



THE CITY OF SAN DIEGO
REPORT TO THE CITY COUNCIL

DATE ISSUED: February 2, 2006 REPORT NO: 06-016
ATTENTION: Committee on Natural Resources and Culture
Agenda of February 8, 2006
SUBJECT: Energy Conservation and Management Status Report No. 15
REFERENCE: Resolution 2001-1112 and City Manager Report 04-091

REQUESTED ACTION:

This report updates Energy Division activities resulting in significant savings to City operational costs. No action is required by the Committee or Council.

STAFF RECOMMENDATION:

Accept the Status Report.

SUMMARY:

Following the 2001 energy shortages in Southern California, Council adopted a comprehensive resolution, R-2001-1112, directing the City Manager to implement the Mayor's energy recommendations and created the Energy Conservation and Management Division in the Environmental Services Department to make San Diego a model city in energy conservation and use of renewable resources.

Energy costs continue to be a significant component of each annual budget for the City of San Diego. Electricity consumption remains relatively constant at 203 million annual kilowatt-hours since calendar year 2001 even with increasing square footage resulting from newly constructed and remodeled public facilities.

This report discusses significant activities of the Energy Division that have resulted in \$3,550,000 and 23,850,000 kilowatt hours avoided each year as a result of citywide energy efforts. In Fiscal Year 2006, the City projects expending \$38 million for gas and electricity to support operational requirements. This cost reflects the purchase cost from SDG&E. In addition, Metro Wastewater Department produces 131 million kilowatt-hours of electricity each year from methane gas at the Point Loma wastewater treatment

plant and the Miramar landfill. The power generated is used to power all operations at the Point Loma Wastewater Treatment Plant, Metro Biosolids Center, and the North City Water Reclamation Plant. Generated power in excess of site needs is sold to SDG&E under renewable power purchase contracts.

Increasing energy demand worldwide and regional natural disasters, such as the recent gulf hurricanes, continue to create supply shortages and put upward pressures on energy prices. Industry analysts indicate that the cost of energy will continue to rise, adding to the importance of energy management programs for all types of organizations.

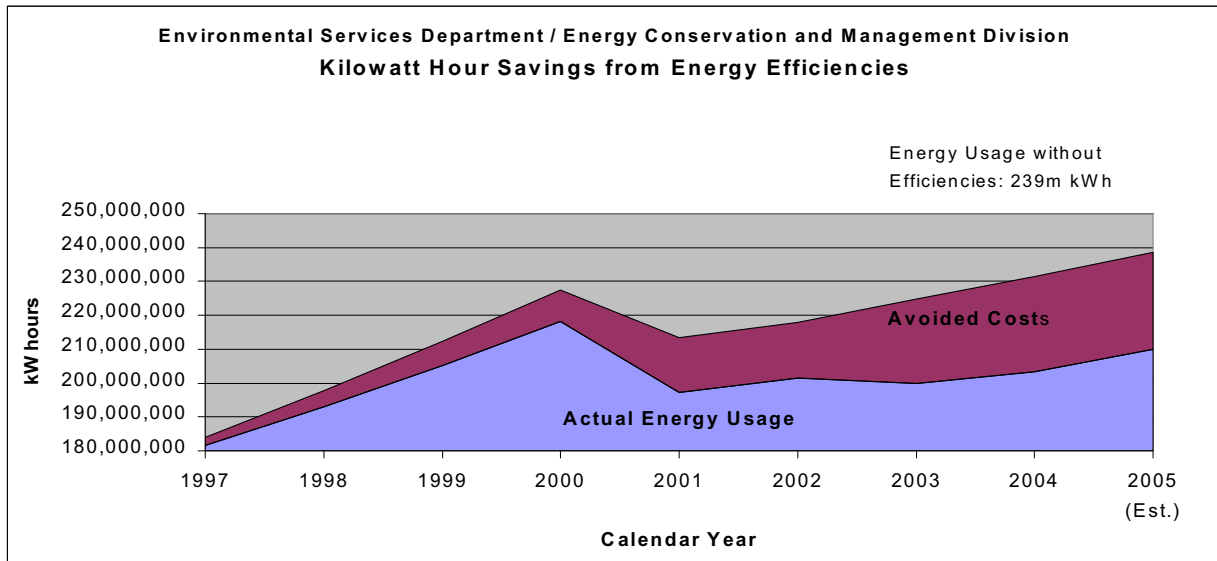
The City's Energy Division continues to evolve with increasing administration of the US Green Building Council, Leadership in Energy and Environmental Design (LEED) Silver level design criteria, coordination of efforts of the Sustainable Energy Advisory Board, construction management of more than 80 energy system upgrade projects in city owned facilities, and electronic payment and review of 2,840 monthly electricity and gas bills. Program strategy continues to focus on initiatives in five major areas:

