COUNCIL ACTION FORM

SUBJECT: AWARD OF CONTRACTS FOR ENGINEERING SERVICES FOR GAS TURBINES

BACKGROUND:

There are three upcoming projects affecting Electric Services' Gas Turbines located at Dayton substation. Staff consolidated the required engineering services portions of three upcoming projects for the Power Plant into a single request for proposal (RFP). A single RFP allows staff to procure these services more efficiently since each project requires similar qualifications from engineering firms. Additionally, the City still reserves the option to award the contract in whole or in parts depending on the evaluated scores for each firm on each project listed on the RFP.

On June 17, 2010, the proposal document was issued to nine (9) firms for proposals. On July 9, 2010, staff received competitive proposals for engineering services from three (3) firms. These proposals were then sent to a committee for evaluation. The committee consisted of two Power Plant Engineers and the Assistant Superintendent for Electric Distribution.

The committee members independently evaluated and scored all three (3) of the proposals in two separate steps. In the first step the proposals were evaluated based on compliance with proposal documents. This criterion was rated on a Pass / Fail basis. In the second step, the evaluation criteria for all three were the same with one exception. The evaluations were based on price, experience / qualifications from both the firm and team, and the engineer's approach. Project 1: GT1 Engine Overhaul / Swap contained the additional criteria of the firm's combustion turbine maintenance experience.

Gas turbines are electric power generators that burn diesel oil in a jet engine to produce electricity used for peak load, emergency, black start and voltage support service. Gas Turbine #1 (GT1) which was installed in 1972 is a power turbine/generator that is aerodynamically connected to a gas generator/jet engine. This unit is used for peaking and system black start for the City of Ames. Black start capability means the turbine has the ability to start producing power without any power from an outside source. For example, if Ames had a total blackout, GT1 would be the first unit started and the power generated from it would be used to start up the main Power Plant. Peaking duty refers to the times of high City load when the coal fired units don't have the capability to supply enough electricity to the City. The gas turbines provide the additional power to cover the peak. Voltage support service refers to the times when the transmission system has low voltage and additional generation is needed to boost voltage. Emergency service occurs when there is a distribution or power plant problem that limits generation or the importation of power into the City.

Gas Turbine #2 (GT2) is a nominal 30MW combustion turbine put in service in 2005 and it also provides the same services as GT1 with the exception of it not having the capability of black starting.

Project 1: Engineering for GT-1 Engine Overhaul/Swap

Project 1 of the RFP was for the engineering services to perform an engine inspection and feasibility study leading to a recommendation for either an engine overhaul or engine replacement (swap) at GT1. The replacement will be with a rebuilt engine. The study will consider such things as: 1) availability of in-kind engines for swap; 2) cost comparison to make the swap which includes the removal of the existing engine and installation of the rebuilt swap engine versus an onsite overhaul with new or rebuilt parts as required; and 3) outage time to make a GT1 swap and overhaul project time frame versus outage time and overall project time frame for a complete engine overhaul

Upon approval, the scope of work requires the engineering firm to provide detailed technical specifications, engineer's cost estimates, and a potential bidders list.

PROPOSERS	AVERAGED SCORE
Black & Veatch, Kansas City, MO	721.27
Sega Inc, Stilwell, KS	718.33
Zachry Engineering, Minneapolis, MN	627.50

Each score was based on a scale of 1 to 10, with a maximum of 1,000 points possible.

Based on the averaged scores and a unanimous decision by the evaluation committee, staff recommends that a contract be awarded to Black & Veatch, Kansas City, Missouri, for an amount not to exceed \$50,000.

The approved FY2010/11 CIP includes \$650,000 for the GT-1 Engine Overhaul/Swap.

Project 2: Engineering for GT2 Anti-Icing Control

Project 2 of the RFP was for the engineering services to install an Anti-Icing system to GT2. This unit was put in service without an inlet air anti-icing system installed. Ice particles can form in the inlet duct when the ambient air temperature drops below 40 degrees F and the relative humidity is above 70 percent. The accumulating ice particles can then break loose and enter the turbine compressor, and cause damage to the machine. Therefore the operation of this unit is limited to the summer months due to icing issues. Electric Services needs GT2 to be available for start up, and continuous operation without weather limitations on a year round basis. Staff's goal is to have an anti-icing system installed before the next winter season.

The scope of work requires the engineering firm to review the feasibility of installing one of three possible commercial retro fit systems (that staff is aware of) and determine the availability of any other commercial systems for GT2. The firm shall recommend a

solution based on installed and operating costs. Following staff approval, the engineering firm will be required to prepare the detailed specifications, provide a budget cost estimate, and recommend a list of potential bidders.

