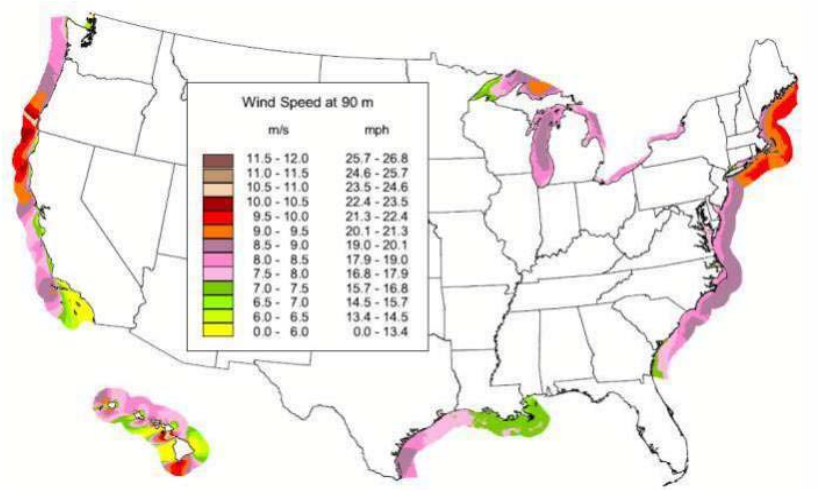
WEST COAST OFFSHORE WIND CONSORTIUM

Establishing an Industry in the Pacific Region

Overview and Opportunity

Wind Resource

- Strong, consistent offshore
- Deep water



Transmission Challenges

- Wind Integration
- East to West predominance

Overview and Opportunity

The Pacific Region's Remarkably Strong Position

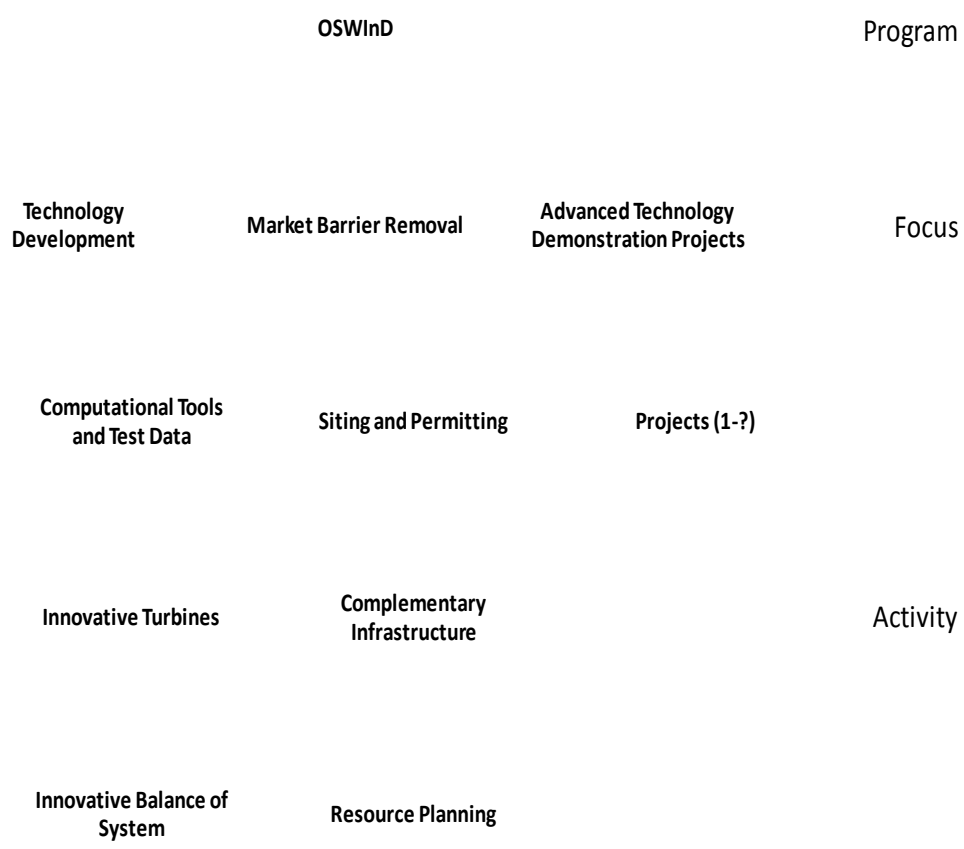
- Strong wind resource offshore in deepwater
- Strong metals and manufacturing fundamentals through companies like Oregon Iron Works, General Contractors (Kiewit), American Bridge, others
- Pro renewables policies and Renewable Portfolio Standards in OR, WA and CA
- Regional fluency in ocean energy through state actions, OWET and the attention of wave and tidal energy developers
- Establishment of NNMREC at OSU and UW

