



ENVIRONMENTAL MANAGEMENT DIVISION

MEMORANDUM

TO: Mayor Laurel L. Prussing and Members of the City Council
FROM: William R. Gray, Public Works Director
Rod Fletcher, Environmental Manager
DATE: June 4, 2009
RE: Energy Efficiency and Conservation Block Grant (EECBG) Funds and
Budget Amendment Ordinance

Action Requested

To obtain Council direction and confirmation for establishing programs or projects to be submitted by the City for EECBG funding.

Background

The City is eligible to receive \$185,200 from the U.S. Department of Energy available through the American Recovery and Reinvestment Act (ARRA) of 2009. The purpose of the EECBG Program is to:

- Reduce fossil fuel emissions in a manner that is environmentally sustainable, and to the maximum extent practicable, maximizes benefits for local and regional communities
- Reduce the total energy use of the eligible entities
- Improve energy efficiency in the building sector, transportation sector, and other appropriate sectors

The City may develop various initiatives and projects that address one or more of the stated purposes, but each activity to be undertaken is not required to meet all stated purposes. The City is required to use the funds in a cost-effective manner that is of maximum benefit to the population and in a manner that will yield continuous benefits over time in terms of energy and emission reductions. The period of performance or grant term is 36 months, however in keeping with the agenda of ARRA – supporting the goal of immediate investment in the economy - entities are required to commit all funds within 18 months of the date of award. The City must submit its application for funding by Thursday June 25, 2009.

Discussion

Pursuant to the requirements and guidelines of the EECBG Program, staff has been investigating several possible programs and projects. Recognizing that the grant amount is \$185,200, staff is looking to provide the best possible use of funds for the greatest return to our residents. Those proposals being submitted for consideration include:

1. Replacement of all fluorescent lamps with LED lamps at the City Building
2. Partnering with Ameren's Act On Energy Program
3. Acquisition of equipment to help perform energy audits for Urbana residents
4. Replacement of the roof over a portion of the City Building

1. City Building Lamp Retrofit – estimated cost \$82,000

The City engaged the Illinois Waste Management and Research Center in 2006 to perform an energy audit for municipal facilities. The findings of that report, based on 2006 data, conclude that the Library and City Building are the 2 largest users of electricity and natural gas. Together, they account for 75% of electricity (library 43% and city complex 33%) and 60% of natural gas consumption (library 30% and city complex 34%) Any potential project targeted at the Library would exceed the amount of the grant; and given its recent construction, it is employing significant energy efficient measures.

The City Building, although improvements were undertaken 9 years ago, provides an opportunity for a project that can evolve into a funding source for subsequent energy programs well beyond the grant term. According to the audit, lighting comprises 15% of electricity consumption. In FY0708, electricity consumption was nearly 1.2 million kilowatt hours (KWH), thus lighting consumed 180,000 KWH. The City pays \$.09/KWH; and \$16,000 was spent on internal lighting. The City Building has 1425 fluorescent lamps in 2 and 3 lamp fixtures with electronic starters and ballasts throughout. Nearly all of the fluorescent lamps are 32 watts, and the use of electronic ballast improves lamp efficiency, so energy consumption is effectively reduced from 32 to 28 watts per lamp. The City Building has 288 lamps that operate 24 hours a day, 7 days a week (8760 hours per year) and are replaced annually due to illumination decay. One thousand, one hundred and twenty lamps operate approximately 10 hours per workday or 2700 hours per year and are replaced about every 2.5 years.

LED lamps are available and in use for internal lighting applications. LED lamps have extremely long lives - 50,000 hours, do not contain mercury, use a fraction of electricity over traditional lamps, and the light provides good clarity and definition. The LED lamps being proposed consume only 15 watts, which is a 47% reduction in electricity use. The ballasts and starters in the existing fixtures must be rewired for bypass. The following chart presents the energy cost savings – all costs/cost savings are 2009 dollars.

| | Fluorescent lamps | LED lamps |
|---|-------------------|-----------------|
| # lamps on 24/7 (8760 hrs./yr.) | 288 | 288 |
| Energy use per yr/bulb | 245.28 KWH | 131.4 KWH |
| Total KWH/yr. | 70,640 | 37,843 |
| Cost /KWH | \$.09 | \$.09 |
| Total energy cost/yr. | \$6357 | \$3405 |
| Savings per yr. | 0 | \$2950 |
| Savings over 50,000 hrs. (5.7 years) | 0 | \$16,815 |

| | | |
|--|----------|-----------------|
| # lamps on 270 days/10 hrs. (2700 hrs./yr.) | 1120 | 1120 |
| Energy use per yr/bulb | 75.6 KWH | 40.5 KWH |
| Total KWH/yr. | 84,672 | 45,360 |
| Cost /KWH | \$.09 | \$.09 |
| Total energy cost/yr. | \$7620 | \$4802 |
| Savings per yr. | 0 | \$3538 |
| Savings over 50,000 hrs. (18 years) | 0 | \$63,684 |
| Total savings over life | 0 | \$80,499 |
| MTCO2e reductions/yr. | 0 | 165 |

For the first 6 years the annual cost savings would equal \$6490. The annual cost savings could be set aside in a separate fund and dedicated for future energy saving program/project opportunities. The City has just learned about a Department of Energy grant up to \$16,000 that is available for LED indoor lighting conversion. Staff will pursue this grant if this option is selected.

