121 FERC ¶ 61,288
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Joseph T. Kelliher, Chairman;
Suedeen G. Kelly, Marc Spitzer,
Philip D. Moeller, and Jon Wellinghoff.

Finavera Renewables Ocean Energy, Ltd Project No. 12751-000

ORDER ISSUING CONDITIONED ORIGINAL LICENSE

(Issued December 21, 2007)

Introduction

1. On November 8, 2006, AquaEnergy, Ltd., which has since changed its name to Finavera Renewables Ocean Energy, Ltd. (Finavera),[1] filed, pursuant to Part I of the Federal Power Act (FPA),[2] an application for an original minor license to construct, operate, and maintain the 1.0-megawatt (MW) Makah Bay Offshore Wave Pilot Project[3] (Makah Bay Project). The project will be located in the Pacific Ocean in Makah Bay, about 1.9 nautical miles offshore of Waatch Point in Clallam County, Washington.[4]

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[1]On May 2, 2007, Finavera filed a letter informing the Commission that it officially changed its name from AquaEnergy to Finavera. Finavera Renewables Ocean Energy, Ltd. is a Portland, Oregon-based company and a wholly-owned subsidiary of Finavera Renewables, Inc. of Vancouver, Canada.

[2]16 U.S.C. § 791a-825r (2000).

[3]Although Finavera refers to the Makah Bay Project as a "Pilot Project," it should be noted that this license was not processed under the Commission staff's recently-announced Proposed Licensing Process for Hydrokinetic Pilot Projects. However, as discussed below, the license we issue here has many of the characteristics discussed in Commission staff's proposal.

[4]Makah Bay is a navigable waterway of the United Sates as defined by section 3(8) of the FPA, 16 U.S.C. § 796(8) (2000). "Navigable waters" means those parts of streams or other bodies of water which are used or suitable for use for the transportation of persons or property in interstate or foreign commerce.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

Finavera requests a 5-year license term to demonstrate the economic and environmental benefits of wave energy conversion power plants near coastal communities.[5] Finavera notes that research resulting from the pilot project will help further develop the technology used in producing energy derived from an environmentally clean, safe, and renewable source, and will contribute to advances in the worldwide ocean energy industry.

2. The project will occupy about 1 acre of land on the Makah Indian Reservation and about 28.3 acres of lands, collectively, of the Olympic Coast National Marine Sanctuary (Olympic Coast Sanctuary) administered by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA);[6] and state-owned aquatic lands administered by the Washington State Department of Natural Resources (Washington DNR). The project will generate an average of about 1,500 megawatt-hours (MWh) of energy annually.

3. The Commission supports the development of innovative hydrokinetic projects which use the forces of currents, waves, and tides to generate clean energy.[7] Because the Makah Bay Project will test hydrokinetic technology with minimal environmental impact, the Commission is issuing a conditioned license for the project.

Background

4. On December 18, 2006, the Commission issued public notice that the application was ready for environmental analysis, and requesting motions to intervene, protests, comments, recommendations, terms and conditions, and prescriptions. Washington Department of Fish and Wildlife (Washington DFW), Washington State Department of

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[5]Finavera's Application for License for Minor Project, Volume 1, Page 1-2, November 8, 2006 originally proposed a traditional 30-year license term. However, on July 24, 2007, Finavera requested that the Commission issue a 5-year license for the Makah Bay Project.

[6]The Olympic Coast Sanctuary was designated by NOAA as a National Marine Sanctuary on May 11, 1994. *See* 59 Fed Reg. 24586 (1994). Section 4(e) of the FPA, 16 U.S.C. § 797(e) (2000), authorizes the Commission to issue licenses for projects that are located on reservations of the United States. A marine sanctuary fits within the FPA's definition of reservation. *See* 16 U.S.C. § 796(2) (2000).

[7] *See Policy Statement on Conditioned Licenses for Hydrokinetic Projects*, 121 FERC ¶ 61,221 at P 1 (2007).

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

Ecology (Ecology), Washington DNR, the Makah Tribe, and National Marine Sanctuary Program (Sanctuary Program Group) jointly with the National Marine Fisheries Service (NMFS), filed timely motions to intervene.

5. The U.S. Department of Interior (Interior), on behalf of the Bureau of Indian Affairs and the U.S. Fish and Wildlife Service (FWS), filed a motion to intervene out of time on December 4, 2007. Movants for late interventions must, among other things, demonstrate good cause why the time limit should be waived.[8] Interior argues good cause exists because the project involves new technology with a number of unknowns. This argument is without merit because parties were made aware of the new technology proposed at the time of the license application and could have submitted timely intervention. The Commission expects parties to intervene in a timely manner based on the reasonably foreseeable issues arising from the applicant's filings and the Commission's notice of proceedings.[9] In addition, Interior argues good cause exists because its attempts to negotiate a settlement have failed. This argument is also without merit. The Commission has previously explained that an entity cannot "sleep on its rights" and then seek untimely intervention.[10] Interior has not provided sufficient justification for the Commission to grant their late motion to intervene, and therefore we deny the motion.

6. Additionally, comments and recommendations were filed by Interior, the Makah Tribe, Sanctuary Program Group and NMFS (jointly), Washington DFW, Ecology, Washington DNR, the Olympic Coast Sanctuary on behalf of the Sanctuary Advisory Council, the Columbia River Crab Fisherman's Association and FWS.

7. An Environmental Assessment (EA) was prepared by Commission staff and issued on May 31, 2007. The National Park Service, Washington DFW, Sanctuary Program Group and NMFS jointly, the Makah Tribe, Ecology, FWS, Washington DNR, Interior's Bureau of Indian Affairs, Arthur Grunbaum and Linda Orgel jointly, the Olympic Coast Alliance, Olympic Park Associates, Rich Littleton, Marcy Golde, and Washington Department of Archaeology and Historic Preservation filed comments on the EA. The motions to intervene, comments, and recommendations have been fully considered in determining whether, and under what conditions, to issue this license.

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[8] 18 C.F.R. § 385.214(b)(3) (2007).

[9] *See California Water Resources Department and the City of Los Angeles*, 120 FERC ¶ 61,057 at n.9 (2007).

[10] *Id.* at P 14.

Project Description

8. The project will consist of: (1) four 250-kilowatt (kW) steel wave energy conversion buoys ("AquaBuOYs") and an associated mooring/anchoring and electrical connection system; (2) a 3.7-statute-mile[11]-long, direct current (DC) submarine transmission cable connecting from one of the AquaBuOY's ("collection buoy") power cable to the shore station; (3) a metal shore station 15 feet long by 15 feet wide by 10 feet high; (4) an access road and parking area at the shore station; (5) an approximately 20-foot-long, 12-kilovolt (kV) transmission line to connect the shore station to the nearby existing Clallam County Public Utility District (PUD) distribution line; and (6) appurtenant facilities.

A. Wave Energy Conversion Buoys

9. Each AquaBuOY will have a surface float portion with a diameter of 19.5 feet and a height of 16.4 feet, with about 6.6 feet above water, and an underwater acceleration tube portion with a diameter of 15 feet and length of 98 feet.[12] Inside the acceleration tube are two single-acting hose pumps, 35 feet in length with an inner diameter of 16-18 inches, mounted vertically to an internal piston (a neutrally buoyant disk) at the vertical midpoint of the acceleration tube, and two return tubes along the outer edge on opposite sides of the central hose pumps.

10. Inside each AquaBuOY, power will be generated using a closed-loop hydraulic system filled with 1,850 gallons of fresh water. There will be no interaction between the closed-loop freshwater system and the outside seawater. The hose pumps in the acceleration tube will convert the vertical component of wave kinetic energy into pressurized water. The top hose will connect the top of the acceleration tube with the top of the piston floating inside, while the bottom hose will connect the bottom of the piston with the bottom of the acceleration tube. As the AquaBuOY rises in response to a wave, the piston will lower and stretch the top rubber hose, causing the volume of the hose to decrease and the water inside to come under pressure. The pressurized water will be directed by a high-pressure water accumulator to the nozzles of a Pelton turbine housed near the top of the AquaBuOY, and then back through a return tube to the lower rubber hose. Then, when the AquaBuOY falls in response to the passing wave, the piston will rise and stretch the bottom hose, forcing the water through the opposite return tube, again resulting in a pressurized flow of water directed by the high-pressure water accumulator

[11] A statute mile equals one land mile, or 5,280 feet.

[12] The portion of the AquaBuOY that is above water is similar in size to large navigational aids used to demarcate shipping lanes or identify underwater obstructions.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

to the nozzles of the turbine. In addition, the float portion of each AquaBuOY will house a bilge pump system that will pump out any seawater or rain that gets trapped within the AquaBuOY.

11. Each Pelton turbine will have a maximum water capacity of 34 gallons per second at 215 pounds per square inch and will be housed within the float portion of each AquaBuOY. The turbine rotation speed will vary based on incoming water pressure. The 200- to 400-liter water accumulator will connect to the hydraulic system and even out the pressure and flow rate of the water entering the turbine. The turbine in turn will drive a 480-volt, alternating current variable speed synchronic generator with a maximum output of 250 kW and an estimated average output of about 47 kW.

12. The four AquaBuOYs will be spaced about 60 feet apart in a line approximately parallel to the wave front. The AquaBuOYs will have navigational instruments, including a navigational light with battery backup and radar reflector, and a global positioning system transmitter in case of breakaway. Each AquaBuOY hull will be tethered by tension lines to four surface buoys that are each approximately four feet in diameter. The ocean surface occupied by the four AquaBuOYs and ten surface buoys[13] will be about 60 feet by 240 feet. The ten surface buoys will be connected to sub-surface mooring buoys, located just above the seafloor. The mooring system for each buoy will end with a line running from the sub-surface mooring buoy to a connection to the sea-bed, placed approximately in a square pattern on the ocean floor with the AquaBuOY approximately centered on the water surface above. The connection to the sea-bed will be achieved through vertical load anchors (VLAs).[14] The mooring anchor system will cover a rectangular area of the ocean floor approximately 625 feet by 450 feet.

13. The AquaBuOY closest to the shore, referred to as the collection AquaBuOY or hub, will collect electricity generated from the other three AquaBuOYs. In addition to the equipment described above, the hub will have a 1-MW, 480-volt/12-kV transformer and a 1-MW, 12-kV rectifier.[15] Electricity generated by the four AquaBuOYs will be collected at the hub and converted from alternating current (AC) to direct current (DC). From the hub, a tethered riser umbilical power cable will deliver energy generated by the four AquaBuOYs to a submarine transmission cable.

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[13]There will be ten surface buoys (not 16) because adjacent AquaBuOYs share two surface buoys each.

[14]VLAs are a recent development in the offshore industry, frequently used for mooring oil drilling platforms.

[15]A rectifier is an electrical device that converts alternating current to direct current.

B. Transmission Cable

14. The 3.7-mile-long submarine transmission cable will lead from the tethered riser to the shore connection. The transmission cable will be anchored to the ocean floor until it approaches the shoreline. From 10 to 30 feet in depth below mean low tide to shore, the transmission line will be buried using horizontal directional drilling.[16]

C. Shore Station

15. The land-based facilities will be located on Hobuck Beach, and will consist of a small distribution shore station. This building will house the electrical conditioning equipment necessary to connect to the utility grid, including: a 1-MW, 0.4-kV rectifier; a 1-MW, 0.4-kV inverter;[17] a 0.4-kV/12-kV transformer; a 12-kV, 50-amp switchgear with a connection to the transformer; and a 12-kV, 50-amp switchgear with a connection to the primary distribution line. From this station, the power will be directly connected to a Clallam County PUD 12-kV distribution line approximately 20 feet away. The electrical interconnection will be in close proximity to Makah Passage Road.

Water Quality Certification

16. In instances where the Clean Water Act (CWA) applies, section 401(d) of the CWA[18] provides that, where the state water quality certifying agency has issued a water quality certification for a proposed hydroelectric project, the certification shall become a condition of any federal license that authorizes construction or operation of the project.[19]

17. On February 15, 2007, Finavera applied to Ecology and the Makah Tribe for water quality certification pursuant to section 401 of the CWA for the Makah Bay Project. Both Ecology and the Makah Tribe received the request on February 15, 2007. On June 7, 2007, the Makah Tribe issued certification, noting that the project will not cause

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[16]The depth to which directional drilling will occur will be determined prior to construction and will depend on the results of an eelgrass survey and the suitability of the sediment for horizontal directional drilling.

[17]The inverter is an electrical device that converts direct current to alternating current.

[18] 33 U.S.C. § 1341(d) (2000).

[19]Some hydrokinetic projects may not involve discharges into the navigable waters, in which case section 401 will not apply.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

or contribute to a violation of tribal water quality standards or any other appropriate requirements of tribal law relating to water quality. The Tribe attached no conditions to its certification.

