Testimony of

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Madame Chairwoman, Mr. Chairman, and Members of the Committee:

INTRODUCTION

My name is Ann Miles and I am the Director of the Division of Hydropower Licensing, Office of Energy Projects at the Federal Energy Regulatory Commission (Commission). I appreciate the opportunity to appear before you to discuss the Commission's growing involvement with hydropower using new technologies and to respond to your questions. I use the term "new technologies" to mean mechanisms to produce hydropower from ocean currents, tides, and wave action, without the use of a dam. Today I will speak mainly about energy derived from waves in the ocean, as your focus is the Outer Continental Shelf (OCS), but I will also include some of our experience with ocean currents and tidal rivers projects, as applications before the Commission cover these areas. As a member of the Commission's staff, the views I express in this testimony are my own, and not those of the Commission or of any individual Commissioner.

Before I present the Commission's regulatory program for new technology projects in general, I want to make several specific points regarding how these projects may affect the OCS. First, we expect that the majority of new technology projects will not be located on the OCS, but in State waters. Of the 23 preliminary permit applications currently pending at the Commission and proposing projects to be located in the ocean, only four would be located on the OCS. This distribution of proposals reflects the fact

that the cumulative costs of development which include the costs associated with purchasing and installing transmission cable needed to bring project power onshore, make it advantageous to locate projects nearer to the shore. Second, for those projects located wholly or partially on the OCS, the Commission will actively work with the Minerals Management Service of the U.S. Department of the Interior (MMS) which has the responsibility to issue leases for these projects. Third, we are already working cooperatively on a Memorandum of Agreement with MMS and have offered creative ideas on how to weave the MMS and FERC processes together for the benefit of applicants, other stakeholders, and the two agencies. I will discuss our interactions with MMS in more detail, later in my testimony. Now I will turn to the Commission's regulatory program for new technology projects.

The Commission regulates over 1,600 hydroelectric projects at over 2,000 dams pursuant to Part I of the Federal Power Act (FPA). Together, these projects represent 57 gigawatts of hydroelectric capacity, more than half of all the hydropower in the United States, and over five percent of all electric generating capacity in the United States. Hydropower is an essential part of the Nation's energy mix and offers the benefits of an emission-free, renewable, domestic energy source with public and private capacity together totaling about ten percent of U.S. capacity. Today we are looking at development of a new source of hydropower that has the potential to add a substantial amount of power to the nation's generation capacity, particularly in the area of renewable energy.

The Commission's existing procedures are well established and well suited to

address this expansion of conventional hydropower with new technologies, and we are prepared to learn from experience in this rapidly evolving area and to make whatever regulatory adjustments are appropriate in order to help realize the potential of this renewable energy resource.

First, I will give you some background on the industry in general and describe the level of application activity that the Commission has seen. Then I will describe 1) the compatibility of the Commission's existing program with the new technologies, 2) alterations the Commission is making to address the concerns of stakeholders about specific aspects of that compatibility, 3) the Commission's efforts to work with the MMS to weave together an efficient program for new technology projects to be located outside state waters on the OCS, and 4) the Commission's coordination and cooperation with federal and state agencies in the licensing process.

OCEAN-BASED HYDROPOWER TECHNOLOGY

In the past, efficient and reliable conversion of kinetic energy from water has proven elusive, but with recent advances in technology, rising fuel cost, and a growing demand for renewable energy, the potential for hydropower using new technologies is on the rise. An Electrical Power Research Institute (EPRI) study estimated the potential for wave and current power in our nation's oceans to be over 350 billion kilowatt hours per year, which would equal the output of traditional hydropower in its most productive years. In other words, ocean-based hydropower using new technologies could double hydropower production going from 10 to 20% of the national total. At present, however, the development and commercialization of the new technologies are just beginning.

The wave energy technologies include a range of designs including buoys, barge-like devices, and small floating reservoirs. Designs for harnessing tidal and current energy generally are variations on traditional turbines, often using underwater "propellers." In both cases, the energy of the moving water or wave is converted into electricity within each unit, making each device a small powerhouse. The current stage of technological development ranges from concept sketches to pilot demonstration projects.

