

# PG&E WaveConnect Humboldt Working Group

**August 26, 2009**



# Humboldt Working Group (HWG)

## Groundrules

- Participate in an active and focused manner—commit to process success.
- Interact with all other members respectfully.
- Communicate interests, not positions.
- Be brief in communications, and be prepared.
- Help involve all.
- Seek solutions for all.
- Commit to a good faith effort.
- Share relevant information.
- Communicate effectively—open, frank communications with the larger community, “not-for-attribution” to individuals in the group.
- Attend all meetings; start on time.
- Keep cell phones on silent.

# Facilitator Responsibilities

- Maintain a neutral position as project issues are discussed.
- Help the group accomplish its objectives.
- Help guide the discussion.
- Enforce participant ground rules.
- Help involve all.
- Ask “why” to clarify interests.
- Ensure a smooth process.
- Retain confidential information as confidential to individual participants.
- Manage time.
- Track actions, next steps, deadlines.

# Meeting Objectives

- Review recent activities
- HWG to provide input on the site for the WaveConnect Hydrokinetic Pilot Project
- Introduce FERC
- HWG to provide input on the Wave Energy Conversion (WEC) device criteria
- Set priority topics for discussion on adaptive management and monitoring
- Identify next steps

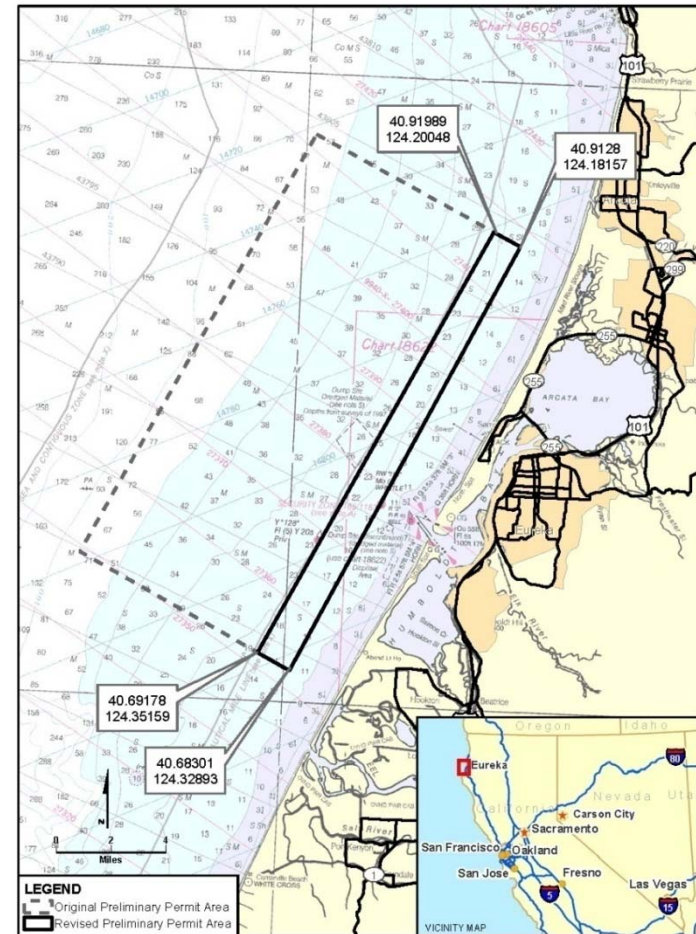
# Agenda

- I. Light Supper/Snacks .....5:30 p.m. – 6:00 p.m.
- II. Introductions, Review Agenda & Groundrules .....6:00 p.m. – 6:15 p.m.
- III. Updates on Recent Activities.....6:15 p.m. – 6:30 p.m.
- IV. Review Site Selection Subcommittee’s Recommendation.....  
.....6:30 p.m. – 7:00 p.m.
- V. Introduction of FERC .....7:00 p.m. – 7:15 p.m.
- VI. Review HWG Schedule.....7:15 p.m. – 7:30 p.m.
- VII. Review WEC Selection Criteria Input .....7:30 p.m. – 8:00 p.m.
- VIII. Review Resource Topics for Impact Analysis and Adaptive Management and  
Monitoring.....8:00 p.m. – 8:45 p.m.
- IX. Next Steps, Adjourn ..... 8:45 p.m. – 9:00 p.m.

