

ITEM # 22
DATE April 22, 2008

COUNCIL ACTION FORM

SUBJECT: AWARD OF CONTRACT FOR FURNACE MODELING FOR POWER PLANT NO_x REDUCTION PROJECT

BACKGROUND:

This project is to perform computational fluid dynamics (CFD) modeling of Units 7 and 8 boiler furnaces as a design and evaluation tool for nitrogenoxide (NO_x) reduction equipment. The CFD models will improve our ability to assess the quality and efficacy of proposed NO_x reduction systems and increase our level of confidence that these systems will produce the reductions in NO_x emissions that we require in order to meet the targets and objectives of the USEPA Clean Air Interstate Rule (CAIR).

Beginning in 2009, CAIR requires facilities that emit NO_x in excess of 0.15 lb NO_x per million Btu heat input obtain allowances from facilities with emissions under the 0.15 lb threshold. This program is known as "cap and trade" and in effect creates a market for NO_x allowances. There is considerable uncertainty regarding the cost to obtain these allowances, but staff expects the value could be in a range of \$1000/ton NO_x to \$4000/ton NO_x. Given an allowance price of \$2000/ton, staff expects that NO_x allowances could cost \$2,000,000 per year for Units 7 and 8.

CFD furnace modeling includes developing a base case for each unit and then using the base case to predict changes in emissions levels and furnace parameters that would be expected based upon supplier proposals for new and modified equipment. The base case will be developed jointly with the City of Ames and Burns & McDonnell (City's Engineer) from boiler drawings and Power Plant operational data. In this manner, we intend to use the CFD model to evaluate supplier proposals and potentially fine tune the selected proposal to achieve the best result possible.

On April 10, 2008, competitive proposals were received for this project. Proposal documents were distributed to four firms that had been identified by the consulting engineers from Burns & McDonnell as able to do this work. The City received one proposal from Reaction Engineering Inc., Salt Lake City, Utah. One additional firm expressed interest in submitting a proposal but stated that due to timing issues it would be unable to submit a proposal within the deadline. Firms were given three full weeks for submission of proposals. After the Electric Services staff evaluated the proposal of Reaction Engineering, it was determined this proposal met the needs of the utility and was under the initial cost estimate

Funds for this project will come from the approved FY 2007/08 CIP budget for NO_x reduction engineering services. A total of \$300,000 has been allocated to this CIP, of which approximately \$150,000 has already been committed to Burns & McDonnell, Kansas City, MO, to develop plans and specifications for NO_x reduction systems for Units 7 and 8.

ALTERNATIVES:

1. Award a contract in the amount of \$110,000 plus applicable sales taxes and approved travel expenses to Reaction Engineering Inc., Salt Lake City, Utah, for the Power Plant Furnace Modeling Project.
2. Do not award a contract at this time.

MANAGER'S RECOMMENDED ACTION:

It is essential for the power plant to maintain a positive environmental record in the community and to be in compliance with EPA mandated rules and regulations. It is also imperative to achieve this in the most cost effective way possible. By choosing alternative No. 1, and investing in modern technological tools, the Plant would maximize the effectiveness of the NO_x Reduction Project in reducing NO_x emissions and minimize our exposure to purchasing NO_x allowances on the open market.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1, awarding a contract in the amount of \$110,000 plus applicable sales taxes and approved travel expenses to Reaction Engineering Inc., Salt Lake City, Utah, for the Power Plant Furnace Modeling Project.