

# Wind and Solar Funding Opportunities



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NYSERDA

[www.PowerNaturally.org](http://www.PowerNaturally.org)

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Greenpoint Manufacturing  
Courtesy PowerLight

# NYSERDA Snapshot

- Public Benefit Corporation
  - Energy, Environment, Economy
  - Market Driven
  - Risk Reduction Investments
- Research & Development, Energy Analysis, Energy Efficiency Services Deployment
- Steward of the New York State Systems Benefit Charge and Renewable Portfolio Standards Programs



# Why are We Interested in Renewable Energy?

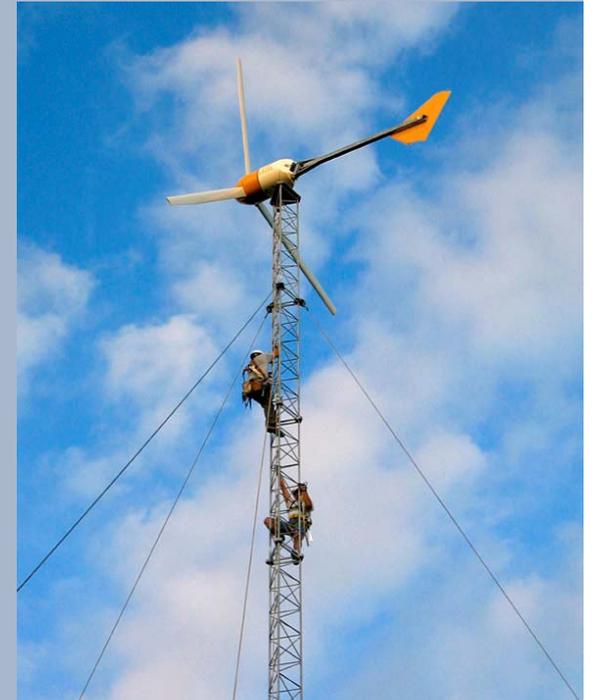
- Helps us achieve a cleaner and healthier environment
- Increases energy diversity:
  - Reduces use of imported fossil fuels
  - Helps ease fuel availability problems in winter
  - Helps protect against fossil fuel price increases
- There is significant solar and wind potential
- Costs of solar and wind power have declined

