

PG&E WaveConnect™
Humboldt Working Group
Freshwater Tissue Plant
Samoa, CA

August 26, 2009

Meeting Summary

Introductions

Roundtable introductions were led by Anna West, Kearns & West (K&W) facilitator.

Review of Recent Activities

Presented by Anna West, Kearns & West facilitator, and Bill Toman, PG&E Senior Program Manager

- Site Selection Subcommittee Meeting
- HWG Boat Tour on R/V Coral Sea
- Boat tour with the fishing community
- Additional discussions between PG&E and the fishing community
- Additional discussions between PG&E and the surfing community
- PG&E significantly reduced the FERC preliminary permit study area to between two and three nautical miles offshore from Humboldt Bay and 18 miles in length.
- PG&E trip to the UK. PG&E updated the HWG on their travels to England, Scotland and Ireland to meet with the following Wave Energy manufacturers and testing facilities:
 - Scottish Development International
 - AWS (formerly Archimedes Wave Swing)
 - Pelamis facility in Edinburgh, Scotland
 - EMEC, Orkney Islands
 - Irish Marine Institute
 - Ocean Energy, Galway Bay Test Berth
 - Wavebob
 - WaveHub Team Presentations, Bristol, England
 - Orecon

Review of Site Selection Subcommittee Meeting

Presented by Bill Toman, PG&E Senior Program Manager

Bill Toman summarized the findings of the Site Selection Subcommittee meeting. Bill explained that many onshore site options were explored and a few are no longer under consideration for various reasons including complicated land ownership and areas of sensitive habitat. Bill explained that there are four onshore landing sites still under consideration. The three preferred sites include, 1) Fairhaven Substation, 2) HBMWD Water Tank Overflow, 3) Freshwater Mill Outfall. A fourth site to be considered only if

the first three don't work out is the Manila Community Service District Water Treatment Facility (detailed information on each site is available in the Site Selection Subcommittee PowerPoint presentation posted on the WaveConnect website). Bill explained that the fishing and surfing representatives preferred the offshore site to be located in the northwestern-most corner of the preliminary permit area. PG&E agreed to site the offshore location in this location as long as the sub-sea cable can be a surface lay and onshore access is achieved with a standard beach trench onshore landing (not a horizontal directional drill (HDD)). The combination of the preferred onshore and offshore sites will require approximately three additional miles of cable. Bill explained that the entire Humboldt WaveConnect pilot project is roughly estimated to cost between \$45 and \$50 million dollars. Three million dollars spent on additional cable is a significant amount of the total project cost. The subcommittee also agreed that, for a surface lay of an additional three miles of cable, there is no need to trench the cable in the sea floor, saving the project additional \$1 million (or so) in costs to bury the cable. Bill explained that PG&E is actively pursuing discussions with the agencies to address their needs with this proposal.

Anna West, facilitator, asked the members of the subcommittee if they would like to add to Bill's summary of the site selection subcommittee meeting. The following points were made:

- The fishing and surfing community expressed strong support for the proposal and explained that, with PG&E's accommodation of the northern site, they feel the surface lay of the cable is appropriate, especially since the cable will bury from natural processes anyway. They support PG&E's criteria for determining the best onshore site location.
- Some expressed that the cable will bury or unbury itself whether it is trenched or not.
- Some of the fishing community expressed interest in taking PG&E out to the site during the most active crab fishing season in early December to give PG&E perspective on why the fishing community prefers the offshore site be located in the northwestern most corner of the preliminary permit area.
- The fishing community stated that they do not believe a surface lay cable will interfere with their crab fishing gear.
- Some expressed that it is preferred to surface-lay the cable and avoid the expense to ratepayers and the potential environmental impacts of trenching the cable.
- The northwestern offshore site will also avoid a proposed artificial Navy ship reef.
- The fishing community, surfing communities, National Marine Fisheries Service, and other site selection subcommittee participants expressed agreement with the current direction of site selection.

A discussion ensued around the route of the sub-sea cable. Some expressed interest in seeing the cable routed in a direct line from the offshore site to the onshore site. Others thought the cable should follow a bathymetric curve. The fishing community expressed that the route of the sub-sea cable would not effect movement of fishing gear. Rick Williams, engineering consultant for the project, explained that, from the onshore landing, the cable will run perpendicular to shore in order to gain depth as quickly as possible leaving shore. Once adequate depth is reached, and once clear of the

Freshwater Tissue Plant outfall, the cable could then turn north and take a direct route to the offshore site. The group generally agreed with this approach.

