

# Getting a Community to embrace Wind Energy





# The Town of Falmouth's Experience

- Formed Energy Committee to take stock of municipal energy consumption
- Joined ICLEI' Cities for Climate Protection program
- Completed two energy inventories 5 years apart
- Began wind project in a climate context
- Went to Town Meeting 7 times for approval for various aspects of the project

# Massachusetts' Climate Stabilization Goals



- ❖ Member of Regional Greenhouse Gas initiative
- ❖ Committed to reducing CO2 from the power sector by 10% by 2018

## Massachusetts Climate Action Plan Goals

- **SHORT-TERM**

Reduce GHG emissions to 1990 levels by the year 2010.

- **MEDIUM-TERM**

Reduce GHG emissions 10% below 1990 levels by the year 2020.

- **LONG-TERM**

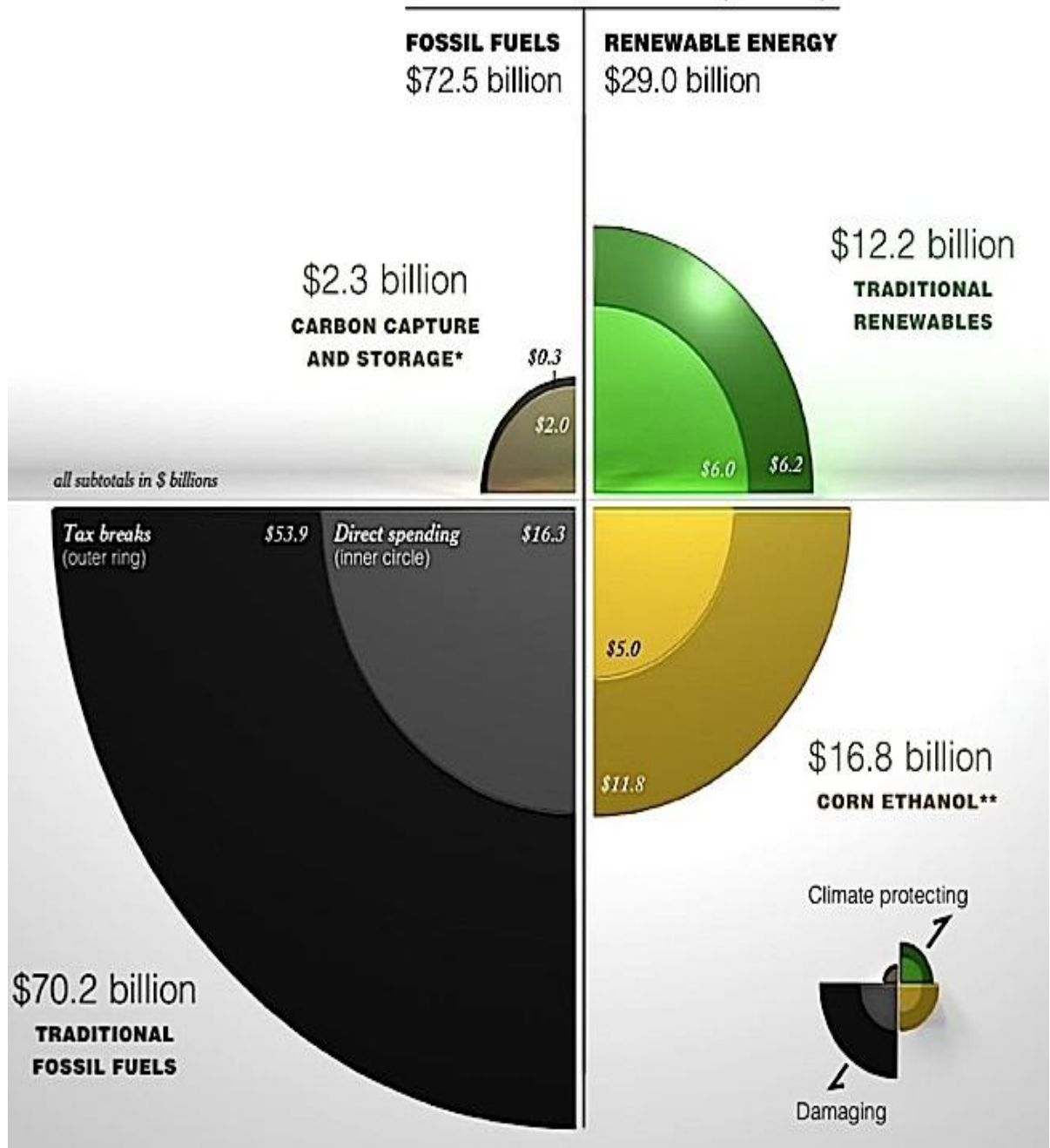
Reduce GHG emissions sufficiently to eliminate any dangerous threat to the climate; current science suggests this will require reductions as much as 75-85% below current levels.

