



Request for Qualifications: Torrefaction Research and Development Partner

Responses to Questions Submitted by 5 PM July 3, 2014

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This document presents the questions received regarding our Request for Qualifications along with answers prepared by our project team.

Question 1: Is the entire budget for the torrefaction partner \$720,000?

Answer: The budget for the torrefaction partner consists of \$400,000 in cash award from the DOE grant and at least \$320,000 in cost share that is contributed by the torrefaction partner. The total budget for the torrefaction partner is at least \$720,000, which is the sum of the DOE grant and the cost share amount.

Question 2: What types of activities are eligible for cost share?

Answer: The definitive document regarding eligible cost share items was provided as Attachment 2 to the original RFQ. Information in that document takes precedence over the information provided here. Typical cost share items that may be applicable to this project include and are not limited to:

- Rental or lease of torrefaction machine(s), equipment, and facilities used to support the project,
- staff time for torrefaction system operators, engineers, and/or fabricators,
- feedstock provided for experimental purposes,
- the value of torrefaction machine(s) depreciated over its expected lifespan, multiplied by the percentage of its lifetime that it is available to the project.

Question 3: Is there any flexibility regarding the one ton per day and twenty ton per day production numbers listed in the RFQ?

Answer: The one ton per day and twenty ton per day production rates in the RFQ and Statement of Project Objectives (SOPO) represent a commitment made by the original torrefaction partner, Renewable Fuels Technologies, who has since withdrawn from the project. We are working with the DOE to revise the SOPO language to allow flexibility regarding the production rates for the torrefaction work completed under this project. Revising the language in the SOPO will take time and we recommend that respondents

comment on how the 1 ton per day and 20 ton per day production rates that are currently in the SOPO fit the development schedule of their technology and/or or comment on what scale torrefaction units you would be able to provide access to over the course of the project. We will use that information in our work to revise the SOPO language with the DOE to allow for more flexibility going forward. We will attempt to provide more clarity on this point in the subsequent RFP.

Question 4: Are you looking to procure torrefaction equipment under this project? If not, what exactly are you looking for?

Answer: No. We are looking to partner with an organization that is developing torrefaction technology and will allow us access to torrefaction machinery and provide support for energy and mass balance analyses. We are seeking to gain access to torrefaction machinery on two scales:

1. Initially we are seeking access to a machine with a production rate of approximately 1 ton per day (as per the answer to Question 3 we are seeking flexibility on the one ton per day initial production rate).
 - a. We would like to complete the testing on this machine within one year of executing a contract with the selected torrefaction partner.
2. Subsequently we are seeking access to a machine with a production rate of approximately 20 tons per day (again, as per the answer to Question 3 we are seeking flexibility on the twenty ton per day initial production rate).
 - a. We would like to complete the testing on this machine within two years of executing a contract with the selected torrefaction partner.

Question 5: Does the torrefaction equipment have to be located in Northern California?

Answer: The current SOPO language for Task 3.4 specifies that the smaller torrefaction unit be set up at a field site in northern California and that the larger torrefaction unit be set up at a field site. We are working with the DOE to revise the SOPO language to allow flexibility regarding the locations for the torrefaction work completed under this project. Revising the language in the SOPO will take time and we recommend that respondents comment on their ability to meet the language currently shown in the SOPO regarding locations where the equipment will be set up and/or indicate what alternate locations make sense from your perspective. We will use that information in our work to revise the SOPO language with the DOE to allow for more flexibility going forward. We will attempt to provide more clarity on this point in the subsequent RFP.

Question 6: Are we expecting the machine to be auto thermal?

Answer: No. We will be conducting energy and mass balances on the machines and will use the results to comment on the potential for the machines to operate on a stand-alone basis in a near woods environment. We will also be investigating the potential to couple biochar, torrefaction, and/or briquetting operations with regards to process energy generation potential and measured energy consumption for the various unit processes.

Question 7: Can your team travel to a location outside of Northern California to test torrefaction machines?

Answer: For testing of the larger unit under Task 3.4 in the SOPO we can travel to the forest operations site where the equipment is set up. For testing the small unit under Task 3.4, we can travel to field sites in northern California and we can likely travel to field sites elsewhere pending permission from the DOE as described in our response to Question 5 above. Note that conducting tests on machines in northern California would be preferred.

Question 8: Due to the delayed start of the project, the three year period of performance has been compressed. Is there potential for an extension of the project deadline?

Answer: There is potential for a six month no cost extension. However, whether or not an extension is granted will not be known by the time contracts are executed with the selected torrefaction partner. We recommend that respondents plan on executing the work as per the period of performance presented in the RFQ. We will attempt to provide more clarity on this point in the subsequent RFP.

