

# *Ohio Department of Development*

*Office of  
Energy  
Efficiency*

**Bill Manz**

**December 16, 2004**

**Association of Energy Engineers -  
Cleveland**

# U.S. Natural Gas Prices Are Expected to Trend Upward Through 2005



# Ohio Natural Gas Consumption and Costs

		Resid	Comm	Indus	P Gen	Total
2002	MMcf	321278	162764	307748	22722	814512
	\$M	2502	1076	1785	120	5483
		7.78	6.61	5.80	5.28	6.73
2006	MMcf	339939	173545	282007	8991	804482
	\$M	3560	1727	2455	71	7813
		10.47	9.95	8.70	7.89	9.71

Note: 87.3% of Ohio NG is Imported

# Office of Energy Efficiency



- Residential
- Energy Outreach
- Business & Industry

# Business & Industry Programs



- EnVinta One-2- Five®Energy
- Distributed Energy Resources
- Renewable - Solar & Wind
- Industrial Technologies Program

# Partners:

- Energy Industries of Ohio
- Ohio Clean Energy Business Association
- Air Quality Development Authority
- Governor's Regional Reps.
- Green Energy Ohio
- Ohio Wind Working Group



# Partners (cont'd):

- Ohio Fuel Cell Coalition
- Governor's Biomass Task Force
- Ohio School Facilities Commission
- U.S. Department of Agriculture
- Ohio Farm Bureau
- Wright Fuel Cell Group
- ODOD Fuel Cell Initiative Team



# Business & Industry Impacts: Research & Development

- Improve System Life of BOF & EAF Hoods, Roofs & Side Walls - **\$1 million grant**
- Improve Performance & Yield of Continuous Glass Fiber Drawing Technology - **\$968,000 Grant**



# Business & Industry Impacts: Renewable & Advanced Technologies

- DER RFP03: \$925,000 awarded; \$15 million in projects leveraged
  - Combined heat & power = 5
- ELF DER RFP04: \$1.45 million awarded; \$9.2 million in projects leveraged
  - Combined heat & power = 6

# Technical Resources & Assistance

- Training & Best Practices
- On-site Assistance
  - EnVinta Diagnostics
  - Plant wide Assessments
  - Solar & Wind Resources



# Training & Best Practices

\$298,000 DOE Special Project Grant

- Metals Processing Industry Training
  - Partner with Stark State & EIO to develop 1-2 year training for existing work force and new employees in steel, metal casting and forging industries
- Benchmarks and Breakthroughs Showcase
  - National showcase in Cleveland October 2005 highlighting Positive Impact Manufacturing in Ohio

# EnVinta's One-2-Five Energy Program

- One-2-Five<sup>®</sup> Energy is a software based program for senior managers which takes a business approach to energy management and examines how energy is integrated with your business management systems.



**Achievement supported by consistent progress in  
ALL  
Key Areas in management framework in  
the right sequence.**

**Achievement**

**Plant &  
Equipment**

**Monitoring  
& Reporting**

**Finance  
Mgnt**

**Supply  
Mgnt**

**O & M**

**Leadership**

**Understanding**

**Planning**

**People**

# One-2-Five Star Rating



No Activity



Waste Cutting



Systems - Stand-alone



Way We Do Business-Integrated



Continuous Improvement-WBP

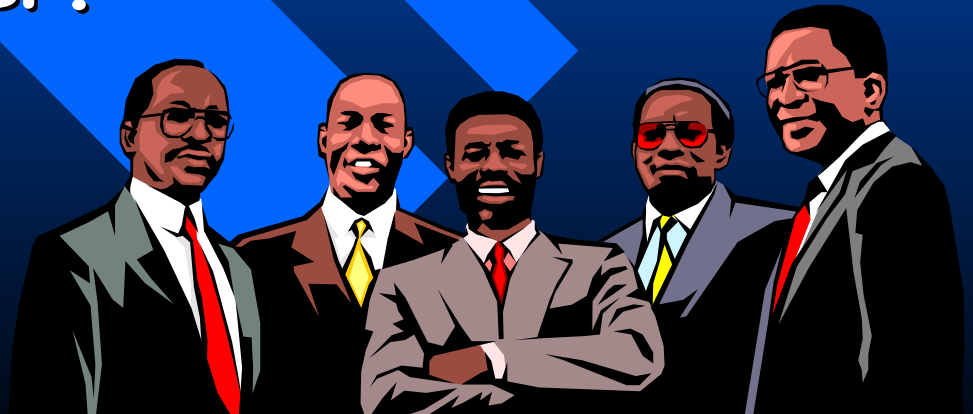
# Key Factors which Define a Successful Diagnostic Session

