

Both floating offshore wind systems, the Hywind and the WindFloat, offer flexibility in micro-siting at a selected location. In addition to the wind resource and availability of transmission lines, considerations of local socioeconomic and environmental issues were performed at the top level and will be further refined through the leasing and permitting process.

The Morro Bay location was selected following assessment of potential locations at Moss Landing, Diablo Canyon off Santa Barbra and Pt. Conception off Lompoc. Due to environmental sensitivities at Moss Landing, visual issues at Pt. Conception, and operational period life-extension uncertainties of the Diablo Canyon site, Morro Bay was chosen as the preferred location for the MBO Project.

In addition to the good wind resource, the availability of a high voltage transmission line and a substation owned and operated by PG&E, the MBO site offers an existing cooling water discharge tunnel with direct entrance from the ocean on the North side of Morro Rock that makes this an ideal shore landing point for the export (interconnection) cable. The tunnel entrance is already available on marine charts and its existence is well known by local ocean users. The cable beach crossing will be installed using horizontal directional drilling techniques. From the water discharge tunnel entrance the cable will use the existing tunnel that connects directly to the Morro Bay power plant. The city of Morro Bay owns part of the water discharge structure and the associated easement (Figure 7). The tunnel, partially owned by the City of Morro Bay and Dynegy, connects to the non-operating Morrow Bay Power Plant (MBPP) owned by Dynegy that in turn, connects to the PG&E substation. Trident Winds is in discussions with the City of Morro Bay and Dynegy to arrange for use of the tunnel and the grid connection at the substation.

2.1.1.2 Environmental Resources

Trident Winds examined nautical charts featuring the Project area and relied on the expertise of the City of Morro Bay staff and consultations with local experts, including representatives of the MBCFO and NOAA, to determine the viability of the Project area. In addition, Trident Winds reviewed the California Marine Maps (OCMP 2013) and Multi-Purpose Marine Cadastre (BOEM 2013) and consulted the staff of the California Coastal Commission. After these consultations, and because the floating foundations can be secured in various water depths and sea bottom conditions, Trident Winds is confident in the proposed location for the MBO Project.

Pacific Northwest National Laboratory (PNNL) examined studies of biological resources in the coastal and marine environments of northern California, California, and Washington for the *Updated Summary of Knowledge: Selected Areas of the Pacific Coast* (Kaplan et al. 2010). This report also contains information on oceanography, geology, cultural, and socioeconomic resources that cover the area of interest for the seabed lease.

Drawing from the 2014 report (Feinberg, L. 2014) Trident Winds examined and identified the issues that will likely drive the environmental permitting process and has initiated discussions with the key federal and state regulatory and resource agencies, as well as with important stakeholder groups. The baseline and post-installation monitoring are expected to address the present uncertainty of impacts to seabirds and marine mammals that stems from lack of data on species distribution. The Project, once in operation, will offer the ability to collect data previously unobtainable, as the installed floating OSW systems may be used as monitoring stations.

2.1.1.3 Outreach, Coordination and Engagement Efforts – chronological list of meetings and outreach

Trident Winds has conducted an extensive outreach to the public, state and federal agencies, NGOs and other stakeholders regarding the development of the Project near Morro Bay. As the Project is the first of its kind, Trident Winds has conducted the initial outreach as wide as possible through in-person meetings and phone calls to provide an overall overview of the MBO Project and to receive feedback on potential permitting issues that may arise. Discussions have focused on the issues anticipated to be of concern, prior to formal federal and California State permitting activities, including compliance with the National Environmental Policy Act (NEPA).

Since the inception of the project, Trident Winds has been engaged in discussions with the MBCFO, representing interests of the local fishermen and has relocated the MBO Project area further offshore, to the water depth of 800 to 1,000 meters (400 to 500 fathoms) to consider their inputs - Figure 6.

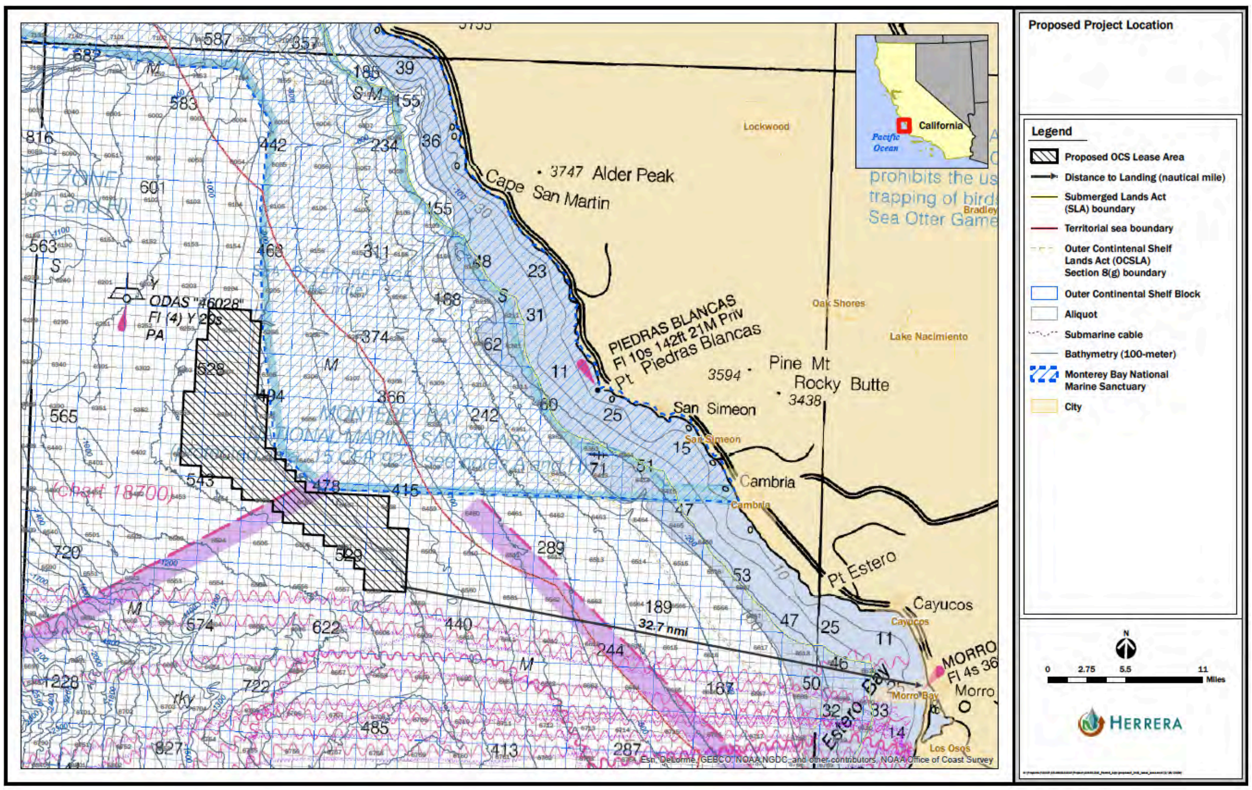

Figure 6 – MBO Project Site Location resulted from discussions with MBCFO

Table 2 provides a summary of the initial outreach to the community entities, the City of Morro Bay, and the local chapters of the non-governmental environmental organizations (NGOs). Trident Winds has contacted California State agencies such as CEC, CCC, CLC, CPU and CAISO regarding the MBO Project's cable routing plans and consistency and compliance with the Coastal Zone Management Act and the California Clean Air Act.

These initial engagements have primarily focused on informing stakeholder groups of the MBO Project including the proposed Project area, answering Project-specific questions, and seeking input on areas or issues that may be of concern. A complete list of all the agencies, NGOs and community groups that have been contacted can be found in Table 2. Research results and the outcome of discussions with regulatory agencies, as well as important stakeholder groups, will be documented for the NEPA process.

On October 5, 2015, Trident Winds and the City of Morro Bay executed Memorandum of Cooperation that calls for Trident Winds to conduct project development in an open, cooperative and transparent manner (Morro Bay, October 5, 2015).

On December 10, 2015, Trident Winds held a public information session to provide an open forum for the public, stakeholders and the NGO's. The video recoding of the public information session is available on YouTube (Morro Bay, December 10, 2015).

Table 2 Stakeholders Outreach

Government	Economic and Development	Fishing Community & Native Americans	Environmental Groups
BOEM	City of Morro Bay	MBCFO	The Sierra Club
NOAA	PG&E		The Audubon Society
NOAA Fisheries	Dynegy		The Nature Conservancy
U.S. Coast Guard			The Environmental Defense Fund
U.S. Army Corps of Engineers	SLO Community Choice Aggregator	The Northern Chumash Tribal Council	Natural Resources Defense Council
Ocean Protection Council U.S DOE	California Polytechnic Institute (CalPoly)		Center for Biological Diversity
U.S. Departmnet of Energy	San Luis Obispo (SLO) County		Community Environmental Council of Santa Barbara County
CEC			Ocean Conservancy
CPUC			
CCC			
CLC			
CAISO			

2.2 General Description of Objectives and Facilities

2.2.1 Objectives

The objective of the MBO Project is to install and operate a commercial 1,000 MW offshore wind farm that opens the vast offshore wind resources for the benefit of the California ratepayers. The MBO Project stands on the shoulders of the DOE's offshore wind demonstration projects, which paved the path and demonstrated a well-defined permitting regime for offshore wind installations in Federal waters. MBO Project is poised to be the first floating, commercial scale installation on the West Coast of the US, which could lead to further exploitation of the unlimited offshore wind resources, while creating a new industry.

The Project schedule coincides with the floating foundations technology maturity post 2020 and the market demand for new renewable energy sources in California.

2.2.2 Offshore Production Facilities and Substations

The MBO offshore wind farm is planned to be located 35 miles offshore off the water discharge tunnel off the coast of Morro Bay in a 800 to 1,000 meters (400 – 500 fathoms) water depth, taking advantage of a consistent wind resource with an average speed of 8.5 m/sec.

The proposed site location is in a vicinity of the ODAS buoy 46028 (Figure 6). Forristall Ocean Engineering was contracted by Trident Winds to examine the available data. Based on over 27 years of wind data from the buoy, the expected energy generation from the offshore resources would surpass 50% capacity factor.

The offshore wind farm will deploy approximately 100 FOWSs, each consisting of a competitively selected and commercially available floating support structures with a large, 7 or 8 MW, or larger (if commercially available) offshore wind turbine. Each FOWS is moored to the ocean floor using conventional properly sized anchors. Mooring lines consists of chains, polyester lines, steel wires, shackles, fairleads and chain stoppers. Individual FOWSs are electrically interconnected with inter-array cables to form an offshore wind farm. Since the competitive selection of the foundations and turbines will be done at a later date, the farm layout configuration will be developed at a later time as well. Each FOWS (unit) is planned to be spaced approximately 1,000 meters (0.54 nmi) apart to reduce, or eliminate, the wind shadow effects. Energy produced from all units is brought to an offshore, floating substation and transmitted to shore via one or more (for redundancy purposes) export cable(s) using the same cable route.

2.2.3 Power Transmission and Grid Interconnection

The subsea export cable(s) will be used to export produced electricity to the PG&E high voltage substation located adjacent to the Morro Bay power plant (MBPP). The MBPP was built in 1953 as an oil-fired plant cooled with seawater. The plant was subsequently converted to utilize natural gas as a boiler fuel. The seawater was brought to the plant through an discharge structure located on the North side of Morro Rock and discharged through a tunnel to the North side on MBPP. The MBPP was decommissioned in February 2014 and is no longer operating. The MBO subsea export cable will be brought using the existing water discharge structure and the tunnel as a cable route to the PG&E substation to connect to the high voltage transmission lines.

