

# Financing Strategies for Large Wind Power Facilities

*Pennsylvania Wind Energy Symposium 2008: Power for the Future*

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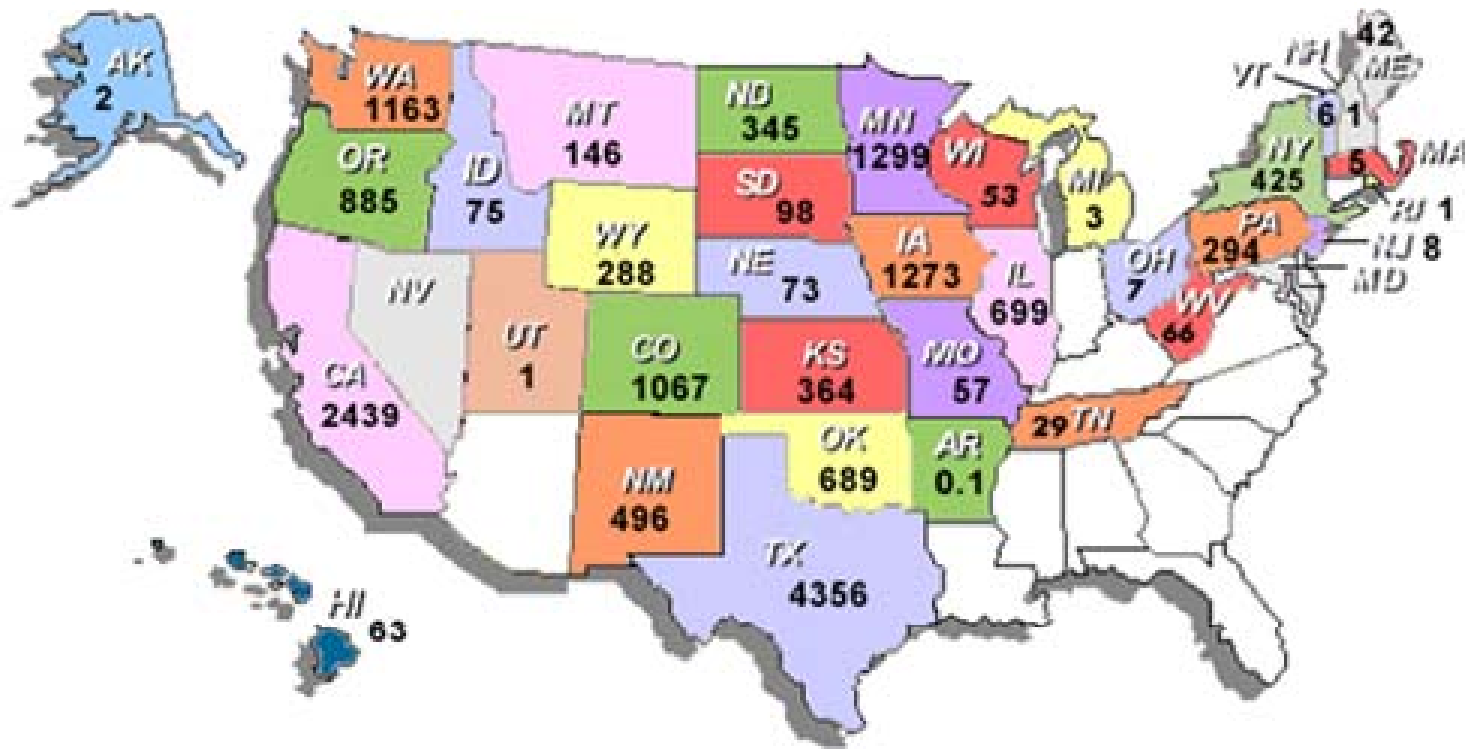
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# Overview

1. Financing – A Well Made Bar Stool
2. Wind Resources and Energy Projections.
3. Establishing a Business / Incentives.
4. Land Acquisition and Access.
5. Siting and Project Feasibility.
6. Power Purchase Agreements.
7. Financing – Now All the Legs Are Attached.

