BEFORE THE UNITED STATES

FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR PRELIMINARY PERMIT

PG&E Mendocino WaveConnect Project
Project No. _____

Pacific Gas & Electric Company

February 26, 2007

PRELIMINARY PERMIT APPLICATION
FOR
THE PG&E MENDOCINO WAVECONNECT PROJECT

Initial Statement

1. Statement of Application.

Pacific Gas & Electric Company ("PG&E") hereby applies to the Federal Energy Regulatory Commission ("FERC") for a preliminary permit for the proposed PG&E Mendocino WaveConnect Project. This project, as described in the attached exhibits, will initially serve to demonstrate the feasibility of generating electric power from waves off the coast of Mendocino County, California. During the preliminary permit period, PG&E will obtain the data and perform the acts required to determine the feasibility of a large scale wave energy project up to 40 MW in installed capacity, and to support an application for a license for such a project. This preliminary permit application is made in order that the applicant may secure and maintain priority of application for a license for the project under Part 1 of the Federal Power Act.

2. Project Location.

The project will be located in the Pacific Ocean off the coast of the city of Fort Bragg in Mendocino County, California, within a project site that is situated in the open ocean approximately 0.5 to 6 miles from shore. The wave energy conversion ("WEC") devices that are being considered for the project float on the surface of the ocean and operate optimally in locations where water depths range from 60 to 600 feet. This application covers a project site that has approximate dimensions of 4 miles wide (predominantly in the east-west direction) by 17 miles long (predominantly in the north-south direction) resulting in a project area of 68 square miles. A project area of this size is required to allow flexibility for performing the necessary assessments and properly siting the project components, recognizing that the final project will have a much smaller footprint (see Exhibit 3 – Project Map). PG&E anticipates that many smaller regions within this larger project site will not be suitable for development and will be excluded from the resultant license application. The project area has the following coordinates:

//

//

ID	Latitude	Longitude
1	39° 20.998'N	123° 50.157'W
2	39° 28.588'N	123° 49.215'W
3	39° 32.786'N	123° 47.333'W
4	39° 36.627'N	123° 47.960'W
5	39° 36.671'N	123° 52.639'W
6	39° 20.976'N	123° 55.434'W

A subsea transmission cable will carry power from the project area to shore (see Exhibit 3 – Project Map for proposed location) for connection to the grid in Fort Bragg.

The project area is located in an area with excellent wave resources. The National Oceanic and Atmospheric Administration National Data Buoy Center ("NDBC") operates a wave measurement buoy (Station ID: 46014) located about 19 miles southwest of Fort Bragg in a water depth of 900 feet. The station has collected data from 1981 to the present, providing a comprehensive data set that can be used for initial technical evaluations. This measurement station is a good proxy for the available wave energy resource at the proposed project site. Data collected at this buoy show significant wave action in the general project area with monthly average wave heights ranging from 6.5 to 10 feet. Analysis of the 25-year data set show an average wave power density of 35.9 kW/m. Monthly average ocean water temperatures in this area range from 52 to 58 degrees Fahrenheit and the monthly average wind speeds range from 10 to 14 knots.

3. Name, Business Address, and Telephone Number of Applicant.

Pacific Gas and Electric Company
Energy Supply
245 Market Street, MC N13-1360
San Francisco, CA 94105-1814
Telephone: (415) 973-3806

Pacific Gas and Electric Company
Law Department
77 Beale Street, MC-B30A-2479
San Francisco, CA 94105-1814
Telephone: (415) 973-7145

//

//

//

The following persons are authorized to act as agents for the applicant in the application:

Mr. Roy Kuga, Vice President - Energy Supply
Pacific Gas and Electric Company
P. O. Box 770000, MC N13-1360
San Francisco, CA 94177
Telephone: (415) 973-3806
Facsimile: (415) 973-1859
E-Mail: RMK4@pge.com

Annette Faraglia, Esq.
Pacific Gas and Electric Company
Law Department
P. O. Box 7442, MC B30A-2479
San Francisco, CA 94120-7442
Telephone: (415) 973-7145
Facsimile: (415) 973-5520
E-Mail: ARF3@pge.com

4. Preference Under Section 7(a) of the Federal Power Act.

PG&E is a domestic corporation of the U.S. and is not claiming preference under Section 7(a) of the Federal Power Act.

