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ATTENTION: Committee on Rules, Finance and Intergovernmental Relations  
Agenda of September 25, 2002

SUBJECT: Energy Conservation and Management Status Report No. 12

SUMMARY:

THIS IS AN INFORMATION ITEM ONLY. NO ACTION IS REQUIRED ON THE PART OF THE COMMITTEE OR THE COUNCIL.

BACKGROUND

California, and the City, entered 2001 in the midst of an unprecedented energy emergency as a consequence of the State's 1996 energy deregulation legislation. Energy supplies were unreliable, rolling black outs had been experienced in parts of the state, energy prices had doubled and severe energy shortages were predicted for Summer 2001.

In his January 8, 2001 State of the City Address, Mayor Murphy outlined ten goals for the City to pursue during his term in office. Goal #9, Pursue Energy Independence, addressed the energy issues facing the City and proposed establishing a City Energy Administrator position and implementing a program to make San Diego a model city in terms of energy conservation and the use of renewable energy resources.

An Interim Energy Administrator was appointed on February 13, 2001, and the Energy Conservation and Management Division was established in the Environmental Services Department on July 1, 2001. The permanent Energy Administrator was appointed in February 2002, and program development has expanded to include administration of the US Green Building Council, Leadership in Energy and Environmental Design (LEED), and the Energy Construction Program.

DISCUSSION

The City's approach to addressing the energy emergency and pursuing energy independence is based on implementing strategies in five major areas: manage City energy use, energy conservation, enhance energy efficiency in existing City facilities, ensure energy efficiency in new City facilities and major remodels, and pursue energy independence in City facilities through self-generation of electrical energy using renewable resources.

#### SIGNIFICANT ACTIVITY SINCE STATUS REPORT No.11:

##### State of California "Flex Your Power" Award:

In recognition of its exceptional energy conservation performance, the City of San Diego's Energy Conservation and Management Division received the only "Flex Your Power" awarded by the State of California to a City for energy program efforts in 2001. The award was presented by the California Energy Commission to Richard L. Hays, Environmental Services Director, at a ceremony in Sacramento on August 20, 2002.

##### Energy Measurement & Monitoring Program (EMMP):

The Energy Conservation and Management Division currently manages 2963 energy accounts using a manual, labor intensive, data entry system. The current process ensures each bill from SDG&E is charged to the correct department and assigned the most appropriate tariff rate. The City entered into an Electronic Data Interchange (EDI) Agreement with SDG&E in April 2002 to enhance the existing billing processing and improve budget projections by eliminating multiple manual data processes that created billing receipt and generated invoice payment. Testing of the inbound data elements from SDG&E is underway and is expected to be completed by January 2003. Testing for the electronic bill payment process will continue in 2003. While in the transition to EDI, energy bills are being processed both manually and electronically to validate accurate data transfer.

EDI provides the first significant step towards improved management of the City's energy usage. The data elements provided twice monthly for each City energy meter provide excellent historical information for budgeting and planning. As the City moves forward, the ability to schedule operation of energy intensive City functions may provide an opportunity to significantly reduce the energy costs of City operations. Multiple State sponsored demand reduction programs are expected to provide monetary incentives for users that can reduce electric consumption when needed to balance the State system-wide load. In order to improve control of energy intensive City equipment, an expanded internet connected real time energy management system is needed. Development of a single centralized building management system, supplied by a sole source vendor, would significantly enhance operational control. The City currently maintains and operates multiple individual building control systems that are not capable of data transfer between systems or being remotely controlled for system optimization. Additionally, each system requires a significant investment in personnel training for operation and maintenance. Energy Conservation and Management Division estimates that conversion to a central control system could enhance routine operations and reduce the City's energy usage by at least 15 percent by 2005.

### Energy Special Revenue Fund:

Most large organizations, including the City of San Diego, generate increased backlogs in deferred maintenance as facilities age. A majority of the deferred maintenance can be attributed to old technology and equipment performing beyond its expected life cycle. This backlog should be the first target when implementing energy efficiency measures in all City owned facilities. A 25 percent reduction in energy use may be possible by addressing current mechanical system deferred maintenance. Energy conservation measures, including the installation of cool roofs, energy efficient window glazing, interior/exterior lighting upgrades, day lighting controls and heating ventilating and air conditioning (HVAC) upgrades are all potential projects to reduce energy usage. Other systems to be considered would include expanded building control systems to monitor and control HVAC, lighting and power consumption. These projects could include installation of renewable energy components such as photovoltaics and other self-generation equipment for the pursuit of energy independence.