2.2.3.1 Electrical connection interface and load study

Delivery of electricity to the PG&E substation via the export cable(s) and the existing onshore infrastructure will require further study and design, securing interconnection rights from CAISO, commercial agreements with the City of Morro Bay and possibly the incumbent power plant owner. The design of the offshore cable infrastructure and connections, cable protection systems, and subsea connections will be developed during the project's design phase as such systems require inputs from site characterization and the project's operational characteristics. Inter-array cables configuration and loading calculations require consideration of the dynamic motions of the floating offshore wind system. Cable connection systems, cable entry systems, and protection requirements will also be determined at the design phase.

2.2.3.2 Offshore grid requirement identification and design specification

Design of the offshore electrical grid will focus on the inter-array cables connections and the overall farm layout configuration. Due to the water depth of 400-500 fathoms (800-1,000 meters), it is not practical to route cables to the ocean floor. Inter-array cables will use subsurface buoys to achieve the proper banding radius and will be submerged to the depth that would provide for the safe operation of the offshore wind farm. Details of the offshore grid design will be developed during the design phase.

2.2.3.3 Offshore electrical network preliminary design concept including metocean, seabed, and geotechnical considerations

The offshore electrical network design will be developed based on metocean, seabed, and geotechnical data collected during SAP implementation and will be included in COP.

2.2.3.4 Integration of cable entry and sub-structure engineering

The outlined design of the inter-array cables and the floating foundation will be defined during the design phase. Since both the Hywind and the WindFloat are undergoing cluster of multi-units design and installations prior to the design phase of the MBO Project, either of the foundation would have a field tested approach to the inter-array cable and sub-structure interconnection.

2.2.3.5 Dynamic cable configuration design, installation/connection and fatigue study

The dynamic cable configuration design will undergo an installation/connection and fatigue study during the COP development and the design phase.

2.2.3.6 Offshore interconnection and load study

Trident Winds will perform the offshore interconnection and load study based on cable specifications and the site requirements. The study will concentrate on: 1) interconnection between export cable and the floating substation/hub, 2) interconnection between the inter-array cable(s) and the termination/hub, and 3) interconnection at each unit. This work will be performed during COP and will result in the cables specifications that will be used during the design phase.

2.2.3.7 Proposed offshore route for the power cable

The proposed route of the offshore power cable will travel from the SE corner of the MBO wind farm in a generally straight line to the existing water discharge structure (Figure 7) located on the north side of the Morro Rock.

Figure 7 - Morro Rock and the Existing Water Discharge Structure

The power cable route will be horizontally directionally drilled offshore to avoid sensitive near-shore areas. The exact export cable route and the approach of securing cable to the ocean floor will be determined during COP development based on the subsea conditions determined during SAP implementation. In cases where sensitive or hard-bottom habitat is identified, Trident Winds has the flexibility to route the power cable around any sensitive areas.

2.2.4 Onshore Facilities and Staging Areas (Ports)

2.2.4.1 Ports

Preliminary analysis of the potential construction and O&M needs indicate that ports of Hueneme, CA (Oxnard) and Long Beach, CA would have the necessary capabilities for the construction of the FOWS. The detail analysis of the actual location for the construction, assembly and deployment of the offshore wind units will be conducted during COP and will be based on prior analysis conducted in support of the offshore wind demonstration projects co-funded by the DOE.

The Port of Morrow Bay is a working waterfront servicing a vibrant commercial fishing industry that makes up the backbone of a robust and diverse economy of Morro Bay. The industry represented by the MBCFO. The Port is home to two aquaculture businesses, nine charter vessels that conduct recreational and commercial trips, one marine construction operator, marine chandlery /marine supplies stores and seafood processing facilities (Lisa Wise Consulting, 2015).

Though the Port of Morro Bay would not have an adequate staging area for the offshore wind units assembly and deployment, it could serve a good location for the maintenance facility. Trident Winds has established open channels of communications with MBCFO and plans to continue close working relationship with an overarching objective to integrate the MBO Project with the local marine related businesses.

2.2.4.2 Discharge structure and transmission corridor

MBO Project will re-use the existing, and presently unused cooling water infrastructure by using the discharge structure and the underground tunnel (Figure 8) for the export cable route to connect to the PG&E substation. The connection to the PG&E substation, either underground or overhead, will be approximately 0.06 km (200 feet). Trindet Winds is in discussions with Dynegy on the specifics of the grid connection and the CAISO re-powering study initiated by Dynegy in April 2015.

Figure 8 - Water Discharge Structure and the Underground Tunnel location

2.3 General Schedule of Proposed Activities

The illustrative MBO Project schedule (Figure 9) follows NREL's criteria for the offshore projects status depicted in Table 3 (2014-2015 Offshore Wind Technologies & Market). The MBO Project schedule assumes a non-competive process and the issuance of a non-competitive lease. In the event of the expression of interst by other parties, Trident Winds will revise the project schedule to account for the auction process at that time.

Table 3 Summary of Criteria for Reporting on Offshore Wind Project Status

Step	Phase Name	Phase Start Criteria	Phase End Criteria
1	Planning – Early Stage	Starts when developer or regulatory agency initiates formal site control process	Ends when a developer obtains exclusive development rights to a site (e.g., through competitive auction or a determination of no competitive interest in the United States)
2	Planning – Site Control	Begins when the developer obtains exclusive development rights to a site (e.g., through competitive auction or a determination of no competitive interest in the United States)	Ends when the developer files major permit applications (e.g., a construction operations plan for projects in federal waters in the United States)
3	Major Permits Submitted	Starts when the developer files major permit applications (e.g., construction operation plan for projects in federal waters in the United States)	Ends when a regulatory body(s) grants authorization to proceed with construction; a rejection may cause the project sponsor to appeal (still permitting phase), place the project on hold, or cancel
4	Approved	Starts when project has been approved by the relevant regulatory bodies and is fully authorized to proceed with construction	Ends when sponsor announces Final Investment Decision (FID), and has signed unconditional contracts for major construction work packages; achievement of this milestone generally requires that a project has secured sufficient revenue mechanisms (e.g., power offtake contracts, subsidies, or tax incentives) to be financially viable
5	Financial Close	Begins when sponsor announces FID and has signed unconditional contracts for major construction work packages; achievement of this milestone generally requires that a project has secured sufficient revenue mechanisms (e.g., power offtake or balance on transfer contracts) to be financially viable	Ends when project begins offshore construction work
6	Under Construction	Starts when offshore construction work is initiated	Ends when project has been connected to the power grid and all units fully commissioned; Commercial Operation Date (COD) marks the official hand-over from construction to operations
7	Operating	Commences when project has been connected to the power grid and all units fully commissioned; COD marks the official hand-over from construction to operations	Ends when the project has begun a formal process to decommission and stops feeding power to the grid
8	Decommissioning	Starts when the project has begun a formal process to decommission and stops feeding power to the grid	Ends when the site has been restored and lease payments are no longer being made, or if the site has been repowered

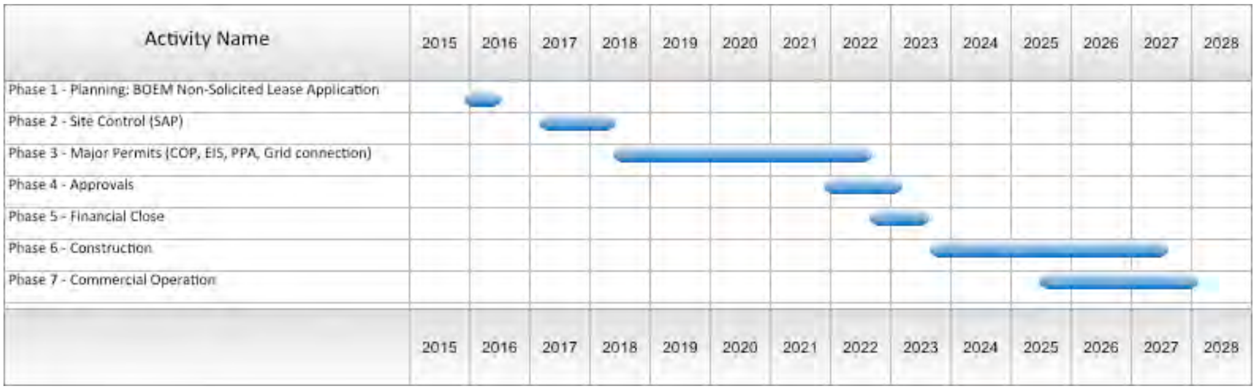

Figure 9 - MBO Project Schedule (represents a non-competitive process)

2.3.1 Phase 1: Site Assessment Plan (SAP) – Development/Survey

Should BOEM determine that the proposed location is not subject to competitive interest, Trident Winds will immediately initiate development of the Site Assessment Plan to define the surveys and studies that will be conducted the necessary studies and collect required supporting data for BOEM to comply with the National Environmental Policy Act. At the same time Trident Winds will initiate competitive process to select the floating support structure. Site-specific data is necessary for the offshore wind farm design and installation. In addition, collected and evaluated marine flora and fauna data establishes the baseline for the future monitoring of projected and real environmental impacts from the offshore wind farm. The SAP will undergo public scoping and commenting period prior to its submittal to BOEM for approval. The Pre Front-End Engineering Design (Pre-FEED) will be conducted during SAP development process and will result in a preliminary level offshore wind farm layout. In addition, early in the process, Trident Winds will engage in the CAISO interconnection request process to secure the interconnection rights now assigned to the Dynegy power station and to begin to negotiate access to the City-owned water discharge structure and the associated tunnel, and such other agreements as may be necessary to have unimpeded access the CAISO grid system.

2.3.2 Phase 1: Construction & Operation Plan (COP)

Following BOEM's approval of the SAP, Trident Winds will proceed with the site characterization outlined in the SAP. In parallel Trident Winds will initiate development of COP and location selection for the construction/fabrication/final assembly and deployment. It is expected that SAP implementation will span over a 24-month period. At the completion of SAP implementation adequate data will be available to initiate FEED, supplier selection and contract for the sale of energy from the MBO Project.

2.3.3 Phase 6: Construction

Construction and deployment is planned to take place once all permits have been secured and the overall project financing has been arranged. It is anticipated that project financing will include equity and debt.

2.3.4 Phase 7: Commercial Operations

Full commissioning and commencement of operations is planned for mid 2025. The MBO Project is projected to have a 25-year life with a decommissioning or repowering to occur post 2050.

2.4 Renewable Energy Resource and Environmental Conditions in Area of Interest

2.4.1 Energy Resource

The National Renewable Energy Lab (NREL) first estimated the offshore wind resources of the United States in 2003 (Musial and Butterfield, NREL, 2004). Since then, updated offshore wind mapping projects (Elliott and Schwartz, 2006) are gradually being completed. Wind speed maps for California were available at hights of 50 m and 70 m off the coast in California. To calculate wind speeds at 90 m hight, it was assumed that the speed shear exponent calculated between hights of 50 m and 70 m was also valid for wind speeds between at the hights of 70 m and 90 m (Elliott et al. 1987; NREL 2010). Table 4 shows the estimated wind speeds at different distances from shore based on these calculations.

NREL Wind Prospector (NREL, 2015) was used along with the ODAS buoy 46028 data to determine the site location.

Prior to design and coupled numerical modeling of global system response and motions, a suitable dataset of wind and wave data is required. The dataset will be compiled from existing historical sources as well as project-specific measurements. Statistical analyses will yield extreme events for both wind and wave criteria to be used in the project design basis and engineering.

The COP will include the results of site characterization surveys and describe all the activities associated with installation and operation of the wind farm, maintenance, and decommissioning. The activities associated with siting, installing, operating, and removing the system will be integrated in time and space with potential environmental effects, ensuring that the federal and state permitting processes accurately reflect the activities and potential risks in a realistic manner.