5. Term of Permit.

The proposed term of the requested permit is 36 months.

6. Existing Dams or Other Project Facilities.

There is no existing dam or other project facility as part of the proposed project.

//

//

//

//

//

//

//

//

EXHIBIT 1
PROJECT DESCRIPTION

1. Project Configuration.

There will be no proposed structures such as dams, spillways, penstocks, powerhouses, or tailraces associated with the proposed PG&E Mendocino WaveConnect Project.

The PG&E Mendocino WaveConnect Project will use WEC devices to transform the energy of ocean waves into clean, renewable electricity. A number of different device concepts are being pursued by independent device manufacturers, and there is no industry consensus at this time on the optimal energy conversion technology. One of the initial steps of the PG&E Mendocino WaveConnect Project will be to provide an infrastructure to deploy and evaluate, relative to the specific requirements of the proposed Mendocino site, a number of different WEC devices in order to identify the best technology solutions, consider environmental effects, and estimate development costs associated with this site. As technical, environmental, and economic considerations are understood and addressed, the project is planned to be built-out to an installed capacity of 40 MW with the technology(ies) best suited for this location. The initial WEC devices to be used will be selected from device manufacturers who have sufficiently mature technologies available for deployment.

Multiple individual WEC devices will be arranged in an array ('wave farm') which will be located 0.5 to 4.5 miles from the shoreline as shown in the figure in Exhibit 3. The length of the array (distance parallel to shoreline) will be determined by individual device performance and inter-device spacing requirements. Most of the WEC devices currently being considered by PG&E float on the surface of the ocean but perform optimally at a specific water depth; accordingly, depths ranging from 60 to 600 feet will be considered for placement of various devices.

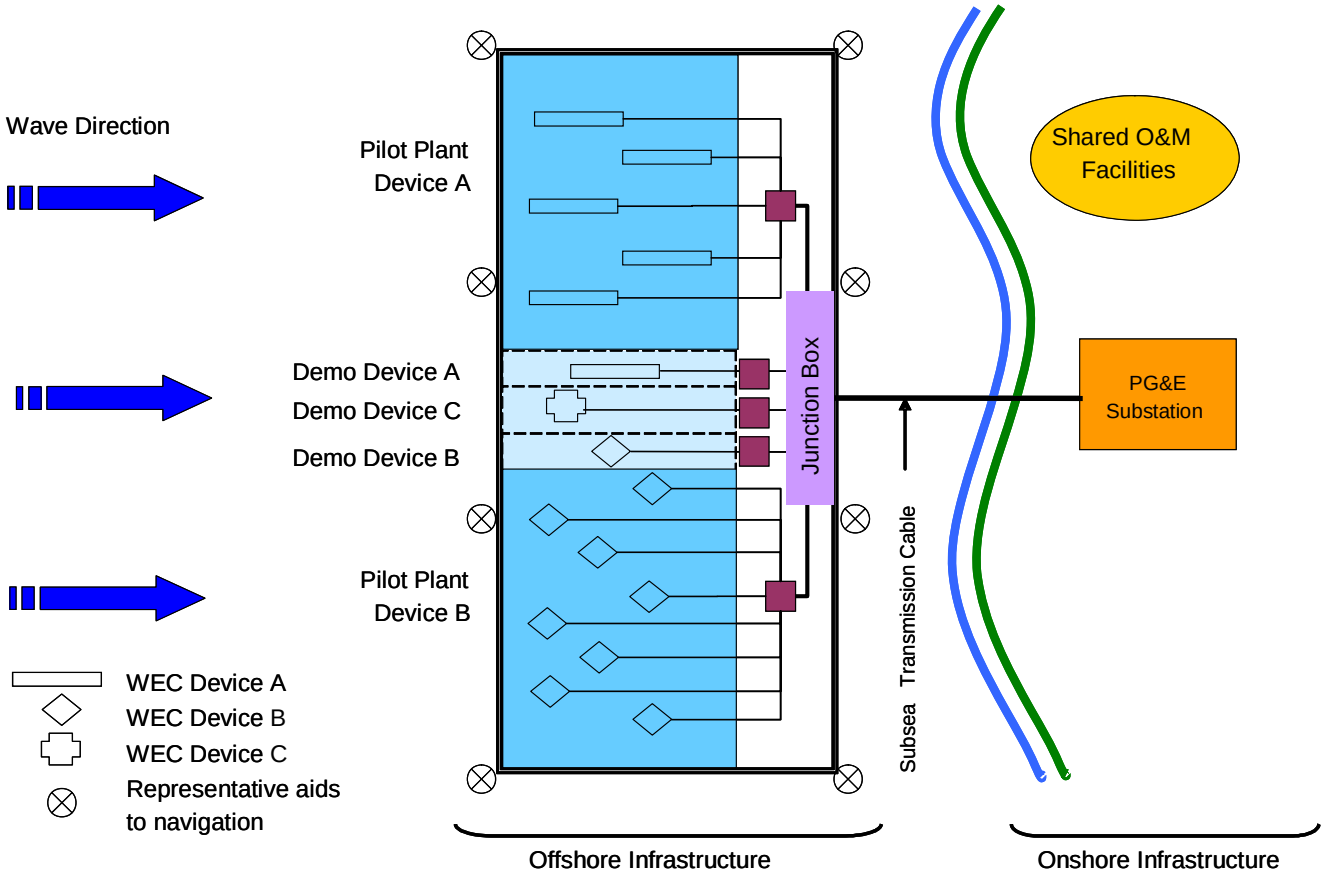
The WEC devices are independent modules, each with rated capacities ranging from 150 kW to 4 MW. The devices in the array will be connected electrically in clusters to a subsea transmission cable, which will transport the generated power to shore. The WEC devices will be moored to the ocean floor and can be easily installed and uninstalled as necessary for operation

