National Renewable Energy Laboratory
Request for Proposals Number REE-0-40878

"TESTING OF SMALL WIND TURBINES AT REGIONAL TEST CENTERS"

REQUEST FOR PROPOSALS

READ THIS DOCUMENT CAREFULLY

This solicitation is being conducted under the procedures for competitive subcontracts established by the National Renewable Energy Laboratory (NREL).

NREL will award a subcontract based on the following:

- All Statement of Work (SOW) requirements being met
- The best combination of:
  - Technical factors (based on qualitative merit criteria)
    and
  - Evaluated price (or cost)

Issue Date: 10/16/09 Due Date: 12/08/09 Time Due: 5:00 PM Mountain Time

Bidders Webinar to discuss project will be held on Friday, October 30, 2009 at 10:00 AM Mountain Time. Details on how to join the Bidders Webinar will be posted as an addendum to this RFP on NREL's Website at:
http://www.nrel.gov/business_opportunities/solicitations_rfps.html

Technical questions must be received in writing no later than 11/09/09

1. Solicitation Type Best Value Selection
Fixed Price

Submit offers to and request information from the NREL RFP Contact below

2. NREL RFP Contact
Kim Tangler, Subcontract Administrator
National Renewable Energy Laboratory
1617 Cole Boulevard, MS: 3811
Golden, CO 80401-3393
Phone: (303) 384-7018
Fax: (303) 384-6950
Email: kim.tangler@nrel.gov

Electronic (PDF) copies of forms and appendices can be found at:
http://www.nrel.gov/business_opportunities/related_docs.html

3. Project description

As specified in the Statement of Work (Appendix A) titled "Testing of Small Wind Turbines Regional Test Centers".

4. Proposed subcontract award and period of performance

It is the intent of NREL to award up to four firm fixed price subcontracts. Each subcontract award is for testing up to two (2) small wind turbines. The anticipated period of performance is 36 months.

Proposed Payment Schedule is as follows:

Test Plan Completed (1 per turbine)	25%
Turbine System and DAS Commissioning Report Complete (1 per turbine)	25%
Power Performance Test Report Complete (1 per turbine)	8 %
Safety and Function Test Report Complete (1 per turbine)	8 %
Acoustic Noise Emissions Test Report Complete (1 per turbine)	8 %
Duration Test Report Complete to include results of pre and post test inspections (1 per turbine)	16%
Post Test Review Meeting and Final Report (1 per turbine)	10%

Rough Anticipated Milestone Schedule is as follows:

Turbine System and DAS Commissioning Report Submitted to NREL (1 per turbine)	9 months after subcontract award
Duration Test Report Submitted to NREL to Include Results of Pre and Post Test Inspections (1 per turbine)	24 months after subcontract award
Post Test Review Meeting and Final Report (1 per turbine)	36 months after subcontract award

5. Competitive negotiated subcontract using Best Value Selection

This solicitation shall be conducted using Best Value Selection that results in an award that is most advantageous to DOE/NREL based on the best value combination of (a) evaluated qualitative merit and (b) evaluated price (cost) of the offers submitted.

Best Value Selection is based on the premise that, if all offers are of approximately equal qualitative merit, award will be made to the offeror with the lowest evaluated price (cost). However, NREL will consider awarding to an offeror with a higher evaluated price (cost) if the offer demonstrates the difference in price (cost) is commensurate with the higher qualitative merit. Conversely, NREL will consider awarding to an offeror with a lower evaluated qualitative merit if the price (cost) differential between it and other offers warrant doing so.

6. Qualitative Merit Criteria for Best Value Selection

The Statement of Work (Appendix A) in this Request for Proposals serves as NREL's baseline requirements that must be met by each offer.

The qualitative merit criteria establish what NREL considers the technical factors valuable in an offer. These qualitative merit criteria are performance-based and permit selection of a higher priced offer that provides higher qualitative merit.

The following qualitative merit criteria will be used to determine the technical value of the offer in meeting the objectives of the solicitation.

