



**NASA Glenn Research Center
Plum Brook Station
WIND FARM PROJECT
Environmental Impact Statement**

Scoping Meeting

September 14, 2010

Topics



- **WHY** are we doing this?
- **WHERE** are we looking to do this?
- **WHAT** studies have been completed?
- **WHAT** do they look like?
- **WHEN** will we do this?



WHY are we doing this?

- Federal Government is a major user of energy
- Mandated goals to reduce Carbon Footprint (CO₂ emissions) by obtaining energy from a renewable resource
- NASA needs to be compliant with Federal Environmental Policies



Energy Policy Act 2005

Renewable Energy Consumption

Executive Order 13423

**Strengthening Federal Environmental Energy and
Transportation Management**



WHY are we doing this?

Energy Policy Act 2005: Graduated Increase

- **3.0%** Electrical energy from renewable sources by **2007 – 2009**
- **5.0%** Electrical energy from renewable sources by **2010 – 2012**
- **7.5%** Electrical energy from renewable sources by **2013 +**

EO 13423: Agency Requirements

- **Implement renewable energy generation on Agency property for Agency use**
- **Renewable energy produced on Federal land receives double credit**



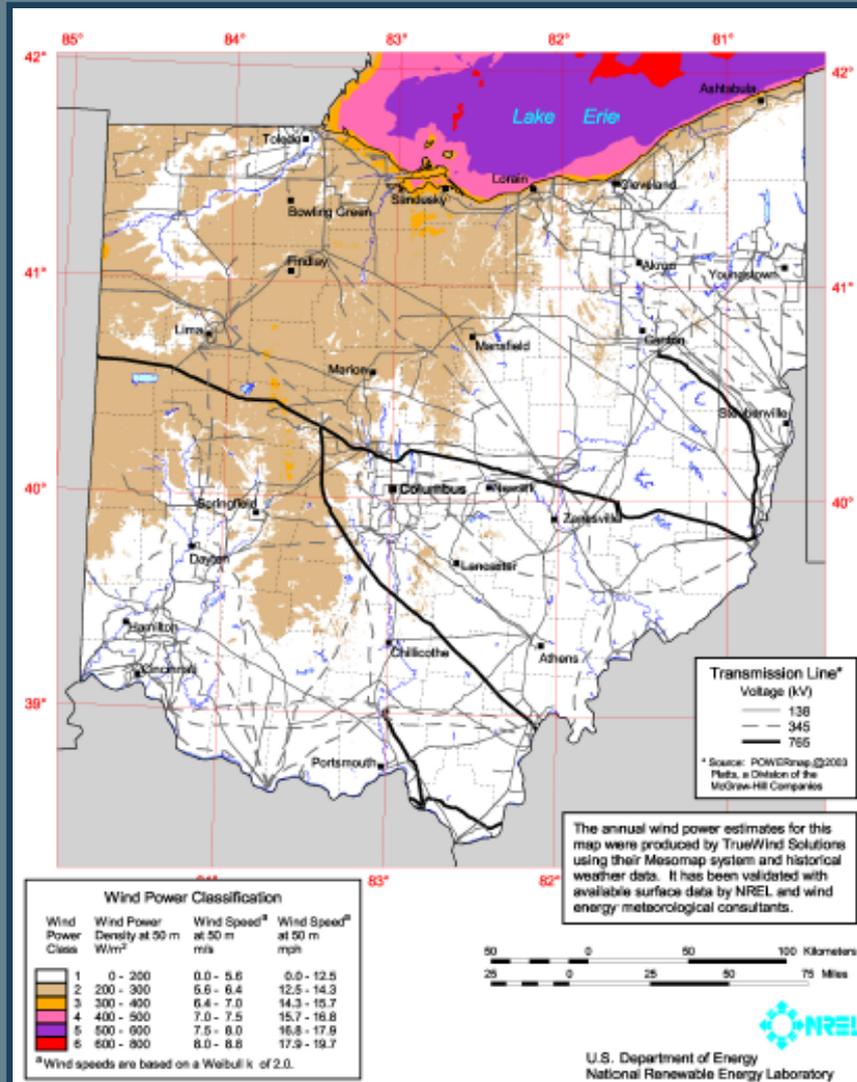
WHAT steps has NASA taken so far?