and maintenance. The final physical configuration of the array will be determined following completion of the feasibility studies conducted during the preliminary permit period.

The proposed project will consist of three main components as illustrated in Figure 1: 1) the offshore infrastructure; 2) a subsea transmission cable comprising power cables and fiber-optic communication cables; and 3) the onshore infrastructure. The offshore system components will consist of multiple WEC devices and their associated infrastructure (anchors, mooring lines, power cables to the junction box, etc.) and the junction box. The junction box will include appropriate power conditioning transformers and circuit breakers that receive power from each WEC. Various aids to navigation will be positioned around the deployment area in accordance with U.S. Coast Guard requirements.

FIGURE 1

PG&E MENDOCINO WAVECONNECT PROJECT DIAGRAM



The subsea transmission cable will run from the junction box to a landfall site in Fort Bragg. The length of this cable will be determined once the optimal location of the junction box is established, but is expected to be 0.5 – 3.0 miles. PG&E will investigate the potential use of an existing wastewater discharge pipe from the now closed Georgia Pacific Lumber Mill to bring the cable to shore. If this proves feasible, the transmission cable could be run either within or along the existing pipe, under the beach and inland.

As part of the assessment of project feasibility, PG&E will investigate various options for connecting to the grid. A potential interconnection point is an existing PG&E transmission substation on Grove Street in Fort Bragg, which is located approximately one mile from the mill site described above. The onshore infrastructure will likely include a small command, communication and control station and transformer, circuit breaker and other interconnection equipment dedicated to this project at the existing substation. The exact details of the subsea transmission cable and interconnection such as the capacity, length, and end connection details will be determined during the feasibility study for the proposed project.

The proposed project has the potential of producing 40 MW of electrical power, depending on the technology selected and spacing required, as well as physical, environmental, and regulatory constraints determined during the feasibility studies. Given the early stage of the project analysis and the nascent state of the wave energy industry in the U.S., PG&E is requesting, and will perform detailed study of, a project area of sufficient size to allow consideration of the many factors that will influence the project's development.