The following points regarding the cost, timing and siting of the pilot project were clarified:

- It is difficult to use other wave energy projects to evaluate the potential cost of the WaveConnect pilot project because there are no other wave energy projects underway in the U.S. and because the wave energy industry is in early research and development stages, similar to the wind energy industry 10-20 years ago. Wave energy is not yet commercially viable.
- CH2M Hill, Environmental Consultant for the project, is currently collecting all available biological information for the project site and determining if there is enough information to move forward or if additional studies are needed. PG&E is in discussions with Humboldt State University (HSU) to determine what additional studies can be provided for the project.
- If a new substation is needed, it could cost the project \$2-3 million or more. For this reason, the three southern onshore landing options are preferred because of their proximity to the Fairhaven substation.
- The Manila community has an interest in a new substation with a 'kill-switch' installed for emergency purposes during a tsunami.
- There are different views on whether or not the cable could be reusable for a different project.
- A standard trenched onshore landing is a quarter of the cost of a horizontal directional drill (HDD) onshore landing. The visual disturbance from trenching is negligible after only a few weeks. A trench is usually dug a couple of meters below the lowest sand level. PG&E has a standard for trenching depth, which would be used for this project.
- Electromagnetic field (EMF) effects were highlighted as an important issue for this project. Recent EMF studies are anticipated soon from the TransBay Cable project, the Oregon Wave Energy Trust, and other projects.
- The California Coastal Commission (CCC) has in the past required burial of sub-sea cables for fiberoptic cables due to entanglement with fishing gear. However, if there are no fishing gear entanglement issues and the bottom is a sandy substrate, surface lay of the cable may be acceptable to the CCC.
- PG&E and the U.S. Army Corps of Engineers (USACE) will communicate regarding upcoming dredging activities to coordinate the dredging plan with the WaveConnect project. Specifically, PG&E and UCACE will communicate with regards to the USACE shoreline Monitoring Study (1992-2005) and the proposed demonstration project to utilize dredged material from the Bar and Entrance Channel for a beneficial reuse project along the north spit of the Humboldt Shoreline (local contact for the proposed project is Joel Benegar, Joel.R.Benegar@usace.army.mil).
- HWG members debated the economic tradeoffs between siting the pilot project directly off the onshore cable landing site versus in the northwestern section of the preliminary permit area.

Anna, facilitator, recapped the site selection subcommittee proposal as follows:

- Offshore site: Northwestern-most corner of the preliminary permit area, positioned in a rectangular array hugging the three nautical mile line.

- Sub-sea cable surface lay.
- Onshore landing: Standard beach trench onshore landing, no horizontal directional drill (HDD) (Four onshore landing options to be further investigated. The three southernmost options are preferred).

Anna then tested a HWG consensus on the general direction of site selection by asking each member to state support, no support, or to abstain from the consensus. The consensus tally is as follows:

Support:

- Ken Burns
- Kevin Pinto – This is the best site. There are remaining financial concerns to evaluate.
- Larry DeRidder
- Julie Fulkerson
- Kirk Cohune
- Dave Bitts
- David White
- Adam Wagschal – With all info currently available this looks like the best site.
- Maggy Herbelin – This is a milestone for moving forward.
- Bill Lydgate
- Diane Ashton
- Bill McIver
- PG&E
- David Boyd
- Mark Lovelace – This is not a regulatory approval. The project still has to go through the formal regulatory review process.
- David Ammerman
- Paul Hagen
- Susan Schlosser
- Bob Simpson
- Jim Zoellick
- Helene Rouvier
- Jeff Leonard
- Rob Cozens
- Bob Borck
- Ronald Cochran

Abstain:

- Ken Hogan
- Greg Crawford – abstain – Wants to make sure there is enough info about the benthic community.
- Tom Luster – abstain – The CCC needs more information to agree with the proposal.

- Pete Nichols – abstain – Would like to see more analysis on onshore landing sites.
- Tim Mosher – abstain

Total in Support = 25
 Total not in Support = 0
 Total Abstain = 5

Consensus Conclusion: The HWG has consensus support for proceeding with the site selection as outlined above. (HWG Operating Protocols: Consensus support = "...a high level of agreement where participants "can live with" a decision.")

Introduction of the Federal Energy Regulatory Commission (FERC)

Presented by Ken Hogan, FERC

Ken described FERC's role in permitting a pilot wave energy project. He explained that this is a high-profile project and the FERC commission is watching it closely. When PG&E submits a draft pilot license application, FERC will determine if the project fits within the FERC pilot procedures. If FERC approves the draft application, PG&E will then develop and file a final pilot project license application. The final application could be filed and accepted as soon as June 2nd (approximately). FERC will solicit comments after submittal of both the draft and final pilot project license applications. If FERC makes a finding of no significant impact with only minor changes to the original project with an Environmental Assessment (EA), FERC will grant the pilot project license. If FERC finds that an Environmental Impact Statement (EIS) is required, FERC will not consider the project a pilot project at that point.

Ken explained that FERC would like to coordinate with all agencies involved as PG&E prepares a draft pilot license application. Specifically, FERC would like to coordinate their environmental review and permitting process with all agencies. Ken asked all agencies to participate in a permitting authority meeting with FERC and PG&E. This permitting authority HWG subcommittee will meet separately from the HWG, however HWG members will be welcome to observe. All agencies in attendance expressed interest in participation in this proposed meeting. Ideally, the outcome from this meeting will be an integrated agency timeline for the project.

