



# Virginia Commission on Energy and Environment August 18, 2009





## ABOUT DEEPWATER WIND

- **Rhode Island**

- Selected by the State of Rhode Island to be RI's preferred offshore wind developer
- Seven companies participated in that RFP
- Developing two offshore wind parks:
  - Block Island Wind Farm (up to 8 turbines in state waters)
  - Rhode Island Wind Farm (up to 130 turbines in federal waters)

- **New Jersey**

- Selected by the State of New Jersey (along with our partner, PSEG) to develop NJ's first (pilot) offshore wind farm
- Four companies participated in that RFP
- Selected by New Jersey to receive \$4 million rebate, upon successful installation of offshore met mast (two other offshore wind developers to receive similar rebates) (These awards supersede pilot project.)



## ABOUT DEEPWATER WIND

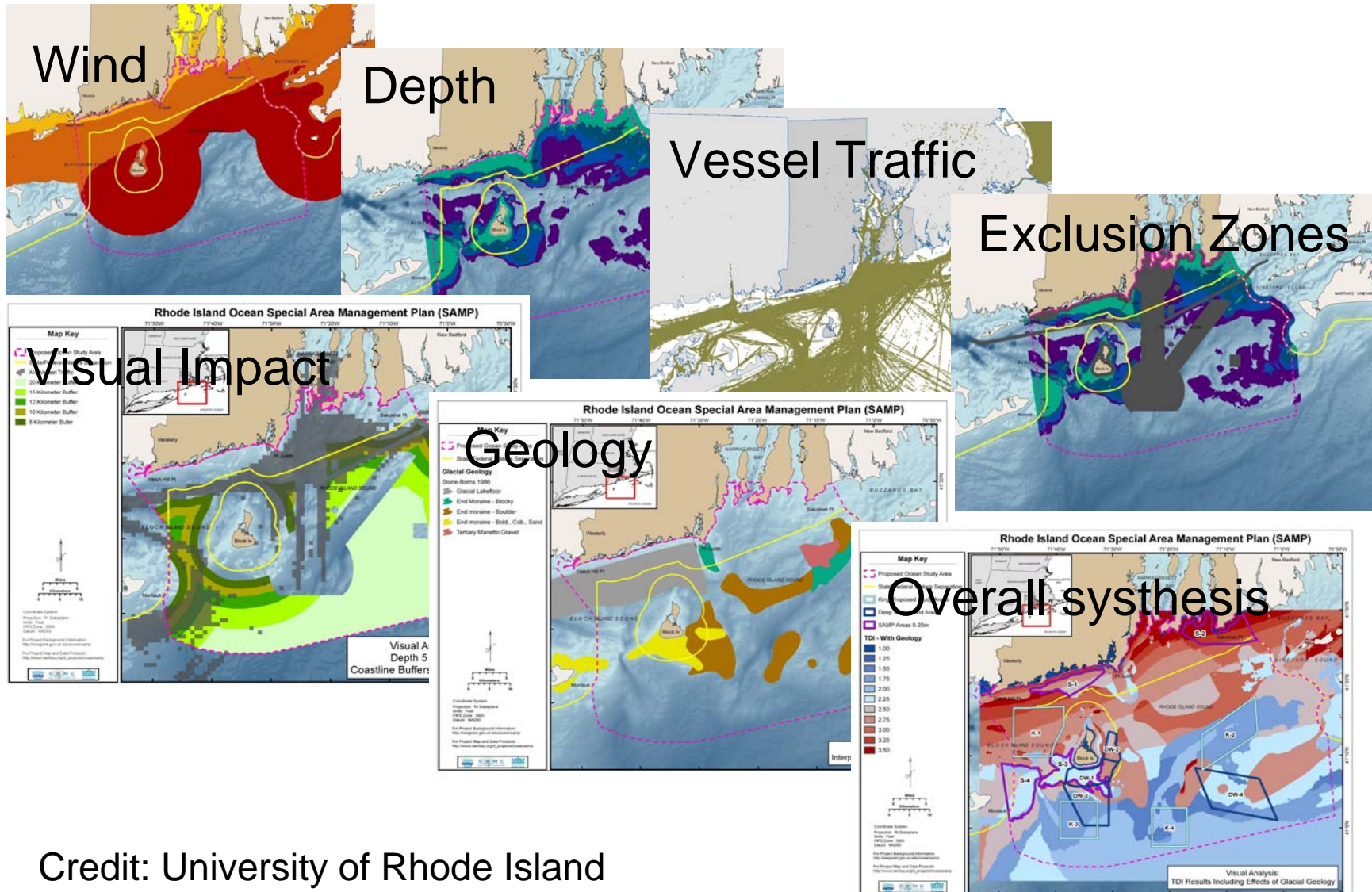
- **New York**
  - Developing project to serve New York City and Long Island
- **Massachusetts**
  - Developing project to serve Massachusetts RPS
- **US Department of the Interior's  
Minerals Management Services (MMS)**
  - Awarded Deepwater Wind two leases to develop met masts off New Jersey coast on Outer Continental Shelf
- **US Department of Energy**
  - Awarded Deepwater Wind \$300,000 for advanced bird and bat studies

