

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**Hydroelectric Infrastructure Technical Conference** | **Docket No. AD06-13-000**

**COMMENTS OF NATURAL CURRENTS ENERGY SERVICES, LLC**

Natural Currents Energy Services, LLC (Natural Currents) hereby submits these comments in response to the Hydroelectric Infrastructure Technical Conference (Conference) conducted by the Federal Energy Regulatory Commission (“FERC”) and Chairman Kelliher’s request for input from stakeholders. This submittal incorporates the collective comments of Natural Currents, E3, Inc (a sister company) and the Natural Currents Energy Group which is comprised of both of these entities.

**A. Comments on the Technical Conference**

It is clear from the participation and composition of the panels presented at the Conference, the nature of the attending audience and the character of the remote conference participation that there is broad interest in many sectors of the nation with respect to developments in the field of Tidal In-Stream Energy Conversion (TISEC) systems as well as Wave Energy Conversion (WEC) and other potential power system development in (1) Rivers and Stream and (2) Ocean Current conversion systems. Some of the panelists at the Conference questioned whether FERC’s rules sufficiently restricted the eligibility for or receipt of preliminary permits for marine energy generation sites.

The fundamental policy behind the Federal Power Act licensing rules, is to encourage harnessing the nation’s hydropower resources consistent with principles of sound stewardship. This policy and longstanding practice have supported encouraging the interest and commitment

of and resources from a wide variety of potential developers with fairly demanding performance requirements to successfully apply for permanent development.

Nothing in the current situation relating to tidal or wave power generation counsels changing the existing model. The development of hydropower sites, including to tidal or wave power, require substantial investments of time and capital simply to determine if the sites are environmentally and economically feasible, *i.e.* before a permanent application is planned or executed. At some point, prospective developers require a priority position before they will make this commitment. Nothing in the comments submitted during the conference justifies requiring a more substantial showing, and therefore more up-front investment, *before a preliminary permit* may issue. Instead, depending on the showing required, greater restrictions on attaining preliminary permits may simply reduce much of the current interest in developing hydropower sites.

It is important to consider that the structure already provides substantial control over the ability of incompetent applicants to remove hydropower resources from development. First, the Federal Power Act restricts the term of preliminary permits to three years, after which the holder must submit a full application. Second, FERC may require reporting milestones during the three year period to ensure that the permittee is on track with studies etc. to file a timely permanent application. All of the substantive concerns regarding the competency of permittees can be examined during this reporting period, and poor candidates may have their priority removed with limited loss to the opportunity for resource development.

Third, the rules allow for other prospective developers to intervene in applications for initial permits, should an incompetent applicant appear first. It is ironic that the companies complaining that the preliminary application qualifications are too lax were themselves unable to

successfully intervene in the applications. This certainly gives no support to their effort to upset existing applications to provide, presumably, for their intervention at a later date. The likely result of such belated and unfair action would be to delay the development of the resources which the regulatory structure is set up to encourage.

Some of the comments at the Conference cited the specter of site banking, *i.e.* an attempt to secure the rights to a site only for the purpose of selling the right later on, without an attempt to develop it. But the Federal Power Act forbids the transfer of such exclusive rights.

In a vague attempt to complain about the present preliminary application rules, one commenter summarily referred to a 136 square mile site. The reference, albeit veiled, was to Natural Currents efforts to secure a preliminary permit for The Race located at the eastern end of Long Island (Long Island Sound Tidal Power Project No. 12732). Rather than support a tightening of the standards to obtain a preliminary permit, this case amply demonstrates the breadth of commitment and investment which accompanies good preliminary applications and likely successful developers.

### **B. Natural Currents Energy Group Background**

The constituent companies of Natural Currents Energy Group have substantial experience, as much or more than anyone in the industry, in the technology company and site development aspects of using cutting edge In-Stream technology for clean tidal electric power. The company consists of a New York based team of highly qualified specialists that focus their talents on improving in-stream hydro capability. Current projects include tidal electric turbine assembly planned in the state of Pennsylvania in cooperation with support from the widely acknowledged technology business incubator Ben Franklin Technology Partners in eastern Pennsylvania. The company maintains a close relationship with Dr. Alex Gorlov, inventor of the

Gorlov Helical Turbine. The world class hydrological engineer Dr. Victor Lyatkher has completed 17 design projects as a company consultant. Roger Bason, President, has directed twelve significant tidal and technology related projects over the past six years that comprise our experience in the field. Brian Yanity participated in tidal power courses taught by Prof. Bason at the Center for Energy, Marine Transportation, and Public Policy, School of International and Public Affairs, Columbia University (2002-2004).

