

UAF Combined Heat & Power (CHP) Plant: A Discussion on Financial Risks

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Why Important?

- The University of Alaska Fairbanks' heat and power plant provides electricity and steam heat to more than 3.1 million square feet of public facilities on the Fairbanks main campus. The plant's main coal boilers were put in service in 1964.
- The UAF main campus is home to billions of dollars in state infrastructure. It all rests on the foundation of an ever-aging heat and power plant.

What have we done?

- The university has examined a broad range of boiler

- The proposal is to construct a major upgrade to the plant. The project would replace the existing coal boilers with two circulating fluidized bed boilers which would burn both coal and up to 15 percent biomass to generate up to 17 megawatts of power and enough steam to heat the campus. The university would retain its two existing backup diesel and gas boilers and will continue with campus energy conservation measures and exploration of renewable options. This plan will allow the university to meet its energy needs for the next 50 years and nearly eliminate the need to purchase higher cost electricity from Golden Valley Electric Association.

What will be the cost?

The total project cost for the upgraded plant is \$245 million. Because fuel costs are lower with the new boilers and plant upgrade, UAF could afford to finance up to \$50 million of the project and cover that annual payment with the money saved annually in fuel costs.

Various financial options to fund the power plant?

We are exploring many financing options. We have discussed various approaches with the Governor's OMB, Senate Finance leadership, Department of Revenue, Legislative Finance, and these discussions will continue. Options discussed include:

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Fall-back financial option in case no funding is available from the state?

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Fall-back options in case only partial funding is available from the state?

Partial funding increases the fiscal risk of the project, as the project cannot be managed holistically. Permitting was the first step and nearing completion. The next step is to solicit bids for the major piece of equipment and design a building to enclose and protect them. The cost of this next step is between \$75 and \$100M. UAF is not in a position to bond the first portion of a phased approach as completion of the project must be assured for UAF to achieve the fuel savings, which will be the source for the bond payment.

Why the power-plant was not put on deferred maintenance/ replacement/ upgrade earlier?

- The CHP has been on UA's capital lists consistently starting in

- Permitting was the first step (\$3M primarily from a 2012 DM Debt), Initial design was requested last year to begin after permitting (design not funded). This year's request includes design and construction. The decision to request the full amount is financially most prudent and was influenced significantly by the advise of Senate Finance leadership and Legislative Finance.
- The CHP has been identified as the UA system top risk since 2010, and a project status update has been provided regularly in Board meetings.

Do other universities operate their own heat and power plants?

Yes. There are more than 500 schools, colleges and universities with combined heat and power plants, including Auburn University, Colorado State University, Iowa State University, Northern Arizona and Princeton University, which was recently recognized for providing power and heat during Hurricane Sandy.

What happens if the university can't get funding to upgrade the plant?

Without a major upgrade to the plant, UAF will need to spend \$35 million in the coming years on temporary patches to the system as it approaches the end of its useful life. The patches would keep the plant going for a little while longer if construction on the upgraded plant does not begin soon, but would still

Why not build a gas plant instead?

We did examine both the operating and fuel costs of a gas option. The capital costs for a gas plant are lower, however gas is a more expensive fuel than coal. All of our models are just that—models—because there is currently not a reliable source of gas available. Using today's prices, our fuel costs with the new boilers would be about \$5.3 million each year. The current cost estimates for natural gas, should it be available in Fairbanks, would be about triple that. Until a lower-cost, reliable supply of gas becomes a reality in Fairbanks, a gas option is not viable

Why can't UAF just buy power from GVEA?

UAF's plant provides heat and power for campus. All of the campus buildings depend on steam from the plant to keep them warm in the winter and cool in the summer. Purchasing electricity would keep the lights on, but not supply the heat.