A national laboratory of the U.S. Department of Energy
Office of Energy Efficiency & Renewable Energy

National Renewable Energy Laboratory

Innovation for Our Energy Future

July 31, 2007

To: Offerors

Subject: Amendment #1 to Request for Proposals (RFP) No. RAM-7-77539, "Independent Testing of Small Wind Turbines"

This notice comprises Amendment #1 to the subject Request for Proposals (RFP), which provides NREL's responses to the technical questions received. Please note that questions may have been edited for clarity, to protect business-sensitive information, or in some cases combined with similar questions to enable comprehensive responses.

Q1. *Clarify wind conditions of the test site.*

A1. From the RFP: "Although wind resource maps show that the NWTC is only a Class 1-2 site for wind energy production, it experiences frequent extreme winds. Last year NREL recorded two events during which wind at 20 m above ground gusted to 100 mph and 24 events during which it gusted to 60 mph."

Q2. *Clarify annual average wind speed.*

A2. Based on several years of data obtained at the NWTC, NREL has calculated an annual average wind speed of 4.2 m/s (9.4 mps) at 40 m above ground.

Q3. *Clarify extreme 50-year gust.*

A3. NREL has not extrapolated an extreme 50-year gust for the NWTC from existing data. Based on a Rayleigh wind speed distribution and the average annual wind speed given above, the extreme 50-year gust is 29.4 m/s (65.8 mph) at 40 m above ground. However, as noted above, the NWTC experiences many more high-wind events than predicted by a Rayleigh wind speed distribution and the average wind speed. NOTE: The Statement of Work in the RFP requires the subcontractor to provide engineering documents that indicate that the turbine support system is adequate to sustain the DESIGN 50-yr extreme wind. This is the manufacturer's design characteristic -- not the NWTC 50-yr extreme wind.

Q4. *Clarify SWT class (according to IEC 61400-2).*

A4. "SWT class" refers to a hypothetical site used in wind turbine design. Winds at the NWTC (or other sites) are not typically characterized in terms of SWT class.

Q5. *Any site-specific requirements for the grid connection of the wind turbine?*

A5. All wiring and components external to cabinets or other enclosures (such as the turbine nacelle) shall meet National Electric Code requirements. All cabinets and other enclosures accessible to personnel must be grounded and must be capable of withstanding internal faults without exposing personnel or NREL property to injury or damage. Wind turbines must have a method of detecting a grid fault and preventing energy from entering the NWTC electrical grid if there is a grid fault.

Q6. *Regarding Tower, and mounting: Do you have a building with parapet walls that extend above a flat roof and meet at a 90 degree angle (typical building corner)? If so, is this building of steel, tilt-up concrete, or concrete block construction? Would you be interested in trying a silent building-mounted turbine?*

A6. While we might have a building that meets these requirements, we do not plan to mount wind turbines on any existing buildings at NREL for testing purposes. We are interested in testing any building-mounted turbine that has the potential to have a significant impact on the small wind turbine market in the US. But installation at the NWTC will require installation of a building-like structure of appropriate characteristics in our test area away from existing NREL buildings.

Q7. *For a small turbine, say 500 watts, or a somewhat larger turbine - say 1500 watts - how many existing towers does the National Wind Technology Center have available that might be utilized to test a turbine from a turbine manufacturer or turbine research organization that does not normally get involved with building, specifying, or installing towers per se?*

A7. NREL expects the subcontractor to provide an appropriate new tower for each turbine to be tested in this program. NREL will not use any of our existing towers for that purpose.

Q8. *Does the National Wind Technology Center have personnel to tilt a tower up and down, and connect the wires coming from the turbine to a battery bank or inverter, or must the proposer in all cases also be the onsite installer, or provide an onsite installer?*

A8. NREL personnel are very experienced in the installation and operation of a wide variety of wind turbines. We are prepared to perform all aspects of

turbine installation using that experience, the subcontractor's documentation, and the subcontractor's on-site participation as described in the RFP.