Coastal Zone Management

18. Under section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA),[20] the Commission cannot authorize construction or operation of a project within or affecting a state's coastal zone unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA program, or the agency's concurrence is conclusively presumed by its failure to act within six months of its receipt of the applicant's certification.

19. Finavera filed its consistency certification with Ecology on June 25, 2007. Ecology's response is due on December 26, 2007.

Section 4(E) Findings and Conditions

20. Section 4(e) of the FPA[21] provides that the Commission can issue a license for a project located within any reservation only if it finds that the license will not interfere or be inconsistent with the purpose for which the reservation was created or acquired. In addition, section 4(e) further requires that any licenses for which we make this finding must include conditions prescribed by the Secretary under whose supervision the reservation falls.

21. The Makah Bay Project occupies approximately 28.3 acres within the Olympic Coast National Marine Sanctuary (Olympic Coast Sanctuary), which is administered by the National Marine Sanctuary Program (Sanctuary Program Group) within NOAA. The project will also occupy about 1 acre within the Makah Indian Reservation, which is administered by Interior's Bureau of Indian Affairs.

22. Interior states that the proposed project will occupy portions of Flattery Rocks National Wildlife Refuge, a reservation that is administered by FWS.[22] Flattery Rocks National Wildlife Refuge was established by Executive Order No. 703 on October 23, 1907. The executive order states that "all small, unsurveyed and unreserved islands lying

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[20] 16 U.S.C. § 1456(c)(3)(A) (2000).

[21] 16 U.S.C. § 797(e) (2000).

[22] *See* Interior's February 15, 2007 comments.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

off the coast of the State of Washington … [within a designated area] … are hereby reserved and set aside ….” The proposed project will not occupy any islands of the refuge.

A. Consistency Findings

1. Olympic Coast National Marine Sanctuary

23. The Olympic Coast National Marine Sanctuary stretches from the Olympic coast an average of 35 miles into the Pacific Ocean. The National Marine Sanctuaries Act (Sanctuaries Act)[23] established the basic purposes for marine sanctuary reservations. As the Sanctuary Program Group notes in comments submitted on February 16, 2007, the primary purpose of the Sanctuaries Act is the protection of sanctuary resources.[24] Specifically, the Sanctuaries Act is “to provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner which complements existing regulatory authorities,”[25] and “to facilitate to the extent compatible with the primary objective or resource protection, all public and private uses of the resources of these marine areas not prohibited by other authorities.”[26]

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[23] 16 U.S.C. § 1431 *et seq.* (2000).

[24] 16 U.S.C. § 1431(b)(6) (2000) (stating one of the purposes and policies of the Sanctuaries Act is to manage public and private uses “compatible with the primary objective of resource protection”).

[25] 16 U.S.C. § 1432(b)(2) (2000).

[26] 16 U.S.C. § 1432(b)(6) (2000). The Makah Tribe argues that the Olympic Coast Sanctuary is not a “reservation” within the meaning of section 4(e) of the FPA and that the Sanctuary Program Group thus lacks mandatory conditioning authority under section 4(e). The Makah Tribe does not, however, present any arguments in support of this contention, other than to say that the creation of the Sanctuary did not create an “interest in land” within the meaning of section 4(e) and that a significant portion of the Sanctuary touches the Makah Indian Reservation and lies within the tribe’s usual and accustomed waters secured by treaty in 1855. We disagree. The Sanctuary consists of not only the “coastal and ocean waters” within its boundaries, but also “the submerged lands thereunder.” *See* 15 C.F.R. § 922.150(a) (2007). As we have explained before, by the terms of the Sanctuaries Act, the Secretary of Commerce has jurisdiction to manage and protect such lands and waters. Thus, the Sanctuary represents lands acquired and held for a public purpose. *See AquaEnergy Group LTD,* 102 FERC ¶ 61,242 at P 14

(continued…)

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

24. The Olympic Coast Sanctuary was established in 1994 pursuant to the standards and procedures set forth in the Sanctuaries Act.[27] The Sanctuary was designated "for the purposes of protecting and managing the conservation, ecological, recreational, research, educational, historical and aesthetic resources and qualities of the area."[28]

25. The regulations governing the Olympic Coast Sanctuary generally prohibit drilling into, dredging, or otherwise altering the seabed of the Sanctuary, and constructing, placing, or abandoning any structure, material, or other matter on the seabed of the sanctuary.[29] However, the Sanctuary Program Group may permit activities otherwise prohibited for limited purposes including, promoting "the welfare of an Indian tribe adjacent to the Sanctuary."[30] The Sanctuary Program Group states that "as a general matter, proposals for industrial activities, including large scale energy projects, are given heightened scrutiny and may not be appropriate within a particular national marine sanctuary," and that a determination of whether a project is appropriate for a particular sanctuary depends on (1) the "nature, scope, duration, potential impacts, and other factors of a project," and (2) the "size, purposes, resources, and scope of a particular sanctuary."[31]

26. The proposed project in this case is (1) experimental in nature, will operate for no more than the 5-year duration of the license term, and will have minimal resource impacts; (2) will occupy a very small portion of the 2,500 square-nautical-mile Sanctuary; and (3) has the potential to benefit the Makah Tribe.

27. The Sanctuary Program Group preliminarily concluded that the project will not be inconsistent with the purposes and utilization of the Olympic Coast Sanctuary, provided

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(2003). The fact that a portion of the Sanctuary touches the Makah Indian Reservation is not relevant to our determination.

[27]*See* 16 U.S.C. §§ 1433 and 1434 (2000). *See* 59 Fed. Reg. at 24,586 (May 11, 1994).

[28]59 Fed. Reg. 24,603 (May 11, 1994).

[29]15 C.F.R. § 922.152 (2007).

[30]15 C.F.R. § 922.153(c) (2007).

[31]Sanctuary Program Group's notice of intervention, comments, and preliminary terms and conditions filed on February 16, 2007.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

that the license includes, and Finavera complies with, the terms and conditions submitted by the Sanctuary Program Group pursuant to section 4(e) of the FPA, and the applicant-proposed environmental measures.[32] The license includes such conditions.

28. Based on the above information, we conclude that the Makah Bay Project, as licensed herein, will not interfere or be inconsistent with the purposes of the Olympic Coast Sanctuary.

2. Makah Indian Reservation

29. The Makah Indian Reservation was originally established in 1855 by the Treaty of Neah Bay (Treaty).[33] The Treaty created a reservation for the Makah Tribe on the northwestern portion of the Olympic Peninsula. Although the Treaty did not define a primary purpose for the creation of the reservation, the treaty contained provisions that allowed members of the Makah Tribe to continue fishing, sealing, and whaling "at usual and accustomed grounds or stations," and permitted hunting and gathering on "open and unclaimed lands."[34]

30. After years of temporary extensions of reservation boundaries, the Makah Indian Reservation boundaries were officially extended on October 26, 1872, by Presidential Proclamation.[35] The proclamation, which was issued through an executive order, is very brief and does not discuss the purposes of the reservation other than to state that an additional 3,500 acres are "withdrawn from sale and set apart for the use of the said

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[32] *Id.*

[33] *Treaty of Neah Bay*, January 31, 1855. Ratified on March 8, 1859, and Proclaimed April 18, 1859. Treaty text reproduced by Northwest Indian Fisheries Commission, [Online], *available at* http://www.nwifc.org/tribes/treaties.asp (access date - November 27, 2007).

[34] *Id.*

[35] Executive Order of October 26, 1872. 1 Kappler 917. Charles V. Kappler: *Indian Affairs, Laws, and Treaties*. (Vols. I and II published as S. Doc. No. 58-319 (1904); Vol. III published as S. Doc. No. 62-719 (1912); Vol. IV published as S. Doc. No. 70-53 (1928).) The boundaries were redefined twice in presidential proclamations that replaced the original executive order -- first, by Executive order of January 2, 1873, (1 Kappler 918) and again by Executive Order of October 21, 1873 (1 Kappler 918).

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

Makah and other Indians."[36] However, the specific purposes of an Indian reservation were often not articulated in executive orders of this type, and the general purpose of providing a homeland to Indians is a broad one that must be liberally construed.[37]

31. In establishing an Indian reservation, the United States is presumed to intend to provide a suitable homeland for the Indians and to allow them to continue their traditional way of life.[38] For tribes that historically engaged in hunting, gathering, and fishing, this necessarily includes a reservation of rights to continue those activities on the reserved lands.[39]

32. Given that the Makah Bay Project will occupy only about 1 acre of land on the 47-square-mile Makah Indian Reservation, the Commission concludes that the vast majority of the Reservation remains available for the Tribe's unrestricted use, and appears adequate to provide a suitable permanent homeland and to allow the tribe to continue its traditional practices of hunting, gathering, and fishing. Additionally, the Tribe has not suggested that the project would occupy any sacred lands. We therefore find that the license as issued herein will not interfere or be inconsistent with the purposes for which the Makah Indian Reservation was created.

B. Mandatory Conditions

33. FPA section 4(e) requires that Commission licenses for projects located within federal reservations must include all conditions that the Secretary of the department under whose supervision the reservation falls shall deem necessary for the adequate protection and utilization of such reservation.

1. Olympic Coast National Marine Sanctuary

34. As noted above, the project occupies portions of the Olympic Coast Sanctuary. These lands are administered by the Sanctuary Program Group, which filed its final

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[36] Executive Order of October 26, 1872. 1 Kappler 917.

[37] *See Colville Confederated Tribes v. Walton*, 647 F.2d 42, 47-48 (9th Cir.), *cert. denied*, 454 U.S. 1092 (1981). The language used in the executive order creating the Colville Reservation, which states that the land is "set apart as a reservation for said Indians," is nearly identical to that used in creating the expanded Makah Indian Reservation. *Id.* at 47.

[38] *Id.*

[39] *Id.* at 46; *see United States v. Winters*, 407 U.S. 564, 576 (1908).

section 4(e) conditions on February 16, 2007. The 10 conditions, which are summarized below, are set forth in Appendix A of this order and incorporated into this license by ordering paragraph (F).

35. The 10 conditions are: (1) develop a construction plan and conduct eelgrass and epibenthic surveys; (2) develop a project facility inspection plan; (3) develop an antifouling compound (paint) study plan; (4) conduct a project facility noise assessment; (5) conduct an electromagnetic field analysis of the submarine transmission cable; (6) develop a marine mammal entanglement and collision prevention plan; (7) obtain prior written approval from the Sanctuary Program Group for any project changes; (8) purchase a bond for the cost of project removal and submit a decommissioning plan for the project prior to commencing removal activities associated with decommissioning; (9) notify the Sanctuary Program Group of any emergencies and associated response action; and (10) reserve the authority of the Sanctuary Program Group to prescribe additional conditions under section 4(e) of the FPA.

2. Makah Indian Reservation

36. As noted above, the proposed project will occupy approximately 1 acre of land within the Makah Indian Reservation, which is administered by the Bureau of Indian Affairs. By letter submitted November 28, 2007, the Bureau of Indian Affairs filed a reservation of 4(e) authority for the Makah Indian Reservation. The reservation of authority is incorporated into this license by article 419.[40]

Essential Fish Habitat Program

37. Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (Act),[41] requires federal agencies to consult with the Secretary of Commerce regarding any action or proposed action, authorized by the agency, that may adversely affect Essential Fish Habitat (EFH) identified under the Act. Under section 305(b)(4)(A) of the Act, NMFS is required to provide EFH conservation recommendations for actions that will adversely affect EFH.[42] Under section 305(b)(4)(B) of the Act, an agency must respond within 30 days after receiving

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[40] Interior also submitted a condition for inclusion in the license that would reserve its authority under FPA section 4(e) to prescribe terms and conditions for the Flattery Rocks Refuge. As we have discussed, the proposed project will not occupy any portion of the refuge, so we are not including this reservation in the license.

[41] 16 U.S.C. § 1855(b)(2) (2000).

[42] 16 U.S.C. § 1855(b)(4)(A) (2000).

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

the recommended conservation measures, describing the measures proposed by the agency for avoiding, mitigating, or offsetting the effects of the agency's approval activity on the EFH.[43]

38. The Makah Bay Project area includes habitats that have been designated EFH for various life-history stages of groundfish, rockfish, and Pacific salmon. On May 25, 2007, Commission staff informed NMFS of staff's conclusion that licensing the project, with staff's recommended measures, may adversely affect EFH. With the same letter, Commission staff initiated EFH consultation with the NMFS.

39. On September 21, 2007, NMFS responded with the conclusion that the proposed project would adversely affect EFH of groundfish species if the AquaBuOY anchoring system is located on or near rocky (hard) substrate. NMFS proposed that the following EFH conservation measure be included as a license condition:

> To minimize adverse effects to the substrate, FERC should require the Applicant to confirm the presence of sandy substrate where the buoys and moorings will be deployed. The confirmation of the substrate type should be provided to NMFS. If the substrate is not sandy bottom, FERC should require the applicant to move their deployment location to a sandy bottom location.

