

National Wind Technology Center



Welcome BLM !!

National Wind Technology Center Overview

- Turbine testing since 1977
- Leader in development of design and analysis codes
- Pioneers in component testing
- Unique test facilities
 - Blade Testing
 - Dynamometer
 - CART turbines
- Modern utility-scale turbines
- Approx. 130 staff on-site
- Budget approx. \$40M
- Many CRADAs with industry
- Leadership roles for international standards
- Lead Lab for DOE Marine Hydrokinetic Technology Development



Administration's National Renewable Goals



**Double renewable energy capacity
by 2012**

10% renewable energy by 2012

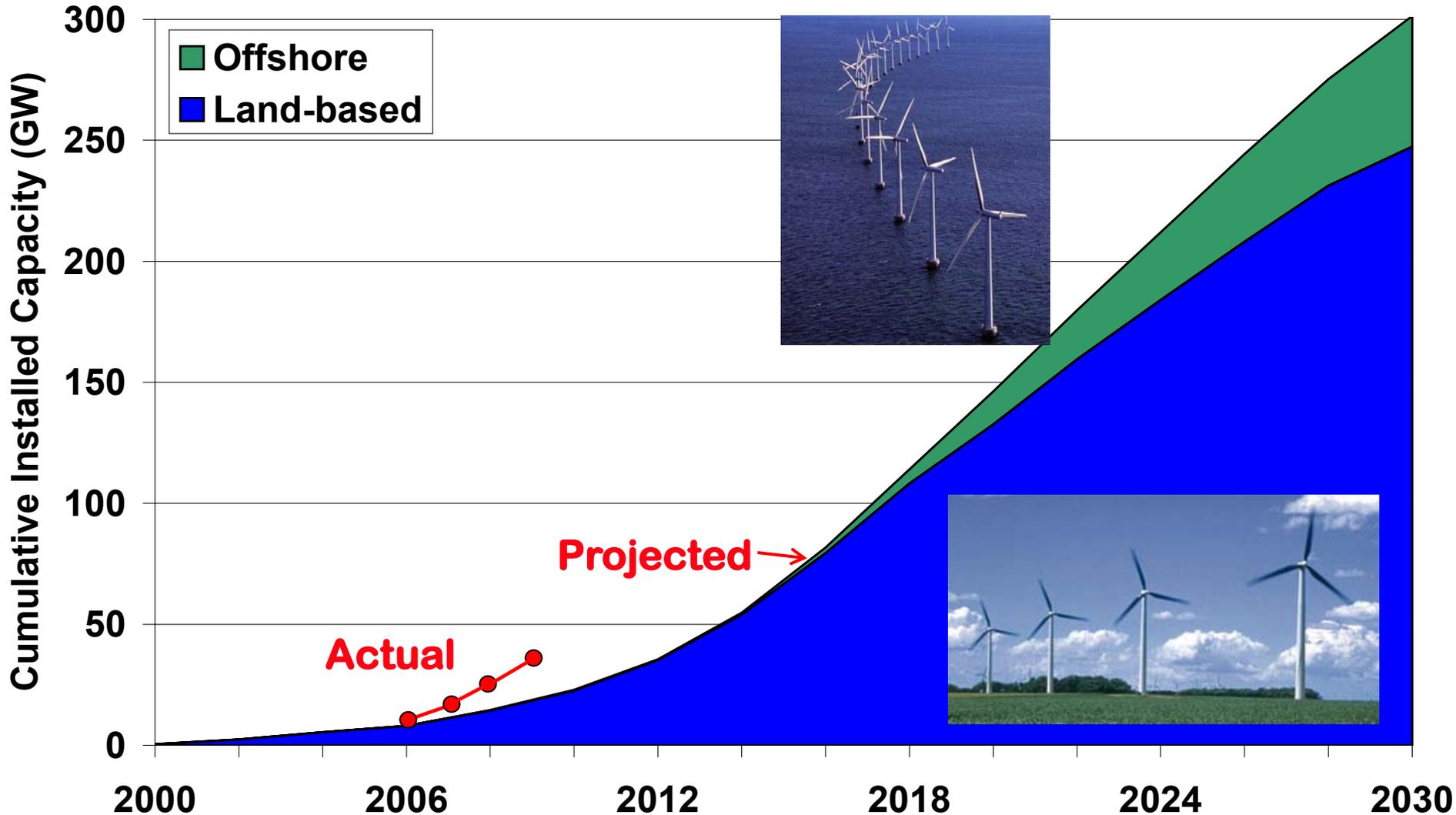
25% renewable energy by 2025

Create 5 million new green jobs

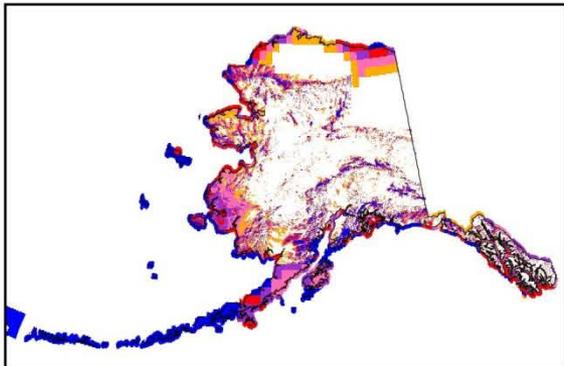
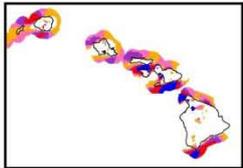
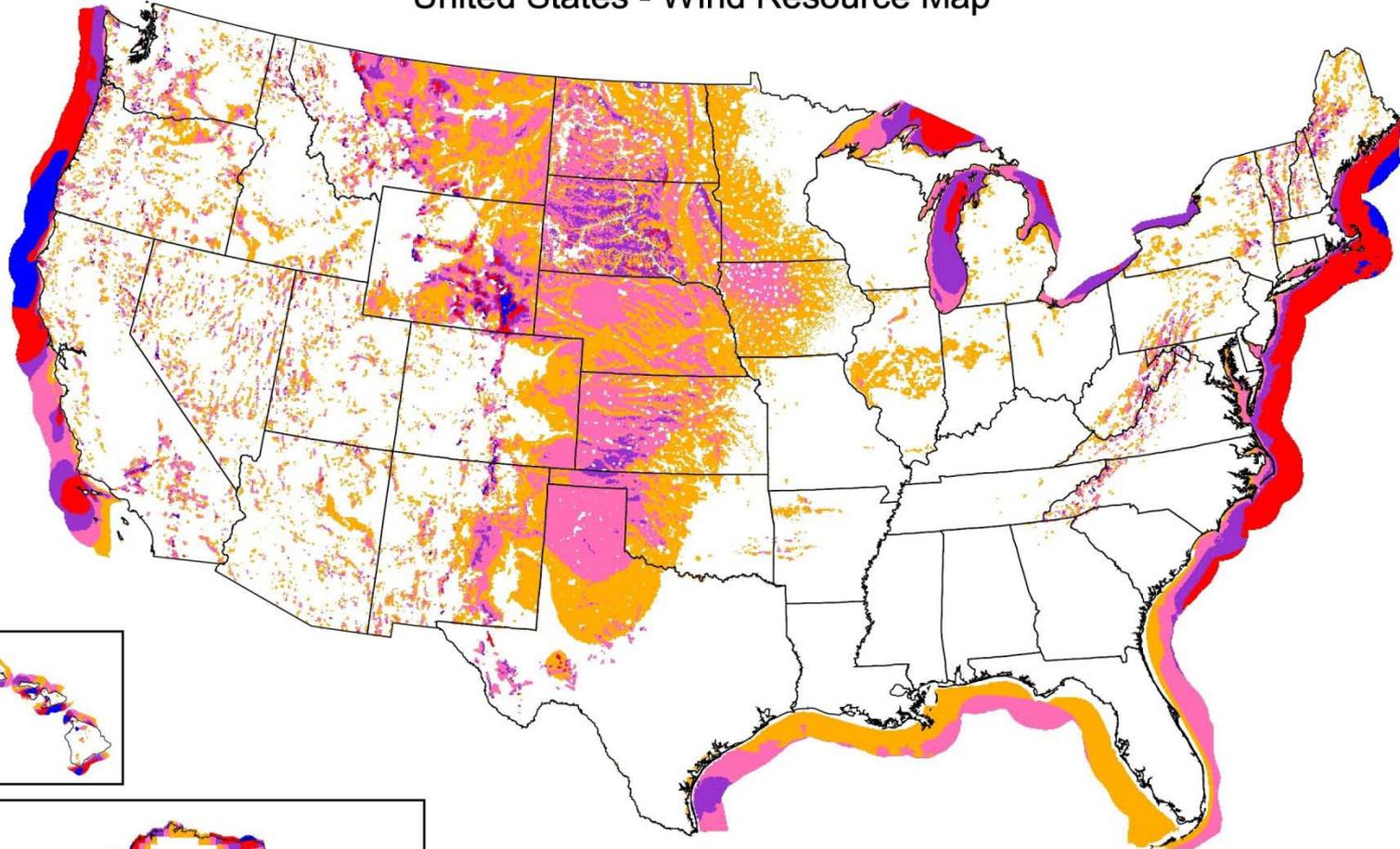
**80% reduction in GhG (from 1990
levels) by 2050**

