

HydroKinetics Conference

October 26-28, 2005



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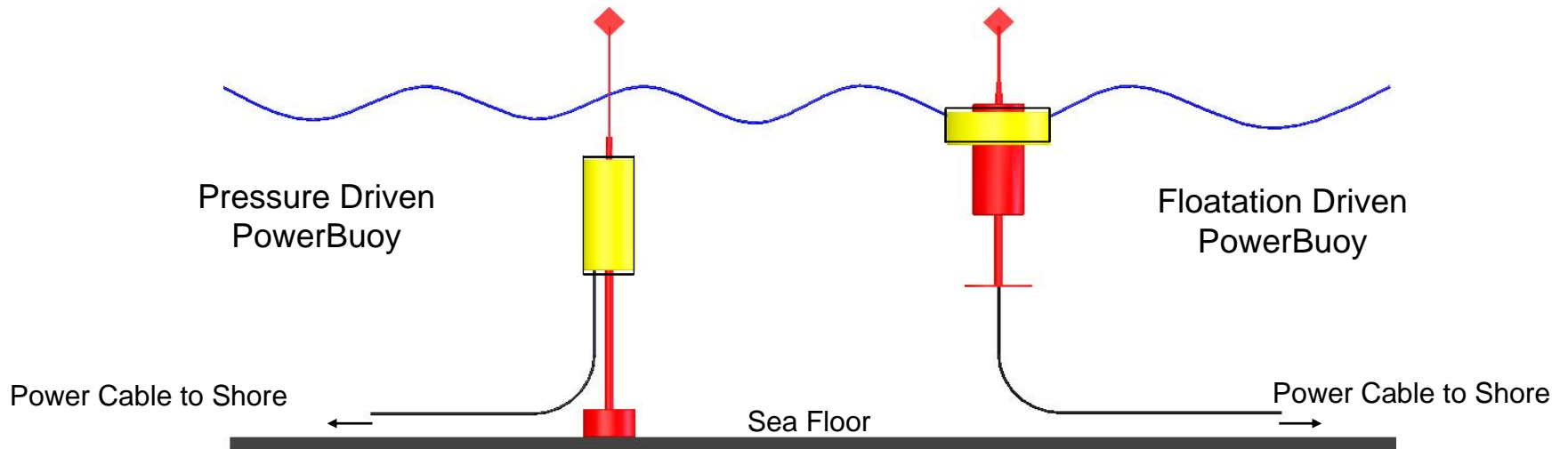
Dr. George Taylor, Chief Executive Officer

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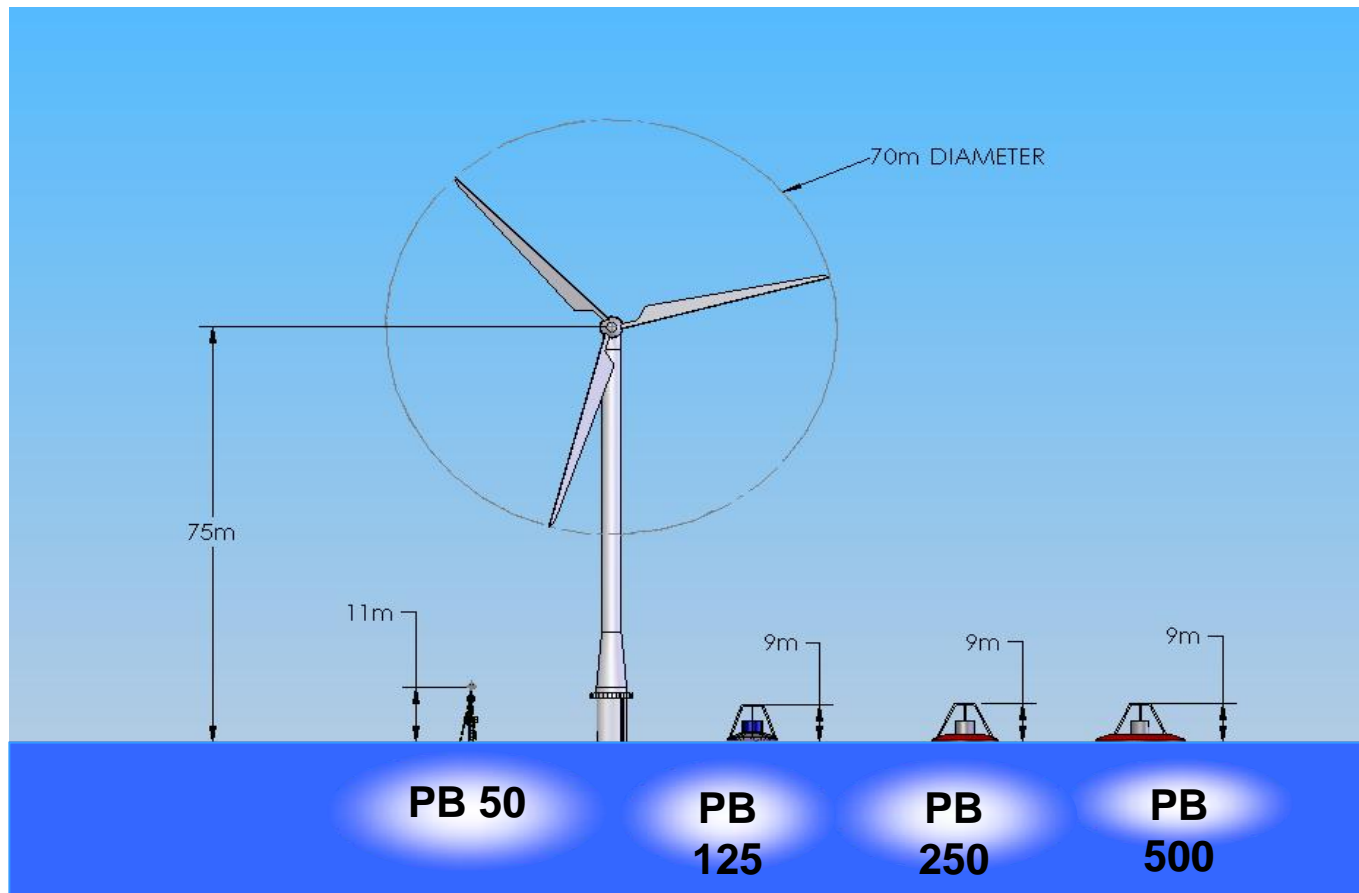
II.A. Brief Description