6.1 Site and Facilities
6.2 Equipment/DAS
6.3 Personnel/Management Plan
6.4 Business Plan Demonstrating Long Term Viability
6.5 Turbine

A. Qualifications Requirements for RTC (Screening Criteria)
To be considered for this award, the proposed site must meet the following minimum standards. Failure to meet all site requirements will result in the exclusion of the proposal from further consideration.

1. Site and Facilities (See the SOW's Attachment 1 for a discussion of Small Wind Turbine (SWT) Test Site Selection guidelines)

a. Offeror must demonstrate legal right to use the site (ownership, lease, or option) and zoning approvals (if needed) through at least 12/31/2014.
b. The proposed site must allow for installed turbines to connect to the utility grid.
c. The proposed site must receive an average of at least 30hrs of winds per year above 15.0 m/s at 65 ft (20 m) above ground level (AGL).
d. The proposed site must receive an average of at least 300hrs of winds per year above 9.0 m/s at 65 ft (20 m) AGL.

B. Qualitative Merit Criteria for Best Value Selection
Offers that meet the screening criteria will be evaluated using the following technical evaluation criteria:

1. Site and Facilities: (25%)

Preference will be given to sites that demonstrate:

a. A minimum of 30 hours per year (average) of wind speeds of at least 15 m/s within the measurement sector and,
b. A minimum of 300 hours per year (average) of wind speeds of at least 9.0 m/s within the measurement sector. For purposes of determining the measurement sector, the Offeror may assume a turbine with a rotor diameter of 8.0 meters and a rotor diameter of 16.0 meters.
c. the ability to test at least two wind turbines simultaneously.
d. they are zoned to allow towers heights of 120 feet or greater.

Note: A good wind resource for testing is not necessarily the same as a good wind resource for power production. A good testing resource will have the following characteristics:

- Highly directional, so the met tower can be located in the prevailing upwind location from the test turbine.
- Suitable wind speed distribution, to meet requirements for minimum hours at minimum wind speeds.
- Clear of obstacles which may affect or limit valid measurement directions.

Proposals should include documentation which demonstrates the quality of the Offeror's site. The documentation may include items such as:

a. A detailed description of the proposed small wind test site.
b. Documentation of the wind resource at the proposed test site including information about the site's wind speed distribution and wind direction as follows:
    - Type of data (on-site measurements, near-site measurements, resource map)
    - Annual average
    - Wind rose
    - Wind speed distribution or Weibull shape factor
c. Topographic map(s) (with scale) of the site and surrounding area showing proposed locations of turbine sites, met tower sites, existing or proposed facilities, grid interconnection point, and existing structures and obstacles.
d. Map/diagram showing measurement sectors for each proposed test pad. Show the measurement sectors assuming the following turbine rotor diameters: 8m and 16m.
e. Description of existing or proposed facilities to support the testing effort (sheds, existing and proposed conduit runs, etc.).
f. Proof that the offeror has legal use of the site, and zoning approvals for testing purposes (ownership, rental, or option documents) through at least December 31, 2014. Zoning information must include information about any height restrictions at the site.
g. Documentation demonstrating that the local utility company will allow turbines to interconnect with the grid.

2. Equipment/Data Acquisition System (DAS): (15%)

Preference will be given to sites that demonstrate:

a. that the offeror's DAS supports small wind turbine testing to the IEC standard. This would require the offeror's DAS to:
    - have a minimum 1Hz sampling rate.
    - be able to average at 1 min, 10 min, and, for acoustic measurements, 10 sec intervals.
    - be able to calculate/determine: min, max, standard deviation.
    - have enough channels for the following: power, wind speed (2), wind direction, pressure, and temperature.
    - having a DAS which meets the IEC noise measuring standards of: Microphone 20Hz – 20 kHz, sound pressure levels, 1/3 octave level, A-weighting, 10 second averaging, and narrow band analysis
b. that the offeror's DAS capture: RPM, precipitation, voltage, energy sent to and used from the grid, and turbine status signal(s).