## The Energy Pyramid



- **We all need implement energy efficiency and conservation strategies so we can reduce the amount of energy consumed.**

# Federal Subsidies (2002-08)



We should not compare wind energy  
to no wind energy





# Why Wind over Photovoltaics?



- Example

	PV/Solar	Wind
Cost	\$3M	\$3M
Output	515,088 kWh	1,892,160kWh
\$/Watt	\$6.00 - \$10.00	\$3.00
Annual Benefit	\$78,871	\$306,769



# Keys to Project's Viability

- Wind Resource
- FAA – Due Diligence
- Bridge Financing – prepayment of REC contract
- Municipal Borrowing – Unexcluded
- Long Term REC Agreements
- Net Metering

# Project Summary

- Single 1.65 MW Vestas V82 wind turbine generator
- Located at Waste Water Treatment Facility
- BOP construction and turbine installation to be performed by D&C Construction – selected through competitive process.
- Turbine is owned by the Town of Falmouth
- Turbine is a net metering generator
- O&M is performed by 3<sup>rd</sup> party under long-term contract
- Est. annual production = 3,624 MWh ( $\approx$  25% NCF)
- Useful life modeled as 20 years
  - Decommissioning reserve funded via operations
- Since monitoring began 3/23/2010, this
- system has generated **2,302,724 kWh**





Credit: KEMA

Photo simulation



Actual installation

**Our first 1.65 megawatt Vestas wind turbine  
at the wastewater treatment facility**

# Installed Cost, Avoided Cost & REC Revenue

## Project Cost:

- Turbine & Installation (winning bid): \$4,332,000
- Financing costs, Nstar interconnection costs, owner's engineer, reserves, other: \$660,000
- **Total Project Cost: \$4,992,000**

## Avoided Cost:

- Net metering generator: avoids kWh generation, transmission, transition & distribution charges.
  - \$161/MWh in year 1
  - TOD- and load-weighted average of all Falmouth accounts
  - Generation rates forecasted based on NYMEX; T&D based on CPI

## Revenue:

- REC revenue from sales to 3rd party
  - For 100% of production in yrs 1-5; for ≈10% of production thereafter
- MTC pays in advance for ≈90% of RECs from years 6 through 20

# Education needs to come first!

- Get to your neighbors before the press announces the project
- Ask for their feedback, questions & concerns
- Provide factual, full disclosure education to address their concerns and interests
- Keep them in the loop as much as possible

$$\text{IGNORANCE} = \frac{\text{IT}}{\text{WHAT I KNOW ABOUT IT}}$$

# Avoid Others' Mistakes

- Review the lessons learned from other projects
- Do not overlook the lessons from failed or delayed projects
- Have discussions with the stakeholders to find out what went wrong and what worked



Horsefeathers, 1932

“Whatever it is, I’m against it!”

# Keep the Information Simple

- Be sure your sources are peer reviewed and based on factual science
- Be sure you ask reputable people to present the information
- Remember that there are many people willing to support these projects in many ways
- All conventional energy generation has externalities