- **Technology Class:** Heave
- **PowerBuoy™ Designs**
 - Pressure Driven – Fixed to Sea Floor
 - Flotation Driven – Moored but Not Rigidly Connected
- **PowerBuoy™ Attributes**
 - Subsurface Design - Minimal Visual Impact
 - High Power Density – 1 MW per 1.6 Acres
- **PowerBuoy™ Suitability**
 - Open Ocean
 - Water Depths Greater than 30-meters
 - Can Accommodate Any Tidal Variation (Flotation Driven Design)

PowerBuoy™ Configurations



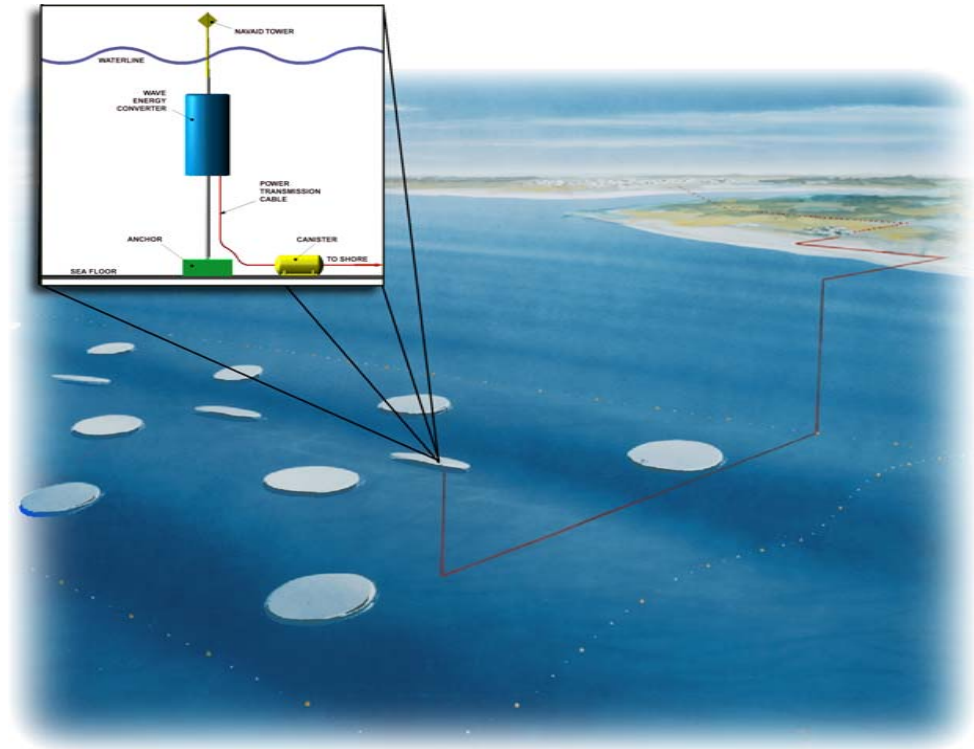
PowerBuoy™ - Minimal Visual Impact



PowerBuoy™ Wave Power Station

- Rated Capacity: 10 MW
- Footprint: 16 acres
- Water Depth: 30 to 50 meters
- 40 units - PB-250™ (250kW)
- Powers 4,000 homes*