Proposals should include documentation which demonstrates the quality of the Offeror's data acquisition system. The documentation may include items such as:

a. A description of the equipment to be used to complete the test protocol, including safety and function, power performance, duration, and acoustics

such as:

- Schematics of proposed DAS system (including instrumentation)
- Specification sheets for proposed instrumentation and DAS
- Any special software needed to use the DAS (e.g. LabVIEW)

3. Personnel/Management Plan: (30%)

Preference will be given to sites that demonstrate:

a. A feasible plan to install, instrument and commission turbines, collect and analyze data, write a test report, and make the test results public.
b. The experience of proposed personnel in SWT operation, instrumentation/DAS installation and operation, data validation and analysis, and test report writing.
c. A schedule that credibly meets the milestones specified in the chart entitled, "Rough Anticipated Milestone Schedule" under number 4 on page 2 of 12.

Proposals should include documentation which demonstrates the offeror has a feasible plan for accomplishing the tasks in the scope of work. The documentation may include items such as:

a. A detailed description of how the project team will meet DOE/NREL's goals and objectives described in the Statement of Work (Appendix A). This description may include:
    - A detailed narrative of the management plan describing how the Offeror will install and commission the turbine and DAS, collect and analyze the data, write and review the final report, and disseminate the results. At a minimum test results shall be reviewed and approved by NREL, then posted on a publicly available web site.
    - An organization chart for the proposed project and an explanation of the role of each key participant and organization.
    - A description of the capabilities, expertise, and experience of the Offeror, the offeror's staff, and any partner organizations.
    - Descriptions of any past small wind turbine test experience, general wind turbine experience, and/or past general testing experience.
    - A description of any relevant past experience in project management and grant/subcontract management.
    - A schedule and milestone chart that shows the timing of all major project activities and meetings, and links these with project deliverables (e.g., milestones, meetings, and reports).
    - An explanation of the assistance requested from NREL.
    - Resumes or CVs of all participating key personnel.
    - Letters of Commitment from key partner organizations and project participants.

4. Business Plan Demonstrating Long Term Viability: (20%)

Preference will be given to offerors that demonstrate:

a. A sound business plan that demonstrates the long term financial viability of the RTC after award period; and
b. Sufficient level of support and cooperation by potential partners.

Proposals should include documentation which demonstrates the quality of the Offeror's Business Plan. The documentation may include items such as:

a. A detailed description of how the offeror plans to ensure long term financial viability of the RTC after the subcontract period is completed.
b. A description of any potential partners and their level of support, including financial support.
c. Letters of commitment from any proposed partners and outside funding sources.

5. Turbine: (10%)

The turbine system to be tested must meet the following requirements:

a. Generate electricity for use on a 60 Hz AC grid or for a battery system with a minimum 12 volts nominal voltage. Mechanical turbines and direct connect (variable voltage) generator/motor configurations will not be accepted,
b. Rotor swept area less than or equal to 200 m^2,
c. New, not refurbished,
d. Turbine inverter has UL-1741(or similar) listing,
e. Turbine manufacturer must agree in writing to allow test results to be posted in the public domain, and
f. Manufacturer must demonstrate ability to supply quality turbines for the U.S. market, and provide the associated installation and maintenance support as shown by:
   - Description of past R&D and testing history of the turbine.
   - Current (2009) annual manufacturing capacity.
   - Operations and maintenance requirements.
   - Operations and maintenance costs.
   - Warranty, including coverage length and content (parts/labor/exclusions).
   - Sales history, especially in the past year (worldwide and U.S.).
   - Number of turbine systems currently installed (worldwide and U.S.).
   - Number of dealers/installers (worldwide and U.S.).
   - Existing/pending certifications.
   - Plan to introduce and support the turbine into the U.S. market if not currently available in the U.S.

Note: It must be emphasized that the testing described under this effort is for certification purposes, not R&D purposes. Turbines selected for testing under this effort must be production models and should have already completed sufficient prior R&D and testing to provide some assurance of completing the IEC tests. In addition, the offeror should provide evidence that the turbine manufacturer can and will, or currently does; support the turbine in the U.S. market.

A turbine will not be excluded simply because it is not currently available in the U.S. market, so long as, the manufacturer has a credible plan to introduce and support the turbine in the U.S. market.