# Preliminary Permit

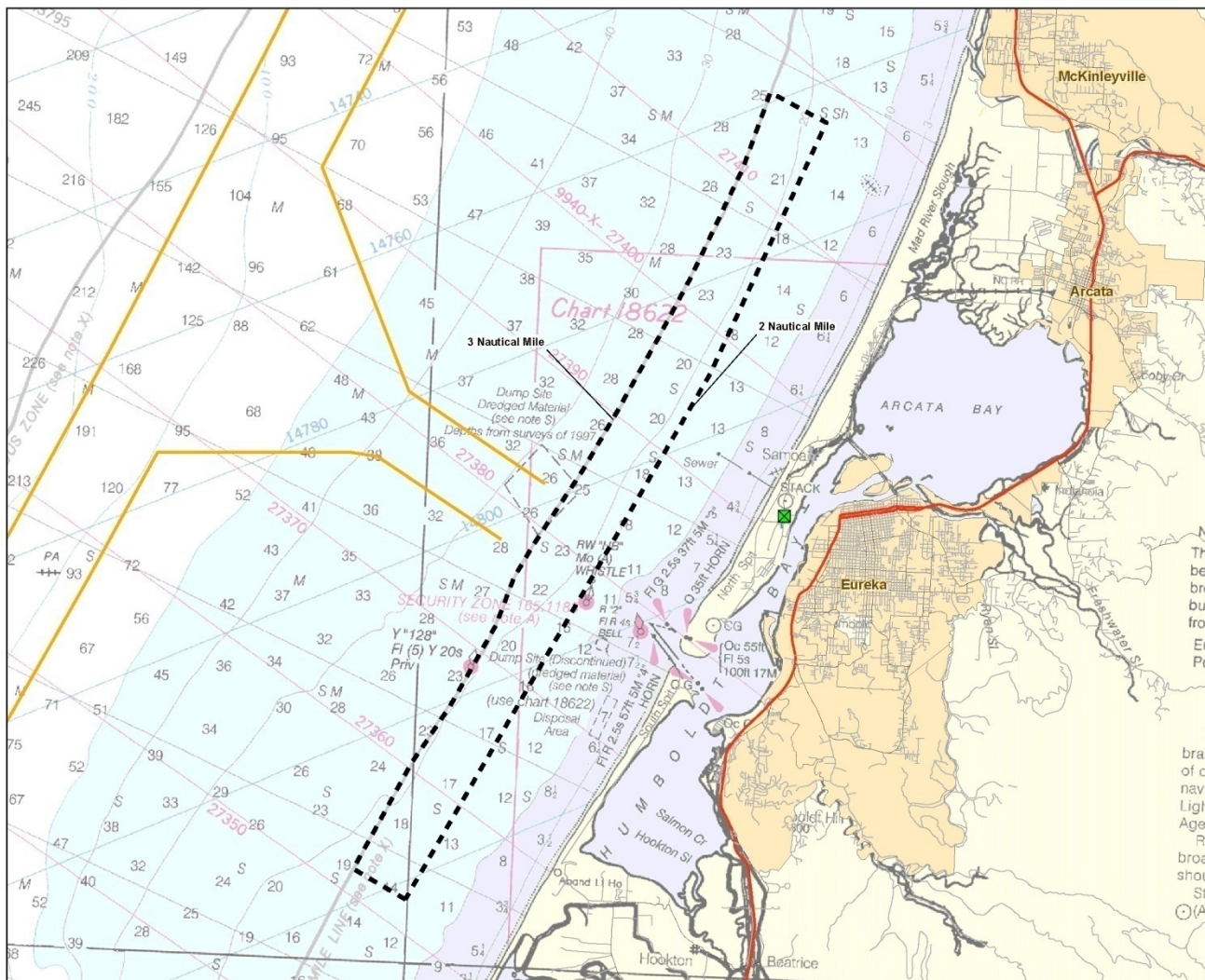
- Federal Energy Regulatory Commission (FERC) granted WaveConnect's Preliminary Permit on March 12, 2008
- FERC granted PG&E Preliminary Permit amendment which significantly reduces study area to lie within State waters.
  - FERC licensing process is better known and has commercial advantages
  - FERC approved on July 31, 2009

PG&E HUMBOLDT WAVECONNECT PROJECT

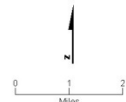


Notes:  
Permit application boundary shows proposed area of investigation.  
Actual project would occupy smaller area.