* Assumes world average of 1kw per home



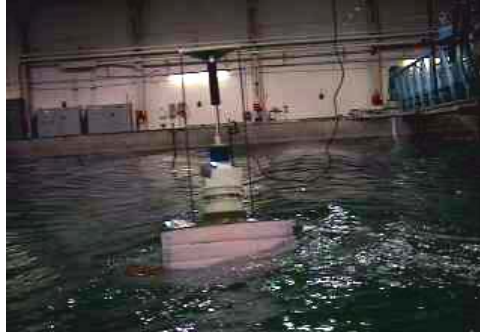
II.B. Market Potential

- **Market Potential**
 - Remote Power Market - \$12 billion
 - Primary Renewable Market - \$70 billion
 - Military
 - Desalination
 - Hydrogen Production
- **Cost of Energy – Scale Drives Economics**
 - PB-150TM: Cost competitive in remote power market at 7-10¢/kWh
 - PB-500TM: Cost competitive in primary markets at 3-4¢/kWh

II.C. Development Status

- **PowerBuoy™ 40 kW (PB-40™) Development Program**
 - Development Complete
 - Buoys are Being Deployed Off New Jersey and Hawaii
- **PowerBuoy™ 150 kW (PB-150™) Development Program**
 - Design Underway
 - Navy 1 MW Demonstration Program (Hawaii)
 - Ibedrola 1.5 MW Demonstration Program (Spain)
 - Total 2 to 5 MW Demonstration Program (France)
 - NJBPU 1.5 MW Demonstration Program (New Jersey)

PB-40™ Testing Program



Wave Tank Testing (Apr. 2004, Jan. 2005)

- Measured dynamic performance
- Record responses to wave periods, amplitudes, and currents



Subscale Ocean Testing (Sept. 2004)

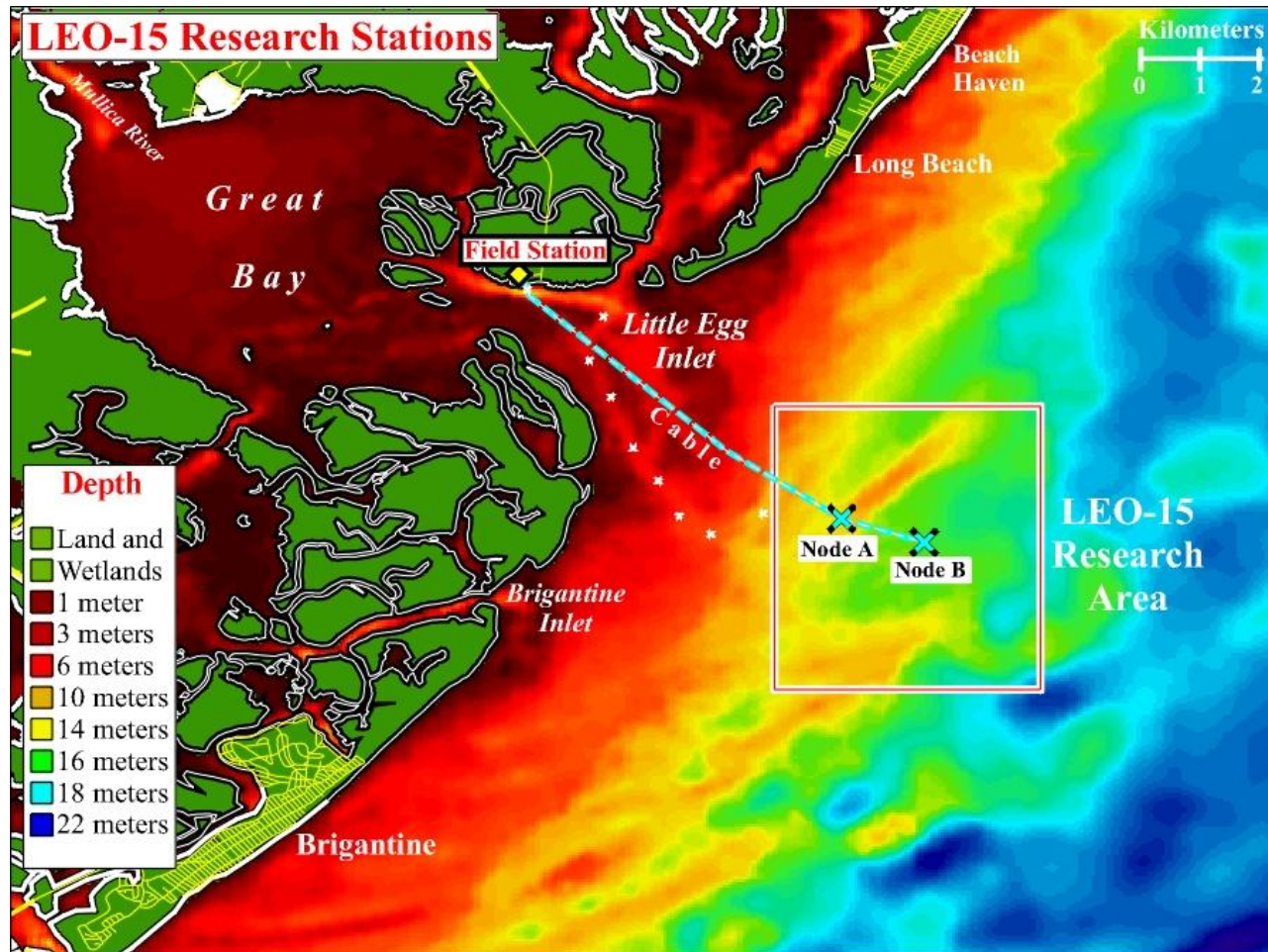
- Validated computer models
- Confirmed performance prior to full-scale fabrication