# Large Wind vs. End-Use Wind and Solar

- Large Wind Projects
  - Electricity sold to utility



- End-Use Wind and Solar →
  - Customer or municipality uses electricity on-site



# Wind Plant Development Steps

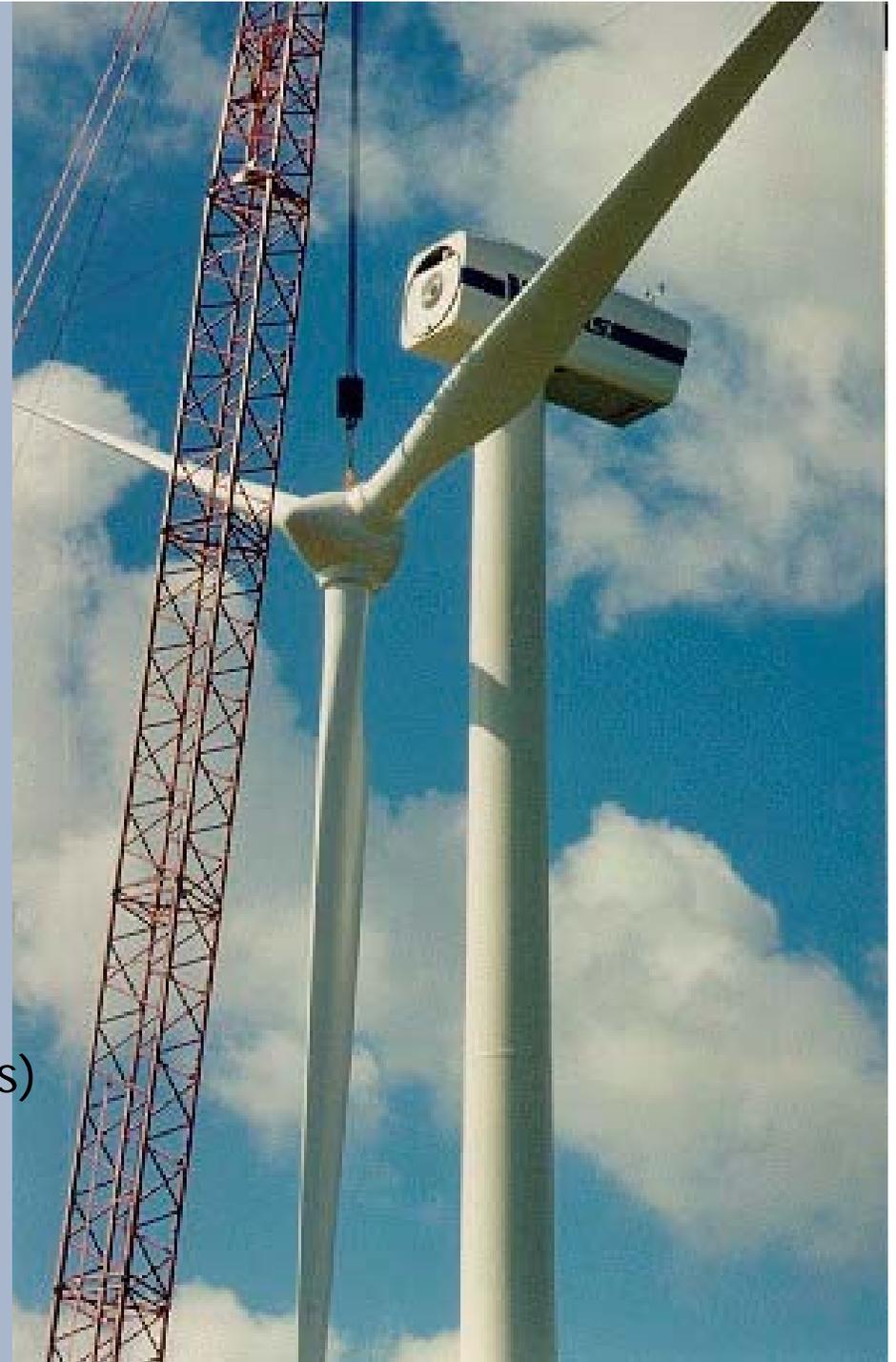
- Select prospective site
- Arrange wind measurement leases
- Permit and install measurement tower(s)
- Arrange leases to erect and operate turbines
- Assess wildlife, noise, historical, cultural, and visual impacts
- Permit plant
- Construct, operate and maintain project



# Typical rewards at local level...

## Potential Impacts of a 30 MW project:

- 20 wind turbines
- 1,000 acres required; of this, up to 50 acres will be used; the rest is available for farming
- approx \$3,000 per turbine/\$60,000 possible
- production-based royalties possible (small % of project revenues)
- revenues to community of 5,000/MW annually or \$150,000





# Characteristics of Solar PV Systems

- Modular—can be any size
- Designed to off-set customer's electricity purchases
- Can be mounted on building roofs or facades or on the ground
- PV modules have warranties of 20 years or more

# PV Siting Considerations



- Sun, Sun, Sun!!!
- Minimal shading—a small amount of shade can destroy performance



## Characteristics of End-Use Wind Turbines

- Usually under 100kW but can be larger
- Designed to off-set customer's electricity purchases
- Designed for reliability and low maintenance
- Tower heights usually 120 ft or less
- 20 to 40 year design life



# Wind Siting Considerations

- Wind, wind wind!!!!
  - > 10mph
  - see [www.awstruewind.com](http://www.awstruewind.com) for a wind map
- Exposure to prevailing wind direction
- Low density of local residents
  - (min 1 – 2 acres)
- Minimal viewshed concerns
- Permitting can be an issue

# End-Use PV Economics



- Installed cost for 15kW PV system
  - About \$135,000
  - After incentives, your cost is about \$ 60,000
- Energy production for a 15kW PV system in NYC
  - About 17,500 kWh per year

- Net Cost

- \_ Net cost: \$155/month assuming 5% discount rate over 30 years
  - \_ Estimate your economics using the Clean Power Estimator under [www.PowerNaturally.org](http://www.PowerNaturally.org)

