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## Humboldt WaveConnect Public Meeting

Eureka Veterans' Hall  
Eureka, CA

February 2, 2010

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### Meeting Summary

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#### Public Meeting Overview

On February 2, 2010, Pacific Gas and Electric Company (PG&E) hosted a public meeting to provide information and progress to date on the proposed Humboldt WaveConnect pilot project off the coast of Humboldt County. Stations around the room provided information about the pilot project schedule and the environmental review process, involvement and participation of the community through the Humboldt Working Group, and an overview of wave energy technology. The meeting began and ended with an open house format during which attendees could view the stations and ask questions of the WaveConnect staff, consultants, and Humboldt Working Group members. PG&E provided a project overview presentation, which is summarized below. This was followed by a HWG panel discussion and a question and answer session. Approximately 150 members of the public attended this meeting.

#### Presentation Summary

*Presented by Bill Toman and Ian Caliendo, PG&E; Doug Davy, CH2M Hill; and Rick Williams, SAIC.*

In March 2008, PG&E was granted a preliminary permit from the Federal Energy Regulatory Commission (FERC) to study the feasibility of siting a wave energy facility off the coast of Humboldt County. The permit allows PG&E to conduct studies to inform a license application for a temporary, five year operation, five megawatt (5MW) testing and research facility that is ½ by 2 nautical miles in size. The project would test three to four wave energy technologies to learn more about the potential of wave energy as a viable renewable energy source.

The current proposed location for this project was chosen through the Humboldt Working Group (HWG) process. The HWG is a community selected group of over 50 local community members and agency staff who have met approximately monthly to provide input on the project and work to identify and resolve potential issues of concern. There is also a HWG Subcommittee of federal and state permitting agencies representatives who are working collaboratively to coordinate the environmental review and permitting process. The HWG will work together throughout the lifetime of this project.

PG&E, with the HWG's input, is currently working on a Draft Pilot License Application (DPLA) to submit to FERC on February 26, 2010. Following submission of the DPLA, PG&E will continue to solicit input from the HWG and the public for incorporation into the Final Pilot License Application (FPLA), which will be submitted in the fall of 2010. If the FPLA is granted by FERC in 2011, monitoring and some construction of the project could begin in approximately 2012. This would be the first project of its kind in North America.

## Panel Discussion

Discussion led by Anna West, Kearns & West Facilitator, with members of the Humboldt Working Group (HWG) including:

- Vicki Frey, California Department of Fish & Game (CDFG)
- Steve Mindt, California State Lands Commission (CSLC)
- Kevin Pinto, Commercial Crab Fisherman
- Paul Hagen, Community-at-Large
- Ken Hogan, Federal Energy Regulatory Commission (FERC)
- Larry DeRidder, Humboldt Area Saltwater Anglers
- Mark Lovelace, Supervisor, Humboldt County
- Aaron Newman, Humboldt Fisherman's Marketing Association
- Dave White, National Marine Fisheries Service (NMFS)
- Rob Cozens, Resighini Rancheria
- Jim Zoellick, Schatz Energy Research Center
- Bill Lydgate, Surfrider Foundation, Humboldt Chapter
- Bill McIver, U.S. Fish & Wildlife Service (USFWS)

The HWG panelists offered their thoughts on four topics areas: site selection, wave energy converter (WEC) selection criteria and process, environmental review and the permitting/licensing process, and community benefits.

*Site Selection:* HWG commercial fishing representatives expressed interest in this project since it would be located in a very active crabbing area. Of particular concern are the unknown effects on the fishing industry, both from the project itself and the maintenance of the project. They also shared that they are working with PG&E to explore possible effects and compensation for loss of fishing grounds. From a recreational fishing perspective, this site is the best available of the options under consideration. A surfing community representative added that he anticipated, based on the site location, that the proposed project would have a negligible impact on surfing conditions. An agency representative shared that, as the project relates to California's natural resources, this site is the first wave energy proposed location to be well thought out and to have minimal impacts on the coast.

*WEC Selection:* A panelist representing renewable energy interests explained that WECs are a very new technology and some are better proven than others. Additional components such as the mooring/anchoring, safety and reliability must be considered in choosing the appropriate WECs for this site. A tribal representative added that the state of the wave energy industry today is like that of air technology a year after the Wright brothers successfully flew their plane; people know that wave energy technology is possible, but the best approach to developing it is unclear. This is why he is pleased that PG&E is testing multiple types of devices.

*Environmental Review and Permitting Process:* Agency representatives shared that there are many federal and state agencies involved in the environmental review and permitting of this pilot project because there are only a few projects like this in the world. A challenge is ensuring that the requirements of the involved agencies are met. There is an opportunity here for this project to be a leader in clean technology development. A Community-at-Large representative added that PG&E has made an effort to include the

community early on and incorporate remarks throughout the process. PG&E answers to the agencies, so local community members are encouraged to voice comments and concerns to the agencies. An agency representative shared that FERC developed the pilot project process to help promote the development of the wave energy industry. In addition to providing input through agencies, there is a public comment period with FERC for 60 days following the filing of the DPLA. These comments will be addressed to the best of PG&E's ability in the FPLA. A few representatives expressed that early stakeholder involvement has given this process a good start. Another agency representative explained that the role of the agencies is to ensure that the best possible project is put forth with the most benefit for the people and the least environmental effects.

*Community Benefits:* HWG public officials explained that the local community has a reputation for being environmentally astute. While most HWG members represent a particular interest, it is the public officials' role to consider the interests of the community as a whole and consider the broader public interest. In one representative's opinion, it seems that the local community can not only benefit from the project itself, but also by becoming the center of an emerging technology and a hub for wave energy research. However, all projects need a balance – both environmental and economic goals and potential impacts, particularly for the fishing community, need to be addressed. A public official added that the benefits gained here can add to the overall body of knowledge and benefit the entire industry.