Ocean Testing -Fall 2005

- Tests operation in ocean environment
- Tests tidal compensation design
- Tests mooring system design

PB-40™ New Jersey Test Site

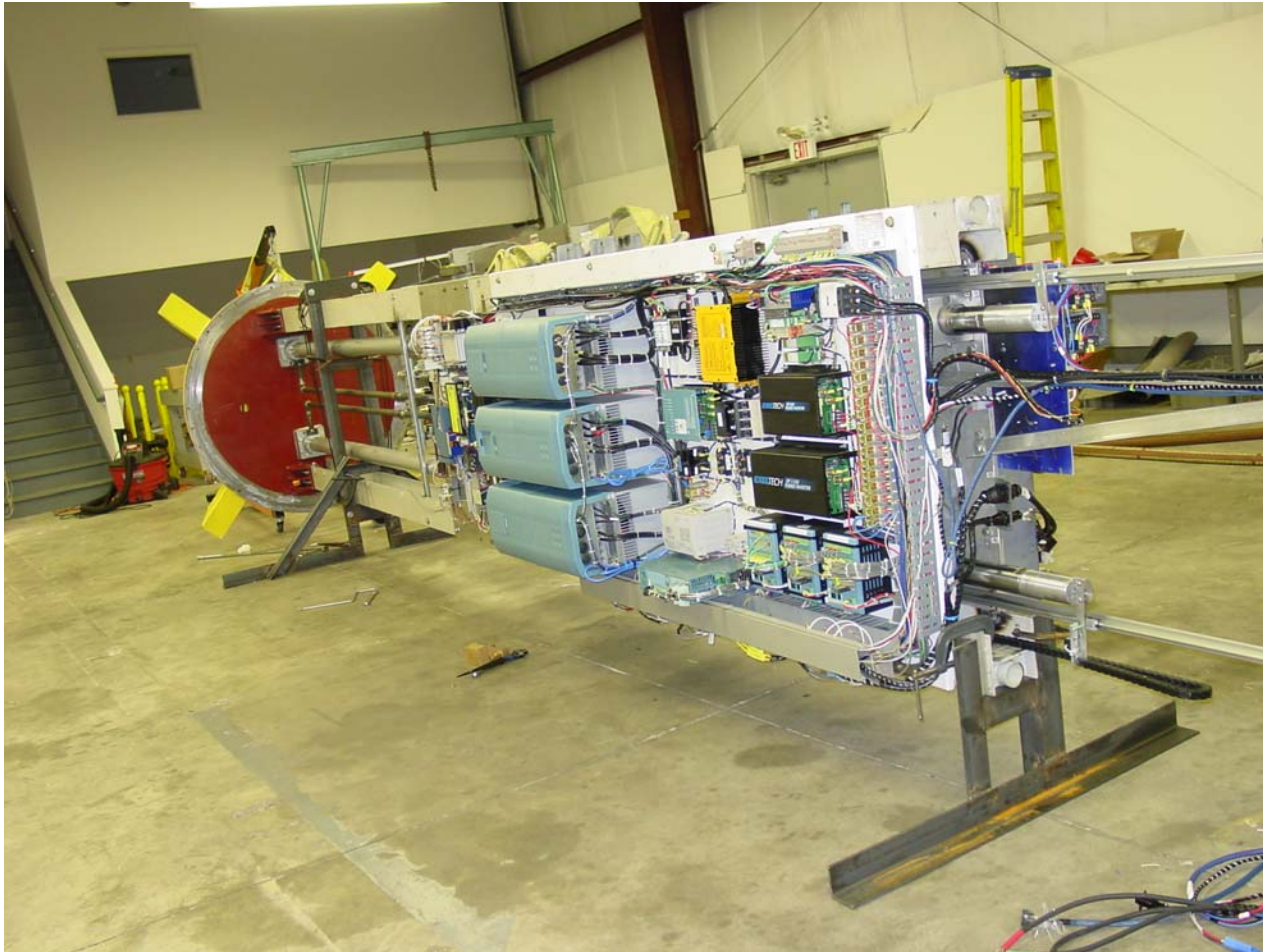


PB-40™ Hawaii Test Site

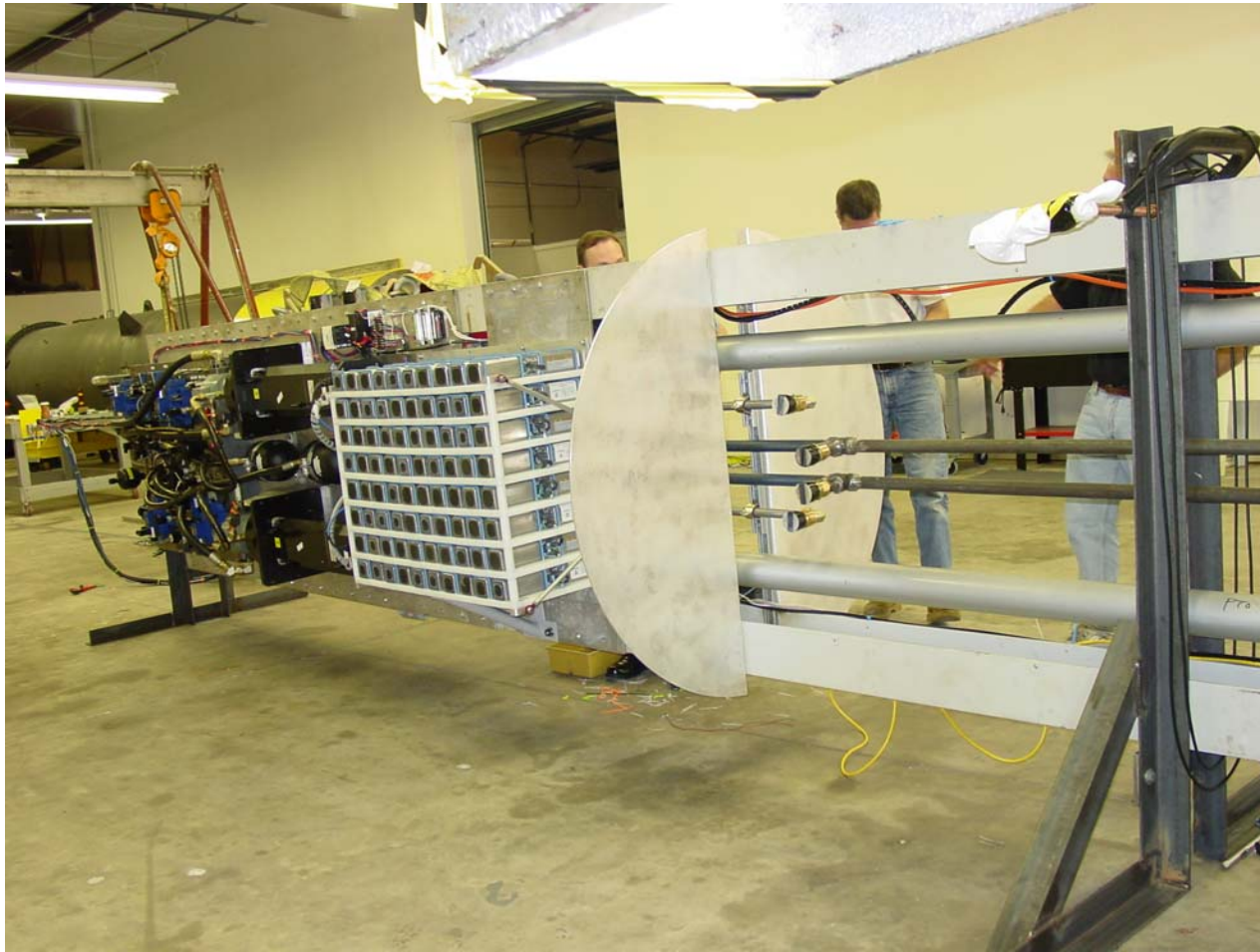


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PB-40™ Power Electronics



PB-40™ Factory Testing