Overview and Opportunity

- Position of PNNL, HMSC as a leader in offshore environmental study & research
- West Coast Governor's Agreement on Ocean Health recognition of the importance of ocean renewable energy
- TIDE and Principle Power MOU committing to pilot and commercial deepwater wind project off Oregon Coast
- USDOE offshore wind strategy commitment to pilot/demonstration projects
  - OSWInD strategy: reduce cost of energy (COE) and time to deployment
- Potential to leverage positions of both OR and WA delegations

OSWInD Strategy

- $49.5 M in funding
  - FOA expected NOV 2010
- Focus areas
  - Technology Development
  - Market Barrier Removal
  - Advanced Technology Demonstration Projects



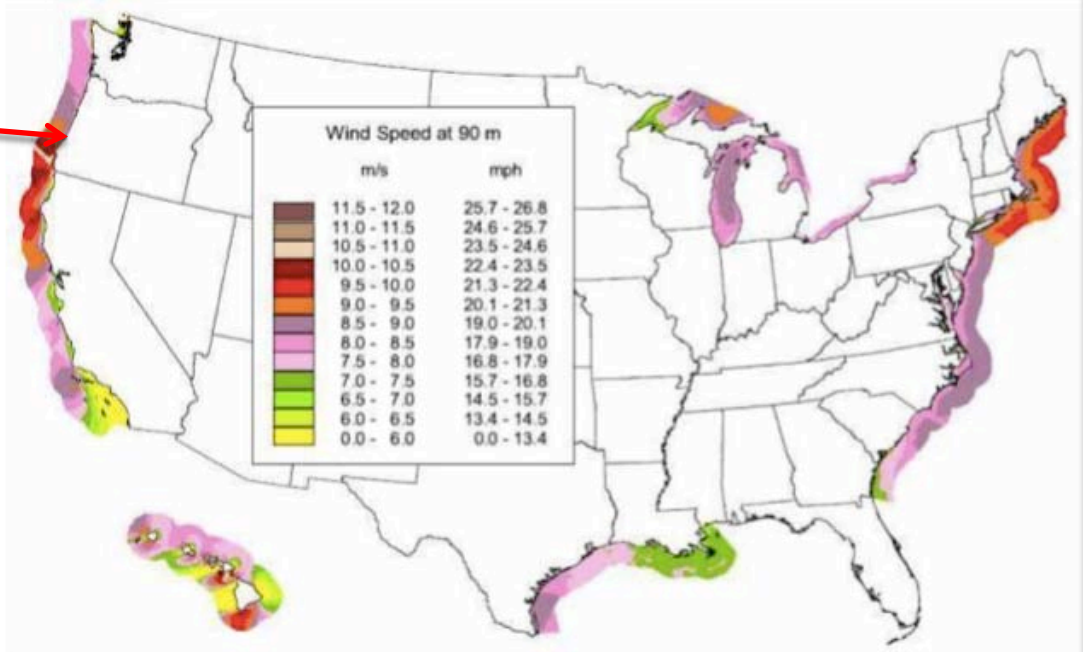
OSWInD Strategy

- Existing head starts
  - Resource, existing capacities
  - PPI Portuguese demonstration/deployment
  - PPI relationship with TIDE, TPUD
  - Growing consortium
- OSWInD Strategic Emphases
  - Broad consortium with ‘world class’ capabilities
  - Broad consortium able to address cost share
  - Broad consortium able to execute within 2015 horizon

