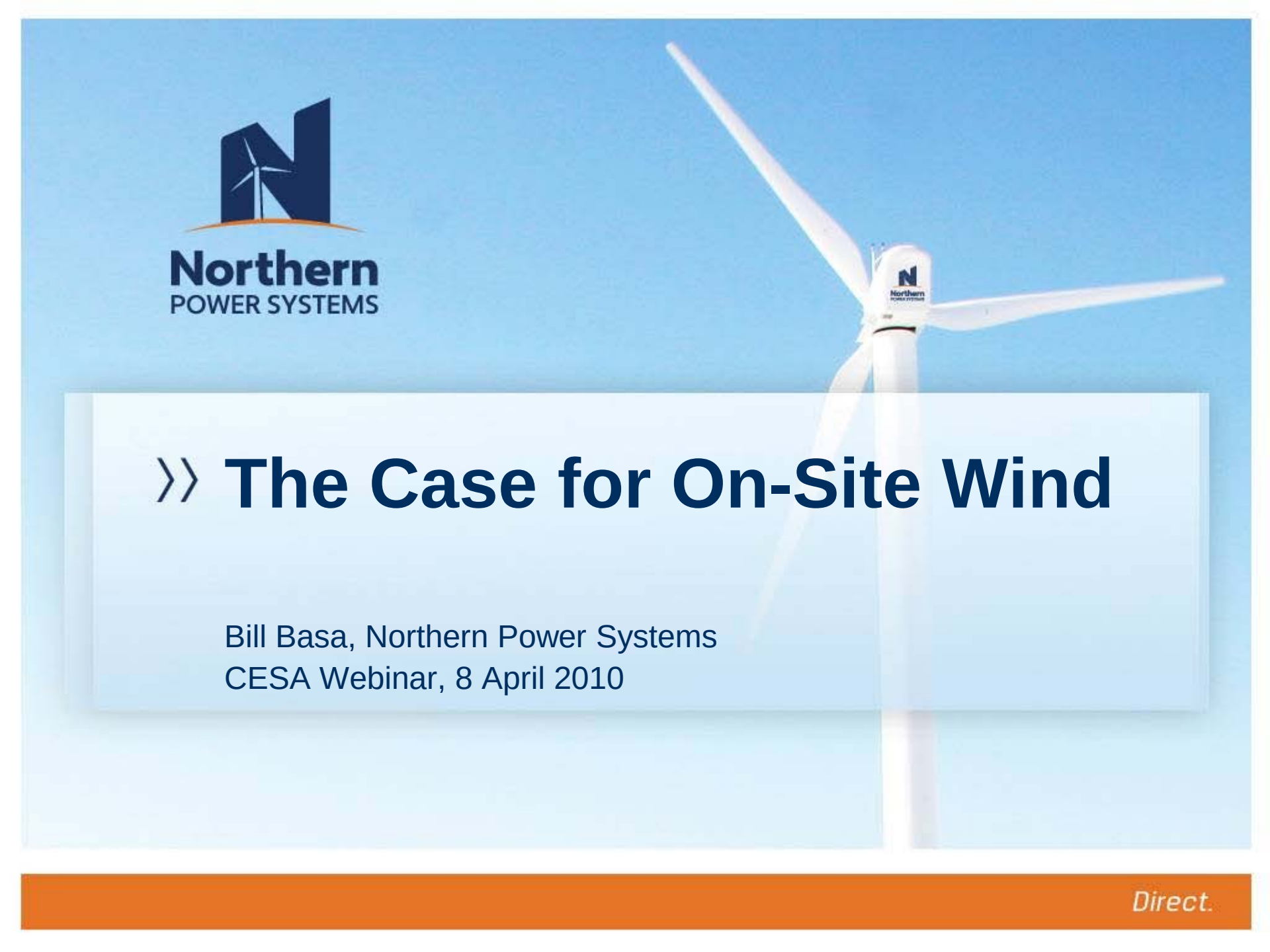


The Case for On-Site Wind

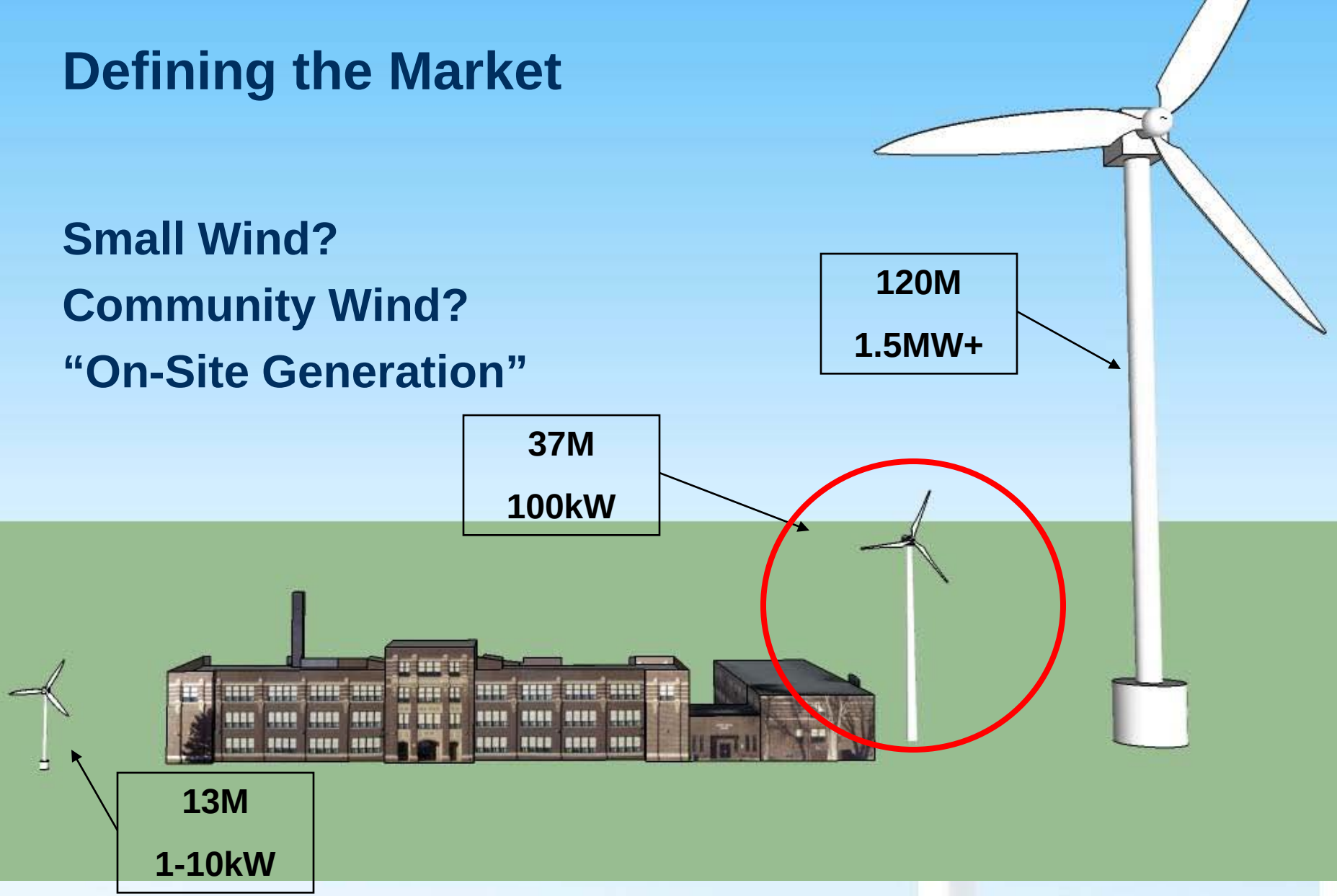
Bill Basa, Northern Power Systems

CESA Webinar, 8 April 2010