40. The AquaBuOY mooring and anchoring system will be located in an area consisting predominately of fine-grained silts and sands.[44] However, to ensure that the mooring and anchoring system will not disturb rocky substrates, Article 401 includes NMFS' recommended measure.

Threatened and Endangered Species

41. Section 7(a)(2) of the Endangered Species Act of 1973 (ESA),[45] requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of their designated critical habitat.

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[43] 16 U.S.C. § 1855(b)(4)(B) (2000). The measures recommended by the Secretary of Commerce are advisory, not prescriptive. However, if the federal agency does not agree with the recommendations of the Secretary of Commerce, the agency must explain its reasons for not following the recommendations.

[44] *See* EA at 53-54.

[45] 16 U.S.C. § 1536(a) (2000).

42. Federally listed fish species that may occur in the area of the Makah Bay Project include Chinook, chum, coho, and sockeye salmon (representing 12 evolutionarily significant units (ESUs)); steelhead trout (representing 11 ESUs); sea-run cutthroat trout (Umpqua River ESUs); and green sturgeon. Federally listed wildlife species that may occur in the area include the blue, fin, humpback, Sei, sperm, and killer (southern resident stock) whales; Steller sea lion; brown pelican; short-tailed albatross; marbled murrelet; and green, loggerhead, leatherback, and olive ridley sea turtles.

43. Based on the analysis in the EA, staff initially concluded that licensing the project with staff-recommended measures would not affect the blue whale, fin whale, Sei whale, sperm whale, short-tailed albatross, and the four sea turtles; may affect, but would not be likely to adversely affect, the brown pelican; and may adversely affect the humpback whale, southern resident killer whale, Steller sea lion, marbled murrelet, and all of the salmonid fish species.[46] Based on its findings, staff requested formal consultation with NMFS and FWS on May 25, 2007. By letters filed on June 29 and July 2, 2007, NMFS and FWS, respectively, indicated that additional information was needed to initiate formal consultation.

44. On August 20, 2007, Commission staff provided NMFS and FWS with the requested information to the extent available and concluded that, based on Finavera's amended proposal for a 5-year license term,[47] the requested information, and additional recommended protection measures, licensing the project with staff-recommended measures may affect, but would not be likely to adversely affect, the brown pelican, humpback whale, southern resident killer whale, Steller sea lion, marbled murrelet, green sturgeon, and all salmonid fish species.

45. On September 21, 2007, NMFS concurred with staff's determinations. On September 18, 2007, FWS responded that it did not concur with staff's conclusion that licensing the project with staff-recommended protection measures may affect but would

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[46]Staff also concluded that licensing the project may affect but would not be likely to adversely affect the bald eagle; however, the bald eagle was subsequently removed from the threatened and endangered species list, effective August 8, 2007. 72 Fed. Reg. 37,346 (July 9, 2007). We recognize that the bald eagle is subject to the Bald and Golden Eagle Protection Act (Eagle Act), 16 U.S.C. §§ 668-668d, and the Migratory Bird Treaty Act, 16 U.S.C. §§ 703-712. However, as we recently explained in *Pacific Gas and Electric Company*, 121 FERC ¶ 61,072 (2007), under those acts, the licensee itself is responsible for minimizing any takings.

[47]On July 24, 2007, Finavera requested that the Commission issue a 5-year license, rather than the originally proposed 30-year license.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

not be likely to adversely affect the marbled murrelet.[48] FWS stated that it was commencing formal consultation and would file a biological opinion with the Commission by January 3, 2008.

46. This license includes the following measures to minimize adverse effects to listed species: remove debris and derelict fishing gear that could entangle fish, marine mammals, and birds from the project area prior to installing the AquaBuOYs and transmission cable (Article 406); inspect and remove any such items caught on project components during operation (Appendix A, Condition 2) and provide an annual report to the resource agencies and the Makah Tribe in order to identify any needed corrective actions (Article 401 and Appendix A, Condition 2); have a marine mammal and marbled murrelet observer present during in-water installation activities to alert the vessel captain and alter installation activities when marine mammals or marbled murrelet are within 1,000 feet of the construction vessel to minimize the potential for collision with and disturbance to these species (Article 404); implement construction boat speed restrictions when entering and leaving Makah Bay to minimize the potential for collision with and disturbance to marine mammals and marbled murrelet (Article 404); develop construction lighting requirements or a construction schedule, if needed, to minimize the risk of night lighting disturbance to marine mammals and marbled murrelet (Article 409); conduct an on-site noise assessment and identify potential noise attenuation measures in the event that noise emissions from the AquaBuOY array exceed 120 decibels (dB) (Article 401 and Appendix A, Condition 4); conduct an Electromagnetic Field assessment to determine if electromagnetic field levels at the project will adversely affect marine mammals (Article 410); and take immediate corrective action, including shutdown as necessary, if an immediate threat of injury or mortality to listed species becomes evident (Article 411).

Marine Mammal Protection Act

47. The Marine Mammal Protection Act (MMPA)[49] prohibits, with certain exceptions, the "take" of marine mammals in United States waters and the high seas. Take means to harass, hunt, capture, or kill any marine mammal.[50] The MMPA includes a mechanism for allowing, upon request, the incidental taking of small numbers of marine mammals by

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[48]FWS made no mention of staff's finding that the proposed project would not be likely to adversely affect the brown pelican; therefore, we presume that FWS concurs with our finding for this species.

[49]16 U.S.C. § 1361 *et seq.* (2000).

[50]50 C.F.R. § 216.3 (2007).

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

U.S. citizens engaged in a specified activity within a specified geographical region.[51] Take authorization is granted through either a letter of authorization, or conditions contained in an incidental harassment authorization.[52]

48. Unlike the ESA, the MMPA does not require Commission involvement.[53] Section 7(a)(2) of the ESA requires federal agencies to consult with FWS or NMFS to ensure that any actions they authorize are not likely to jeopardize the continued existence of a listed species. This provision thus applies to our authorization of hydropower project operations. By contrast, the MMPA prohibits the actions cited above (harass, hunt, capture, or kill) as to marine mammals but does not impose consultation requirements on federal agencies in respect to their authorization of activities. Consequently, Finavera must work with NMFS and FWS to satisfy the requirements of the MMPA.

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[51] 16 U.S.C. § 1371(a)(5) (2000).

[52] An incidental harassment authorization is valid for one year and authorizes harassment, which includes actions that have the potential to disturb a marine mammal by causing disruption of behavioral patterns, including migration, breathing, nursing, breeding, feeding, or sheltering, but which does not have the potential to seriously injure the mammal. 50 C.F.R. § 216.3 (2007). A letter of authorization is valid for 5 years and authorizes harassment that has the potential to injure a marine mammal.

[53] Any take of marine mammals listed as threatened or endangered under the ESA must be authorized under both the ESA and MMPA; an ESA incidental take statement cannot be issued until the MMPA authorization is completed. *See* 16 U.S.C. § 1536(b)(4)(C) (2000). Staff initially concluded that project construction could result in harassment of some listed marine mammals, so to facilitate ESA consultation, Commission staff initially requested an initial harassment authorization under the MMPA from NMFS and FWS (*See* letters dated May 25, 2007). Subsequently, new information led staff to conclude that project construction and operation would not result in the harassment of any marine mammals and sought NMFS and FWS concurrence that an incidental harassment authorization was not needed. However, by letters dated September 19 and 21, 2007, respectively, both NMFS and FWS stated that Finavera would need to submit a request pursuant to MMPA regulations to allow the agencies to either authorize the incidental take of marine mammals, or make a finding that incidental take is unlikely to occur.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

National Historic Preservation Act

49. Under section 106 of the National Historic Preservation Act (NHPA),[54] and its implementing regulations,[55] federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register of Historic Places (defined as historic properties) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. This generally requires the Commission to consult with the State Historic Preservation Officer (SHPO) and, where tribal reservation lands are involved, the Tribal Historic Preservation Officer (THPO) to determine whether and how a proposed action may affect historic properties, and to seek ways to avoid or minimize any adverse effects.

50. On June 5, 2007, Commission staff sought concurrence from the SHPO and THPO, within 30 days, on staff's determination that the project, as licensed with staff's recommendations, would have no effect on historic properties. The THPO provided no response; therefore, we presume the THPO's concurrence. The SHPO filed a response on June 18, 2007, with a request for a copy of Finavera's geophysical survey report,[56] which staff used as a basis for concluding in the EA that no cultural resources are located where the AquaBuOYs and submarine transmission cable will be installed. Staff sent the report to the SHPO on July 6, 2007.

51. By letter filed on July 23, 2007, the SHPO requested that a professional underwater archaeologist "that meets the Secretary of Interior's standards as a professional archaeologist" critique the geophysical survey report and provide a review with charts showing the results of the seabed survey. On August 31, 2007, staff responded by stating that it is recommending license conditions requiring Finavera to: (1) provide for the SHPO's requested review and (2) develop and implement a Cultural Resources Management Plan that includes the results of the professional archaeologist's review along with a provision for a Makah Tribal monitor to be present during all onshore project-related ground-disturbing activities. Staff also requested the SHPO's concurrence within 15 days. The SHPO concurred with staff's finding of no effect on September 27, 2007.

52. In order to ensure the protection of historic properties at the project, Articles 415 and 416 require that, prior to beginning on-site construction or installation of the project,

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[54] 16 U.S.C. § 470 *et seq.* (2000).

[55] 36 C.F.R. Part 800 (2007).

[56] *See* Thales GeoSolution 2002 Report, filed on December 8, 2006.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

Finavera file the results of SHPO's requested review of the report, and develop, in consultation with the THPO and SHPO, a Cultural Resources Management Plan for the project.

Recommendations of Federal and State Fish and Wildlife Agencies

A. Recommendations Pursuant to Section 10(j) of the FPA

53. Section 10(j)(1) of the FPA,[57] requires the Commission, when issuing a license, to include conditions based on recommendations by federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act,[58] to "adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)" affected by the project.

54. In response to the December 18, 2006 public notice that the project was ready for environmental analysis and requesting comments, recommendations, terms and conditions, and prescriptions, Washington DFW filed eight recommendations pursuant to section 10(j) of the FPA.[59] One of the recommendations was determined to be outside the scope of section 10(j) and is discussed in the next section. This license includes conditions consistent with the remaining seven recommendations that are within the scope of section 10(j): (1) conduct continuous cetacean acoustic monitoring (Article 407); (2) develop a detailed anchoring plan for the submarine transmission cable (Appendix A, Condition 1); (3) conduct an assessment of the intensity of the electromagnetic field emitted from the submarine transmission cable and AquaBuOY electrical cables (Article 410); (4) develop a spill control, prevention, and countermeasures plan (Article 404); (5) conduct periodic submarine transmission cable inspections to ensure the line is stationary (Appendix A, Condition 2); (6) conduct periodic monitoring of the AquaBuOY anchoring system to ensure the AquaBuOYs remain in place and free of derelict fishing gear (Appendix A, Condition 2); and (7) monitor the effectiveness of the sea lion excluder design of the AquaBuOYs (Article 405).

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[57] 16 U.S.C. § 803(j)(1) (2000).

[58] 16 U.S.C. §§ 661 *et seq.* (2000).

[59] The recommendations were timely filed on February 16, 2007.

B. Recommendations Pursuant to Section 10(a)(1) of the FPA

1. Macroalgae and eelgrass survey

55. Washington DFW made a recommendation for a macroalgae and eelgrass survey that is not within the scope of section 10(j), because the recommendation was for a study that could have been conducted prior to licensing.[60] Consequently, we did not consider this recommendation under section 10(j) of the FPA. Instead, we consider the recommendation under the broad public interest standard of FPA section 10(a)(1),[61] and adopt Washington DFW's recommendation. (Appendix A, Condition 1).

2. Seabird and marine mammal monitoring

56. FWS recommended that Finavera monitor seabirds at and near the project's AquaBuOYs and monitor for any project-related noise disturbances of marine mammals. Article 408 requires Finavera to develop and implement a seabird monitoring plan to evaluate seabird behavior and interaction with the project's AquaBuOYs. Article 407 and Condition 4 of Appendix A require that Finavera conduct an on-site noise assessment and monitor marine mammals to evaluate any noise effects and interactions with the project's AquaBuOYs.

Other Issues

A. Safe Management, Operation, and Maintenance of the Project

57. The Commission staff classifies the project as having minimal hazard impact potential to life and property, based on the following project-specific features: (1) removal of existing marine debris and derelict fishing gear from the immediate project area prior to on-site project construction or installation (Article 406); (2) the development of a navigation safety plan (Article 414); (3) providing for navigational safety at the project as may be directed by the U.S. Coast Guard (Article 307); (4) consultation with the U.S. Coast Guard and the Sanctuary Program Group on the

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[60] 18 C.F.R. § 4.30(b)(9)(ii) (2007).