Wave energy can be harnessed in locations that range from at the shoreline to many miles off shore, while tidal energy is limited to tidal rivers and narrows associated with coastal bays and estuaries, and ocean currents are located mainly in offshore locations such as the Gulf Stream. Tidal power has substantial hourly variations during the day but the pattern tends to be very predictable across seasons and years, while wave power is much steadier on an hourly basis but shows more seasonal variation.

Ultimately, whether the source is wave, tide, or current, it likely will take clusters or fields of devices to generate utility-scale power from the new technologies. The electricity from the devices will in most cases be connected by an underwater cable to the shore and then continue onshore to connect with the interstate transmission grid.

OCEAN ENERGY ACTIVITY BEFORE THE COMMISSION

Applications for ocean-based hydropower projects can potentially go through three stages at the Commission. First, developers can apply for preliminary permits. Preliminary permits maintain priority of application for license for a site for up to three years while a developer researches site feasibility and makes financial arrangements.

Second, developers can apply for a hydropower license. (A preliminary permit is not required prior to applying for a license.) By statute the Commission can issue a license for a term of up to 50 years. Third, if licensed, the developer must operate the project in compliance with the terms of the Commission's license order. Throughout the term of the license, the Commission monitors the project to assure compliance with the license.

Recently, the Commission has seen a surge in applications for preliminary permits for the new technologies. Before 2004, the Commission had received no recent preliminary permit applications for projects using ocean technologies. We received 11 permit applications in calendar years 2004 and 2005 combined and over 40 permit applications in 2006 alone. We have received four more permit applications so far in 2007. In 2005 and 2006, the Commission issued 11 preliminary permits, three for proposed tidal energy projects, and eight for proposed ocean current energy projects. So far in 2007, the Commission issued 19 permits, 16 for proposed tidal energy projects and three for proposed ocean wave energy projects.

The Commission received the first license application for a wave energy hydropower project from AquaEnergy, Inc. in November 2006. The Makah Bay Offshore Wave Energy Project is proposed for Makah Bay in Clallam County, Washington. Part of the project would be located on lands of the Makah Nation Indian Reservation. The project would consist of four buoys moored 3.2 nautical miles offshore in the Olympic Coast National Marine Sanctuary. Together, the buoys would generate up to 1 megawatt (MW), with an average of about 200 kilowatts (kW), through relative motion created by waves, which drives an internal pump that would force pressurized

water through a closed-loop hose and a turbine.

In the tidal hydropower arena, Commission staff has been working with Verdant Power, LLC, a permit holder seeking to develop a license application for the Roosevelt Island Tidal Energy Hydropower Project. The project ultimately would consist of as many as 494 free-flowing turbine generator units (about 10.3 MW total), located below the water surface in the East River in Queens County, New York.

In addition, the Commission has been proactive in addressing the new issues unique to this nascent industry. In 2005, as activity in the field of new hydropower technologies began to increase, the Commission's Office of Energy Projects formed a committee of technical and legal staff to initiate research on the regulatory, environmental, and developmental aspects of these new technologies. On December 6, 2006, the Commission hosted a technical conference to discuss the status of new technologies in hydroelectric generation from ocean waves, tides, and currents and from free-flowing rivers, and to explore the environmental, financial, and regulatory issues pertaining to the development of these technologies. Conference participants included ocean energy developers and consultants, trade associations, representatives from state and federal agencies, non-governmental organizations, and members of the public. Following the conference, the Commission solicited and received written comments from the participants.

COMPATIBILITY OF THE COMMISSION'S EXISTING PROCESS WITH THE NEW TECHNOLOGIES

Projects using new technologies are compatible with the Commission's well-tested

regulatory process that has been refined continuously since the original passage of the Federal Water Power Act of 1920. Regulating the development of power generation from the nation's waters is a primary role of the Commission. We analyze developers' proposals for energy generation from navigable and Commerce Clause waters, along with interests expressed by other stakeholders, and comprehensively balance the benefit of power generation with environmental protection and other values as directed by statute. After years of collaboration with other agencies and parties we have achieved a high level of regulatory efficiency. Over the years, we have improved our licensing process to include early engagement with the applicant and other stakeholders, earlier and more predictable study requirements, more certain timeframes, and overall reduced processing time.