Table 4 California Offshore Wind Resource by Wind Speed Interval, Water Depth, and Distance from Shore within 50 nm of Shore (DOE EERE, 2015)

	Distance from Shore (nmi)								
	0 - 3			3 - 12			12 - 50		
Depth Category	**Shallow (0 - 30 m)**	**Transitional (30 - 60 m)**	**Deep (> 60 m)**	**Shallow (0 - 30 m)**	**Transitional (30 - 60 m)**	**Deep (> 60 m)**	**Shallow (0 - 30 m)**	**Transitional (30 - 60 m)**	**Deep (> 60 m)**
90 m Wind Speed Interval (m/s)	Area km^2 (MW)	Area km^2 (MW)	Area km^2 (MW)	Area km^2 (MW)	Area km^2 (MW)	Area km^2 (MW)	Area km^2 (MW)	Area km^2 (MW)	Area km^2 (MW)
7.0 - 7.5	266 (1,331)	236 (1,181)	257 (1,287)	101 (504)	457 (2,284)	4,554 (22,770)	8 (38)	23 (115)	5,537 (27,684)
7.5 - 8.0	239 (1,196)	257 (1,285)	190 (948)	79 (394)	596 (2,978)	3,855 (19,273)	0 (0)	33 (165)	19,616 (98,080)
8.0 - 8.5	125 (626)	178 (891)	282 (1,409)	7 (36)	106 (529)	4,539 (22,695)	0 (0)	0 (0)	17,822 (89,111)
8.5 - 9.0	43 (216)	142 (708)	176 (882)	1 (3)	38 (190)	4,560 (22,799)	0 (0)	0 (0)	17,892 (89,460)
9.0 - 9.5	2 (10)	19 (94)	15 (74)	0 (0)	1 (4)	988 (4,940)	0 (0)	0 (0)	12,160 (60,801)
9.5 - 10.0	0 (0)	6 (30)	14 (69)	0 (0)	0 (0)	656 (3,280)	0 (0)	0 (0)	14,555 (72,774)
>10.0	0 (0)	0 (0)	0 (1)	0 (0)	0 (0)	288 (1,441)	0 (0)	0 (0)	6,638 (33,188)
Total >7.0	676 (3,379)	838 (4,189)	187 (937)	187 (937)	1,197 (5,985)	19,440 (97,198)	8 (38)	56 (279)	94,220 (471,098)

nmi = nautical miles
m = meters
m/s = meters per second
km^2 = square kilometers
MW = megawatts

2.4.2 Environmental Resources

2.4.2.1 Marine geology

Topography in this area includes the Santa Lucia Bank, Santa Lucia Escarpment, the Arguello Canyon, and the Rodriguez Seamount. The complex topography is the result of the meeting place of three major tectonic plates: the Farallon Plate, the North American Plate, and the Pacific Plate. The Santa Lucia Bank is a cetaceous uplift block that rises to within 400 meters of the surface from the north face of the Arguello Canyon to offshore Morro Bay (from about latitude 35˚27'N to 33˚51'N). The Arguello Canyon runs in a northeast to southwest direction, and is approximately 3,000 meters deep. The Rodriguez Seamount, a volcanic geological formation, is about 90 miles offshore in the southern area of the opening of the Arguello Canyon.

The unique oceanographic combination of the mile deep canyon and current conditions leading to persistent upwelling flows create the favorable conditions for diverse density of sea life. Flora and fauna of the area are associated with two distinct oceanographic and climatic provinces: the habitat is the southern boundary of the range for many northern species, and the northern boundary for southern species. The Santa Lucia Bank area is frequently visited year round by cetaceans, hosts numerous fish species in the area that are important for commercial harvests, and supports a diverse benthic community. Further research is needed to study the number of bird and fish species found at the Santa Lucia Bank during different seasons.

2.4.2.2 Marine biological resources

2.4.2.2.1 Threatened and endangered species

A number of species that are listed as threatened or endangered under the federal Endangered Species Act may occur in the project area. Listed species and designated Critical Habitat are under the jurisdiction of either the USFWS or NOAA Fisheries. Table 5 and Table 6 show federally listed threatened and endangered species that may occur in San Luis Obispo County.

Table 5 Threatened and Endangered Species for San Luis Obispo County under USFWS Jurisdiction

Species	Scientific Name	Status	Range
Marbled murrelet	*Brachyramphus marmoratus*	Threatened	Known to occur in California, Oregon, and Washington.
Western snowy (coastal) plover	*Charadrius alexandrinus nivosus*	Critical Habitat Threatened	Known or believed to occur in California, Oregon, and Washington. Critical Habitat designated in Morro Bay Beach.
Short-tailed albatross	*Phoebastria albatrus*	Endangered	Known to or is believed to occur in Alaska, California, Hawaii, Oregon, Washington.
Loggerhead sea turtle	*Caretta caretta*	Endangered	See Table 4
Green sea turtle	*Chelonia mydas*	Threatened	See Table 4
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	See Table 4
Olive (Pacific) Ridley sea turtle	*Lepidochelys olivacea*	Threatened	See Table 4

Source: USFWS 2015.

Table 6 Endangered and Threatened Species under NOAA Fisheries Jurisdiction

Species	Scientific Name	Status	Critical Habitat Designation	Recovery Plan	Range
Marine Mammals					
Blue whale	*Balaenoptera musculus*	Endangered	n/a	final	In the North Pacific Ocean, the blue whale's range extends from Kamchatka to southern Japan in the west and from the Gulf of Alaska and California south to Costa Rica in the east. They occur primarily south of the Aleutian Islands and the Bering Sea.
Fin whale	*Balaenoptera physalus*	Endangered	n/a	final	Fin whales are found in deep, offshore waters of all major oceans, primarily in temperate to polar latitudes, and less commonly in the tropics.
Gray whale, Western North Pacific DPS	*Eschrichtius robustus*	Endangered	n/a	n/a	Gray whales are found mainly in shallow coastal waters in the North Pacific Ocean. The California coast is part of the Eastern North Pacific gray whale migratory route between Baja California and the Arctic.
Humpback whale	*Megaptera novaeangliae*	Endangered	n/a	final	Humpback whales live in all major oceans from the equator to sub-polar latitudes.
Right whale, North Pacific original listing as "northern right whale"	*Eubalaena japonica*	Endangered	Final	no	North Pacific right whales inhabit the Pacific Ocean, particularly between 20° and 60° latitude. Sightings have been reported as far south as central Baja California in the eastern North Pacific
Southern sea otter	*Enhydra lutris nereis*	Threatened	n/a	final	The southern sea otter ranges along the mainland coastline from San Mateo County to Santa Barbara County and San Nicolas Island, Ventura County.

Species	Scientific Name	Status	Critical Habitat Designation	Recovery Plan	Range
Sea Turtles **Note: USFWS has lead responsibility on nesting beaches, NMFS in marine waters**					
Loggerhead turtle, North Pacific Ocean DPS	*Caretta caretta*	Endangered	n/a	n/a	In the eastern Pacific, loggerheads have been reported as far north as Alaska, and as far south as Chile. In the U.S., majority of recorded sightings are of juveniles off the coast of California.
Leatherback turtle	*Dermochelys coriacea*	Endangered	final	final	Leatherbacks are commonly known as pelagic (open ocean) animals, but they also forage in coastal waters. In fact, leatherbacks are the most migratory and wide ranging of sea turtle species.
Green turtle	*Chelonia mydas*	Threatened	final	final	In the eastern North Pacific, green turtles have been sighted from Baja California to southern Alaska, but most commonly occur from San Diego south.
Olive ridley turtle	*Lepidochelys olivacea*	Threatened	n/a	final	This species does not nest in the United States, but during feeding migrations, olive ridley turtles nesting in the East Pacific may disperse into waters off the US Pacific coast as far north as Oregon.
Marine and Anadromous Fish					
Chinook salmon, California Coastal ESU	*Oncorhynchus tshawytscha*	Threatened	final	draft	Chinook salmon are found from the Bering Strait in Alaska to Southern California. California Coastal Chinook salmon includes all natural spawned populations of Chinook salmon from rivers and streams between the Klamath River in Humboldt County to the Russian River in Sonoma County, California.
Chinook salmon, Central Valley spring-run ESU	*Oncorhynchus tshawytscha*	Threatened	final	final	Chinook salmon are found from the Bering Strait in Alaska to Southern California. Central Valley Chinook salmon current spawn in several tributaries to the Sacramento River, and are confined below the dams.

Species	Scientific Name	Status	Critical Habitat Designation	Recovery Plan	Range
Chinook salmon, Sacramento River winter-run ESU	*Oncorhynchus tshawytscha*	Endangered	final	final	Chinook salmon are found from the Bering Strait in Alaska to Southern California. The Sacramento River winter-run Chinook salmon current spawn in the Sacramento River downstream of the Shasta Dam.
Coho salmon, Central California coast ESU	*Oncorhynchus kisutch*	Endangered	final	final	Coho salmon are historically distributed throughout the North Pacific Ocean from central California to Point Hope, Alaska, through the Aleutian Islands, south to Hokkaido, Japan. The Central California Coast coho salmon range from Punta Gorda in Humboldt County south to Aptos Creek in Santa Cruz County.
Coho salmon, Southern Oregon/ Northern California Coasts ESU	*Oncorhynchus kisutch*	Threatened	final	final	The species was historically distributed throughout the North Pacific Ocean from central California to Point Hope, Alaska, through the Aleutian Islands, south to Hokkaido, Japan. Coho probably inhabited most coastal streams in Washington, Oregon, and central and northern California.
Steelhead, Central California Coast DPS	*Oncorhynchus mykiss*	Threatened	final	draft	In the U.S., steelhead are found along the entire Pacific Coast, and may use the waters along the entire coast during their oceanic residence. The Central California Coast steelhead spawn in rivers and streams around San Francisco Bay, from the Upper Russian River to the Guadalupe River.
Steelhead, Southern California DPS	*Oncorhynchus mykiss*	Endangered	final	final	In the U.S., steelhead are found along the entire Pacific Coast, and may use the waters along the entire coast during their oceanic residence. The Southern California steelhead spawn in the Santa Maria, Santa Ynez, Ventura, and Santa Clara Rivers and their associated tributaries in southern California.
Steelhead, Northern California DPS	*Oncorhynchus mykiss*	Threatened	final	draft	In the U.S., steelhead are found along the entire Pacific Coast, and may use the waters along the entire coast during their oceanic residence. The Northern California steelhead spawn in rivers and streams along the California coast from Redwood Creek to Gualala River.

Species	Scientific Name	Status	Critical Habitat Designation	Recovery Plan	Range
Steelhead, South/Central California Coast DPS	*Oncorhynchus mykiss*	Threatened	final	final	In the U.S., steelhead are found along the entire Pacific Coast, and may use the waters along the entire coast during their oceanic residence. The South-Central California Coast steelhead spawn in the Pajaro, Salinas, Carmel, Little Sur, and Big Sur Rivers and their tributaries.
Steelhead, California Central Valley DPS	*Oncorhynchus mykiss*	Threatened	final	final	In the U.S., steelhead are found along the entire Pacific Coast, and may use the waters along the entire coast during their oceanic residence. The Central Valley steelhead current spawn in tributaries to the Sacramento and San Joaquin rivers, confined below river dams.
Green sturgeon, Southern DPS	*Acipenser medirostris*	Threatened	final	in process	The critical habitat for the green sturgeon includes nearshore oceanic waters, bays, and estuaries from San Francisco north to Washington. The green sturgeon ranges from Mexico to at least Alaska in marine waters, and is observed in bays and estuaries up and down the west coast of North America
Marine Invertebrates					
Black abalone	*Haliotis cracherodii*	Endangered	final	final	Approximately 360 square kilometers of rocky intertidal and subtidal habitat within five segments of the California coast between the Del Mar Landing Ecological Reserve to the Palos Verdes Peninsula, as well as on the Farallon Islands, Año Nuevo Island, San Miguel Island, Santa Rosa Island, Santa Cruz Island, Anacapa Island, Santa Barbara Island, and Santa Catalina Island.Black abalone range from about Point Arena, CA, to Bahia Tortugas and Isla Guadalupe, Mexico. Black abalone are rare north of San Francisco and south of Punta Eugenia.