[61] 16 U.S.C. § 803(a)(1) (2000). That section requires that any project for which the Commission issues a license shall be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce; for the improvement and utilization of waterpower development; for the adequate protection, mitigation, and enhancement of fish and wildlife; and for other beneficial public uses, including irrigation, flood control, water supply, recreation, and other purposes.

painting of the project AquaBuOYs in a way that considers the safety of the public and project facilities (Article 414); (5) the installation of Global Positioning System transmitters in the AquaBuOYs to assist in monitoring and retrieval should there be a device drift or detachment; and (6) the location of the project, which is 1.9 nautical miles offshore from Waatch Point. The Commission concludes that the project works will be safe when constructed, operated, and maintained in accordance with the Commission's standards and oversight.

B. Water Quality Monitoring

58. Any seepage of drilling fluid from under the seabed during the installation of the tunneled portion of the project's submarine transmission cable could adversely affect marine resources located on the seabed. Article 403 requires Finavera to develop and implement a water quality monitoring plan with provisions for monitoring the drilling process for fluid seeps and correcting any conditions where drilling fluid is being released to the surrounding stratum.

C. Project Financing

59. To ensure that there are sufficient funds available for project construction and subsequent removal, Article 201 requires Finavera to file for Commission approval a project financing plan for the construction and installation of the project, at least 90 days before beginning on-site construction and installation. The Sanctuary Program Group Condition 8 (Appendix A) requires Finavera to purchase and maintain a bond, or equivalent financial assurance, to cover the entirety of the costs associated with removal of all project facilities from within the Olympic Coast Sanctuary. Article 401(e) expands the coverage of the financial assurance required by the Sanctuary Program Group's Condition 8 to include all project components on all project lands and waters.

D. Use and Occupancy

60. Requiring a licensee to obtain prior Commission approval for every use or occupancy of project lands would be unduly burdensome. Article 420 allows Finavera to grant permission, without prior Commission approval, for the use and occupancy of project lands, other than federal lands, for minor activities. Such uses must be consistent with the purpose of protecting and enhancing the scenic, recreational, and environmental values of the project.

E. L-form Modification

61. Pursuant to Ordering Paragraph (G), this license is subject to the standard license articles set forth in Form L-19 (October 1975), entitled, "Terms and Conditions of License for Unconstructed Minor Project Affecting Navigable Waters and Lands of the

United States,"[62] with the exception of Articles 5, 6, 9, 10, and 15 and with the modification to Article 11 to include the Secretary of Commerce as a recommending entity. To capture some aspects of the standard articles that have been deleted from this order, the following articles are added: Article 204, Requirement to Obtain Property Rights, and Article 307, Protection of Navigation.

F. Annual Charges

62. The Commission collects annual charges from licensees for administration of the FPA, and to reimburse the United States for the occupancy and use of any federal lands. Article 202 provides for the collection of funds for administration of the FPA and the project's use of 28.3 acres of federal lands within the Olympic Coast Sanctuary. Article 202 also requires Finavera to negotiate a reasonable annual charge with the Makah Tribe for the purpose of reimbursing the Tribe for the use of 1 acre of land within the Makah Indian Reservation.

G. Filing Approved Exhibit Drawings

63. The Commission requires licensees to file sets of approved project drawings on microfilm and in electronic file format. Article 203 requires the filing of these drawings.

H. Review of Construction, Operation, and Safety Plans

64. The Commission requires licensees to file construction and operation-related plans and specifications for unconstructed projects. Article 302 requires Finavera to provide design drawings and letters of approval for any onshore deep excavation at least 30 days before the start of any on-site construction authorized by the license. Article 303 requires Finavera to provide final contract drawings and specifications -- together with a supporting design report consistent with the Commission's engineering guidelines -- at least 60 days before the start of any on-site construction authorized by the license.

65. Article 304 requires Finavera to file for Commission approval within 90 days of completion of project construction revised exhibits A, F, and G, as applicable, to describe and show those project facilities as-built. Article 305 requires Finavera to file a project safety plan for Commission review at least 90 days before the start of project operations which describes the procedures Finavera will take during any project emergency that could adversely impact life or property.

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[62] L-19 is reprinted at 54 FPC 1799 *et seq.* (1975).

I. Start of Construction

66. As stated in Article 301, Finavera is required to commence on-site construction of the project within two years from the effective date of this license and to complete construction within three years from the effective date of this license.

J. Requirement to Obtain Property Rights

67. As directed in Article 204, Finavera is required to acquire all property rights necessary or appropriate for the construction, maintenance, and operation of the project within two years of the effective date of the license and before starting any on-site project construction or installation.

K. Revegetation and Noxious Weed Control

68. Article 412 provides for the development and implementation of a revegetation and noxious weed control plan to revegetate shoreline areas disturbed during construction with native plant species, while protecting these areas from erosion, and preventing the establishment of noxious weeds.

L. Interpretation and Education Plan

69. As discussed in the EA, information about the project, marine habitats, and the Makah Tribe benefit residents and visitors by complementing existing federal and state resource agency and the Makah Tribe's interpretative programs, as well as providing information on new energy technology. Such information is required by Article 413 and will be located in an interpretive display at the shore station.

M. Navigation Safety Plan

70. As discussed in the EA, Finavera should delineate a navigation safety plan for the purposes of protecting the public and project facilities from events (*e.g.*, collisions between commercial and recreational vessels and in-water project facilities) and protecting marine biota. Article 414 requires Finavera to develop and file for Commission approval a plan for considering an exclusion zone boundary around certain project facilities.

N. Project Removal Plans

71. Finavera proposes to begin and complete removal of the project facilities by the end of a requested 5-year license.[63] Condition 8 of the Sanctuary Program Group's

[63] *See* letter filed by Finavera on July 24, 2007.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

section 4(e) conditions for the project (Appendix A), requires Finavera to develop and implement a decommissioning plan for the removal of the project facilities from the Olympic Coast Sanctuary at "the end of the service life for the project."

72. Project facilities will be constructed both offshore within the Olympic Coast Sanctuary and onshore on lands of the Makah Indian Reservation. Article 417 requires Finavera to develop and implement a detailed project removal plan that adopts the provisions of the Sanctuary Program Group's Condition 8 for the removal of facilities from the Olympic Coast Sanctuary and includes additional provisions for the removal of project facilities on the lands of the Makah Indian Reservation. Finavera must file the project removal plan with the Commission at least 120 days before starting on-site project construction or installation. Moreover, because the Commission retains jurisdiction over the project until the licensee has fulfilled all of the requirements of the license, including project removal, all removal and site-restoration activities must be completed no later than the expiration of the 5-year term of the license.

73. In addition to Article 417, Article 306 requires Finavera to provide, at least 60 days before the start of the project removal, plans and specifications detailing the sequence of activities, and safety and quality control measures the licensee will take during removal operations.

O. Final Reports

74. Within 90 days after the completion of project removal, Article 418 requires Finavera to: (1) file a final report demonstrating that the project site is restored in accordance with Articles 306 and 417, and (2) notify the Commission in writing that it has satisfied all the requirements of this license.

P. Emergency Shutdown and Removal

75. Article 411 provides that the Commission may require cessation of project operation in the event the Director, Office of Energy Projects, determines that doing so is necessary for the protection of the environment or the life, health, or property of the public. This condition is appropriate for this license because the Makah Bay Project will test new electricity generation technology.

Q. Authorization with Conditions

76. We note that, under the license with conditions we issue here, Finavera will not be permitted to exercise the authorization granted in this order to begin on-site construction and installation and operate its project, until it has obtained all other authorizations

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

required under federal law. As we explained in *Millenium Pipeline Company, L.P.*,[64] "[i]n spite of the best efforts of those involved, it is often impossible for an applicant to obtain all approvals necessary to construct and operate a project in advance of the Commission's issuance of a certificate." In such cases, we routinely issue certificates with conditions for natural gas pipelines, while making clear that the certificate holder cannot commence construction before obtaining all necessary approvals.[65] The same logic holds true for hydrokinetic projects.

R. Commercial and Recreational Fishing

77. On February 16 and June 27, 2007, Washington DFW commented that non-tribal commercial and recreational fishing in the Makah Bay Project area would be adversely affected by the construction and operation of the project, because fishing would likely be excluded within and adjacent to the project footprint for the purpose of protecting the project facilities from entanglement with fishing gear. To mitigate the adverse effect, Washington DFW recommended license conditions requiring Finavera to (1) monitor fish populations and fishing effort in the project area throughout the term of the license and (2) provide community outreach to inform the fishing public of the project and associated closures of areas to fishing.

78. On June 18, 2007, the Columbia River Crab Fisherman's Association (Association) expressed similar concerns regarding project effects on fishing opportunities within the project area. The Association stated that its primary concern is that the project, in concert with other ocean development, would have a cumulative adverse effect on the availability of fishing areas and ultimately the viability of the ocean fishing industry in the Pacific Northwest and California.

79. The EA assessed the direct and cumulative effects of licensing the project on, among other things, ocean fisheries and recreation resources in the project area, and concluded that although there would be no substantial changes to fish or crab populations as a result of the construction and operation of the project, there would be adverse effects on commercial and recreational fishing activities due to the loss of fishing grounds and displacement of fishing and crabbing activities and crabbers to other adjacent areas.[66]

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[64] 100 FERC ¶ 61,277 at P 230 (2002).

[65] *See Id.* at P 229-31; *Crown Landing LLC*, 117 FERC ¶ 61,209 at P 13-29 (2006), *appeal docketed sub nom. Delaware Department of Natural Resources and Environmental Control v. FERC*, No. 07-1007 (D.C. Cir. Jan. 12, 2007); *Georgia Strait Crossing Pipeline LP*, 108 FERC ¶ 61,053 (2004) at P 14-17.

[66] *See* EA at 61 and 119.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

Thus, although the EA did not recommend adopting Washington DFW's fish population monitoring proposal, it did recommend adopting Washington DFW's proposal that Finavera inform the public of the project and any associated exclusion zones. We have included such a requirement in Article 413.

80. In addition, the EA recommended that Finavera monitor changes in recreational (including fishing) use patterns in the project area.[67] However, subsequent to the issuance of the EA, Finavera requested that that the Commission issue a 5-year license rather than the 30-year license originally proposed in its license application. Because this license will have a term of 5-years at the end of which Finavera will have removed all project facilities in accordance with a Commission-approved removal plan (Article 417), we find that the Makah Bay Project will have minimal direct or cumulative effects on fishing and crabbing within the project area. For this reason, we now see no need for including a condition in this license requiring Finavera to develop and implement a recreational use monitoring plan.

State and Federal Comprehensive Plans

81. Section 10(a)(2) of the FPA[68] requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. Under section 10(a)(2)(A), Commission staff reviewed 22 relevant comprehensive plans to determine whether the Makah Bay Project would be consistent with their provisions.[69] No inconsistencies were found.

Need for Action

82. Wave energy is a newly emergent technology that has had limited in-situ testing. Issuance of a license to Finavera will allow Finavera to test its patented wave-energy-to-electrical-energy technology on a real-time basis and to determine the feasibility of the technology to provide energy to the transmission grid.

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[67] *See* EA at 152. In addition, because Commission staff concluded that there would be no adverse effects on fish and crab populations in the project area, Commission staff did not recommend the fish population monitoring requested by Washington DFW (*see* EA at 155).

[68] 16 U.S.C. § 803(a)(2)(A) (2000).

[69] The list of applicable plans can be found in section IX of the EA.

83. Although the primary purpose of this project is to demonstrate the potential of an emergent renewable energy industry, the Commission must consider a number of public interest factors, including the economic benefit of project power. Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in *Mead Corp*.,[70] the Commission uses current costs to compare the costs of the project and likely alternative power with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the Commission's economic analysis is to provide a general estimate of the potential power benefits and the costs of a project, and of reasonable alternatives to project power. The proposed project will generate an estimated average of 1,500 MWh of energy annually. As proposed by Finavera, in the first year of operation, the project will cost, in 2007 dollars, $814,088, or $542.73/MWh, more than the likely cost of alternative power annually. As licensed herein with mandatory conditions pursuant to section 4(e) of the FPA and staff-recommended measures, the project will cost $851,408, or $567.61/MWh, more than the likely cost of alternative power annually.[71]

84. The project has relatively high capital and operation and maintenance costs, with respect to the amount of power produced. However, this project's real value lies in its successful testing and demonstration of Finavera's technology, and its ability to raise the profile of, and advance, the emergent ocean energy industry.

Comprehensive Development

85. Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to power development purposes and to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. Accordingly, any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

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[70] *Mead Corporation, Publishing Division*, 72 FERC ¶ 61,027 (1995).