- The right company - culture of improvement
- The right expectations - management not tech
- The right people attending - management team
- The right time -
- 2 hours undisturbed



# Who Should be There?

- Corporate: CFO, COO, VP Engineering, Energy Manager, perhaps environment manager.
- Site: Site Manager, Operations Manager(s), Engineering Manager, Energy Manager.





# Reports

- Executive summary with star rating, savings and GHG emissions impact
- Diagnostic results from 1.5 hour session
- Recommended Actions - 5 identified



# Plant-wide Assessments



- Identify overall energy use in manufacturing processes:
  - can account for 10 percent or more of an industry's total operating costs.
- Highlight opportunities for best energy management practices including:
  - the adoption of new, efficient technologies.

# Ohio's Plant-Wide Assessments

- AmCast - \$3.5 Million Savings
- Appleton Paper - \$6.1 Million Savings
- Corning - \$5.6 Million Savings
- Cargill - \$5.1 Million Savings
- Ford - \$3.3 Million Savings
- Sawbrook - \$380,000 Savings
- Johns Manville - just awarded 12/7

# Wind and Solar Resources

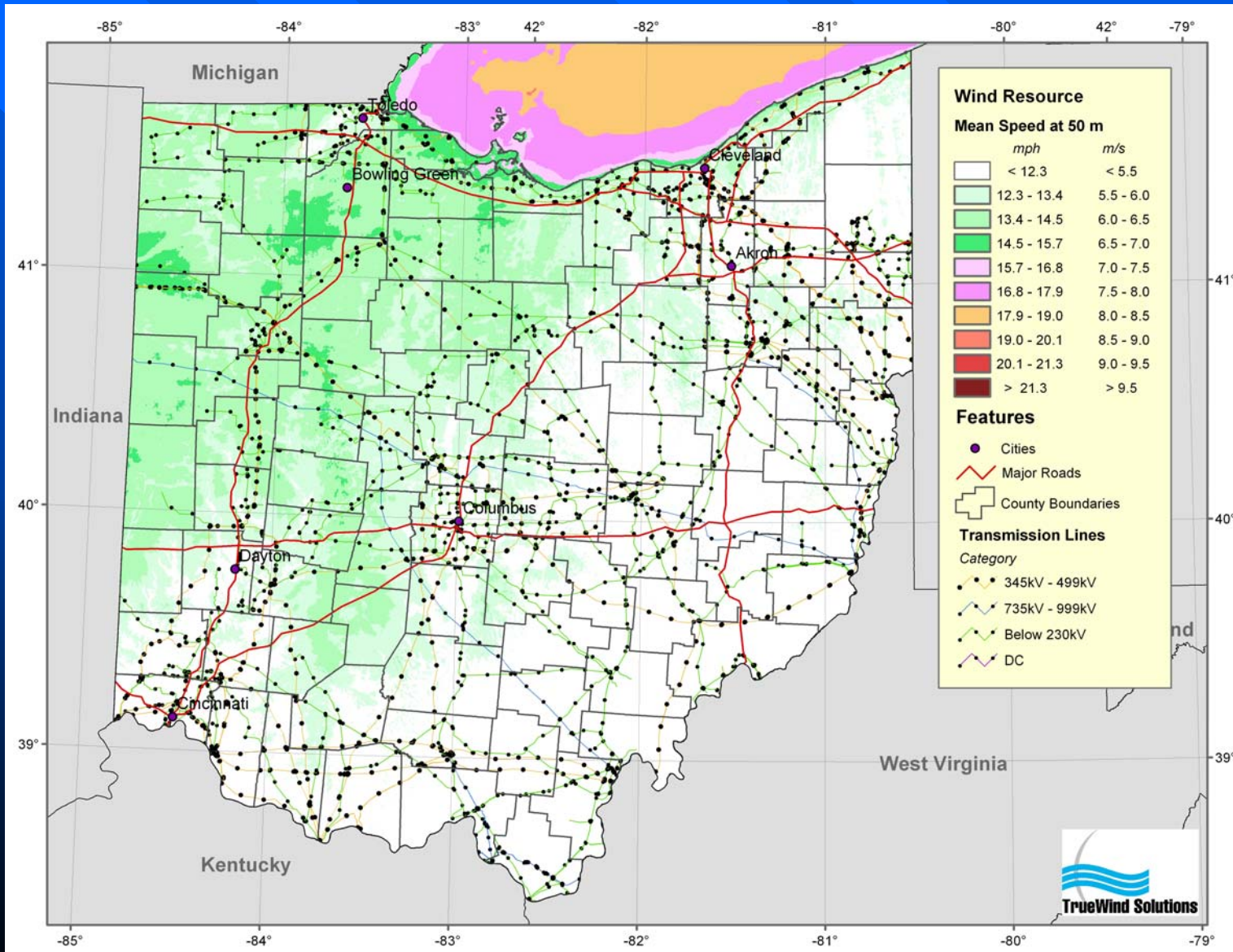
- New Ohio Wind Power Maps
- Clean Power Estimator