As an example, PG&E understands the project's need to avoid interfering with navigation into and out of Fort Bragg. The project location map in Exhibit 3 identifies a <u>possible</u> example of a self-imposed exclusion zone (unshaded area) where WEC devices would not be deployed. The area of this exclusion zone is, however, included within the proposed project boundary to allow siting of an interconnecting subsea electrical cable that would connect WEC devices to a junction box not located on their same side of the entrance to the port of Fort Bragg. Additionally, navigation charts identify a dredged material dumping site that will need to be considered. The final project build-out area will be determined during feasibility studies and consultation with regulatory agencies, fishermen/crabbers, environmental advocates and other stakeholder groups.

Once PG&E files a development license application, and if FERC grants the project a development license, the deployment of WEC devices is expected to proceed in a phased approach. The first phase will involve the deployment and testing of devices from up to four different manufacturers yielding a combined nameplate capacity of up to 5MW. PG&E plans to then incrementally expand the project further, up to a capacity of 40MW.

2. Reservoirs.

There are no reservoirs required for this project.

3. Transmission Lines.

The proposed project subsea transmission cable would likely be a 40kV three-phase AC submarine double armored XLPE cable with a fiber core, having roughly a 3.5" diameter. The subsea transmission cable would be buried in the seafloor sediments from the deployment site to shore. A potential landfall for the cable is a pipe outfall at the closed Georgia Pacific Mill in Fort Bragg. One potential interconnect option is the existing PG&E substation, located at 198 Grove Street, which is approximately one mile from the landside end of the Georgia Pacific Mill discharge pipe. A preliminary review of the grid infrastructure indicates that 40 MW could be fed into the grid at this location without any major grid upgrades. The exact details of the subsea transmission cable and interconnection such as the capacity, length, and end connection details will be determined during the feasibility study for the proposed project. The proposed project will comply with all interconnection requirements as determined by PG&E and the California Independent System Operator.

4. Estimated Annual Energy Production.

PG&E will initially deploy and test WEC devices from up to four different manufacturers, and up to an installed capacity of 5 MW. PG&E plans to then incrementally expand the project up to 40 MW. PG&E estimates the annual energy output of the 40 MW power plant to be 100,000 MWh/year. This estimate, however, is technology dependent and is subject to change based on the technologies selected.

5. Lands of the U.S.

All lands within the proposed project boundary are identified under Exhibit 3. The aquatic portion of the project would be located on state submerged lands as well as federal waters but not on "lands of the United States" as defined in the Federal Power Act.

6. Public Interest Benefits.

The project will develop a new source of renewable electricity for the public, which:

A. Generates clean and renewable energy with minimal effects on the environment given proper care in siting, installation, and operation;

B. Provides needed reliable and cost-effective power generation along the California coast;

C. Provides added diversification of power generation; and

D. Creates local jobs and promotes economic development from the construction, operation, and maintenance of the project.

The proposed project would develop a new source of renewable, non-polluting energy in the U.S. The project will use ocean waves to generate energy in a reliable and environmentally sound way. This indigenous renewable energy resource is also sustainable and does not rely on the consumption of fossil fuel. EPRI recently completed an extensive set of reports on the feasibility of wave energy projects in North America (http://www.epri.com/ oceanenergy). EPRI identified public benefits of wave energy projects to include job creation (construction, operation, and maintenance of wave power plants), promotion of economic development, and increased energy self-sufficiency.

The Energy Policy Act of 2005 encouraged the development of renewable energy resources, including ocean energy. According to the California Energy Commission, in 2004, 10.2 percent of California's electricity came from renewable resources such as wind, solar, geothermal, biomass, and small hydroelectric facilities. California established its Renewable Portfolio Standard Program in 2002, with the goal of increasing the percentage of renewable energy in the state's electricity mix from these sources to 20 percent by 2017. The Energy Commission's 2003 Integrated Energy Policy Report called for accelerating that goal to 2010, and the 2004 Energy Report Update recommended further increasing the target to 33 percent by 2020. The state's Energy Action Plan also recommended achievement of this goal. The PG&E

Mendocino WaveConnect Project will help California reach these goals. Domestic sources of energy are also in the public's best interest as they reduce the country's dependence on foreign oil and other fossil fuels.