Creation of an energy special revenue fund by holding current budgeted energy costs from each department in a common fund and using realized energy efficiency savings as a source of funds for additional energy efficiency projects, could provide a long term methodology to fund incremental energy improvements. Since the Energy Conservation and Management Division is responsible for paying all City's energy accounts, it would be advantageous to create the energy revolving fund within the Energy Conservation and Management Division of the Environmental Services Department. This would allow the Energy Conservation and Management Division to measure and verify energy consumption and savings as energy efficiency measures were implemented.

Energy Conservation and Management is working with Financial Management and the Auditor's Office to develop a fund management recommendation. Currently, two options are being developed. The first approach would move the City's entire energy operating budget from each department's budget to Energy Conservation and Management Division for the purpose of paying monthly energy bills. Energy cost reductions realized would be held in the Energy Revolving Fund for the purpose of providing additional energy improvements at another facility within the same department. The second option is similar to the first, with transfers of the facility's operating energy budget to the Energy Conservation and Management Division for a period of time equal to the term of the payment needed to re-coupe the capital cost and financing associated with implementing energy savings measures for a particular facility. Additional energy savings generated during the same term would be held in the Energy Revolving Fund for the purpose of providing additional energy improvements at another facility within the same department.

### Energy Bond

In order for the City to be energy self reliant and independent, the special revenue fund provides one of two components necessary to create a capital intensive energy efficiency program for the City. The second component would be creating a capital source that could fund a significant number of projects within a short time frame.

As was recommended by Holly Duncan during discussion of Energy Status Report No.11, bond funds are available from the California Power Authority under a program specifically targeted to help cities fund efficiency projects. The California Power

Authority “Pulse Program” is creating revenue bonds based on efficiency savings as the revenue to repay the bonds. The first bond of \$50 million is expected to be issued in early 2003. The deadline for applications to participate in this initial bond is October 15, 2002. City of San Diego participation would create funds that could be targeted to specific energy efficiency improvements or could offset some incremental efficiency components created under the USGBC LEED Silver level guidelines for energy conservation and efficiency in new City facilities.

Energy Conservation and Management Division would develop specific project guidelines as determined appropriate by this committee. A funding level of up to \$25 million may be appropriate. The bond repayment term is up to thirty years, or longer, based on the expected life cycle of the improvements. This type of Bond funding would be similar to San Francisco’s Solar Bond that was discussed at previous Rules Committee sessions.

### Energy Program Support Levels

Energy Conservation and Management Division’s role in implementing the United States Green Building Council (USGBC) LEED program, coupled with an expanded involvement in reviewing proceedings, preparing analysis and providing recommendations concerning issues before the California Energy Commission, the California Public Utilities Commission, and other legislative bodies, is creating a backlog of pending issues. Additionally, the City’s first public purpose funded program (the Whole House Energy Retrofit Program) will commence operation in October 2002. Future reports will develop options for increased support levels for the energy program as additional tasks are implemented.

### Legislative Updates

AB58 – Net Energy Metering. After significant support from Mayor Murphy and Councilmember Frye, the bill retained full retail cost payment for electricity produced from solar and wind systems up to 1 Megawatt (MW) in size. The bill, sent to the Governor for signature, increased the regional limit of total capacity allowed under net metering, which was one tenth of one percent, up to one percent of total peak load for the region. This allows installation of up to 19 MW of solar/wind systems in San Diego where there is currently less than 3 MW in operation.

AB2228 – Net Energy Metering for animal waste digester systems. This bill allows net metering at full retail rates for animal waste biogas digester systems up to 1 MW in size. Total statewide capacity is limited to 15 MW. This bill allows aggregation of all meters owned by a corporation at each dairy site and could provide a model for future legislation to create incentives for large distributed generation systems.