Direct.

Defining the Market

Small Wind?
Community Wind?
"On-Site Generation"



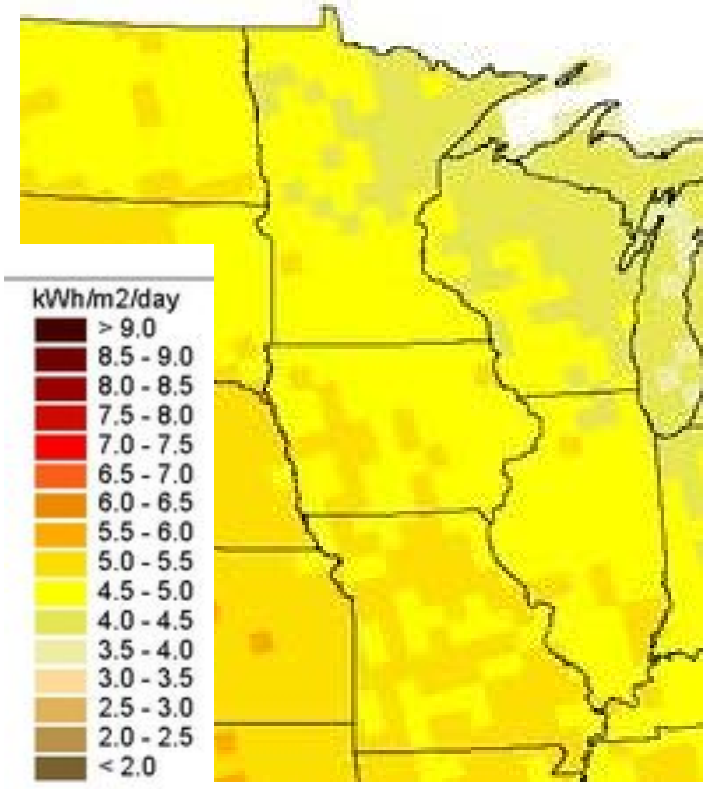
(Images from Google SketchUp, 2010)

