THE CITY OF SAN DIEGO

MANAGER'S REPORT

DATE ISSUED: April 29, 2004 REPORT NO: 04-091

ATTENTION: Committee on Rules, Finance and Intergovernmental Relations
Agenda of May 5, 2004

SUBJECT: Energy Conservation and Management Status Report No. 14

SUMMARY

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

BACKGROUND

Mayor Murphy's Goal #9, Pursue Energy Independence, addressed the energy issues facing the City in 2001 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. Council adopted a comprehensive resolution, R-2001-1112, directing the City Manager to implement the Mayor's energy recommendations and the Energy Conservation and Management Division (Energy Division) was established in the Environmental Services Department. The Energy Division development continues to evolve with the administration of the U.S. Green Building Council, Leadership in Energy and Environmental Design (LEED) construction program, added in June 2002 and the electronic data interchange and electronic payment of all electricity and gas bills between the City and SDG&E which became fully operational in 2003. Staff strategy continues to focus on initiatives in five major areas: (1) Conserve energy (2) Manage City energy use (3) Enhance energy efficiency in existing City facilities (4) Ensure energy efficiency in new facilities and major remodels, and (5) Pursue energy independence in City facilities through self-generation of electrical energy using renewable resources.

This report discusses significant activities of the Energy Division in implementing these initiatives and details the approximately $4,000,000 annual cost avoided as a result of City-wide energy efforts.

DISCUSSION

1. Conserve Energy. In calendar year 2000, the City purchased 217 million kilowatt (kWh) hours of electricity from SDG&E. Subsequent data reflects a consistent average monthly usage of 16 to 17 million kWh hours of electricity and annual total usage of 201 million kWh hours for calendar years 2002 and 2003. These recent total usages reflect the combined benefit of incremental improvement in energy savings at existing facilities and conservation efforts that offset the increased usage of electricity from newly constructed and expanded buildings. Conservation efforts remain the most cost effective measure to save energy budget funds. Each kWh saved reduces cost by the retail cost of that kWh if consumed. Conservation will be a continuing priority in the City's energy management strategy.

2. Manage City Energy Use. Electronic Data Interchange (EDI) of billing data and subsequent electronic payments to SDG&E for all 3,125 City electric and gas accounts commenced in September 2003. Utilization of EDI data exchange replaced the manual, labor intensive, data entry in multiple databases. New expanded efforts undertaken by Energy Division staff focused on billing information analysis of usage profiles and verification of tariff assignments. The tariff verification effort yielded immediate annual budget savings when Energy Division staff identified tariff changes, primarily in the Metropolitan Wastewater Department and Water Department accounts, that will result in $900,000 annual savings with no required changes in field operational procedures. The verification procedure is continuing for all City accounts.

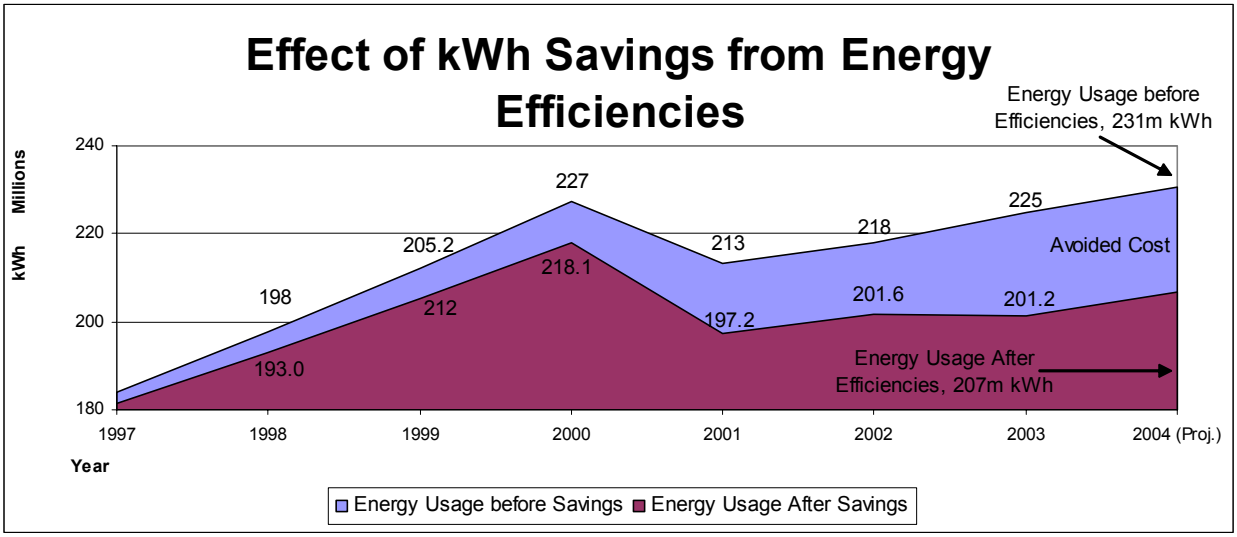
3. Enhance Energy Efficiency in Existing City Facilities. The majority of the City's future energy consumption will be in or by existing facilities. The City has been upgrading the energy efficiency of those facilities on an on-going basis and needs to continue to replace less efficient energy consuming equipment with higher energy efficiency equipment. Examples of the upgrades include: replacing the chillers in the City Administration Building; changing T-12 florescent lamps with mechanical ballasts to T-8 bulbs with electronic ballasts; replacing incandescent traffic signal bulbs with LED bulbs which use 90% less energy and have a five to seven year life compared to 18 months for incandescent bulbs; and installing active daylighting systems that can virtually eliminate the use of artificial lighting during most daylight hours.

