



U.S. Dept. of Energy
Wind Energy Grants –
20% Wind by 2030:
Overcoming the Challenges

Funding Opportunity Announcement
No: DE-PS36-09GO99009
Applications Due March 3, 2009



Application Information

- Funding Opportunity Announcement, Application forms and instructions available at <http://www.grants.gov>
 - click on “Find Grant Opportunities”
 - then click on “Basic Search”
 - enter Funding Opportunity Number “DE-PS36-09GO99009”
- Applications must be received by **March 3, 2009**



Topic Area Summary

- 1. Support Wind Turbine Research and Testing –**
\$1.5 million (\$200,000-400,000 per award)*
- 2. Market Acceptance –**
\$1.0 million (\$50,000-500,000 per award)
- 3. Environmental Impact –**
\$1.0 million (\$50,000-100,000 per award)
- 4. Transmission Analysis, Planning and Assessments –**
\$1.0 million (\$200,000-400,000 per award)
- 5. Workforce Development –**
\$1.0 million (\$100,000-200,000 per award)
- 6. Distributed Wind Technology –**
\$0.5 million (\$0-150,000 per award)

*Federal funding for all six topic areas is subject to annual appropriations
– all figures should be treated as estimates.



Eligibility

- Applications for renewals of existing DOE funded projects will not be considered
- **All types of entities are eligible to apply** (NOT Federal agencies, Federally Funded Research and Development Center Contractors, and certain nonprofits)
- See Eligibility criteria for each topic area



State of Michigan Contacts

1. Supporting Wind Turbine Research and Testing. \$1.5 million, 3-5 awards

Dan Radomski and Jim Saber, NextEnergy

Dan - (313) 833-0100 x150, danr@nextenergy.org

2. Market Acceptance – \$1 million, 6-10 awards

Tom Stanton, MPSC/MREP, (517) 241-6086, stantont1@michigan.gov

3. Environmental Impact – \$1 million, 4-8 awards

John Sarver, ESB/DELEG, (517) 241-6280, sarverj@michigan.gov

4. Transmission Analysis, Planning, and Assessments – \$1 million, 2-6 awards

Tom Stanton, MPSC/MREP, (517) 241-6086, stantont1@michigan.gov

5. Workforce Development – \$1 million, 2-5 awards

Jennifer Tebedo, Michigan Green Jobs Initiative, DELEG, tebedoj@michigan.gov

6. Distributed Wind Technology – \$0.5 million, 1-5 awards

Dan Radomski and Jim Saber, NextEnergy

Dan - (313) 833-0100 x150, danr@nextenergy.org



Topic Area 1: Supporting Wind Turbine Research and Testing (p12)

“Advancements in turbine technology ... reducing capital costs, increasing availability and capacity factors, and mitigating risk through enhanced system reliability. ... significant impact on commercial product lines in 2015. Applicants required to submit commercialization business plans.”



Topic Area 1: Supporting Wind Turbine Research and Testing (2) (p12)

Seeking projects for manufacturing advances in design, process automation and fabrication techniques to reduce product-to-product variability and premature failure while increasing the domestic manufacturing base



Topic Area 1: Supporting Wind Turbine Research and Testing (3) (p12)

Project examples:

- Improving quality and use of lighter weight, advanced materials for turbine blades, towers and other components
- Development of automated and repeatable production techniques
- Turbine reliability and operability research and development to create more reliable components; improve turbine capacity factors; and reduce installation and operations and maintenance costs across the country

Topic Area 1

Funding Information (p12-13)

- \$750,000 expected available in FY 2009; additional \$750,000 in FY 2010
- \$400,000 maximum, \$200,000 minimum per project
- 3 to 5 awards anticipated
- Cost share must be at least 20% of the total and must come from non-Federal sources unless otherwise allowed by law

Topic Area 1

Michigan Companies Contacted

- Danotek – testing of PM generators
- WindSight – wind measurement device – benchmark against met towers and sodar for site assessments and integration with turbine controls, to improve efficiency of turbines/wind farms
- FlexSys – prototype and field testing of flexible trailing edge wind blade
- Fulcrum Composites – pultrusion techniques for manufacturing wind turbine blades
- Kuka Robotics – automation processes for blades
- Ricardo – testing and product development for wind gear boxes and drive-trains

Topic Area 2: (Electric Utility)

Market Acceptance (p20)

Supports (1) new state wind working groups and (2) organizations that can provide targeted wind information, education and resources **to electric utilities**. Seeking projects in three areas:

- Topic 2A: Wind Powering America Activities
- Topic 2B: Distributed Wind Technology Best Practices
- Topic 2C: Distributed Wind Technology Site Analysis Tool



Topic 2A: Wind Powering America Activities (p20)

- Develop analytical and reference tools on wind technology transfer activities to ensure electric utilities are utilizing public and private resources that assist with integration of wind energy into the resource planning process
- Establish state and regional wind project development collaborations in partnership with applicable stakeholders
- Conduct market research concerning utility resource planning activities and regional joint resource planning efforts



Topic 2A: Wind Powering America (2)

- Provide technical assistance to states on model legislation and new policy options including implementation actions to advance wind development in complex siting scenarios
- Identify, analyze and promote new best practices to accelerate the dissemination of innovative and strategic state and regional activities in promoting the acceptance of wind
- Promote outreach to electric utilities in the form of targeted wind information, education and resources regarding the benefits and opportunities for large-scale wind development



Topic 2B: Distributed Wind Technology Best Practices (p20)

- Case studies of local, state and federal policies that specifically impact the cost of energy of distributed wind technology and small wind
- Includes analysis of portfolio standards, incentives, net metering rules, renewable energy credits, carbon credits, zoning and other policies
- Resulting in a guide of what works for distributed wind technology and sources for additional information

