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MEMORANDUM-COUNCIL MEMO NO. CM09-033

DATE: MAY 29, 2009

TO: MAYOR AND COUNCIL

THRU: W. MARK PENTZ, CITY MANAGER
PATRICK MCDERMOTT, ASSISTANT CITY MANAGER

FROM: JENNIFER MORRISON, SUSTAINABILITY MANAGER

SUBJECT: APPROVAL OF CITY OF CHANDLER PROJECTS TO BE INCLUDED IN APPLICATION FOR AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009 ENERGY EFFICIENCY AND CONSERVATION BLOCK GRANT FUNDS

RECOMMENDATION:

Council is requested to approve the projects to be included in the City of Chandler application for American Recovery and Reinvestment Act of 2009 (Recovery Act) Energy Efficiency and Conservation Block Grant Funds

BACKGROUND:

The City of Chandler is eligible to receive Energy Efficiency and Conservation Block Grant (EECBG) Funds under the Recovery Act of 2009 in the amount of \$2,274,500. The purpose of the Act is to stimulate the economy and create jobs. In order to receive EECBG funds, the City must develop and submit an Energy Efficiency Strategy and an Implementation Strategy by June 25, 2009. Funds provided under the grant require obligation within 18 months of grant award and expenditure within 36 months of award. The Department of Energy (DOE) is the provider of funds made available under this portion of the Recovery Act and DOE will also be the contracting and auditing agency for these funds. The purpose of EECBG funds is to assist eligible entities in creating and implementing strategies to reduce fossil fuel emissions, reduce total energy use of eligible entities and to improve energy efficiency in the building, transportation and other appropriate sectors.

DISCUSSION:

As you are aware, the City's Green Team has been working for over 18 months to quantify the energy costs and emissions of City activities and has developed a Sustainability Strategy for 2009 that focuses on the goal of energy efficiency. Through these efforts, the City is well positioned to take advantage of EECBG funds in a timely fashion. The City's Strategy and Implementation Plan for its allocation of EECBG funds focuses on several of the key desired outcomes of the EECBG program. These outcomes include increasing energy efficiency and consumption through efficiency improvements in the building sector, reducing fossil fuel emissions and accelerating the deployment of renewable technologies. The City's most important sustainability goal for 2009 focuses on reducing energy consumption in City buildings and facilities.

Please see Attachment A, which list the proposed budget for each project included in the City's request for EECBG funds. A team of staff from the Buildings and Facilities Division, the Municipal Utilities Department and the City Manager's Office has developed these projects. They have been reviewed by the Buildings and Facilities Team and approved by the City's Green Team. Proposed projects fall under two of the Eligible Activity areas as outlined by the Department of Energy. These two program areas include: a) Energy Efficiency Retrofits and b) Renewable Energy Technologies on Government Buildings.

The City proposes seven unique activities to retrofit City facilities to move Chandler toward the goal of reduced energy consumption and a decrease in our carbon footprint. These activities include the following:

1. Replacement of inefficient HVAC units in seven city buildings including the Development Services building, the Main Library, the Center for the Arts, the Fire Support Building which houses the Emergency Operations Center, the Information Technology Building and Fire Station #2 and Fire Station #4. The total square footage of these buildings is 211,277. The type of work to be performed varies by building but includes replacing air handlers (circa 1970) with chilled water air handlers, replacing electric heat with hot water piping from the boiler, replacing dated variable frequency drives with new energy efficiency models and replacing Seer 6 units with new Seer 13 heat pumps. It is anticipated that these improvements will result in significant reductions in the City's energy consumption.

2. Replace chilled water motors in City buildings and facilities. The City of Chandler proposes to replace chilled water pump motors at the Community Services/Senior Center, Main Library, Development Services and Police/Courts Buildings. Work will consist of replacing outdated chilled water pump motors with high efficiency motors.

3. Replace interior lighting in the Community Center and Senior Center Buildings. The City of Chandler is proposing the replacement of interior lighting fixtures in the Community Services and Senior Center Buildings. The work will consist of replacing T-12 fluorescent bulbs with T8s and replacing all incandescent or CFL lights with Light-emitting Diodes (LEDs) where applicable.

4. Replace exterior windows at the Chandler Municipal Court and Development Services/Public Works Buildings with dual pane high efficiency windows with solar

reflexive film. The City's Municipal Courts Building is a 32,000 square feet building. The building's orientation is facing south therefore the building is exposed to sunlight all day. This fact, combined with the fact that the windows of the building are not energy efficient creates an energy consumption challenge for the City. The City proposes to replace the exterior windows at the Court building with dual pane high efficiency windows with solar reflective film. The windows at the Development Services Building are single pane, circa 1970s windows. Staff proposes to upgrade windows and install solar reflective film at this building as well.

5. Installation of LED lighting in the area outside of the Main Library, Senior Center and Community Center. EECBG funds will be utilized to replace 58 metal halide fixtures with LED fixtures resulting in decreased energy consumption, as well as decreased maintenance costs. The types of lights to be installed include parking lot area lights, walkway area lights, bollard lights and flood lights. The life expectancy of the new fixtures is 10-11 years, which result in savings in labor to replace the fixtures as well as energy savings.