Source: NOAA Fisheries 2015.

2.4.2.2.2 *Avian resources*

The central California coast supports many habitats for a variety of avian species. The Morro Bay Wildlife Area provides a coastal estuary habitat where eelgrass and mud flats provide feeding areas for migrant and wintering shorebirds and waterfowl. Thousands of shorebirds utilize this estuary, including godwits, sandpipers, and grebes. Morro Bay also provides rocky shoreline habitat for nesting and wintering shorebirds, such as herons, cormorants, pigeon guillemots, black oystercatchers, black turnstones, and surfbirds. Other birds are commonly seen flying along the coast, including pelicans and gulls. Morro Rock is also a known location of a peregrine falcon roost. There are relatively few data on bird populations 26 nmi off the coast of Morro Bay, in the vicinity of the proposed development site.

Several species of bats occur in San Luis Obispo County. To date no studies have been done on bats' use of the ocean areas off the California coast. A study in Sweden showed that many species of bats hunt for insects in offshore areas. They have also been found to use offshore turbines for roosting (Ahlen et al. 2007). Bat studies on the West Coast indicate that bats may use the offshore areas when an offshore location (such as an island) guides them (Tenaza 1966; Cryan & Brown 2007).

2.4.2.2.3 *Benthic habitat*

The California seafloor is structurally complex and geographically variable. It can be divided into a variety of habitats, each with unique physical and biological characteristics. Mud can be a more pronounced bottom type in areas receiving less energy from water movement (i.e., isolated and sheltered embayments) and in deeper waters. Subtidal, soft-bottom habitats are diverse, as a result of distinct organism assemblages that are influenced by differences in substrate type (sand versus mud), organic content, and bottom depth. Although the California Seafloor Mapping Program is creating a comprehensive coastal/marine geologic and habitat base map series for all of California's State waters, the maps offshore of Morro Bay have not yet been published (Golden 2013), and is therefore not well described. According to the USGS SEABED Interactive Map, the substrate in the nearshore habitat near Morro bay is composed of sand and a mixture of clay and silt (USGS 2015). Further offshore, the substrate becomes finer, and is composed of clay and a silty clay (USGS 2015).

Species associated with soft–bottom, subtidal habitats provide a spectrum of ecosystem services. Most widespread but least apparent would be nutrient cycling by deposit feeders and microbes living within the sediments. Soft-bottom communities are commonly named or described based on the species or species groups that are most apparent. Most of these communities are dominated by burrowing invertebrates such as polychaete worms; but other organisms, such as crustaceans, echinoderms, and mollusks, may be locally abundant. Common organisms on the sediment surface can include species of shrimp, crabs, snails, bivalves, sea cucumbers, and sand dollars. Dungeness crabs are important components of sandy-bottom communities and are found both on the surface and buried in the sand. Sea pens are common on more muddy bottoms.

2.4.2.2.4 *Rocky Reefs*

Rocky reef habitat is designated as a Habitat Area of Particular Concern by the National Marine Fisheries Service (NMFS) for its importance as Essential Fish Habitat and its rarity, sensitivity, and/ or vulnerability (Oceana 2011). A large, deep rocky reef, approximately 87 miles long and 10 miles wide, is located approximately 35 miles west of Morro Bay and a smaller rocky reef, approximately 12 miles long and 2 miles wide, is located 28 miles southwest of Morro Bay (NMFS 2015).

Ecotypes of rocky subtidal habitats include:

- Shallow rocky reefs [less than 80 feet (25 meter depth)] with kelp beds,
- Shallow rocky reefs [less than 80 feet (25 meter depth)] without kelp beds,
- Deep rocky reefs [greater than 80 feet (25 meter depth)], and
- Subtidal artificial substrate (Oceana 2011).

Subtidal rocky reefs are known for their abundant and diverse biological communities. Habitat-forming organisms, such as kelp or large invertebrates, grow attached to the reef substrate, providing additional structures and types of microhabitats used by reef species. Biological communities using reefs include algae and other marine plants, attached and mobile invertebrates, fish, marine mammals, and sea birds. Many reefs have extensive growths of attached invertebrates, often covering nearly every square inch of rock surface. Common types of organisms include sponges, anemones, barnacles, bryozoans, tunicates, and coldwater corals. The rocks, algae, and attached invertebrates provide homes for a variety of mobile invertebrates such as crabs, snails, sea stars, urchins, brittle stars, nudibranchs, chitons, and worms. Free-swimming invertebrates, such as shrimps, and drifting (planktonic) invertebrates also are common on reefs. Reef fish include the more familiar types such as rockfish, perch, lingcod, and greenlings, and a large variety of smaller sculpins, gunnels, poachers, and blennies, among others. Many fish species are entirely dependent on reefs for parts of their life cycle, while others are visitors. Common visitors include herring, smelt, sharks, ratfish, and salmon. Marine mammals, especially seals and sea lions, and seabirds often feed on the abundant fish and invertebrates on rocky reefs.

The benthic habitat and rocky reef provide food and refuge to a great diversity of fishes, invertebrates, and other marine life off the coast of California (Whiteman et al. 2013).

2.4.2.2.5 Fish species and Essential Fish Habitat

Essential Fish Habitat (EFH) is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (NMFS 2004). NOAA further clarified the terms associated with EFH (50 CFR 600.05 through 600.930) by the following definitions:

- Waters – Aquatic areas and their associated physical, chemical, and biological properties that are used by fish and, where appropriate, may include aquatic areas historically used by fish;
- Substrate – Sediments, hard bottoms, structures underlying the waters, and associated biological communities;
- Necessary – The habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and
- Spawning, breeding, feeding, or growth to maturity – Stages representing a species’ full life cycle.

The Pacific Fishery Management Council (PFMC) manages four groups of species (i.e., Fishery Management Units) that occur along the California coast and have designated EFH: Pacific coast groundfish, Pacific coastal pelagic species, Pacific salmon, and Pacific highly migratory species.

There are over 90 species of Pacific Coast groundfish that are segregated into four general categories; 1) sharks, skates, chimaeras; 2) roundfish; 3) rockfish; and 4) flatfish. Many of the Pacific Coast groundfish species use a portion of the project area for all or a portion of their life cycle. EFH for groundfish is designated along the entire continental shelf in the project vicinity and includes all waters from the high tide line (and parts of estuaries) to 1,914 fathoms (3,500 meters) in depth. The rocky reefs to the west and southwest of Morro Bay are designated as Habitat Arears of Particular Concern, which are discrete subsets of EFH that provide extremely important ecological functions or are especially vulnerable to degradation (BOEM 2013).

The coastal pelagic species (CPS) fishery includes four finfish (Pacific sardine, Pacific [chub] mackerel, northern anchovy, and jack mackerel), and market squid. CPS finfish generally live nearer to the surface than the sea floor. The definition of EFH for CPS is based on the temperature range where they are found and on the geographic area where they occur at any life stage. This range varies widely according to ocean temperatures. The EFH for CPS also takes into account where these species have been found in the past and where they may be found in the future (PFMC 2012). The east-west boundary of CPS EFH includes all marine and estuary waters from the coasts of California, Oregon, and Washington to the limits of the exclusive economic zone (the 200-mile limit) and above the thermocline where sea surface temperatures range between 10° and 26° C (PFMC 2012).

Pacific salmonids are anadromous, meaning the salmon spend the majority of their life in saltwater, but spawn in freshwater. Salmonid populations are separated into evolutionarily significant units (ESUs) and the populations are evaluated based on historical returns to determine if the population is in decline or is healthy. Pacific salmon ESUs include Chinook salmon, chum salmon, coho salmon, pink salmon, sockeye salmon, and steelhead. Salmon range from more than 1,000 miles (1,600 km) inland to thousands of miles out at sea. In estuaries and marine areas, salmon habitat extends from the shoreline to the 200-mile limit of the exclusive economic zone and beyond (PFMC 2012).

Highly migratory and schooling species are typical of the waters and biological communities living in the water column over the continental shelf. Defining EFH for highly mobile species such as tuna, swordfish, and sharks is a challenging task as these species range widely in the ocean, both in terms of area and depth. Highly migratory species are usually not associated with the features that are typically considered fish habitat (such as seagrass beds, rocky bottoms, or estuaries). Their habitat may be defined by temperature ranges, salinity, oxygen levels, currents, shelf edges, and seamounts (PFMC 2012).

2.4.2.2.6 Skates

Several species of skates live along the California coast, including the big skate, longnose skate, and thornback skate (CDFW 2015). The warmer waters of California also include rays, such as the bat ray and the Pacific electric ray (CDFW 2015).

2.4.2.2.7 Marine mammals

At least 30 different species of marine mammals occur along the California coastal waters, including many cetaceans (whales, dolphins, and porpoises) and pinnipeds (Daugherty 1972). Six species of pinnipeds frequent the California mainland and Channel Islands for breeding and/or resting. These include Guadalupe fur seals, Northern (Alaska) fur seals, Steller sea lions, California sea lions, northern elephant seals, and Pacific harbor seals (Daugherty 1972). The California coast also hosts the southern sea otter (Daugherty 1972).

2.4.2.3 Physical oceanography and meteorology

The California Current System, which comprises the California Current, the Davidson Current, and the California Undercurrent, drives the general ocean current system along the California coast. The California Current is a surface current that flows toward the equator along the entire West Coast of the United States between the shelf break and 540 nautical miles (1,000 km) offshore. The Davidson Current is a seasonal surface current that manifests itself as a poleward-flowing countercurrent to the California Current during the fall and winter months over the continental slope and shelf. The California Undercurrent is a poleward subsurface flow that follows the continental slope. Since currents are strongly influenced by wind-stress, demonstrating a seasonal variability. During the spring/summer, strong upwelling-favorable winds drive the currents toward the equator along the California and Oregon coasts while flow is driven by a sea surface pressure gradient toward the equator off the Washington coast (Kaplan et al. 2010). The result is high production of phytoplankton from April through September fueled by a nearly continuous supply of nutrients and concomitant high biomass of zooplankton during summer (NWFSC 2013). During the winter months off the California and Oregon coasts, the upwelling-favorable winds “relax” and allow a sea surface pressure gradient to drive the flow toward the poles (Kaplan et al. 2010). Episodic phenomenon such as the Pacific Decadal Oscillation and ENSO can interrupt and/or intensify currents and upwelling (Kaplan et al. 2010).

The coastal zone is characterized by wet winters, relatively dry summers, and mild temperatures throughout the year. Occasional strong winds strike the California Coast, usually in advance of winter storms. Wind speeds can exceed hurricane force. Such events are typically short-lived, lasting less than one day. Annual precipitation totals in excess of 50 inches per year are characteristic of the west slope of the Sierra Nevada north of Stockton, the west slope of the Coast Range from Monterey County northward, and parts of the Cascades (Western Regional Climate Center 2015). Exceptions to this include the Monterey Bay area parts of the San Francisco Bay area, where totals decrease to about 20 inches (Western Regional Climate Center 2015). Southern California receives much less precipitation, averaging less than 15 inches per year in most counties (Western Regional Climate Center).

2.4.2.4 Geology – terrestrial

No onshore areas would be included in the area requested for lease. The following description of terrestrial geology is included only for background information.

