



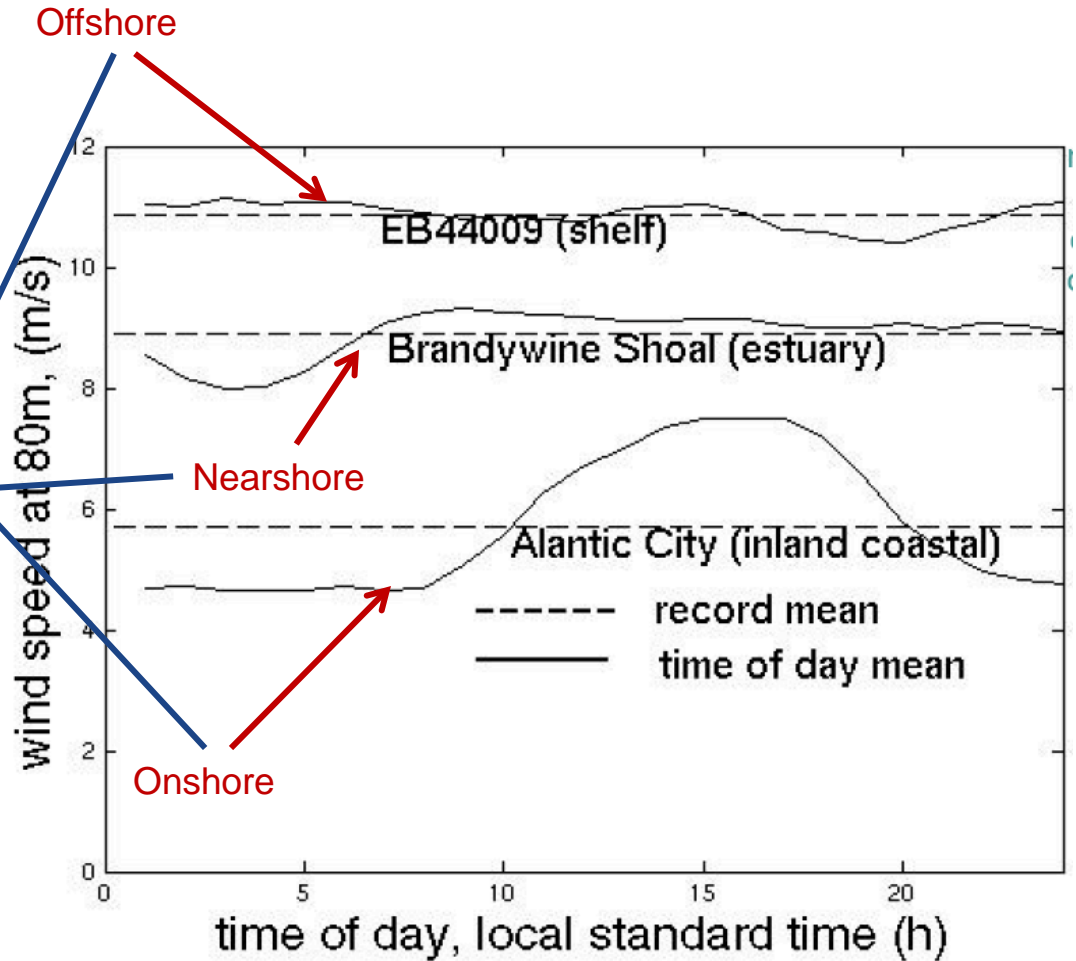
FLOATING OFFSHORE WIND SYSTEM: THE WINDFLOAT

CASE STUDY: BRINGING NEW TECHNOLOGY TO MARKET

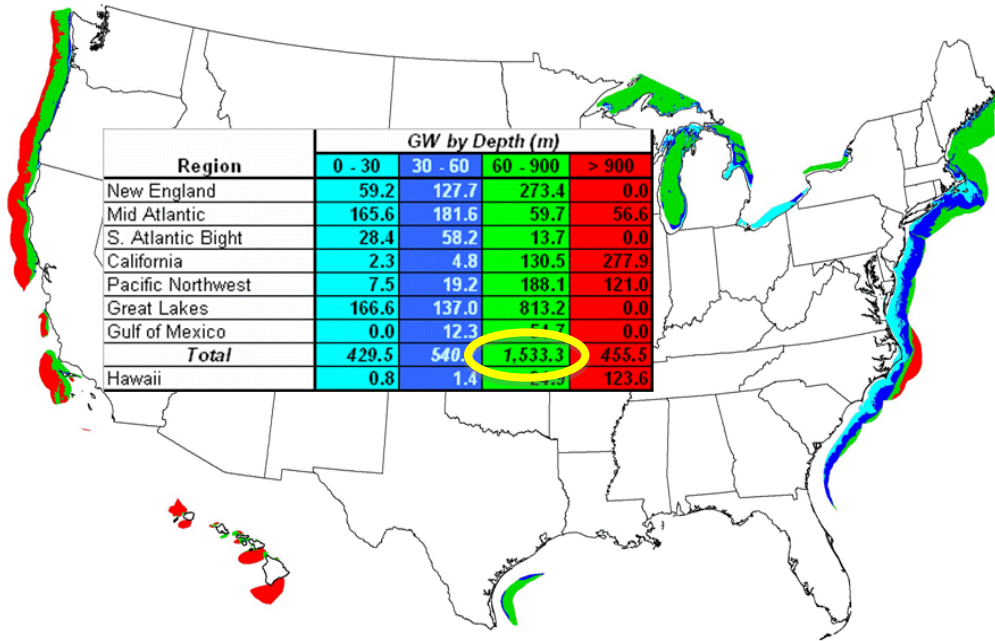
Alla Weinstein, President & CEO



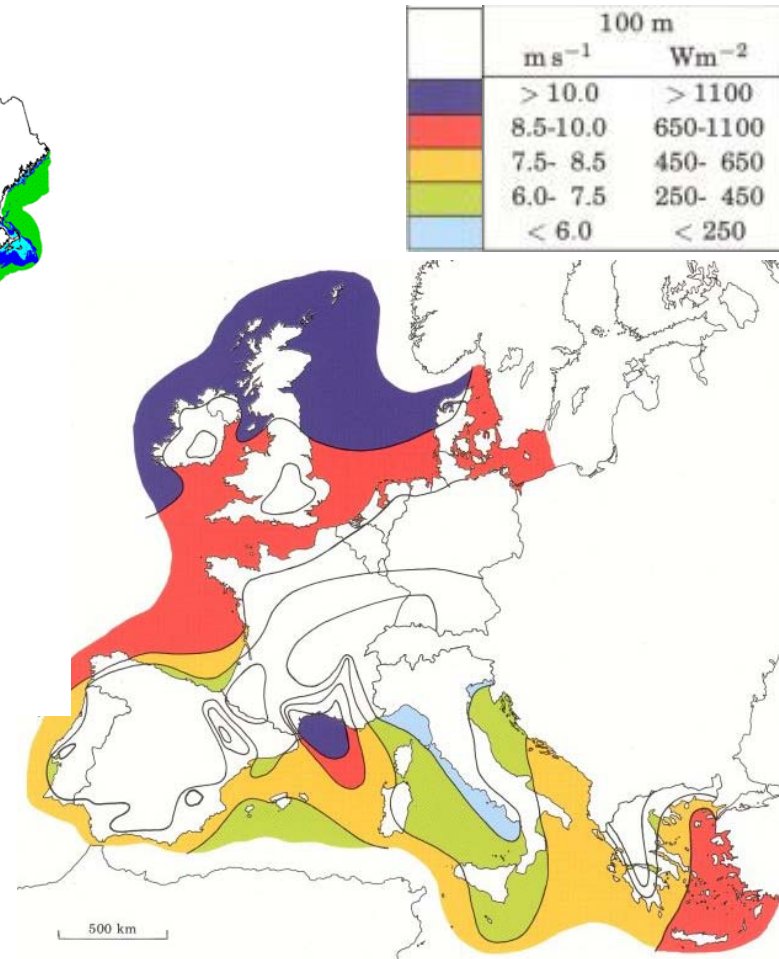
Offshore Wind Resource



EU and US Offshore Wind Resource



Source: US National Renewable Energy Lab



Source: Risø National Laboratory, Roskilde, Denmark



The Market

Unaddressed Markets

- Coastal areas with high renewable energy demand
- Best resource is deep-water offshore wind