1st STEP

- **Renewable Technology Study** - *National Renewable Energy Laboratory (NREL)*
 - Reviewed Seven (7) Renewable Technologies
 - Photovoltaics (PV), Wind, Solar Ventilation Air Preheating, Solar Water Heating, Concentrating Solar Power, Biomass Gasification, Daylighting
 - Reviewed energy performance and cost savings and life cycle costs
 - Reviewed Ohio's renewable portfolio
 - Reviewed installed cost incentives and production tax credits

NREL Concluded:

- Wind had the best opportunity for generating large amounts of cost-effective renewable energy
- NASA should further investigate the feasibility of wind generation at Plum Brook Station



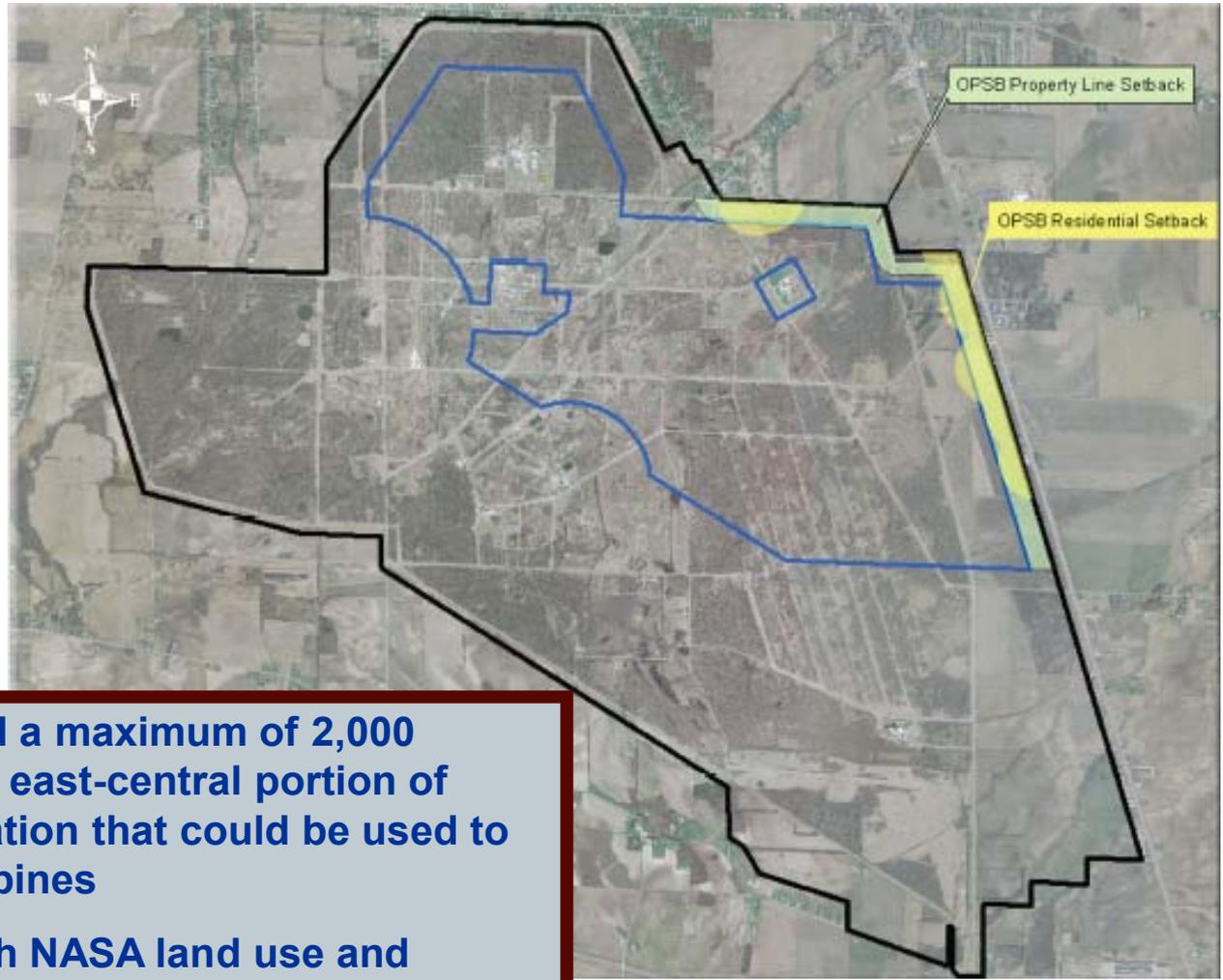
Map of Ohio – Wind Power

- Maps show that Plum Brook Station is in the same wind power classification as Bowling Green
- Bowling Green currently has four 1.8 MW utility grade turbines; additional are being considered



3rd STEP

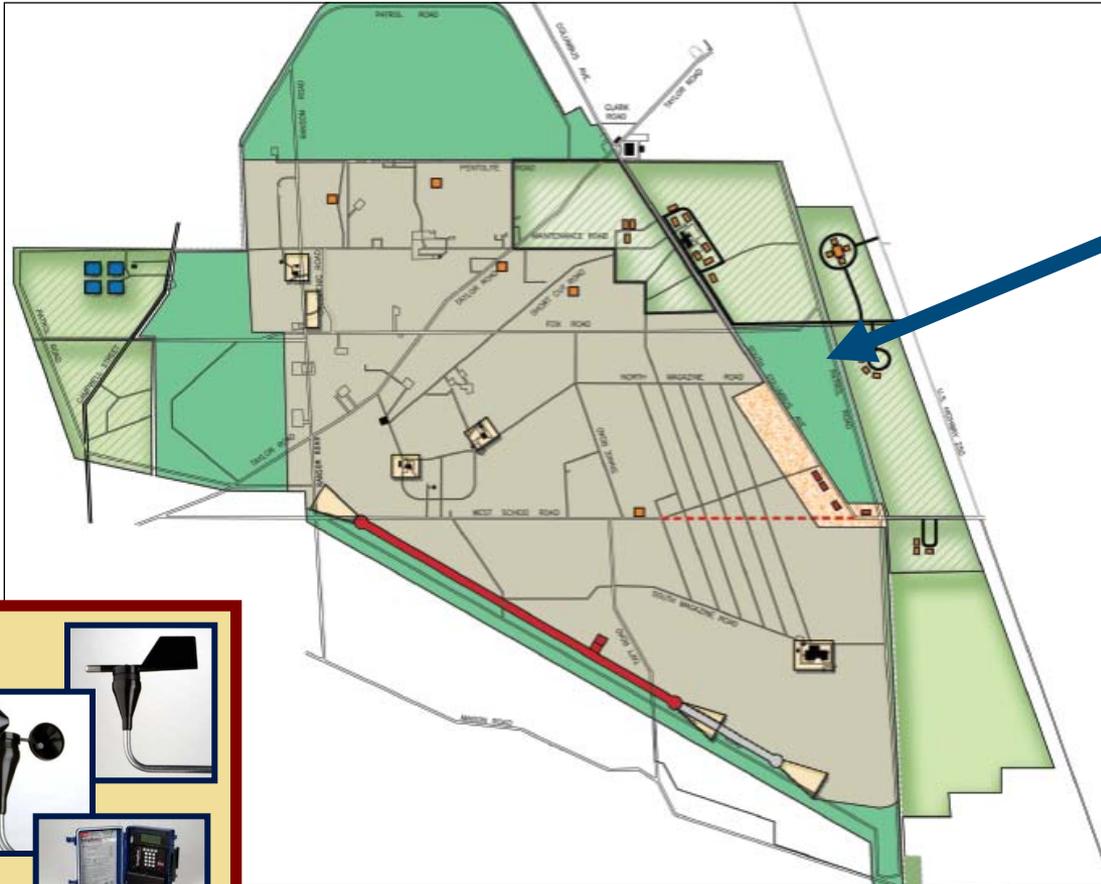
Identified Potential Property



- **NASA identified a maximum of 2,000 acres along the east-central portion of Plum Brook Station that could be used to place Wind Turbines**
- **Consistent with NASA land use and Master Plan**
- **Preserves test facilities and buffer zones**