Morro Bay is located along the central California coast and the southern portion of the northwest trending Coast Range. Morro Bay and Estero Bay are located along the Fransiscan Formation, a geologic formation that is described as a mix of oceanic and terrestrial rocks, with characteristic marine sandstone, volcanic rocks, and serpentine rocks making up the Coast Range. The coastal areas of Morro Bay are overlaid with marine sediments, sandstone, and sediment from higher elevations delivered to the ocean by creeks throughout the watershed. The alluvial deposits form mud flats at the mouth of Morro Creek in Morro Bay. Morro Rock is a 581 foot high sea stack and is the dominant geologic feature of the city. It is one of several volcanic plugs in the area which extend about twenty miles southeast from Morro Rock (Shaw 2007).

2.4.2.5 Air quality

The California Coast enjoys good air quality due to the proximity to the ocean, lack of large pollution producers, and prevailing winds. The San Luis Obispo Air Pollution Control District reports annually on the air quality throughout the county and notes any exceedances of air quality standards. An air quality monitoring station is maintained in Morro Bay where nitrogen dioxide (NO2) and ozone (O3) are monitored, in addition to recording wind speed and direction. Little is known about the air quality in the open ocean at the proposed lease site; no known sources of contamination are likely to degrade air quality in the area.

Air quality indices (AQIs) are numbers used by government agencies to characterize the quality of the air at a given location. As the AQI increases, an increasingly large percentage of the population is likely to experience increasingly severe adverse health effects. Air quality index values are divided into ranges, and each range is assigned a descriptor and a color code. Standardized public health advisories are associated with each AQI range. The AQI for Morro Bay in 2015 showed that no air pollutants were rated as unhealthy or hazardous. Levels of ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, PM2.5 (particles of 2.5 micrometers or less), and PM10 (particles of 10 micrometers or less) were rated “good” (Homefacts 2015).

2.4.2.6 Water quality

2.4.2.6.1 Pollutants

Marine pollutants along the western coast of the US in the Pacific Ocean include oil, sewage, garbage, chemicals, radioactive waste, thermal pollution, and eutrophication. No data on these pollutants were found for the offshore project vicinity.

The San Luis Obispo County Environmental Health Services Department collects ocean water samples at eighteen locations along the coast on a weekly basis, including one location at Morro Bay City Beach. California has established standards for bacteria present at beaches, and the samples taken within the county are compared against these standards. A Health Advisory is issued if standards are exceeded. Beaches can be closed when health risks due to bacteria levels, hazardous waste spills, or untreated sewage impacts recreational waters (SLO County 2015).

The Morro Bay watershed consists of two tributaries, Chorro Creek and Los Osos Creek, which combined cover approximately 76 square miles of San Luis Obispo County. Land uses include ranchland, brushland, urban areas, agriculture, and woodland. Environmental concerns within the watershed include sedimentation in Morro Bay, elevated amounts of pathogens and nutrients, and reduced amounts of dissolved oxygen. The California Central Coast Regional Water Quality Board and the US Environmental Protection Agency approved four Total Maximum Daily Load (TMDL) designations for the watershed to address environmental concerns. The TMDLS include (EPA 2015):

- Morro Bay Sediment TMDL, covering Chorro Creek, Los Osos Creek and the Morro bay Estuary (approved January 2004)
- Morro Bay Pathogen TMDL, covering Chorro Creek and Los Osos Creek, and the Morro Bay Estuary (January 2004)
- Chorro Creek Nutrients and Dissolved Oxygen TMDL (July 2007)
- Los Osos Creek, Warden Creek and Warden Lake Wetland Nutrient TMDL (March 2005)

2.4.2.6.2 *Water column characteristics*

An assessment of the status of the ecological condition of soft sediment habitats and overlying waters along the western United States continental shelf, between the target depths of 30 and 120 m (10 and 40 feet), was conducted during June 2003 (Nelson et al. 2008). The assessment included vertical water-column profiles of conductivity, temperature, chlorophyll a concentration, transmissivity, dissolved oxygen, and depth. Results showed that surface salinity was generally less than 33 practical salinity units (psu) to the north of Cape Blanco, Oregon, and greater than 33 psu to the south of Cape Blanco. Mean surface water temperature of California marine waters was approximately 59 F (15°C). The range of dissolved oxygen concentrations in the surface waters of the West Coast shelf (data available for 140 stations) was 4.1 milligrams per liter (mg/L) to 13.3 mg/L with lower values observed in California compared to Oregon and Washington. US EPA proposed that a dissolved oxygen value below 2.3 mg/L is harmful to the survival and growth of marine animals. Water-column stratification was reduced in the central California region, likely due to high winds inducing upwelling. Total suspended solids in surface waters of the West Coast Shelf ranged from 0 to 10 mg/L (137 stations with data available). The characteristics of the open ocean area of the proposed project are expected to be similar to those seen at the deeper site examined.

2.4.2.7 Noise and visual resources

Natural noise sources in the offshore and onshore areas include wind, waves, birds, and other wildlife. Human-caused noise sources offshore include ship motors and horns and aircraft. Onshore noise sources include motor vehicles, aircraft, construction equipment, and industrial activity.

Visual resources for the coastal area inshore of the proposed project site include scenic views from popular viewpoints near Morro Bay including Morro Rock and Hearst Castle. Other public parks on near Morro Bay, along the coastal bluffs, and mountain foothills are popular sites for observing scenery, whales, seals, other marine life, and birds. Natural elements of the viewscape include the shoreline, Morro Rock, and the open ocean.

The scenery along the coast is spectacular, so oceanfront viewsheds may be highly sensitive to visual changes offshore. In addition, seaside residents would potentially be very sensitive to changes visible from the shore; hence viewsheds from seaside residences are of particular concern in analyzing potential visual impacts of offshore energy structures (Norman et al. 2006).

2.4.2.8 Marine transportation and commerce

Morro Bay Harbor supports recreational and commercial vessel traffic. Commercial traffic includes commercial fishing vessels, for which the city maintains 50 slips in the harbor. Other main ports along the central California coast are Monterey, Santa Barbara, Oxnard, and Los Angeles, California. The majority of commercial vessel traffic along the central California coast is further offshore from Morro Bay and the proposed project area (BOEM 2015).

2.4.2.9 Military and Coast Guard operations

There are no areas mapped as Navy Operation Areas off the coast of Morro Bay. There is an offshore area mapped as a danger zone and restricted area, approximately 60 km south of Morro Bay, associated with Vandenberg Air Force Base (BOEM 2015).

The United States Coast Guard (USCG) operates Coast Guard Station Morro Bay, located adjacent to the Harbor Office. The USCG maintains a 27-person National Security Base and Search and Rescue Station at Morro Bay Harbor to provide the Coast Guard services for the entire Central California Coast, including port safety coverage for the Diablo Canyon Nuclear Power Plant and Vandenberg Air Force Base and search and rescue (Morro Bay 2015). The USCG Base Los Angeles-Long Beach provides Military Funeral Honors to recently passed retired or honorably discharged Coast Guard veterans and serves Morro Bay in San Luis Obispo county (USCG 2015).

2.4.2.9.1 Airspace utilization – civilian and military

Morro Bay and surrounding communities are served by San Luis Obispo County Regional Airport in San Luis Obispo, California. The airport is open for public use with flights to Los Angeles, Phoenix, and San Francisco. The airport is also home to full service general aviation and corporate facilities. Commercial flights are provided by United Airlines and American Airlines. Local airspace surrounding the airport is designated as Class E Airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. Also in this class are federal airways, airspace beginning at either 700 or 1,200 feet above ground level used to transition to and from the terminal or en route environment, and en route domestic and offshore airspace areas designated below 18,000 feet mean sea level (MSL). Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 NM of the coast of the 48 contiguous states and Alaska, up to but not including 18,000 feet MSL, and the airspace above FL 600 (FAA 2014). San Luis Obispo County outlines airport rules, regulations, and the airport overlay zone in the municipal code (17.57).

An active military aviation restricted zone exists off the California coast approximately 60 kilometers south of the proposed project area, which is associated with Vandenburg Airforce Base. (FAA 2015).

2.4.2.10 Commercial and recreational fishing

Commercial fishing is an important element of California's economy, and Morro Bay in particular. The harvest value of California onshore landings has increased from $136.3 million for 553.5 million pounds of fish harvested in 2000 to $235.2 million for 357.6 million pounds of fish harvested in 2014 (CDFW 2015). The revenue from California commercial fisheries is not generated principally from the harvest of one target species, but instead is a balance of several fisheries that include the groundfish fishery, highly migratory species fishery, the coastal pelagic species fishery, and the Dungeness crab fishery. Although total landings in weight has decreased since 2000, the total revenue generated from the harvest has increased by 58 percent. The major regional fishing centers in California are Eureka, Fort Bragg, Bodega Bay, San Francisco, Monterey, Morro Bay, Santa Barbara, Los Angeles, and San Diego. Revenue from the port of Morro Bay accounted for approximately 4.4 percent of the overall revenue from commercial ocean catch (CDFW 2015).

Table 7 shows typical distances from shore and/or depths for each fishery, preferred habitat type, and revenue from the 2014 harvest.

Table 7 Depths and Distances from Shore and Revenue for California (and Morro Bay) Commercial Fisheries

Fishery	Distance/Depth of Harvest[1]	CA Revenue from 2014 Harvest[2]	Morro Bay Revenue from 2014 Harvest[2]
Tuna	Generally near surface, 30 nm or more from shore at 50 to 100 fathoms up to 500 to 2,000 fathoms	$4,793,386	$47,471
Salmon	Breakers to 200 fathoms; sometimes up to 650 fathoms	$12,120,121	$138,679
Crab	Breakers to 130 fathoms and up to 700 fathoms in some years; around tops of canyons, high spots	$70,517,956	$3,817,799
Shrimp	30 to 150 fathoms; 90 percent in 60 to 140 fathoms; muddy, soft, flat bottom	$4,824,385	$0
Groundfish	Breakers to 400 to 700 fathoms; 1,200 fathoms for midwater, but nets are not this deep	$10,116,998	$1,220,735
Sablefish	100 to 500/650 fathoms	$8,962,574	$2,066,392
Halibut	22 nm at 100 to 125 fathoms	$2,126,431	$47,292

[1] Source: Industrial Economics, Inc. 2012.

[2] Source: CDFW 2015.

Morro Bay is one of the state's smaller commercial fishing ports. The primary commercial fishing activity off Morro Bay is groundfish trawl, Dungeness crab (pot; mostly in state territorial sea), and sablefish (Table 5; CDFW 2015). The top fishery group coming into the port of Morro Bay based on economic value is the crab fishery (CDFW 2015).

Charter fishing businesses offer overnight trips as well as day trips. Charter operations are dependent on access to particular habitats for some target species (e.g., rocky structures and reefs for bottom fishing, sandy or muddy bottom for crabbing) and on particular water column and current conditions for others (e.g., salmon and tuna) (Industrial Economics, Inc. 2012.). There were eleven charter vessels operating out of Avila Beach and Morro Bay in 2014 that hosted 23,651 fishers, and caught 204,832 fish (CDFW 2015). The total landings by charter vessels in 2014 represent 16.5 percent of the total charter landings in California.

Recreational boaters (many of whom are also recreational fishermen) travel anywhere from 3 to 40 nm (75 km) from shore. In 2004, the California Recreational Fisheries Survey was created to estimate total marine recreational finfish catch and effort in California. The primary recreational fishing off central California (San Luis Obispo to Santa Cruz) targets mackerel and rockfish (PSMFC 2015).