# New Ohio Wind Power Maps

- High Resolution - down to 200m grid
- Electronic maps at 30, 50, 70, and 100m levels
- GIS overlays (borders, roads, transmission, etc)
- Wind speed frequency distributions
- Wind power density and wind speed

# Wind Speed Map @ 50 m



# Clean Power Estimator

- Economic analysis tool for renewable energy projects
- System performance also predicted
- Available on-line at:
  - [www.cleanpower.com/ohio](http://www.cleanpower.com/ohio)



# Ohio Department of Development

## SELECTIONS (Columbus, OH)

Build System

### PV System

Size (dc) ?  
2.4 kW

Tilt ? Direction ?  
30° South

Cost Per kW (dc) ?  
\$8,000 per kW

PV System Life ?  
30 years

[Click for Obstruction Analysis](#) [Done](#)



### Efficiency Investments





# Ohio Department of Development

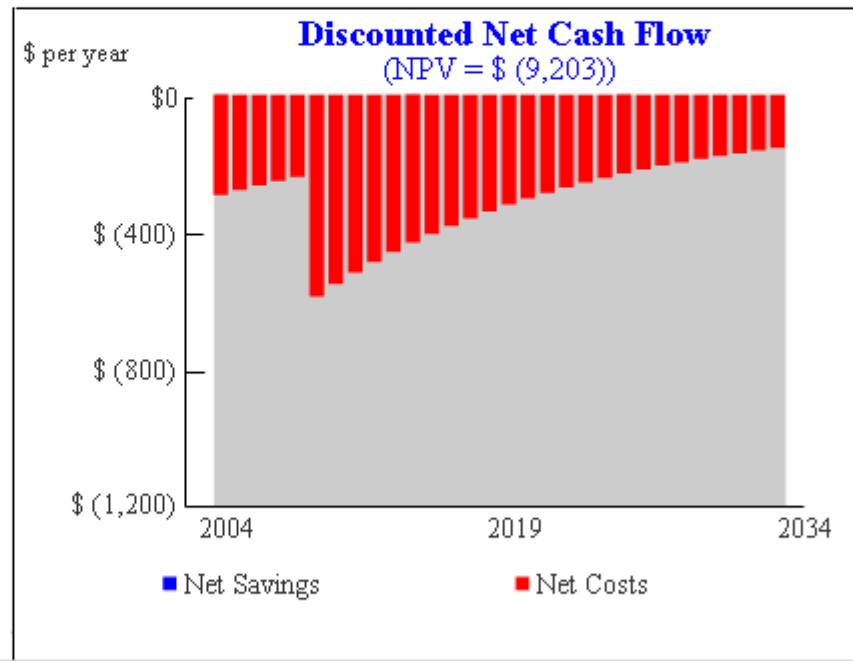
## SELECTIONS (Columbus, OH)