4th STEP

Wind Monitoring



GRC Master Plan



- Green Energy Ohio is performing a study of the wind conditions
- 150-ft. temporary meteorological tower installed 8/21/07
- Measurements are taken at 90, 120 & 150 Feet





5th STEP

Market Analysis

- **Sent out a Request for Information to gauge interest from potential developers**
 - Ten (10) responses came back positive
 - Gave suggestions to perform the following studies:
 - ✓ Electric Grid Study
 - ✓ Airport/Runway Compatibility Study
 - ✓ National Environmental Policy Act (NEPA) Study



6th STEP

Electrical Grid Study

- **Electrical Grid Study - Completed in November 2009**
 - **This proposed project has the ability to produce up to 70 Megawatts, enough to provide electricity to 20,000 households**
 - **Reviewed the feasibility of tying into the local regionally-controlled grid**
 - **The regional grid is controlled by the Midwest Independent System Operators (MISO) while the local grid and electricity is being supplied by Ohio Edison (First Energy)**
 - **Through an informal review process, First Energy and MISO concluded that the electrical grid has the capacity to distribute the 70 Megawatts of electricity produced**



Reviewed FAA requirements on existing airports in the area and any impacts on a future runway at Plum Brook Station

Impacts include:

- **Obstruction Standards**
 - Obstruction Evaluation Study
 - Obstruction Marking and Lighting
 - 2.5 MW Wind Turbine avg. height is +/- 430'
- **Electromagnetic Interference (EMI)**
 - Long Range Surveillance Radar
 - Air Traffic Control Radar
 - Interference to aircraft NAVAIDs
- **Imaginary Surfaces and Operational Impacts**

Study concluded that the study area could support a wind farm



– National Environmental Policy Act (NEPA)

- Requires an evaluation of the environmental effects of a federal undertaking including its alternatives

- Three levels of analysis depending on whether or not an undertaking could significantly affect the environment, including:
 - Categorical Exclusion determination
 - Preparation of an Environmental Assessment (EA)
 - Preparation of an Environmental Impact Statement (EIS)

- In 2009, NASA initiated development of the Plum Brook Station Wind Farm EA to analyze potential wind farm construction and operation impacts

