



Agenda Item:

55

COUNCIL COMMUNICATION

City Manager's Office

GENERAL INFORMATION

Agenda Date: 07/12/04
352

Agenda Item Type: Resolution

Communication No.: 04-

Roll Call No.:

Submitted by: Donald M. Tripp, Park and Recreation Director

SUBJECT—

Energy Management Plan Phase 2 for Certain City Buildings

SYNOPSIS—

Approve two professional services agreement contracts to hire Brown Engineering Co. of Des Moines, Iowa to complete Energy Management Plans for 23 city buildings.

Approval of the contracts will authorize Brown Engineering Co. of Des Moines (Terry L. Martin, P.E., President, 2570 106th Street, Suite D, Urbandale, IA 50322) to proceed with the preparation of an Energy Management Plan necessary for the City of Des Moines to participate in the Iowa Building Energy Management Program sponsored by the Iowa Department of Natural Resources (IDNR) in partnership with MidAmerican Energy Company (MEC). The contract is a three-party agreement between Brown Engineering Co., MEC, and the City of Des Moines. These contracts will be Phase 2 of a three-phase plan for implementing energy management plans and physical improvements for most City building and facilities.

FISCAL IMPACT—

A \$5,000 non-reimbursable fee will be paid to IDNR for the review of all related documents. The City's initial share of the consulting fees will be \$22,000. Total project consulting fees will be \$44,000. MEC funds one-half of the consulting service fees and the City funds the other half. The City's half of the consulting fee and the first year implementation expenses will be funded through the Capital Improvement Program (CIP) Budget, Account No. CP040 PK99000

BLD 110. When the City implements a predetermined quantity of the IDNR approved energy management improvements within one year after receiving the final Energy Management Plan from the consultant, MEC will reimburse the City for its half of the consulting fee (\$22,000).

The Municipal Buildings CIP Budget includes \$70,000 in Fiscal Year (FY) 2004 and \$50,000 in FY2005 budgeted for expenditures associated with implementing an energy management program.

The total annual utility cost for gas and electric for the 23 buildings included in the Phase 2 Study is approximately \$550,000. An energy consultant retained by IDNR (The Energy Group) believes that the total energy consumption for the 23 Phase 2 buildings may be reduced by 10 percent to 15 percent after energy saving improvements are implemented.

RECOMMENDATION—

Approval.

BACKGROUND—

Brown Engineering Co. was chosen as the consultant for Phase 2 through a bidding process by which a list of IDNR prequalified consultants are allowed to bid on projects involved with the Iowa Building Energy Management Program. There were two bids for the project and the Brown Engineering Company was the lower bidder.

The remaining process for the City's participation in the Iowa Building Energy Management Program for Phase 2 is as follows:

1. The City selected consultant – Brown Engineering, MEC, and the City enter into a three-party professional services agreement. The consultant performs all audits and analysis work and develops an Energy Management Plan in accordance with IDNR Guidelines.
2. The Energy Management Plan will contain approved Energy Management Improvements (EMIs) for the enrolled facilities. An EMI is a document that analyzes the cost and savings associated with making an energy management improvement. The IDNR and MEC must concur with and approve EMIs presented by the consultant. The approved EMIs will have a payback period of one to ten years. The consultant will be required to complete the Energy Management Plan within four months after receiving a notice to proceed. The IDNR and MEC must approve the Energy Management Plan for each building.
3. The City will implement the EMIs through contractors or in-house staff and must document the implementation in accordance with MEC and IDNR guidelines in order to receive rebates and incentives from MEC.

Unlike Phase I of the Energy Management Plan, Phase 2 involves the execution of two separate contracts; one for completing “Technical Engineering Analysis” tasks, and one for completing

“Energy Audit” tasks. Two separate contracts are required because IDNR utilizes separate contract forms for the two different study tasks. The consultant will be allowed four months to complete the Energy Audit tasks and two months to complete the Technical Engineering Analysis tasks.

The implementation of the Phase 2 EMIs for all 23 buildings should begin in January of 2005 and be complete within eight months thereafter. The work required for the implementation will be completed by City staff and contractors.