In reviewing a license application for a project, the Commission integrates and weighs the concerns of the licensee, federal and state resource agencies, tribes, and other members of the public. We do so through an information-gathering process and technical analysis that enables a fully informed Commission decision while complying with the mandates of the Federal Power Act, the National Environmental Policy Act, the Endangered Species Act, and other applicable laws.

Within our established process, significant flexibility exists to implement innovative approaches when appropriate. For instance, in the Makah Bay and Roosevelt Island cases, Commission staff has allowed the use of different license processes that better fit the applicants' needs. This flexibility has enabled 1) the inclusion of Commission staff and stakeholders in the study development and implementation and 2)

for much of the National Environmental Policy Act information to be developed parallel to the project's license application development. In the Roosevelt Island case, the process may also encourage negotiation of a settlement.

CHANGES IN COMMISSION PROCESSES TO IMPROVE COMPATIBILITY WITH THE NEW TECHNOLOGIES

Where the needs of the industry have raised new issues, not within the scope of our standard procedures, the Commission has shown the maximum flexibility allowed by the statute. For example, the Commission determined that Verdant Power could install its six-turbine demonstration project in the East River without applying for a Commission license. In a July 27, 2005, Order on Clarification, the Commission concluded that Verdant's activities effectively would have no net impact on the interstate electric power grid or on interstate commerce. This determination established a policy that allows experimentation without a license when 1) the technology in question is experimental; 2) the proposed facilities are to be used for a short period and for the purpose of developing a hydropower license application; and 3) power generated from the test project will not be transmitted into, or displaced from, the national electric energy grid. In addition to testing power generation, Verdant will carry out extensive monitoring of fishery impacts as part of the experimental deployment. Although not required to be licensed during its testing phase, Verdant was of course obligated to obtain necessary approvals under other existing state and federal statutes.

In order to respond to industry concerns about the applicability of the existing preliminary permit system to new technology projects, the filing of a large number of

recent applications for preliminary permits using "new technology", and to follow up on the Hydroelectric Infrastructure Technical Conference, the Commission on March 1, 2007, issued a notice in the Federal Register seeking comments on how the Commission should treat applications for and regulate preliminary permits for hydropower projects involving wave, current, and instream technologies. The notice sets an interim policy for reviewing such applications, proposing to scrutinize them strictly by imposing requirements on any permits issued, such as the submission of progress reports, the development of study plans, and the establishment of deadlines to file a subsequent license application. Alternative policies would either: (1) continue the standard policy for processing applications for hydropower permits, by not subjecting them to extensive scrutiny and not imposing additional requirements on permit holders; or (2) decline to issue any preliminary permits for projects involving new technology, in which case applicants could only pursue such projects directly through the licensing process. Comments on the Notice of Inquiry are due by April 30, 2007.

In applying the interim policy, the Commission will ensure that permit holders are actively pursuing studies and consultations that may lead to development of a license application in hopes of preventing site-banking, the practice of reserving potential project sites without intent to develop projects. The Commission will carefully scrutinize the reports that permit holders are required to file on a semi-annual basis, and will, where sufficient progress is not shown, consider canceling the permit. Stricter scrutiny will entail requirements such as reports on public outreach and agency consultation, development of study plans, and deadlines for initiating the formal license application

process. The Commission will process preliminary permit applications with a view toward limiting the boundaries of the permits. This approach should provide a disincentive for developers to seek permits for projects that they are not ready to pursue.

In the area of licensing, the Commission staff considers our well-tested existing procedures to work well, yet to be sufficiently flexible to address the licensing of projects using the new technologies. Where appropriate, Commission staff will investigate making improvements to the current process to the extent consistent with existing law. We will continue to use our substantial experience and expertise in bringing other agencies together in determining appropriate studies and complying with all existing statutes and to make the regulatory process for agencies, applicants, and parties as efficient as possible. To address a concern about a lack of information about the environmental effects of these technologies, Commission staff has been gathering information and studies on the environmental effects of ocean energy and, in coordination with other agencies, will be making this information available as a service to developers as well as using it to accelerate our reviews. We also plan to provide outreach on our program to clarify our process for the industry and stakeholders, many of whom are new to it.