Potential Outcomes – Coos Bay

OREGON INTERNATIONAL
Port of Coos Bay

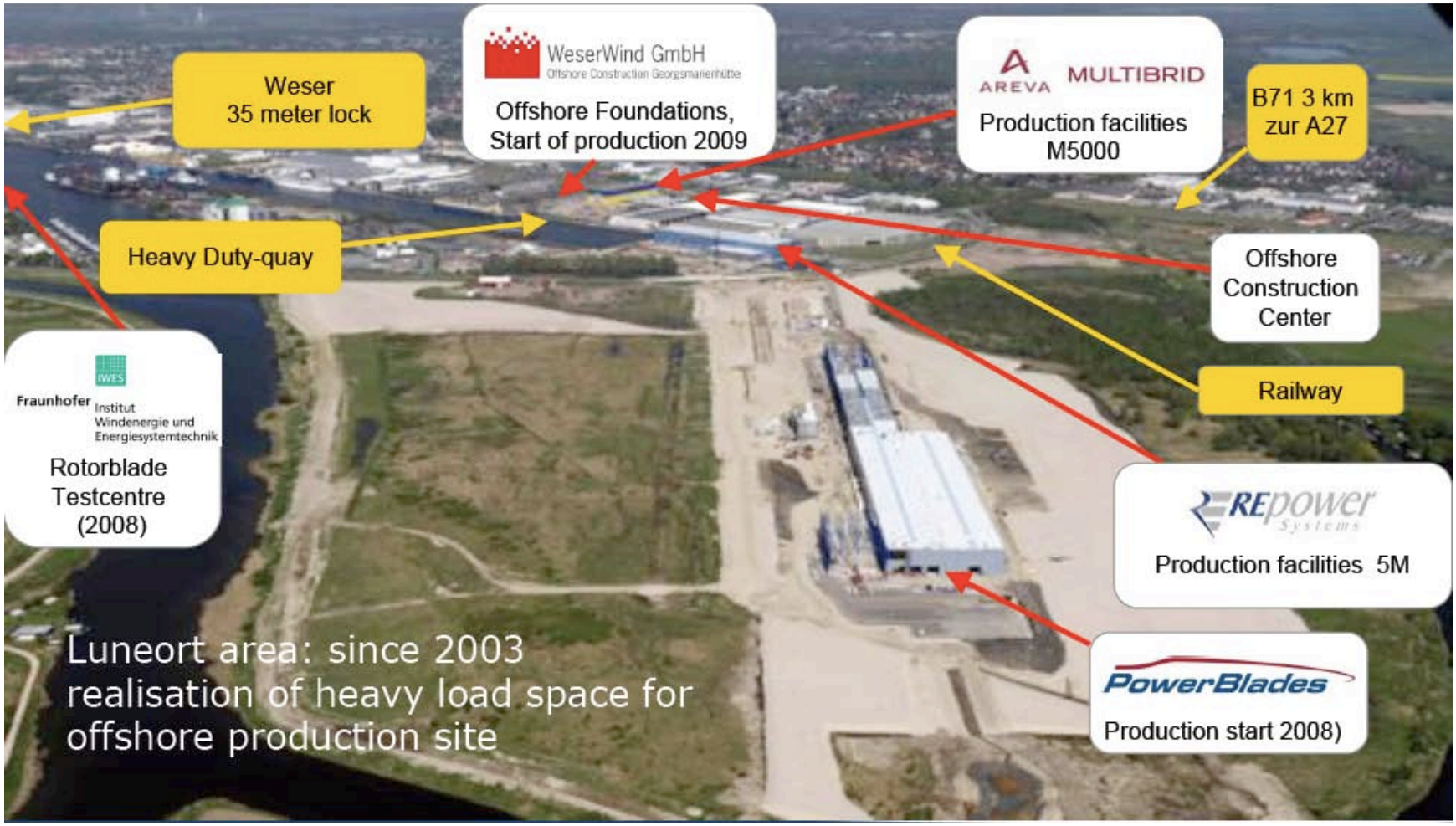
- Proximity to the resource
- Proximity to the markets
- Existing access, capacities



