Biomass Without the Mess

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2nd Annual Heat the Midwest Conference
The VAMC explores alternative energy projects - Why would we care?

+ 13423 – 3% per year reduction required
+ EPACT 2005
+ EISA 2007
+ 13514 – GHG – Scope 1,2,3 emissions
+ Annual utility costs > $3 million
Opportunities for funding a biomass project arise

+ Local, State and Federal Agencies get involved. A team effort proved the viability of the project and made a compelling business case to make it happen.

+ Outcome - ARRA funding became available for project
Timing of the funding matches well with a boiler plant construction project

+ At the 50% Design Stage on Base Bid, BioMass was added. Nothing short of Amazing!
Working with the COE's to establish the initial boiler plant construction project

+ Repeat Client: USACE Charleston, SC.
+ Alpha Contracting Principles: Assist the Client Develop the RFP/Scope of Work.
+ Assemble Design/Build Team: Assure Competencies of Team Match Scope Requirements.
+ Initial Introduction to End User at VAMC Chillicothe
Potential Change Order for a biomass addressed by the COE

- Initial Design Concept: Necessary to Include Provision(s) for Future Boiler.
- Introduced by VA/USACE During 50% Design Review Meeting.
- Review of Feasibility Studies.
- Conceptual Estimates for initial Budgeting Purposes.
- Aesthetic Compatibility with Original Facility: Must look like the Additional was Part of the Original Design.
Assessing the best system type to match the client's desires- tour of NE

- Presentation of Feasibility Study by Wilson Engineering AT VAMC Office.
- Arrange Tour of Four Different Biomass Configurations (Wood Chip Delivery Methods) in MA and NY.
- Introduced to Wellons at Owego, NY Plant.
- Partnering/Client Relationship
Developing the cost estimate

+ Facility Design/Costs Based on Original Scope of Work
+ Woolpert/Wellons Collaborate to Provide 35% Design Concept at Time of Proposal
+ Introduce Wellons to the Project’s M/E Subcontractor DeBra-Kuempel of Cincinnati, OH
+ Continuous Communication with COE and VA to Ensure Costs stay within Client’s Budget for the Addition
Truck delivery system that does not require a loader
Automatic ash extraction system
Totally enclosed ash bin for a roll off container
ESP and pollution control equipment to make system as clean as natural gas
Replacement Boiler Plant systems

- PH I plant design elements:
  - 8,300 sq. ft.
  - 3- 20,000#/hr gas-oil boilers (N+1)
  - 65 psig distribution main to VAMC
  - RO system for make-up water
  - Combined dearator, condensate recovery
  - Standby generator for all equipment
Biomass Plant Design

- Biomass design elements:
  - 18,000#/hr wood chip biomass boiler
  - 450 psig steam developed
  - 350 kw backpressure turbine, 65 psig out
  - Wood chip storage bunker, walking floor
  - Electrostatic Precipitator
  - Fuel transfer systems
  - Ash removal
Combined Plant Design
Thank you, questions?