2.4.2.10.1 Historic and cultural resources

The Obispeño Chumash originally inhabited Northern Channel Island area, including Morro Bay. The area has provided natural resources to local inhabitants for centuries. People lived as far inland as the San Joaquin Valley, along rivers, and along the Pacific coast where they were hunters, gatherers, and fishermen. They gathered food throughout the year in the mild Mediterranean climate and stored food through the winter. They built domed houses of willow branches, whale bones, and woven mats. The Chumash were excellent boat makers and advanced trades such as basket weaving, stone cookware, and beads (Chumash 2015). The earliest European contact at Morro Bay came in 1595, when Sebastian Rodriguez Cermeno put in at Estero Bay. This contact was followed by the explorations of Sebastian Vizcaino in 1602 and Gaspar de Portola in 1769. Mission San Luis Obispo was established in 1772, thus ending traditional Native American village life at Morro Bay. Mission records indicate the first Native American baptism from the Morro Bay village of Chotcagua occurred in 1773. The last person to leave Chotcagua and move to the mission was baptized in 1803 (Gibson 1993).

The California State Historic Preservation Office (SHPO) maintains a database of known cultural or archaeological sites (OHP 2015). Historic sites (eligible listed and unlisted) along the coast north and south of Morro Bay within the project vicinity with publically available records include:

- Morro Rock – Morro Bay, San Luis Obispo County
- Hearst San Simeon Estate – San Simeon, San Luis Obispo County
- Hearst San Simeon State Historic Monument – San Simeon, San Luis Obispo County
- Piedras Blancas Light Station – San Simeon, San Luis Obispo County
- Old Santa Rosa Catholic Church and Cemetery – Cambria, San Luis Obispo County

Specific cultural resource information is confidential. A records search and literature review would need to be conducted at the appropriate California Historical Resources Information System Information Center located at the Central Coastal Information Center at the University of California, Santa Barbara to determine the types, sizes, and quantity of known cultural resources (prehistoric archaeological resources, historic-period archaeological resources, and built-environment resources) in the immediate vicinity of the project area.

The National Oceanic and Atmospheric Administration's (NOAA) Office of Coast Survey charts known shipwrecks and other navigational obstructions through the Automated Wreck and Obstruction System (AWOIS). Shipwrecks near Morro Bay include an unnamed vessel within Morro Bay that is always visible above the water surface (BOEM 2015; NOAA 2015)

2.4.2.10.2 Tourism and recreation

The central California coast and Morro Bay offer a variety of outdoor activities including fishing; kayaking; sailing and bay cruises; wildlife, bird, sea lion, and whale watching charter tours, cycling, and many more activities. State parks in the project vicinity include Morro Bay State Park, Morro Strand State Beach, and Montaña de Oro State Park. Local parks managed by the city include Anchor Memorial Park, Bayshore Bluffs Park, Centennial Parkway, City Park, Cloisters Park, Coleman Park, Del Mar Park, Lila Keiser Park, Mariner Memorial Park, Monte Young Park, Morro Rock Beach, North Point, and Tidelands Park. The city parks have a variety of amenities ranging from trails, vistas, picnic tables, child play areas, beach access, open space, barbeques, and restrooms. Morro Bay State Park has amenities for tent camping and RV hookups. Morro Bay Natural Preserve is located along the spit that separates Estero Bay from Morro Bay.

2.4.2.10.3 Socioeconomics and environmental justice

According to data from the State of California Employment Development Department (EDD 2015a), the unemployment rate in San Luis Obispo County, as of November 2015, was 4.4 percent, while that of California, as a whole, was 5.7 percent. Total nonfarm employment in the County was 116,900 in November 2015, up 3.7 percent from November 2014. The 2010 US Census reports median household income for California in 2009 at $61,094, and the poverty rate at 15.9 percent (US Census Bureau 2015a).

The largest industry sectors in San Luis Obispo County, based on 2014 data, are: healthcare; education; government; trade, transportation, and utilities; professional and business services; and leisure and hospitality (EED 2015b).

The 2010 US Census (US Census Bureau 2015b) reports the population of San Luis Obispo County as 369,637. The median age was 39.3 years; 18.1 percent of the population was under the age of 18, and 17.5 percent of the population was over 65. Race and ethnic groups are reported as shown in Table 8.

Table 8 San Luis Obispo County Race/Ethnic Groups, 2014

Race/Ethnic Group	**Percent of Population**
Non-Hispanic	
White	69.5 %
Black	2.2%
American Indian	1.4%
Asian	3.8%
Pacific Islander	0.2%
Two or More Races	3.4%
Hispanic	19.5%

Source: US Census Bureau 2015b

2.4.2.10.4 Public services, infrastructure, and utilities

Morro Bay is accessible via air, sea, and road. The San Luis Obispo County Regional Airport is used for air transportation. The major roads connecting Morro Bay to nearby communities are California State Routes 1 and 41, which connect to US Route 101. Three bus companies operate in Morro Bay: City of Morro Bay Transit, San Luis Obispo Regional Transit Authority, and Greyhound. There is no commercial freight rail service to Morro Bay and the closest passenger service is provided by Amtrak located in San Luis Obispo, California (Caltrans 2015).

The City of Morro Bay, Harbor Department manages the Morro Bay Harbor. The harbor operates the North and South T-piers, a floating dock, and anchorage area for temporary vessels. Approximately 50 slips and 70 moorings are provided by the city for local recreational and fishing vessels (World Port Source 2015).

San Luis Coastal Unified School District consists of ten elementary schools, two middle schools, and three high schools in the region. Within Morro Bay there is Del Mar Elementary, Los Osos Middle School, and Morro Bay High School. Cuesta College has multiple campuses throughout the County. California Polytechnic State University is the nearest university and is in San Luis Obispo, California.

The City of Morro Bay provides water and sewer services to local residents. AT&T Communications provides telephone communications, and electric power is administered by Pacific Gas and Electric (PG&E).

Public safety is provided by the Morro Bay Police Department. The Morro Bay Fire Department responds to fire and safety calls from on fully staffed fire station and one unstaffed fire station. The Fire Department has a mutual aid agreement with neighboring communities, the Morro Bay Harbor Patrol, and the US Coast Guard. Local hospitals include an urgent care facility in Morro Bay, the Sierra Vista Regional Medical Center in San Luis Obispo, and the Atascadero State Hospital in Atascadero, California.

Offshore utility infrastructure includes approximately ten east-west submarine cables south of Morro Bay within Estero Bay (BOEM 2015).

2.4.2.10.5 Natural hazards, hazardous materials, offshore dump sites, unexploded ordinance and artificial reefs

The primary natural hazards that could affect Morro Bay and San Luis Obispo County include coastal erosion, drought, earthquake, flood, landslide, tsunami, wildfire, and wind storms. Coastal erosion occurs throughout the year, but is accelerated during the winter months when storms increase the rate of erosion. Winter wind storms can also cause heavy damage on shore to buildings, utilities, and transportation systems. Tsunamis can result from either local earthquake events or distant earthquake events. Historic tsunamis occurred in the Morro Bay area in 1878, 1953, 1960 and 1964, which resulted in localized damage to piers, wharves and buoys in Morro Bay Harbor (Morro Bay 2008).

The potential for earthquake hazard comes from the four known seismically active faults that run through San Luis Obispo County and adjacent offshore areas. These include the San Andreas Fault approximately 50 miles inland from Morro Bay, the Los Osos Fault approximately 8 miles southeast of Morro Bay, the Hosgri Fault approximately 8 miles offshore to the west of Morro Bay, and the San Simeon Fault approximately 30 miles north of Morro Bay. Seismic activity within the offshore basin area is mainly from the Hosgri Fault which is primarily a reverse and thrust fault with some right-lateral slip. It is approximately 140 kilometers long, trending north-south with the shoreline of San Luis Obispo County, and is a complex zone of interlaced and parallel fault segments. The last earthquake along this fault was in 1927 and was recorded at a magnitude of 6.5-7.5. Small earthquakes from the other faults in inland San Luis Obispo County occur frequently (CalTech 2013).

Rainfall and inclement weather occur seasonally from November through March. Several creek drainage systems, including Chorro Creek, the Morro/Little Morro Creek convergence, No-Name Creek, Alva Paul Creek, Toro Creek, and San Bernardo Creek flow into and/or near the City. Flooding may occur when storms bring rainfall that exceeds the conveyance capacity of the creeks and stormwater infrastructure throughout the city. Potential flood hazard areas within Morro Bay include: the South Bay Boulevard area between Highway 1 and State Park Road; the area between Highway 41/Atascadero Road and Radcliff Avenue; low-lying sections of Island Street and Beachcomber; Highway 1, at the northern City limits; and, Highway 1 south of the City limits.

Wildfire is a potential hazard in Morro Bay residential, industrial, commercial, harbor front, and wildland areas. Fires are fanned by ocean or Santa Ana winds, making them spread quickly and difficult to control. Homes and businesses within Morrow Bay are built close together and offer little defensible space for fighting fire. Furthermore, homes on the hillsides of Morro Bay are on the border of the urban-wildland interface and face the threat of large-scale wildland fire. The T-pier fire of 1988 and the Highway 41 Fire in 1944 were examples of the threat of fire from development within the city and wildfire from adjacent wildlands (Morro Bay 2008).

Potential manmade hazards include the Diablo Canyon Nuclear Power Plant, unexploded ordnance, obstructions, and shipwrecks. The Diablo Canyon Nuclear Power Plan is operated by the Pacific Gas and Electric Company (PG&E) and located approximately 10 miles southwest of Morro Bay. There is no known unexploded ordnance in the project vicinity. However the unexploded ordnance data is not complete. The presence and locations of the unexploded ordnance have been derived from graphical representations recorded on NOAA Raster Navigation Charts. There is one artificial reef consisting of 3,500 tons of quarry rock along the shore, north of Morro Rock, in the project vicinity. There is one visible shipwreck within Morro Bay. Eight submerged obstructions and three partially submerged rocks obstructions are associated with an old pipeline, sunken mooring buoys, a sewer outfall, and submerged pilings north of Morro Rock along the shore, and two partially submerged rock obstructions south of Morro Rock along the Morro Bay spit (BOEM 2015).

Onshore hazards include hazardous material sites registered in and around Morro Bay under the US EPA reporting requirements. The identified sites include multiple toxic release sites, hazardous waste sites, water discharges, and brownfields around Morro Bay (US EPA 2015).

2.5 Conformance with State and Local Energy Planning Initiatives

The California Legislature recently adopted a requirement that 50% of all retail electric energy sales in the state must come from renewable sources by the end of 2030 (State of California, 2015). The Chairman of the California Energy Commission (CEC), Robert Weisenmiller, has stated that the State needs to plan on 40% as soon as 2020.

- Under 2006 Senate Bill (SB) 107, Public Utilities Code Section 399.11 – 399.19 was modified to require that investor-owned utilities (IOUs), electric service providers (ESPs) and community choice aggregators (CCAs) regulated by the CPUC procure 20% of annual retail electricity sales from eligible renewable sources by 2010. The percentage of retail sales required from renewable sources is known as a renewable portfolio standard (RPS).
- Assembly Bill (AB) 32, signed by Governor Arnold Schwarzenegger during October 2006, required that statewide greenhouse gas (GHG) emissions be reduced to 1990 levels by 2020. GHG reductions increase the need for electricity from renewable sources.
- Executive Order (EO) S-14-08 issued on November 17, 2008, and EO S-21-09 issued on September 15, 2009, set an RPS goal of 33% renewable energy by 2020.
- During 2011, Governor Jerry Brown signed SB 2 making the 33% RPS a legal requirement.
- During 2015, Governor Brown signed SB 350. SB 350 requires that all retail sellers of electricity meet a 50% RPS by the end of 2030. In addition, SB 350 contains provisions that reduce GHG emissions, in part, by promoting electric vehicles. Those provisions, and similar provisions in SB 32 that remain under consideration, are likely to further increase the demand for electricity from renewable sources.

