# REQUEST FOR BOARD ACTION

## HENDERSON COUNTY
## PLANNING BOARD

**MEETING DATE:** April 16, 2009

**SUBJECT:** Introduction to Utility Scale Wind Power

**ATTACHMENTS:** 1. Henderson County Wind Power Potential Map
2. PowerPoint Presentation

**SUMMARY OF REQUEST:**

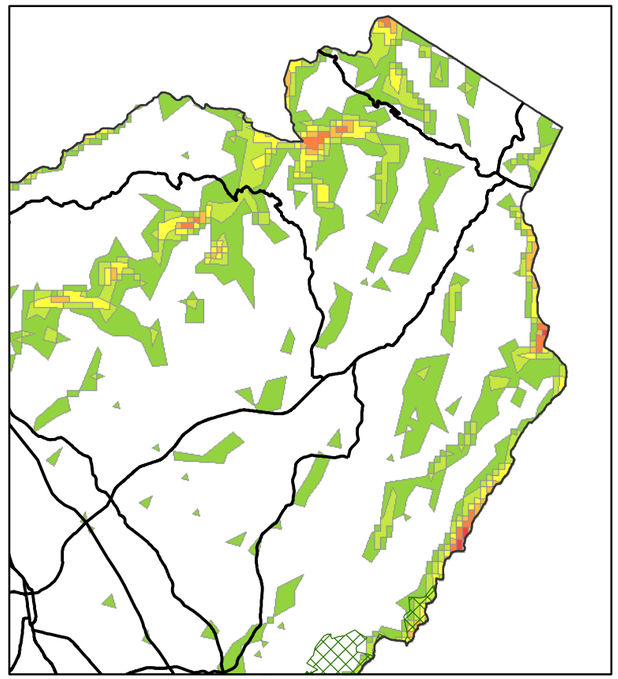
Utility Scale Wind Power is becoming more popular for the Eastern U.S. including a number of potential sites throughout all regions in North Carolina. Currently, the Land Development Code (LDC) does not specifically allow for small scale wind turbines/mills or for large scaled utility wind turbines. The Planning Board recommended a proposed text amendment to the LDC for these small wind turbines/mills as an accessory use, and this amendment is being considered by the Board of Commissioners but has not been approved. Many jurisdictions are developing regulations or ordinances to address these projects, and the North Carolina Wind Working Group has developed a model wind ordinance to help communities design a local wind ordinance. Regulations for utility scaled wind power will need to be addressed in Henderson County during a future round of text amendments.

Staff will provide a brief overview of some these utility scale wind power projects and their potential impact to our County.

**PLANNING BOARD ACTION REQUESTED:**

Board action is not requested at this time.

# Henderson County Wind Power Potential



BlueRidgeParkway
Major Roads
poor
marginal (2)
fair (3)
good (4)
very good (5)
superior (6)
excellent (7)
Parcels
2007 Public Lands

0 1.5 3 6 9 12
Miles

4

HC Planning Department 4.8.09

# Wind Energy Overview

Henderson County Planning Board –April 16, 2009

## Wind Energy – What It Is?

- Wind energy is a source of renewable power which comes from air currents. Wind turbines harvest this kinetic energy and convert it into usable power which can provide electricity for home, farm, school or business applications on small (residential) - or large (utility) - scales.

## Wind Energy – What It Is?

- Wind energy is one of the fastest growing sources of electricity and one of the fastest growing markets in the world today.
- Benefits associated with wind energy.
  - Green Power/Environmental Benefit
  - Sustainable
  - Cost Benefits (Affordable as more turbines are installed)
  - Economic Development