Discounted Cash Flow

### PV System

- Size (dc) ?  
2.4 kW
- Tilt ? Direction ?  
30° South
- Cost Per kW (dc) ?  
\$8,000 per kW
- PV System Life ?  
30 years

[Click for Obstruction Analysis](#) [Done](#)



# Ohio stands to gain with a national wind power commitment

- Renewable Energy Policy Project (REPP) Report (10/15/04):
  - Ohio is home to companies currently engaged in manufacturing activities related to those required to produce wind turbines
  - A national commitment to develop 50,000 MW wind power (~3% US electric demand) could mean almost 12,000 jobs for Ohio, second only to California

# Wind and Solar Resources

- New Ohio Wind Map (coming soon)
  - [www.odod.state.oh.us/cdd/oeo](http://www.odod.state.oh.us/cdd/oeo).
  - [www.greenenergyohio.org](http://www.greenenergyohio.org).
- Ohio Wind Power Tool Kit
  - [www.greenenergyohio.org](http://www.greenenergyohio.org) under "Wind"
- Ohio Renewable Energy Installers
  - [www.greenenergyohio.org](http://www.greenenergyohio.org) under "Resources"
- Clean Power Estimator
  - [www.greenenergyohio.org](http://www.greenenergyohio.org).

# Financial Resources & Assistance

Energy Loan Fund

DER Grants

SEP

SEP Special Projects

OAQDA



# Energy Efficiency Loan Fund

Office of Energy Efficiency  
Community Development Division  
Ohio Department of Development



# Energy Efficiency Revolving Loan Fund - What is it?

- A revolving loan fund created under the electric deregulation act.
- It facilitates interest rate reduction on loans to customers of participating electric utilities.
- The funds can be used to purchase energy saving products, technologies and services.

# Business & Institutional Program

## ■ Serves

- Small commercial businesses
- Small industrial businesses
- Farm businesses
- Educational institutions
- Non-profit organizations
- Local governments

# Business & Institutional Loan Program

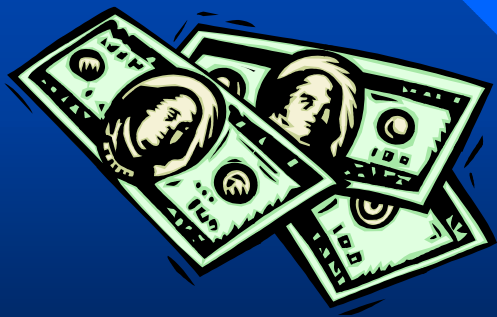
Eligible Projects -- energy efficiency related costs for:

- New Construction (costs above code)
  - Additions to Existing Facilities, or
  - On Brownfield's or Grayfield's Only
- Rehabilitation
  - Building Shells
  - Mechanical Systems
- Equipment/Systems (purchase and installation)



# Distributed Energy Resources 05 RFP Grant Program

Total grant funds available is  
\$800,000



Office of Energy Efficiency  
Community Development Division  
Ohio Department of Development

# DER 05 RFP Grant Timetable

- The RFP was released on November 29, 2004. The RFP is be available on the OEE Web Site at [www.odod.state.oh.us/cdd/oe](http://www.odod.state.oh.us/cdd/oe).
- E-mail and Fax questions may be sent to the following up to December 30, 2004:
  - Fax: (614) 466-1864 attn: Preston Boone
  - E-Mail: [elf@odod.state.oh.us](mailto:elf@odod.state.oh.us)

# DER 05 RFP Grant Timetable (cont'd)

- The deadline to submit proposals is 3 PM EST, January 31, 2005
- Proposal review/grant award announcements will be made on March 31, 2005.