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PB-40™ Sub-Assembly



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PB-40™ Ready to Ship



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PB-40™ Ready to Ship



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PB-40™ Final Assembly



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PB-40™ Mooring Buoys



PB-40™ Mooring Deployment



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PB-40™ Tow Out



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PB-40™ Tow Out



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PB-40™ Ready to Ballast



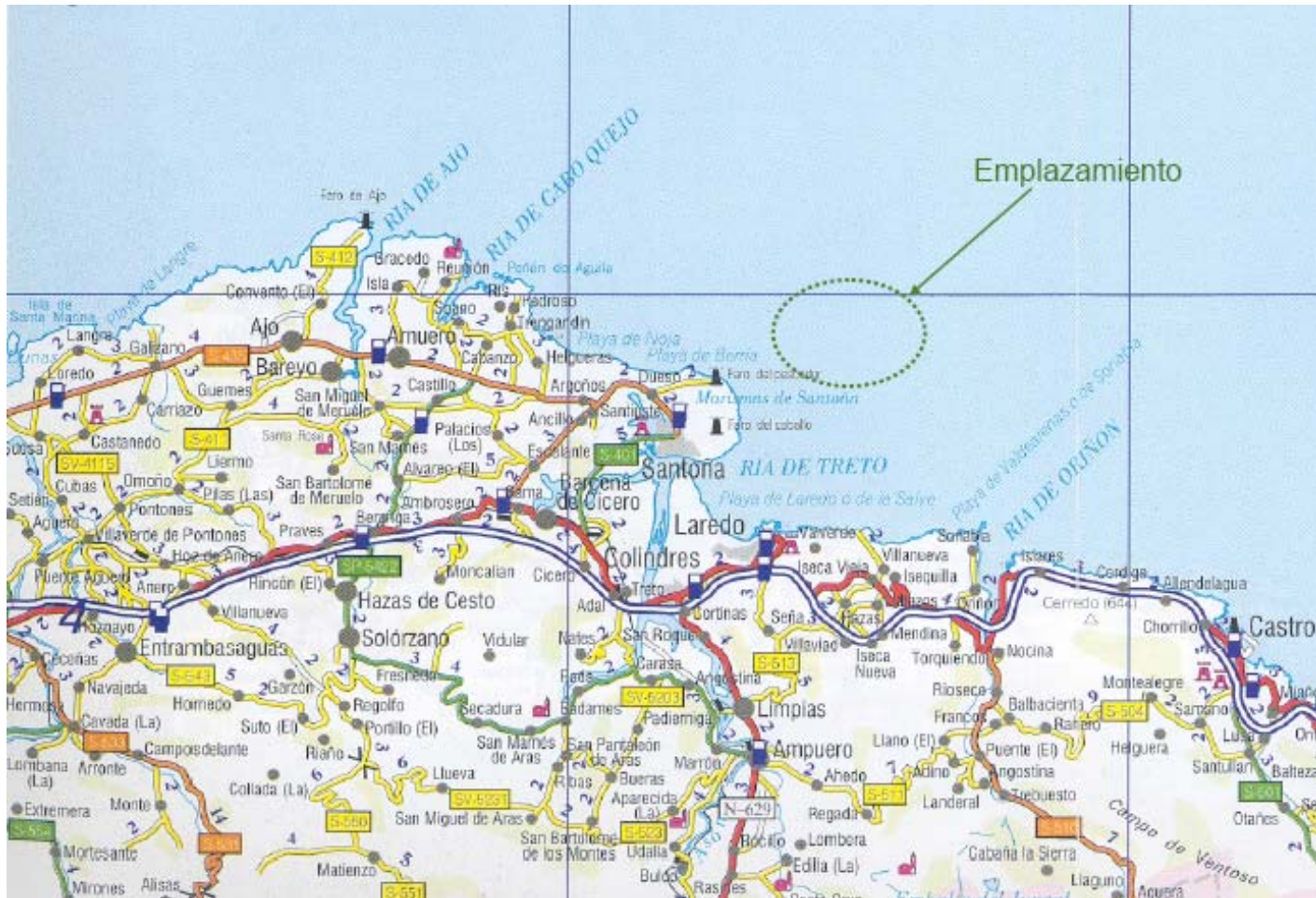
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PB-40™ Installed