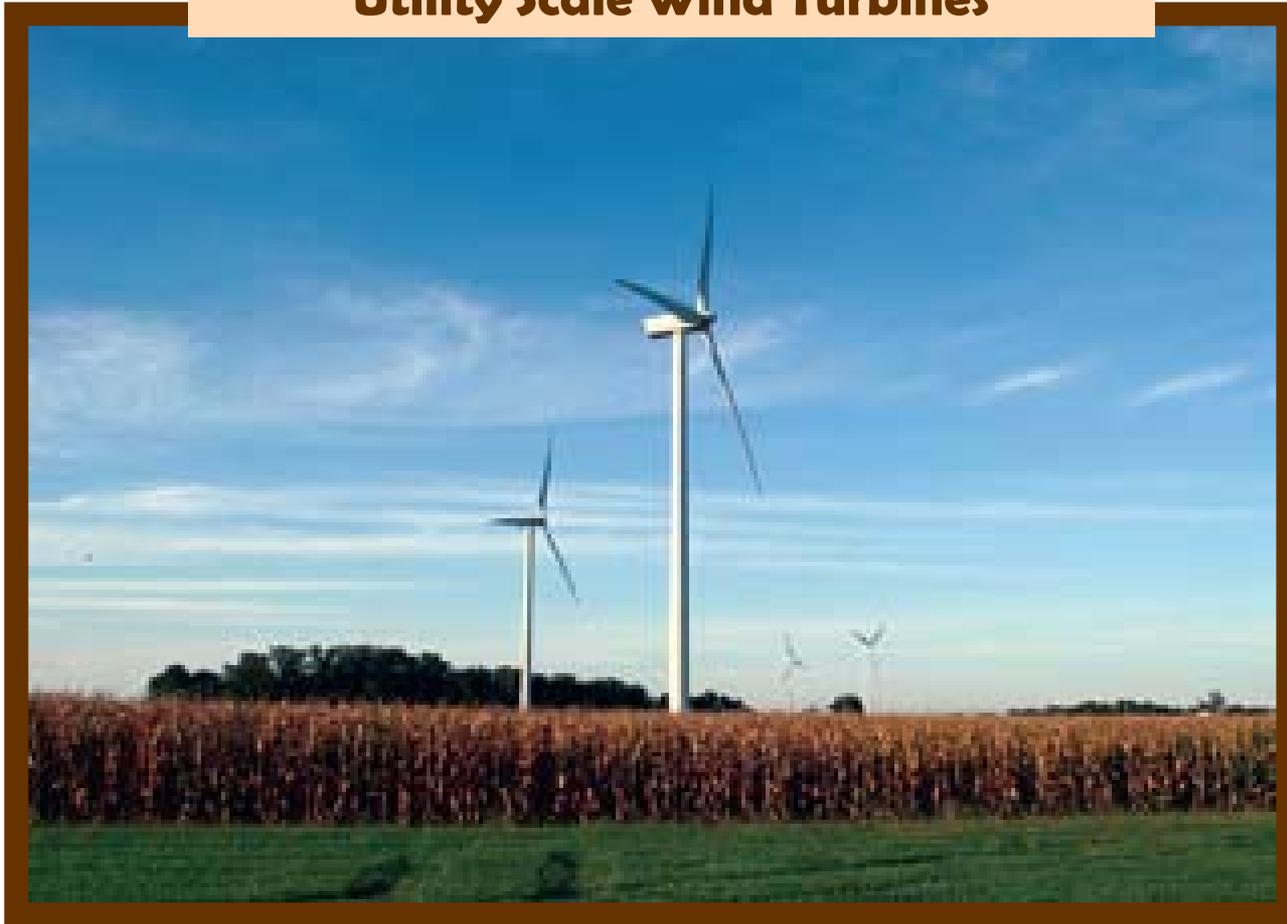
- During preparation of the EA, NASA determined that there may be significant impacts that merit more detailed study, analysis, and public input

- At that point, NASA decided to forego completion of the EA, and begin the EIS process



WHAT do they look like?

Utility Scale Wind Turbines



About Tonight's Scoping Meeting



- **Scoping is a required step in the NEPA process for preparing an EIS**
- **Scoping is the process of determining the subjects that will be considered and evaluated in an EIS**
- **Public comments – both oral and written – received during the scoping period will be considered when making decisions about the issues and alternatives to be analyzed in an EIS**
- **The scoping period began with publication of NASA's Notice of Intent to prepare the EIS on August 25, 2010; ends on October 23, 2010**





Scope of the NASA Wind Farm EIS

- **Proposed Action**

- NASA Glenn is considering a 20-25 year partnership with a commercial wind energy developer
- Area under consideration would be a 2,000-acre tract of land at Plum Brook Station
- Wind farm could consist of 20 to 30 wind turbines, each rated at 2.5 megawatts (MW)

- **Alternatives**

- No Action
- Full build-out of 20-30 wind turbines
- Intermediate design based on Ohio Power Siting Board setbacks and other siting constraints



Focus Of Analysis

- **Environmental Impact Statement (EIS) will consider:**
 - Potential impacts to natural and human environment
 - Potential mitigation measures

- **Based on preliminary review, key areas of potential concern are:**
 - Operational Noise to Nearby Offsite Individuals
 - Shadow/Flicker Disturbance to Nearby Offsite Individuals
 - Impacts to Birds and Bats
 - Visual Impacts within Region
 - Impacts to Communication Transmissions
 - Construction Disturbance to Plants and Wildlife