Question 9: What do you mean by “mobile” in the context of the torrefaction unit? Does the system have to be on wheels? If it is transportable is that ok?

Answer: The torrefaction units do not have to be mounted on wheels. The intent is that the units are suitable for field operations and durable enough to be transported to and operated in near woods environments.

Question 10: Does the torrefaction unit need to produce densified pellets of torrefied wood?

Answer: No. It is sufficient to produce torrefied wood chips, although a densified product is preferred.

Question 11: Is there any addition background material available on the previously envisioned program, based on the RFT technology, and was attractive to the DOE? This could help structure our response.

Answer: No. The best guide as to what would be attractive to the DOE is the language presented under Task 3.3 and 3.4 in the SOPO combined with a plan to meet the cost share requirement.

Question 12: Can the unit be located at any site in or near Northern CA?

Answer: Sites in Northern CA are preferred. Sites near Northern CA and other field sites may be acceptable pending approval of the DOE. Site near Northern CA would be preferred to sites far from Northern CA. Also see response to Question 5 above.

Question 13: Is it required that the torrefaction unit be moved and, if so, how many times during the project? Does it have to be on wheels? Would a modular unit work? Can it be stationary?

Answer: Regarding the question of how many times the torrefaction unit has to be moved during the project, as per the language in Task 3.4 in the SOPO, the smaller scale unit will likely need to be moved to a field site in Northern CA. The machine will remain the property of the torrefaction partner so presumably it would then have to be transported back to its home base at the conclusion of the project. According to the language in the SOPO, the larger torrefaction unit will be tested at a forest operations

site. Since the location is not specified, any location can be considered with a preference for sites near Northern CA.

Regarding the mobility of the unit, please refer to the answer to Question 9 above.

Question 14: What is the difference in output between the basic torrefaction unit and the “scaled up” version, mentioned in the Scope of Work.

Answer: The original intent was to scale up output by a factor of 20 over the course of the project. As per the answer to Question 3 above, we are seeking flexibility from the DOE regarding production rates. We recommend that respondents include information regarding your ability to provide access to torrefaction units on two scales for the project and what scales make sense from your perspective. We will use that information in our work to revise the SOPO language with the DOE to allow for more flexibility going forward. We will attempt to provide more clarity on this point in the subsequent RFP. With all other aspects of a hypothetical response being equal, a company that could meet the letter of the SOPO with regards to production rates would have an advantage during the selection process.

Question 15: Who pays for feedstock and what will the feedstock be?

Answer: The feedstock will be provided by the torrefaction partner. The amount and types of feedstocks will be specified in more detail in the RFP. A preliminary estimate of the quantity of feedstock required is 120 tons however this will depend on the production rates for the torrefaction units. Please include any information you think is important regarding this issue in your letter of interest.

Question 16: What will be done with the products that the units will make? Can the operator sell them to generate revenues? Are there any known customer and if so, what are they willing to pay?

Answer: The products generated will become the property of the torrefaction partner and can be used as you see fit. We do not know of any customers for this material.

Question 17: What if our prior research shows that it is much more and probably prohibitively costly to try to operate a torrefaction plant in temporary, in-woods locations?

Answer: Without having reviewed your research we cannot comment on its applicability to our region. We are interested in your results and we are committed to generating additional results under this project. We recommend that you reference your research and comment on its applicability to our project in your response to the RFQ.

Question 18: Can a partner, who is developing a 1.25 TPH torrefaction plant, on the East Coast, use the \$400,000 in funding to cover shipping costs of the torrefied feedstock to CA?

Answer: We are not interested in receiving torrefied feedstock as part of this project. Rather, we would be interested in gaining access to the 1.25 TPH torrefaction plant to instrument it, conduct a series of test runs with multiple feedstocks, and generate data files for use in energy and mass balance analyses; especially if the unit is located at a forest operations site.

Question 19: Can the timetable be moved back 6 months or a year?

Answer: See answer to Question 8 above.

Question 20: Are trees the only crop you are interested in torrefying?

Answer: Yes. Our research is specific to forest residues.

Question 21: Can you provide a list of partners on the project?

Answer: The partners listed on the project are as follows:

- Humboldt State University
- Schatz Energy Research Center
- Redwood Forest Foundation
- Biochar Solutions Inc.
- CORRIM
- Forest Business Network
- Forest Concepts
- Green Diamond Resource Company
- Oregon State University
- Pellet Fuels Institute
- Peterson Pacific
- Steve Morris Logging and Contracting
- University of Washington
- USDA, Forest Products Lab
- US Forest Service, Rocky Mountain Research Station

This concludes our response to questions received. Thank you for your participation.