Q9. *Must the proposer travel to the NWTC to handle any unexpected instances where the tower must be tilted down, for say an emerging maintenance issue or damage from storms?*

A9. NREL expects that our personnel are capable of tilting the tower down and performing normal maintenance or inspection. (Note that our man-lifts permit inspections without lowering the turbine in many cases.) The subcontractor may be required to assist in maintenance and repair activities depending upon the nature and severity of the activity.

Q10. *Towers are usually best handled by locals with local experience, having established local suppliers for hardware, pipe, concrete, etc. Can NREL recommend local installers/contractors who can be subcontracted to put up a tower at the NWTC in Colorado? Any hints on the best source of info on competent installers / tower erectors local to NWTC, having experience with local soil conditions, weather, etc?*

A10. The subcontractor will provide all materials needed for the tower. If appropriate, the subcontractor can purchase these materials from local vendors. NREL will perform the installation in accordance with the subcontractor's written installation instructions and with the subcontractor's on-site participation as described in the RFP.

Q11. *The RFP gives two separate cities and zip codes for the same address - which is correct?18200 State Highway 128 Boulder, CO 80303 OR Arvada, CO 80007.*

A11. Each address is correct for the specified carrier. Because the NWTC is located in unincorporated Jefferson County, the carrier determines the nearest city for addressing. Mail and small packages should be sent to NREL's main offices in Golden as described in the RFP.

Q12. *What is the directional nature of the wind resource at the test site? Is there a strongly prevailing wind direction?*

A12. Prevailing winds are from the NW as shown in Figure 1 below.

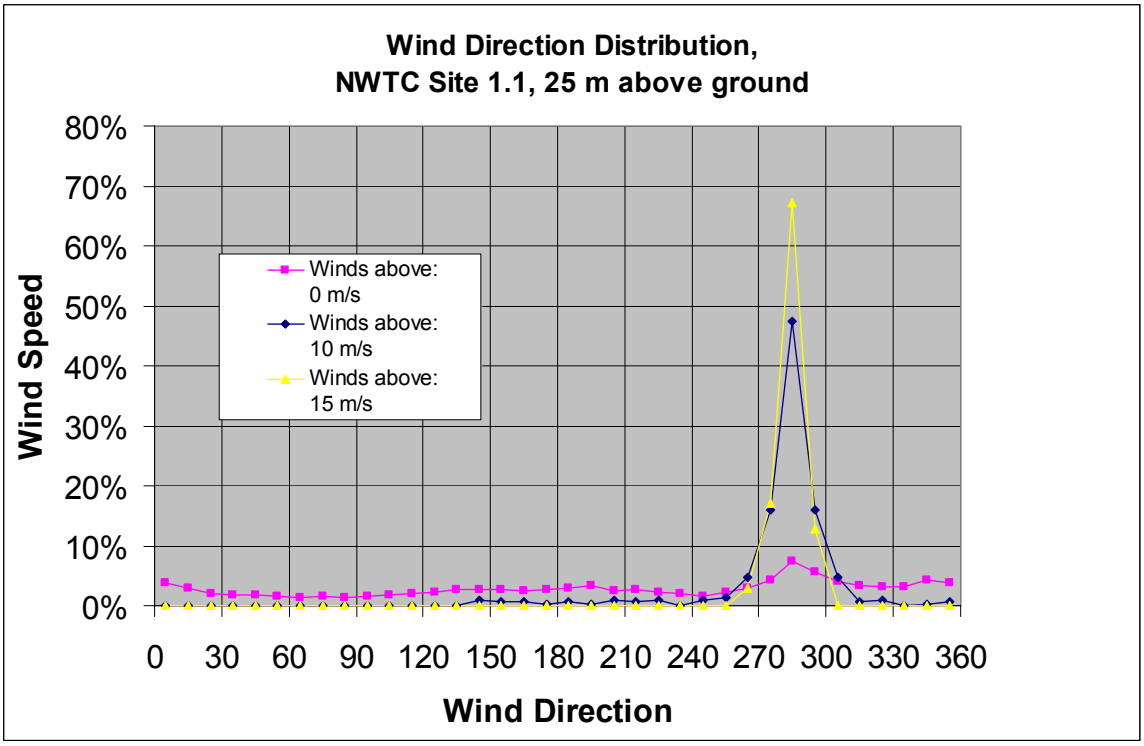

Figure 1 Wind direction distribution, NWTC

Q13. *How does it change with the seasons?*

A13. Summer winds are light and from all directions. Winter winds are variable with strong winds all from NW.