# Utility-Scale Offshore Wind Farm: Sample Data Points

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- 100 – 130 Turbines, nameplate capacity of ~ 300 – 400 MW
- Costs range from \$1 Billion to \$1.5 Billion
- Provides enough renewable electricity to power 87,500 VA homes every year
- Several hundred jobs for 2-3 construction seasons
- 1.3 billion pounds of CO2 avoided *annually*
- 17 million barrels of oil imports avoided *annually*
- No fuel adjustment charges associated with wind, since our fuel, the wind, is always free

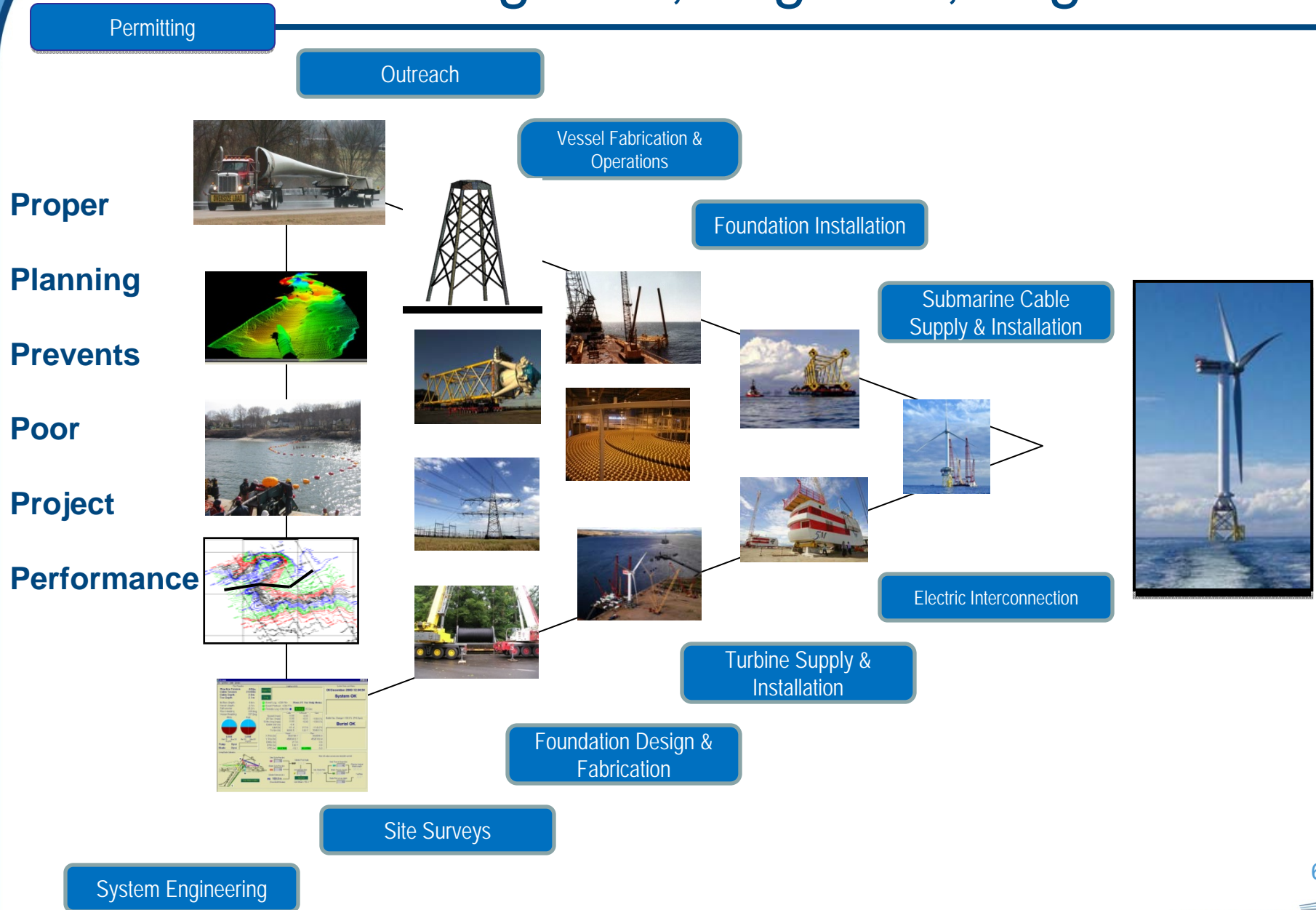
# SAMP Siting Analysis - Examples



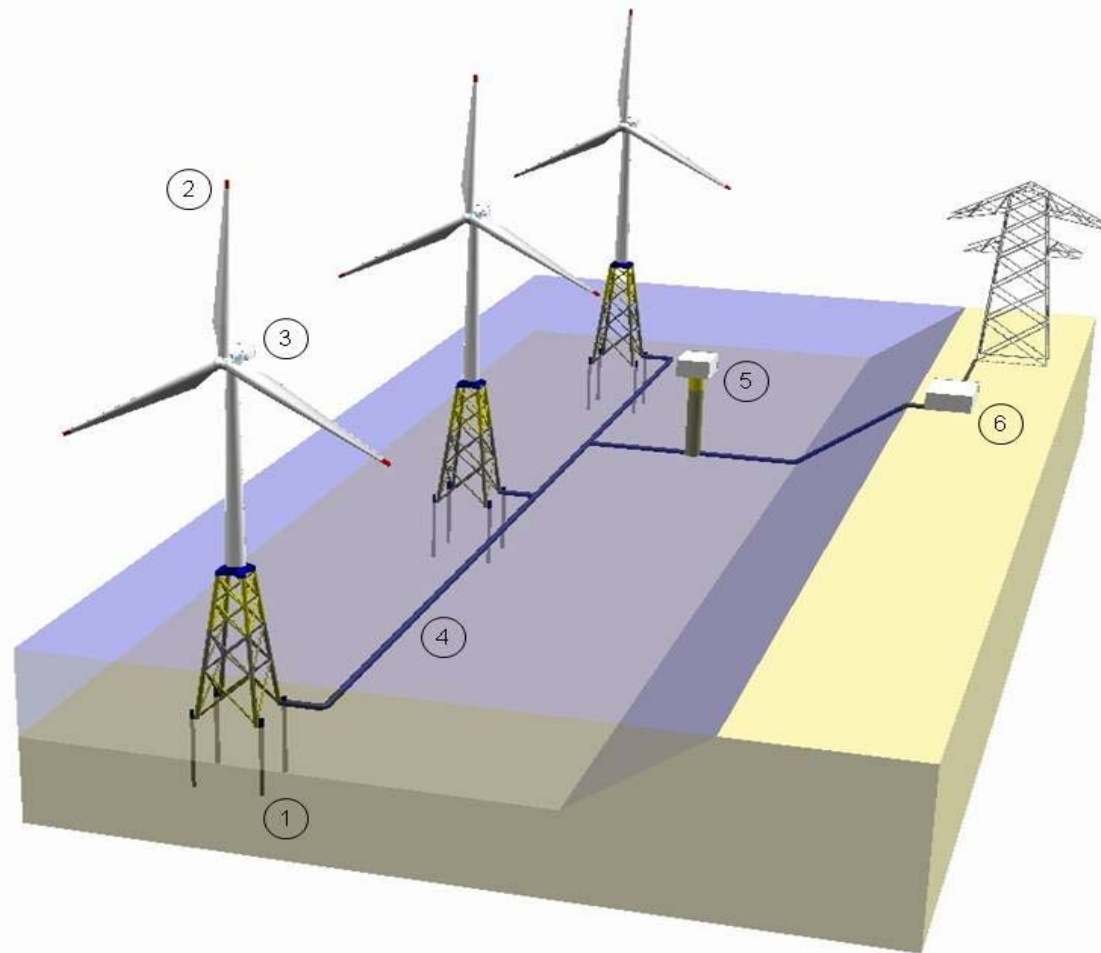
Credit: University of Rhode Island



# Logistics, Logistics, Logistics.....



# 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*

# Offshore Wind Construction





# Offshore Wind Construction



## Residential Electricity Usage and Prices: Averages of Sample States

| State       | Monthly Use<br>(kWh) | Retail Rate<br>(cents/kWh) | Monthly Bill     |
|-------------|----------------------|----------------------------|------------------|
| • RI        | 608                  | 14.05                      | \$ 85.36         |
| • NY        | 604                  | 17.10                      | \$ 103.25        |
| • NJ        | 730                  | 14.14                      | \$ 103.28        |
