

## **Appendix C**

### **Biomass CHP in Hospitals Elements for Successful Candidate Sites**

Many cogeneration experts believe that hospitals are nearly ideal candidates for cogeneration due to their thermal (heating, cooling, cooking, sterilization) and electrical loads, and their 24/7/365 schedule. However, additional factors can influence a biomass cogeneration project.

The following criteria illustrate the elements that would increase the likelihood that a small, rural general hospital is a good candidate site for biomass cogeneration. A hospital does not need to have all the elements listed below to be successful, and having all or most of these elements does not ensure success.

- 1) Thermal energy requirements (estimated)
  - a) >50,000 gallons of fuel oil equivalent per year
  - b) >100,000 square feet of conditioned space
  - c) Year round thermal energy requirement
    - i) Heating requirements in winter
    - ii) Absorption chiller can add thermal load in summer
    - iii) Process heat can add thermal load in summer and winter
      - (1) Sterilization
      - (2) Laundry
      - (3) Kitchen hot water
- 2) Fuel Use: Hospitals that heat with fuel oil tend to be better candidates than those on natural gas since fuel oil typically has a higher cost per Btu. Propane typically has the highest cost per Btu.

- 3) Facility Expansion/Renovation: A hospital that is considering an addition or major renovations is best as design costs and general conditions can be shared with the larger project.
- 4) Adequate steam boiler for back-up and hydronic distribution system in good condition.
- 5) Hospitals with central absorption chillers close to the boiler room or have central chillers that are nearing replacement.
- 6) Site has a suitable location for a boiler plant and chip storage facility with good truck access and sufficient room to pull in, back-up and pull out.
- 7) Access to wood chip fuel within 75 miles.
- 8) Access routes for delivery trucks can avoid residential neighborhoods and narrow streets.
- 9) Staff capacity and ability to negotiate terms for wood chip fuel.
- 10) Facilities staff able to maintain simple mechanical devices for fuel handling and manage steam production for maximum efficiency and output.
- 11) Strong champion willing and capable of educating decision-makers about the benefits of biomass and can follow the decision process over time.
- 12) Access to long term, low interest capital.