EPRI also described wave energy projects as potentially one of the more environmentally benign sources of energy generation given proper care in siting, installation, and operation. Wave energy systems that PG&E would consider for this project do not involve the construction of dams or reservoirs and would be visually unobtrusive when viewed from the shore, thus minimizing aesthetic concerns. Neither would the WEC devices used affect water quality, block fish passage, or direct fish and other aquatic life through turbine generators.

The City of Fort Bragg has expressed strong local support for a wave power project in their area. As a result of EPRI's efforts with local stakeholders, in October 2006 the Fort Bragg City Council signed a resolution stating its commitment to attracting a wave power project to the area (Attachment A).

//

//

//

//

//

//

//

//

//

//

//

//

//

//

//

//

//

EXHIBIT 2
DESCRIPTION OF PROPOSED STUDIES

1. Description of Studies.

PG&E will consult with appropriate regulatory and resource agencies, Indian tribes, and other Northern California stakeholders to identify important resources in the project area. Through consultation with stakeholders and by reviewing existing information, PG&E will investigate the physical and biological resources of the project area. PG&E anticipates characterizing the existing conditions to develop a baseline from which to assess potential effects that the wave energy project may have on three broad areas: marine life, use of sea space, and coastal processes. As one example, gray whales are an important species that reside and migrate along the California coastline. PG&E will work with regulatory agency staff to understand the migratory patterns of gray whales in the vicinity of the project area and to minimize any potential effects that the construction and operation of the project may have on them. Important existing uses of sea space in the area to consider include both commercial and recreational activities such as shipping, fishing, crabbing, kelp farming, and surfing. Possible effects on coastal processes such as erosion and sediment transport will also be investigated.

Where existing information is insufficient, PG&E may undertake additional studies to ensure that any wave power development would most efficiently utilize the available wave resource to generate electricity while minimizing any potential environmental effects. For example, it's possible that detailed bathymetry and substrate information studies may need to be conducted at the project site in order to ideally locate the WEC devices. PG&E is also planning to investigate transmission capacity, interconnection, and other issues associated with transporting project power to the grid.

WEC projects have been successfully developed and demonstrated around the world, including several in the U.S. The 'Wave Hub' (http://www.wavehub.co.uk/) is a project in the United Kingdom that is similar in concept to the proposed PG&E Mendocino WaveConnect project. Portugal recently announced plans for the first-of-its-kind commercial wave energy project and others are planned in Spain, UK, Ireland, South Africa and Australia. This activity is an indication that wave energy conversion can be commercially and environmentally viable and

that WEC device development is at a stage where commercial projects are feasible. In the U.S., several preliminary permit applications for wave energy projects were recently filed with FERC. Further, the Makah Bay Offshore Wave Energy Pilot Project (FERC Project No. 12751) in Washington State was the first wave energy project to file a license application with FERC in November 2006.

Information available from previous and ongoing wave energy projects worldwide will be used to support the design and development of the PG&E Mendocino WaveConnect Project and in the evaluation and selection of appropriate WEC devices.

PG&E will also conduct economic and financial feasibility analyses for the proposed project.

The following is a proposed schedule for the project:

Schedule To Commence Once Regulatory Approvals Are Received.
Schedule Assumes Timing and Activities Based on
PG&E's Preliminary Analysis and Is Subject to Revision.

Year 1	<u>Initial Assessment</u> • Begin discussions with stakeholders • Begin wave resource studies • Perform initial siting analysis including bathymetry studies and identification of other constraints • Identify preliminary short list of deployment sites within permitted area • Identify early environmental studies and begin preliminary work on those <u>Detailed Assessment (subsequent)</u> • Continue detailed discussions with stakeholders • Conduct detailed resource analysis • Identify and quantify site constraints • Develop construction and interconnection strategy for potential sites • Begin WEC device evaluation • Continue and expand environmental studies • Develop energy yield analysis • Develop initial financial models • Compile information for and file NOI/PAD

Years 2 and 3	License Application Development • Continue discussions with stakeholders • Finalize technology selection and designs • Perform technology testing • Continue environmental and other studies to support license application • File license application

PG&E acknowledges and supports the recent Notice of Inquiry and Interim Statement of Policy regarding Preliminary Permits for Wave, Current, and Instream New Technology Hydropower Projects, issued February 15, 2007 (Docket No. RM07-08-000), and intends to fully comply with all requirements imposed by the Commission under its "strict scrutiny" approach to ensure appropriate progress under the permit.