[71] Details of staff's economic analysis for various alternatives are included in the EA. Given the project's scope and 5-year license term, this license does not require a recreation monitoring plan; therefore, the cost of the project as licensed herein does not include the annualized cost of $1,650 for developing and implementing the plan.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

86. The EA for the project contains background information, analysis of effects, and support for related license articles. We conclude, based on the record of this proceeding, including the EA and the comments thereon, that licensing the Makah Bay Project as described in this order will not constitute a major federal action significantly affecting the quality of the human environment.

87. Based on our independent review and evaluation of Finavera's application, recommendations from the resource agencies, the Makah Tribe, and other stakeholders, and the no-action alternative, as documented in the EA, the Commission has selected the proposed project, with the mandatory conditions and staff-recommended measures, and finds that it is best adapted to a comprehensive plan for improving or developing Makah Bay.

88. The Commission selected this alternative because: (1) issuance of a hydropower license will allow Finavera to demonstrate the ability of its technology to contribute to a diversified electrical generation mix by bringing clean, renewable energy to commercial and residential consumers in Washington State and other coastal states and to confirm potential environmental effects; (2) the project will help meet the new Washington State Renewable Portfolio Standards;[72] (3) the public benefits of this alternative will exceed those of the no-action alternative; and (4) the recommended measures will protect marine resources, wildlife, recreation, aesthetic resources, ocean uses, land uses, and cultural resources in the project area.

License Term

89. The Commission is issuing a 5-year license for the Makah Bay Project. Although the FPA establishes that the maximum license term length the Commission can set is 50 years, the FPA does not establish a minimum license term length for original projects. Because Finavera requested a 5-year license term, and because the project is a small-scale project meant to demonstrate the generating potential of a new technology, the Commission has determined that a 5-year license is appropriate.

The Commission orders:

(A) This license is issued to Finavera Renewables Ocean Energy, Ltd (licensee) to construct, operate, and maintain the Makah Bay Offshore Wave Energy Pilot Project,

[72]On November 7, 2006, Washington State voters approved ballot initiative 937, setting renewable energy standards for utility companies in the state. The measure requires all utilities serving 25,000 people or more to produce 15 percent of their energy using renewable sources by 2020. Such sources include wind, solar, wave, ocean, or tidal power.

for a period of 5 years, effective the first day of the month after this license is issued. The license is subject to the terms and conditions of the Federal Power Act (FPA), which are incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) No on-site project construction or installation shall begin until further order of the Commission after Finavera has submitted (1) written notification that it has obtained all other authorizations required under federal law, and (2) copies of the required authorizations.

(C) The project consists of:

(1) All lands, to the extent of the licensee's interests in these lands, enclosed by the project boundary shown by exhibit G filed on February 20, 2007:

Exhibit G Drawing	FERC No. 12751-	Description
Sheet G-1	3	Project Boundary Map

(2) Project works consisting of: (a) four 250-kilowatt (kW), steel wave energy conversion buoys ("AquaBuOYs") and an associated mooring/anchoring and electrical connection system; (b) Global Positioning System transmitters attached to each of the AquaBuOYs; (c) a metal shore station 15 feet long by 15 feet wide by 10 feet high; (d) access road and parking area at the shore station; (e) a 3.7 statute-mile-long, direct current (DC) submarine transmission cable connecting from one of the AquaBuOY's ("collection buoy") power cable to the shore station; (f) an approximately 20-foot-long, 12-kilovolt transmission line connecting the shore station to the nearby Clallam County Public Utility District distribution line; and (g) appurtenant facilities.

The project works described above are more specifically shown and described by those portions of exhibits A and F shown below:

Exhibit A: The following sections of exhibit A filed on November 8, 2006:

Pages A-1 through A-4, describing the specifications and components of the AquaBuOY, the underwater transmission cable, and the shore station.

Exhibit F: The following sections of exhibit F filed on February 20, 2007:

Exhibit F Drawings	FERC No. 12751-	Description
Sheet F-1	1	Plans and Profiles
Sheet F-2	2	Sections and Details

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

(3) All of the structures, fixtures, equipment, or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project, and all other rights that are necessary or appropriate in the operation or maintenance of the project.

(D) The exhibits A, F, and G described above are approved and made part of this license.

(E) The following sections of the FPA are waived and excluded from the license for this minor project:

4(b), except the second sentence; 4(e), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the FPA that are waived here; 10(c), insofar as it relates to depreciation reserves; 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22.

(F) The license is subject to the conditions submitted by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Sanctuary Program under section 4(e) of the FPA, as those conditions are set forth in Appendix A to this order.

(G) This license is also subject to: (a) the articles set forth in Form L-19 (October 1975), entitled, "Terms and Conditions of License for Unconstructed Minor Project Affecting Navigable Waters and Lands of the United States" (*see* 54 FPC 1799 *et seq.*) with the exception of articles: 5, 6, 9, 10, and 15 and with the modification to Article 11 that the licensee shall also consult with the Secretary of Commerce and (b) the following additional articles:

Article 201. *Project Financing Plan*. At least 90 days before the start of on-site project construction or installation, the licensee shall file with the Commission, for approval, three copies of a project financing plan. The plan must show that the licensee has acquired the funds, or commitment for funds, necessary to construct, operate, and maintain the project in accordance with all articles and conditions of this license. On-site project construction and installation shall not begin until the licensee is notified by the Commission that the plan is approved.

Article 202. *Annual Charges*.

(a) The licensee shall pay the United States annual charges, effective as of the date of commencement of project construction and installation, and as determined in accordance with the provisions of the Commission's regulations in effect from time to time, for the purposes of:

(1) reimbursing the United States for the cost of administration of Part I of the Federal Power Act. The authorized installed capacity for that purpose is 1,000 kilowatts (kW). Under the regulations currently in effect, projects with authorized installed capacity of less than or equal to 1,500 kW will not be assessed an annual charge;

(2) recompensing the United States for the use, occupancy, and enjoyment of 6.5 acres of its lands (other than for transmission line rights-of-way); and

(3) recompensing the United States for the use, occupancy, and enjoyment of 21.8 acres of its lands for transmission line right-of-way.

(b) The licensee shall, subject to approval by the Commission, negotiate with the Makah Tribe a reasonable annual charge for the purpose of reimbursing the Makah Tribe for the use, occupancy, and enjoyment of 1 acre of its lands within the Makah Indian Reservation. Such payment agreement shall be filed with the Commission within six months of the effective date of the license. In the event that no agreement is reached by such time, the Commission will take appropriate action to establish the annual charge, after notice and opportunity for hearing.

Article 203. *Exhibit Drawings*. Within 45 days of the date of the effective date of the license, the licensee shall file the approved exhibit drawings in aperture card and electronic file formats.

(a) Four sets of the approved exhibit drawings shall be reproduced on silver or gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4” X 7-3/8”) aperture cards. Prior to microfilming, the FERC Project-Drawing Number (*i.e.*, P-12751-1 through P-12751-#) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (*i.e.*, F-1, G-1, etc.), Drawing Title, and date of this license shall be typed on the upper left corner of each aperture card.

Two sets of aperture cards along with form FERC-587 shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the

Commission's Division of Dam Safety and Inspections Portland Regional Office. The remaining set of aperture cards (Exhibit G only) and a copy of Form FERC-587 shall be filed with the Bureau of Land Management office at the following address:

State Director
Bureau of Land Management
Portland, Oregon 92708-3420

(b) The licensee shall file two separate sets of exhibit drawings in electronic raster format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission's Division of Dam Safety and Inspections Portland Regional Office. Exhibit F drawings must be identified as CEII material under 18 CFR §388.113(c). Each drawing must be a separate electronic file, and the file name shall include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this license, and file extension in the following format [P-12751-#, G-1, Project Boundary, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification:

IMAGERY – black & white raster file
FILE TYPE – Tagged Image File Format, (TIFF) CCITT Group 4
RESOLUTION – 300 dpi desired, (200 dpi min)
DRAWING SIZE FORMAT – 24" X 36" (min), 28" X 40" (max)
FILE SIZE – less than 1MB desired

Each Exhibit G drawing that includes the project boundary must contain a minimum of three known reference points *(i.e.*, latitude and longitude coordinates, or state plan coordinates). The points must be arranged in a triangular format for GIS geo-referencing the project boundary drawing to the vector (or polygon) data, and must be based on a standard map coordinate system. The spatial reference for the drawing (*i.e.*, map projection, map datum, and units of measurement) must be identified on the drawing and each reference point must be labeled. In addition, each project boundary drawing must be stamped by a registered land surveyor.

(c) The licensee shall file two separate sets of the project boundary data in a geo-referenced electronic file format (such as ArcView shape files, GeoMedia files, MapInfo files, or a similar GIS format) with the Secretary of the Commission, ATTN: OEP/DHAC. The filing shall include both vector (or polygon) data and all reference points shown on the individual project boundary drawings. A single electronic boundary vector data (or polygon) file is required for the project boundary. The geo-referenced electronic boundary data file must be positionally accurate to ±40 feet in order to comply with National Map Accuracy Standards for maps at a 1:24,000 scale. The file name(s) shall include: FERC Project Number, data description, date of this license, and file extension in the following format [P-12751, boundary vector/polygon/or point data, MM-

DD-YYYY.SHP]. The filing must be accompanied by a separate text file describing the spatial reference for the geo-referenced data: map project used (*i.e.*, UTM, State Plan, Decimal Degrees, etc.), the map datum (*i.e.*, North American 27, North American 83, etc.), and the units of measurement (*i.e.*, feet, meters, miles, etc.). The text file name shall include: FERC Project Number, data description, date of this license, and file extension in the following format [P-12751, project boundary metadata, MM-DD-YYYY.TXT].

In addition, for those projects that occupy federal lands, a separate geo-referenced vector (or polygon) file(s) is required that identifies transmission cable acreage and non-transmission cable acreage affecting federal lands for the purpose of meeting the requirements of 18 CFR §11.2. The file(s) must also identify each federal owner and federal acreage affected by the project boundary. Depending on the geo-referenced electronic file format, the vector (or polygon), point, and federal lands data can be included in a single file with multiple layers.

Article 204. *Requirement to Obtain Property Rights*. The licensee, within two years from the effective date of the license and prior to starting on-site project construction or installation, shall acquire all property rights necessary or appropriate for the construction, maintenance, and operation of the project. The licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the licensee may lease or otherwise dispose of interest in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission.

The provisions of this article are not intended to prevent the abandonment or the retirement from services of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 301. *Start of On-Site Construction or Installation.* The licensee shall commence on-site construction or installation of the project works within two years from the effective date of the license and shall complete construction and installation of the project within three years from the effective date of the license.

Article 302. *Deep Excavation Plan*. Before starting on-site construction, the licensee shall review and approve the contractor's design drawings for any on-shore deep

excavation and shall make sure construction is consistent with the approved design. At least 30 days before the start of on-site project construction, the licensee shall submit one copy to the Division of Dam Safety and Inspections (D2SI) - Portland Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Director, D2SI), of the approved deep excavation construction drawings and specifications and the letters of approval.

Article 303. *Contract Plans and Specifications for Project Construction*. At least 60 days prior to the start of any on-site construction, the licensee shall submit one copy of the plans and specifications, along with a supporting design report to the Division of Dam Safety and Inspections (D2SI) - Portland Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI). The submittal must also include as part of preconstruction requirements: a Quality Control and Inspection Program, Temporary Construction Emergency Action Plan, Soil Erosion and Sediment Control Plan, and a letter from the Olympic Coast National Marine Sanctuary stating that the licensee has satisfied the Olympic Coast Sanctuary's design specifications and installation requirements. The licensee may not begin on-site construction until the D2SI - Portland Regional Engineer has reviewed and commented on the design documents, determined that all preconstruction requirements have been satisfied, and authorized the start of construction.

Article 304. *As-built Drawings*. Within 90 days of completion of construction of the facilities authorized by this license, the licensee shall file for Commission approval, revised exhibits A, F, and G, as applicable, to describe and show those project facilities as-built. A courtesy copy shall be filed with the Division of Dam Safety and Inspections (D2SI) - Portland Regional Office; the Director, D2SI; and the Director, Division Hydropower Administration and Compliance.

Article 305. *Project Safety Plan*. At least 90 days before starting project operations, the licensee shall submit one copy of a Project Safety Plan to the Division of Dam Safety and Inspections (D2SI) - Portland Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI). The plan shall describe the procedures the licensee will take during any project emergency that could adversely impact life or property. Possible emergencies could include, for example, a vessel and AquaBuOY collision, an AquaBuOY break-away, release of the submarine transmission cable anchoring system, or damage to the submarine transmission cable.