Proposals should include documentation which demonstrates that the turbine meets the requirements listed above. The documentation may include items such as:

a. A detailed description of the turbine system, including:
   - Turbine type, size, and model
   - Tower configuration and size
   - Tabulated power curve and projected Annual Energy Production at the test site
   - Turbine system features
   - IEC SWT Design Class and/or design 50-year extreme wind speed, V_{e50}. Turbine system design lifetime
   - UL rating of the inverter and other components
   - Warranty
   - Any additional public domain information, such as published technical
   - information, sales brochures, and company website information
   - Selling cost
   - Operations and maintenance requirements
   - Operations and maintenance costs
   - A letter/memo from turbine manufacturer stating that the turbine is available for shipment to the RTC within 60 days of contract signing
   - A letter/memo from turbine manufacturer authorizing the placement of the test reports in the public domain
   - Information about the manufacturer's background and development and testing history of the turbine to be tested. Information on company's experience should include sales history, especially in the past year (U.S. and worldwide); approximate number of turbine systems currently installed (U.S and worldwide); tower options; number of dealers/installers (U.S. and worldwide); existing/pending IEC certifications; and capabilities to support installed systems in the U.S. or a plan to introduce and support he turbine in the U.S. market.

7. Price (cost) evaluation for Best Value Selection

After evaluation of the qualitative merit criteria, the following price (cost) evaluation will be used to determine the best value of the offer in meeting the objectives of the solicitation.

The combined qualitative merit value will be considered equally important to the price (cost).

8. Additional Factors for Evaluation

In addition to the qualitative merit criteria and price (cost) evaluation above, each offer will be evaluated using the following evaluation factor(s) to determine the competitive range and final negotiation rank order. These factors are not weighted but add value to the proposal.

8.1 Turbine manufacturer, size, and configuration diversity.
8.2 Geographic diversity.

9. Evaluation process

NREL will evaluate offers in three general steps:

Step One - Initial Review
An initial review will be performed to determine if all required information has been provided for an acceptable offer. Offerors may be contacted only for clarification purposes during the initial evaluation. Offerors shall be notified if their offer is determined unacceptable and the reasons for rejection will be provided. Unacceptable offers will be excluded from further consideration.

Step Two - Screening
All proposals passing the initial review will be evaluated against the minimum site requirements as stated above in item 6 A.1. Any proposal failing to meet any of the site screening criteria will be excluded from further consideration.

Step Three – Evaluation, Discussion, Selection, Negotiation, and Award
All acceptable offers will be evaluated against the Statement of Work (Appendix A) and the qualitative merit criteria listed above. Based on this evaluation, NREL has the option, depending on the specific circumstances of the offers received, to use one of the following methods of selection:

(a) make individual selection(s), conduct negotiations, and make an award(s);

(b) conduct parallel negotiations with all offerors and make award(s);

(c) conduct discussions with all offerors, select successful finalists, conduct parallel negotiations with successful finalists, and then make award(s);

(d) conduct discussions with all offerors, conduct parallel negotiations with the finalists, select successful finalist(s), and then make award(s);

(e) select successful finalists, conduct successive negotiations, and make successive selections and awards;

(f) make no award(s).

10. Proposal preparation information

a. The proposal must include a title page, including the RFP title and number, name of your organization and principal investigator (with postal address, telephone and fax numbers, and email address). The title should be succinct and capture the essence of your offer.

b. Formatting instructions
   - A page is defined as one side of an 8 ½" x 11" sheet of paper.
   - Use a 12-point font.
   - Maintain at least 1-inch margins on all sides.
   - Copies may be either single or double sided.

c. A **technical proposal** in original and 8 copies directed toward meeting the requirements of NREL's Statement of Work (Appendix A). The proposal shall include the following components in this order: (1) introduction and project summary, (2) RTC test site information, (3) description of equipment and DAS (4) Personnel/Management Plan, (5) Business Plan (6) wind turbine system description,

and (7) description of wind turbine and turbine manufacturer. The total proposal shall not exceed 100 pages, not including resumes. Refer to section 6. B. *Qualitative Merit Criteria for Best Value* subsections 1 through 5, referenced above, for the minimum details the technical proposal shall address.