# Current PG&E Permit Filing



- LEGEND**
- Fairhaven Substation
  - Tow Boat Lanes
  - Preliminary Permit Area In State Waters



**PRELIMINARY PERMIT AREA  
IN STATE WATERS**  
WAVECONNECT PROJECT  
HUMBOLDT COUNTY, CALIFORNIA

7

CH2M HILL

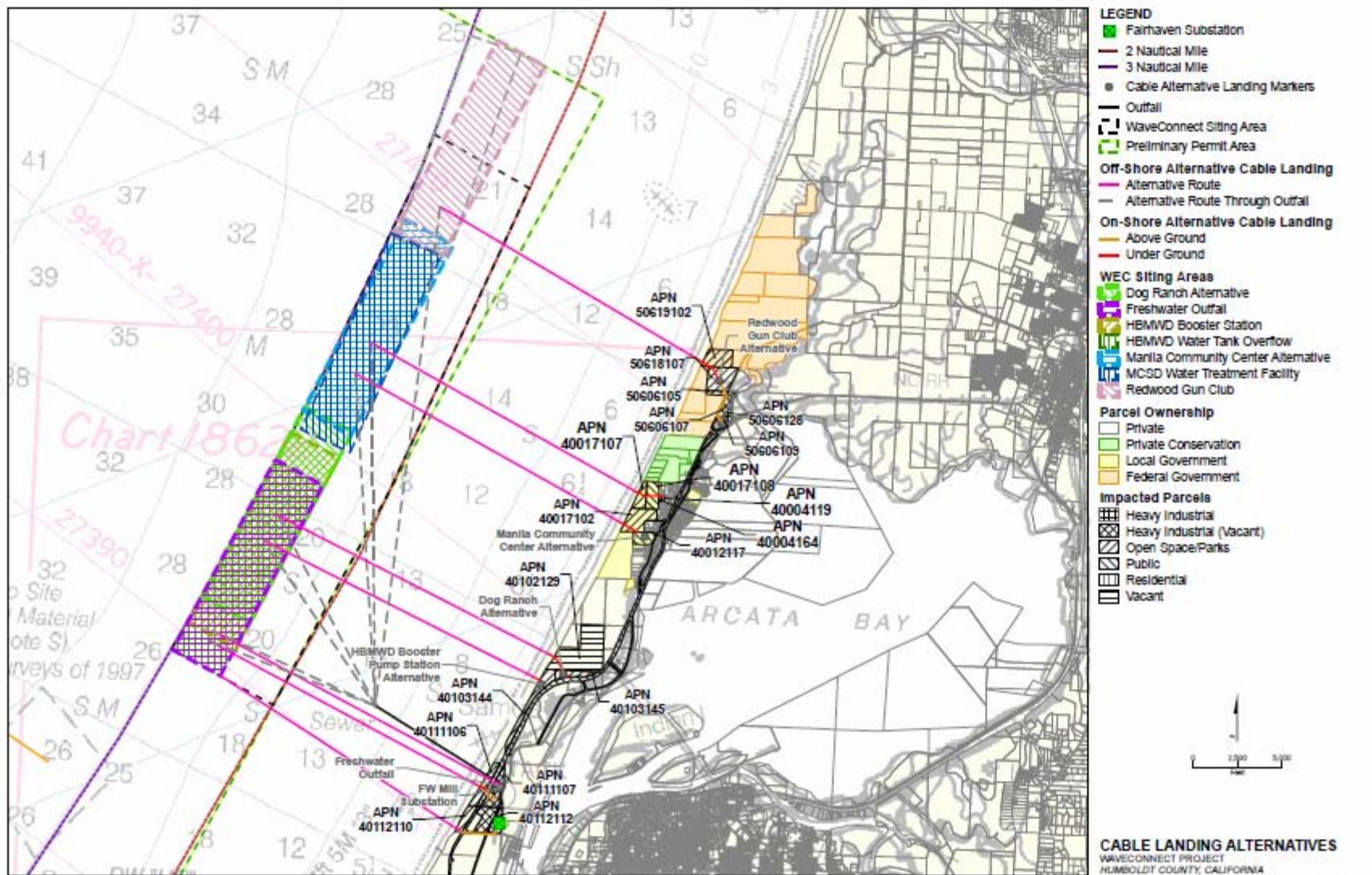
# Site Alternatives Identification

- Site selection criteria:
  - Near existing substation or high-voltage transmission line
  - Minimize cable bundle distance
  - Minimize onshore trenching or drilling
  - Minimize impact to sensitive resources
  - Minimize impact on existing ocean uses
  - Facilitates community collateral benefits