SB1078 – Renewable Energy Portfolio Standard. This bill requires each investor owned utility to increase its purchase of electricity generated from renewable energy sources by one percent each year until the total reaches 20 percent of their energy portfolio. Each year’s increase is required only if funds are provided from the public benefits monies to offset the incremental premium of purchasing the renewable energy. This requirement will insure a market for new energy generation facilities using renewable resource fuels.

AB117 – Community Choice Aggregation. This bill allows cities to act as the energy purchaser for all electric users within their city limits using an opt-out format. This means everyone would become a member of the aggregation unless they individually notified the aggregator that they did not want to be included. Extra fees required by this bill include a non-bypassable exit fee and costs to repay the DWR contact administration. Options for the City of San Diego to use community choice aggregation will be presented in a future report.

Energy Project Highlights:

Police Department Headquarters - Energy Saving Measure

In support of the Mayor's Goal #9 – Pursue Energy Independence, the Environmental Services Department's Energy Conservation and Management Division (ESD), in conjunction with the Police Department and General Services Department's Facilities Maintenance Division (GS), requested Onsite Energy Corporation to investigate what measures could be taken to improve energy usage at the Police Headquarters building. Through a series of cooperative meetings between the Police Department, ESD, GS and Onsite Energy Corporation, a combination of energy measures was identified that would insure the facility's critical operation, make the facility virtually independent from the local utility grid, promote energy security and reliability, significantly improve energy efficiency, enhance working conditions for employees and reduce overall energy and operation costs for the facility.

This project will be the Fourth Amendment to the Master Energy Service Agreement (ESA), with Onsite Energy Corporation and will include project design and installation of all of the energy systems and upgrades described below. The agreement also includes project financing, up to twelve years of operation and maintenance services for the combined heat and power generation system (to insure the equipment is operating at full efficiency), and guaranteed annual energy savings for the facility. The energy saving guarantee is \$568,217 per year for the term of the operations and maintenance service agreement. As a part of the agreement, the project will be financed by Onsite and paid back solely through the guaranteed energy savings over a 12 year project term. At the end of year 12, it is anticipated the annual savings will exceed \$600,000 per year for the remainder of the facility's 15 to 20 year life cycle.

It is anticipated that the Fourth Amendment to the Master Lease Agreement between the City and Onsite Energy Corporation will be before City Council for consideration in mid-October.

Photovoltaic Projects:

Miramar Place Operations Station Administration Building:

Project design is complete and construction is underway on the Miramar Place Operations Station Administration building. Completion of the 73 Kilowatt (KW) Solar Array is anticipated by the end of September, 2002.

### Ridgehaven Green Building:

Project Design for the Ridgehaven Green Building photovoltaic solar array is anticipated to be completed in late September 2002. Installation of the 64 KW array is anticipated to be completed in early November 2002.

### MOC III

The Metropolitan Wastewater Department is proceeding with installation of a 30 KW array at the MOC III facility in Kearny Mesa. The project will demonstrate thin film technology and will provide valuable operational and maintenance information for use in future product selections. The project received unanimous City Council approval on September 16, 2002.

### Whole House Energy Retrofit Program

CMR 02-023 provided information concerning public education and incentive programs submitted to the California Public Utilities Commission (CPUC) by the Energy Conservation and Management Division for funding consideration. The CPUC determined it would put \$110 million of energy efficiency funds out for competitive solicitation for local programs and statewide marketing and outreach programs. The City was awarded a \$1.45 million grant for a Whole House Energy Retrofit Program.

The Whole House Energy Retrofit Program provides a monetary incentive to homeowners of pre-1978 dwellings who retrofit their homes with energy efficient materials and equipment. It provides a sliding scale of incentive payments based on income to boost participation in the program by hard-to-reach, low-income homeowners. The goal is to reduce the overall energy use in older homes in San Diego to offset the energy needed to accommodate the 50,000 new homes expected to be built in San Diego by 2020. The program will be completely grant funded and will not require the use of City funds.

