

# U.S. Wind Power Sector Key Drivers and Financing Challenges

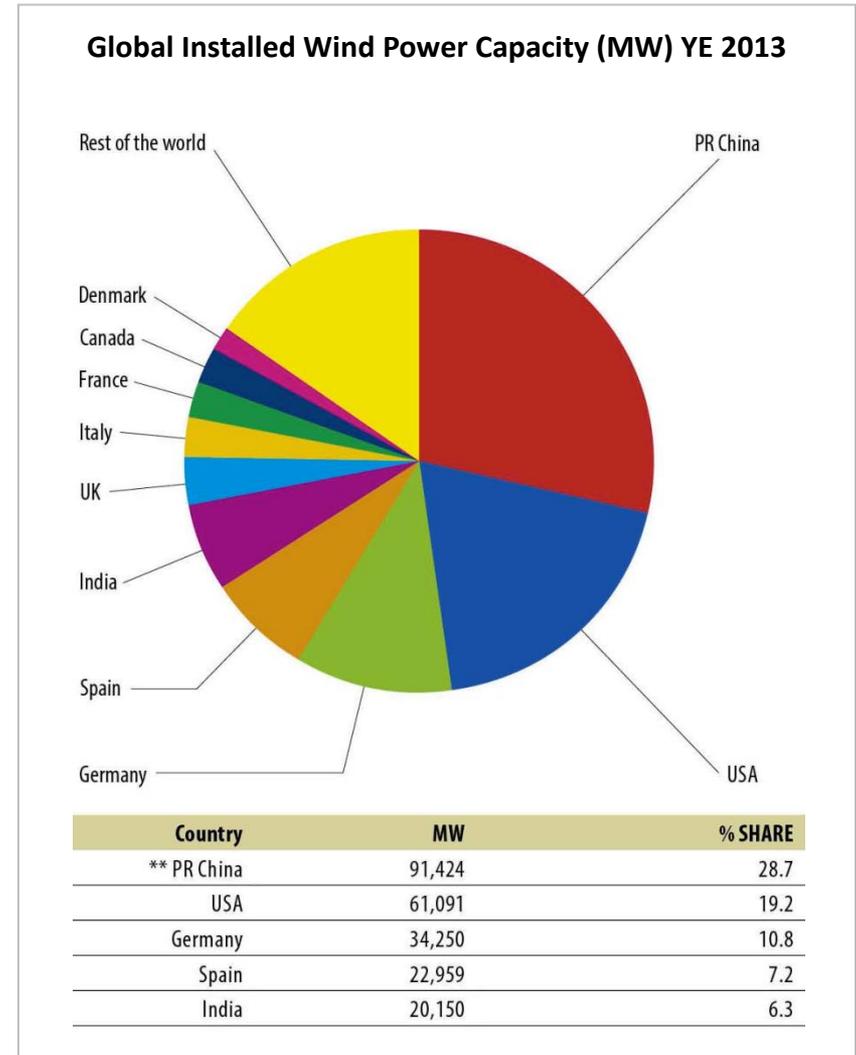
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# U.S. Wind Power Market Overview

- Wind power has grown to be a highly significant sector
  - 61 GW installed capacity (2013)
  - 168 Billion kWh generation (2013)
  - Most active power sector – investment & M&A
- Competitive cost of energy
  - ~\$50/MWh without gov. incentive
- Strong outlook
  - 10+ GW expansion/year
  - But, growth is very lumpy



Source: Global Wind Energy Council



# Key Drivers

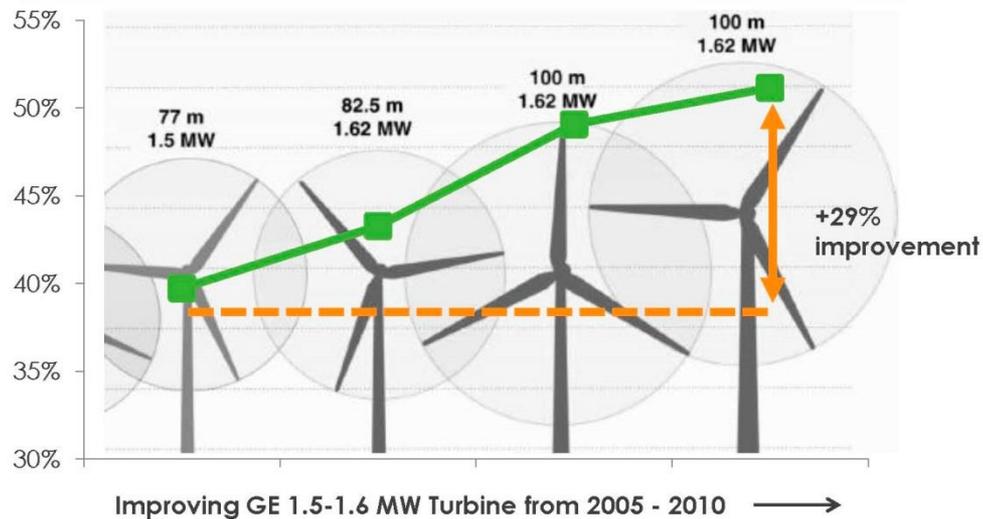
- Historically, State RPS was key
- “The main driver for future growth of renewable sector over this timeframe [2013-2030] is a shift from policy support to falling costs and natural demand” (BNEF)
- Between 2009-2013, dramatic positive changes in wind power economics
  - Wind turbine prices fell 40% while efficiency of the turbines improved over 15%, contributing to >40% decline of Levelized Cost of Energy
- Wind as natural hedge against electricity price volatility
  - Expected higher electricity price volatility
  - Long-term fixed price wind contracts
- Growth of natural gas fueled power generation is complementary to wind power
- **80.8% of wind power projects in 2012 were built in states without any near-term RPS demand**