Rational Choice

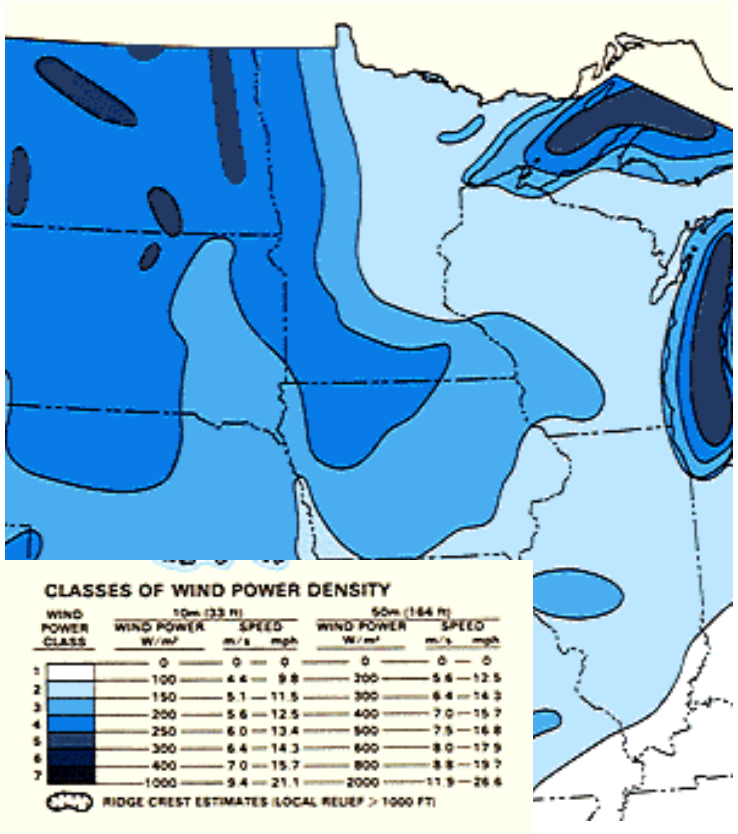
- **We see demand from people who want wind as the result of a rational choice about economics:**
  - Better than average to excellent wind resource
  - Higher Capacity Factor
  - Lower Installed Cost

- **The question is how to best utilize incentive structures to facilitate people making good choices about distributed generation.**