The plan, at a minimum, shall include: (a) procedures to ensure the safety of the public near the project area; (b) description of how the project will be monitored to determine if there is an emergency; (c) procedures the licensee will take during an emergency (including immediate shutdown, if necessary); (d) procedures for reporting the emergency to local, state, and federal agencies; (e) description of contingency measures to modify operations or to implement the project removal plan as required by

Article 417; (f) a plan for annual testing of emergency equipment, including the project's emergency shutdown system; and (g) a plan for annually coordinating with response agencies.

The licensee shall prepare the plan after consultation with the Olympic Coast National Marine Sanctuary, Washington State Department of Natural Resources, U.S. Coast Guard, the Makah Tribe, and any other pertinent emergency response agency. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies and Makah Tribe, and specific descriptions of how the agencies' and tribe's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies and the Makah Tribe to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information. The licensee may not begin project operations until the D2SI - Portland Regional Engineer has reviewed and commented on the plan.

Article 306. *Contract Plans and Specifications for Project Removal*. At least 60 days before starting removal operations in accordance with Article 417, the licensee shall submit one copy of the following documents to the Division of Dam Safety and Inspections (D2SI) - Portland Regional Engineer and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI): (a) a detailed description of the sequence of activities for removing the project features and restoring the site; (b) final contract plans and specifications; (c) Quality Control and Inspection Program; (d) Temporary Construction Emergency Action Plan; (e) a public safety plan for the period during removal activities; (f) a detailed erosion and sediment control plan; and (g) disposal plan. The licensee may not begin removal activities until the D2SI - Portland Regional Engineer has reviewed and commented on the plans and specifications, determined that all pre-removal requirements have been satisfied, and authorized the start of removal activities.

Article 307. *Protection of Navigation*. The licensee shall construct, maintain, and operate at its own expense such lights and other signals for the protection of navigation as may be directed by the Secretary of Homeland Security, U.S. Coast Guard.

Article 401. *Additions to Appendix A Mandatory Conditions*

(a) Requirement to Consult and File Plans for Commission Approval

Appendix A requires the licensee to prepare plans for approval by the National Oceanic and Atmospheric Administration's National Marine Sanctuary Program. Each such plan shall also be filed with the Commission for approval and include an implementation schedule. These plans are listed below.

Condition	Plan	Due Date
1A	Baseline Epibenthic Study Plan	Within six months of the effective date of the license
1A	Post-Installation Epibenthic Study Plan	At least 90 days before starting on-site project construction or installation
1B	Macroalgae/Eelgrass Survey Plan	Within six months of the effective date of the license
1C	Final Mooring System Design Specifications	At least 60 days before starting on-site project construction or installation
1D	Final Submarine Transmission Cable Design Specifications and Installation Methods	At least 60 days before starting on-site project construction or installation
2A	Installation Inspection and Debris Removal Plan	At least 90 days before starting on-site project construction or installation
3	Antifouling Compound Study and Plan	At least 90 days before starting on-site project construction or installation
4	Noise Assessment Plan	At least 90 days before starting on-site project construction or installation
6A	Marine Mammal Mitigation and Monitoring Plan	At least 90 days before starting on-site project construction or installation

The licensee shall prepare each of the plans after consultation with the Olympic Coast National Marine Sanctuary, Washington State Department of Natural Resources, Makah Tribe, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, and Washington State Department of Ecology. The licensee shall include with each plan documentation of consultation, copies

of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plans. On-site project construction and installation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

(b) Requirement to File Annual Inspection Reports

Condition 2B of Appendix A requires the licensee to conduct (at a minimum of biannually) periodic site inspections of the in-water project facilities and provide an annual report of these inspections to the National Oceanic and Atmospheric Administration's National Marine Sanctuary Program by December 31 of each license year. The licensee shall at the same time file a copy of the annual report with the Commission, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, Washington State Department of Natural Resources, and the Makah Tribe.

(c) Noise Attenuation Measures

Condition 4(B) of Appendix A requires the licensee to develop and implement a monitoring program to evaluate the behavioral and disturbance effects of project-related noise on marine life if the noise assessment required by Condition 4(A) finds that project-related noise levels exceed 120 decibels (dB). In that event, the monitoring program shall also identify potential noise attenuation measures (*e.g.*, sound insulating material).

(d) Protection of Essential Fish Habitat (EFH)

Condition 1C of Appendix A requires the licensee to provide the National Oceanic and Atmospheric Administration's National Marine Sanctuary Program with final engineered design specifications for the project's AquaBuOY mooring and anchoring system. The design shall include a provision to locate the mooring and anchoring system entirely over sandy substrate, consistent with the EFH conservation recommendation filed by the National Marine Fisheries Service on September 21, 2007.

(e) Financial Assurance

Condition 8 of Appendix A requires the licensee to purchase and maintain a bond,

or equivalent financial assurance, to cover a variety of costs, including the cost of removing all project components from the Olympic Coast National Marine Sanctuary (Olympic Coast Sanctuary). The licensee shall, at least 90 days before starting on-site project construction or installation, file proof of the purchase of the bond, or equivalent financial assurance. In addition to covering the cost of removing project components from the Olympic Coast Sanctuary, the bond, or equivalent financial assurance, shall cover the entirety of the costs of removing the project in accordance with the Project Removal Plan required by Article 417. Thereafter, during the term of the license, the licensee shall maintain the bond, or equivalent financial assurance, and by January 1 of each license year, or as otherwise directed by the Commission or its authorized representative, file proof as such.

Failure to commence project removal in accordance with the procedures and timeframes authorized by this license constitutes cause for the Commission to issue a demand letter to the surety for the amount required to satisfy all of the requirements of the Project Removal Plan. Payment by the surety of the amount required by a bond, or equivalent financial assurance, is due upon receipt of the demand letter. In lieu of payment, the surety may perform the requirements of the Project Removal Plan under written instructions from the Commission, or its authorized representative, within the timeframe set forth in the instructions.

The licensee agrees that all monies paid by the surety, upon failure on the licensee's part to fulfill the requirements of the approved Project Removal Plan, may be retained by the United States to be applied to the satisfaction of the licensee's obligations under the plan, without prejudice to any other rights and remedies of the United States.

Article 402. *Water Quality Monitoring Plan for Installation of the Submarine Transmission Cable*. At least 90 days before starting the installation of the submarine transmission cable, including horizontal directional drilling, the licensee shall file for Commission approval a water quality monitoring plan.

The monitoring plan shall include, but not necessarily be limited to: (a) a provision to monitor the horizontal directional drilling process for any seepage of drilling fluid; (b) corrective actions the licensee will implement to discontinue or minimize any seepage of drilling fluid into the surrounding bed stratum or water column; and (c) an implementation schedule.

The licensee shall prepare the plan after consultation with the Olympic Coast National Marine Sanctuary, Washington State Department of Natural Resources, Makah Tribe, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, and Washington State Department of Ecology. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to

the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. On-site project construction or installation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 403. *Fuel and Oil Spill Control, Prevention, and Countermeasures Plan*. The licensee shall, at least 90 days before starting on-site construction or installation file for Commission approval, a fuel and oil spill control, prevention, and countermeasures plan to help prevent or minimize any impacts associated with the handling of fuel and oil during project construction, operation, and maintenance.

The plan shall include, but not necessarily be limited to: (a) a provision to inspect vessels and equipment used during construction and maintenance for fuel and hydraulic leaks on a daily basis while at the project; (b) measures to prevent fuel and oil products at the project or on vessels used during project construction and maintenance along with measures to contain and remove fuel and oil products in the event of a leak or spill; (c) a provision to maintain in the project area, a cache of spill cleanup equipment suitable to contain any spill from the project; (d) a provision to notify the Olympic Coast National Marine Sanctuary, Makah Tribe, Washington State Department of Natural Resources, Washington Department of Fish and Wildlife, Washington State Department of Ecology, and the Commission as soon as possible but no later than 24 hours after any fuel or oil spill during project construction, operation, or maintenance (Notification shall include a description of the nature, time, date, location, and action taken for containing any fuel or oil spill along with preventive measures implemented to minimize the risk of a reoccurring spill.); and (e) an implementation schedule.

The licensee shall prepare the plan after consultation with the above entities. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. On-site project construction or installation shall not begin until the licensee is notified by the

Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 404. *Marine Mammal and Marbled Murrelet Observer Plan*. The licensee shall, at least 90 days before starting on-site project construction or installation, file for Commission approval a marine mammal and marbled murrelet observer plan. The plan shall include, but not necessarily be limited to: (a) a provision to provide for a marine mammal and marbled murrelet observer to be present during all in-water construction and installation activities; (b) detailed protocols that would be followed by the designated marine mammal and marbled murrelet observer and the vessel captain to avoid potential vessel collision strike and minimize disturbance to marine mammals and marbled murrelets during all in-water project construction and installation; (c) a provision to provide a written report to the Commission, National Marine Fisheries Service, Olympic Coast National Marine Sanctuary, Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and Makah Tribe of all marine mammals and marbled murrelets encountered during in-water construction and installation by December 31 of the year of construction; and (d) an implementation schedule.

The protocols stipulated in part (b) shall include, at a minimum: (1) notification procedures and actions to reduce the speed of the vessel if marine mammals and marbled murrelets approach to within 1,000 feet and temporarily alter or cease construction and installation activities if marine mammals and marbled murrelets would approach within 500 feet; (2) speed restrictions for project-related construction vessels entering and leaving Makah Bay; (3) information that the observer would record each time a marine mammal and marbled murrelet is encountered; and (4) a detailed equipment list and procedures for night-time observations during any night construction.

The licensee shall prepare the plan after consultation with the above entities. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. On-site project construction and installation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 405. *Sea Lion Excluder Device Monitoring*. Upon installation of the project AquaBuOYs, the licensee shall monitor the effectiveness of the AquaBuOYs' sea

lion excluder devices at preventing sea lions from hauling out onto (*i.e.*, resting on) the AquaBuOYs. Monitoring shall consist of visual inspections of the AquaBuOYs for evidence of marine mammal use while performing maintenance and inspection activities required by Condition 2 of Appendix A.

By December 31 of each year that the AquaBuOYs are in the water, the licensee shall file a report describing all observations and evidence of sea lion use of the AquaBuOYs along with any recommendations for modifying the excluder devices to improve their effectiveness. The annual reports shall be developed after consultation with the Olympic Coast National Marine Sanctuary, Makah Tribe, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and Washington Department of Fish and Wildlife. The reports shall contain documentation of consultation, copies of comments and recommendations on the reports after they have been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the reports. The licensee shall allow a minimum of 30 days for the consulted entities to comment and make recommendations before filing the reports with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

If the results of the monitoring indicate that changes in project structures or operations are necessary to prevent sea lions from hauling out onto the AquaBuOYs, the Commission may direct the licensee to modify project structures or operations, including modifying the AquaBuOY excluder devices.

Article 406. *Existing Marine Debris and Derelict Fishing Gear Removal Plan.* The licensee shall, at least 90 days before starting on-site project construction or installation, file for Commission approval, a plan for removing marine debris and derelict fishing gear from the project area.

The plan, at a minimum, shall include a provision to remove all existing marine debris and derelict fishing gear from the area of the AquaBuOY array and its associated mooring and anchoring system and the transmission cable before deploying the AquaBuOYs and installing the transmission cable, and an implementation schedule.

The licensee shall prepare the plan after consultation with the Olympic Coast National Marine Sanctuary, Makah Tribe, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Washington State Department of Natural Resources, and Washington Department of Fish and Wildlife. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a

minimum of 30 days for the consulted entities to comment before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. On-site project construction or installation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 407. *Acoustic Cetacean Monitoring Plan*. The licensee shall, at least 90 days before starting on-site project construction or installation, file for Commission approval, a plan to monitor marine mammal behavior and interaction with the AquaBuOY array and its associated mooring and anchoring system throughout the license term.

The plan shall include, but not necessarily be limited to: (a) a detailed description of the methods and equipment that would be used for continuous, remote acoustic monitoring of marine mammal activity in the vicinity of the AquaBuOY array and its mooring and anchoring system; (b) a detailed description of how the monitoring data will be analyzed, with specific criteria by which to evaluate adverse effects; (c) a detailed implementation schedule, including the frequency and timing of data recovery and maintenance of the monitoring equipment; (d) provisions for identifying, in consultation with Olympic Coast National Marine Sanctuary, Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Makah Tribe, and National Marine Fisheries Service remedial measures, such as the use of pingers, if monitoring identifies any adverse changes in behavior or use of ocean habitats; and (e) a provision for filing an annual report with the Commission by December 31 of each license year, with copies to the above consulted entities, describing the monitoring results and any recommendations for modifying the project facilities or removing the project to address adverse effects, including a schedule for implementing the measures.