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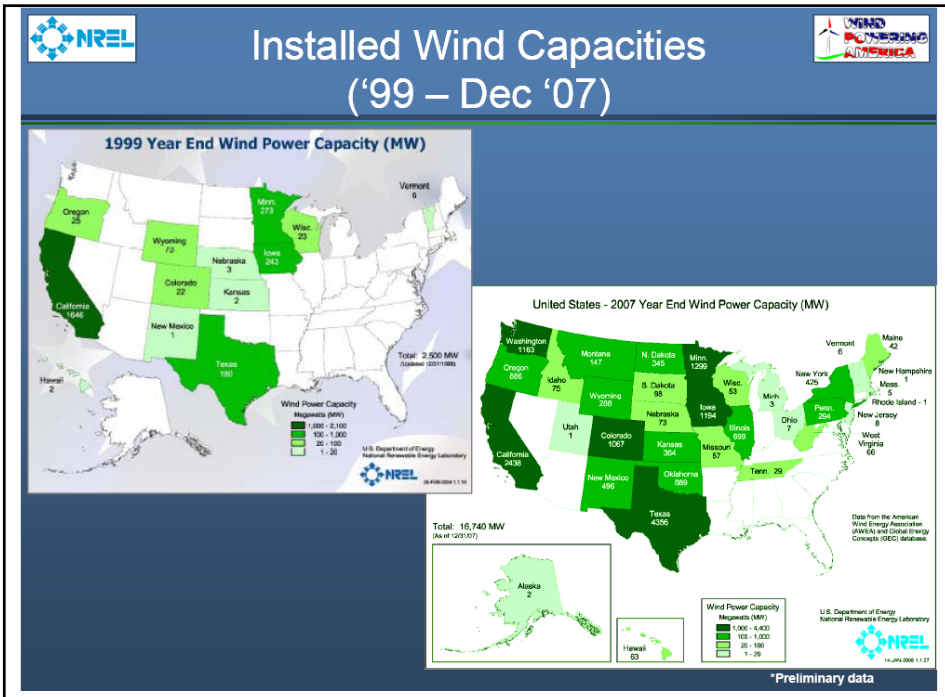
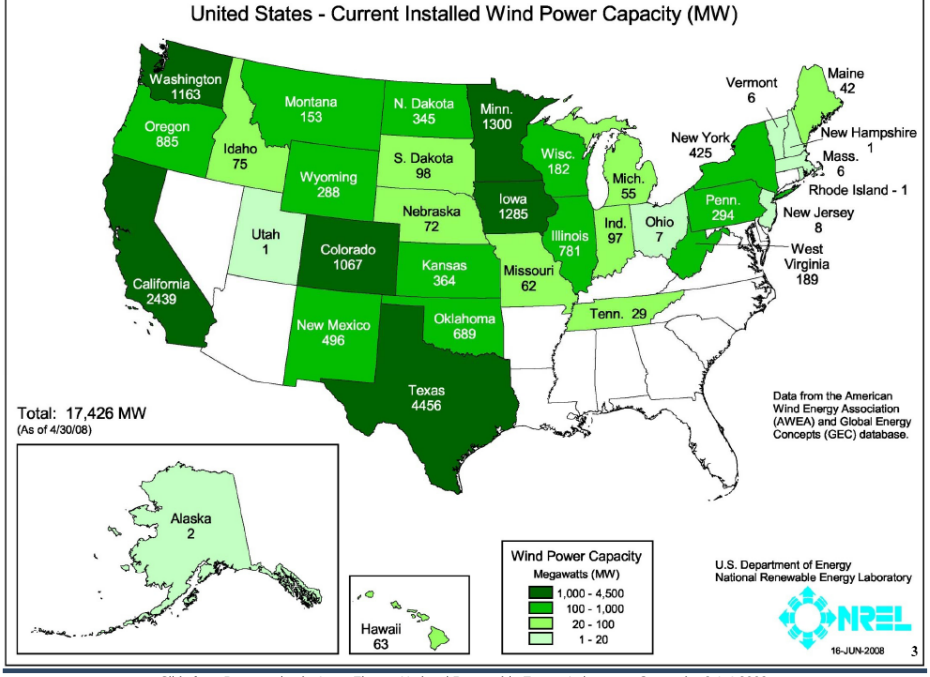



Slide from Presentation by Larry Flower, National Renewable Energy Laboratory, September3 & 4 2008