| • DE        | 960                  | 13.16                      | \$ 126.40        |
| • MD        | 1,086                | 11.89                      | \$ 129.15        |
| • <b>VA</b> | <b>1,207</b>         | <b>8.74</b>                | <b>\$ 105.55</b> |
| • NC        | 1,143                | 9.40                       | \$ 107.38        |

Source: US Energy Information Administration:  
<http://www.eia.doe.gov/cneaf/electricity/esr/table5.html>

# CHALLENGES TO BUILDING OFFSHORE WIND FARMS IN THE UNITED STATES

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- Locking down project costs
- Permitting the project
- Financing the project
- Managing project risks

# OPPORTUNITIES FOR BUILDING OFFSHORE WIND FARMS IN THE UNITED STATES

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- **Federal Government**
  - Economic Stimulus Funds
  - Production Tax Credits and Investment Tax Credits
  - Energy legislation that internalizes costs associated with carbon-based fuels
- **State-based incentives**
  - Port infrastructure
  - Efficient permitting regime
  - Financing structure for offshore wind
    - Renewable Portfolio Standard
    - Renewable Energy Certificates
- **Buy American – Create Jobs**
  - Vessels
  - Turbines
  - Submarine cable
  - Other components



## **CLEAN ENERGY IS JUST OVER THE HORIZON**



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