The licensee shall prepare the plan after consultation with the consulted entities. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. On-site project

construction or installation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 408. *Seabird Monitoring Plan*. The licensee shall, at least 90 days before starting on-site project construction or installation, file for Commission approval a plan to evaluate seabird behavior and interaction within the AquaBuOY array. The plan shall include, but not necessarily be limited to, the following: (a) a detailed description of the methods for surveying seabird use; (b) a schedule for conducting the surveys that considers changes in seasonal use and avian behavior; and (c) a reporting schedule.

The licensee shall prepare the plan after consultation with the Olympic Coast National Marine Sanctuary, Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and Makah Tribe. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. On-site project construction or installation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 409. *Night Construction Lighting Plan*. The licensee shall, at least 90 days before starting on-site project construction or installation, file for Commission approval a night construction lighting plan to reduce disturbance to marine fish and wildlife. The plan shall include, either: (a) a specific construction schedule that avoids on-water night-time construction activities, or (b) a description of specific measures that would be implemented to reduce night lighting and illumination on construction vessels (*e.g.*, directing lights toward the deck, shielding lights to minimize the area of illumination, etc).

The licensee shall prepare the plan after consultation with the Olympic Coast National Marine Sanctuary, Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Makah Tribe, and National Marine Fisheries Service. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the

consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. On-site project construction or installation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 410. *Electromagnetic Field Assessment*. The licensee shall, at least 90 days before starting on-site project construction or installation, file for Commission approval, an electromagnetic field assessment plan to determine if the project's submarine transmission cable and AquaBuOY electrical cables emit electromagnetic field at levels that would cause harm to marine mammals and fish. The plan shall include: (a) a detailed description of the methods and equipment that would be used to determine and monitor project electromagnetic field emissions in the marine environment; (b) a provision for identifying potential electromagnetic field attenuation measures in the event that electromagnetic field levels exceed 1,000 microvolts per meter; (c) a report of the monitoring results; and (d) an implementation schedule.

The licensee shall prepare the plan after consultation with the Olympic Coast National Marine Sanctuary, Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Makah Tribe, and National Marine Fisheries Service. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. On-site project construction or installation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 411. *Emergency Shutdown and Removal Article*. The Director, Office of Energy Projects (Office Director), as the Commission's authorized representative, may order the licensee to cease project operation in the event that doing so is necessary for the protection of the environment or the life, health, or property of the public.

The licensee shall report by telephone to the Office Director and National Marine Fisheries Service, U.S. Fish and Wildlife Service, Washington Department of Fish and

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

Wildlife, Olympic Coast National Marine Sanctuary, Washington State Department of Natural Resources, Makah Tribe, and any other applicable agency of any project-related conditions causing or that may cause injury, or mortality to any federally listed threatened or endangered species under the Endangered Species Act (ESA) or marine mammal afforded protection under the Marine Mammal Protection Act (MMPA) and any other incidents affecting the environment or the life, heath, or property of the public as soon as possible, but no longer than 24 hours after becoming aware of the threat or incident without unduly interfering with any necessary or appropriate emergency response or other action procedure for protecting the affected species.

Upon initial notification, the licensee shall consult with the Office Director and notified entities on the immediate course of action to take to prevent injury or minimize or eliminate the threat to the extent possible. The licensee shall propose to the Office Director immediate measures, based on consultation with the agencies and Makah Tribe, and implement such immediate measures as the Office Director so directs, which may include immediate shutdown of all project operations.

No later than 7 days after becoming aware of any such threat or incident, or on any alternative schedule specified by the Office Director, the licensee shall file with the Commission and submit to the aforementioned agencies and Makah Tribe, a written report on the condition affecting the ESA-listed or MMPA-protected species, other environmental resources, the public, or property. The written report, in addition to any information required by the Office Director at the time of initial contact, shall include the following: (a) the location, date, time, and causes of the condition to the extent known; (b) a description of any unusual occurrences or operating conditions preceding the condition; (c) an account of any measure(s) taken to immediately alleviate the condition; (d) a detailed description of any injuries or mortalities of the ESA-listed or MMPA-protected species, or any adverse effects on other environmental resources, the public, or property as applicable; (e) a detailed description of the measures recommend by the agencies and Makah Tribe; and (f) a detailed description of the measures or actions that would be taken to prevent further such occurrences.

The Office Director may direct the licensee to commence project removal if no practical course of action can be taken to minimize the types of project-related adverse effects noted above.

Article 412. *Revegetation and Noxious Weed Control Plan.* The licensee shall, at least 90 days before starting on-site project construction or installation, file for Commission approval, a revegetation and noxious weed control plan for the purposes of revegetating any shore areas disturbed during construction with native plant species beneficial to wildlife, while protecting these areas from erosion, and preventing the establishment of noxious weeds.

The plan shall describe the location of the areas to be revegetated and at a minimum shall include: (a) a description of the plant species used and planting densities; (b) a description of the fertilization and irrigation requirements; (c) measures to control the establishment and spread of noxious weeds; (d) a monitoring plan to evaluate the effectiveness of the plantings; (e) provisions for the filing of monitoring reports with the Commission; (f) a description of procedures to be followed if monitoring reveals that the revegetation and noxious weed control is not successful; and (g) an implementation schedule that provides for revegetation as soon as practicable after the beginning of land-clearing or land-disturbing activities within the disturbed area.

The licensee shall prepare the plan after consultation with Makah Tribe, Washington Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. On-site project construction or installation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 413. *Interpretation and Education Plan.* The licensee shall, at least 120 days before starting project operation, file with the Commission, for approval, an interpretation and education plan.

The plan, at a minimum, shall include the following: (1) a provision for placing an interpretive display within the land portion of the project boundary with the following information: (a) a map depicting marine habitats and associated species, in relation to the project, Makah Bay, the Olympic Coast National Marine Sanctuary, and other identifying features; (b) the type of marine debris and derelict fishing gear potentially present in the project area; (c) the effects such debris has on the marine environment and on commercial/recreational fishing vessels; and (d) procedures and agency contact(s) for removal and disposal of marine debris and derelict fishing gear; and (2) interpretive materials informing the public about: (a) project operation; (b) any project-related exclusion zone with a map that clearly depicts such an exclusion zone, Makah Bay, the Olympic Coast National Marine Sanctuary, and other identifying features; and (c) the Makah Tribe.

The licensee shall prepare the plan after consultation with U.S. Fish and Wildlife Service, Makah Tribe, Olympic Coast National Marine Sanctuary, Washington Department of Fish and Wildlife, Washington State Department of Natural Resources, Washington State Interagency Committee for Outdoor Recreation, and the National Park Service. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Project operation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 414. *Navigation Safety Plan.* The licensee shall, at least 90 days before starting on-site project construction or installation, file for Commission approval a Navigation Safety Plan for purposes of protecting the public and project facilities from such events as collisions between commercial and recreational vessels and in-water project facilities; entanglement of fishing gear, anchor lines, dredging equipment, or other underwater devices that may damage or become entangled with project transmission, anchoring, and mooring lines; and electrocution.

The plan, at a minimum, shall consider the need for: (a) a navigation or underwater activity exclusion zone boundary around the project's generation AquaBuOYs and 3.7-mile-long submarine transmission; (b) marking the extreme corners of any exclusion zones with lights, buoys, or other indicators sufficient to warn vessels of the above and underwater project facilities and associated exclusion zones during both the day and nighttime; and (c) marking the four proposed AquaBuOYs with fog signals and low-intensity navigation or hazard marking lights and painting the AquaBuOYs in a way that considers the aesthetic resources of the Olympic Coast National Marine Sanctuary as well as safety of the public and project facilities.

The licensee shall prepare the plan after consultation with the U.S. Fish and Wildlife Service, U.S. Coast Guard, Olympic Coast National Marine Sanctuary, Makah Tribe, Washington Department of Fish and Wildlife, Washington State Department of Natural Resources, and the National Park Service. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and

make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. On-site project construction or installation shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 415. *Underwater Archeological Resources Report*. Within 60 days of the effective date of this license, the licensee shall file for Commission approval, an underwater archeological resources report for the project's off-shore area of potential effects. The report shall be prepared by a professional underwater archeologist and conform to the standards provided in Minerals Management Service's "Notice to Lessees and Operators of Federal Oil, Gas, and Sulphur Leases and Pipeline Right-of-Way Holders in the Outer Continental Shelf Gulf of Mexico OCS Region" (effective July 1, 2005) involving archeological resource surveys and reports of the Outer Continental Shelf. The report shall be based on data derived from the Thales Geosolution's 2002 report on the environmental assessment seabed survey for the project (Environmental Assessment Seabed Survey, Makah Bay, Washington).

The licensee shall prepare the report after consultation with the Washington State Historic Preservation Officer (SHPO), the Olympic Coast National Marine Sanctuary, Washington State Department of Natural Resources, and the National Marine Fisheries Service. The licensee shall include with the report documentation of consultation, copies of comments and recommendations on the completed report after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the report. The licensee shall allow a minimum of 30 days for the agencies to comment and make recommendations before filing the report with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the report. On-site project construction or installation shall not begin until the licensee is notified by the Commission that the report is approved.

Article 416. *Cultural Resources Management Plan.* Within 120 days of the effective date of the license, the licensee shall file for Commission approval a cultural resources management plan (CRMP) for the project. The CRMP shall be prepared by a cultural resource professional and conform to the standards provided in the "Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects (issued May 20, 2002)" prepared jointly by the Commission and Advisory Council on Historic Preservation.

The plan, at a minimum, shall include the following: (1) the results of the Underwater Archeological Resources Report; (2) a description of and a map that clearly shows the Makah Bay Project land distribution station (or shore station); (3) a provision for a Cultural Resources Monitoring Program in which a Makah Indian tribal monitor shall be present during all onshore project-related, ground-disturbing activities to ensure that no newly discovered archeological sites will be affected by the project; and (4) an implementation schedule.

The licensee shall prepare the CRMP after consultation with the Makah Indian Tribal Historic Preservation Officer (THPO) and SHPO. The licensee shall include with the CRMP documentation of consultation, copies of comments and recommendations on the completed CRMP after it has been prepared and provided to the THPO and SHPO, and specific descriptions of how the THPO's and SHPO's comments are accommodated by the CRMP. The licensee shall allow a minimum of 30 days for the THPO and SHPO to comment before filing the CRMP with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the CRMP. On-site project construction or installation shall not begin until the licensee is notified by the Commission that the CRMP is approved. Upon Commission approval, the licensee shall implement the CRMP, including any changes required by the Commission.

Article 417. *Project Removal Plan*. The licensee shall, at least 120 days before starting on-site project construction or installation, file for Commission approval, a project removal plan that includes, at a minimum, the elements stipulated in Condition 8(B) in Appendix A and the following: (a) a provision to remove all project facilities from all project lands and waters; (b) detailed, site-specific revegetation measures for the disturbed land areas associated with removal of the shore station and gravel access drive; (c) a provision to minimize seabed disturbances and suspended sediments during removal of any underwater facilities; (d) a provision to monitor the effects of the removal activities on federally listed threatened and endangered aquatic, terrestrial, or avian species; and (e) an implementation schedule that provides for all removal and restoration activities to be completed by no later than the expiration date of the license.

The licensee shall prepare the plan after consultation with the Olympic Coast National Marine Sanctuary, Washington State Department of Natural Resources, Makah Tribe, National Marine Fisheries Service, U.S. Fish and Wildlife Service, U.S. Bureau of Indian Affairs, Washington Department of Fish and Wildlife, and Washington State Department of Ecology. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how

the entities' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. On-site project construction or installation shall not begin until the licensee is notified by the Commission that the plan is approved.

Article 418. *Final Reports*. Within 90 days after the completion of project removal and site restoration in accordance with Article 306 and Article 417, the licensee shall: (1) submit two copies to the Commission's Division of Dam Safety and Inspections - Portland Regional Office and two copies to the Commission of a final report demonstrating that the project facilities have been removed and the project site is restored in accordance with Article 306 and Article 417; and (2) file written notice with the Commission (ATTN: OEP/DHAC) that the licensee has satisfied all of the requirements of this license.

Article 419. *Reservation of Authority - Indian Reservation.* Authority is reserved to the Commission to require the licensee to implement measures as necessary for the protection and utilization of the Makah Indian Reservation as may be submitted by the Secretary of the Interior pursuant to section 4(e) of the Federal Power Act.

Article 420. *Use and Occupancy*. (a) In accordance with the provisions of this article, the licensees shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensees may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensees shall also have continuing responsibility to supervise and control the use and occupancies, for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensees for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensees shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensees may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement.

To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensees shall require multiple use and occupancy of facilities for access to project lands or waters. The licensees shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensees shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the licensees may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensees' costs of administering the permit program. The Commission reserves the right to require the licensees to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensees may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and Federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir.

No later than January 31 of each year, the Licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensees may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and Federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary Federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary Federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is 5 acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year.