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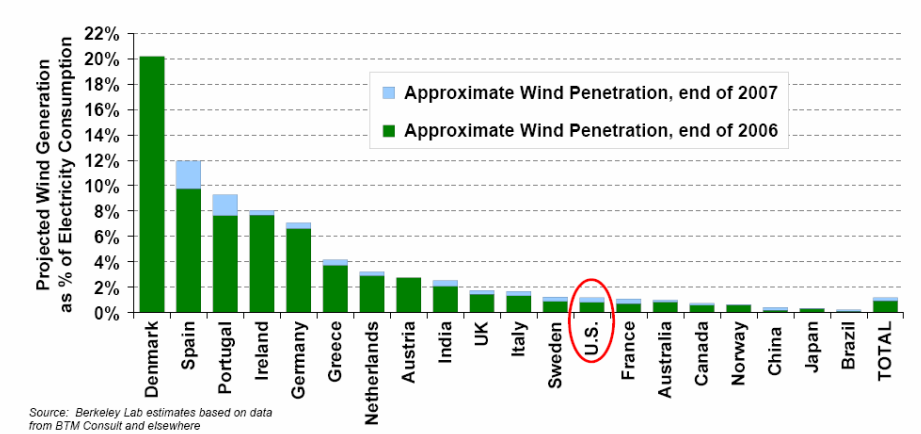


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## Drivers for Wind Power

- Declining Wind Costs
- Fuel Price Uncertainty
- Federal and State Policies
- Economic Development
- Public Support
- Green Power
- Energy Security
- Carbon Risk


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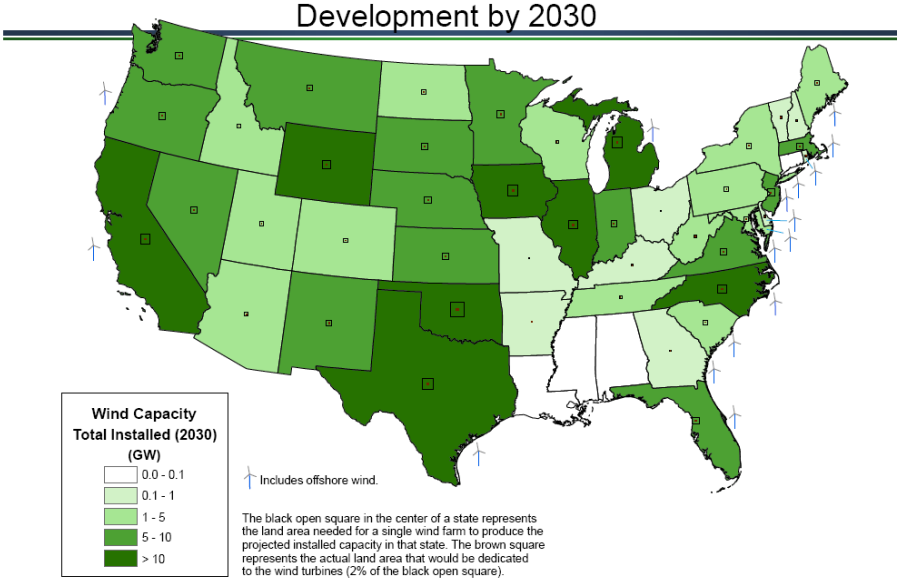
## 46 States Would Have Substantial Wind Development by 2030