1. Conservation of Energy. In calendar year 2000, the City purchased 217 million kilowatt hours of electricity from SDG&E. Subsequent data reflects a consistent average monthly usage of 17.9 to 18.3 million kilowatt hours, and annual total usage of 203 million kilowatt hours in calendar year 2005. These figures reflect the combined benefit of incremental improvement in 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 manage energy budgets. Each kilowatt saved reduces costs by the full retail value of that kilowatt if consumed.
2. Management of City Energy Use. Electronic Data Interchange (EDI) of billing data and subsequent electronic payments to SDG&E for all 2,840 City electric and gas accounts replaced manual, labor intensive, data entry in multiple databases. Energy staff is currently focusing on billing information analysis of usage profiles, exception reports, and verification of tariff rates using the newly developed software tool EnergyAIMs. Recently, the program has identified a number of unused accounts, saving \$9,700 annually by closing them, and made other tariff changes saving another \$30,000.
3. Enhancement of Energy Efficiency in Existing City Facilities. The Energy Division manages projects replacing less efficient energy consuming equipment with higher energy efficient equipment. Examples include: replacing City Administration Building chillers; changing T-12 florescent lamps with mechanical ballasts to T-8 bulbs with electronic ballasts; replacing incandescent traffic signal bulbs with LED bulbs using 90% less energy with a 5 to 7 year life compared to 18 months for incandescent bulbs; replacing old rooftop air conditioning packages; and installing active day lighting systems virtually eliminating the use of artificial lighting during most daylight hours.

In 2005, the California Energy Commission (CEC) approved a loan of \$2.23 Million for energy efficiency and self generation improvements in more than 80 City buildings. When the projects are completed, 2 million fewer kilowatt hours of electricity will be used by City facilities equating to approximately \$250,000 in annual energy savings. This 3.95% loan has the added benefit of addressing deferred maintenance items. The loan is repaid with savings realized by the upgrades. Ninety kilowatts of new solar self generation is included and will count toward the City's 50 Megawatt renewable energy goal. A second loan application is in progress.

4. Improvement of Energy Efficiency in New Facilities and Major Remodels. San Ysidro's Fire Station 29 is the first City facility to fully implement Council's Sustainable Building Policy (900-14). FS 29 uses 29% less energy than fire stations of comparable size. It was designed with a building shell that allows less heat transfer through exterior walls, incorporates recycled content in its building materials, has an efficient air conditioning system, and a rooftop 7 KW solar power system. It is 28% more efficient than Title 24 requirements. The second building to receive the LEED Silver designation will be the George L. Stevens Senior Center opening in February 2006. It is also 28% more efficient than required by Title 24 building codes. The Nobel Drive development, incorporating a library and a recreational athletic complex, has recently broken ground and will also meet LEED Silver standards.
5. Pursuit of Energy Independence in City Facilities through Self-Generation using Renewable Resources. The City of San Diego's superior efforts in self-generation of "Green Energy" continue to be recognized through the EPA's designation as number 11 of the top 25 Green Power purchasers throughout the country. The City is also the highest rated municipal entity on the list. The Green Power Leadership Club honors Green Power Partners that have made exemplary green power purchases significantly exceeding minimum Green Power Partnership purchase requirements. San Diego is recognized for the 27% "Green Energy" produced through landfill gas, hydroelectric, and solar generation systems.

Additional "green energy" will be realized as the solar "request for proposal (RFP)" process is finalized and the resulting power purchase agreement (PPA) is approved by City Council. The selected provider will construct, own and operate a photovoltaic array at Alvarado water processing facility and sell the output to the facility. The installation of 1 Megawatt (MW), anticipated to be completed in 2006, is the first phase of a five year, 5 Megawatt PPA. Power purchase agreements are an innovative program for municipalities and part of a strategy to stabilize energy costs and secure significant renewable power production over a twenty year period.