# Wind Resources and Energy Projections: *Capacity*



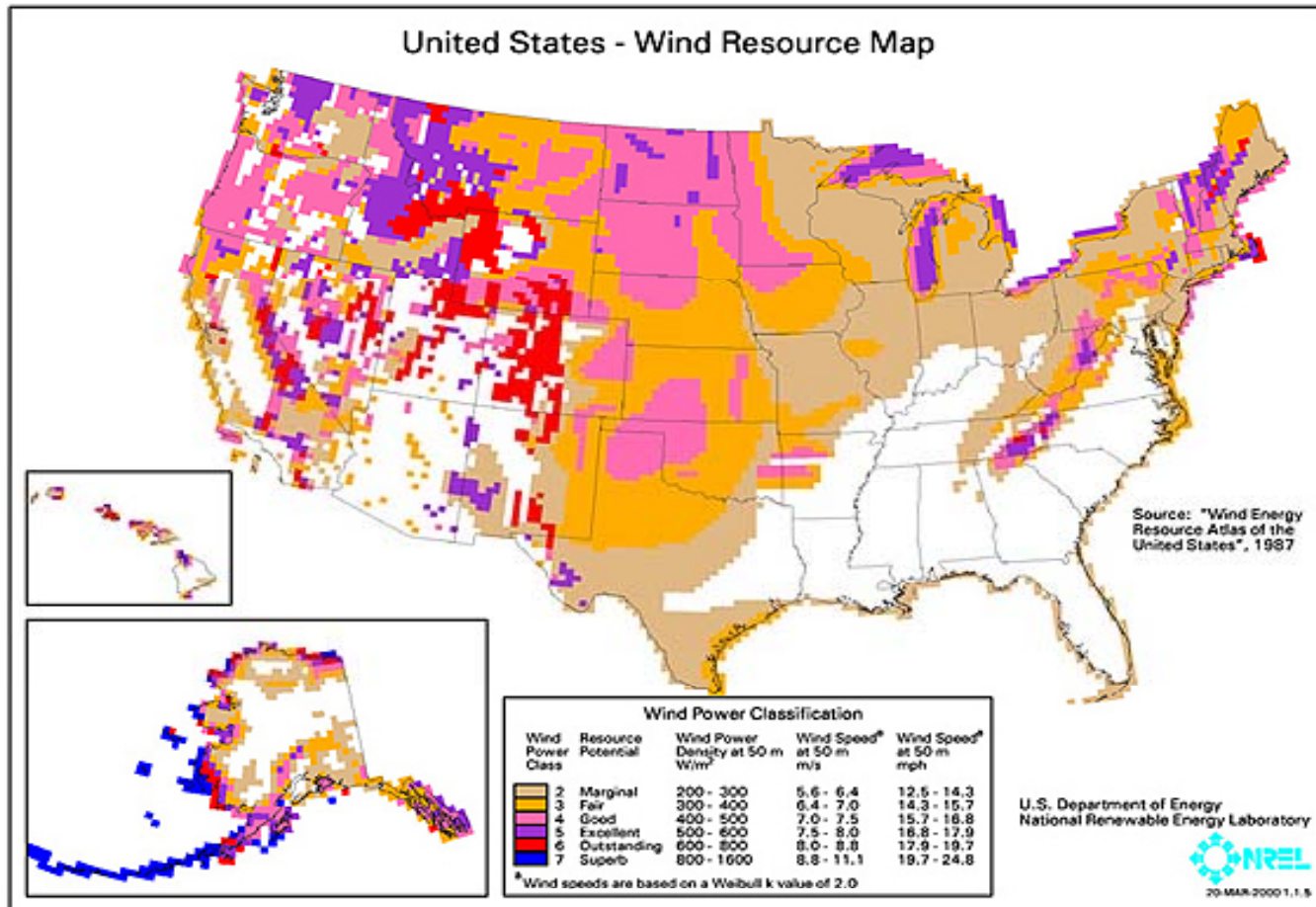
**TOTAL INSTALLED U.S. WIND ENERGY CAPACITY: 12,634 MW as of  
June 30, 2007**

Source: AWEA 2008

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# Wind Resources and Energy Projections: *Where is the Wind?*