- **Introduction and Project Summary** section shall present a 1-4 page introduction and summary of the proposed effort, including RTC description, location, turbine(s) to be tested (size, type,) and RTC's ability to set up a small wind test site and ability of the RTC plus any partners to install, commission, and test small wind turbines.

d. A completed "**Price/Cost Proposal**" form in original and 8 copies submitted with the offer (see NREL website listed below under item 12). An individual offeror's price/cost proposal standard format can be used if the data included is substantially the same as the NREL form. The offeror's price/cost and delivery terms must be valid for 90 days from the date of the offer. The price/cost proposal should include support documentation for all categories of the proposed price/cost. The price/cost proposal should separate price/cost for lower-tier subcontract(s) and include support documentation for all categories of the proposed lower-tier subcontract(s) price/cost. (see Price/Cost Proposal preparation instructions (NREL website below under item 12).

e. A completed "**Representations and Certifications**" form with original signatures. (see NREL website listed below under item 12).

f. EITHER the **"Organizational Conflicts of Interest Representation Statement"** OR the **"Organizational Conflicts of Interest Disclosure Statement"** form with original signatures (see NREL website listed below under item 12), as applicable.

g. A completed **"National Environmental Policy Act (NEPA) Checklist"** form with original signatures (see NREL website listed below under item 12).

h. A cover letter including a **summary statement** indicating acceptance of the proposed Statement of Work or any change with the reason(s) in original and 8 copies. (see NREL website listed below under item 12) or;

i. A cover letter including a **summary of deviations/exceptions** (if any) to the subcontract schedule and the standard terms and conditions and/or the intellectual property terms and conditions in the appendices with original signatures. The offeror will explain any exceptions (including deviations and conditional assumptions) taken with respect to the subcontract schedule and terms and conditions. Any exceptions must contain sufficient amplification and justification to permit evaluation. Such exceptions will not, of themselves, automatically cause an offer to be termed unacceptable. A large number of exceptions or one or more significant exceptions not providing any obvious benefit to the Department of Energy or NREL may, however, result in rejection of such offer as unacceptable.

j. This solicitation does not allow the submittal of facsimile or electronic proposals.

k. This solicitation does not commit NREL to pay costs incurred in the preparation and submission of a proposal in response to this RFP.

11. Solicitation Provisions—full text provided

a. Late submissions, modifications, and withdrawals of offers

Offers, or modifications to them, received from qualified organizations after the latest date specified for receipt may be considered if received prior to award, and NREL determines that there is a potential price (cost), technical, or other advantage, as compared to the other offers received. However, depending on the circumstances surrounding the late submission or modification, NREL may consider a late offer to be an indication of the offeror's performance capabilities, resulting in downgrading of the offer in the technical evaluation process. Offers may be withdrawn by written notice received at any time before award. Offers may be withdrawn in person by an offeror or an authorized representative, if the representative's identity is made known and the representative signs a receipt for the offer before award.

b. Restrictions on disclosure and use of data

Offerors who include in their proposals data that they do not want disclosed to the public for any purpose or used by the government or NREL, except for evaluation purposes shall—

1. Mark the title page with the following legend:
   "This offer includes data that shall not be disclosed outside the government or NREL and shall not be used or disclosed—in whole or in part—for any purpose other than to evaluate this offer. If, however, a subcontract is awarded to this offeror as a result of—or in connection with—the submission of this data, the government or NREL shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting subcontract. This restriction does not limit the government or NREL's right to use information contained in this data if obtained from another source without restriction. The data subject to this restriction are contained on pages [insert page and line numbers or other identification of pages] of this offer"; and

2. Mark each page of data it wishes to restrict with the following legend:
   "Use or disclosure of data contained on this page is subject to the restriction on the title page of this offer."

c. Notice of right to receive patent waiver (derived from DEAR 952.227-84) and technical data requirements.

