

Quillayute Valley Wood Biomass Boiler Project

Request for Proposals and Qualifications
For Architecture and Engineering Services

Responses due: NLT 4 p.m., 2 May 2008

Submit Responses to:

Superintendent Diana Reaume
Quillayute Valley School District

Physical & Mailing Address:
411 South Spartan Avenue
Forks, WA 98331

The Quillayute Valley School District (hereinafter 'the District'), working collaboratively with the Port of Port Angeles, the Clallam County Economic Development Council and the City of Forks, is requesting proposals and qualifications from architects and engineers to develop, design and prepare bid documents for a woody biomass boiler project having the components similar to the following elements:

1. A 2,300 sq. ft slab-on-grade boiler house with necessary air circulation systems;
2. A new 1,526 MBtuh wood chip boiler with associated emission controls installed in said boiler house;
3. A storage bay that could contain at least 24 hours of feed stock inside the boiler house;
4. An automatic chip feeding mechanism;
5. Associated operational equipment for the system; and
6. Associated utility connections to the District's existing, and/or proposed, distribution system.

State grant funding has been obtained by the collaborative to design, bid, construct and bring in operations the above type of system within a 24-36 month period of time. Selected firms will work with the collaborative to address the various issues associated with the final project design, construction and operations of this facility to be used by the District.

Proposals must be no more than twenty total pages and have the following information therein:

1. Letter of interest/introduction;
2. Firm's proposal of how it will approach the design of this project working off of the documents already generated to date and to include assistance in the permitting process;
3. Outline of a scope of work with associated budget;
4. Proposal on how fuel analysis, as well as micro-cogeneration assessment options, will be developed and presented;
5. Firm's identified and assigned team members for this project;
6. References identifying projects of a similar nature and/or scope with current contacts at each project location; and,

7. Affirmation to comply with state grant requirements when identified.

Background Explanation of the Project:

As a result of a regulatory change, 13 cedar mill owners were required to end their burning of mill waste associated with their manufacturing of cedar shakes and shingles. The mill owners sought the assistance of the Clallam Economic Development Council, the City of Forks and the Port of Port Angeles in attempting to renew/continue their previously enjoyed exemption permitting their burning of these materials. An initial study showed that the material could be used for a developing hot water and steam in sufficient quantities that could be used by the Quillayute Valley School District as a replacement to an existing retrofitted heating system utilizing a combination of petroleum based heating fuels. At the time of this study, it was affirmed that the mill owners operations had 130 direct and identified in-direct jobs associated the 13 mills. The study also revealed that the mill owners product had a fixed price determined by the products quality and grade that did not allow them to simply raise the price of their product to offset these additional costs. Finally, the study team determined after long consultations with EPA and the Olympic Region Clean Air Agency that it was not possible to obtain a continuation of the previously enjoyed exemption regarding burning of mill waste.

A second study was funded by CTED, at the request of Governor Gregoire, to determine whether the utilization of woody biomass in either a heat/steam operation, or a "cogen" (heat and power) operation, would be feasible. Siemens was awarded that contract and determined that a 1,526 MBtuh boiler could serve the school's purposes, and could be incorporated into any new school additions, while consuming the mill waste from the cedar mills. This would in turn reduce disposal costs to the cedar mill owners who had begun long hauling the waste for use as hog fuel to locations at least 60 miles away.

The project has been the source of continual investigation by the District, the City, the Port of Port Angeles, and the Clallam Economic Development Council. A preliminary contract for fuel acquisition has been developed and a contract for acquiring other fuels from other types of non-cedar mill operations is being developed as well. This second contract mechanism is to ensure that there are other woody biomass fuel sources in case the cedar shake and shingle industry was to complete collapse in Forks. The identified elements required for this project would include the following, or similar such elements:

1. A 2,300 sq. ft slab-on-grade boiler house with necessary air circulation systems;
2. A new wood chip boiler of at least 1,526 MBtuh capacity, higher if associated with the micro-cogeneration turbines discussed elsewhere or if other factors warrant alteration to said boiler, with associated emission controls installed in said boiler house. PRIMARY PURPOSE OF THE BOILER IS TO GENERATE HOT WATER FOR HEATING PURPOSES IN A PUBLIC SCHOOL BUILDING;
3. A storage bay that could contain at least 24 hours of feed stock inside the boiler house;
4. An automatic chip feeding mechanism;
5. Associated operational equipment for the system; and,
6. Associated utility connections to the District's existing, and/or proposed, distribution system.