6. Installation of KVAR Energy Controller at Manganaro Sewage Lift Station. The KVAR energy controllers will be installed on the speed pumps at the Manganaro lift station. The Manganaro lift station collects gravity flow sewage from the northern part of Chandler, pumps the sewage and sends it down a force main that joins the gravity flow sewer lines from west and east central Chandler. These mains deliver raw sewage to Chandler's Ocotillo Water Reclamation facility and Airport Water Reclamation Facility. KVAR has patented an apparatus and methodology for determining, to an exact science, the amount of capacitance that is needed to optimize inductive motors for maximum savings. This is a pilot project to test the efficacy of this simple energy controller device. If the device performs well, its installation may be replicated at other City lift stations.

7. Installation of solar PV on 15 Neighborhood Stabilization Program (NSP) homes. The City of Chandler proposes to utilize a portion of its EECBG funds to participate in a program with the Affordable Solar Partnership to install photovoltaic arrays on the 15 NSP homes in Chandler. The Affordable Solar Partnership is not an incorporated entity, but a group of Arizona entities led by the Alliance for Innovation.

The balance of City projects to be funded by the EECBG focus on installing solar technology on City buildings and facilities. Again, the purpose of these installations is to decrease the energy consumption of City buildings, reduce our carbon footprint and provide opportunities to showcase and employ solar technology. The three solar projects proposed to be included in the City's Implementation Plan are:

1. Installation of 350 kW Photovoltaic Generating System on the parking garage of Chandler City Hall. In order to reduce the energy consumption of the new City Hall, EECBG funds is being requested to incent the installation of a 350 kW system, which will incorporate a single axis, elevated tracking system on the roof of the garage. The inclusion of a tracking system will produce approximately 1950 kW hours per kW per year, as opposed to the standard 1500kW. This installation will reduce the energy consumption of the City and serve as a highly visible example of a commercial solar installation in our City.

2. Installation of 3.28kW Solar PV at Appleby Rd. Potable Water Site. The City of Chandler's Municipal Utilities Department desires to utilize EECBG funds to install a grid-tied 3.28 kW photovoltaic array at the new Appleby Road potable water well site. 3.28 kW is the amount of power required to run the lights inside the facility. The well will use 110kW. The array will be grid-tied and the utility, Salt River Project will purchase excess solar from the array. The goal of this installation is to save energy and to insulate the City from future rate increases. The PV array has a 30-year life expectancy, so ongoing energy and emissions savings will be realized.

3. Installation of solar thermal at the Tumbleweed Recreation Center and Fire Stations #3 and #6. One of the most cost-effective ways to include renewable technologies into a building is by incorporating solar hot water. A solar water-heating system reduces the need for conventional water heating by about two-thirds. It minimizes the expense of electricity or fossil fuel to heat the water and reduces the associated environmental impacts. Staff is proposing the installation of solar thermal for hot water heating at the Tumbleweed Recreation Center and Fire Station #3 and Fire Station #6. These stations were selected as they house the highest number of fire staff per shift on a regular basis and therefore utilize the most hot water.

FINANCIAL IMPLICATIONS: All costs associated with projects outlined in the City of Chandler's application for Energy Efficiency and Conservation Block Grant funds will be paid by the U.S. Department of Energy. Of the \$2,274,500 in funds available to the City, staff is requesting \$45,000 or less than two percent in administrative costs. Staff is requesting \$25,000 in administrative costs for consultant fees associated with the solar project at City Hall. In addition, staff is requesting \$20,000 in administrative costs to cover professional services associated with recouping all utility incentives available to the City through the expenditure of these grant funds.

PROPOSED MOTION: Move to approve the list of projects to be included in the City of Chandler's application for American Recovery and Reinvestment Act of 2009 Energy Efficiency and Conservation Block Grant Funds.

Attachment A

<u>Project Description</u>	<u>Project Location</u>	<u>Budget</u>
Energy Efficiency Retrofits		
1. Replace HVAC System at:	Development Services	\$ 390,000.00
	Main Library	\$ 350,000.00
	Center for the Arts	\$ 140,000.00
	Fire Stations 2 and 4	\$ 40,000.00
	Fire Support	\$ 16,000.00
	IT	120,000.00
Subtotal HVAC		\$ 1,056,000.00
2. Replace chilled water pump motors in City buildings and facilities	Community Services/Senior Center	
	Development Services	
	Main Library	
	Police/Courts	\$ 40,000.00
3. Replace interior lighting	Community Center	\$ 50,000.00
	Senior Center	
4. Replace exterior windows at the Chandler Municipal Court with dual pane high efficiency windows with solar reflexive film	Courts Building	\$ 150,000.00
	Development Services Building	\$ 121,000.00
5. Installation of LED Exterior parking lot, walkway and area lighting	Mall area outside of Senior Center, Library and Community Center	\$ 60,000.00
6. Installation of KVAR Energy Controller	Manganaro Lift Station	\$ 12,000.00
7. Partnership with ASU Stardust Foundation to retrofit 15 NSP homes in Chandler with solar pv	Various locations in the City	\$ 112,500.00
Renewable Energy Technologies on Government Buildings		
1. Installation of Solar Panels on Parking Structure	New City Hall	\$ 500,000.00
2. Installation of 3.28 kW PV at Appleby Rd. potable water site	Appleby Rd. site	\$ 15,000.00
	Fire Station #3	
	Fire Station #6	
3. Solar Thermal on Fire Stations #3 and #6 and Tumbleweed Rec. Center	Tumbleweed Recreation Center	\$ 158,000.00
Total		\$ 2,274,500.00