2. Need for New Roads.

This project will not require the construction of any roads.

3. Dam Construction.

The project will not require the construction of any type of dam as the facility is designed to operate in the open ocean and capture the heaving motion of the ocean swell.

4. Waiver.

No waiver is being sought at this time for the evaluation and testing of the feasibility of the project.

5. Statement of Costs and Financing.

PG&E estimates that during the preliminary permit period, studies, investigations, tests, surveys, maps, plans, and other related specifications for the proposed project will cost approximately between $1,000,000 and $3,000,000 and will be funded by PG&E, subject to regulatory approval by the California Public Utilities Commission.

//

//

EXHIBIT 3

(18 C.F.R. §4.81(d))- PROJECT MAP

1. Project Boundary Map.

A map of the proposed project boundary and subsea transmission cable route follows. The relative location and physical interrelationships of principal project features will be developed during project feasibility studies.

2. National Wild and Scenic Rivers.

The proposed project area does not include any areas designated as or being considered for inclusion in the National Wild and Scenic Rivers System.

3. Wilderness Act.

The proposed project area does not include any areas designated as or recommended for designation as a wilderness area or wilderness study area under the Wilderness Act.

//

//

//

//

//

//

//

//

//

//

//

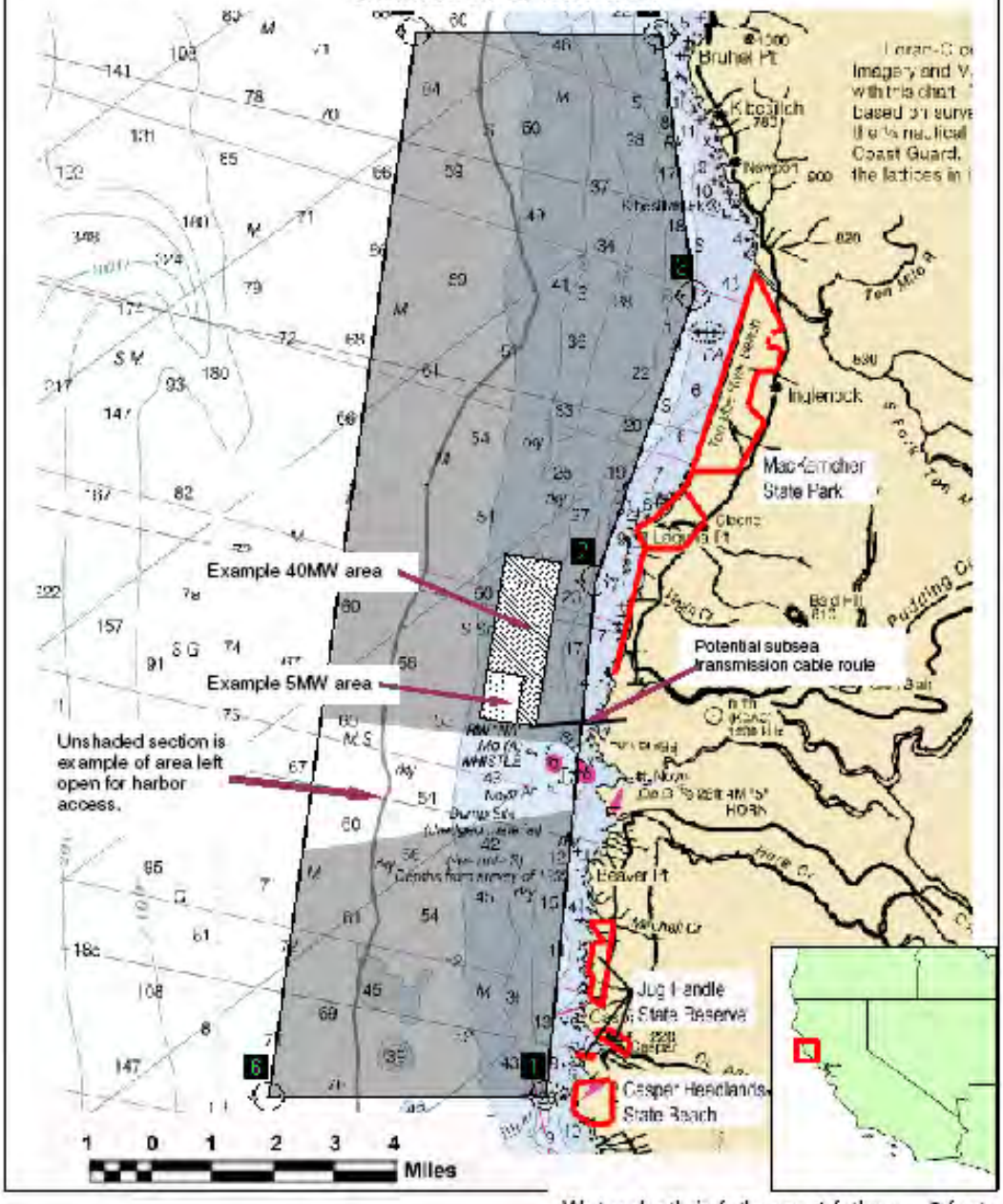
//

//

//

PG&E Mendocino WaveConnect Project

Permit application boundary shows proposed area of investigation. Actual project would occupy smaller area. Possible footprints of 5MW and 40MW projects are shown below for reference.



Water depth in fathoms: 1 fathom = 6 feet
Source: NOAA chart # 18620

SECTION 4.32
INFORMATION

1. PG&E is the only entity that has or intends to obtain and will maintain any proprietary rights necessary to construct, operate, or maintain the proposed property as described in this application.

2. Municipal Information.

No federal facilities would be used by the proposed project. The area proposed for evaluation and testing is located within, or in the ocean water immediately adjacent to, one county:

Mendocino County
Administration Department
501 Low Gap Road, Room 1010
Ukiah, CA 95482-3734