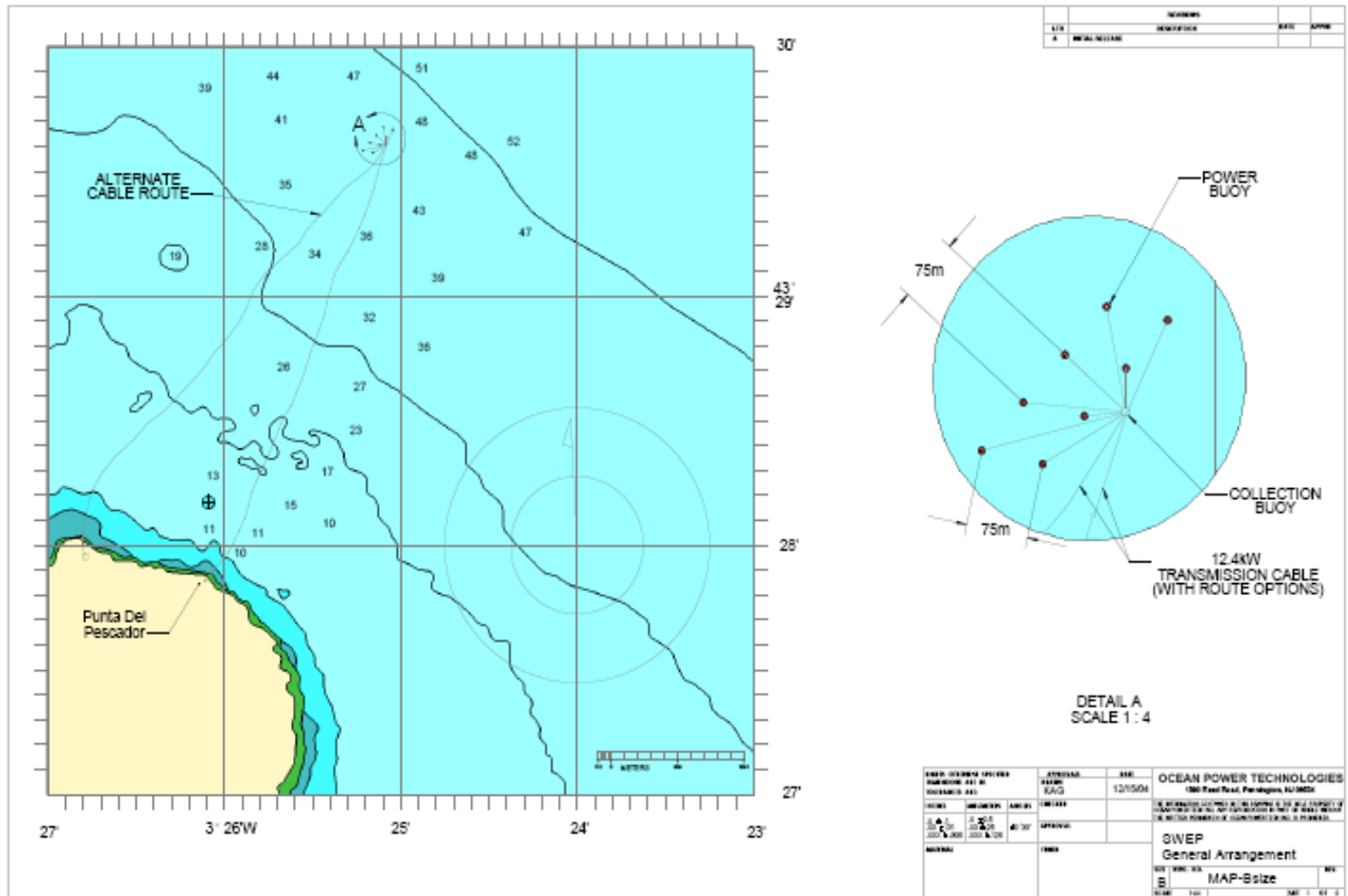


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1.5 MW Ibedrola Demonstration Program

