

# ***Alternative Energy Research on Surface Mine Land***

***West Virginia Brownfields  
Assistance Center (WVBAC)***

## **2010 Miners' Celebration**

June 17th, 2010

Glade Springs Resort



# Brownfield Basics

## What is a “Brownfield”?

### EPA Brownfield Definition:

**“Real Properties, the expansion, redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant”**

\*by EPA definition, brownfields can include petroleum properties (ex. gas stations), underutilized properties, and mine-scarred lands, among many others\*

# Brownfield Basics

## Why is Brownfields Redevelopment Important?

Along with other factors, there is the potential to:

- ❑ Create jobs / increase tax base and economic development
- ❑ Transfer “blighted” properties into productive assets
- ❑ Reduce community safety and environmental concerns
- ❑ Preserve and/or create “greenspace”
- ❑ Re-use existing utility and infrastructure
- ❑ Assist Community Revitalization efforts
- ❑ Re-use properties with minimal value for new use,

# Surface Mine Renewable Energy – Areas of Research / Interest

Surface mine properties can find new life:

1. meet new housing needs
2. create new recreational opportunities and greenspace
3. create new business locations (commercial, industrial, retail,...) or agricultural use
4. **Energy Development**, including:
  - ❑ Solar Energy “Farms”
  - ❑ Bio-mass Production (switchgrass, miscanthus, specialty tree plantings,...)
  - ❑ Natural Gas Production
  - ❑ Hydro-power Generation
  - ❑ **Wind Power** for Commercial or Community-scale power generation

# Wind Power Generation Assessments

In May of 2010, the WVBC, with funding from the Appalachian Regional Commission and the West Virginia Division of Energy, took delivery of a Sonic Range Detection unit (SODAR) to perform accurate, state-of-the-art wind analysis on selected surface mine properties across West Virginia.



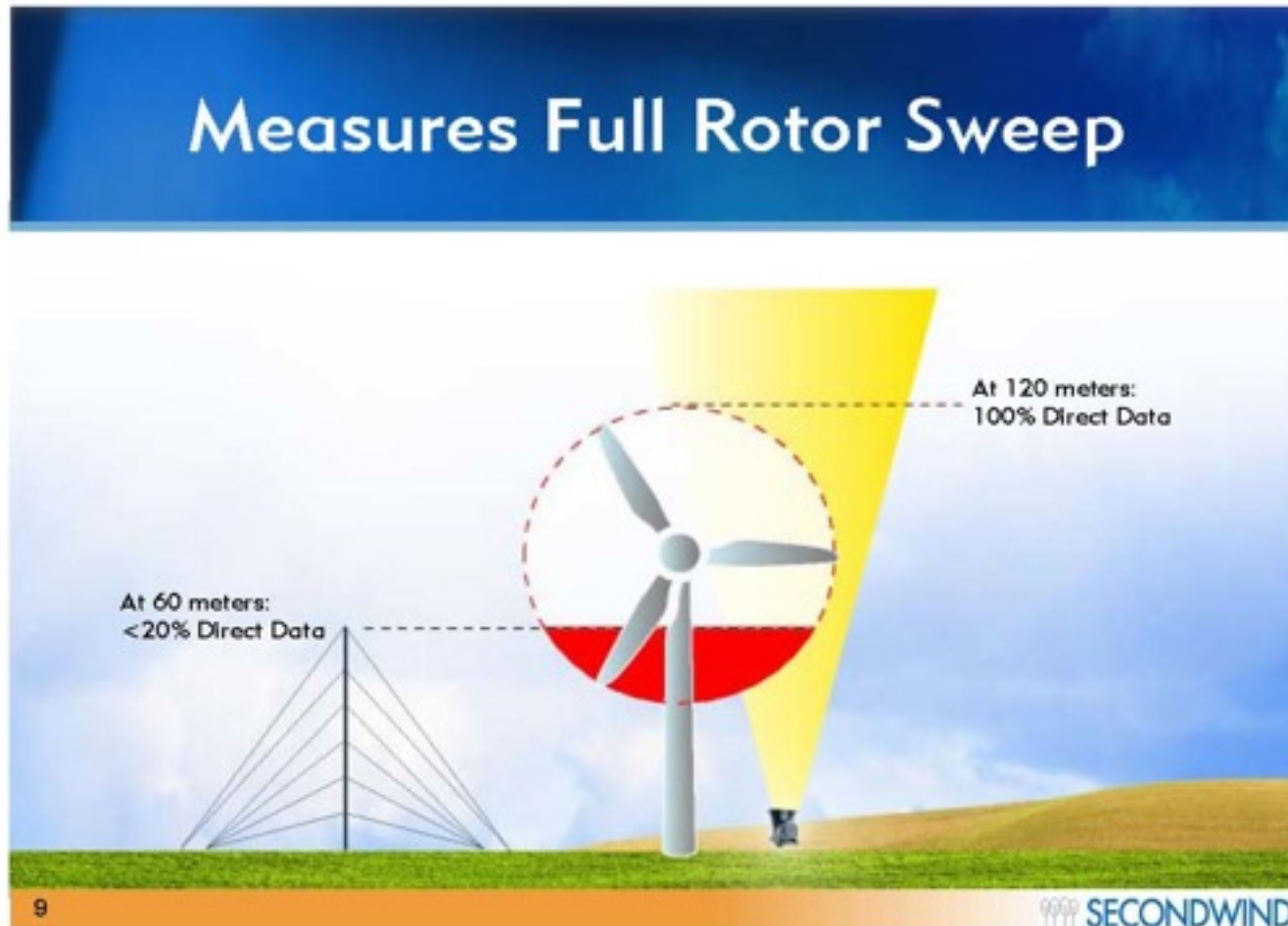
# Sonic Detection and Ranging Equipment (SODAR)