\* PG&E noted that the California Public Utilities Commission (CPUC), which approves rates to pay for this project, may not accept a five-year project duration to cover costs. PG&E is currently exploring a timeframe as long as 10 years to help lessen the burden on rate-payers for the project. A decision to change the duration of the project has not been made yet, nor will a decision be made without a discussion with the stakeholders.

### **Questions from the Community**

Questions from the audience followed the panel discussion. The following topics were discussed and clarified:

- A question was asked about whether a commercial wave energy facility in Humboldt is the ultimate goal, or if the goal is to get information to use in other places. PG&E representatives explained that the company has a high interest in pursuing renewable energy and the Humboldt WaveConnect pilot project is designed to be a small testing site that can begin to provide information about the technology, and inform whether a utility-sized facility is feasible. Humboldt County is an excellent location to do this,. PG&E is also pursuing a larger wave energy facility off the central California coast that may be built up to 100 MW. PG&E envisions technologies from the Humboldt site "graduating" to the Central Coast site.
- The public asked what environmental studies were planned for the pilot project, such as whether certain fish species are attracted to WECs. The panel explained that the HWG Permitting Authority Subcommittee (a group of all regulatory and permitting agencies involved in the project) and the PG&E team have spent the past year evaluating available baseline data and conducting preliminary impact analyses to investigate the uncertainties associated with a wave energy project. This project will have ongoing monitoring and adaptive management plans to observe the project's impacts on local species and to minimize those impacts.
- A question was asked regarding how big a final project would be if this pilot

project does well; and if there is a final project, whether it should be studied and permitted now. PG&E explained that they do not have enough information to decide to build a commercial scale wave energy project, however if a commercial wave energy facility were pursued in the future in the Humboldt area it would be located further offshore than the current proposed site, where the wave energy resource is much greater.

- A question was asked regarding post-installation monitoring of WECs for potential leaching of anti-fouling coatings, lubricants or hydraulic oils. A PG&E panelist shared that WECs would be encouraged to use safer alternatives whenever possible, such as biodegradable oils and safer paints. He clarified that on any WEC there are two physical boundaries between any fluids and the ocean. For additional safety, WECs will have leak monitoring systems.
- A question was asked whether the pilot project could be placed within a Marine Protected Area (MPA) to avoid harming local fisheries. An agency representative answered that while MPAs are being proposed, it's unclear whether one would be placed on this site. If an MPA were to be placed here, it would need to be determined whether wave energy is an allowable use within it. The current site does not seem to be under consideration for a MPA at this time.
- A question was raised as to whether the FERC National Environmental Policy Act (NEPA) environmental assessment and the California State Lands Commission's environmental document would be prepared separately or as a joint document. The FERC and CSLC panelists explained that they plan to produce a single document, but are still working out the details.
- A question was raised regarding the project site, and whether it limited PG&E's ability to consider a wider range of available WECs. The PG&E panelists responded that for the project site depth, approximately 150 ft, there are some devices that operate most effectively at either significantly deeper depths or closer to shore. While not all WECs are appropriate for this site, there are many WECs to choose from that will work well for this location.
- Another question regarding WECs was whether there would be enough proven technologies to find the 3 – 4 candidates for this site. The PG&E panelists shared that of 14 respondents to a Request for Information (RFI) in November 2009, over half of them are appropriate for this site. They added that the costs of these prototypes are higher than PG&E had anticipated.
- The community asked whether pilot projects could be located further out at eight or 10 miles offshore. A PG&E panelist explained that anything beyond the 3 nm line would be unlikely for a pilot project location at this time.
- A question was asked about the estimated price of wave power compared to other sources, such as a standard power plant. The PG&E panelists explained that the relative maturity of these technologies should be kept in mind when comparing prices of power. Given this, power produced from gas costs approximately \$1000/kW, wind costs approximately \$3000/kW, solar costs approximately \$5000/kW, and wave costs approximately \$6-7000/kW. Wave energy is relatively expensive because the technology is in the early phases of development. The goal of this pilot project is to advance the development of wave energy technology so that it becomes a competitively priced and reliable renewable energy source.

Additional questions submitted by the public, but not answered during the meeting due to time constraints are the following:

- Have you looked at the probability of spills of hydraulic oil from the generation or

- fuels spilled from a ship accident from the shipping required in building, maintaining, and decommissioning? In short: have you looked at the improbable?
- If Humboldt has similar species migration and similar coastal conditions – what makes the Humboldt coast the primo spot over other areas of California coast?
  - If this project is a success, is PG&E considering the development of a permanent facility off Humboldt County waters?
  - Will sound (noise) and electromagnetic effects to marine mammals be evaluated?
  - Will this generate new jobs for Humboldt County residents or will non-residents be brought in to support the facility? Long-term or pilot program employed?
  - The UK and Ireland have already been testing WECs over the past few years. What are some issues they've experienced and can we expect the same?
  - If the project is successful and generates 5 MW of clean power, it doesn't make sense to me to remove it. Any chance of keeping the equipment? Or adding new equipment after five years?
  - Is the project going to duplicate the Wave Hub project in the UK, or is there a significant difference?
  - How large of an area around the buoy would it take to tie the buoy in place? After five years would you really and truly remove your prototypes?
  - Will this create any new local jobs? What type? How many?
  - Any chances for local job production of income?
  - Will there be a restricted area around each wave energy structure or the entire project area?
  - If the plan works very well, will you plan for a permanent project site?
  - All things being equal, what is the comparative energy/power generation difference between the pilot project location vs. the "ideal" wave energy location further offshore?
  - Any "projections" as to the potential energy production down the road?