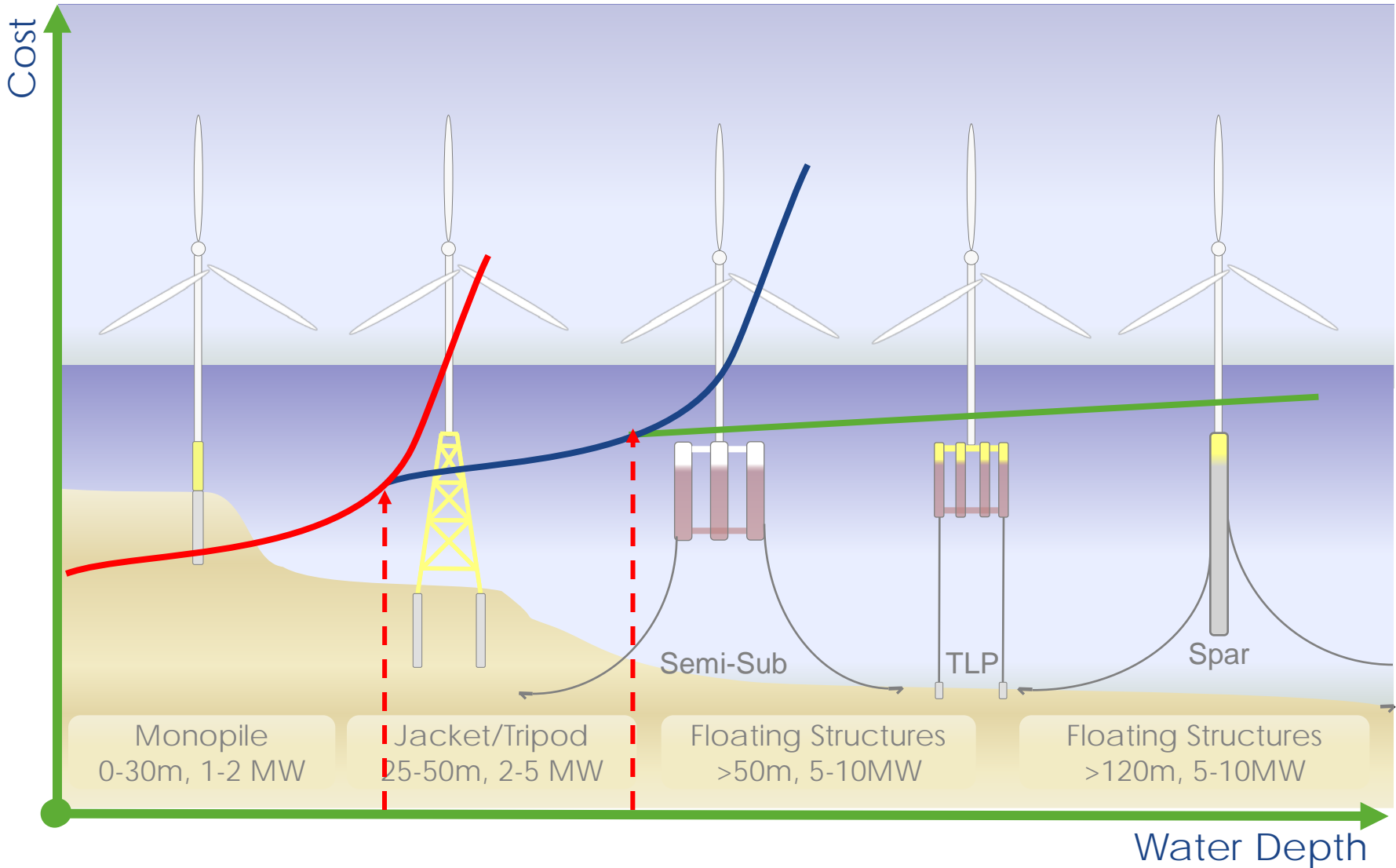
Target Locations

- United States
 - West Coast
 - Maine
 - Great Lakes
- North Sea
- Coasts of Portugal, France, Spain, the UK and Japan

Market Potential

- > 1,000 GW

Water Depth Economics





Principle Power Inc.