# Establishing a Business / Incentives: *Investment Vehicles*

- Entity Formation
  - Corporations, LLCs, Partnerships
- Joint Ventures
- Investment Funds
- Venture Capital
- Partnership Flips & Rev. Proc. 2007-65



# Incentives:

## *Basic*

- Labor cost grants
- PILOT programs
- State fixed asset tax relief
- Specialized renewable energy state corporate income tax provisions
- Installed turbine's qualification for Production Tax Credits under Section 45 of the Internal Revenue Code
- PTC expiration deadlines
- Completion delay damages.
- Staggered array completion pending extension of credits

# Pennsylvania's Alternative Energy Investment Act

- Grants and Loans for Renewable Energy Projects
  - *Funding Available for Most Project Costs*
  - *Grants for Wind Farms*
- Alternative Energy Production Tax Credit
  - *All Development Costs Qualify.*
  - *Credits Start Immediately.*
  - *Carry-Forward and Sale of Credits to Third Parties.*
  - *Pass-Through of Credits to Partners and Members*

# Land Acquisition and Access:

## *Securing Access to Land*

- Long term access to the land must be secured.
- Lease agreements vs. Ownership.
- Transferability.
- Title due diligence.
- Parcel Assembly.
- Easements.
- Wind easements on surrounding land.



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# Land Acquisition and Access:

## *Zoning/Public Approval*

- Federal, state and local governmental approvals.
- Environmental Impact Studies.
  - *Wetlands, Birds, etc.*
- Public concern.
- Zoning, building permit, set-back requirements.



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# Siting and Project Feasibility:

## *Transmission/Interconnection*

- Utility interconnection.
- Grid congestion studies.
- Interconnect (long term and reliable access to the market – *more on PPA's later*)
- Transmission agreements.
- Project owned substations.
- Project owned transmission lines.



# Siting and Project Feasibility:

## *Practical Concerns*



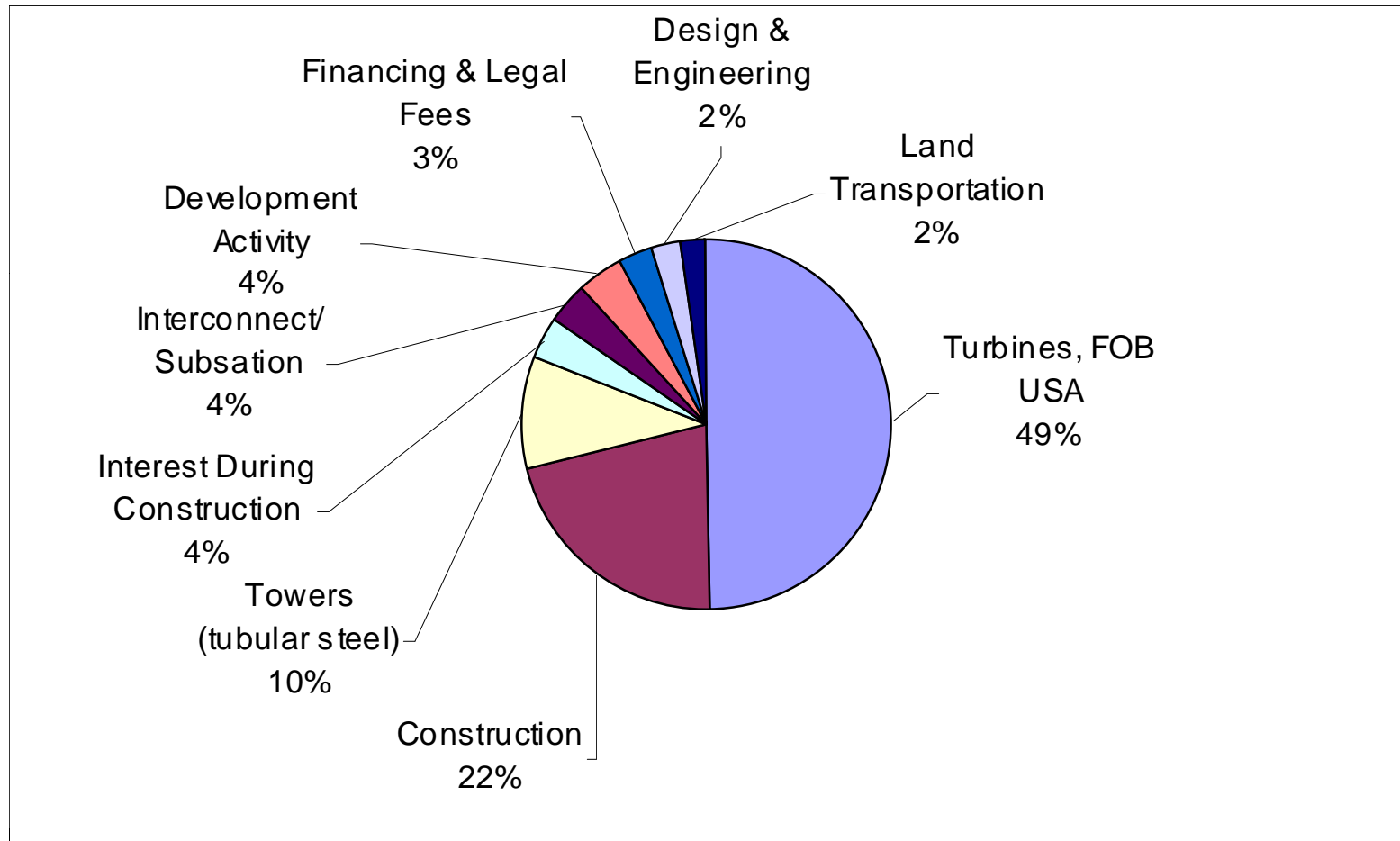
- Proximity to Existing Transmission Lines.
- Independent engineer completion certificates.
- Project site access, road and staging area requirements.
- Drawing certificates incident to percentage of completion milestones.
- Insurance consultants' certificates.
- Field documentation for construction such as commissioning and turnover certificates, preliminary and final acceptance tests, preliminary and final mechanical completion certificates and foundation completion certificates.
- Environmental certificates.