2. Partnering with Ameren's Act On Energy Program \$85,000

Ameren has contracted with Conservation Services Group (CSG) to implement the Act On Energy Program. Ameren's Act on Energy Programs are designed to help homeowners, renters, property managers, and businesses use less and spend less on energy, while helping the environment. Staff has recently met with representatives of this program and discussed possible ways to partner with them to maximize and leverage EECBG funds.

These programs offer various items such as energy audits, compact fluorescent bulbs, hot water pipe insulation, water conservation devices (aerators and low flow shower heads) to directly enable energy reduction savings for little to no cost, depending on the type of building. For example, residential homes can obtain the items mentioned above, but the cost of the audit is \$25 and the other items are a part of the total package, with a value of \$80. A representative of the Act On Energy Program will be attending the Committee meeting to further discuss their programs.

The proposed partnership, as currently envisioned, would be to pay the \$25 audit fee for interested homeowners. As a result of this partnership, they would directly benefit from the audit and energy saving items at no cost. This program could potentially serve 3000 households over a period of time. Several details would still have to be confirmed, but this is the basic structure of this option at this time.

3. Acquisition of equipment to perform energy audits \$4000

The City could acquire a blower door to make available to Urbana residents to help diagnose air leakage in their homes. This would be useful in reducing energy usage and costs for households with incomes that are too high to qualify for the County Weatherization Program. The blower door exposes leaks in various areas of the home such as around windows and doors, foundations, attic access panels. Utilizing the instrumentation on the device and associated software quantifies the amount of open (leaking air) space in cubic feet that exists in the home. The occupant/ resident would be able make repairs, using weather-stripping, sealant, insulation, etc., to reduce the open areas thus reducing the loss of warm or cool air from their homes. After repairs are made, a follow-up test would be completed to quantify the reduction in cubic feet of open air space. The cost of a blower door and associated software is estimated to be \$4000. For more information go to the [Minneapolis Blower Door site](http://www.conservationsstrategies.com/home/cs1/page_61_16/minneapolis_blower_door_system.html):

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4. Replacement of the Roof over the Community Development Department \$30,000

The existing roof over the Community Development Department will need to be replaced within the next five years. This roof has little insulation and is a black rubber membrane roof. It is proposed to replace this roof to match the original City Building roof with a built up insulated TPO membrane white roof that will reduce the heating and cooling load. The exact amount of gas and electricity savings is not known at this time. The structural system is not capable of supporting a vegetated "green" roof.

Fiscal Impact

The City is in receipt, as before stated, of a \$185,200 Department of Energy Grant from ARRA. No other City funds are expected to be spent. Staff time impacts will vary depending on the chosen proposals pursued.

Recommendations

Staff recommends that all four proposals be pursued and that a separate application be made to the Department of Energy for the LED City Building lighting conversion in the grant amount of \$16,000. All four proposals total approximately \$185,000.

It is also recommended that an Ordinance Revising the Annual Budget Ordinance (Energy Efficiency and Conservation Block Grant) be approved.

ORDINANCE No. 2009-06-065

AN ORDINANCE REVISING THE ANNUAL BUDGET ORDINANCE
(Energy Efficiency and Conservation Block Grant)

WHEREAS, the Annual Budget Ordinance of and for the City of Urbana, Champaign County, Illinois, for the fiscal year beginning July 1, 2009, and ending June 30, 2010, (the "Annual Budget Ordinance") has been duly adopted according to sections 8-2-9.1 et seq. of the Illinois Municipal Code (the "Municipal Code") and Division 2, entitled "Budget", of Article VI, entitled "Finances and Purchases", of Chapter 2, entitled "Administration", of the Code of Ordinances, City of Urbana, Illinois (the "City Code"); and

WHEREAS, the City Council of the said City of Urbana finds it necessary to revise said Annual Budget Ordinance by deleting, adding to, changing or creating sub-classes within object classes and object classes themselves; and

WHEREAS, funds are available to effectuate the purpose of such revision; and

WHEREAS, such revision is not one that may be made by the Budget Director under the authority so delegated to the Budget Director pursuant to section 8-2-9.6 of the Municipal Code and section 2-133 of the City Code.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF URBANA, ILLINOIS, as follows:

Section 1. That the Annual Budget be and the same is hereby revised to provide as follows:

| | | |
|--------------|---|-----------|
| FUND: | Capital Improvements Supplementary Fund | |
| ADD EXPENSE: | Energy Conservation Program Costs | \$185,200 |

ADD REVENUE: Fed. Energy Conservation Grant \$185,200

Section 2. This Ordinance shall be effective immediately upon passage and approval and shall not be published.

Section 3. This Ordinance is hereby passed by the affirmative vote of two-thirds of the members of the corporate authorities then holding office, the "ayes" and "nays" being called at a regular meeting of said Council.

PASSED by the City Council this _____ day of _____,
_____.

AYES:

NAYS:

ABSTAINED:

Phyllis D. Clark, City Clerk

APPROVED by the Mayor this _____ day of _____,
_____.

Laurel Lunt Prussing, Mayor