Meeting Date: 06/16/2009

ACTION	TYPE OF ITEM
☐ Approved Recommendation	■ Info/Consent
☐ Ord. No(s). _____	☐ Report
☐ Res. No(s). _____	☐ Public Hearing (Info/consent)
☐ Other _____	☐ Study Session

Prepared By: Ken Ortega _____ Agenda Item No. I-13

Reviewed By: City Manager _____ City Attorney _____ Finance _____ Public Works _____

DATE: June 8, 2009

TO: City Council

FROM: Ken Ortega, Public Works Director
Public Works Department

SUBJECT: **Oxnard Plan for Energy Resource Alternatives and United States Department of Energy American Recovery and Reinvestment Act Energy Efficiency Conservation Block Grant Program**

RECOMMENDATION

That City Council approve in concept the Oxnard Plan for Energy Resource Alternatives and authorize the City Manager to execute the required application (including certifications, and other pertinent documents and agreements necessary to implement the grant) for the City's formula-based funding under the Energy Efficiency and Conservation Block Grant Program on behalf of the projects numbered 1-5 recommended in this staff report, and submit them to the Department of Energy.

SUMMARY

The objective of the Oxnard Plan for Energy Resource Alternatives is to identify and evaluate energy conservation project opportunities throughout the City that can take advantage of alternative funding sources available today, and analyze future energy conservation project opportunities by both leveraging Energy Efficiency Conservation Block (EECBG) dollars and positioning projects to take advantage of future United States Department of Energy (DOE) and California Energy Commission funding over the next several years. The Oxnard Plan for Energy Resource Alternatives is a requirement of the EECBG and must be submitted with the grant application. All entities receiving direct formula grants from the DOE are required to submit a proposed strategy for the development of an energy-efficiency and conservation strategy for approval.

The City of Oxnard is expecting to receive approximately $1.7 million in direct formula grants for energy conservation efforts from the U.S. Department of Energy's Energy Efficiency and Conservation Block Grant Program (EECBG) funded by the American Recovery and Reinvestment Act of 2009. This staff report provides Oxnard's plan for energy resource alternatives within the guidelines of eligible project activities of the EECBG. This grant opportunity not only provides funding for the proposed planned energy resource alternatives but also provides significant cost savings from reduced energy consumption that will result from these improvements.

DISCUSSION

On March 26, 2009, the DOE announced the availability of a financial assistance funding opportunity for state and local government entities under the American Recovery and Reinvestment Act (ARRA) of 2009. Of California's $351.5 million allocation, approximately $302 million goes directly to large cities (over 35,000 population) and counties, and most importantly, the City of Oxnard is expecting to receive approximately $1.7 million.

The purpose of the Energy Efficiency Conservation Block Grant (EECBG) Program is to assist eligible entities in creating and implementing strategies to:

- Increase energy efficiency, reduce energy consumption and reduce energy costs through efficiency improvements in building, transportation and other appropriate sectors;
- Reduce fossil fuel emissions in a manner that is environmentally sustainable and, to the maximum extent practicable, maximize benefits for local and regional communities;
- Create new jobs and increase productivity to spur economic growth and community development;
- Accelerate deployment of market-ready distributed renewable energy technologies, including wind, solar, geothermal, hydropower, biomass and hydrogen technologies; and
- Leverage the resources of federal, state and local governments, utilities and utility regulators, private sector and non-profit organizations to maximize the resulting energy, economic and environmental benefits.

These stated purposes describe the overall intent of the EECBG Program. The City of Oxnard may develop various initiatives and projects that address one or more of the purposes and each activity an entity undertakes is not required to meet all of the stated purposes. DOE encourages entities to develop many different new and innovative approaches within the framework of the legislation and the guidance to serve these purposes. However, each entity is required to use the funds in a cost-effective manner that is of maximum benefit to the population of that entity and in a manner that will yield continuous benefits over time in terms of energy and emission reductions.

Oxnard Plan for Energy Resource Alternatives

The objective of the Oxnard Plan for Energy Resource Alternatives is to identify and evaluate energy conservation project opportunities throughout the City that can take advantage of alternative funding sources available today, and analyze future energy conservation project opportunities by both leveraging EECBG dollars and positioning projects to take advantage of future DOE and California Energy Commission funding over the next several years.