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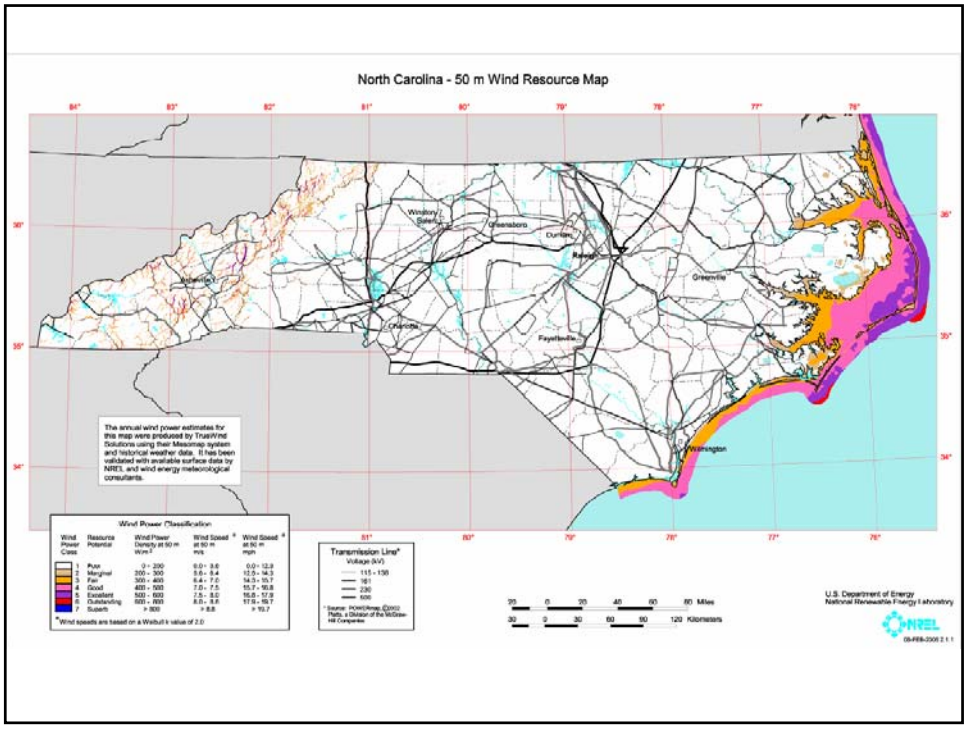
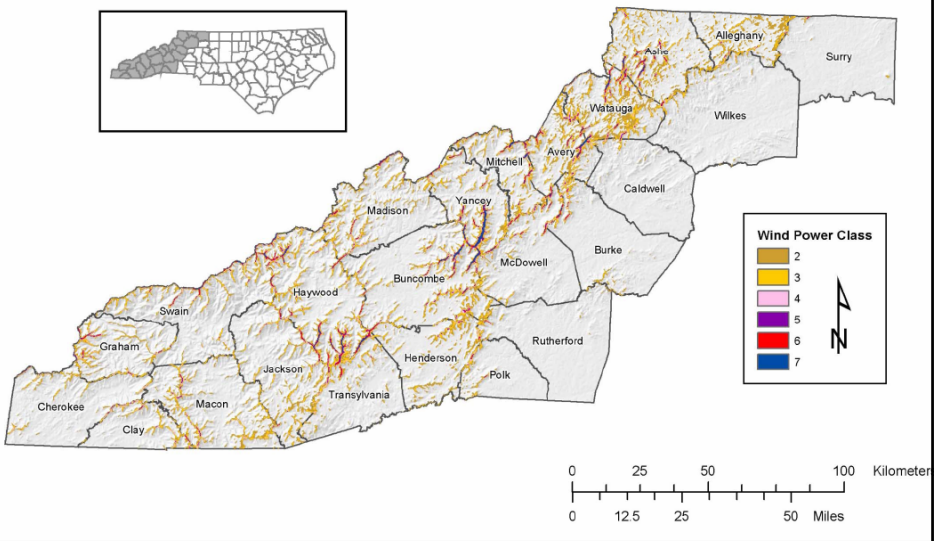
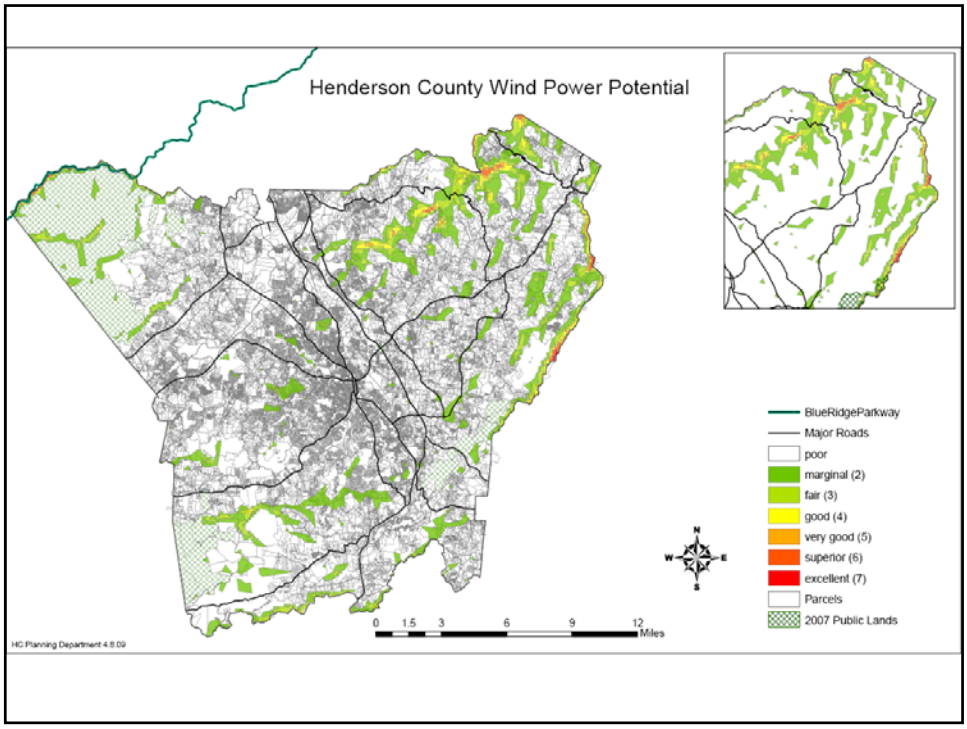