# Site Alternatives Evaluation

- Evaluation criteria:
  - Siting feasibility
  - Cost to rate payer
  - Environmental considerations
  - Compatibility with existing uses
  - Community collateral benefits

# Alternatives Considered



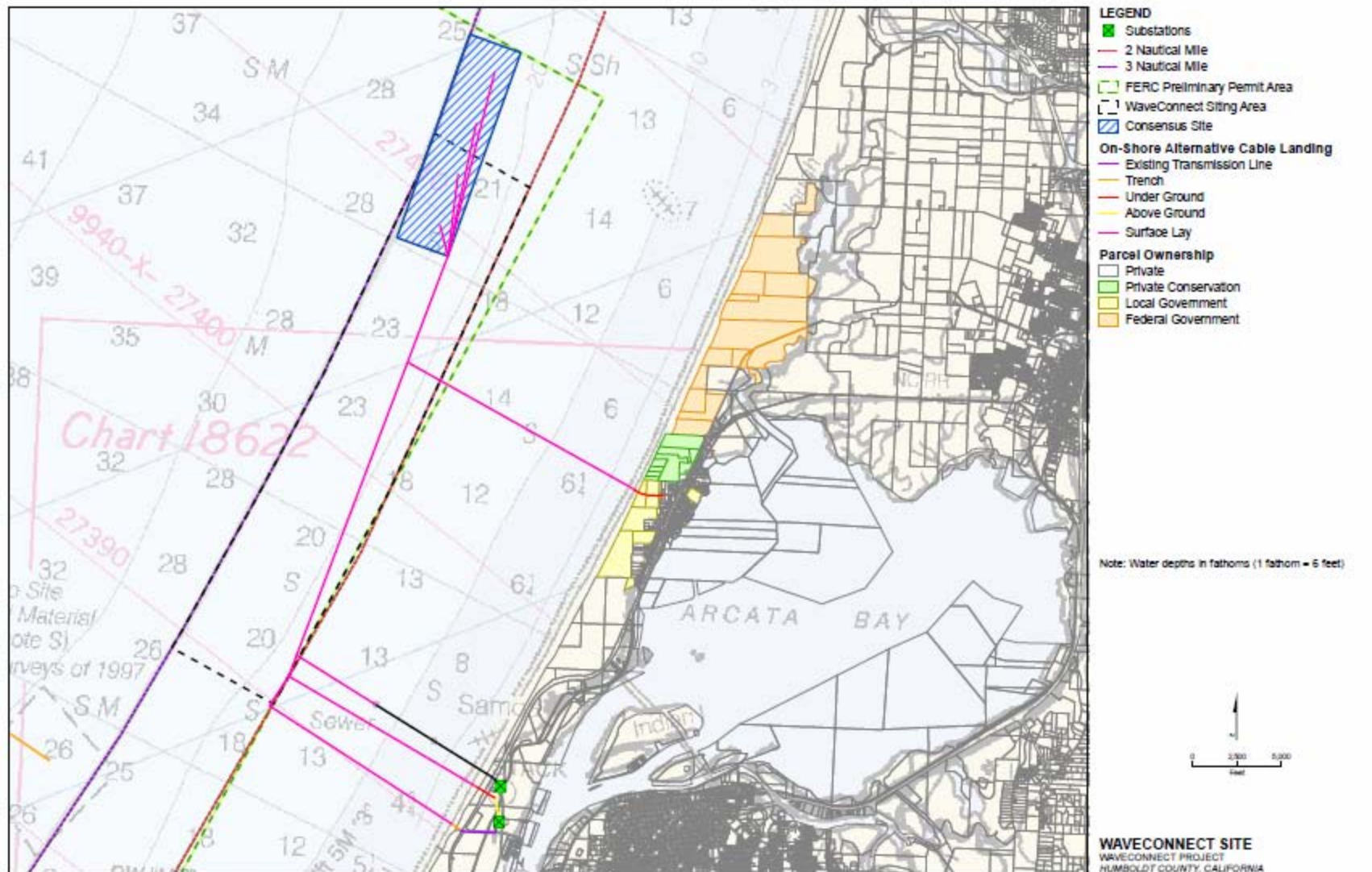
# HWG Siting Subcommittee Deliberations

- Onshore Sites Eliminated (many reasons, highlights below)
  - **Redwood Gun Club** – Long trenching/HDD through sensitive habitat, long transmission needed
  - **Manila Community Center** – Disturbance to scenic and sensitive habitat
  - **Dog Ranch** – Conflicting residential development plans
  - **HBMWD Booster Station** – Disturbance to scenic and sensitive habitat

