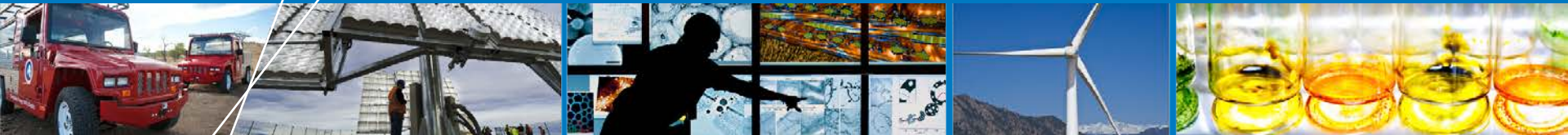


U.S. Support for Wind Technology Improvements



SOLAR 2014

San Francisco, California

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NREL/PR-5000-61879

Competitiveness Improvement Project

- Funder: U.S. Department of Energy/National Renewable Energy Laboratory (NREL) via competitive solicitation process
- Purpose: expand and revitalize U.S. leadership in domestic and international distributed wind turbine market sector
- Approach: assist U.S. manufacturers in lowering levelized cost of energy (LCOE)
- Eligible projects: component improvement, manufacturing process improvement, prototype turbine testing, and certification turbine testing.



Bergey Excel 10, 10-kW turbine, Klickitat County, WA
Photo by Gwen Bassetti, NREL 26429

Criteria – Component Improvement

- U.S. manufacturer
- Maximum 1,000-m² rotor swept area
- 18-month period of performance
- Merits
 - Evidence that improvements will result in turbine certification
 - Evidence that investment will contribute to LCOE reduction
 - Sound business plan for certification for U.S. market
 - Team/expertise
- Cost sharing
 - Minimum 20%
 - Maximum \$350,000 from NREL
- Other requirements
 - Figure of merit: LCOE before and after
 - Eligibility verification (U.S. manufacturer).

Criteria – Manufacturing Process Improvement

- U.S. manufacturer
- Maximum 1,000-m² rotor swept area
- 18-month period of performance
- Merits
 - Evidence that improvements will result in turbine certification
 - Evidence that investment will contribute to LCOE reduction
 - Sound business plan for certification for U.S. market
 - Team/expertise
- Cost sharing
 - Minimum 50%
 - Maximum \$350,000 from NREL
- Other requirements
 - Figure of merit: LCOE before and after
 - Eligibility verification (U.S. manufacturer).

Criteria – Prototype Testing

- U.S. manufacturer
- Maximum 1,000-m² rotor swept area
- 18-month period of performance
- Merits
 - Technical approach
 - Test plan
 - Expertise
- Cost sharing
 - Minimum 50%
 - Maximum \$150,000 from NREL
- Other requirements
 - Figure of merit: LCOE before and after
 - Eligibility verification (U.S. manufacturer)
 - Documentation requirements for testing facility.

Criteria – Certification Testing

- U.S. manufacturer
- Maximum 1,000-m² rotor swept area
- 18-month period of performance
- Merits
 - Evidence that turbine system is likely to comprise significant share of small wind market in United States
 - Capabilities to manufacture and supply turbine system in U.S. market AND to provide associated installation and maintenance support
 - Sound business plan leading to certification of turbine for U.S. market
 - Team/expertise
- Cost sharing
 - Minimum 20%
 - Maximum \$150,000 from NREL
- Other requirements
 - Figure of merit: LCOE before and after
 - Eligibility verification (U.S. manufacturer)
 - Documentation requirements for testing facility.

Awardees – Round 1

- Solicitation released September 2012
- Numerous proposals received
- Two funded
 - Bergey Windpower Company (component improvement)
 - Pika Energy (manufacturing process improvement).



Bergey 10-kW turbine in Goldendale, WA
Photo from Gwen Bassett, NREL 26431



Pika T701 turbine in Gorman, ME
Photo from Nathan Broaddus, NREL (top) 30092 and
(bottom) 30094

Awardees – Round 2

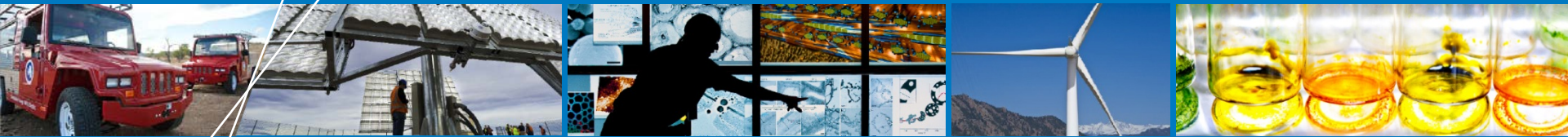
- Solicitation released September 2013
- Numerous proposals received
- Three funded
 - Endurance Wind Power (prototype testing)
 - Pika Energy (component improvement)
 - Pika Energy (manufacturing process improvement)
 - Others under negotiation.



Endurance E3120 turbine; 50-kW turbine, Appleton, WI
Photo from Kettle View Renewable Energy, LLC, NREL 28428

Next Steps

- Round 1:
 - Pika Energy completed June 2014
 - Bergey Windpower Company – extend period of performance until February 2015
- Round 2:
 - Awardees under contract to date beginning work
 - Execute remaining contracts and begin work
- Round 3:
 - Release competitive solicitation
 - Goal: Fund as many awardees deemed competitive as budget allows.



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