

Alaska Energy Authority

Renewable Energy Fund Application - Biomass Best Practices Checklist

The following checklist contains detail items that are critical to the success of a Renewable Energy Fund application. The intent of the checklist is to aid applicants in the submission of a comprehensive project proposal.

Economic Analysis

- Assumptions and their sources are clearly identified:
 - Fuel conversion values for biomass
 - Cost of biomass
 - Cost of diesel
 - Fuel conversion values for diesel
 - Efficiencies of the existing heating system and of the proposed biomass system
 - Estimated maintenance and operating costs are identified and the rationale of the estimates is discussed.

Business Plan

- The business plan should identify who will have overall responsibility for all components from wood purchase to heat delivery.
- O&M
- PCE reporting, IRS, and Bulk Fuel Loans must be current - RFA
- The project is consistent with the Regional Energy Plan.

Fuel Supply Considerations

- Resource Assessment - Small Project**
 - Long term harvest sustainability assessment
 - The plan should incorporate all land ownership involved in the project
 - 5 year harvest schedule
 - Required harvest equipment
 - Finalized delivered costs estimates, including stumpage
 - Access/transportation plan
 - Preliminary Fuel supply contract – Final contact is required for construction
 - GIS – SDMI or other high resolution classified systems – 10 m or less resolution
 - Requirements of the Forest Practices Act are considered in the wood harvest plan. A plan of operations should be submitted to The State of Alaska Department of Natural Resources – Division of Forestry.
- Resource Assessment - Large Project**
 - Long term harvest sustainability assessment
 - The plan should incorporate all land ownership involved in the project
 - Detailed 5 year harvest schedule with identified plots
 - Assessment of anadromous streams if required
 - Verify timber volumes with field sampling
 - Required harvest equipment
 - Finalized costs estimates – economic model
 - Access/transportation plan
 - Preliminary Fuel supply contract – Final contact is required for construction

- GIS – SDMI or other high resolution classified systems – 10 m or less resolution
- Requirements of the Forest Practices Act are considered in the wood harvest plan. A plan of operations should be submitted to The State of Alaska Department of Natural Resources – Division of Forestry.
- PCE reporting, IRS, and Bulk Fuel Loans must be current - RFA

Design Considerations

- The mechanical room has ample room to access the boiler components for operations and maintenance.
- The design of the existing system is clearly described including the operating temperature range.
- The integration of the biomass system into the existing heating system is discussed, including thermal storage.
- There is suitable storage for the wood supply.
- The logistics to deliver the wood to the storage and to the boiler are detailed.
- BTU meters are required for heat sales agreements and for performance reporting of total heat produced by the system.
- Energy efficiency is a major consideration in equipment selection.

Existing Heating System

- Energy Efficiency improvements have been completed on the proposed buildings.
- Monthly heating data is available for each proposed building

Environmental/Permitting

- Contaminated sites database
- Obstacles in piping route identified

Site control

- Site control must be finalized before construction funds are committed. Site control for pipelines and transmission or distribution power lines may be established using easements or utility right-of-ways so long as the period of the agreement meets or exceeds the intended life of the project
- Proof of valid title to the land and/or written documentation of any private agreements is required.
- The landowner must warrant that there are no liens or encumbrances on the property.
- Final proof of ownership shall be the certificate to plat.
- The grantee shall be responsible for resolving any land ownership disputes between state and/or federal entities, local landowners, native corporations, municipalities, boroughs and community organizations, or other entities.
- If the project site is adjacent to or near an airport or runway, the grantee must research FAA permit requirements, existing or pending leases and easements, and DOT expansion or relocation plans
- Land transfers required for project development shall be recorded with the appropriate District Recording office and a copy of the recordation provided to the AEA grant manager

List of reference websites

- <http://www.fs.fed.us/woodybiomass/>
- <http://www.alaskawoodheating.com/>
- <http://pelletheat.org/>
- <https://www.biomassthermal.org/>

Common Pitfalls

- ❑ The proposed low temperature heating system will not supply enough heat to a building designed for a high temperature heating system.
- ❑ There is not a plan for the daily stoking of cordwood systems, and there is not a plan for a back-up operator.
- ❑ There is no planning for the logistics of the supply of wood to the boiler system.
- ❑ The biomass boiler is sized based on the existing oil boiler, and as a result, the biomass boiler is oversized.
- ❑ Thermal storage is not incorporated into the design of the boiler system.
- ❑ There is no method to understand the amount of heat produced/consumed in the new system.
- ❑ The proposed boiler system is not 3rd party certified using ASTM test methods.
- ❑ The estimated delivered fuel costs are unrealistic.