The Phase I Energy Management Plan Studies for City Hall, the Argonne Armory, and the Police Station were started in July, 2003 and completed in November of 2003. The completed Phase I studies projected a combined energy cost saving of \$35,000 annually after the implementation of all approved EMIs; assuming the unit price of energy remained the same. Implementing the EMIs for the three Phase I buildings started in January of 2004. The implementation of some EMIs pertaining to the scheduling and operation of HVAC equipment occurred in 2002. Consequently, for comparison purposes, 2002 is used as the base year in determining energy savings for Phase I.

Through May of 2004, the implementation of all Phase I EMIs is approximately 85 percent complete. The Energy Group has tracked the energy usage in all three buildings over the first five months of 2004 and compared the energy usage and cost to the base year of 2002 and 2003. Even though the implementation of the Phase I Energy Management Improvements during the first five-month period of 2004 was less than 50 percent complete, some energy and costs savings were realized.

Electrical energy comparisons for the three buildings during the first five months of 2004 can be summarized as follows:

ELECTRICAL ENERGY

5 Month Usage (kwh)

| | <u>2002 Usage</u> | <u>2004 Usage</u> | <u>2004 Change</u> | <u>% Change</u> |
|----------------|-----------------------|-----------------------|------------------------|---------------------|
| City Hall | 337,200 | 277,400 | 59,760 | 17.7% |
| Argonne Armory | 685,800 | 627,600 | 58,200 | 8.5% |
| Police Station | 533,900 | 530,700 | 3,200 | 0.6% |

5 Month Cost (Dollars \$)

| | <u>2002 Cost</u> | <u>2004 Cost</u> | <u>2004 Change</u> | <u>% Change</u> |
|-----------|----------------------|----------------------|------------------------|---------------------|
| City Hall | \$19,154 | \$16,554 | \$2,600 | 13.6% |

| | | | | |
|----------------|----------|----------|---------|------|
| Argonne Armory | \$30,694 | \$28,309 | \$2,385 | 7.7% |
| Police Station | \$23,801 | \$23,129 | \$ 672 | 2.8% |
| | | | \$5,657 | |

Natural gas energy comparisons for the five-month period can be summarized as follows:

NATURAL GAS ENERGY

5 Month Usage (ccf)

| | 2002 <u>Usage</u> | 2004 <u>Usage</u> | 2004 <u>Change</u> | % <u>Change</u> |
|----------------|----------------------|----------------------|-----------------------|--------------------|
| City Hall | 18,518 | 23,066 | -4,548 | -24.5% |
| Argonne Armory | 8,893 | 9,297 | -492 | -5.5% |
| Police Station | 19,541 | 27,156 | -7,615 | -38.9% |

5 Month Cost (Dollars \$)

| | 2002 <u>Cost</u> | 2004 <u>Cost</u> | 2004 <u>Change</u> | % <u>Change</u> |
|----------------|---------------------|---------------------|-----------------------|--------------------|
| City Hall | \$6,924 | \$17,130 | -\$10,206 | -147.4% |
| Argonne Armory | \$3,576 | \$ 7,217 | -\$3,641 | -101.8% |
| Police Station | \$6,955 | \$14,899 | -\$7,944 | -114.2% |
| | | | -\$21,791 | |

The above comparisons indicate a five-month energy savings for electricity, but extremely high usage and cost for natural gas. In fact, the cost of natural gas for the three buildings was \$21,791 more than the cost in 2002 over the same period of time. The higher natural gas bill for the first five months of 2004 was basically caused by three factors:

1. Natural gas EMI projects have not yet been implemented
2. Very cold winter months
3. High prices for natural gas because of a national shortage
4. A very mild 2002 winter as a basis of comparison

An evaluation will be made to determine if undertaking a Phase 3 Energy Management Plan is feasible and can qualify for the Iowa Building Energy Management Program.

When Phase I EMI improvements are completed, staff would expect to decrease the long term usage of both electricity and natural gas. This work is underway and is funded in the FY04 CIP. For instance, the installation of a new cooling tower in City Hall should result in energy savings in that building.

The Parks and Recreation Department is in the process of applying for approximately \$32,000 in equipment rebates, and the reimbursement of \$9,495 in consulting fees from MidAmerican Energy for Phase 1. Additional rebates will be applied for as the implementation of Phase 1 occurs.