   The California Energy Commission (CEC) recently approved a loan of $2.3 million in energy efficiency and self generation improvements for 19 General Fund buildings. This 3.95 % loan will allow City staff installation of the improvements which will include some items previously identified as deferred maintenance. Included in the project development is 190 kWh's of new solar self generation that will count toward the 50 megawatt renewable energy goal. The CEC loan is currently being reviewed by Financial Management and Auditors and will be presented to Council for approval to accept the loan funds in May 2004.

4. Ensure Energy Efficiency in New Facilities and Major Remodels. The most recent step in this initiative is the completion of the Police Headquarters remodel project which

recently commenced operation of a 500 KW cogeneration system that provides dual benefit by using the system exhaust heat to produce building cooling. This combined heat and power approach obtains the highest efficiency for the fuel consumed. This project is also noteworthy in that it has a dual electric generation capability which includes a 30 KW photovoltaic array. The dual generation arrangement is the first "hybrid" interconnection of multiple electric generation systems to a single electric meter in the SDG&E service territory. The annual energy savings guaranteed from this project is $621,589. The project included financing through Onsite Energy with the cost paid back solely through the guaranteed energy savings over a 12 year term. At the end of year 12, the anticipated annual savings will meet or exceed the guaranteed amount for the remainder of the equipment expected life cycle of 20 years.

City efforts undertaken since the beginning of the energy crisis, including this project, provide a cumulative annual savings of 25,000,000 kWh hours of electricity and create avoided cost in the City budget of approximately $3,125,000 at current average energy cost.



5. Pursue Energy Independence in City Facilities through Self-Generation of Electrical Energy using Renewable Resources. The City of San Diego's superior effort in self-generation of "Green Energy" was recognized by the U. S. Environmental Protection Agency (EPA) and the U. S. Department of Energy (DOE) through the award of the "2003 Onsite Generation Award" and inclusion in the Green Power Leadership Club for 2003. The award recognized the 17.5 megawatts of "Green Energy" produced through landfill gas, hydroelectric, and solar generation systems by the City of San Diego. The Leadership Club reflects those organizations that purchase a minimum of 2% of their annual consumption of electricity as "Green Energy". The status of several recently installed photovoltaic systems follows.

    a. Photovoltaic Projects:
        i. Miramar Place Operations Station Administration Building: A 61.5 kWh solar carport array was activated by Mayor Murphy and the Assistant Secretary for Energy Efficiency of the U.S. Department of Energy (David

Garman) on October 18, 2002. The system is fully operational and will generate 91,000 kWh of electricity to the Miramar Place Operations Station Administration Building and "Net Zero" that building's electric bill on an annual basis.

ii. Ridgehaven Green Building: The Ridgehaven Green Building's 54 kWh photovoltaic roof top and solar port array commenced producing electricity in May 2003. This system reduces peak power usage by 25 percent by generating 80,000 kWh annually.

iii. MOC III: The Metropolitan Wastewater Department installed a 30 kWh roof top array at their MOC III facility in Kearny Mesa using a thin film technology product. The project is expected to produce 45,000 kWh hours annually.

iv. Police Headquarters: The downtown Police Headquarters project commenced operating a 30 kWh array in January 2004. The system provides a special capability of recharging the uninterruptible power supply (UPS) batteries for emergency communications if needed during a long power outage and will normally produce 45,000 kWh hours of electricity annually.

Regional Energy Strategy

The Regional Energy Strategy 2030 (RES 2030) resulted from lengthy public input process by the Regional Energy Policy Advisory Committee (REPAC) using the Regional Energy Infrastructure Study as background technical information. The RES 2030 included a number of specific recommendations that were, in turn, further developed into an implementation plan that was presented to the San Diego Association of Governments (SANDAG) in December 2003. The principal recommendation involved formation of a Regional Energy Task Force or Committee that would become the single representative voice to the legislative and regulatory agencies overseeing utility operations. SANDAG approved the formation of an Energy Working Group that will report to the Planning Subcommittee with recommendations for energy issues. The member agencies are in the process of appointing members to the working group and developing a work plan for implementation.