# DER 05 Grant Eligible Projects Guidelines

- All projects must meet the following guidelines:
  - Must be installed in Ohio
  - Must be installed in a service area of an investor-owned utility:
    - AEP, CINergy, First Energy, Dayton Power & Light, Monongahela Power
- ELF Loans must be used as part of this match Requirement.

# DER RFP 2004-02 Grant Eligible Projects (Cont'd)

- DER Clean Burning Eligible Technologies:
  - Clean Burning Reciprocating Engines (must meet California Standard)
  - Industrial Turbines
  - Microturbines
  - Innovative use of waste heat  
CHP/Cogeneration
  - Landfill or biomass methane

# DER RFP 2004-02 Grant Eligible Projects

- Non-Residential Renewable Technologies:
  - Biomass/Landfill Methane
  - Solar Electric (photovoltaic or PV)
  - Wind Electric

# DER 05 RFP Grant Funding Limits

- Clean Burning Technologies: \$150,000
- Non-Residential Wind: \$50,000
- Non-Residential Solar PV: \$50,000

# DER RFP 2004-02 Grant Submission Requirements

- Five Copies (one original & four copies) of the Proposal must be submitted no later than 3 PM EST, January 31, 2005 to:

Ohio Department of Development  
Office of Energy Efficiency

Attention: Distributed Energy  
Resources Solicitation

P. O. Box 1001

77 South High Street, 26<sup>th</sup> Floor

Columbus, OH 43216-1001



# State Energy Program

- The State Energy Program (SEP) provides funding to states to design and carry out their own energy efficiency and renewable energy programs.

# SEP Special Projects

- Special Projects grants are the second type of SEP grant. Special Projects are funded entirely by EERE technology programs and are awarded on a competitive basis.

# Ohio Air Quality Development Authority (OAQDA)

- An independent state agency dedicated to making Ohio's air cleaner by helping businesses, government agencies and not-for-profit organizations pay for projects that reduce air pollution.

# Ohio Air Quality Development Authority

- Provides financing and tax incentives. Projects financed through OAQDA are exempt from:
  - real property tax assessment for the life of the loan;
  - Ohio's tangible property tax; and
  - sales and use tax for purchase of equipment to reduce air pollution.

# OAQDA - Can they help you?

- If you are still not sure whether your company would be eligible for financing through OAQDA:
  - call 1-800-225-5051
  - <http://www.ohioairquality.org/>

# Energy Policy Issues

- Energy Loan Fund
  - Stabilize for continuity in incentive programs
  - Modify language for flexibility to meet EE needs
  - Remove sunset provision so funds grow to \$100 M
- Review of Energy Policy
  - State procurement
  - Production tax credits (PTC)
  - Portfolio standards
  - Green tags/renewable energy credits (RECs)
- Goal of improving Ohio's competitiveness

# Interconnection barriers to CHP/DG

- Results of Midwest Combined Heat Power Initiative 9/17/04
- Top Actions Identified
  - Work with PUCO to achieve utility set asides for CHP/DG up to 1% generation capacity with no backup & standby charges
  - Identify key players for CHP/DG coalition & rulemaking committee
  - Develop clearly defined uniform interconnection standards

# Business & Industry Team

- **Bill Manz** (wmanz@odd.state.oh.us) - Manager, Fuel Cells, Biomass
- **John Greenway** (jgreenway@...)- OMEEx, OSEN, Conversion Facilities
- **Tony Sutor** (asutor@...) - DG, EnVinta, Interconnection, HB 264
- **Tom Maves** (tmaves@...) Renewables - Solar and Wind, OCEBA, Interconnection
- **Jim Zuder** (jzuder@...) - Industries of the Future, Biomass, Industrial Best Practices



# Office of Energy Efficiency Business & Industry Unit

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