Q14. Do the most extreme winds normally come from the prevailing direction?

A14. Yes

Q15. *Is data in the form of a Windrose available? (Wind Rose - name for circular bar-chart showing long-term cumulative wind power from each direction for a given site and height).*

A15. No.

Q16. *How does the prevailing wind direction, if any relate to obstacles, buildings, trees, landforms etc.?*

A16. Depends on turbine location. NREL positions test turbines to be free of upwind obstructions in the prevailing NW direction to facilitate IEC power performance measurements.

Q17. *How are your buildings that might be suitable for a roof mount, oriented with regard to the prevailing wind direction?*

A17. NREL has no existing buildings suitable for roof mounting of test turbines. If a building-like structure is installed it would probably be oriented with the "up-wind" wall perpendicular to the prevailing, NW winds.

Q18. *I'm in the middle of designing new small wind turbines--am I excluded from the RFP? Will there be future solicitations for those with newer technology?*

A18. You are welcome to respond to this RFP by submitting a proposal. The program is intended to test wind turbines that are already in the marketplace, not in the pre-market, development stage. If you submit a proposal, it will be evaluated as described in the RFP without consideration of your company's ability to pay for testing. Although there is support for future solicitations for another round of testing, such solicitations will be approved by the US Department of Energy based on interest and funding in future years.

Q19. *We are in the final prototype phase of a lightweight advanced composite vertical axis wind. The first commercial applications will be in late 2007. A new manufacturing plant is schedule for production in the first quarter of 2008. Can we participate in this RFP?*

A19. You are welcome to respond to this RFP by submitting a proposal. All proposals will be reviewed and scored based on the qualitative merit criteria set out in Section 6 of the Request for Proposal.

Q20. *From August 22 when the RFP's are do (sic) when will the manufacturers be notified they are awarded their turbine for testing and have to submit the turbine?*

A20. NREL anticipates that we will notify proposers of their selection and our intention to negotiate a subcontract by Oct 2007. Assuming negotiations can be completed and a subcontract executed within one month, turbines from the highest ranking proposers could be due at the NWTC by Dec 2007. Some subcontracts may be started at a later date.

Q21. *If the turbine is currently being UL approved would it still be a viable candidate?*

A21. Yes

Q22. *Could the turbine be made from the prototype tooling?*

A22. Yes

Q23. The solicitation states that "NREL will provide the foundation and the load connection." - What type of foundation is NREL providing? Is there some bolt pattern we need to be aware of? Does this "foundation" include, or can this "foundation" include, guy anchors?

A23. NREL will install a foundation in accordance with the subcontractor's specification.

Q24. It is July 27 - With 18 business days left until the deadline, when and where do potential proposers begin to see answers to the preliminary questions for this RFP, so that we might begin to formulate a proposal, or even decide whether to participate?

A24. 31 July 2007,
http://www.nrel.gov/business_opportunities/solicitations_rfps.html

Q25. What is the NREL's definition of "market available"? Our turbine is sold through dealers all throughout the US right now and we currently have approximately 50 sales in the US. However, these sales will not be fulfilled until the fall. Will we still qualify for the RFP?

A25. It is difficult and arguably inappropriate to precisely define "market available." Your short description of your company's transition into commercial sales appears to qualify your turbine. To be selected, your proposal would need to convince the selection committee that your turbine "will comprise a significant share of the U. S. small wind turbine market" compared to other proposals.

Q26. Our product will not be UL certified until December of 2007. Will we still be able to pursue this project, or is UL certification mandatory at this point in the process?

A26. UL certification is not mandatory.

Accordingly, your proposal, in an original and copies as required, should be submitted to: Loretta Schmidt, Senior Subcontract Administrator, MS 1735, National Renewable Energy Laboratory, 1617 Cole Boulevard, Golden, CO 80401-3393, on or before August 22, 2007.

Sincerely,
Loretta Schmidt
Senior Subcontract Administrator

1617 Cole Blvd. • Golden, CO 80401-3393 • (303) 275-3000
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