Because leveraging the resources of federal, state and local governments, utilities and utility regulators, private sector and non-profit organizations to maximize the resulting energy, economic and environmental benefits is a stated objective of the EECBG Program, staff conducted a series of energy stakeholder workshops in a combined effort to develop a comprehensive energy strategy for the City of Oxnard. Stakeholders representing both the public and private sectors participated in several meetings between the months of April and May, and included persons from various City of Oxnard departments;

public utilities; private energy companies; and the Ventura County Regional Energy Alliance (VCREA) in order to meet the subject requirements.

The process began with the development of ideas that would generate energy savings, and in turn, cost savings. Potential energy conservation projects were listed and then researched and investigated. Some projects underwent a further (more detailed) energy audit and site and systems review to determine multiple areas where cost savings were achievable. A hypothesis of the potential project was then developed and analyzed to further define the project and provide a more firm cost and energy savings estimate.

The energy efficiency improvement measures identified ranged from highly efficient lighting and heating/air conditioning upgrades, to more productive motors with variable speed drives, and centralized energy management systems. There is also a wide array of energy efficiency improvement project studies that can produce the basis and design criteria for even larger citywide energy savings in the future. The final energy efficiency projects developed (contained herein) are designed to create cost-effective measures to obtain the highest potential of energy savings, and leverage to the maximum extent possible EECBG funds.

The Oxnard Plan for Energy Resource Alternatives includes the projects identified later in this report, and going forward will provide for both the development and evaluation of the City of Oxnard's:

- Energy consumption profile for all sources of energy,
- Energy conservation and management opportunities,
- Feasibility of alternative energy development, together with solid waste conversion or separately,
- Energy plan for Oxnard's future, and
- Energy efficiency improvements funding and implementation plan.

The Oxnard Plan for Energy Resource Alternatives evaluated fourteen (14) EECBG eligible projects totaling over $3,739,173 in capital improvement value (by leveraging the $1,699,500 EECBG funding). Based on the preliminary energy audit analysis performed so far, it appears that the proposed energy efficiency and conservation improvement projects will reduce energy demands by approximately 15-percent which results in over $275,105 per year of energy cost savings. The preliminary energy efficiency and costs savings estimates will be reevaluated as part of the proposed Citywide Energy Audit.

OXNARD EFFICIENCY IMPROVEMENT PROJECTS

A list of eligible activities for use of program funds is contained in Sec. 544 of Energy Independence and Security Act (EISA) of 2007 and is also attached to this report. DOE encourages each entity to develop a strategy, including its component activities, that is likely to result in maximum energy efficiency improvements, fossil-fuel emission reductions, economic benefits and total energy use reduction.

The following table summarizes the 14 different projects that staff evaluated in order to determine their eligibility under one or more activities in the EECBG eligible activities summarized in this report. A detailed description of each of the 14 eligible projects is contained as an attachment to this report.

Oxnard Energy Resource Alternatives – Energy Efficiency Improvement Project Summary

No.	Project	Projected Cost[1]	Project Annual Savings	Potential Rebate	Payback Years
1	Wastewater Treatment Plan Energy Efficiency Retrofits	$343,333	$70,000	$64,000	4.0
2	Main Library Building Energy Efficiency Retrofits	$608,912	$57,333	$32,000	10.1
3	Public Safety Building Energy Efficiency Retrofits	$348,382	$33,667	$22,000	9.7
4	Performing Arts and Convention Center Building Energy Efficiency Retrofits	$295,368	$23,750	$12,000	11.9
5	Citywide Detailed Energy Audit	$100,000	TBD	N/A	N/A
6	Annex I Building Energy Efficiency Retrofits	$189,338	$14,500	$11,000	12.3
7	City Corporate Yard Energy Efficiency Retrofits	$157,529	$28,000	$26,000	4.7
8	Downtown Parking Structure Energy Efficiency Retrofits	$60,588	$14,000	$13,000	3.4
9	Illuminated Street Name Sign Conversions	$300,000	$20,000	N/A	N/A
10	Construction of the Intelligent Transportation System (ITS) Traffic Management Center (TMC)	$340,000	TBD	N/A	N/A
11	Wastewater Treatment Plant Activated Sludge Fine Air Diffuser System Study	$300,000	TBD	N/A	N/A
12	Waste to Energy Conversion Study – Material Conservation Programs	$300,000	TBD	N/A	N/A
13	Wastewater Cogeneration Alternatives Study	$300,000	TBD	N/A	N/A
14	Del Norte Regional Recycling and Transfer Station Energy Efficiency Retrofits	$95,723	$13,855	$30,605	4.7
	Total	**$3,739,173**	**$275,105**	**$210,605**	