**Informed by “20% wind energy by
2030” report issued by DOE in
May 2008**

20% Requires 300 GW - Land & Offshore



United States - Wind Resource Map



Wind Power Classification

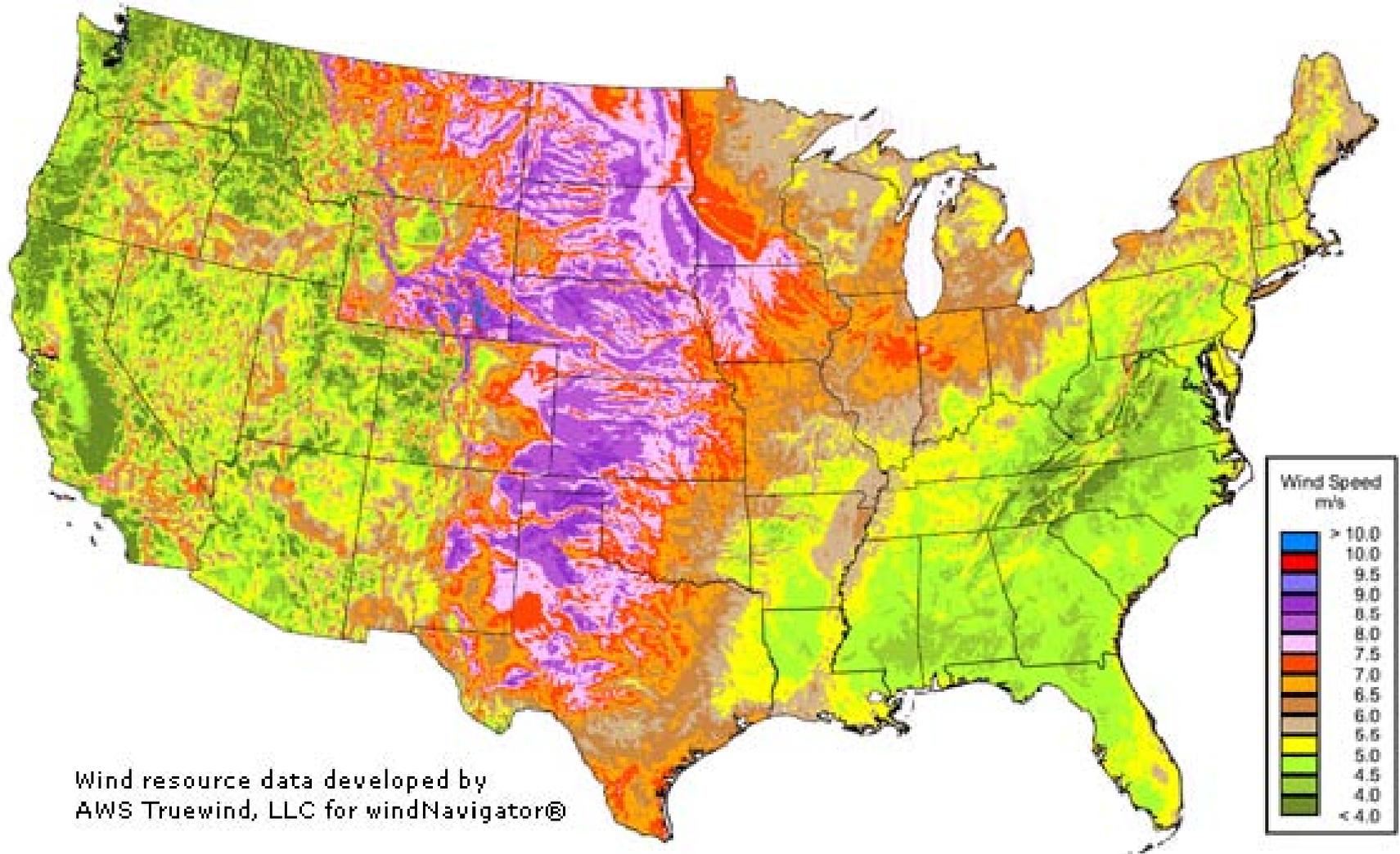
Wind Power Class	Resource Potential	Wind Power Density at 50 m W/m^2	Wind Speed at 50 m m/s	Wind Speed at 50 m mph
3	Fair	300 - 400	6.4 - 7.0	14.3 - 15.7
4	Good	400 - 500	7.0 - 7.5	15.7 - 16.8
5	Excellent	500 - 600	7.5 - 8.0	16.8 - 17.9
6	Outstanding	600 - 800	8.0 - 8.8	17.9 - 19.7
7	Superb	800 - 1600	8.8 - 11.1	19.7 - 24.8