The North Spit

Bremerhaven Case Study

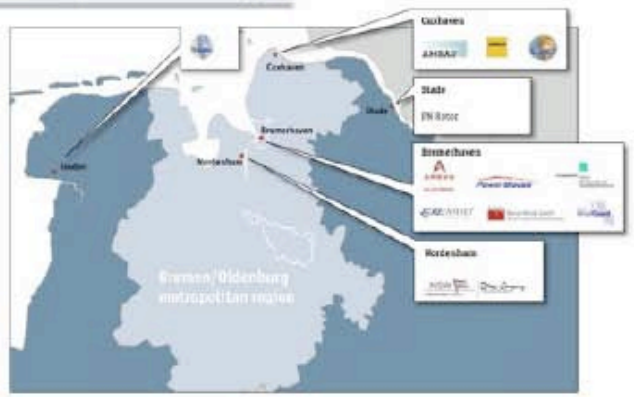
Bremerhaven Case Study



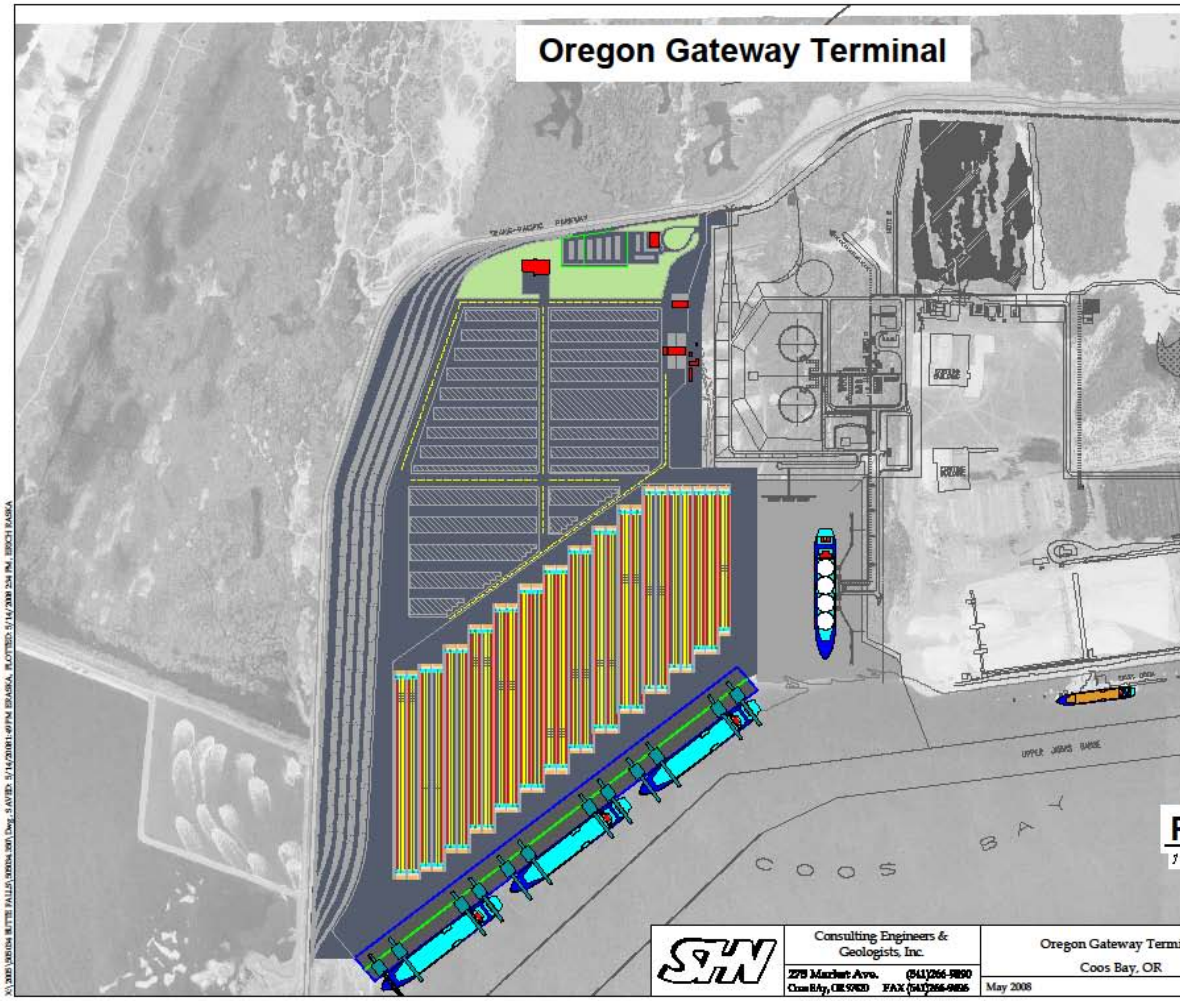
Bremerhaven Case Study

	Company	Product	provide new jobs
BREMERHAVEN	AREVA Multibrid	Windturbine	150
	Powerblades	Rotorblades	400
	REpower Systems	Windturbine	180
	WeserWind	Foundations	275
	Deutsche WindGuard Windtunnel Centre Bremerhaven	Research for rotorblades	20
	Fraunhofer Institute for Wind Energy and Energy System Technology IWES	Research for rotorblades and foundations	80
CUXHAVEN	Ambau	Tower	200
	Cuxhaven Steel Construction	Foundation	200
	Ed. Zueblin	Foundation	500
EMDEN	Bard Group	Windturbine, Rotorblades, operating Offshore-Windfarms	1,000
NORDENHAM	Norddeutsche Seekabelwerke	Offshore Grid	100
STADE	PN Rotor	Rotorblades (AREVA Multibrid)	75

New jobs until end 2010: ≈ 3,000



Possible Wind Platform Launch Site



Ways to get involved

- Demonstration consortium
  - World Class, ability to execute
  - MOU
  - Letters of support
- West Coast Offshore Wind Consortium – "West Coast Wind"
  - Atlantic Offshore Wind Energy Consortium exists today
  - MOU
  - Ongoing collaboration
    - Policy, supply chain elaboration, infrastructure etc.
- Delegation to Bremerhaven
  - Case Study ~ 3000 jobs in offshore energy

Where to from here

- Solidify roles, distribute draft MOU (for demo)
- Recruit members, distribute draft MOU (for West Coast Wind)
  - States, Private Industry, NGOs
- Determine participants & timing (for Bremerhaven)
  - State officials, port officials, private industry, elected officials

Where to from here

- Potential timeframes
  - Demonstration Project
    - RFP Late fall 2010 expected
    - Performance (installation) within 2015 horizon
  - “West Coast Wind”
    - Immediate, ongoing collaboration
  - Bremerhaven Delegation
    - 2011