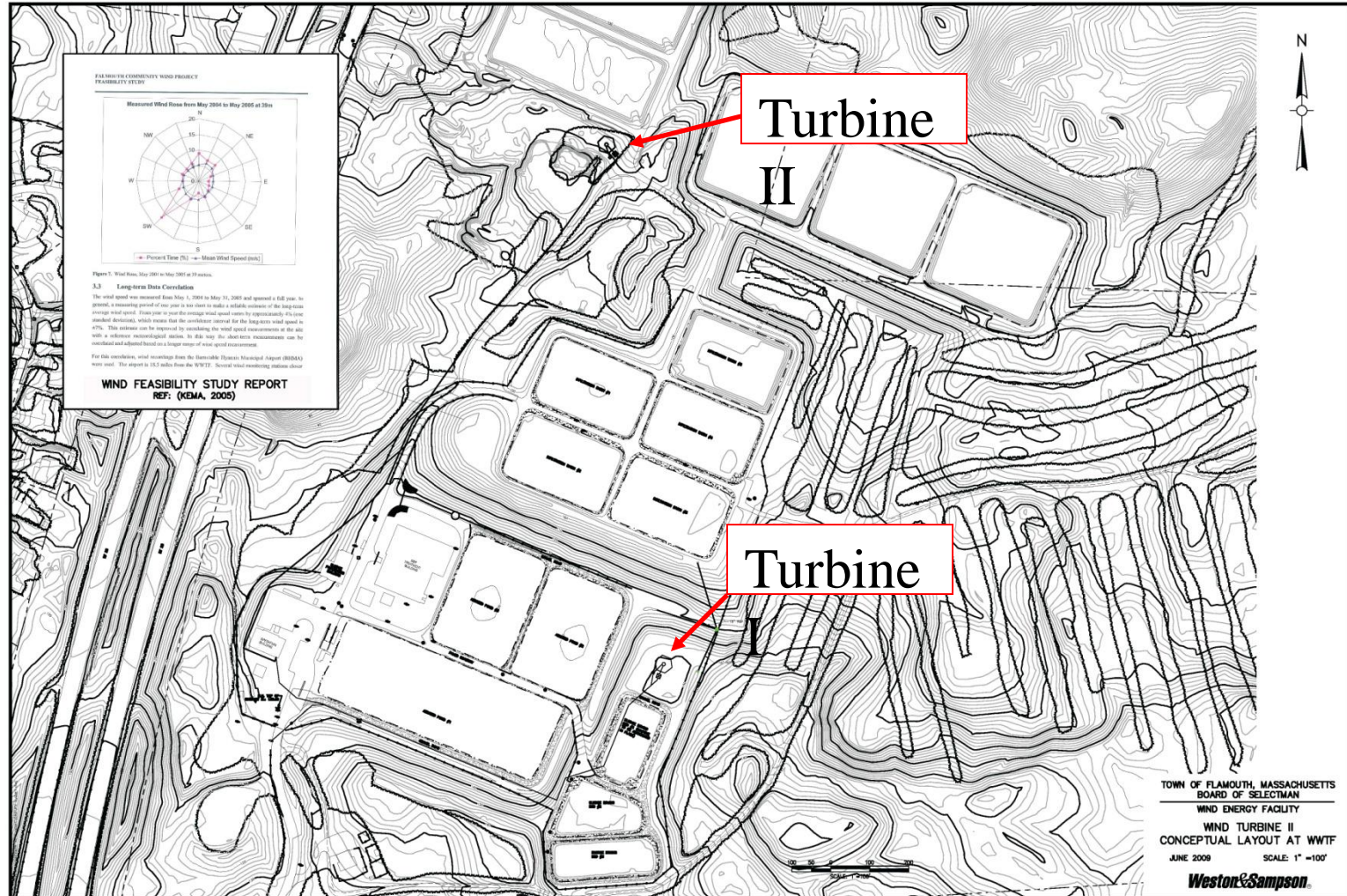
# Choose an Ownership Model that Speaks to the People