Other Areas of Analysis

EIS will also address potential impacts to:

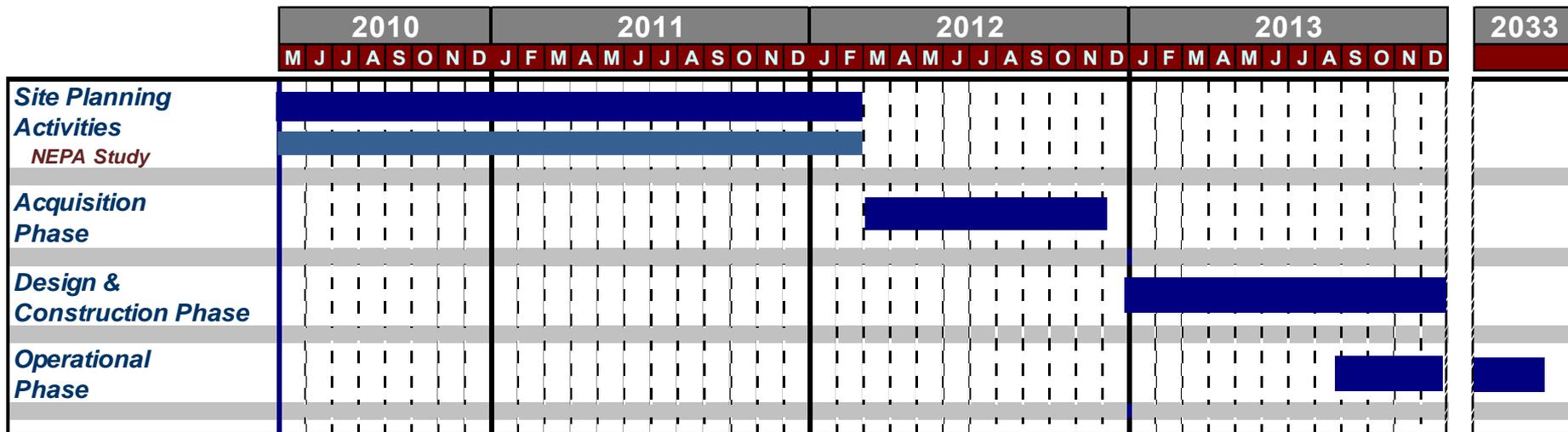
Land Use	Air Quality
Water Resources	Utilities
Geology and Soils	Socioeconomics
Cultural Resources	Hazardous Materials and Waste
Transportation	Environmental Justice

- Will include findings from bird and bat studies conducted according to Ohio Department of Natural Resources regulations
- Studies are 1-year long to include Fall and Spring migration, including:
 - Raptor (birds of prey) nests searches and monitoring
 - Bat acoustic monitoring and bat mist-netting
 - Raptor and Passerine (songbird) migration



WHEN will we do this?

- NASA is in the process of performing studies in the key areas of concern and is reviewing the schedule impacts of these studies
- The formal EIS will take 18 – 24 months to complete



As of 9/10



How to Submit Your Comments



Court Reporter

If you provide oral comments tonight, a court reporter will record your comments.



Comment Form

Comment forms are available in the registration area. If you would like to provide written comments on the scope of the NASA Wind Farm EIS, please use the comment form and drop it off at the registration table when you leave. Alternatively, you may mail, e-mail, or fax your comments to NASA at the address below.



E-Mail

You may submit your comments electronically to nasawindfarmeis@saic.com



Facsimile

The toll-free fax number to submit your comments is 1-877-344-0517



U.S. Mail

Written comments on the scope of the EIS should be submitted to NASA at the following address:

NASA Wind Farm EIS
PO Box 1490
Germantown, MD 20874-1490

All comments are due by **October 23, 2010. Comments received by that date will be considered in preparation of the Draft NASA Wind Farm EIS. Comments received after that date will be considered to the greatest extent possible.**