Regulatory Issues

The California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are tasked with the implementation of legislative intent through the control of the regulated investor owned utilities (IOU). The commissions adopt rules and rate structures that are intended to allocate the cost of delivery of electricity and gas to each consumer in an equitable manner. In calendar year 2001 and 2002 the high cost of energy and the subsequent investigation of market control by several energy companies created an environment of rapid legislative change in the delivery of electric service. The California Department of Water Resources (CDWR) was tasked by the legislature and entered into numerous power purchase contracts when the IOU's were not able to maintain a creditworthy status. During the same time period, additional laws were adopted to provide incentives for the development of new technologies and renewable power sources such as solar, wind and geothermal. Recent rulings and several pending proceedings scheduled to be decided in the next 12 months will have significant impact on the cost of electricity in San Diego. Additionally, the cost effectiveness of

new technology development and operational cost of distributed generation systems could vary widely depending on decisions from the various proceedings. Several proceedings that could have a significant impact on the retail cost of electricity and gas are listed below.

California Public Utilities Commission proceedings:

R01-10-024 – Long Term Procurement Plan. (Resource Plan for the next 20 years) SDG&E delivered its resource plan to the CPUC on April 1, 2003. It was based on SDG&E's estimate of the mix of resources that should be dedicated to development of local generation and transmission infrastructure for the next 20 years. The City of San Diego sponsored testimony in the proceeding concerning the need for additional emphasis on renewable local generation and the concept of "virtual aggregation" of City electric generation and usage. The interim procurement orders issued were based on analysis very close to that provided by the City witness.

R04-03 -017 – Distributed Generation – This proceeding will continue to refine the costs and benefits of distributed generation to the utility grid system and provide policy recommendations and reports required by the Legislature. City of San Diego involvement in this case will provide significant input for future implementation of Goal # 9.

R04-04-003 - New Procurement Rulemaking – This is a proceeding that will seek to coordinate all previous efforts and issues from the following proceedings that will provide the cost allocations and policy rulings for future Investor Owned Utility generation procurement. The previous proceedings are:

1. Community Choice Aggregation, R.03-10-003;
2. Demand Response, R.02-06-001;
3. Distributed Generation R.04-03-017;
4. Energy Efficiency, R.01-08-028;
5. Avoided Cost and Qualifying Facility (QF) Pricing (rulemaking to be issued shortly);
6. Renewable Portfolio Standards (new rulemaking to be issued shortly);
7. Transmission Assessment Process, R.04-01-026, and
8. Transmission Planning, I.00-11-001.

Rulings from the proceedings listed above will form the rate structure and development plan that provides potential incentives or disincentives for implementation of new energy technology and provides the framework for energy security in the San Diego region. There is cost associated with representation at the CPUC hearings. The exact cost varies depending on need for expert witnesses, consultant services, and tracking/processing of comments to other parties. While significant costs may be incurred to participate in these proceedings, the cost of not participating may impact cost of electric service for a significant number of years.

California Public Utilities Commission Energy Efficiency Programs:

Energy Status Report No. 9 provided information concerning public education and incentive programs submitted by the Energy Division to the CPUC for funding consideration. The CPUC determined it would provide $110 million of energy efficiency funds for competitive solicitation for local programs and statewide marketing and outreach programs for calendar years 2002 and 2003.

The City was awarded a $1.5 million grant from the CPUC in May of 2002 to implement the "Whole House Energy Retrofit Incentive Program". This program offered incentives for city residents to retrofit their houses built before 1978 with energy efficiency measures that bring their houses up to Title 24 energy efficiency standards. The available rebates ranged from $200 to $800, depending on the extent of the retrofit and the income level of the applicants. The last day to submit applications to participate in this program was March 31, 2004. The City will take an additional three months to process the last rebates, work with consultants to analyze the success of the program, and prepare the final reports to the CPUC. During delivery of the program, Energy Division staff provided numerous education sessions at Community Centers and Libraries that will provide benefits that are difficult to measure. The CPUC recognized the benefit of transfer of the remaining $800,000 from the existing program to fund the "Rebuild a Greener San Diego Program" (a program offered in partnership with the City of San Diego, the County of San Diego, SDG&E, and the San Diego Regional Energy Office to provide incentives to the October fire victims to rebuild energy efficient homes) as a means to provide continuing benefit for the local community.

CONCLUSION

Energy continues to be a critical issue for both the City and the State. Legislation and regulatory actions will impact development of distributed generation and demand side energy management as an alternate method to control electric use. Continuing efforts in energy efficiency and conservation will improve City building performance. LEED certification of new construction continues to increase overall building sustainability.

Respectfully submitted,

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Approved:

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HEAP/TB