

REQUEST FOR COUNCIL ACTION

Date: July 27, 2009
Item No.: 12.c

Department Approval



City Manager Approval



Item Description: To Pursue Federal Stimulus Recovery Act – Geothermal Technologies Program

BACKGROUND

Buildings in the US today consume 65% of the nations' electricity and 35% of the total energy use. The Roseville Geothermal Campus Master Plan looks at reducing the use of fossil fuels by exploring an integrated geothermal system that uses both the waste heat from the ice rinks and the constant temperature of the earth for energy storage. As part of the process to convert the Roseville Indoor Skating Center to a geothermal system, KFI (Karges-Faulconbridge, Inc.) investigated the feasibility of expanding this system to include City Hall and Police, and the Public Works Facility. After the first six months of operation, temperatures of the well field showed that the Indoor Skating Center is not using all of its stored energy. To be more efficient and use all of the stored energy, we would need to expand the current geothermal system to other city facilities. This will require other piping loops to be added.

By expanding the current geothermal system to the maintenance building and city hall, KFI calculates a total estimated energy savings of \$55,000 - \$65,000 per year.

As a part of the American Reinvestment and Recovery Act the Department of Energy is soliciting applications for project using heat exchange technologies. These applications are due in mid August. The maximum request is \$5,000,000. This particular category of grants requires a 50% local match. Staff is requesting the Council consider authorization for staff to move forward with this application.

POLICY OBJECTIVE

The City Council has supported green initiatives to reduce the city's carbon footprint when economically feasible. The proposed ARRA Federal Stimulus Recovery Act – Geothermal Technologies Program Grant is consistent with our Energy Action Plan and Imagine Roseville 2025 initiatives.

FINANCIAL IMPACTS

This grant requires a 50% local match. The estimated project cost for the extension of the system is \$2,308,960. In order to expand the geothermal system to additional buildings, much of the conventional HVAC equipment will need to be replaced. The following is a cost estimate for the extension of the system to the maintenance building and city hall.

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City Hall/Police	
Description	Cost
Equipment	\$346,800.00
Ventilation	\$45,900.00
Piping	\$192,354.00
Plumbing	\$0.00
Fire Protection	\$4,800.00
Controls	\$47,520.00
Demolition	\$24,000.00
Contingency Allowance	\$132,274.00
Total	\$793,648.00
Public Works Admin & Vehicle Storage	
Description	Cost
Equipment	\$483,600.00
Ventilation	\$147,000.00
Piping	\$151,200.00
Plumbing	\$0.00
Fire Protection	\$24,000.00
Controls	\$110,880.00
Demolition	\$24,000.00
Contingency Allowance	\$188,136.00
Total	\$1,128,816.00

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Public Works - North & Parks Storage Garages	
Description	Cost
Equipment	\$205,200.00
Ventilation	\$29,400.00
Piping	\$45,000.00
Plumbing	\$0.00
Fire Protection	\$4,800.00
Controls	\$31,680.00
Demolition	\$6,000.00
Contingency Allowance	\$64,416.00
Total	\$386,496.00
Grand Total	\$2,308,960.00

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34 At today's energy rates and construction costs, the geothermal system extension would payback
 35 in 30 years based on predicted energy savings. However, by taking advantage of this 50%
 36 matching grant, and considering current HVAC equipment depreciation (\$740,400), payback to
 37 the City would be only 12 years on an investment of \$1,154,480.

38 **STAFF RECOMMENDATION**

39 Authorize staff to apply for a 50% matching grant through the Federal Stimulus Recovery
 40 Act/Geothermal Technical Program for extension of the existing geothermal energy system to
 41 the maintenance building and city hall.

42 **REQUESTED COUNCIL ACTION**

43 Motion to approve application to the Department of Energy for a grant to extend the existing
44 Skating Center geothermal energy system.

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