Offerors (and their prospective lower-tier subcontractors) in accordance with applicable statutes and Department of Energy Acquisition Regulations, (derived from DEAR 952.227-84) have the right to request a waiver of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of the subcontract that may be awarded as a result of this solicitation, in advance of or within thirty (30) days after the effective date of subcontracting. Even where such advance waiver is not requested or the request is denied, the subcontractor will have a continuing right during the subcontract to request a waiver of the rights of the United States in identified, individual inventions.

Domestic small business firms, educational institutions, and domestic nonprofit organizations normally will receive the clause: Patent Rights - Retention by the Subcontractor, which permits the offeror to retain title to subject inventions, except in

subcontracts involving exceptional circumstances or intelligence activities. Therefore, domestic small business firms, educational institutions, and domestic nonprofit organizations normally need not request a waiver.

If an offeror's proposal includes a lower-tier subcontract to another organization, that lower-tier organization's business type will determine the applicable intellectual property provisions that will apply to the lower-tier subcontract. Note that a lower-tier subcontractor may apply for a patent waiver under the same conditions as the offeror.

Under a research, development, and demonstration project, the Department of Energy and NREL are unable to ascertain, prior to receipt of offers or performance of the project, their actual needs for technical data. It is believed that the requirements contained herein are the basic needs of the Department of Energy and NREL. However, if the offeror indicates in its proposal that proprietary data will be used or withheld under its proposed effort, the Department of Energy and NREL reserve the right to negotiate appropriate rights to the proprietary data. The appropriate rights may include "Limited Rights in Proprietary Data" and/or "Subcontractor Licensing."

d. Disclaimer

NEITHER THE UNITED STATES; NOR THE DEPARTMENT OF ENERGY; NOR ALLIANCE FOR SUSTAINABLE ENERGY, LLC; NOR ANY OF THEIR CONTRACTORS, SUBCONTRACTORS, OR THEIR EMPLOYEES MAKE ANY WARRANTY, EXPRESS OR IMPLIED, OR ASSUME ANY LEGAL LIABILITY OR RESPONSIBILITY FOR THE ACCURACY, COMPLETENESS, OR USEFULNESS FOR ANY PURPOSE OF ANY OF THE TECHNICAL INFORMATION OR DATA ATTACHED OR OTHERWISE PROVIDED HEREIN AS REFERENCE MATERIAL.

e. Solicitation disputes

The General Accountability Office and the Department of Energy do not accept or rule on disputes for solicitations for Requests for Proposals issued by Management and Operating Contractors for the Department of Energy (operators of Department of Energy National Laboratories). Should an offeror have any concerns regarding the NREL solicitation process or selection determination, the offeror may contact Marty Noland, Advocate for Commercial Practices, at (303) 384-7550. NREL will address each concern received from an offeror on an individual basis.

12. Solicitation provisions—incorporated by reference—general access

This solicitation incorporates one or more solicitation provisions by reference with the same force and effect as if they were given in full text. The following documents can be downloaded from the NREL **general access** website at:

http://www.nrel.gov/business_opportunities/related_docs.html or the NREL RFP Contact (see item 2) will make full text available upon request.

- NREL Standard Terms and Conditions:
  - Appendix B-7 (10/01/08)

- NREL Intellectual Property Provisions:
  - Appendix C-3 (10/22/98)

- NREL Price/Cost Proposal Form and Instructions (07/18/02)
- NREL Representations and Certifications for Subcontracts (05/10/07)
- NREL Conflicts of Interest Forms (09/19/05)
- National Environmental Policy Act (NEPA) Checklist (02/09/06)

13. NAICS Code and Small Business Size Standard

a. The North American Industry Classification System (NAICS) for this solicitation is Testing Laboratories (541380).

b. The small business size standard for Testing Laboratories is $5,000,000.00 in annual receipts. (Annual receipts of a concern means the annual average gross revenue for the last three fiscal years.)

APPENDICES

Appendix A: Statement of Work (SOW)
SOW Attachment 1: SWT Test Site Selection Considerations (informational)
SOW Attachment 2: SWT Test Instrumentation Selection Considerations (informational)
SOW Attachment 3: Minimum Commissioning Plan and Checklist Requirements
SOW Attachment 4: Monthly report format