1,000 MW Morro Bay Offshore

A Trident Winds Project

October, 2015
Trident Winds - the Company

Mission/Vision

• Develop a 1,000 MW Morro Bay Offshore project to meet market demand post 2025

Value Proposition

• Very few developers are familiar with the floating offshore wind
• Floating offshore winds offers siting advantages, flexibility and low environmental impacts
• Development and construction schedule matches CA market demand
• City of Morro Bay has an opportunity to take part in the proposed project
## Who are we?

<table>
<thead>
<tr>
<th>Alla Weinstein</th>
<th>Eric Markell</th>
<th>Brian Walshe</th>
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<tbody>
<tr>
<td><strong>Experience:</strong></td>
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<tr>
<td>- Founder, CEO &amp; President of Principle Power Inc., a market entry company that developed and is supplying floating support structures to offshore industry</td>
<td>- Former CFO and Chief Resources Officer of Puget Sound Energy: led acquisition of over 1,600 MW of wind and gas representing $2 billion investment</td>
<td>- Former Managing Director in Navigant Consulting financial transaction practice</td>
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<tr>
<td>- Founder, European Ocean Energy Association that brought together EU marine renewables technology developers</td>
<td>- Former CFO of IPP specializing in distressed energy companies’ turnarounds</td>
<td>- Performed operational assessments or other site services at over 200 generating facilities in 10 countries</td>
</tr>
<tr>
<td>- Founder of AquaEnergy Group Ltd, a market entry company that developed wave energy systems</td>
<td>- Significant experience in the acquisition and development of generating facilities</td>
<td>- Expert witness in utility rate cases, bankruptcy proceedings, and civil litigation</td>
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<td>- Over 20 years at Honeywell</td>
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<td><strong>Previous Employers:</strong></td>
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<td>- Principle Power Inc.</td>
<td>- Puget Sound Energy</td>
<td>- McKinsey &amp; Company</td>
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<td>- European Ocean Energy Association</td>
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<td>- Central Hudson Gas &amp; Electric</td>
<td>- Stone &amp; Webster</td>
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<td>- Honeywell</td>
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<tr>
<td><strong>Education:</strong></td>
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<tr>
<td>- B.E. EE, Stevens Institute of Technology</td>
<td>- B.S. Economics Union College</td>
<td>- B.S. Civil Engr. Northeastern Univ</td>
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<tr>
<td>- MBA Thunderbird School of Global Management</td>
<td>- MPA Syracuse University</td>
<td>- MBA University Michigan</td>
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</table>
I. Project Timing – Why Now?

II. Example of Floating Offshore Wind – The WindFloat

III. Morro Bay Offshore Project
Its All About Timing

Market Readiness post 2025

• The post-2025 period will see a need to add large amount of RE to achieve the required GHG reductions
• Transmission, permitting and cost issues create significant challenges for RE projects from eastern regions of California, and for out-of-state renewables, currently prohibited by law
• Retirement of coastal generating creates interconnection opportunities that might otherwise be “stranded”

Technology Readiness

• Floating offshore wind is now proven and a maturing technology
• A number of technology options will be available for offshore wind projects in deep water in the post 2025 timeframe
• WindFloat is the current leading technology, with existing demonstration plant and additional capacity under construction

Permitting

• BOEM permitting for floating offshore wind has now been validated through the WindFloat Pacific (OR) project
• CA state agencies may create some complexity, but fall under the BOEM umbrella per Federal regulations

Morro Bay Offshore project offers a timely solution to the California’s RE market demands in the post 2025 timeframe
Market Demand: CA will need over 30 GW of new Renewable Energy

- Existing CA law (AB32) will require 60 GW of new renewable capacity to be built in the next 20 years or ~3 GW/year
  - ~30 GW to transition the existing generation portfolio to renewables assuming zero load growth
  - ~30 GW for new renewable capacity to meet load growth (economic, Electric Vehicles or other)

- On September 12, 2015 CA passed SB 350 that requires “(1) To increase from 33 percent to 50 percent, the procurement of our electricity from renewable sources” by December 31, 2030”
Offshore Wind Experience:
> 10 GW Fixed installed in EU; 4MW Floating

Fixed: 10,393 MW installed capacity in Europe

Floating: 4 MW installed capacity world-wide

Floating: > 200MW projected by 2020 in UK, PT, JP and FR
Floating offshore wind: Opens Deep Water locations / Reduced Environmental Impacts

Environmental Impact and Geotechnical Requirements
- No Piling - eliminates noise, pile rejection, offers reduced weather dependence.
- Complete decommissioning – all infrastructure fully recoverable
- Reduced core sampling in field – drag embedment anchors

Flexible Site Location
- Deep water solution – incremental cost increase minimum
- Conventional mooring – inexpensive, uses steel chain and cable
- Drag embedment anchors – effective in all soil conditions: clay, sand and layered soil.
- Produce more energy – site selection is based on resource energy density

Serial Production – On Shore Construction
- Every floating support structure hull in a project is identical – learning curve of 80%
- Fabrication technique is modular – distributed manufacturing
- Load out is bottleneck but can be done in a few days

Quayside Commissioning and WTG Installation
- All commissioning activity completed onshore – onshore labor rates infrastructure.
- Reduced weather dependence – everyone comes to work everyday in shipyard
I. Project Timing – Why Now?