The following items were clarified regarding FERC's role:

- Tom Luster, CCC, raised an interest in a joint CEQA/NEPA document. Ken Hogan, FERC, expressed strong interest and highlighted that cooperating agencies relinquish intervener status. Ken agreed to pursue the conversation with John Dye, California State Lands Commission (CSLC), who was not able to attend the meeting.
- FERC does not have a target number of licenses to grant.
- There was discussion around fund requirements to support removal of the pilot project. FERC may require a financial assurance for decommissioning activities and stated that this would be determined on a project-by-project basis.
- FERC requires an historic properties and cultural resources management plan to fulfill Section 106 obligations. This will likely be a programmatic assessment. Historic and cultural resource properties will be protected.

Adaptive Management and Monitoring Topics Discussed:

- Tracking of fishing activity to gain quantifiable data on the impact of the pilot project to the fishing community.

WEC Device Selection Criteria Discussed:

- WEC size and generating capacity was a concern. The relative environmental effects of a wave farm with fewer, larger devices that have more capacity rather than many smaller devices with lower individual output was brought up as a consideration.

Operating Protocol Clarification:

- When a subcommittee of the HWG is formed, the HWG needs to 1) be informed of any subcommittee meetings before it occurs, 2) be allowed to sit in as an observer at subcommittee meetings, and 3) receive a detailed report of the subcommittee meeting findings at the subsequent HWG meeting.

Action Items	Who	When
1. FERC, PG&E and permitting agencies (State and Federal) will meet to explore a joint timeline.	1. FERC, PG&E, permitting agencies and K&W	1. October 5 th @ 10 a.m.
2. FERC, PG&E and permitting agencies will explore the possibility of preparing a combined environmental review document (NEPA/CEQA document).	2. FERC, PG&E, permitting agencies and K&W	2. October 5 th , ongoing
3. PG&E will prepare an update of the environmental data collected to date to the HWG at the next meeting. PG&E will also present the studies necessary to include in the draft license application at the next HWG meeting.	3. CH2M Hill	3. October 5 th
4. Post the FERC white paper on the pilot process, and the FERC graph of pre-filing and post-filing activities and timeline on the WaveConnect Website.	4. PG&E and K&W	4. ASAP
5. Post WEC selection criteria (RFI) on the WaveConnect website.	5. PG&E and K&W	5. ASAP

Past and Upcoming Events:

- Stanford Marine Spatial Planning Conference, occurred on August 17th-18th
- Ocean Renewable Energy Conference, September 15th-16th. For details go to: <http://www.oregonwave.org/>
- West Coast Governor's Agreement on Ocean Health, Renewable Energy Workshop, October 6th-7th.

Attendees:

HWG Members:

- Paul Hagen, Arcata Planning Commission
- Bob Borck, Building and Construction Trades
- Tom Luster, California Coastal Commission
- Jeff Leonard, City of Eureka
- Julie Fulkerson, City of Trinidad
- Kevin Pinto, Commercial Crab Fisherman
- Ken Burns, Commercial Trawler Fisherman
- Ken Hogan, Federal Energy Regulatory Commission
- Bob Simpson, Freshwater Tissue
- Kirk Cohune, GreenWay Partners
- Larry DeRidder, Humboldt Area Saltwater Anglers
- Adam Wagschal, Humboldt Bay Harbor District
- Maggy Herbelin, Humboldt Bay Stewards
- Pete Nichols, Humboldt Baykeeper
- Mark Lovelace, Humboldt County Supervisor
- Jim Zoellick, Humboldt State University
- Ron Cochran, International Brotherhood of Electrical Workers
- Diane Ashton, National Marine Fisheries Service
- David White, National Marine Fisheries Service
- Dave Bitts, Pacific Coast Federation of Fishermen's Associations
- David Boyd, Redwood Coast Energy Authority
- Rob Cozens, Resighini Rancheria
- Susan Schlosser, SeaGrant California
- Bill Lydgate, Surfrider Foundation, Humboldt Chapter
- David Ammerman, U.S. Army Corps of Engineers
- Tim Mosher, U.S. Coast Guard
- Helene Rouvier, Wiyot Tribe

PG&E Team:

- Bill Toman, PG&E
- Ian Caliendo, PG&E
- Alison Talbott, PG&E
- Doug Davy, CH2MHILL
- Rick Williams, SAIC

HWG Alternates:

- Dave Meserve, Arcata City Council
- Jim Lund, Freshwater Tissue
- Milton Boyd, Humboldt State University
- Erin Iya Mahan, Humboldt State University
- Colin Sheppard, Humboldt State University
- Dana Boudreau, Redwood Coast Energy Authority
- Scott Willits, Surfrider Foundation, Humboldt Chapter

Members of the Public:

- Mary Gelinas, Cascadia Center for Leadership

Facilitators:

- Anna West, Kearns & West
- Briana Moseley, Kearns & West