

# Waitsfield Small Scale Decentralized Biomass District Heating Preliminary Feasibility Study Outline

## Concept

Explore the feasibility of a small-scale decentralized biomass district heating system to serve Waitsfield School, General Wait House, and Waitsfield-Fayston Fire Department.

## **How**

Preliminary Feasibility funded by a Municipal Technical Assistance Grant (MTAG) through VT's Clean Energy Development Fund (CEDF). Town of Waitsfield as applicant. Maximum grant award is \$5,000 and requires 10% cash match. Match to be provided through VT Community Biomass Project. One-year performance period. Completed applications due first Thursday of every month.

## **Partners**

Waitsfield Energy Committee (contact: Dennis Derryberry)  
VT Community Biomass Project (contact: Tara Hamilton)  
LocalVolts (contact: Dennis Derryberry)  
Support from SunWood Systems (contact: Dave Frank) and Mad River Valley Planning District (contact: Joshua Schwartz)

## Process

The concept has been the subject of conversation since it surfaced at a LocalVolts meeting in the fall of 2009. On January 28, 2010 the partners met to discuss how to move forward. The first step is the creation of an outline detailing the scope of the project. The second step is discussion of the concept by the Waitsfield Energy Committee. If supported, the project would then be sent to the Waitsfield Selectboard for discussion and possible endorsement. Upon endorsement, the MTAG would be filled out by the partners and submitted to the CEDF. If approved, the MTAG would be administered by the Waitsfield Town Manager, Valerie Capels.

## Current Questions

### **What size facility is required for this application?**

This is to be answered by the study. Current sizing of heating systems within the existing buildings is a combined 1.750 MW +/- (WES: two 500kW, Firehouse: 500 kW, Gen. Wait House: 250kW)

### **Why purchase a biomass system if the town is currently attempting to replace current fossil fuel systems at the Gen. Wait House and Firehouse (through EECBG)?**

Insurance requirements dictate communities to incorporate fossil fueled back-up systems when biomass systems are installed in public buildings. The current gas boilers in the Gen. Wait House and Firehouse are at the end of their lifespan and are in need of replacement. This will hopefully be made through a 90% grant funded opportunity. In addition, older back-up gas boilers experience accelerated deterioration due to the infrequency of use.

## **Questions to be Answered by the Study**

### **Initial questions**

- What fuel/ heating system would this be replacing?
- How much heat is needed/used annually with these current systems?
- How much do these systems cost (annually) to maintain and fuel?
- What is the political climate? Who do we need to talk to and gain support?
- What are the "cost/benefits" of installing a wood-chip furnace here (pros/cons)?
- Which would then tell us: Why would we want to do this?
- How much would it cost to build and maintain?

### **Site**

- Where would it go? Is there more than one option for a site?
- What about access?
- What is the zoning here?
- How would the heat be distributed among the three buildings?
- How big do we estimate the building to be?
- Aesthetics: can we make it attractive? Can it be obscured behind other buildings?
- Are there opportunities for expanding beyond these three buildings at a later date?

### **Pollution, etc. concerns**

- What are the state air regulations?
- What other environmental review would this need to go through? Act 250, what else?
- Be ready at outset to discuss air emissions from modern facilities (i.e., lack of)

### **Fuel sourcing**

- Availability of fuel
- What kind/size of delivery vehicles (& how many deliveries given expected size of facility)
- Pricing: how would price of chips compare with current and expected price of fuel used
- Measures of sustainability: would town support instituting sustainability criteria on biomass fuel source?
- What kinds of chips will fulfill these criteria and work for furnace: mill chips? logging? Chips from development?

## **Financing**

- Possible funding sources for planning and building
- Grants/funding sources need to include maintenance staff over long haul
- Implementation
- costs: furnace, per year of chips, installation, maintenance, etc.

## **Project Examples**

Cabot District Heating

Harwood Union High School Wood Chip Heating System (2007)

## **Resources**

- CEDF Municipal Technical Assistance Program Application  
[http://publicservice.vermont.gov/energy/ee\\_files/cedf/CEDF%20Technical%20Assistance%20Program%20Application%20July%202008.doc](http://publicservice.vermont.gov/energy/ee_files/cedf/CEDF%20Technical%20Assistance%20Program%20Application%20July%202008.doc)
- VT Community Biomass Project  
<http://www.uvm.edu/sustainableagriculture/?Page=biomassnews.html>
- SunWood Systems  
[www.sunwoodsistemas.com](http://www.sunwoodsistemas.com)
- *Wood-Chip Heating Systems: A Guide For Institutional and Commercial Biomass Installations* by Timothy M. Maker  
<http://www.biomasscenter.org/pdfs/Wood-Chip-Heating-Guide.pdf>