# End-Use Wind Economics



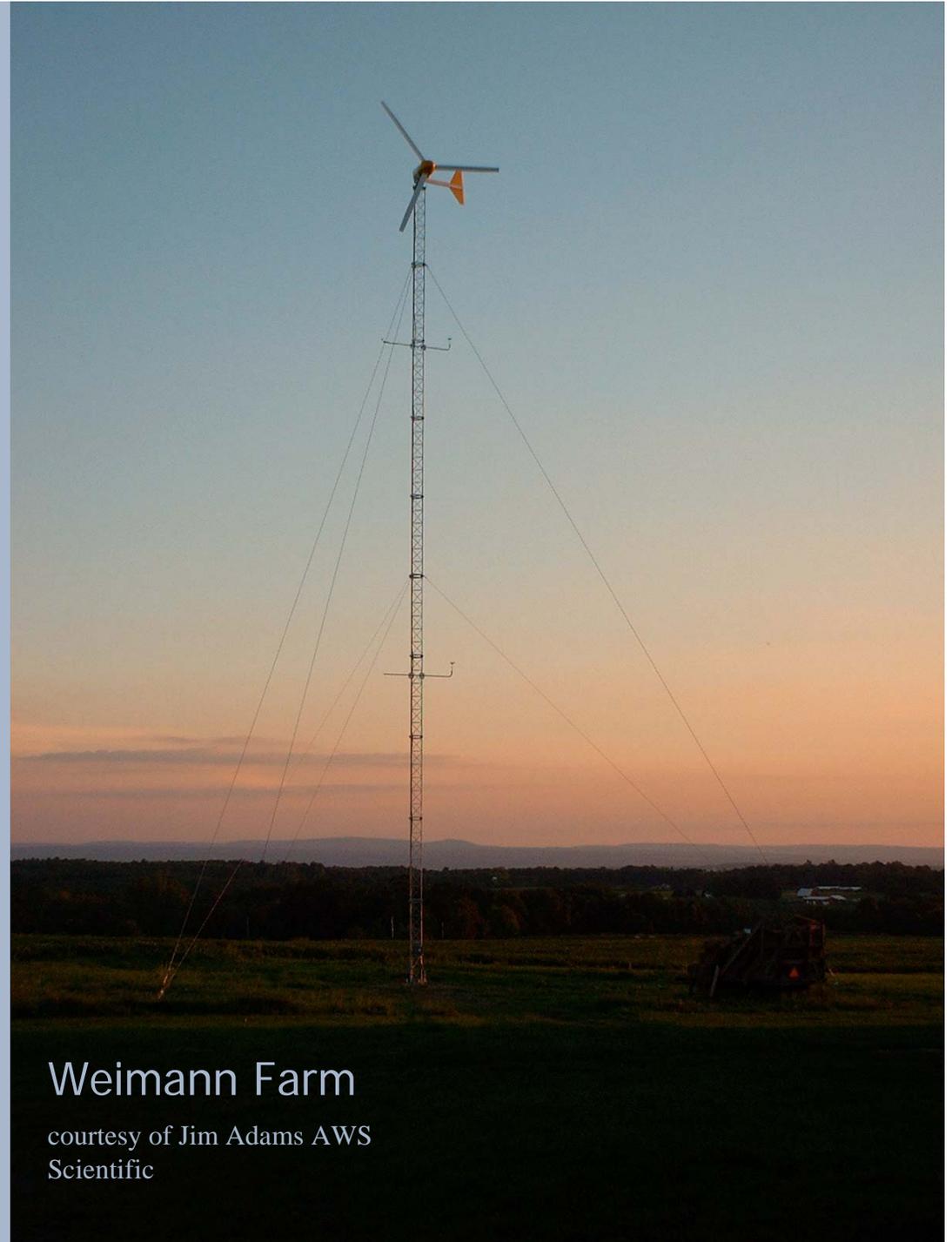
Alfred State

- Turbine installed costs
  - \$50,000 to \$60,000 for a 10kW machine
- Maintenance costs
  - about 1 – 3% of initial installed cost per year
- Paybacks\*
  - typically over 30 years for 1kW and 10kW turbines at a 12mph site with no incentives
  - typically about 10 years for 50kW turbines at 12mph sites with no incentives

\* Based on electric rates of 14 cents/kWh

# NYSERDA Small Wind Program

- Wind for Eligible Installers
  - \$2.5 million available
  - Easy application process
  - First come-first served
  - Funding for 15 – 70% of system cost up to a maximum of \$100,000 per system
  - Must be installed by eligible installer



Weimann Farm

courtesy of Jim Adams AWS  
Scientific

# NYSERDA PV Program

- PV for Eligible Installers
  - \$2.5 million available
  - Easy application process
  - First come-first served
  - Maximum size 50kW
  - Must be installed by eligible installer



# For More Information:

- NYSERDA's Renewables Programs
  - [www.PowerNaturally.org](http://www.PowerNaturally.org)
- NYSERDA's Web Page
  - [www.nyserda.org](http://www.nyserda.org)
- New York Wind Map
  - [www.awstruewind.com](http://www.awstruewind.com)

