

Wind Energy for Everyone

Available Everywhere



AMERICANWIND



Wind Energy For Everyone

- ◆ Distribution
- ◆ Security
- ◆ Incremental Resources
- ◆ Low Cost

An Energy Paradigm Shift

Distribution

- ◆ Massive Grid
- ◆ Interdependent
- ◆ Massive Outages



- ◆ Expensive Towers
- ◆ Heavy Loss of Energy
- ◆ Environmental Health Hazards
- ◆ Single Point of Failure

Security At Risk

- ◆ Terrorists
 - ◆ Internal
 - ◆ External

- ◆ Disasters
 - ◆ Tornadoes
 - ◆ Hurricanes
 - ◆ Earthquakes
 - ◆ Extreme Heat
 - ◆ Flooding

Security – Disaster - Tornado

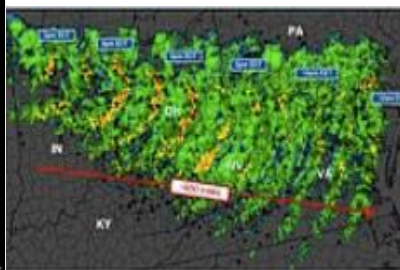
- ◆ Harvest, AL -
April 27, 2011
- ◆ Massive Damage
to Power Grid



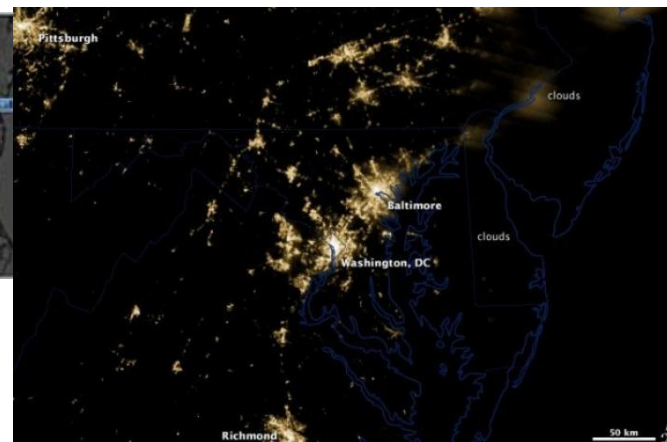
Security – Disaster – Power Grid



Washington D.C. before derecho

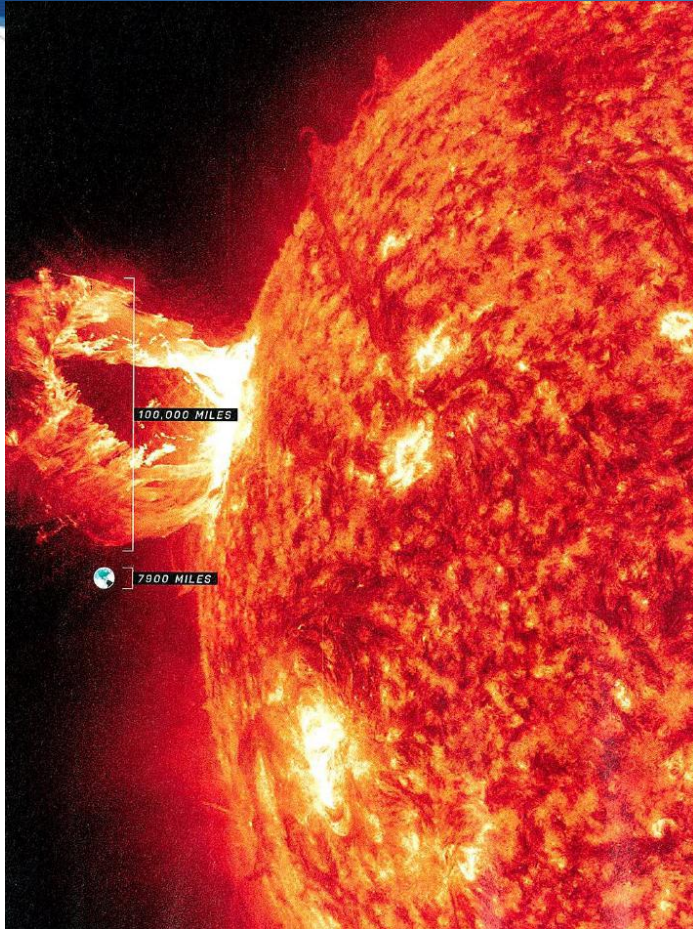


Washington D.C. after derecho



**2 Million without Power after storm. 4,000+ heat records set.
800,000 homes without power 6 days after storm.**

Security – Disaster – Solar Maximum



Courtesy of Popular Mechanics – July 2012 Issue

- ◆ Recently recorded coronal mass ejection (solar storm)
- ◆ 1859 (last major occurrence) telegraph operators were able to use telegraph without any power
- ◆ Creates massive ground current which takes out high voltage transformers
- ◆ If such a storm hits earth; millions of transformers are lost; cost? **Est. \$2 Trillion per year for 10 years**

Electric Vehicles



- ◆ How do you drive without electricity power from the grid?
- ◆ With gas stations at least you can manually pump gas with a hand pump.