# Western North Carolina Wind Power Classes at 50 Meters




Slide from Presentation by Bob White, Project Director, The AES Corporation




## Economic Development Impacts

- **Land Lease Payments**: 2-3% of gross revenue $2500-4000/MW/year
- **Local property tax** revenue: ranges widely - $300K-1700K/yr per 100MW
- 100-200 **jobs**/100MW during construction
- 6-10 permanent O&M **jobs** per 100 MW
- Local construction and service industry: concrete, towers usually done locally

Slide from Presentation by Larry Flower, National Renewable Energy Laboratory, September3 & 4 2008

# Economics

**Each 100 MW of wind energy development in region will produce approximately:**

- Local purchases of gravel, concrete, equipment, technical services during construction
- 200 jobs during construction; 8 to 10 long term, highly skilled operation/maintenance jobs
- Property tax revenue: approximately $550,000/year in NC
- Land Lease Payments: $700,000 - $1,000,000/year (3-4% of gross revenue)
- Approximately 300 million kwh every year, at a competitive price and without any air pollution or water useage. Enough to power 33,000 houses.
- Long term, stable power prices.

Each MW of wind development costs approximately $1million dollars
Each MW of wind will produce between 3 – 3.5 million kwh/year on a good wind site.

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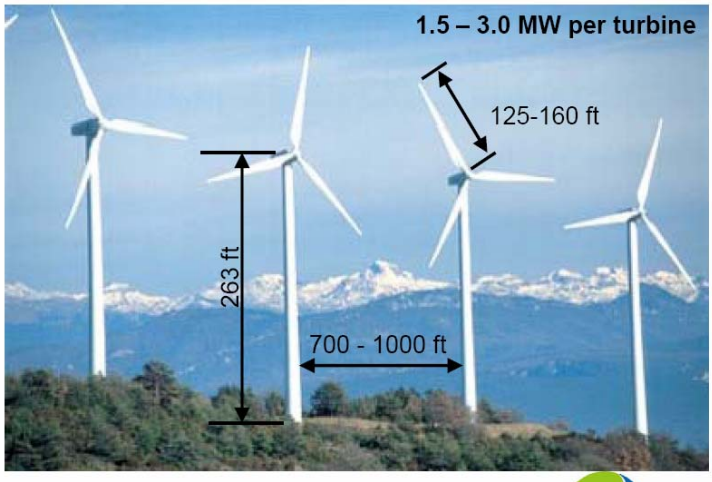
# Turbine Size and Spacing