Topic 2C: Distributed Wind

Technology Site Analysis Tools (p21)

Site analysis tool needed to accurately predict performance of distributed wind system. Objectives are:

- Web-based publicly available software tool for individuals to use for site and turbine selection
- Allow for comparison of power production between alternate turbines and tower heights
- Provide estimated noise levels at adjacent occupied structures
- Provide consumer with a set of estimated conditions that could be used at zoning hearings

Topic Area 2

Funding Information (pp22-23)

- For all of Topic Area 2, \$500,000 expected in FY 2009 and additional \$500,000 in FY 2010
- Topic 2A: \$100,000 max; \$50,000 min
Topic 2B: \$100,000 max; \$0 min
Topic 2C: \$500,000 max; \$250,000 min
- Topic 2A: 4 to 8 awards anticipated
Topic 2B: 1 award anticipated
Topic 2C: 1 award anticipated
- Cost sharing is not required

Topic Area 3:

Environmental Impact (p29)

- Develop high-resolution spatial data of habitat and/or migration corridors for avian and bat species of concern in regions of high potential wind development
- Develop a risk assessment framework to identify and evaluate siting questions and solutions related to wildlife and habitat, radar and safety, aesthetic and community property values, ...other concerns
- Conduct studies assessing the impacts of wind development on avian and bat species of concern

Topic Area 3

Funding Information (pp29-30)

- \$500,000 expected in FY 2009 and additional \$500,000 in FY 2010
- \$100,000 max; \$50,000 min
- 4 to 8 awards anticipated
- Cost sharing is not required



Topic Area 4: Transmission Analysis, Planning and Assessments (p37)

- Topic 4A: Utility Wind Energy Integration
- Topic 4B: Renewable Energy Storage Feasibility Studies

Topic 4A:

Utility Wind Energy Integration (p37)

- Support to utilities to facilitate wind energy integration
- Supplementing utility capability to support collaborative planning, analysis, and renewable integration
- Identify 2-3 specific integration strategies for initial focus, and identify benefits expected from application of those strategies



Topic 4B: Renewable Energy Storage Feasibility Studies (p37)

- Preliminary project designs and feasibility studies of integrated renewable energy system applications with high renewable energy penetration (>20% of utility portfolio)
- Projects enabled by advanced integration strategies (e.g., state-of-art forecasting, renewable energy and grid system monitoring and controls, storage technologies)
- Should incorporate novel transportable energy storage systems (e.g., lithium ion battery, hydrogen fuel cell, lead-carbon capacitor technologies)

Topic 4:

Funding Information (pp38-39)

- For all Topic Area 4, \$500,000 expected in FY 2009 and additional \$500,000 in FY 2010
- \$400,000 max; \$200,000 min for each Topic Area 4A and 4B
- 1 to 3 awards anticipated for each Topic Area 4A and 4B
- Cost sharing is not required



Preliminary Michigan Ideas for Topic 4A: Utility Wind Energy Integration

- Focus on Thumb Area future wind production. Large potential. Integration challenges.
- State of the art wind energy forecasting?
- Other specific integration strategies?
- Focus on both transmission and distribution interconnections?



Preliminary Michigan Ideas for Topic 4B: Wind Energy Storage

- “~...advanced integration strategies in >20% renewable energy areas...~”
- “project designs and feasibility studies”
- Wind energy storage, using Ludington Pumped Storage? Using PHEVs?
- Renewable energy micro-grids with storage?
- “Virtual Grid” modeling using Mirror Worlds techniques? e.g., Distribution Engineering Workstation?

Topic Area 5:

Workforce Development (p46)

- Seeking projects that address ways to strengthen workforce development
- Efforts directed at innovative approaches and partnerships to retrain skilled unemployed workers as well as providing new graduates with knowledge and skills needed by the wind industry
- Includes development, standardization and certification of wind energy curricula
- Partnerships with private industry, DOE National Laboratories and others are encouraged

Topic Area 5

Funding Information (pp46-47)

- \$500,000 expected in FY 2009 and additional \$500,000 in FY 2010
- \$200,000 max; \$100,000 min
- 2 to 5 awards anticipated
- Cost sharing is not required

Topic Area 6:

Distributed Wind Technology (p54)

- Primary objective to independently test commercially-available small wind turbines
- Blades swept area $\leq 200\text{m}^2$ and turbine capacity rating $\leq 65\text{kW}$
- Independent testing at National Wind Technology Center (Colorado) for noise, energy output, and other factors
- Target: Commercially available turbines with high probability of success in U.S. market over next several years

Topic Area 6

Funding Information*

- \$250,000 expected to be available in FY 2009 and an additional \$250,000 in FY 2010
- \$150,000 max; \$0 min
- 1 to 5 awards anticipated
- Cost share must be at least 20% of the total and must come from non-Federal sources unless otherwise allowed by law

*See p. 55-56 of Funding Opportunity Announcement for additional details

Topic Area 6

Michigan Companies Contacted

- Mariah Power – 10 kW
- Cascade/Swift – 1.5 kW
- Eathronics/Windtronics – 200 W
- Franklin Energy/Vbine – 6 kW



Pursuing Michigan Applications

- Michigan dialogues January 26 through early February
- Decide on application teams by mid-February
- Applications due to DOE by March 3, 2009



Pursuing Michigan Applications

- Contact Topic leaders
- Teleconferences and webconferences will be arranged.
- MPSC and State Energy Bureau are open to any good ideas about how any Michigan applicants might best respond.
- Anyone wishing to pursue their grant applications independently, good luck and let us know if there is anything we can do to help.