^a Wind speeds are based on a Weibull k value of 2.0

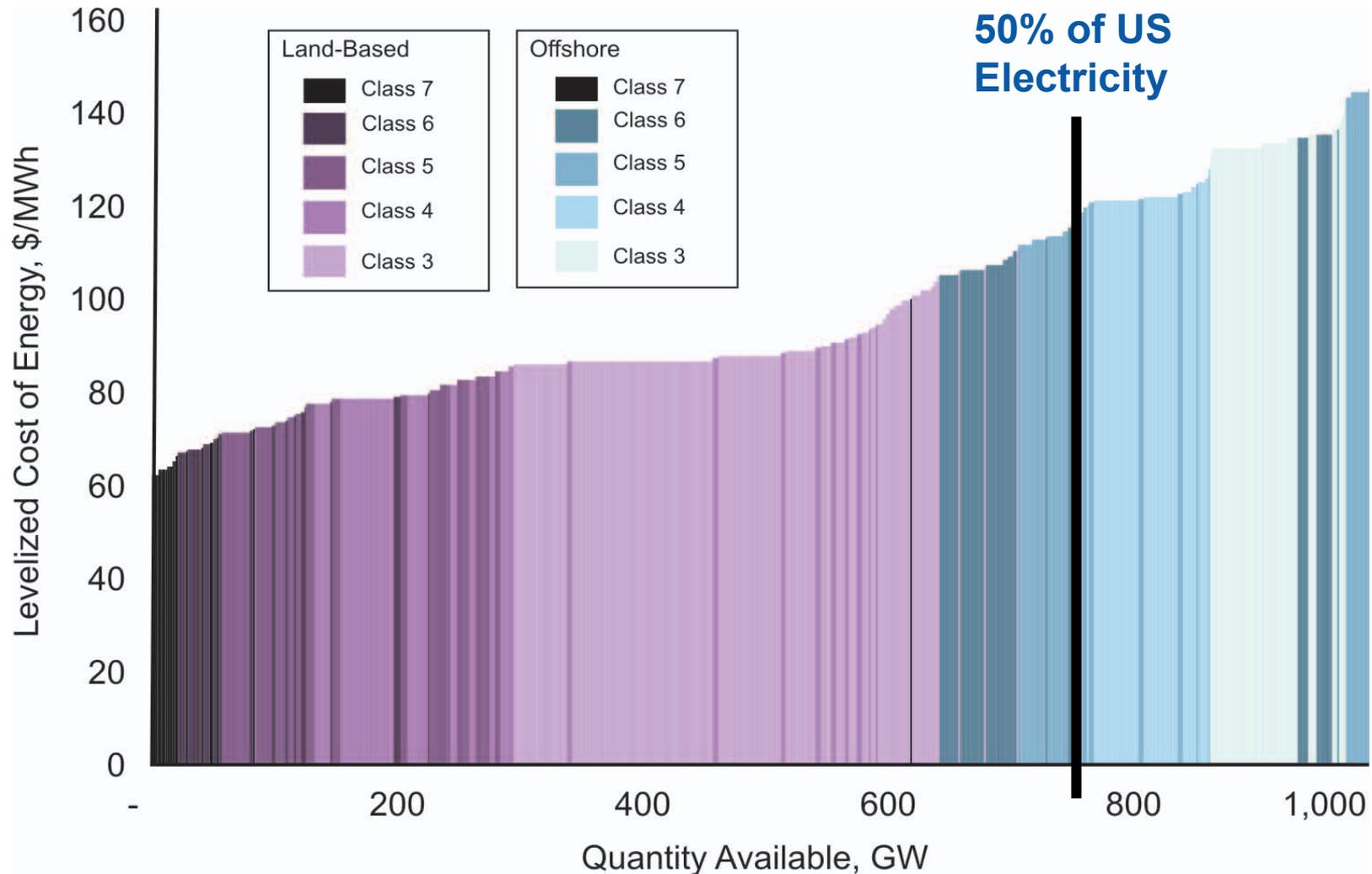


U.S. Department of Energy
National Renewable Energy Laboratory

New 80 m Wind Maps



Realistically, How Much Wind is Available?



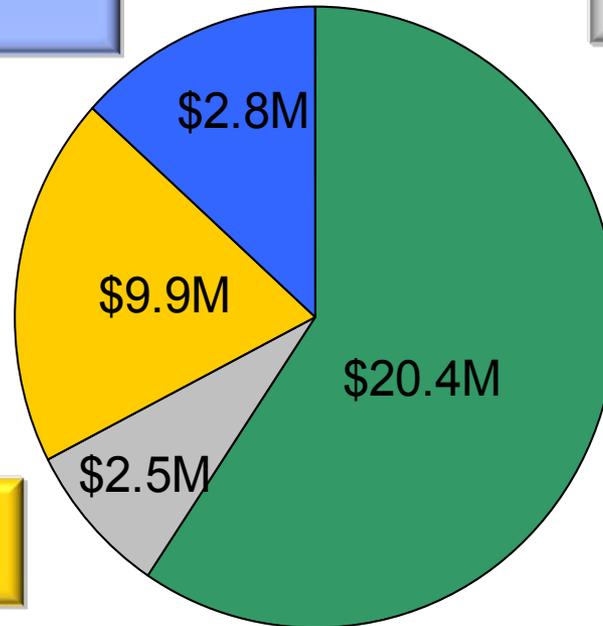
Excludes PTC, includes transmission costs to access 10% existing electric transmission capacity within 500 miles of wind resource.

Source: Black & Veatch/NREL

FY 2010 NREL Wind Program Budget = \$35.6M

8% Wind Powering America

- State-based Outreach
- Market Development
 - Public Power
 - Native Americans
 - Federal Projects
 - Workforce Development
- Environmental & Siting
- Workforce Development



28% Renewable Systems Interconnection (SI)

- Power Systems Interconnection and Transmission Planning
- Integration and resource planning
- Resource Characterization & Performance Modeling – Forecasting
- Communication, Policy & Education



7% Distributed Wind Technology (DWT)

- Small to Medium-Scale Systems for:
 - Residential & businesses
 - Industrial & commercial
 - Community-based wind
- Independent Testing
- Regional Test Centers



57% Large Turbine Technology R&D (LWST and SR&T)

- Utility-scale Turbine Partnerships
- System Reliability and Performance
- Component Testing Facilities
- Advanced Concepts, Analysis & Design Tools
- Offshore Technology Monitoring





Questions?

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