Established in October 2007

- 10 employees
- Locations in US and Europe

Mission

- Product Plus company

Products – WindFloat, WindWaveFloat

- Patented and patent pending

Market – water depths > 50m

- Presently untapped
- Natural evolution of offshore wind development

Deep-water offshore wind is inevitable

The WindFloat

Turbine Agnostic

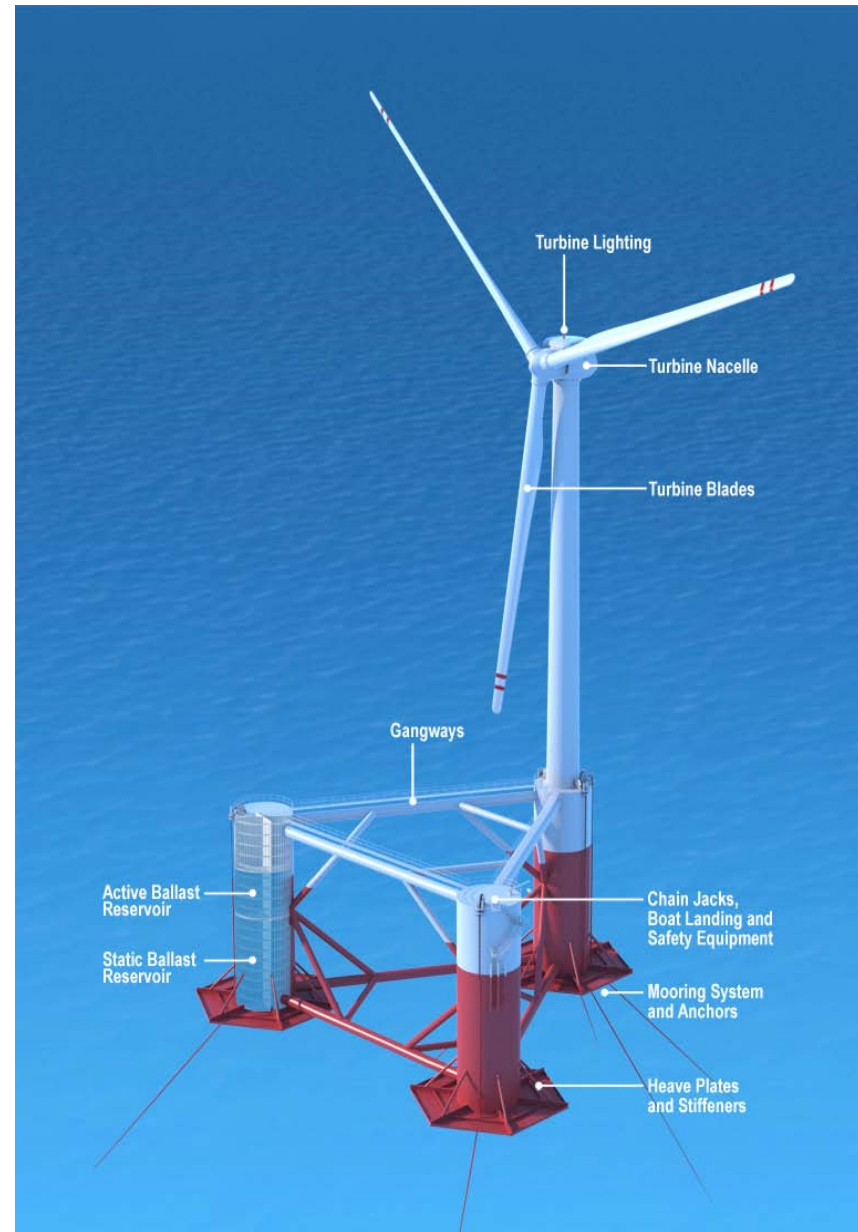
- Conventional (3-blade, upwind)
- No major redesign

High Stability Performance

- Static Stability - Water Ballast
- Dynamic Stability - Heave Plates
- Efficiency – Closed-loop Active Ballast System

Depth Flexibility - >50m Assembly & Installation

- Port assembly
- No specialized vessels required, conventional tugs
- Industry standard mooring equipment





WindFloat offers

Lower design & data collection costs

- Farm design rather than individual unit
- Area wide data, rather than unit specific