[1] Costs include project management, P&P bond, warranty, jobsite, engineering, services, etc.

The City can elect to undertake all fourteen projects today, however, this alternative takes a long-range approach to position the City for future grants, and a significant part of the investment for retrofits would come from long-term contracts with third party providers. Approximately $1 million of the $1.7 million grant would fund the necessary studies for future investments.

Staff recommends that Council approve the submission of the application package for the City's formula-based funding under the Energy Efficiency and Conservation Block Grant Program on behalf of the previous projects numbered 1 – 5 only. Doing this will fully utilize the Energy Efficiency Conservation Block Grant funds available today, but staff will need to seek other mechanisms to fund the remaining future studies, evaluations and energy efficiency and conservation projects in order to take advantage of future energy conservation funding opportunities.

This alternative provides a more conservative approach that ensures the completion of projects to reduce energy consumption. Savings are estimated at $185,000 annually including $115,000 to the

General Fund. This alternative would still provide for an energy audit that would provide a basis for future work.

FINANCIAL IMPACT

There is no financial impact since the grant applications require no matching funds. Staff will return to City Council to recommend appropriations once the projects are awarded by U.S. Department of Energy. Projects not awarded will be deferred until another funding source is available.

(KJO:kjo)

Attachment #1 - Summary of EECBG Eligible Activities
#2 - Energy Efficiency Improvement Projects

Summary of EECBG Eligible Activities

A list of eligible activities for use of program funds is contained in Sec. 544 of Energy Independence and Security Act (EISA) of 2007. Additional activities may be eligible pending approval by the DOE. The activities below are therefore not an exhaustive list and should be used as a guide to the intent of the program. DOE encourages each entity to develop a strategy, including its component activities, that is likely to result in maximum energy efficiency improvements, fossil-fuel emission reductions, economic benefits and total energy use reduction.

1. Development of an Energy Efficiency and Conservation Strategy: Entities may use a grant received under this part to develop and/or implement a strategy for energy efficiency and conservation and to carry out activities to achieve the purposes of the program. All entities receiving direct formula grants from the DOE are required to submit a proposed strategy for approval.

2. Technical Consultant Services: Entities may retain technical consultant services to assist the eligible entity in the development of such a strategy, including formulation of energy efficiency, energy conservation, and energy usage goals, identification of strategies to achieve those goals through efforts to increase energy efficiency, reduce fossil fuel emissions or reduce energy consumption through investments or by encouraging behavioral changes. Entities may develop methods to measure progress in achieving the goals. Entities may develop and publish annual reports to the population served by the eligible entity describing the strategies and goals and the progress made in achieving them during the preceding calendar year.

3. Residential and Commercial Building Energy Audits: Entities may support the conduct of residential and commercial building energy audits.

4. Financial Incentive Programs: Entities may establish financial incentive programs and mechanisms for energy efficiency improvements such as energy saving performance contracting, on-bill financing, and revolving loan funds.

5. Energy Efficiency Retrofits: Grants may be made to nonprofit organizations and governmental agencies for the purpose of retrofitting existing facilities to improve energy efficiency.

6. Energy Efficiency and Conservation Programs for Buildings and Facilities: Entities may develop and implement energy efficiency and conservation programs for buildings and facilities within the jurisdiction of the entity. The range of activities includes the design and operation of the programs; the identification of the most effective methods for achieving maximum participation and efficiency rates; public education; measurement and verification protocols; and identification of energy efficient technologies.

