

**COUNCIL ACTION FORM**

**SUBJECT: POWER PLANT FUEL CONVERSION – PRELIMINARY PLANS AND SPECIFICATIONS FOR DISTRIBUTED CONTROL SYSTEM**

**BACKGROUND:**

In November of 2013 the City Council voted to convert the City's Power Plant from coal to natural gas. In May of 2014 the City Council selected Sargent & Lundy of Chicago, Illinois, to provide engineering and construction oversight services for the conversion project.

The major phases of work necessary to complete this conversion project are as follows:

1. Procure the natural gas burners, igniters, and scanners, plus boiler/furnace modeling to assess the necessity for boiler modifications. (City Council awarded a Contract to Alstom Power Inc. of Windsor, CT on November 5, 2014, with delivery of this equipment in the fourth quarter of 2015.)
2. **Replace the Power Plant's Distributed Control System (DCS), including both hardware and software (current project).**
3. Design the necessary modifications to the control room and DCS cabinet room. (Described on the Sargent & Lundy Engineering Services Change Order Council Action Form included on this same agenda.)
4. Select a contractor to construct a new control/DCS room in the Power Plant.
5. Select a contractor to modify the Power Plant and install the materials and equipment necessary to operate the Power Plant on natural gas.
6. Select a contractor to install the electrical equipment, including the work associated with the DCS upgrade and the electrical modifications to the control room.

**This specific phase of the project is to purchase a new Distributed Control System (DCS). The DCS is a dedicated control system, made up of hardware and software, used for boiler controls and power plant systems. It is a crucial coordinating and communication system needed to operate the plant.**

The initial evaluation of the DCS system was included in Sargent & Lundy's engineering services contract to verify whether replacement was truly needed. With S&L's report, staff has confirmed that it is in the City's interest to incorporate replacement of the existing DCS system into the larger gas conversion project. Under the requested change order to the Sargent & Lundy contract, S&L will complete detailed installation specifications for the new DCS components, including both hardware and software.

**This particular action is for procurement of the DCS hardware and software. Standard specifications for a DCS system have already been developed by S&L, and will be used to solicit bids on this project. This procurement process will occur parallel with S&L's design work to tie the DCS hardware and software into the plant's turbine, generator, boiler, auxiliary system fans, etc.**

Assuming the Council is willing to approve Change Order No. 1 to the S&L contract, Council should also approve the preliminary plans and specifications for the Distributed Control System hardware and software, and set January 14, 2015 as the bid due date and January 27, 2015 as the date of hearing and award of contract. Installation of the system will be bid out at a later date.

The Engineer's estimate of the cost for this phase of the project is \$1,161,000. With inclusion of the Sargent & Lundy change order and the cost of this DCS equipment, the project budget can be updated as follows:

\$36,880,000	FY 2014/15 CIP amount budgeted for project
\$ 1,995,000	Encumbered not-to-exceed amount for Engineering Services
\$ 3,355,300	Actual cost for Natural Gas Conversion Equipment
<u>\$ 5,350,300</u>	Total committed to date
\$ 2,395,000	Engineering Services Contract Change Order No. 1 in a not-to-exceed amount (pending Council approval on this agenda)
<b>\$ 1,161,000</b>	<b>Estimated cost for Distributed Control System equipment (this agenda item)</b>
\$27,973,700*	Remaining Balance to cover Burner Installation, Natural Gas piping from the gate, Turbine Generator controls upgrade, DCS Installation, Control/DCS room, and other miscellaneous equipment needed for the fuel conversion

\* S&L's updated cost estimate for these remaining items is now \$15,155,000. Subject to actual bids, this should allow the overall project budget to be reduced by over \$12,000,000.

By way of update, the following work tasks must also be accomplished in order to successfully complete the plant conversion process:

- A. Apply for and secure a construction permit for the conversion project (plus

additional maintenance projects) from the Iowa Department of Natural Resources (IDNR).

- B. Apply for and secure a one year time extension (until April 16, 2016) for compliance with the Mercury and Air Toxics Standards (MATS) from U.S. EPA Region 7 in Kansas City. The deadline to file this request is December 17, 2014. Staff also plans to apply for and secure an additional one year extension of time (until April 16, 2017) as a contingency.

**ALTERNATIVES:**

- 1. Approve the preliminary plans and specifications for the Distributed Control System, and set January 14, 2015 as the bid due date and January 27, 2015 as the date of hearing and award of contract.
- 2. Do not approve plans and specifications for the DCS System at this time.

**MANAGER'S RECOMMENDED ACTION:**

The Power Plant's existing Distributed Control System is over 14 years old, and is no longer supported by the manufacturer. An up-to-date control system is needed for the safe and efficient operation of the plant into the future. Funding to purchase and install this system is available from the original project budget.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1 as stated above.

**It should be noted that the City has not yet received the necessary construction permit from the IDNR to physically make the necessary plant modifications. It is likely that that permit will be issued by June 2015, and installation of this equipment will not begin until the permit is received. However, this equipment must be ordered now in order to meet EPA's required completion date of April 16, 2016. Waiting to bid the DCS equipment until after the permit is received will prevent the City from meeting that deadline. According to our outside legal counsel, the risk of not receiving a construction permit in a timely fashion is minimal. However, the requested time extensions will hopefully help cover that risk.**