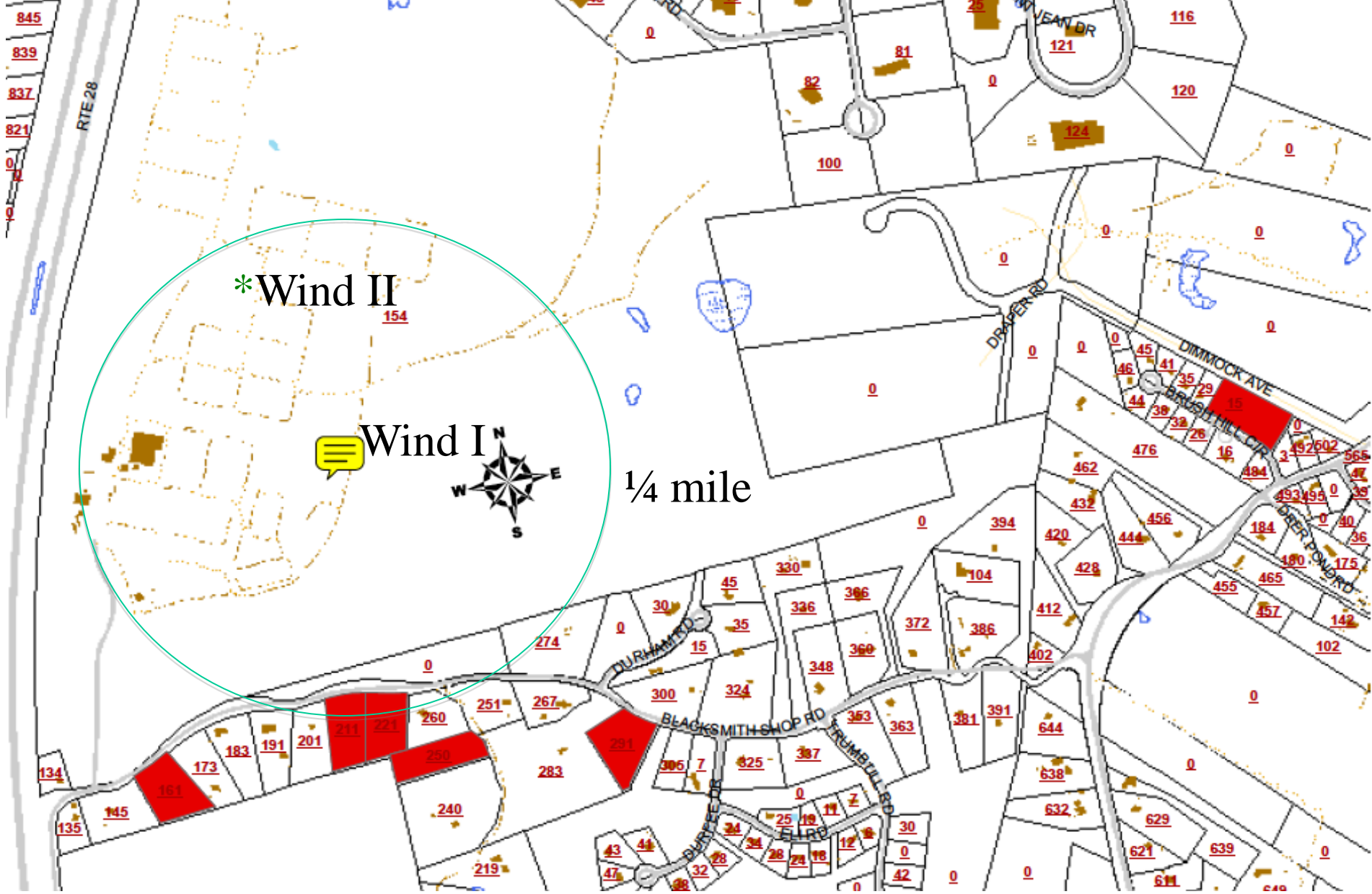
- Be sure your site is viable for what you are proposing
- Think about things from all sides
- Take into consideration the need for the taxpayers to benefit from the project
- Ownership matters



# Falmouth WWTF

## Wind Turbine II





Where are the Noise Complaints coming from?

Nearest residence is 1350' from Wind I

# Falmouth Wind Turbine Noise Study

## Key Findings

www.hmmh.com

- The Town is very concerned about the effects of turbines on neighbors, and interested in hearing ideas to address them.
- Background sound levels increase with wind speed.
- Sound from Wind-1 does not cause violations of MassDEP noise guidelines, but sound levels approach the 10 dBA increase threshold on Blacksmith Shop Road.
- With both Wind-1 and Wind-2 operating, modeling predicts no violations at any measurement positions, but there may be slightly greater than 10 dBA increases at two homes at the end of Ambleside Drive only:
  - During early morning hours when background noise is quietest, and
  - With wind speeds in the range of 5 to 6 meters/second at the turbine hub.
- Nighttime background sound levels with low wind measured in June 2010 are nearly the same as those measured in January 2008, suggesting minimal seasonal variation.
- Reference measurements suggest the Wind-1 turbine is operating at or below the manufacturer's noise specifications.

# Good Resources

- New England Wind Energy Education Project
- Objective, peer-reviewed scientific information presented in webinar format.
- Topics include-sound, property values, grid reliability
- <http://www.windpoweringamerica.gov/newengland/neweep/webinars.asp>

# Carpe Ventum!



Megan Amsler, Executive Director, Self-Reliance  
508.563.6633 [megan@reliance.org](mailto:megan@reliance.org)