3. Cities or Towns Where Project Will Be Located.

Fort Bragg
City Hall
416 N. Franklin Street
Fort Bragg, CA 95437-3210

No dam is proposed in association with this wave energy project. Fort Bragg is the only city with a population of 5,000 or more that lies within 15 miles. According to the 2000 Census, Fort Bragg has a population of 7,026.

4. No federal facilities would be used by or otherwise associated with the proposed project, and no special purpose political subdivisions exist within the proposed project boundary for the evaluation and testing of wave energy potential.

No other known political subdivisions exist within the proposed project evaluation and test area; however, PG&E will consult with all agencies and organizations with regulatory authority over the waters and resources of the proposed project area during the evaluation of project feasibility.

5. Indian Tribes (Reservations) That May Be Affected By The Project.

Coyote Valley Reservation
P. O. Box 39
Redwood Valley, CA 95470-0039
Telephone: (707) 485-8723
Facsimile: (707) 485-1247

Guidiville Rancheria
P. O. Box 339
Talmage, CA 95481-0339
Telephone: (707) 462-3682
Facsimile: None Available

Hopland Reservation
P. O. Box 610
Hopland, CA 95449-0610
Telephone: (707) 744-1647
Facsimile: (707) 744-1506

Laytonville Rancheria
P. O. Box 1102
Laytonville, CA 95454-1102
Telephone: (707) 984-6197
Facsimile: (707) 984-6201

Manchester/Point Arena Rancheria
P. O. Box 623
Point Arena, CA 95468-0623
Telephone: (707) 882-2788
Facsimile: (707) 882-4142

Pinoleville Indian Reservation
367 N. State Street, Suite 204
Ukiah, CA 95482-4444
Telephone: (707) 463-1454
Facsimile: (707) 463-6601

Potter Valley Rancheria
417 Talmage Road
Ukiah, CA 95482-7487
Telephone: (707) 468-7494
Facsimile; (707) 468-0874

Redwood Valley Rancheria
P. O. Box 499
Redwood Valley, CA 95470-0499
Telephone: (707) 485-0361
Facsimile: (707) 485-5726

Round Valley Reservation
P. O. Box 448
Covelo, CA 95428-0448
Telephone: (707) 983-6126
Facsimile: (707) 983-6128

Sherwood Valley Rancheria
190 Sherwood Hill Drive
Willits, CA 95490-4666
Telephone: (707) 459-9690
Facsimile: (707) 459-6936

//

//

//

//

//

//

//

//

VERIFICATION STATEMENT

This Application for a Preliminary Permit for the PG&E Mendocino WaveConnect Project is executed in the State of California, City and County of San Francisco.