At least 60 days before conveying any interest in project lands under this paragraph (d), the licensees must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G or K map may be used), the nature of the proposed use, the identity of any Federal or state agency official consulted, and any Federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensees to file an application for prior approval, the licensees may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensees shall consult with Federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensees shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an Exhibit E; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation,

and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the licensees to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundary. The project boundary may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G or K drawings would be filed for approval for other purposes.

(g) The authority granted to the licensees under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(H) The licensee shall serve copies of any Commission filing required by this order on any entity specified in the Order to be consulted on matters relating to that filing. Proof of service on these entities must accompany the filing with the Commission.

(I) The motion to intervene out of time filed by the U.S. Department of the Interior on December 4, 2007 is denied.

(J) This order is final unless a request for rehearing is filed within 30 days from the date of its issuance, as provided in Section 313(a) of the FPA. The filing of a request for rehearing does not operate as a stay of the effective date of this license or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

By the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Acting Deputy Secretary.

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

Appendix A
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Sanctuary Program
4(e) Conditions filed February 16, 2007

Condition 1. Anchoring, Mooring and Transmission Systems Design

A. Prior to finalization of the engineering, design and cable route selection for the transmission cable, and in consultation with and subject to the approval of the Sanctuary Program Group, the Licensee shall develop a study plan and conduct a baseline study of the existing epibenthic (surface dwelling) community on hard substrate along the proposed transmission cable route. The Licensee will file the study with the Commission and send a copy to the Sanctuary Program Group. If the Sanctuary Program Group determines that this baseline study reveals the presence of important marine life or habitat, the Licensee will, in consultation with and subject to approval of the Sanctuary Program Group, develop and implement a plan to monitor the post-installation impacts of transmission cable where it traverses the hard substrate.

B. Prior to finalization of the engineering, design and cable route selection or the transmission cable, the Licensee, in consultation with and subject to the approval of the Sanctuary Program Group, will conduct a macroalgae/eelgrass survey of nearshore section of the transmission cable. The Licensee will conduct the survey following standard methods defined by Washington Department of Fish and Wildlife (WDFW). The Licensee shall file a report of the survey with the Commission and a copy to the Sanctuary Program Group. The information in the survey report will be used by the licensee, in consultation with the Sanctuary Program Group, to determine the most environmentally appropriate route for the transmission cable.

C. No less than sixty days prior to the date the Licensee expects to submit final engineered design specifications for the mooring system to the Commission, the Licensee shall provide these final specifications for the mooring system to the Sanctuary Program Group. These specifications must include a general description, materials description, and full dimensions of system components; anticipated depth of seabed penetration of anchors; safety, navigational, and aesthetic design characteristics of components on the sea surface; and the anticipated height above the seabed and below the sea surface of subsurface floats. Upon approval of the Sanctuary Program Group and incorporating any comments submitted by the Sanctuary Program Group, the Licensee shall file the final mooring system design with the Commission before any project components are deployed in the Olympic Coast Sanctuary.

D. No less than thirty days prior to the date the Licensee expects to submit final engineering design specifications and installation methods for the power transmission

cable to shore, the Licensee shall provide, these final specifications to the Sanctuary Program Group for review and approval. These specifications must include a description of the cable and its component parts, as well as methods of installation, including techniques for anchoring the cable to locations where this will be necessary. Upon approval of the Sanctuary Program Group and incorporating any comments submitted by the Sanctuary Program Group, the Licensee shall file the final power transmission cable design with the Commission.

E. The Licensee shall conduct an initial mooring, anchoring and cable system visual inspection at the time of project installation and at each phase of installation of AquaBuOY installation to ensure that anchors are properly set into the seabed and that chain or cable does not hang down to contact the seabed at maximum slack periods.

Condition 2. Site Inspections

A. The Licensee shall develop an installation inspection plan in consultation with and subject to approval by the Sanctuary Program Group. The installation inspection plan will define the scheduling, tasks, observations and reporting by the Licensee. The installation inspection plan will also define plans and methods for removal of marine debris, including derelict fishing gear, that becomes entangled with project components. Upon the Sanctuary Program Group's approval, the Licensee shall file the final plan with the Commission.

B. The Licensee shall conduct periodic site inspections at a minimum of biannually, but more frequently as additional data becomes available and if the Sanctuary Program Group determines necessary, to ascertain the physical condition of the installation (including all AquaBuOYs, anchors, and mooring cables), to ensure the integrity and performance of the installation, to determine the risks to marine mammals and other sanctuary resources, and to search and address marine debris caught on project features. The Licensee shall also conduct visual inspections of the transmission cable in areas of hard substrate annually and provide an annual report of these inspections to the Sanctuary Program Group by December 31 of each year.

C. The Licensee shall provide for access and participation of Sanctuary Program Group personnel in each inspection and shall follow appropriate safety procedures when engaged in such inspections. The Licensee may combine other monitoring tasks required by the Project license with the site inspections, and integrate such tasks into the inspection plan per approval of the Sanctuary Program Group.

Condition 3. Antifouling Compound Study and Plan

The Licensee shall develop, in consultation with and subject to the approval of the Sanctuary Program Group, an antifouling study plan before installation of any in-water

components of the project. The plan must include a description of proposed antifouling compounds and/or methods, analysis of their compliance with any recognized national and Washington State standards, a maintenance schedule, an experimental design for monitoring of effectiveness over time, and a reporting schedule for this study. The study plan shall describe a methodology for monitoring and reporting to the Sanctuary Program Group any effects on sanctuary resources that may result from the use of anti-fouling compounds. Upon the Sanctuary Program Group's approval, the Licensee shall file the final plan with the Commission.

Condition 4. Noise Assessment

A. Phase 1.

Before project deployment, the Licensee shall, in consultation with and subject to the approval of the Sanctuary Program Group, design and implement a plan for measuring and monitoring project noise. The Licensee shall, in consultation with and subject to approval of the Sanctuary Program Group, conduct monitoring to characterize the sound generated by the array and determine whether there is potential for detectable response by marine mammals and fish. The plan for measurement and monitoring of noise shall be of sufficient scientific rigor to support analysis of likely long-term effects on marine mammals including deviation of migratory route, short term behavioral modification (feeding and migrating), habitat use or abandonment, changes to marine mammal foraging patterns or vulnerability to predation. The Licensee shall, in consultation with and subject to the approval of the Sanctuary Program Group, file with the Commission a data reporting schedule. The monitoring program must measure the sound frequency and amplitude and attenuation over distance from the project site, and compare these results with Malme *et al.* (1984 and 1988) and Moore and Clarke (2002) on acoustic disturbance to whales and other marine mammals and sanctuary resources. Field measurements of sound must be conducted at a minimum to a distance where values are below identified disturbance thresholds. Upon the Sanctuary Program Group's approval, the Licensee shall file the final plan with the Commission.

B. Phase 2

If monitoring measures noise levels exceeding the disturbance threshold of 120dB, identified by Malme *et al.* (1984 and 1988) and Moore and Clarke (2002) and NMFS, 70 Fed. Reg. 18751-1 8757 (January 1 1,2005), the Licensee must, in consultation with and subject to the approval of the Sanctuary Program Group, develop and implement, within one year, a more extensive monitoring program to evaluate and document any occurrence of behavioral change, disturbance or injury to marine life, particularly marine mammals and fish. All monitoring, mitigation and implementation plans will include quarterly reporting requirements by the Licensee to the Commission with a copy to the Sanctuary Program Group.

Condition 5. Electromagnetic Fields

A. The Licensee shall conduct, in consultation with and subject to the approval of the Sanctuary Program Group, an engineering analysis of electromagnetic radiation field (EMF) strength associated with the electrical transmission cable or bench testing of these properties of the cable. The Licensee shall determine in consultation with and subject to the approval of the Sanctuary Program Group, whether this analysis can be conducted prior to project deployment. If the testing of EMF properties can be done prior to deployment, the Licensee shall do so and file a report to the Commission with a copy to the Sanctuary Program Group. If an engineering analysis or testing cannot be conducted prior to project deployment, the Licensee shall conduct post-deployment measurement of the transmission cable's EMF strength in consultation with the approval of the Sanctuary Program Group.

B. The Licensee shall compare predicted or measured EMF levels with published literature (1000pV/m for avoidance response, *see* Gill and Taylor 2002) to assess the potential for impacts to marine life. The Licensee shall summarize these data in a report filed with the Commission and a copy provided to the Sanctuary Program Group no later than 3 months after the project has begun producing power.

C. If analyses under paragraph B above, indicate the potential for adverse impacts to sanctuary resources near the transmission cable(s), the Licensee shall, in consultation with and subject to approval by the Sanctuary Program Group, develop a monitoring plan to assess the impacts of EMF resulting from the project on fish, elasmobranches, marine mammals, and shellfish, which shall, at a minimum, include in-field monitoring studies and quarterly reports to the Sanctuary Program Group. In addition, if, in consultation with the Sanctuary Program Group, sanctuary resource impacts near the transmission cable are demonstrated, the Licensee shall develop and implement, in consultation with and subject to the approval of the Sanctuary Program Group, a plan for mitigating all measurable effects. Upon Sanctuary Program Group approval, the Licensee shall file the final plan with the Commission.

Condition 6. Marine Mammal Entanglement and Collision

A. In consultation with and subject to the approval of the Sanctuary Program Group, the Licensee shall develop and implement a mitigation and monitoring plan to prevent marine mammal entanglement. Upon approval by the Sanctuary Program Group, the Licensee shall file the plan with the Commission.

B. If the Licensee discovers such a marine mammal entanglement while on site for an inspection or otherwise, the Licensee or its contractors and their vessel(s) must remain available for 24 hours after telephone contact is made to assist NOAA with retrieval of the entangled animal(s). If, at any time, including during maintenance

20071221-3036 Issued by FERC OSEC 12/21/2007 in Docket#: P-12751-000

inspection, the Licensee finds or is notified that a marine mammal is entangled on project equipment or dead within the project area, the Licensee shall notify via phone the Olympic Coast Sanctuary (360-457-6622) and NOAA's Marine Mammal Stranding Network (206-526-6733) within 24 hours. If a sea otter is entangled, the contact telephone number is the U.S. Fish and Wildlife Service at 877-326-8837.

C. After any marine mammal entanglement incident, the Licensee shall meet with the Sanctuary Program Group and other appropriate NOAA personnel as available, not later than two weeks after the incident, to review circumstances of the entanglement and to define additional mitigation measures to reduce the risk of future entanglements.

Condition 7. Alterations to the Project

The Licensee shall obtain written approval from the Sanctuary Program Group prior to changing any element of the project installation including the location of any project equipment within the sanctuary. The Licensee also shall obtain written approval from the Sanctuary Program Group for any action that is inconsistent with the authorizations and project description provided in the FERC license application, and/or inspection plan submitted under Condition 2.

Condition 8. Bond and Decommissioning Plan

A. The Licensee shall, prior to the conduct of any activities under this License, purchase and maintain a bond, or equivalent financial assurance, to cover the entirety of costs in the event any portion of the project is no longer in compliance with this License (*e.g.* an AquaBuOY breaks free of its mooring and anchoring system or a cable becomes detached or cannot be secured in such a manner as to avoid injury to sanctuary resources), costs associated with any emergency response and restoration of any injured sanctuary resources, and the costs of the removal of all project components from the Olympic Coast Sanctuary at the end of the service life for the project.

B. The Licensee shall submit a project decommissioning plan, in consultation with and subject to the approval of the Sanctuary Program Group, at least 12 months prior to commencing any removal activities associated with project decommissioning. The Licensee's decommissioning plan must, at a minimum, include the following elements:

1. A detailed description of the methods to be employed to remove the equipment;
2. An environmental analysis of the potential environmental impacts associated with decommissioning the project;
3. A schedule for completion of the removal of the project from the Olympic Coast Sanctuary. Upon the Sanctuary Program Group’s approval, the Licensee shall file the final plan with the Commission.

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Condition 9. Emergency Response

If an emergency response or repair is required, the Licensee shall notify the Olympic Coast Sanctuary by telephone (360-457-6622 ext. 13) within 24 hours of the time it becomes aware of the need for this response/repair. The Licensee shall describe the need for the emergency action and proposed methods of response. The licensee shall provide the Olympic Coast Sanctuary with updates on the progress of the response every 24 hours or at a mutually agreed time interval. A written report summarizing the emergency response, including the need, response actions, and any activity that may have impacted sanctuary resources shall be filed with the Commission, with a copy provided to the Olympic Coast Sanctuary within 30 days of the conclusion of the response.

Condition 10. Reservation of 4e Authorities

Authority is reserved to the Sanctuary Program Group to require the Licensee to implement such modifications or additional conditions for the adequate protection and utilization of the Olympic Coast Sanctuary as may be provided by the Secretary of Commerce, pursuant to Section 4(e) of the Federal Power Act, 16 U.S.C. § 797(e).