# HWG Siting Subcommittee Consensus

- Ocean Site Consensus
  - Northern most option preferred by fishing and surfing community:
    - Least obstructs fishing
    - Minimizes fishing operating costs
    - Minimizes fishing boat navigation conflicts
    - Distance from surfing sites
- Landfall Site Consensus
  - Onshore Sites Still Under Consideration
    - Manila Comm. Service Dist. Water Treatment Facility
    - Freshwater Mill Outfall
    - HBMWD Water Tank Overflow
    - Fairhaven Substation
- Submarine Cable Routing Consensus
  - Northern ocean site, southern landfill site
  - Cable run is longer, more expensive
  - Consensus: cable sea floor surface lay, trenched shore landing

# Siting Consensus











# Introduction of FERC



# HWG Schedule

July 20, 2009

- Operating Protocols
- Site Selection (onshore and offshore)
- Wave Energy Devices Criteria

August 26<sup>th</sup>

- Finalize Operating Protocols (unless completed in July)
- Resource Topics for Impact Analysis and Adaptive Management and Monitoring Selection (prioritize topics to cover)
- Adaptive Management, Monitoring Topic Review, Expert Panel, Discussion

October 5<sup>th</sup>

- Adaptive Management, Monitoring Topics Review, Expert Panel, Discussion

# HWG Schedule Continued

November 2<sup>nd</sup>

- Adaptive Management, Monitoring Topics Review, Expert Panel, Discussion
- WEC Device Selection Update

December 2<sup>nd</sup>

- Adaptive Management, Monitoring Topics Review, Expert Panel, Discussion
- Update on Device Selection

January 6<sup>th</sup>

- Adaptive Management and Monitoring
- Update on Device Selection

February 1<sup>st</sup>

- Adaptive Management and Monitoring

# HWG Input on WEC Selection Criteria

- WEC device design operating depth
- WEC device size
- Anchoring/Mooring methods (3)\*
  - Anchoring/mooring techniques in light of the severe winter storm effects.
- Installation methods (1)
- Removal methods
- Operation and maintenance methods
- Fishing effects (4)
  - Fishing industry is very important to the Humboldt Bay Community.
- Navigation effects (1)
  - Potential hazards to navigation of commercial shipping, commercial fishing fleet, and recreational boating users off shore.
  - Anchoring and tethering of individual and cumulative wave energy devices need to be durable and strong to prevent unexpected hazard to navigation, a safety issue.
  - Ensure that the Federal navigational entrance channel to Humboldt Bay is free of obstructions.



# HWG Input on WEC Selection Criteria Continued

- Environmental effects (4)
  - One of the most important concerns for acceptance in our local community.
  - Assessment of environmental impacts under NEPA/CEQA and the Endangered Species Act is important.
  - Benthic/water column/surface ocean environment impacts and on shore impacts from cable installation and floating devices.
  - Anchoring, mooring, installation, fluids, hazards etc.
  - Effects including safety, view shed.
- Viewshed effects (1)
- Sea floor cabling and shore interconnection cable (1)
  - Sea floor cabling that routes to shore (a broken or loose cable could be quite hazardous).

# HWG Input on WEC Selection Criteria Continued

- Maturity of technology
- System design life
- Reliability analysis and survivability (2)
  - They have to perform reliably.
  - Durability of devices.
- Hazardous materials (2)
- Fluids (1)
- Safety (1)
- Affordability
- Availability

# HWG Input on Resource Topics for Impact Analysis and Adaptive Management and Monitoring

- Geology and Soils (1)\*
  - Geological hazards including tsunamis, earthquakes, sediment transport, etc.
- Water Resources (Oceanography and Water Quality) (1)
  - Water quality.
- Biological Resources/Rare, Threatened and Endangered Species (2)
  - Impacts on all marine and benthic organisms.
  - Threatened and endangered species – plants, birds, mammals, fish.
- Recreation and Land Use
- Cultural Resources (1)
  - Protection of existing resources as well as potential new resources identified.

\* Number of HWG members who commented on this topic.



# HWG Input on Resource Topics for Impact Analysis and Adaptive Management and Monitoring cont.

- Aesthetic Resources
- Socio-economic Resources
- HWG Additions (3)
  - Back up plan.
  - Navigation.
  - Interaction with the MLPA.
  - Future clean energy.

# Next Steps