Roy Kuga, Vice President – Energy Supply of the Pacific Gas and Electric Company located at 245 Market Street, San Francisco, California, being duly sworn, deposed and says that the contents of this Preliminary Permit Application are true to the best of his knowledge or belief.

The undersigned Applicant has signed the Application on this _____ day of _____, 2007.

By: _____
ROY KUGA

Subscribed and sworn before me, a Notary Public of the State of California, County of San Francisco, this _____ day of _____, 2007.

_____
NOTARY PUBLIC

ATTACHMENT A

RESOLUTION OF
THE FORT BRAGG CITY COUNCIL
SUPPORTING THE DEVELOPMENT OF
THE PG&E MENDOCINO WAVECONNECT PROJECT

RESOLUTION NO. 3024-*2006*

RESOLUTION OF THE FORT BRAGG CITY COUNCIL SUPPORTING THE DEVELOPMENT OF RENEWABLE WAVE ENERGY PLANT OFF THE COAST OF FORT BRAGG

WHEREAS, the City of Fort Bragg supports the implementation of renewable energy generation projects as an alternate to fossil fuels; and

WHEREAS, finite oil deposits around the world cannot provide a sustainable long-term source of energy; and

WHEREAS, the money from local economies that currently goes to distant oil-producing nations and corporations may be used locally to develop self-sufficient regional renewable energy systems, supporting local jobs and economic development; and

WHEREAS, Fort Bragg is uniquely positioned for a first California commercial wave power plant because of its access to an energetic wave climate, an existing outflow conduit usable for landing the transmission cable, and a grid connection with capacity to accept additional power without major upgrades; and

WHEREAS, renewable wave energy can provide electricity without producing carbon dioxide, other greenhouse gases, particulate matter or any emission that would pollute the atmosphere; and

WHEREAS, the City of Fort Bragg will be prudent and proceed with caution concerning environmental and marine fish and mammal considerations and considerations regarding use of sea space relative to such groups as fisherman, crabbers, kelp farmers and surfers.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Fort Bragg does hereby proclaim that the City of Fort Bragg is committed to attracting a wave power plant offshore to its coast, and

BE IT FURTHER RESOLVED that the City Council has requested the Electric Power Research Institute (EPRI) to help promote funding support and to oversee the technical aspects of developing a scenario that will attract either public or private capital to make this plant become a reality. Assuming that adequate funding support is developed, EPRI would:

a. Assess the most promising location for the commercial scale plant.

b. Prepare a preliminary design, performance calculations, cost estimates and assessment of the economics relative to other energy generation supply options.

c. Set up an advocacy group with regular meetings (quarterly) to work collaboratively towards the common goal of attracting a wave power plant. Members of the regulatory agencies would be invited to attend and express their concerns and issues.

d. Request a public official from the state to be the leader of this group.

e. Set up a Port Liaison Project to get fisherman and crabbers meeting with the engineers and scientists to study siting, design, installation and other issues. The

NOAA Port Liaison Project would pay the fisherman and crabbers for their time spent working on this project.

f. Other tasks as deemed appropriate and necessary by EPRI and approved by the City Manager.

The above and foregoing Resolution was introduced by Councilmember Hammerstrom, seconded by Councilmember Baltierra, and passed and adopted at a regular meeting of the City Council of the City of Fort Bragg held on the 10th day of October, 2006, by the following vote:

AYES: **Councilmembers Gjerde, Baltierra, Hammerstrom, Melo, and Mayor Turner.**
NOES: **None.**
ABSENT: **None.**
ABSTAIN: **None.**

DAVE TURNER,
Mayor

ATTEST:

Cynthia M. VanWormer, CMC
City Clerk