WORKING WITH THE MINERALS MANAGEMENT SERVICE ON THE OCS

The Commission is committed to achieving a fair and predictable regulatory program that allows orderly development of new technology projects to be located on the OCS while considering environmental, recreational, cultural, and other uses of the resource. To this end, both staff and Chairman Kelliher have met with representatives of

the Department of the Interior. I am happy to report that the two agencies are working together to develop a Memorandum of Agreement that will apply the best resources and authorities of both agencies to develop an efficient and effective program for promoting and regulating the development of hydropower in all offshore areas, including the OCS. We believe that the Commission brings several resources to the negotiating table. First, the Commission is uniquely positioned under the FPA and its regulations to give equal consideration to developmental and non-developmental resources and to assure that any project licensed will be best adapted to a comprehensive plan for development of the water resource in the public interest. Second, the Commission has many years experience in hydropower licensing. The Commission's licensing process is transparent, provides timely review of projects, and affords applicants, agencies, Native American Tribes, Non-governmental organizations and members of the public numerous opportunities to effectively participate and represent their interests.

COOPERATION AND CONSULTATION WITH STATE AND FEDERAL AGENCIES

State and other federal agencies (agencies) play a central role in the Commission's existing hydropower licensing process. This role will continue to be essential as we address the new hydropower technologies. The National Marine Fisheries Service (NMFS) within the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce is one of the federal agencies that has been actively involved in the Commission's licensing process for conventional hydropower projects and we expect that they would be similarly involved in new technology projects. The Commission staff

works closely with the agencies to address their interests and concerns and to tap their expertise with “on the ground” management of the resource. Cooperation and consultation with the agencies begins early in application development and continues throughout the licensing process.

The Commission requires that applicants consult with agencies in the process of preparing an application. The application must include the results of this consultation with a description of agency recommendations and the applicant’s response to the recommendations. The Commission’s Integrated Licensing Process regulations require early involvement of Commission staff in pre-application phase discussions with agencies and the applicant. The process includes a formal procedure for consulting with the agencies to determine the studies needed for licensing and includes both an informal and formal dispute resolution process. Under the Federal Power Act, Congress assigned the state and federal fish and wildlife agencies specific authority in hydropower licensing. Essentially, the Commission is to accept state and federal fish and wildlife agency recommendations unless they clearly are in conflict with another part of the statute. These recommendations contribute to the comprehensive balancing of energy development and the protection of fish, wildlife, recreation, and other resources. Finally, the Commission’s licensing process and supporting analysis incorporates other statutes in which Congress has given important authorities to the states such as the Coastal Zone Management Act of 1972 and the National Historic Preservation Act of 1966. Together, these statutory, regulatory, and informal relationships have supported good coordination and cooperation with the states that will extend to the new technologies.

In addition, Section 10(a)(2)(A) of the FPA authorizes states and federal agencies to file Comprehensive Plans that address one or more beneficial uses of a waterway. The Commission takes these Comprehensive Plans into account when determining whether and under what conditions a project should be licensed. These plans enable state and federal agencies to have a substantial role in the Commission's public interest determination.

Finally, I would suggest that the Commission's many years of experience in analyzing the environmental effects of hydropower projects under existing statutes, including NEPA, and implementing regulations provide an ample foundation to adequately address the environmental effects of new technology projects.

CONCLUSION

In closing, the Commissioners have stated publicly their interest in promoting the development of this potentially important source of renewable energy. They also have expressed their desire to reduce regulatory barriers to the development of new technologies, where possible.

We are confident that under the Commission's statutory structure, refined over almost a century, hydropower resources using new technologies can be developed in an orderly way while protecting other beneficial public uses, such as fish and wildlife, and meeting the requirements of other federal statutes and state interests. As experience is gained in the area of new hydropower technologies, we will make appropriate regulatory adjustments as we have in response to other technology changes in the past. We will

work with the Minerals Management Service to develop a program for the OCS that makes the best and most efficient use of our respective resources and provides thorough analysis of environmental impacts, and we will continue to cooperate and consult with other federal agencies, including NMFS, and individual states in the licensing of new technology projects. We look forward to continuing to carry out the Congressional mandate in the Federal Power Act and performing our regulatory duties fairly, openly, and efficiently to realize the potential of this promising renewable energy resource.

That concludes my remarks and I would be pleased to answer any questions you may have.