# Wind Turbine Technology Improvements

## Improving wind turbine technology is increasing capacity factors and reducing wind costs . . .

Net Capacity Factor<sup>1</sup>  
At 8.5 meters per second wind speed



In meters

<b>Rotor Diameter</b>	77	82.5	100	100
<b>Hub Height</b>	80	80	80	100

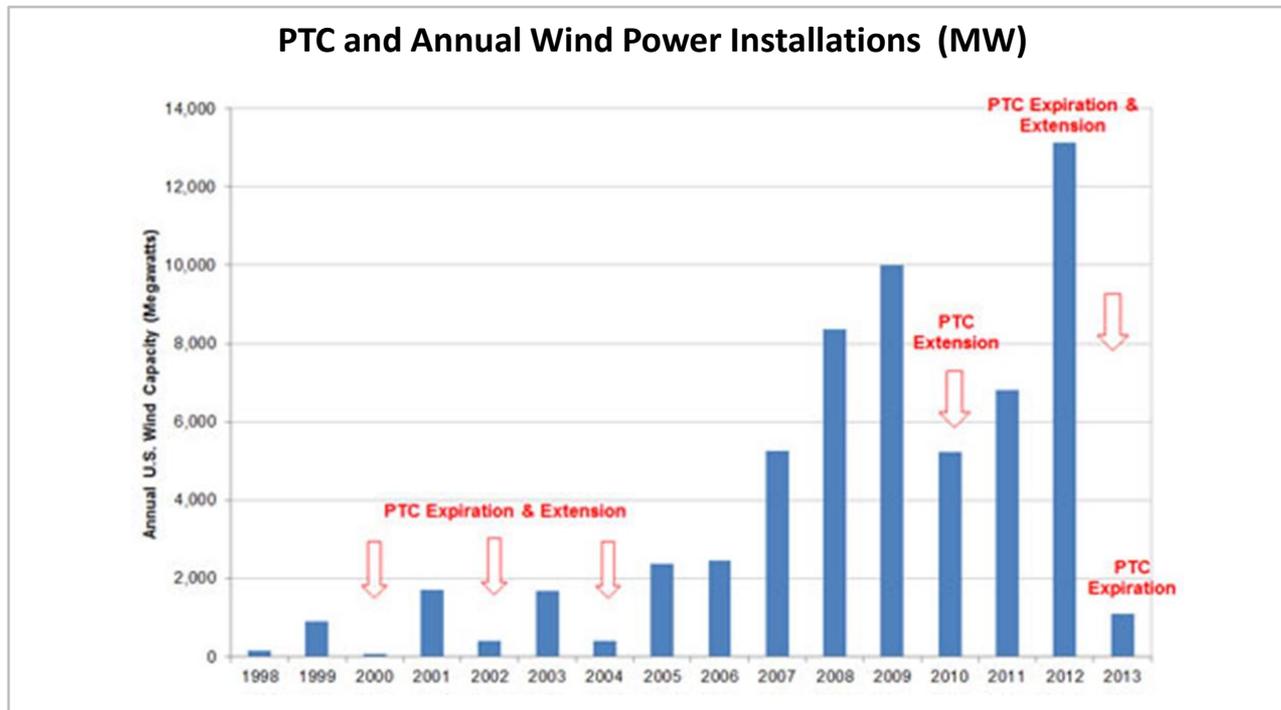
1. Assumptions: shear alpha = 0.2, Rayleigh distribution, 17% losses from GCF to NCF

Source: Clean Line Energy Partners



# Financing Challenges

- Production Tax Credit (PTC)
  - Inherent inefficiency regarding utilization – credits vs. depreciation
  - But also cannot “sell” credits
  - Result: complex, expensive, artificial capitalization and restricted markets
- PTC cyclical policy vs. lack of long-term Federal policy
  - Prevents sector stability/maturity and rational/optimum capitalization



Source: Union of Concerned Scientists



# Alyra Renewable Energy Finance

A firm imbued with a singular focus and rich experience in renewable energy, Alyra provides financial advisory services exclusively to the renewable energy sector. The firm specializes in acquisitions, joint ventures, structured tax equity and project finance transactions and typically represents strategic investors in such transactions. Clients include the leading energy companies and institutional investors in North America and Europe.

As of December 2013, Alyra has advised on over \$6 billion and closed \$530 million renewable energy M&A transactions.

Alyra was founded in January 2004 by Mohammed Alam, following his energy banking career with Fortis Capital Corp. where he led a range of origination, structuring and restructuring of renewable and conventional power transactions. Before Fortis he worked at GE Capital Markets Group, GE's internal investment banking group, performing investment structuring and financial advisory in Latin American energy and infrastructure transactions. Earlier, he began his finance career at Brown Brothers Harriman, focusing on emerging markets research.

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## RECENT ENGAGEMENTS

- Advisor to Aspenall Energies regarding the acquisition of wind power projects.
- Exclusive Advisor to ARRCO Wind regarding the sale of 550 MW wind power portfolio.
- Advisor to Duke Energy regarding the \$250 million acquisition of Catamount Energy.
- Exclusive Advisor to Duke Energy regarding the acquisition of Tierra Energy's 1 GW wind power development assets.
- Advisor to NRG Energy regarding the acquisition of a 109 MW operating wind power project.
- Exclusive Advisor to Spinnaker Energy regarding the buyout of a 707 MW wind and solar power development portfolio.
- Exclusive Advisor to Project Resources Corp. regarding the sale of Rock Aetna Wind.