Three California authorities administer the RPS and GHG programs summarized above.

- California Public Utilities Commission (CPUC) administers the RPS compliance required under SB 107, SB 2 and SB 350 for IOUs, ESPs and CCAs.
- CEC administers the RPS compliance required under SB 107, SB 2 and SB 350 for Publicly Owned Utilities (POUs).
- California Air Resources Board (CARB) is responsible for implementing the GHG reductions required under AB 32 and SB 350.

While filings and reports prepared for and by the CPUC and CEC show that IOUs, ESPs, CCAs and POUs will meet current RPS requirements, substantial additional renewable energy supplies are needed to meet RPS requirements in the future. In summary, assuming that existing utility procurement plans will meet the 33% RPS by 2020, over 17 gigawatts (GW) of additional renewable capacity are needed to meet a 50% RPS by 2030.

- Energy + Environmental Economics (E3) reports that, depending on the scenario, another 14 GW to 24 GW of new renewable capacity are necessary to obtain 50% rather than 33% RPS in 2030 (E3 2014, p. 55). Those totals include another 3 GW to 5 GW of wind project capacity.
- California Wind Energy Alliance (CalWEA, 2015, p. 1) estimates that an additional 10 GW of wind alone will be needed after 2015 to obtain 50% in 2030.

2.6 Documentation of Lessee Qualifications

2.6.1 Legal Qualifications

Trident Winds is a Washington limited-liability company headquartered in Seattle, WA. Trident is authorized under its Operating Agreement dated October 15, 2015 to operate an energy development business, including but not limited to, the ability to hold and operate leases, right-of-way grants, or right-of-use and easement grants for activities that produce, or support production, transportation or transmission of, energy from sources other than oil and gas on the OCS, and right-of-use and easement grants for the alternate use of OCS facilities for energy or marine related activities.

Confidentila Annex A includes copies of Trident Winds' registration documentation.

2.7 Technical Capability

Trident Winds team's experience spans industries from high-tech manufacturing to offshore construction to electric generation facilities and financial services. The MBO Project will leverage the collective know-how of these industry professionals through all phases of the project development.

2.7.1 Project Participants

Trident Winds, and prospective partners and project participants who have expressed an interest in the MBO project, listed below in alphabetical order, are committed to the success of the Project. Individual organizational staffing levels and resources will be allocated to meet the development process needs in accordance with the Project schedule.

Trident Winds (http://tridentwinds.com)

Trident Wind LLC was founded in 2015 with a focus on the deep-water offshore wind project development. Trident Winds will lead the MBO Project and through project management and subcontracting to the competitively selected vendors for all project phases.

Bodington & Company (http://www.bodingtonandcompany.com/who.html)

B&Co's team has deep experience in the finance, business, engineering and operations aspects of the electric power industry. Each of B&Co's staff has more than 30 years experience. This breadth and depth enables B&Co to provide cost-effective solutions to small and middle market clients. B&Co consults with engineering experts from one of several firms with extensive experience in the technology under evaluation. Black & Veatch, Brown Vence & Associates, Christensen Associates and Intertie are examples of firms Bodington & Company has retained to provide information on engineering and other technology-related issues.

City of Morro Bay *(http://www.morro-bay.ca.us)*

Incorporated in 1964 and nestled on the Central Coast of California, Morro Bay is the "gateway to the north coast". Just 12 miles north of San Luis Obispo, Morro Bay sits along a natural estuary. Morro Bay is a natural embayment with an artificial harbor constructed by the U.S. Army Corps of Engineers. It is the only all-weather small craft commercial and recreational harbor between Santa Barbara and Monterey. Morro Rock was originally surrounded by water, but the Army built a large artificial breakwater and road across the north end of the harbor, linking Morro Rock and the mainland. The bay extends inland and parallels the shore for a distance of about 6.4 km (4 miles) south of its entrance at Morro Rock. Morro Bay is recognized for protection by the California Bays and Estuaries Policy

Morro Bay's working waterfront is a source of tourism and home for a vibrant marine-based economy that includes commercial fishing, aquaculture, seafood processing, chandlery, commercial passenger fishing activities and marine construction.

The 650-megawatt power plant, presently owned by Dynegy, played a large role in Morro Bay and in providing electricity to the Central Coast and the Central Valley of California. The plant operated around the clock during the 2000 energy crisis, but the plant has operated at just one-sixth of that capacity in recent years. The plant was built in the 1950s but was never modernized. The plant was closed in February 2014 and still contains connection to the water discharge infrastructure suitable for the use by the MBO Project.

DP Energy *(http://www.dpenergyp.com)*

DP Energy is a renewable energy and sustainable development specialist operating in sites across the world. DP Energy has developed over 260MW of built wind energy projects, with a further 154MW permitted & with grid, 405MW with permits lodged, and a further 300MW at a late stage of development including some 330MW of tidal energy projects across both Europe and Canada. DP Energy has acted both as an early stage and late stage developer and built and operated a number of wind farms in Ireland and is currently developing a number of additional large scale wind and solar projects across Australia, Canada and the UK.

Enpower *(http://www.enpowercorp.com)*

Enpower Corp. is an energy facility owner and highly skilled business and operations management company to energy and process industries. Management services are provided through Enpower Management Corp. and Enpower Operations Corp., its wholly owned subsidiaries. Enpower Corp. owns energy assets and provides goal driven management services to energy and process industries in California and throughout the lower 48 states.

Forristall Ocean Engineering (http://www.forocean.com)

George Forristall, the principal of Forristall Ocean Engineering is well known amongst the oil and gas industry for over 30 years of work specific to the generation of metocean design basis. Forristall Ocean Engineering is a subcontractor with Trident Winds to provide the metocean conditions for the design basis for the MBO Project.

Herrera Environmental Consultants (Herrera) (http://www.herrerainc.com)

Established in 1980, Herrera's interdisciplinary teams of scientists, engineers, planners, and regulatory specialists provide scientifically defensible and realistic solutions to complex resource challenges facing businesses, municipalities, utilities, and government agencies. Herrera has the specific expertise necessary to address key challenges facing ocean energy development and is experienced with marine environmental compliance. Herrera offers complete permitting, planning, and environmental services to support energy developments.

National Renewable Energy Lab (http://www.nrel.gov)

National Renewable Energy Lab (NREL) is the only national laboratory solely dedicated to advancing renewable energy and energy efficiency technologies from concept to commercial application. NREL has over 20 years of experience in the wind industry relative to wind turbine design, power prediction, and wind resource assessment. NREL's participation in Trident Winds's MBO Project offers access to the extensive knowledge base that will be using in the development of the MBO Project. NREL is participating in the MBO Project wind resource characterization, wake/performance modeling, and techno economic analysis.

Pacific Northwest National Laboratory (http://www.pnnl.gov)

Pacific Northwest National Laboratory (PNNL) is one of ten DOE national laboratories managed by DOE's Office of Science. Pacific Northwest National Laboratory leads the identification and risk-based assessment of environmental effects of ocean energy development and offers significant resources in the study of atmospheric sciences. Pacific Northwest National Laboratory will participate in permitting activities with a specific focus on the marine flora, fauna and birds through its Marine Science Lab.

Quanta Services *(http://www.quantaservices.com)*

Quanta Services safely provides engineering, procurement and construction (EPC) services for comprehensive infrastructure needs in the electric power and oil and natural gas industries. With a workforce of over 25,000 and offices across North America and abroad, Quanta is the premier provider of specialized contracting services for the electric power and oil and gas industries, both onshore and offshore.

2.7.2 Experience with Similar Project

Principals of Trident Winds have extensive experience with greenfield and wind project development.

The company founder, Ms. Alla Weinstein has founded and financed two marines renewables companies - AquaEnergy Group, LTD that was the first in the US to receive a FERC permit for the installation of a hydrokinetic project in Makah Bay, WA within the OCNMS, and Principle Power Inc. the developer of the WindFloat floating support structures technology (http://principlepowerinc.com).

While she was a CEO and President of Principle Power, the company raised over $30M for the engineering design, fabrication and installation of its prototype WindFloat off the coast of Portugal. She was the project manager for the prototype installation and negotiated and awarded four contracts for the WindFloat prototype implementation:

- A turbine supply contract including engineering, procurement, installation with Vestas;
- A turbine operation and maintenance contract with Vestas;
- A Turnkey contract for the WindFloat system, including hull, mooring and electrical cable design, procurement, fabrication, installation;
- A WindFloat operation and maintenance contract.

The company co-founder, Eric Markell, served is several executive capacities at Puget Sound Energy in Bellevue, WA., including EVP and Chief Financial Officer, Chief Resource Officer and Chief Strategy Officer. During his tenure his teams acquired, developed and financed numerous energy supply facilities including three utility scale land-based wind projects and two major expansions of such projects while securing the development rights to an additional 1200 MWs of wind power.

Company co-founder Brian Walshe has spent his entire 30 year career in the engineering, construction, and operation of electric power facilities. He founded two companies (Altera Energy and ION Consulting) that provided strategic and financial advisory services to utilities, Independenet Power Producers (IPPs) , and regulators relatd to power project valuations, generation resource planning, and project development. Mr. Walshe has provided operational and advisory services to over 250 electric generating facilities in 11 countries. He was a founding member of the Colorado Wind Working group, and authored “The Guidebook to evaluate the role of renewable Energy” for the American Public Power Association (APPA) and “The Strategic Transmission and Renewable Strategy” (STAR Report) for the Colorado Governor’s Energy Office.

Trident has retained Bodington & Company (B&Co) as its financial advisor and to lead the financing final development, construction and long-term operation of the Project. B&Co, founded in 1990, provides investment banking services to the electric power generation industry in North America. It is a member of the Financial Industry Regulatory Authority and is a Broker/Dealer regulated by the U.S. Securities and Exchange Commission. B&Co has advised clients on over 200 transactions with an aggregate value over $8 billion. In particular, B&Co has arranged development-stage and construction-stage financing for wind energy projects in California, Maine, Vermont and Washington. Concerning Trident and the Project, financing discussions are underway with the leading wind energy companies in the U.S. and the leaders in offshore wind project development in Europe, Asia and the U.S.

Other Project participnats bring expensive experience in resource analysis, project development, energy infrastrcure asset management, and transmission and electrical services.

2.8 Project Financial Projections

The overall cost for the initial 650 MW net capacity MBO Project permitting, development and construction is estimated at $3,230,118,000 in 2015 dollars. Project costs will be refined during the COP preparation based on subcontractor and vendors quotes. Proforma financial projections are included in the confidential Annex E.

3 REFERENCES

Ahlén, Ingemar, L. Bach, H.J. Baagøe, J. Pettersson. 2007. S. *Bats and offshore wind turbines studied in southern Scandinavia.* Swedish Environmental Protection Agency. Stockholm, Sweden.

BOEM. 2015. Multipurpose Marine Cadastre. Bureau of Ocean Energy Management and National Oceanic and Atmospheric Administration. Accessed December 21, 2015. http://marinecadastre.gov/nationalviewer/

California, State of. 2015. Senate Bill 350. Summary prior to SB 350 in 2015. Available at: http://www.cpuc.ca.gov/PUC/energy/Renewables/

California Ocean Protection Council. 2011. "California Permitting Guidance for Ocean Renewable Energy Test and Pilot Projects." December 16, 2011. Available at: http://www.opc.ca.gov/2011/12/california-permitting-guidance-for-ocean-renewable-energy-test-and-pilot-projects/

CalTech. 2013. Southern Califronia Earthquake Data Center, Significant Earthquakes and Faults. Hosgri Fault Zone. Accessed December 17, 2015. http://scedc.caltech.edu/significant/hosgri.html

Caltrans. 2015. California Department of Transportation, Fright Rail. Accessed December 17, 2015. http://www.dot.ca.gov/hq/tpp/offices/ogm/freight_rail.html

CDFW. 2013. Status of the fisheries report: An update through 2011. Report to the Ccalifornia Fish and Game Commission, prepared by California Department of Fish and Wildlife.