PROPOSERS	AVERAGED SCORE
Sega Inc, Stilwell, KS	704.33
Zachry Engineering, Minneapolis, MN	668.33
Black & Veatch, Kansas City, MO	653.27

Each score was based on a scale of 1 to 10, with a maximum of 1,000 points possible.

Based on the averaged scores and a unanimous decision by the evaluation committee, staff recommends that a contract be awarded to SEGA, Inc., Stilwell, Kansas; for an amount not to exceed \$50,930.

The approved CIP includes \$750,000 for the GT2 Anti-icing Control.

Project 3: Engineering for GT2 Controls Modification

Project 3 of the RFP was for engineering services of the GT2 Controls Modification. This project will enable the Power Plant to monitor and control capability for GT2 and all associated Plant equipment through a Fanuc PLC from the main Plant control room located 1.5 miles from GT2. The Fanuc PLC capability is needed because it is capable of providing the functionality needed by the Power Plant operators and utilizing the existing hardware will simplify the overall system. Presently, the equipment at the GT2 site is being monitored and controlled from the Power Plant by an Allen Bradley PLC which has limited functionality.

The scope of work requires the engineering firm to determine and recommend an optimum method to monitor and control GT2 and associated Plant equipment at the GT2 site from the main Plant control room. The engineering firm shall provide detailed technical specifications, detailed engineer's estimate and a potential bidders list.

PROPOSERS	AVERAGED SCORE
Black & Veatch, Kansas City, MO	765.00
Sega Inc, Stilwell, KS	693.80
Zachry Engineering, Minneapolis, MN	615.62

Each score was based on a scale of 1 to 10, with a maximum of 1,000 points possible.

Based on the averaged scores and a unanimous decision by the evaluation committee, staff recommends that a contract be awarded to Black & Veatch, Kansas City, Missouri, for an amount not to exceed \$24,000.

The approved FY 2010/2011 operating budget for Movable Equipment Repairs contains \$20,000 for this project. Additional funds of \$39,000 will be available for carry-over from the 2009/2010 budget from the Movable Equipment Repairs budget to bring the total

amount to \$59,000. The engineering staff believes that the remaining \$35,000 will be sufficient to purchase and install this equipment. These funds were not spent during that year. The Council will be asked to approve an amendment to the 2010/2011 budget to provide for this carry-over at the appropriate time.

ALTERNATIVES:

- 1. a. Award a contract to Black & Veatch, Kansas City, Missouri, for the engineering for GT-1 Engine Overhaul/Swap, in an amount not to exceed \$50,000.
 - b. Award a contract to SEGA, Inc., Stilwell, Kansas, for the engineering for GT2 Anti-Icing Control, in an amount not to exceed \$50,930.
 - c. Award a contract to Black & Veatch, Kansas City, Missouri, for the engineering for GT2 Controls Modification, in an amount not to exceed \$24,000.
- 2. Reject all proposals and delay the engineering for all three projects.

MANAGER'S RECOMMENDED ACTION:

These projects are necessary to provide reliable year round electrical service from the turbines located at the Dayton Substation. It is essential to have these units operating properly to minimize the risk and/or time of electricity loss to the City of Ames should a blackout or peaking in excess of Power Plant capacity occurs.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1 awarding contract to Black & Veatch, Kansas City, Missouri, for the engineering for GT-1 Engine Overhaul/Swap, in an amount not to exceed \$50,000; SEGA, Inc., Stilwell, Kansas, for the engineering for GT2 Anti-Icing Control, in an amount not to exceed \$50,930; and Black & Veatch, Kansas City, Missouri, for the engineering for GT2 Controls Modification, in an amount not to exceed \$24,000.

MIES	REQUEST FOR PROPOSAL 2010-227 ENGINEERING FOR GAS TURBINE WORK FOR 2010	
Part 1: GT-1 Engine Overhaul/Swap		
BIDDER	TOTAL	
Sega Inc,		
Stilwell, KS	\$34,820.00	
Zachry Engineering,		
Minneapolis, MN	\$39,800.00	
Black & Veatch,		
Kansas City, MO	\$50,000.00	
Part 2: GT-2 Anti-Icing Control		
Zachry Engineering,		
Minneapolis, MN	\$27,500.00	
Sega Inc,		
Stilwell, KS	\$50,930.00	
Black & Veatch,		
Kansas City, MO	\$62,000.00	
Part 3: GT-2 Controls Modification	on	
Black & Veatch,		
Kansas City, MO	\$24,000.00	
Sega Inc,		
Stilwell, KS	\$40,525.00	
Zachry Engineering,		
Minneapolis, MN	\$61,000.00	