7. Development and Implementation of Transportation Programs: Entities may develop and implement programs to conserve energy used in transportation, including but not limited to:
    - Employee flex time programs;
    - Promoting use of satellite work centers;
    - Development and promotion of zoning guidelines or requirements that promote energy efficient development;
    - Development of infrastructure such as bike lanes and pathways and pedestrian walkways;

- Synchronization of traffic signals;
- State/local/regional integrated planning activities (i.e. transportation, housing, environmental, energy, land use) with the goal of reducing greenhouse gas emissions and vehicle miles traveled;
- Incentive programs to reduce commutes by single occupancy vehicles;
- Improvements in operational and system efficiency of the transportation system such as implementation of intelligent transportation system (ITS) strategies;
- Idle-reduction technologies and/or facilities to conserve energy, reduce harmful air pollutants, and greenhouse gas emissions from freight movement; and
- Installation of solar panels on interstate rights-of-way to conserve energy in highway operations and maintenance activities.

8. Building Codes and Inspections: Entities may develop and implement building codes and inspection services to promote building energy efficiency.

9. Energy Distribution: Entities may implement distributed energy resource technologies that significantly increase energy efficiency, including:
    - District heating and cooling systems
    - Combined heat and power systems
    - Cogeneration systems
    - Energy Storage systems
    - Absorption chillers
    - Ground source heat pumps
    - Desiccant humidifiers
    - Micro turbines

10. Material Conservation Programs: Entities may implement activities to increase participation and efficiency rates for material conservation programs, including source reduction, recycling, and recycled content procurement programs that lead to increases in energy efficiency.

11. Reduction and Capture of Methane and Greenhouse Gases: Entities may use grant funds to purchase and implement technologies to reduce, capture, and, to the maximum extent practicable, use methane and other greenhouse gases generated by landfills or similar waste-related sources, such as wastewater treatment plants, operations producing food waste, dairy farms and other animal operations.

12. Traffic Signals and Street Lighting: Entities may use grant funds to replace traffic signals and street lighting with energy efficient lighting technologies, including light emitting diodes; and any other technology of equal or greater energy efficiency.

13. Renewable Energy Technologies on Government Buildings: Entities may use grant funds to develop, implement, and install on or in any government building of the eligible entity onsite renewable energy technology that generates electricity from renewable resources, including solar energy; wind energy; fuel cells; and biomass.

14. Any Other Appropriate Activity: Entities may submit any other appropriate activity for approval in the Energy Efficiency and Conservation Strategy.

Energy Efficiency Improvement Projects

1. Wastewater Treatment Plant Energy Efficiency Retrofits

   The Wastewater Treatment Plant located at 6001 South Perkins Road consists of 22 buildings and 29 structures on approximately 41.09 acres of land originally constructed in 1954, with its last major upgrade in 1991, for collecting, treating and disposing of wastewater while safeguarding public health and protecting the environment. Proposed energy efficiency retrofits include interior and exterior lighting upgrades and replacing standard efficiency motors with premium efficiency motors and is an eligible activity number 5 under this grant. The estimated total cost of the retrofits is $343,333 with an annual payback of $70,000 over a 4.0 year term and a potential rebate of $64,000. The annual estimated energy cost savings to the City is $70,000 after the 4.0 year payback period. Currently, the annual energy cost is approximately $60,000.

2. Main Library Building Energy Efficiency Retrofits

   The main Oxnard Public Library located at 251 South 'A' Street is a 72,000 square foot brick building that was constructed in 1992. Proposed energy efficiency improvements include upgrades and major component replacement of the existing heating/cooling system, interior and exterior lighting upgrades, upgrading the existing control system, and integrating the control system with a modern energy management system and are an eligible activity number 5 under this grant. The estimated total cost of the retrofits is $608,912 with an annual payback of $57,333 over a 10.1 year term and a potential rebate of $32,000. The annual estimated energy cost savings to the City is $57,333 after the 10.1 year payback period. Currently, the annual energy cost is approximately $133,000.

