

COUNCIL ACTION FORM

SUBJECT: POWER PLANT CONTROL SYSTEM UPGRADE

BACKGROUND:

The approved 2009/10 Capital Improvements Plan includes \$450,000, plus a carry-over of \$35,380 from the 2008/09 start of this project (\$485,380 total), for the Control System Upgrade on the Power Plant's distributive control system (DCS). A DCS at a very basic level can be described as the brain of the Power Plant. This system is critical to the operation of Units 7 & 8 because in real time it receives and communicates information from the operators' control station to the equipment throughout the Power Plant. The reliability of Units 7 & 8 can be greatly affected by failure of the DCS and the cessation of spare parts manufactured for these systems.

Currently the DCS for Units 7 & 8 is a combined system that runs on a single network based on an obsolete software platform (Ovation Solaris / CDDI that runs on LINX). Obtaining spare parts and support for this current system is becoming increasingly difficult. A failure of the current DCS would be detrimental to both units.

This project involves separating the DCS network into three distinct networks (Unit 7, Unit 8, and Common Services) and converting the software to the latest Windows platform. This upgrade requires new software and the conversion of existing code to it, some new hardware, and the complete installation on this upgrade. This installation is planned to occur during the same time period as the Low Nox Burner and Separated Overfire Air installation (Units 7 and 8 Nitrogen Oxide Reduction Project).

It is anticipated that there will be changes to the existing inputs and outputs and control logic in the DCS for the boiler combustion controls for both units 7 & 8. Because these projects will be completed in parallel, the extent of the required DCS changes will not be known before award of this contract. These changes may or may not require the installation of additional field drops, which are electrical cabinets placed throughout the plant that are networked to the DCS. The field drops contain the electronics that directly communicate to the field devices. Depending on the extent of changes to the DCS required by the Units 7 and 8 Nitrogen Oxide Reduction Project, these may be incorporated into this contract through a change order or bid as a separate controls project.

In short, the system being purchased under this bid will likely be modified either before its completion via a change order, or after its completion by a separate contractor. This is necessary to link it to the work being done on the Nitrogen Oxide Reduction project, or other future Plant upgrades. The Council should

understand that should a change order to this project or a separate contract will be necessary to link these two projects in the future, it is not because something was either improperly specified or installed as a part of this bid process. The Control System Upgrade supplied under this contract must be warranted to be scalable to accommodate future routine or non-routine changes to the inputs/outputs or control logic.

The Engineer's estimate of the cost of this project is \$732,596. The project's \$485,380 budget was based on a material only quote from Emerson in 2007. The large difference between the budgeted amount and the Engineer's estimate is due to the inclusion of installation labor in the plans and specifications. This is a significant change in how this project is to be accomplished, and is being done with installation now included because this scope is beyond what City of Ames crews can complete in a timely manner during an outage. The \$247,216 in funding necessary to complete this project will come from excess funds in the budget that were anticipated to purchase emissions allowances.

ALTERNATIVES:

1. Approve the preliminary plans and specifications for the Power Plant Control System Upgrade and set December 9, 2009, as the bid due date and December 22, 2009, as the date of hearing and award of contract.
2. Delay the Power Plant Control System Upgrade.

MANAGER'S RECOMMENDED ACTION:

This project will mitigate the current reliability risk of the Power Plant's distributive control system and will provide a fully supported control system for Units 7 & 8. This equipment will provide effective communication between all systems in the Plant, including the new Nitrogen Oxide Reduction equipment and other future plant upgrades.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1, thereby approving the preliminary plans and specifications for the Power Plant Control System Upgrade and establishing December 9, 2009, as the bid due date and December 22, 2009, as the date of public hearing.