SODAR unit was set up on Marshall University's main campus in Huntington for initial testing / set-up prior to starting wind analysis data collection.

SODAR uses combination of solar and battery power; can operate in remote areas where electric is not available, sending data via satellite for evaluation

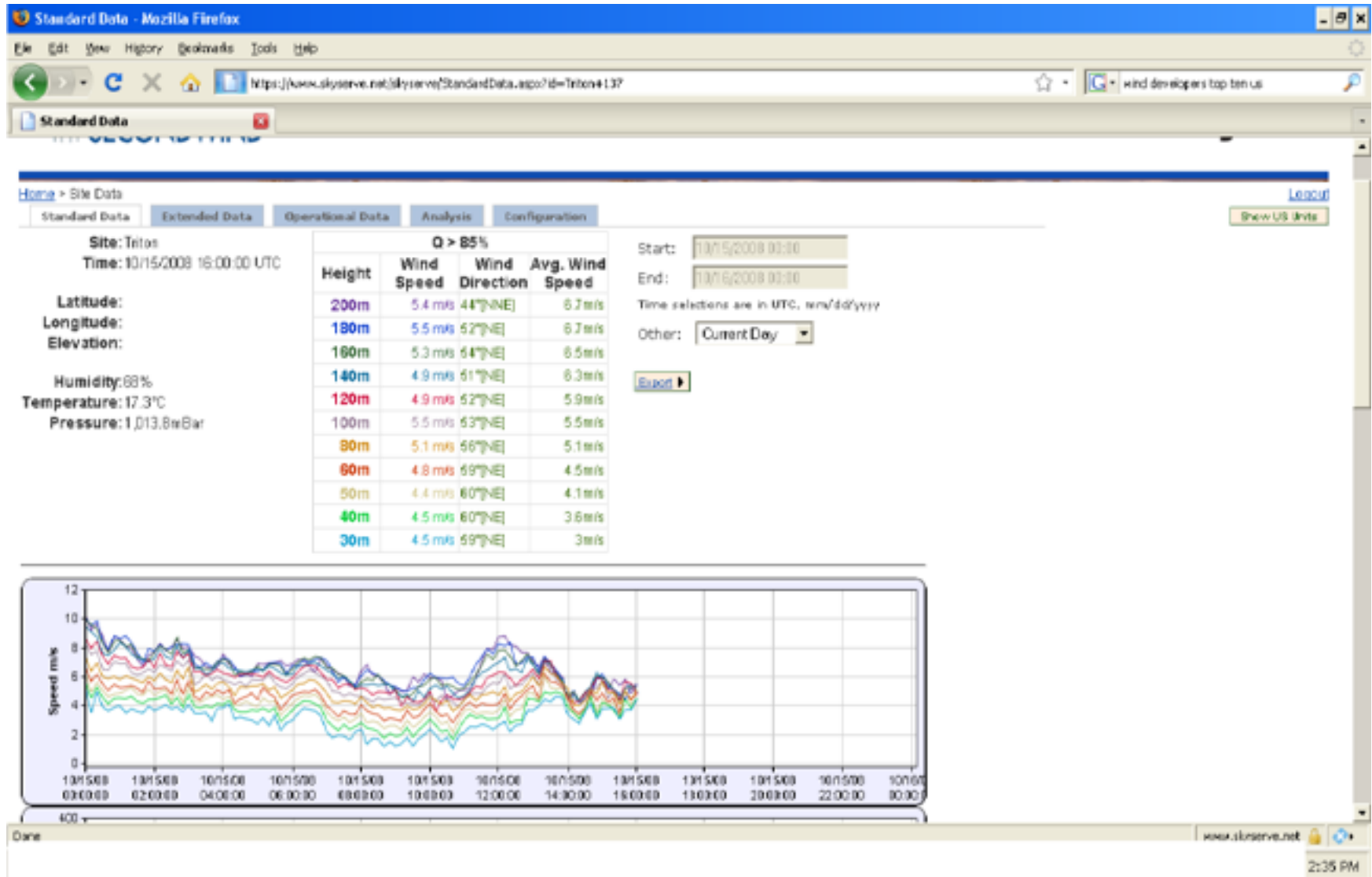


# Sonic Detection and Ranging Equipment (SODAR)



Measures wind speed, direction and related components from ground surface up to ~200 meters above the earth

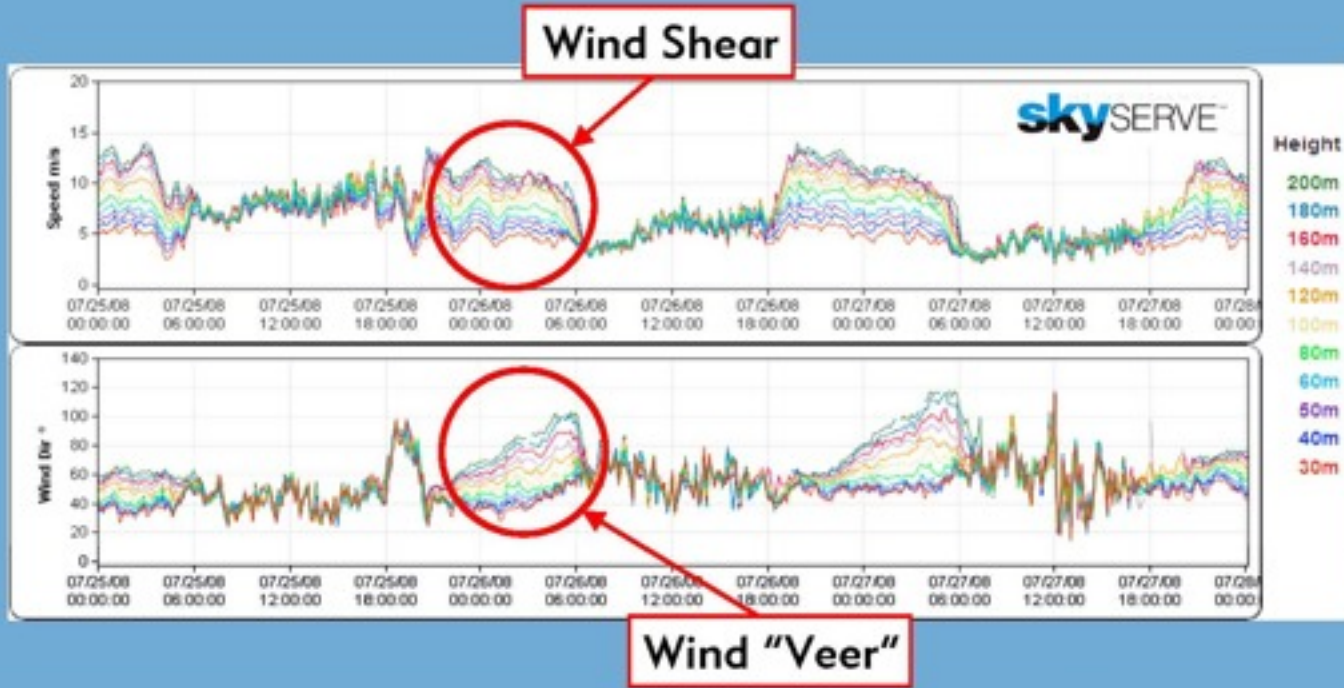
# Sonic Detection and Ranging Equipment (SODAR)



SODAR records and graphs various wind data components

# Sonic Detection and Ranging Equipment (SODAR)

## Anomalous Winds



# Sonic Detection and Ranging Equipment (SODAR)

SODAR unit is now collecting data on its first site, the International Coal Group's Webster County surface mine operation.

Additional surface mine properties, both active and closed sites, are now being evaluated for wind data collection.



# Is wind power from former surface mines possible?

**YES.** Wind turbines in the Mt. Storm, Tucker County area are in operation, built partially on former surface mine property