3. Public Safety Building Energy Efficiency Retrofits

   The Public Safety building located at 251 South 'C' Street is a 20,000 square foot two-story building for personnel of the Oxnard Police Department. Proposed energy efficiency improvements include major component replacement of the existing heating/cooling system elements, interior and exterior lighting upgrades, occupancy sensors, and installing a modern direct digital control energy management system and are an eligible activity number 5 under this grant. The estimated total cost of the retrofits is $348,382 with an annual payback of $33,667 over a 9.7 year term and a potential rebate of $22,000. The annual estimated energy cost savings to the City is $33,667 after the 9.1 year payback period. Currently, the annual energy cost is approximately $110,000.

4. Performing Arts and Convention Center Building Energy Efficiency Retrofits

   The Performing Arts and Convention Center (PACC) located at 800 Hobson Way provides for cultural, educational and entertainment opportunities. The PACC is comprised of five buildings on approximately 11 acres of land including two main parking lots. The auditorium is 28,904 square feet with a seating capacity of 1,604. A large conference room of 22,062 square feet and three additional meeting rooms with 7,238, 4,241 and 2,644 square feet respectively make up the remaining space. Proposed energy efficiency improvements include upgrades and some major component replacement of the existing heating/cooling system, interior and exterior lighting

upgrades, upgrading the existing control system, and integrating the control system with a modern energy management system and are an eligible activity number 5 under this grant. Solar photovoltaics are a possibility at this site and are an eligible activity number 13 under this grant. The estimated total cost of the retrofits is $295,368 with an annual payback of $23,750 over an 11.9 year term and a potential rebate of $12,000. The annual estimated energy cost savings to the City is $23,750 after the 11.9 year payback period. Currently, the annual energy cost is approximately $72,000.

5. Citywide Detailed Energy Audit

The purpose of the Citywide Detailed Energy Audit is to conduct a detailed energy study necessary to confirm the preliminary energy and resource savings estimates for the City's facilities and systems for the capital improvement projects proposed as part of the Oxnard Plan for Energy Resource Alternatives strategy. As a parameter of the study, project-financing options (including capital lease programs) will be evaluated in a manner that leverages to the maximum extent possible the EECBG formula funding the City is slated to receive. Solar photovoltaic generation will be evaluated where applicable. This project qualifies under EECBG eligible activity number 6. The projected cost of the audit is $100,000.

6. Annex I Building Energy Efficiency Retrofits

The Annex I building located at 300 West Third Street is a 32,000 square foot four-story building for personnel of the Oxnard Human Resources, Purchasing and Finance Departments as well as the City Manager's Office and City Council. Proposed energy efficiency retrofits include upgrades of the server room cooling system, interior and exterior lighting upgrades, upgrading the existing control system, and integrating the control system with a modern energy management system and are an eligible project activity number 5 under this grant. The estimated total cost of the retrofits is $189,338 with an annual payback of $14,500 over a 12.3 year term and a potential rebate of $11,000. The annual estimated energy cost savings to the City is $14,500 after the 12.3 year payback period. Currently, the annual energy cost is approximately $72,000.

7. City Corporate Yard Energy Efficiency Retrofits

The City Corporate Yard located at 1060 Pacific Avenue consists of four main buildings on approximately 10 acres of land. The site houses the General Services Department including City Fleet Services and Facilities Maintenance, Parks and Public Works Department Street's Division and Environmental Resources Bin Maintenance Program. Energy efficiency retrofits such as internal and external lighting for the Corporate Yard are an eligible activity number 5 under this grant. The estimated total cost of the retrofits is $157,529 with an annual payback of $28,000 over a 4.7 year term and a potential rebate of $26,000. The annual estimated energy cost savings to the City is $28,000 after the 4.7 year payback period. Currently, the annual energy cost is approximately $60,000.

8. Downtown Parking Structure Energy Efficiency Retrofits

The Downtown parking structure comprises of four parking levels with approximately 49,680 square feet of overall parking space. Energy efficiency retrofits such as internal and external lighting for the parking structure are an eligible activity number 5 under this grant. The estimated total cost of the retrofits is $60,588 with an annual payback of $14,000 over a 3.4 year term and a

potential rebate of $13,000. The annual estimated energy cost savings to the City is $14,000 after the 3.4 year payback period. Currently, the annual energy cost is approximately $20,000.