II. Example of Floating Offshore Wind – The WindFloat

III. Morro Bay Offshore – 1,000 MW Project
Videos available on YouTube:
2MW WindFloat prototype construction - https://www.youtube.com/watch?v=i6pdp8wyQ8A
WindFloat Farm animation - https://www.youtube.com/watch?v=IO7GXLR4YUo
Agenda

I. Project Timing – Why Now?

II. Example of Floating Offshore Wind – The WindFloat

III. Morro Bay Offshore Project
CA Wind Resource/ Interconnection Points

50 mi arc from coastal facility
Morro Bay Offshore: Location / Wind Resources

Wind Data

- Moor Bay Buoy: 46028
- Years of good data: 27.42
- WS > 7.5m/s: > 50%
- Hrs per year: > 4000

Contemplated Location

- N of Pt Estero: > 15 m
- Water depth: > 1500’
Projected Visual Effects:
WindFloat Pacific – 15 miles West off Coos Bay

View from cable landing

Zoomed approximately 4 times

Views from other shore locations will be very similar (for example Gregory Point)

Source: Principle Power Inc.
### Morro Bay Offshore: Project Phases

<table>
<thead>
<tr>
<th>Step</th>
<th>Phase Name</th>
<th>Phase Start Criteria</th>
<th>Phase End Criteria</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Planning – Early Stage</td>
<td>Starts when developer or regulatory agency initiates formal site control process</td>
<td>Ends when a developer obtains exclusive development rights to a site (e.g., through competitive auction or a determination of no competitive interest in the United States)</td>
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<tr>
<td>2</td>
<td>Planning – Site Control</td>
<td>Begins when the developer obtains exclusive development rights to a site (e.g., through competitive auction or a determination of no competitive interest in the United States)</td>
<td>Ends when the developer files major permit applications (e.g., a construction operations plan for projects in federal waters in the United States)</td>
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<td>3</td>
<td>Major Permits Submitted</td>
<td>Starts when the developer files major permit applications (e.g., construction operation plan for projects in federal waters in the United States)</td>
<td>Ends when a regulatory body(s) grants authorization to proceed with construction; a rejection may cause the project sponsor to appeal (still permitting phase), place the project on hold, or cancel</td>
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<td>4</td>
<td>Approved</td>
<td>Starts when project has been approved by the relevant regulatory bodies and is fully authorized to proceed with construction</td>
<td>Ends when sponsor announces FID, and has signed unconditional contracts for major construction work packages; achievement of this milestone generally requires that a project has secured sufficient revenue mechanisms (e.g., power offtake contracts, subsidies, or tax incentives) to be financially viable</td>
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<td>5</td>
<td>Financial Close</td>
<td>Begins when sponsor announces FID and has signed unconditional contracts for major construction work packages; achievement of this milestone generally requires that a project has secured sufficient revenue mechanisms (e.g., power offtake contracts, subsidies, or tax incentives) to be financially viable</td>
<td>Ends when project begins offshore construction work</td>
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<td>6</td>
<td>Under Construction</td>
<td>Starts when offshore construction work is initiated</td>
<td>Ends when project has been connected to the power grid and all units fully commissioned; COD marks the official hand-over from construction to operations</td>
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<td>7</td>
<td>Operating</td>
<td>Commences when project has been connected to the power grid and all units fully commissioned; COD marks the official hand-over from construction to operations</td>
<td>Ends when the project has begun a formal process to decommission and stops feeding power to the grid</td>
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<td>8</td>
<td>Decommissioned</td>
<td>Starts when the project has begun a formal process to decommission and stops feeding power to the grid</td>
<td>Ends when the site has been restored and lease payments are no longer being made, or if the site has been repowered</td>
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<td>N/A</td>
<td>On Hold/ Canceled</td>
<td>Starts when sponsor stops development activities (i.e., discontinues lease payments) and/or abandons a prospective site</td>
<td>Ends when the sponsor announces the restart of project development activities</td>
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Source: NREL
# Morro Bay Offshore: Top Level Project Schedule

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<tr>
<td>Phase 1 - Planning: BOEM Non-Solicited Lease Application</td>
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<td>Phase 2 - Site Control (SAP)</td>
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<td>Phase 3 - Major Permits (COP, EIS, PPA, Grid connection)</td>
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<td>Phase 4 - Approvals</td>
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<td>Phase 5 - Financial Close</td>
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<td>Phase 6 - Construction</td>
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<td>Phase 7 - Commercial Operation</td>
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1,000MW Offshore Wind Project Overview

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Morro Bay Offshore Planning Phases Tasks

• BOEM Leasing/Permitting
• Public and community outreach
• Environmental Studies
• Wind resource assessment & quantification
• Pre-FEED
• State and local permits
• Transmission study
• Power Purchase Agreement (PPA)
• Environmental Impact Statement (EIS)

Planning Phases Work Product

• Approved Site Assessment Plan (SAP)
• Approved Construction and Operations Plan (COP)
• PPA
• Transmission Interconnect Agreement
Phase 1 – Planning

- Trident Winds has met with a number of stakeholder:
  - Morro Bay City Council members
  - Local fishermen
  - Northern Chumash Tribal Council
  - Cal Poly
  - SLO Clean Energy
  - CISO

- Planning near-term meetings with:
  - Environmental NGOs and local groups
  - State Agencies, like CEC, CA Lands and Coastal Commissions, CPUC, etc.
  - Federal Agencies

Cooperation with the City of Morro Bay

- Proposed a Cooperation Agreement to ensure close contact with the City

Open Public Meeting to be held on December 10, 2015

- To provide open forum to the Public and welcome further inputs
“The Future for Offshore Wind is Bright............
and it will also be FLOATING”
1,000MW Offshore Wind Project Overview

Source: Principle Power Inc.