Focus on Offshore Wind

Stony Brook SBDC Solar and Wind Conference
May 11, 2011
Deepwater Wind Overview

Capital

**DE Shaw & Co**
- $19B of investment and committed capital
- Specialized expertise within the energy sector

**firstwind**
- 5,500+ MW portfolio
- 700+ MW operating

Technical

- Focused on projects located 15+ miles from shore, where visual and environmental impacts are minimized
- Designing projects using steel piled jacket foundations suitable for up to 170’ for water - now the standard for deep water wind farms in Europe
Two Separate 1,000 MW Offshore Wind Projects:

- Deepwater Wind Energy Center:
  - Located far from shore, 30 miles from Long Island

- Hudson Canyon Wind Farm: 30 miles south of western Long Island
Transmission Systems:
- Each provides LIPA with 600 MW’s of firm power. Half from the windfarm and half from the interconnection.
- Each can satisfy LIPA’s entire renewable energy and carbon emission offset reduction goals
- Cost-competitive with new combined-cycle plants, net of benefits
Offshore Wind Isn’t for all Coastal States

- Wind Resource
- Energy Price
- REC Price
- Water Depth
- Coastal Power Requirements
- Extreme Weather

Water too deep

Energy Prices too Low

Wind Resources too low

Hurricane Risk too high
Public support clearly grows with distance from shore.

Mitigating the visual impact will allow this industry to achieve scale.
Europe has installed 1,136 offshore turbines, totaling 2,946 MW in 45 projects across nine countries.

5 MW turbines are now widely deployed and manufacturers are developing 6-8 MW prototypes.

Over $2.3 billion of offshore wind farms were financed in Q4 of 2010 alone.

These projects used turbines of 5 MW or more, signaling that financing institutions are willing to invest in the large turbines.
Offshore Wind Farm basics

1. Foundation
2. Wind Turbine Generator (WTG)
3. Nacelle
4. Inter-Turbine Submarine Cables
5. Offshore Sub-Station & Export Submarine Cable
6. On-Shore Grid Connection
Monopile:
- Limited to Shallow Water (+/-70’)
- Forces Most Projects Near Shore

Jacket:
- Up to 200’ Depths
- Allows Projects To Be 15-20 Miles Off Shore
- Jackets need to be made close to wind farm

Jackets have been the standard for the offshore oil and gas industry for more than 50 years.
How Do We Get There?

• What does it take to really get the industry going?

  Three things:

  1) Federal Permitting
  2) State Permitting
  3) Power Purchase Agreements
Contracting and Permitting Activities in Other States

**Revenue**

• Five states have created legislative mandates for long-term contracts:
  - Virginia
  - Delaware
  - New Jersey
  - Rhode Island
  - Massachusetts

• Three states have approved long-term contracts for offshore wind projects:
  - Delaware
  - Rhode Island
  - Massachusetts

**Permitting / Site Control**

• U.S. Department of Interior (DOI) has identified six states as priority areas for permitting and has begun the leasing process in four such states:
  - Maryland
  - Delaware
  - Rhode Island
  - Massachusetts
CLEAN ENERGY IS JUST OVER THE HORIZON