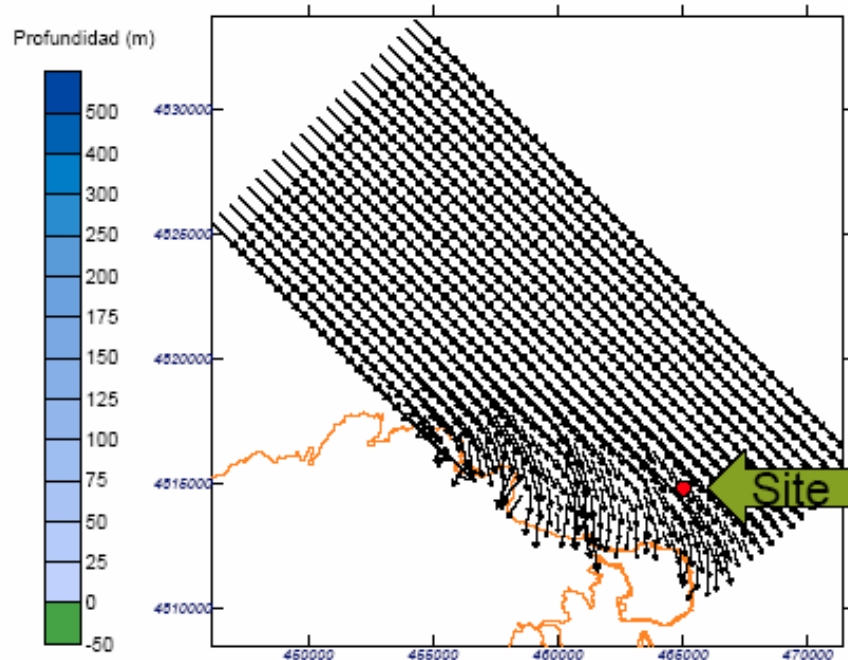
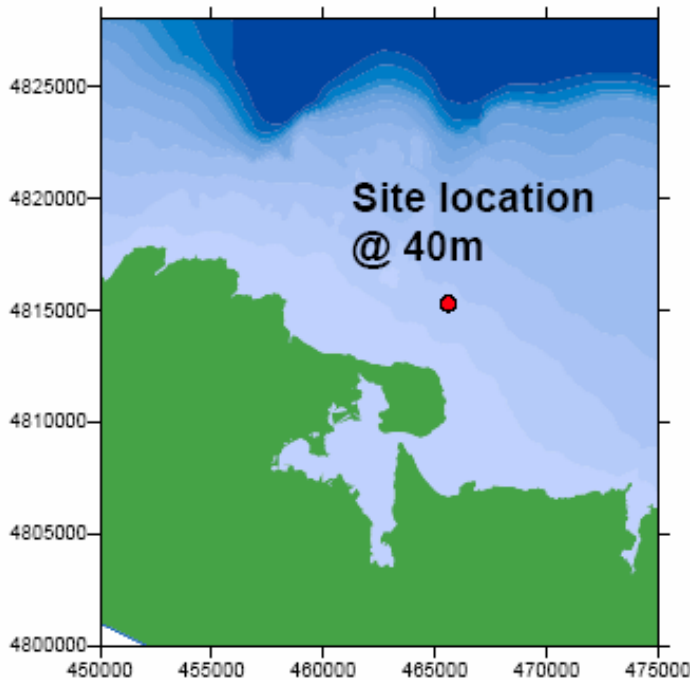


1.5 MW Ibedrola Site Plan



1.5 MW Ibedrola Bathymetry

Bathymetry and Wave Vectors in the Study Area



OLUCA-SP
Espectro frecuencial (TMA)
Hs: 1 m
h: 200 m
fp: 0.083333 Hz (Tp: 12 s)
y: 3.3
Nº Comp.: 5
Espectro direccional
θn: 0° (N45.0W)
σ: 10° - Nº Comp.: 5



1.5 MW Ibedrola Load Factor

Season	Power	
	Production*, MWh	Capacity Factor
Winter	1,270	38.7%
Spring	970	29.5%
Summer	680	20.7%
Fall	980	29.8%
Total - Annual	3,900	29.7%

* Calculation assumes 40-meter water depth

PB-40™ Hawaii Tow-Out



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PB-40™ Hawaii Deployment



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PB-40™ Hawaii Completion



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II.C. Opportunities to Improve Rate of Commercialization

- **Financial Incentives**
 - Need Government Supported Demonstration Programs to “Bridge the Gap” from R&D to Commercialization
 - Need Energy Price and Capital Cost Subsidies to Overcome Price/Cost Spread
- **Technical Innovations**
 - Power conversion efficiency improvements
 - Doubling the buoy diameter, quadruples power output
 - Advanced materials in the construction of the system