Doing without the Grid?

- ◆ Can we survive without the grid? – **NO!**
- ◆ Reason:
 - ◆ 124,789,800 homes in U.S.*
 - ◆ 448,848 BTU's average per home*
 - ◆ 10,187,450,000,000 BTU's (for homes only)
 - ◆ 2,985,770,808,910 Watts (for homes only) (~3 TWh)**
 - ◆ **Primary user of power is Industrial**

*2010 U.S. Census data

** 1 Watt = 3.412 BTU's

Integrated Energy Solution

- ◆ **Solar**
- ◆ **Wind**
- ◆ **Geo-thermal**
- ◆ **Fuel Cells**
- ◆ **Natural Gas**
- ◆ **Oil**
- ◆ **Biofuels, Biomass**
- ◆ **Nuclear**
- ◆ **Hydroelectric**
- ◆ **Coal**
- ◆ **Hydrogen**

Cogeneration of Energy

- ◆ Solar – Single source of power? – NO!
- ◆ Reasons:
 - ◆ 124,789,800 homes in U.S.
 - ◆ 25 solar panels per home
 - ◆ 75 watts per panel
 - ◆ 233,980,875,000 total watts
 - ◆ 233 GWh / 3 TWh = 7.77% of overall need.



Cogeneration of Energy

- ◆ Wind – Single source of power? – NO!
- ◆ Large commercial wind farms
- ◆ Remotely located
- ◆ High cost of maintenance
- ◆ Hazardous to humans and wildlife
- ◆ Fail to work in high and low winds
- ◆ Logistic issues with delivery and construction



Wind Energy for Everyone

- ◆ Micro-Wind – Single source of power? – NO!
 - ◆ Lower cost
 - ◆ Smaller
 - ◆ More environmentally friendly
 - ◆ Lower wind speeds (2-4 mph)
 - ◆ Higher wind speeds (>60 mph)
 - ◆ Wide area distribution
 - ◆ Portable
 - ◆ Configurable
 - ◆ Urban, Suburban and Remote usage

Wind Energy for Everyone

- ◆ Micro Wind Turbine
 - ◆ Smaller
 - ◆ Configurable
 - ◆ Water proof
 - ◆ Designed for high temp and UV resistant
 - ◆ Easy maintenance (one tool assembly)
 - ◆ Utilizes low and high speed wind currents
 - ◆ Environmentally friendly to humans and wildlife
 - ◆ Rugged, Light weight
 - ◆ Low cost power generator for remote locations

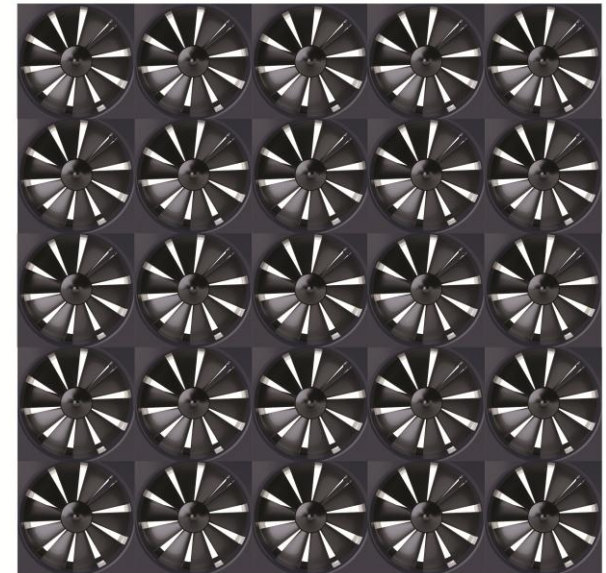


American Wind - Patents Pending:

Wind Energy for Everyone

- ◆ Micro Wind Turbine
 - ◆ 124,789,800 homes in U.S.
 - ◆ Power generation could meet or exceed 45% of total home energy needs

- ◆ Will Micro Wind Turbines replace the grid? No!
 - ◆ Wind is not constant except in certain areas
 - ◆ Standard wind current 7 mph across U.S.
 - ◆ Hot sunny days, very low wind great for solar



American Wind - Patents Pending:

Wind Energy for Everyone

American Wind - Patents Pending:



Remote

- ◆ Farms / Ranches
- ◆ Telecommunications
- ◆ Computers
- ◆ Battery Backup



Urban

- ◆ Building roof tops
- ◆ Sides of buildings
- ◆ Street lights
- ◆ Over passes



Suburban

- ◆ Homes
- ◆ Apartments
- ◆ Department Stores
- ◆ Fences

Energy Independence

Diversified Distributed Solutions