CDFW. 2015. Final California Commercial Landings for 2014. State of California, the Natural Resources Agency, Department of Fish and Wildlife.

Chumash, Santa Ynez Band. 2015. Chumash History. Accessed December 21, 2015. http://www.santaynezchumash.org/history.html

Cryan, P.M. & Brown A.C. 2007. Migration of bats past a remote island offers clues towards the problem of bat fatalities at wind turbines. *Biological Conservation*, 139: 1-11

Daugherty, A.E. 1972. Marine mammals of California. Department of Fish and Game. 90 p.

DOE EERE. 2015. Offshore wind resource by state. http://apps2.eere.energy.gov/wind/windexchange/pdfs/offshore/offshore_wind_potential_table.pdf

EED. 2015a. Unemployment Rate and Labor Force. State of California Employment Development Department. Accessed December 18, 2015. http://www.labormarketinfo.edd.ca.gov/data/unemployment-and-labor-force.html

EED. 2015b. Industry Employment Data. San Luis Obispo County, California. State of California Employment Development Department. Accessed December 18, 2015. http://www.labormarketinfo.edd.ca.gov/county/slo.html#IND

Elliott, D.; Holliday, C.; Barchet, W.; Foote, H.; Sandusky, W. (1987). Wind Energy Resource Atlas of the United States. DOE/CH 10093-4, Golden, Colorado: Solar Energy Research Institute.

Elliott, D.; Schwartz, M. (2006). Wind Resource Mapping for United States Offshore Areas: NREL/CP-500-40045. Golden, Colorado: NREL, 12 pp

EPA. 2015. Watershed Priorities, Morro Bay, California, Watershed. US Environmental Protection Agency, Pacific Southwest, Region 9. Accessed December 21, 2015. http://www3.epa.gov/region9/water/watershed/morrobay.html

Feinberg, L., et.al. 2014. "Evaluating Offshore Wind Energy Feasibility off the California Central Coast" Bren School of Environmental Science and Management http://www.bren.ucsb.edu/research/2014group_projects/documents/20140402_calwind_final2_mt_yx.pdf

FAA. 2014. Federal Aviation Administration Pilot's Handbook of Aeronautical Knowledge. Chapter 14, Airspace. Accessed December 21, 2015. https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/pilot_handbook/media/PHAK%20-%20Chapter%2014.pdf

FAA. 2015. Federal Aviation Administration Special Use Airspace and Air Traffic Control Assigned Airspace Mapper. Accessed December 21, 2015. https://sua.faa.gov/sua/siteFrame.app

Gibson, Robert O. Ethnogeography of the Salinan People. Master Thesis, California State University, Hayward. 1983.

Golden, N.E. (compiler). 2013. California State Waters Map Series Data Catalog. U.S. Geological Survey Data Series, 781. http://pubs.usgs.gov/ds/781/ (Accessed 13 November 2015).

Homefacts. 2015. "Morro Bay Air Quality." Accessed on December 18, 2015. http://www.homefacts.com/airquality/California/San-Luis-Obispo-County/Morro-Bay.html

Industrial Economics, Inc. 2012. "Identification of Outer Continental Shelf renewable energy space-use conflicts and analysis of potential mitigation measures." OCS Study BOEM 2012-083. US Department of the Interior, Bureau of Ocean Energy Management, Herndon, VA.

Kaplan, B., C. J. Beegle-Krause, D. French McCay, A. Copping, S. Geerlofs, eds. 2010. "Updated Summary of Knowledge: Selected Areas of the Pacific Coast." OCS Study BOEMRE 2010-014. US Dept. of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, Pacific OCS Region, Camarillo, CA.

Morro Bay, City of. 2008. Multi-Hazard Emergency Response Plan. Developed by the Morro Bay Fire Department. October 2003, Revised 2008. http://www.morro-bay.ca.us/DocumentCenter/Home/View/793

Morro Bay, City of. October 5, 2015. Memorandum of Cooperation between the City and Trident Winds. http://www.morro-bay.ca.us/documentcenter/view/9132

Morro Bay, City of. December 10, 2015. https://www.youtube.com/watch?v=GnZYURYdOi0&feature=youtu.be&t=29s

Morro Bay, City of. 2015. Coast Guard. Accessed December 21, 2015. http://www.morro-bay.ca.us/168/Coast-Guard

MBCFO. 2015 http://www.mbcfo.com/

Musial and Butterfield. 2004. Future for Offshore Wind Energy in the United States. NREL/CP-500-36313 in Energy Ocean Proceedings. Palm Beach, Florida.

Nelson, W. G., J. L. Hyland, H. Lee II, C. L. Cooksey, J. O. Lamberson, F. A. Cole, and P. J. Clinton. 2008. *Ecological Condition of Coastal Ocean Waters along the U.S. Western*

Continental Shelf: 2003. EPA 620/R-08/001, US Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory,

Western Ecology Division, Newport, OR 97365; and NOAA Technical Memorandum NOS NCCOS 79, NOAA National Ocean Service, Charleston, SC 29412-9110.

NMFS. 2015. Habitat Protection: EFH Text Descriptions & GIS Data Inventory. National Marine Fisheries Service, Habitat Protection, http://www.habitat.noaa.gov/protection/efh/newInv/index.html (Accessed 12 November 2015).

NOAA. 2015. "AWOIS Download: Region 13." Automated Wreck and Obstruction System. National Oceanic and Atmospheric Administration, Office of Coast Survey. Accessed December 21, 2015. http://www.nauticalcharts.noaa.gov/hsd/wrecks_and_obstructions.html

NOAA Fisheries. 2015. "Endangered and Threatened Marine Species." Last update October 8, 2015. National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Accessed November 12, 2015: http://www.nmfs.noaa.gov/pr/species/esa/

Norman, K., J. Sepez, H. Lazrus, N. Milne, C. Package, S. Russell, K. Grant, R. Petersen, J. Primo, M. Styles, B. Tilt and I. Vaccaro. 2006. "Community Profiles for West Coast and

North Pacific Fisheries: Washington, Oregon, California, and Other U.S. States." NOAA Fisheries, Northwest Fisheries Science Center website. Accessed December 21, 2015. http://www.nwfsc.noaa.gov/assets/25/499_01082008_153910_CommunityProfilesTM85WebFinalSA.pdf

NREL. 2010. Assessment of Offshore Wind Energy Resources for the United States. Technical Report NREL/TP 500-45889. Prepared by M. Schwartz, D. Heimiller, S. Haymes, and W. Musial National Renewable Energy Laboratory. Golden, Colorado.

NREL. 2015. Wind Prospector https://mapsbeta.nrel.gov/wind-prospector/?visible=wind_3tier_site_metadata#/?aL=UuhMF_%255Bv%255D%3Dt%26HHMA_g%255Bv%255D%3Dt%26HHMA_g%255Bd%255D%3D1&bL=groad&cE=0&lR=0&mC=44.10336537791152%2C-118.67431640625&zL=5

NWFSC. 2012. "Physical Oceanographic Considerations." Last modified July 31, 2012. NOAA Fisheries Service, Northwest Fisheries Science Center. Accessed March 19, 2013. http://www.nwfsc.noaa.gov/research/divisions/fed/oeip/ja-physical-oceanographic-factors.cfm

NWFSC and OSU. 2013. "PaCOOS: West Coast Habitat Portal." NOAA Fisheries, Northwest Fisheries Science Center, and Active Tectonics Seafloor Mapping Lab, Oregon State University. Accessed March 19, 2013. http://pacoos.coas.oregonstate.edu/MarineHabitatViewer/viewer.aspx

Oceana. 2011. *Protecting the Oregon Coast – Identifying and Protecting Important Ecological Areas*. Oceana. Washington D.C.

OCMP. 2013. "Oregon MarineMap," Oregon Coastal Management Program. Accessed March 12, 2013. http://oregon.marinemap.org

OHP, California State Parks. 2015. California Historical Resources of San Luis Obispo County. Office of Historic Preservation. Accessed December 21, 2015. http://ohp.parks.ca.gov/listedresources/

Pacific Energy Ventures et al. 2012. West Coast Environmental Protocols Framework: Baseline and Monitoring Studies Final Report. Prepared for Bureau of Ocean Energy Management by Pacific Energy Ventures, Portland, Oregon.

PFMC. 2012. "Habitat and Communities: Habitat." Last update September 4, 2012. Pacific Fishery Management Council. Accessed March 22, 2013. http://www.pcouncil.org/habitat-and-communities/habitat/

PSMFC. 2015. RecFIN: Tabulate Recent Estimates (2004 to Current). Pacific States Marine Fisheries Commission. http://www.recfin.org/data/estimates/tabulate-recent-estimates-2004-current/ (Accessed 16 November 2015).

Principle Power Inc, Press Release, November 16, 2015. http://principlepowerinc.com/en/news-press/press-archive/2015/11/16/edp-renewables-mitsubishi-corp-chiyoda-corp-engie-and-repsol-create-a-consortium-to-implement-a-floating-offshore-wind-farm-in-portugal-using-principle-powers-windfloat-technology

Shaw, Charles E. 2007. California Coastal National Monument Geologic Characterization. US Department of the Interior, Bureau of Land Management. Accessed December 18, 2015. http://www.blm.gov/style/medialib/blm/ca/pdf/coastal_monument.Par.83740.File.dat/geology.pdf

SLO County. 2015. Ocean Water Monitoring Results. San Luis Obispo County Environmental Health Services. Accessed December 21, 2015. http://www.slocounty.ca.gov/health/publichealth/ehs/beach.htm

STATOIL Press Release, November 03, 2015. http://www.statoil.com/en/NewsAndMedia/News/2015/Pages/03Nov_HywindScotland_news_page.aspx

Tenaza, R.R. 1966. Migration of Hoary Bats on South Farallon Island, California. *Journal of Mammalogy*, 47:533-535

US Census Bureau. 2015a. Quick Facts, California. Accessed December 18, 2015. http://quickfacts.census.gov/qfd/states/06000.html

US Census Bureau. 2015b. Quick Facts, San Luis Obispo County, California. Accessed December 18, 2015. http://quickfacts.census.gov/qfd/states/06/06079.html

USCG. 2015. US Coast Guard Base Los Angeles-Long Beach (LA/LB) San Pedro, California. Accessed December 21, 2015. http://www.uscg.mil/baselalb/personnel/DecedentAffairs.asp

USFWS. 2015. Endangered Species: U.S. Species. U.S. Fish and Wildlife Service, last update October 15, 2015. Accessed November 12, 2015: http://www.fws.gov/endangered/species/us-species.html

USGS. 2015. US SEABED Interactive Map. U.S. Geologic Survey. http://coastalmap.marine.usgs.gov/FlexWeb/national/usseabed/ (Accessed 13 November 2015).

Western Regional Climate Center. 2015. Western Regional Climate Center: Climate of California. http://www.wrcc.dri.edu/narratives/california/ (Accessed 16 November 2015).

Whiteman, L., E. Meyer, T. Freidenburg, H. Rindge, R. Meyer, A. Pribyl, M Colton, and T. Mason. 2013. State of the California Central Coast: Results from Baseline Monitoring of Marine Protected Areas 2007-2012. California Ocean Science Trust and California Department of Fish and Wildlife.

World Port Source. 2015. Morro Bay Harbor. Accessed December 17, 2015.
http://www.worldportsource.com/ports/review/USA_CA_Morro_Bay_Harbor_1580.php