This plant must meet and exceed state (Olympic Region Clean Air Agency) and federal Clean Air Act omission standards. In fact, it is expected that the publicly bid project will have requirements that the equipment not only comply with these existing regulations, but also comply as close as possible with European emission standards regulating greenhouse gases based upon the Kyoto Protocols. In addition to being good public environmental policy, the proponents believe that pursuing such a heightened set of standards ensures the efficiency of the system over time as well as allow the project to compete for “green energy” financial incentives.

The expectation of the operations of this plant is that it will not require an onsite operator of the boiler 24/7/364, but rather an individual that could within a 2-3 hour period each day of operation be able to assess operations, functionality, efficiency, etc. In addition, incorporation of redundancy of heat generation is required.

Further, it is expected that the design documents would permit various manufacturers of boilers to be able to competitively bid on the boiler, controls, emission controls, and feed elements of this project. The selected firm will work with the collaborative to determine the best means of bidding the project in whole or in segments, provided that all elements are bid pursuant to applicable state law. The collaborative is not expecting the utilization of a sole source selection/bid option for the construction, boiler, and emission elements of this project.

The benefits associated with this project are significant:

- First, the cedar mills would have a disposal location for their wood waste and no longer need to undertake a 60 mile-one-way trip to dispose of this material. This then reduces their costs and ensures their continued viability thereby maintaining the 100+ jobs associated with their operations. It also significantly reduces their utilization of fossil fuels associated with long hauling these materials to hog fuel processors.
- Second, the school district would be able to replace a retrofitted boiler currently utilizing petroleum based products to generate heat. By utilizing the wood products the school would be able to reduce air emissions associated with their existing petroleum fueled boiler; cap if not reduce their heating costs; and, possibly generate electrical power from the project if the “micro-co-gen” option materializes. If the school district’s development of a 10-classroom and administrative office addition is approved by voters in the next two years, that addition would utilize the proposed project as its heat source.
- Third, the proposed project could also utilize storm related woody debris, as well as yard/land cleared woody debris, as a fuel source. The recently extended ban on burning such materials has created a significant issue in the Forks area with regard to cost-effective disposal of such materials. If funded, this project could consume those materials as part of its woody fuel stream.

Key Issues for Submitters:

Primary obligation and duty of the selected firm will be the further development, design, and creation of the bid related documents to bring the project described above to the point of construction. Selected firm will also be asked to provide oversight, in a manner agreeable to the District and the collaborative, to the construction of the project. However, the collaborative would reserve the right to require an identified and agreed upon on/near site “clerk of the works” to address day-to-day construction related issues in consultation with the selected firm.

Location of the proposed project will depend upon over all project size in relationship to existing buildable lands owned by the District and existing utility and roadway infrastructure. The collaborative would like to be in the position to have the request for bids out no later than 28 February 2009 with construction, contingent upon permitting, to begin in April 2009. Completion of the project is initially expected to be early January 2010.

The selected firm will also be asked to assess the ability to install a small “micro-turbine” based cogeneration element to the project. The assessment needs to determine what costs would be associated with including some level (as low as 60kW/h) of cogeneration without increasing the staffing requirements associated with a hot-water based heating system. This assessment would also need to determine what the key critical decision points would be and at what times those decisions would have to be made in relationship the design, bidding and construction of the primary project objective described above.

Further, the selected firm will also be asked to assess the relevance and validity of incorporating a small chipper into the facility for the taking of small diameter storm related woody biomass. This assessment may be limited to costs for equipment, operational considerations, storage related issues/needs, and associated local and/or state permitting issues. The collaborative may utilize this document to specifically pursue local, state, federal and/or private foundation funds to address this alternative addition to the base project described earlier in this document.

The budget for this project inclusive of design, bid related efforts, construction, inspections, and permits is currently fixed at \$1m in total. The collaborative will provide information, coordination and assistance with this project, however, each party’s ability to contribute “hard capital” to the project is extremely limited. An essential element of any proposal, and of significant importance to the collaborative’s assessment of such proposals, is the ability of the firm to bring a project through completion on time and on budget.

The selected firm will also need to understand and accept that all final documents (to include technical assessments, reports, final design documents, bid documents, permit related documents, etc.) will be readily shared with other rural school districts interested in such a green energy heating option. This is a pilot project, and as such, the collaborative is working closely with the State of Washington’s Department of Community, Trade and Economic Development to create documents and information that can (1) assist other entities considering undertaking similar types of projects elsewhere in this state; and, (2) reduce to some degree the costs associated with general feasibility and assessments for such projects. The collaborative has committed itself to sharing the information gathered, assessed and learned in this project with others across the state.

Questions regarding this proposal should be submitted to:

All submitted questions, and the collaborative’s response, will be posted at the following website:

All documents developed to date are available at the same website in a PDF format.