Making the right choice



Solar Intensity

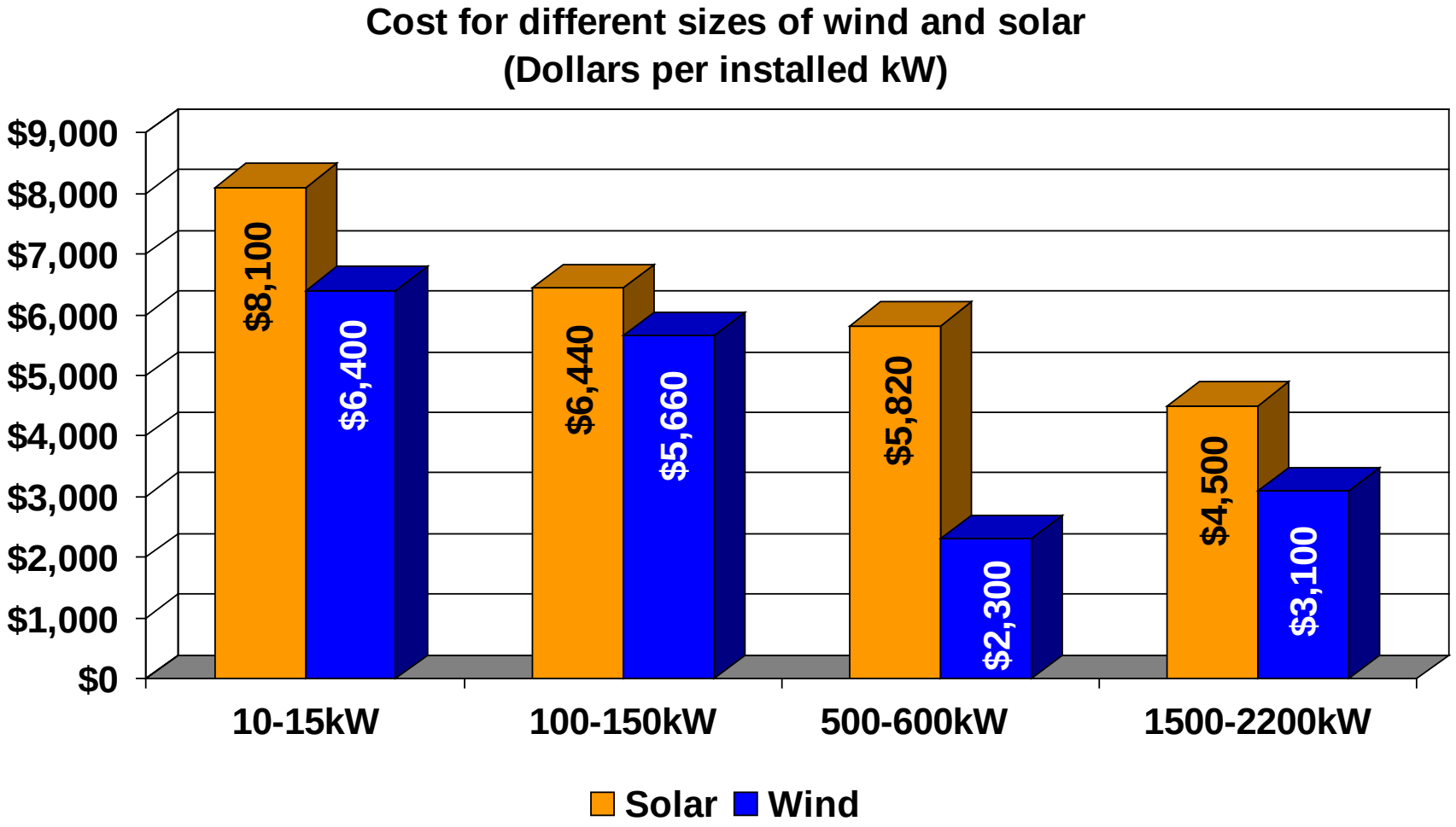


Wind Density

The right wind sites outperform solar

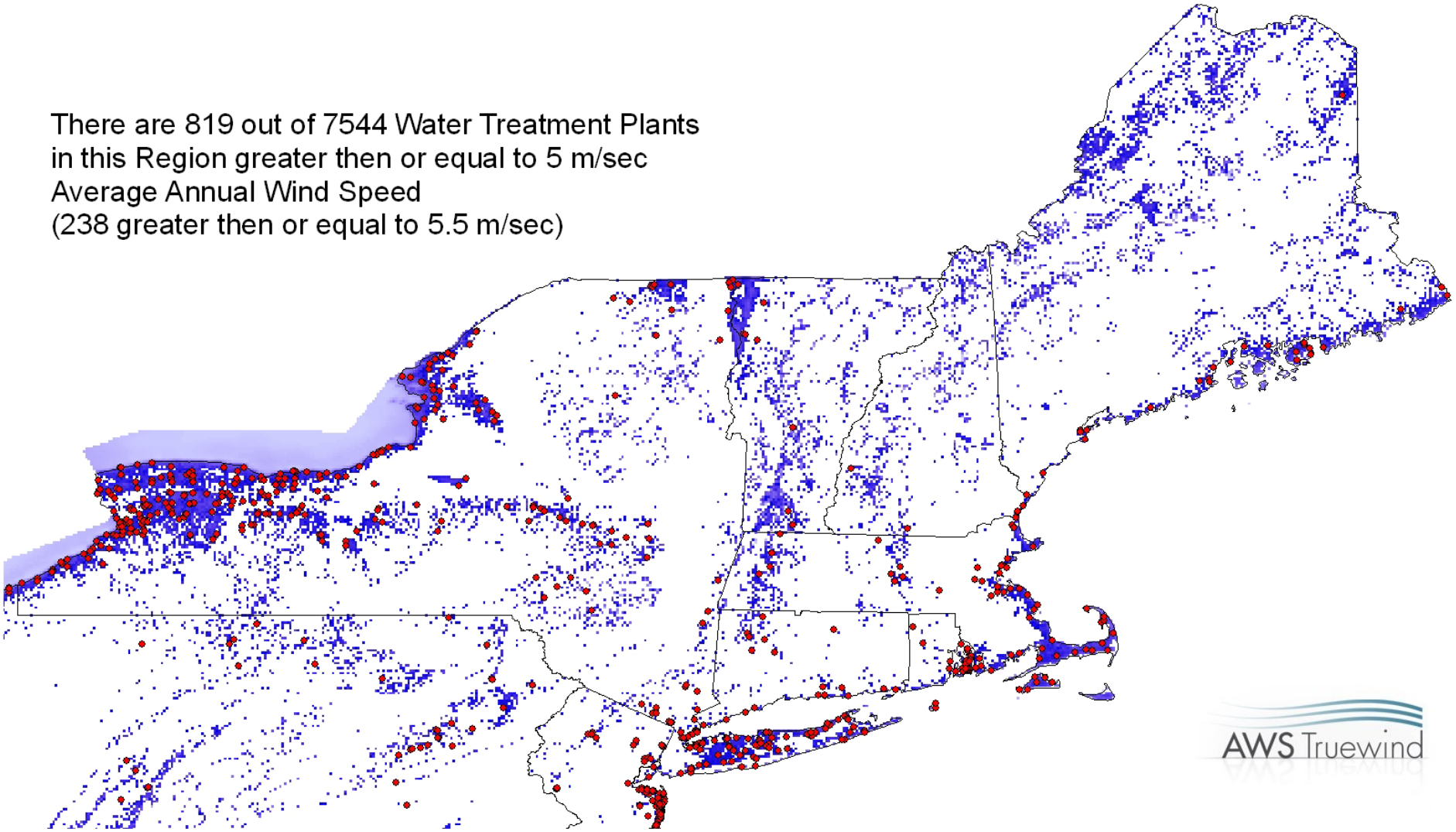
Example	100kW Solar			100 kW Wind	
	Capacity Factor	AEP	Wind Speed	Capacity Factor	AEP
MA VT MN	13%	113,880	5.0 m/s	15%	131,200
IL KS OR	15%	131,400	5.5 m/s	19%	165,500
AZ CA	18%	157,680	6.0 m/s	23%	199,800

Wind costs less per installed kW



Northeast U.S.
Mean Wind Speed Greater then 5 m/sec at 37m

There are 819 out of 7544 Water Treatment Plants
in this Region greater then or equal to 5 m/sec
Average Annual Wind Speed
(238 greater then or equal to 5.5 m/sec)



AWS Truewind

Incentive Support

- **Incentives need to fit within a larger economic payback**
  - US for-profit entities demand a 7 year or lower payback;
  - US non-profit customers need 10 year or less.

- **The $ levels of incentive needed to create these paybacks for a given technology and size range will vary by location based on:**
  - The level of available natural resource (expected capacity factor)
  - Utility rates.

Where Incentives have produced most Northwind100 projects:

- **MA, OH, WI**
  - Common elements:
    - Predictable and accessible funding;
    - Good utility support (likely result of aggressive RES requirements);
    - Reasonably high utility rates.

    - Italy and United Kingdom
      - Small Wind FITs of €0.30/kWh and £0.241/kWh

Successful incentives:

- **Rebates based on both capacity and performance**
  - NJ, VT
- **Renewable Tariffs with long-term contracts for small wind**
  - $0.216/kWh in VT; €0.30/kWh in Italy; £0.241/kWh in UK
- **State Investment Tax Credits**
  - NC, GA, HI, ND, OR(?)
- **RES Carve Outs**
  - CO first including other technologies than Solar
  - Potential to transition incentives to market-based tool.

Two Broader Concepts To Keep in Mind:

- **Incentives need to limit size eligibility to target on-site generation.**
  - Encourage more local projects, more local jobs
  - Reduce transmission/distribution loss
  - Reap behavioral benefits of increases conservation and efficiency

- **Any capped incentive needs to set aside/reserve funds separately for Small Wind and Solar.**
  - There are far more eligible solar sites than any other technology. Technology-specific allocations level the playing field and allow small wind projects to have equal access incentives.

Thank you!

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