Initial funding for the two year program is \$1.45 million. Additional funding will be considered by the CPUC after the initial program performance is validated. The money allocated by the CPUC for this process is a portion of the public purpose funds paid by each ratepayer. The Investor Owned Utilities (SDG&E) administered these funds for the region as a regulated utility until the CPUC decided to seek third party administration for these types of programs.

### Regional Energy Infrastructure Study

CMR 01-184 provided background information concerning the Regional Energy Infrastructure Study. The six month study by SAIC reviewed the electric and gas infrastructures, both existing and proposed, for the San Diego region for the period 2002 – 2030. The study was funded, as a cooperative effort, by the City of San Diego, County of San Diego, Port of San Diego, San Diego County Water Authority, SANDAG, UCAN, and the San Diego Regional Energy Office. The study is intended to provide an extensive review of regulatory, technical, and economic conditions that will impact San Diego's energy future.

The power supply market for the entire Western States Coordinating Council was modeled based on three growth and natural gas scenarios. The study is now complete and will be issued for public comment within the next two weeks. The comprehensive review of supply and demand for the next thirty years validated information provided by other agencies by confirming data generated in independent modeling scenarios. The report confirms an increased reliance on natural gas fueled large power plants with no gas generation or storage capability within the region. Information is provided that supports developing distributed generation as the region's primary peak power provider. Guidance from this committee will determine the City's priorities in addressing the issues developed in the study.

## USGBC ACTIVITIES

### Leadership in Energy and Environmental Design for Existing Buildings - LEED EB

As a continuing development in the implementation of the US Green Building Council LEED program, a new rating system is being established for "Existing Buildings" (EB). The new standard will evaluate continuing maintenance and operation's effectiveness for existing structures. The Energy Conservation and Management Division is participating in the LEED EB pilot program with three City facilities. The Ridgehaven Green Building, Miramar Operations, and Carmel Mountain Library have been accepted for the pilot program along with fifty other facilities nation-wide and will be evaluated to help establish national standards for this program.

### US Green Building Council - Leadership in Energy & Environmental Design (LEED)

City Council approved the adoption of LEED Silver Level on April 16, 2002. Since then, Energy Conservation and Management Division has worked with Engineering and Capital Projects Department to assist with the implementation of LEED in all new capital improvement projects over 5000 square feet. The first three projects to implement the LEED rating system include Fire Station 29 in Otay Mesa, Fire Station 5 in Hillcrest and the new downtown Main Library. These three facilities will serve as models to update the existing Sustainable Building Policy 900-14. In addition to updating the policy, the Energy Conservation and Management Division plans to develop an Architects and Engineers Handbook which will help standardize the major building components that would be installed in the future City facilities.

### USGBC Local Chapter

The Energy Conservation and Management Division is participating as an organizing member for the San Diego Chapter of the US Green Building Council. Other organizing members include representatives from local Architectural and Engineering firms as well as San Diego Gas and Electric. The Local Chapter plans on sponsoring several events, including a LEED Study Group, which will use the Ridgehaven Green Building as an example of sustainable design and rates the facility using the LEED 2.0 Rating System.

Also the Chapter is sponsoring a free event at the USD Campus, Joan Kroc Institute of Peace and Justice, on October 30, 2002. The event is titled **LEEDing San Diego into a Sustainable Future** and will highlight what the State, Federal Agencies, industry professionals and San Diego elected officials are doing to promote Green Buildings in

San Diego and the State of California. The event will feature speakers from several different agencies throughout the State of California including Mayor Murphy, Aileen Adams -Secretary of the California State and Consumer Agency, Arnold Sowell, Deputy Secretary of Policy & Planning, State Consumer Services Agency, Tom Blair - City of San Diego Energy Administrator, Chuck Angyal - Sustainable Architect from San Diego Gas & Electric San Diego, Drew George - Organizing Member of the San Diego Chapter US Green Building Council, Captain Christopher Schanze – U. S. Navy Sustainable Development, and Commander Jim Graham - Naval Facilities.

CONCLUSION

The City is continuing to make significant positive progress in pursuing Goal #9 and improving City energy management and energy efficiency.

Respectfully submitted,

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Tom Blair  
Energy Administrator

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Richard L. Hays  
Environmental Services Director

Approved: 

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George I. Loveland  
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HAYS/EPLER/TB