AES
the power of being global

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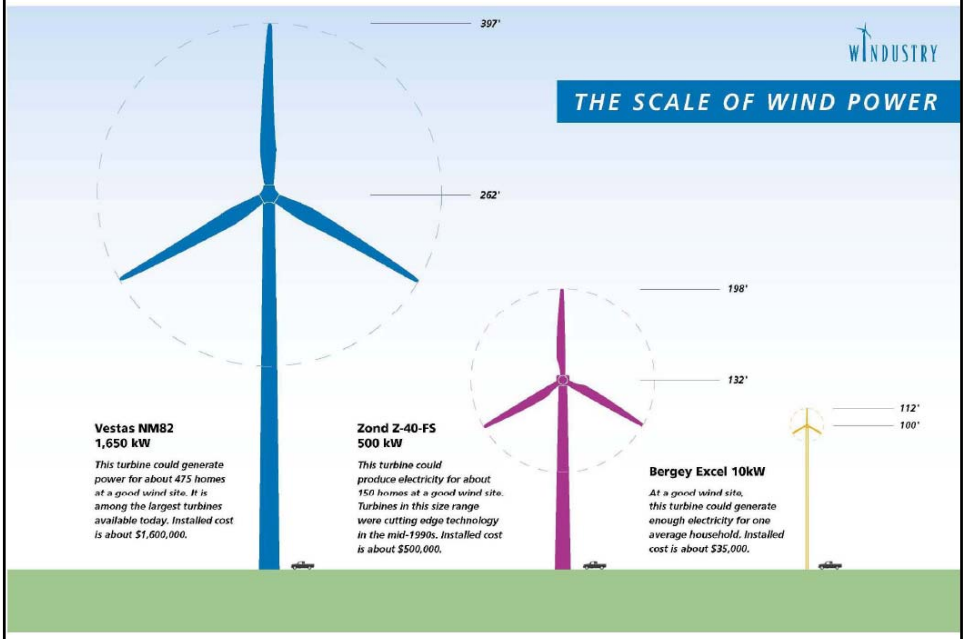


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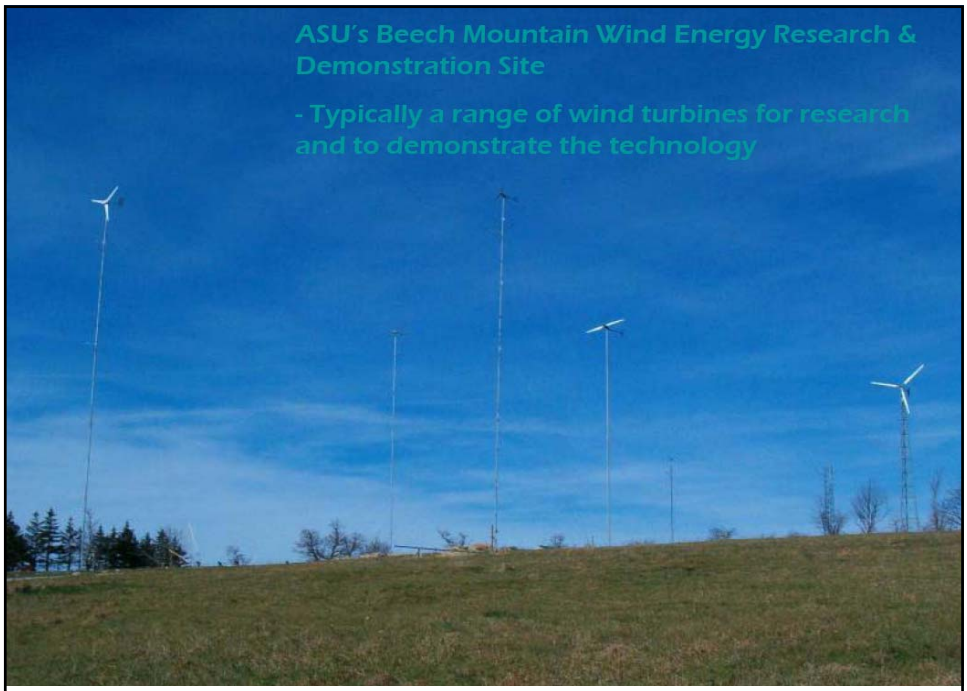


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## Wind Energy Overview

- The potential for wind energy exists for Henderson County
- County will need to address how it will regulate these projects
- Planning Staff plans to provide an amendment to regulate utility scaled wind projects during the LDC 2009 Annual Review.



## Wind Energy – Issues to Address Through Utility Scaled Wind Regulations

- Permit Application
- Setbacks
- Noise and Shadow Flicker
- Installation and Design
- Areas that this use would be allowed (zoning)

# Wind Energy Overview

## Questions and Discussion

*Henderson County Planning Department*