## Siting and Project Feasibility: *Construction*

- Access and lay-down agreements.
- Lot line adjustments and eliminations.
- Options to acquire additional lease or fee interests adjacent to a development.
- Negative covenants and restrictions pertaining to siting of new arrays which obstruct a project's resource.



# Siting and Project Feasibility: *Construction Cost Components*



# Power Purchase Agreements: *Basics*

- Must have upfront financial commitment from utility.
- 15 to 20 year time frame.
- Utility agrees to purchase wind energy at a set rate.
  - e.g. 4.3¢/kWh.
- Financial stability/credit rating of utility important aspect of obtaining wind farm financing.
  - PPA only as good as the creditworthiness of the utility.
  - Utility goes bankrupt – you're in trouble.

# Power Purchase Agreements: *Keys*

- Products
  - Energy, capacity, attributes, ancillary services
  - “Take All” when available
- Price
  - Fixed with annual escalation (inflation) preferred
- Term
  - Longer term, more likely to obtain financing
  - 20 years (expected project life)
- Delivery
  - Scheduling requirements must accommodate intermittent non-dispatchable generation.
- Lender Step-in Rights
  - Allow lender ability to assume project control to corrected operating deficiencies before termination.



# Financing: *Overview*

Once all components are settled...

- Wind resource
- Zoning/Public Approval/Land Lease
- Power Purchase Agreements (PPA)
- Connectivity to the grid
- Turbine procurement
- Construction costs

...Take the deal to get financed

# Financing: *Methods*

- Private Equity/Tax Equity
- 144A
- Loan Agreements
- Corporate Bonds
- Mutual Funds
- Foreign Funds



# Spectrum of Financing Alternatives

High *Risk* Low

## Financing a Company

<b>Development State</b>	R&D / Seed	Start-up	Early-State Growth	Late-State Growth	Mature			
<b>Type of Financing</b>	Angel Investors	Venture Capital	Private Equity	Bridge / Mezzanine	Public Equity	Secured Debt	Corporate Bonds	Mutual Funds

## Financing a Project

<b>Development State</b>	Feasibility	Data Collection	Signed ERPA	Installation/soft costs	Equipment/Operations
<b>Type of Financing</b>	Equity			Mezzanine	Debt

Source NREL

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## Questions?

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