Minimized ocean floor & environmental impacts

- Use of conventional anchors
- Due to reduced bio activity in >50 m depth

Lower installation & insurance costs

- Complete unit shore assembly
- Reduced weather related delays
- Extended weather windows

Economic benefits

- Local employment and economic growth in coastal communities

US - Jones Act solution

- No need for crane-handling installation vessels

Development Activities

Portugal – 150 MW

- WUNDPLUS
 - a JV between EDP, PPI & A. Silva Matos
- Pilot installation funding
 - EDP & Portuguese Government (FAI)
- Three phase build-out
 - Pilot, pre-commercial, commercial



Tillamook, OR, USA – 150 MW

- Initial permitting activities
- MOA with TIDE
- MOA with Tillamook PUD
- Identifying project developer



WindFloat Oregon, LLC

Very Good Resources

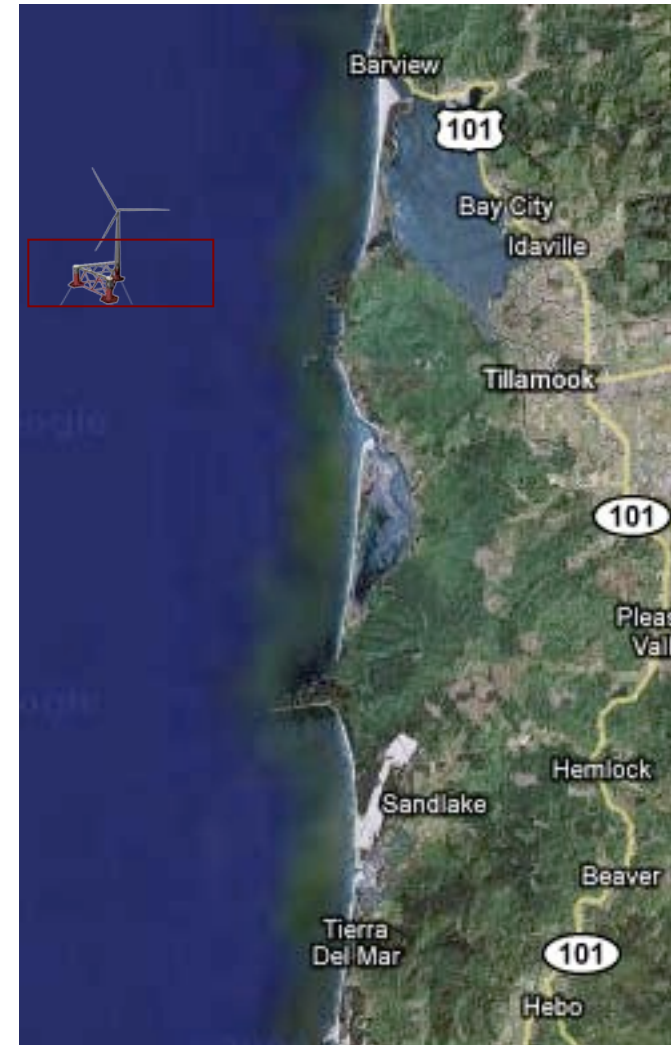
- Strong winds
- Proximity to transmission lines
- Good ports

Utility Interests

- Green pricing/Green credits
- Price stability for customers

Community Interests

- Jobs
- Local Businesses, tourism
- Recreational interests
- Local Fishermen
- Environmental Concerns





WINDPLUS, Portugal

Enormous potential for value creation

- Wind energy resource available
 - Limited potential for water depths <40m
 - Total potential almost unlimited for floating wind turbines (water depths >40m)
- Business in the range of 1Bi+ € in 2025* (80% exports)
- Jobs in excess of 7.000
- Develop National Offshore Renewables Industry Cluster
 - Opportunities in fabrication, engineering, O&M and environmental studies
- Taking advantage of existing infrastructure
 - Ports and Docks
- New opportunities for the distressed maritime sector

Why Portugal?

2020 EU Targets for 20% RE

- Offshore wind assures meeting targets

Policy Provisions

- Feed-In Tariff
- Reasonable permitting process

Strong Coastal Grid

Funding Sources for New Technology

- Utility
- Strategic investor
- Government
- European Commission

