

WILDEPHOR

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February 14, 2022

Jennifer Callaway
Town of Truckee
10183 Truckee Airport Road
Truckee, CA 96161

CC: Kevin Smith, Truckee Tahoe Airport District
Bill Seline, Truckee Fire Protection District

RE: Bioenergy Scoping Study Refinement

Dear Ms. Callaway:

As requested, Wildephor Consulting Services, LLC is providing this proposal to the Town of Truckee and its partners for services to further refine the results produced by the completed bioenergy project scoping study. The scoping study was undertaken to evaluate the potential for using residual biomass from defensible space and forest fuels management activities to produce heat and/or power for a cluster of facilities located near the Truckee Tahoe Airport. The study included a series of tasks to determine whether such a project warrants a more in-depth feasibility assessment to support potential capital investment in a bioenergy facility fueled by locally generated green waste.

After evaluating seven (7) candidate solutions in addition to the baseline case of continuing to dispose of green waste at the Eastern Regional Landfill, the project team has identified four (4) candidate technologies that it believes should be investigated further. These four technologies, listed below, are sufficiently diverse in their size, scope, and estimated cost that they do not lend themselves to a single feasibility assessment. Consequently, the team has agreed that it could be advantageous to further narrow the identified candidates into one or two preferred options that could then be the subject of a more focused feasibility study. The idea of perhaps pursuing a less capital-intensive disposal solution in the near term while further evaluating other longer-term solutions also has been raised and will continue to be considered in parallel with this refinement effort.

The four candidate biomass utilization technologies selected for further evaluation based on the scoring results from the initial scoping study are as follows:

1. **Disposal** – Air Curtain Burner
2. **Disposal** – Air Curtain Burner with Biochar
3. **Biomass Power** – Gasifier with Engine Generator
4. **Biomass Heat** – Combined Heat and Biochar (CHAB)

Scope of Work

1. Confirm anticipated future disposal costs at Eastern Regional Landfill
2. Confirm wood fuel specifications/availability for biomass gasification
3. Clarify permitting requirements for air curtain burners in Nevada County
4. Clarify options for recovering capital costs for biomass power projects
5. Investigate ability of biochar to generate revenue and/or satisfy SB 1383
6. Investigate potential for installing airport hydronic snow melt system

1. Confirm anticipated future disposal costs at Eastern Regional Landfill. The scoping study examined three years of recent disposal costs paid by the Town. As of the end of 2021, those unit disposal costs were \$12.25/cubic yard. There is an expectation that disposal costs could increase above \$12.25/cubic yard as capacity at the landfill becomes more constrained. The refinement effort will seek to clarify projected future tipping fees in order to better estimate baseline disposal costs without a new bioenergy facility or other disposal pathway.

2. Confirm wood fuel specifications/availability for biomass gasification. Power generation using biomass gasification often requires cleaner and more uniform wood fuel than other conversion technologies. Further evaluation of the sources, types, and quantities of biomass anticipated as a result of the recent passage of Measure T will be done to inform decisions regarding the applicability of gasification technologies for future biomass utilization.

3. Clarify permitting requirements for air curtain burners in Nevada County. Although air curtain burners have been used at various locations within California to dispose of wildfire debris and residual biomass from forest treatment operations, concerns have been raised based on past resistance to permitting air curtain burners in Nevada County. It was beyond the scope of the initial study to investigate specific permitting requirements; however, since air curtain burners have been identified as a potential pathway for biomass disposal, it has become more important to understand any permitting barriers or limitations.

4. Clarify options for recovering capital costs for biomass power projects. Two of the four candidates selected for further consideration offer power generation. In order to recover costs incurred to develop a biomass power generation facility, the Town and/or its partners would need to enter into either a net energy metering (NEM) agreement or power purchase agreement (PPA) with Truckee Donner Public Utility District (TDPUD). It was learned late in the scoping study that NEM credits may not be available for excess electricity generation, and that entering into a long-term PPA may therefore be the only means of recovering costs. This key facet of the economic analysis for any proposed biomass power generation facility therefore needs to be further clarified in cooperation with TDPUD.

5. Investigate ability of biochar to generate revenue and/or satisfy SB 1383. Three of the four candidate solutions selected for further consideration produce biochar, which offers significantly greater carbon sequestration than offsetting fossil fuel consumption. Estimates of net annual operating costs for these facilities can be greatly impacted by the ability to sell the biochar at market rates that can vary considerably. In addition, the opportunity may exist to satisfy SB 1383 requirements for reducing landfill disposal of organic wastes, which was not considered as part of the initial scoping study.

6. Investigate potential for installing airport hydronic snow melt system. Project partners from the Truckee Tahoe Airport District (TTAD) have expressed some interest in evaluating the possibility of installing a hydronic snow melt system for a future runway expansion. This evaluation was not explicitly included in the initial study; however, preliminary investigation of this option could better inform a subsequent detailed feasibility assessment.

Schedule

The work could begin on or about March 1, 2022. Based on the activities outlined above and assuming that required staff from the partner organizations were readily available, the work could be completed by **May 31, 2022**. The final written deliverable would be a memo to the project partners along with a presentation of findings to the Truckee Town Council, TTAD Board of Directors, and/or Truckee Fire Protection District (TFPD) Board of Directors.

Cost

The scope of work outlined above is estimated to require 60 hours of labor at a standard hourly rate of \$180/hour, for a total cost of **\$10,800** offered as a firm fixed price. No travel or other expenses are anticipated for this work. Additional work agreed upon by the parties but not anticipated upon execution of this task could be performed on a time-and-materials basis at the hourly rate indicated above, subject to written authorization from the Town.

I appreciate the opportunity to submit this proposal, and I look forward to receiving your response. Please do not hesitate to contact me if you have any questions or would like any additional information.

Kind regards,



W. David Featherman
Principal