Avoidance of environmental impact is a key company goal in tidal generation, for which we have retained world leaders in marine ecology as consultants. They include Dr. Barbara Warkentine of SUNY Maritime and Dr. Peter Henderson Oxford University, U.K. who are distinguished in their fields and focus on fish impact related issues and measurements. Attorney David Gordon, formerly Riverkeeper attorney, provides environmental permitting guidance. Our team has developed an on-going and iterative process to complete a **Marine Impact Study Plan** (MISP) requiring continual communication, discussion, analysis and clarification of both site specific and technology specific impacts with fourteen Resource Agencies on the federal, state and local levels. The MISP consists of five elements that include (1) General Fish and Marine Animal Survey (research in process), and a series of studies using the test platform of an operational turbine including (2) Impact Study of Fish Passing Through the Turbine, (3) Fish Behavior in Front of Turbines, (4) Distribution Aquatic Animals in Adjacent Water, and (5) Geo-Physical Impacts on Sediments.

During the period of 2002 to 2004 Natural Currents Energy Group subsidiary E3, Inc provided technical oversight for two competing tidal energy developments, including Verdant Power's RITE (Roosevelt Island Tidal Energy) Project and for GCK Technology's field

deployment of a Gorlov Helical turbine in 2004 near Shelter Island, New York. Both projects were funded by the New York State Energy Research and Development Authority.

Natural Currents is developing a hybrid tidal, wind and solar project on Ward's Island, (Preliminary Permit Application # 12718) NY in cooperation with the New York City Dept of Parks and Recreation (NYC Parks) with the support of approximately \$1.0 m in funding each from NYC Parks and the US Department of Energy.

### **C. Pending Preliminary Permit Applications**

#### **1. Comments on All Pending Applications**

For the reasons stated above we agree with several of the panelists including Richard Roos-Collins that the preliminary permit process should not be changed and should be allowed to work within its existing framework. The current application process is straightforward and requires "preliminary" knowledge of the site and the intent to develop the site. Once the application process is underway, FERC project managers may make such requirements to determine the overall appropriateness of site specific needs for project development which will no doubt vary significantly from site to site.

The current process is flexible enough to enable many different approaches to be used, while at the same time is simple and straight forward enough to encourage a broad range of interests to participate in the opportunity of site development. Without this flexibility and apparent simplicity the costs for making a preliminary evaluation application itself will be too high to be (1) broadly applied throughout the nation and to (2) encourage participation from a variety of potentially qualified site developers. If the application process is too complex and costly at this stage, it discourages participation and financial support from potential investors. It also limits the pool of participants to only the most wealthy, and not necessarily the most

qualified participants. We as a nation must draw from the entire strength of our population, not a selected few.

## **2. Natural Currents Preliminary Application # 12732**

Natural Currents Preliminary Application comprises some 136 square miles of the tidal resource known as The Race and is located at the eastern end of Long Island (Long Island Sound Tidal Power Project No. 12732).

Natural Currents has invested significant time and resources in the development of this resource and has a preliminary consulting agreement with one of the world's foremost authorities on this water body, Dr. Malcolm Spaulding who directs the graduate studies program of Ocean Engineering at the University of Rhode Island. Dr. Spaulding will coordinate a preliminary evaluation of a broad range of site characteristics of the Race by some 15 PhD candidates in the URI oceanography program during the Spring, 2007 to Spring 2008. This evaluation will enable Natural Currents in cooperation with URI to collect data to characterize the resource and (1) provide detailed analysis of tidal currents speeds and Acoustic Doppler profiles of the water columns at selected areas, (2) identify critical issues and areas of potential problems with fish and marine mammals, (3) track state specific permitting needs and requirements, (4) evaluate bottom sediment characteristics, (5) all complete MISP related studies and (6) integrate overall technology developments. Interim and final reports on this process will provide integral data for resource agency review and for the development of detailed site development plans for review by FERC and other appropriate agencies. Professional and academic resources will supplement and develop research and field investigations of site characteristics as circumstances require.

In this manner Natural Currents will establish a high standard for site evaluation that will enable FERC and other resource agencies to have robust and detailed data from which to make decisions regarding the appropriateness of plans for site development and for site developers to modify investigations and development in ways that meet the needs of varied regional interests.

Despite the implicit criticism of a preliminary application for such an extensive site, Natural Currents is the first, and to date only, organization with the plan, the commitment, and through its consultants the resources to evaluate in detail the potential of the various parts of this site for effective tidal energy generation. No critic has suggested an alternative evaluation model in any formal proceeding, *e.g.* a timely challenge to the preliminary permit application, and to the best of our knowledge none has the resources currently to do so. For that reason the development of this site for tidal energy generation would be best served by granting the preliminary permit and allowing the planned studies to go forward under FERC oversight, rather than taking the time to reconsider initial eligibility rules and then determining if any party is willing to make the substantial investment required under those rules.

Should any additional questions arise, please feel free to contact us.

Respectfully submitted,

Natural Currents Energy Services, LLC

*Filed electronically*

By Roger Bason, President  
David Gordon, General Counsel

December 21, 2006

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