9. Illuminated Street Name Sign Conversions

At traffic signalized intersections there are overhead street name signs installed to identify the streets. At a typical 4-leg intersection there are four street name signs hanging from mast arms. Previously, it was standard practice to have the signs printed on translucent plastic and installed on a device with a fluorescent light bulb inside that allowed the light to shine through the plastic and illuminate the street name. Due to electrical costs, more and more municipalities are converting all illuminated street name signs to highly reflective metal signs that do not consume electricity. Energy efficiency retrofits are an eligible activity number 12 under this grant. Converting the remaining illuminated street name signs to the highly reflective metal signs is projected to cost $300,000.

10. Construction of the Intelligent Transportation System (ITS) Traffic Management Center (TMC)

The ITS Master Plan is intended to help maximize the efficiency of our existing streets and improve public safety and response. The Oxnard ITS will provide the ability to collect and process real-time traffic information, disseminate this traffic information to the public agency stakeholders, and receive traffic information from other agency stakeholders. The objective is the communication between all traffic signals to a centralized control location where green time, the amount of time the light is green for a given direction, can be efficiently managed, then communicating existing traffic conditions to drivers. Engineering involves processing incoming information, determining the best allocation of green time and providing drivers useful information. Mitigating traffic will help to reduce idle-time and, therefore, reduce pollution and conserve energy used in transportation. The City will need to construct a TMC to house the equipment needed to run the ITS system as well as the control room where the TMC operator(s) carry out traffic monitoring tasks and other day-to-day activities. Synchronization of traffic signals and other measures that increase energy efficiency and decrease energy consumption are an eligible activity number 7 under this grant. The projected cost to construct the TMC is $340,000.

11. Wastewater Treatment Plant Activated Sludge Fine Air Diffuser System Study

The Oxnard Wastewater Treatment Plant's existing Activated Sludge Fine Air Diffuser System includes 14,400 individual ceramic dome diffusers mounted on a PVC grid manifold system. The System was put into service in 1998, and has been in continuous operation for nearly 20 years. A study to evaluate energy efficient replacement system alternatives and to make recommendations as to the most viable options is an eligible activity number 14 under this grant. The projected cost of the study is $300,000.

12. Waste to Energy Conversion Study – Material Conservation Programs

The Waste to Energy Conversion Study will provide a demonstration project that coverts solid waste to useful forms of energy that can be produced, including heat, steam, electricity, and natural gas and liquid fuels. The process involves non-combustible methods using biological and composting techniques that decompose the solid waste into energy sources. This Study is an eligible activity number 10 under this grant. Similar studies indicate that converting solid waste into energy

sources generates a mere 5% residual; thus, reducing waste disposal going to the landfill by 95%. The projected cost of the study is $300,000.

13. Wastewater Cogeneration Alternatives Study

The Oxnard Wastewater Cogeneration System is comprised of three Waukesha internal combustion engines coupled with three 500 kilowatt (kW) generator sets for a total generation capacity of 1.5 kilovolts (kV). The Cogeneration System was constructed in the mid 1970's and commissioned to full operation in 1981. This system has been in continuous operation for approximately 30 years. A study to evaluate energy efficient replacement system alternatives and to make recommendations as to most viable options is an eligible activity number 9 under this grant. This study is expected to lead to additional energy savings, significant operations and maintenance savings, and improved regulatory compliance. The projected cost of the study is $300,000.

14. Del Norte Regional Recycling and Transfer Station Energy Efficiency Retrofits

The Del Norte Regional Recycling and Transfer Station located at 111 South Del Norte Boulevard is a 120,000 square foot building on a 16.5-acre site that was constructed in 1996 for processing solid waste and recyclable material. Proposed energy efficiency improvements include installing variable frequency drives on hydraulic motors of equipment that process recyclable materials such as a baler, walking floor, and conveyance systems and are an eligible activity number 5 under this grant. The estimated total cost of the retrofits is $95,723 with an annual payback of $13,855 over a 4.7 year term and a potential rebate of $30,605. The annual estimated energy cost savings to the City is $13,855 after the 4.7 year payback period. Currently, the annual energy cost is approximately $125,000. A preliminary analysis has been completed for a photovoltaic system at the Del Norte Facility but further analysis and research is needed.