Regional Energy Strategy

The Regional Energy Strategy 2030 (RES 2030) resulted from a lengthy public input process conducted 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 including formation of a Regional Energy Task Force as a single voice to the legislative and regulatory agencies overseeing utility operations. SANDAG approved the formation of an Energy Working Group and Councilmember Donna Frye represents the City of San Diego in this forum. The current work plan for the SANDAG Energy Working Group includes critical review of the 2006 long term resource plan that will be submitted to the California Public Utilities Commission by SDG&E.

Regulatory Issues

The California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are tasked with implementing 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 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) entered into numerous power purchase contracts when the IOUs 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. The cost effectiveness of new

technology development and operational cost of distributed generation systems could vary widely depending upon decisions from the various proceedings.

City staff from Energy Division and the City Attorney's office coordinate representing the City's positions in proceedings that affect the cost of energy for the municipal entity as well as San Diego citizens. There is cost associated with representation at the CPUC hearings. The exact cost varies depending upon need for expert witnesses, consultant services, and tracking/processing of comments to other parties. While a significant cost may be incurred to participate in these proceedings, the cost of not participating will significantly impact cost of electric service for a number of years. Proceedings that could have a significant impact on the retail cost of energy and where staff intends to actively participate are as follows:

R04-04-003 – Long Term Procurement Plan. SDG&E will deliver its 20-year resource plan to the CPUC based on its estimated mix of resources dedicated to development of local generation and transmission infrastructure. During the coming year, the CPUC is likely to establish policy which will impact the City's efforts to promote energy efficiency, in-area distributed generation, renewable resources, and municipal ability to pursue customer choice options.

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. CPUC decisions will have important implications for any expansion of the City's distributed generation capacity.

R05-12- 014 Sunrise Powerlink – This proceeding requests approval for a new 500 kilovolt power transmission line from the Imperial Irrigation District area to central San Diego County. The exact path has not been determined and will be the subject of numerous meetings and hearings. This proceeding will be one of the most significant factors in energy delivery for San Diego.

CPUC Energy Efficiency Programs:

CPUC funded programs currently administered by the Energy Division, scheduled to wrap up in 2006, are as follows:

- “Rebuild a Greener San Diego Program” (offered in partnership with the County of San Diego, SDG&E, and the San Diego Regional Energy Office) provides incentives to Cedar fire victims to rebuild energy efficient homes.
- “Green Action” and “Resource Center” programs provide a wide range of environmental and conservation information to citizens and focus on school age children.
- “Local Government Energy Efficiency Program” provides funding for project management of energy efficiency projects in government facilities.

The Energy Division is kicking off four new Energy Efficiency Programs:

- Funding for project management of energy efficiency improvement projects in municipal facilities will continue.
- Informational resource centers will educate hard to reach citizens about energy efficient products and incentive programs available to them.
- Educational sessions will be offered to other local municipalities in Southern California.
- The fourth program works to incorporate energy efficient systems and solar panel systems when converting apartment buildings to condominiums.

The Concept for the Energy Measurement & Monitoring Program (EMMP):

The Energy Division acts as the focal point to receive, process, and manage 2,840 monthly energy invoices. Electronic processing of payments was the first step towards managing the City's energy usage. The next step is to collect real time energy data in municipal facilities so that the City may participate in demand response programs and obtain financial credit for doing so. As efficiency improvements are installed in City buildings, measuring the effectiveness will provide a basis for evaluating improvements in future upgrades.

Program Awards

The Energy Division has recently received the following awards:

- Flex Your Power Award (October 2005). 35 recipients in California were selected from over 250 applicants for outstanding achievements in energy efficiency.
- 2005 Energy Star for Buildings received for Central Library, World Trade Center, Rancho Bernardo Library, Ridgehaven office building, and Carmel Mountain Library.
- Tom Blair, Energy Administrator, was named Energy Manager of the Year (Region V) by the Association of Energy Engineers.

FISCAL CONSIDERATIONS:

The Energy Division actively pursues projects with attractive paybacks and long term benefits to the City of San Diego. Cumulatively since 2001, energy conservation and efficiency upgrade projects have reduced electrical consumption by more than 100 million kilowatt hours, helping the City avoid more than \$15 million in energy costs. Investment in the latest technologies, exploration of self generation options, and constant vigilance of regulatory changes results in significant savings to City departments.

PREVIOUS COUNCIL/COMMITTEE ACTION:

None.

COMMUNITY PARTICIPATION AND PUBLIC OUTREACH EFFORTS:

The Union Tribune published a full page ad on October 25, 2005 recognizing the City's receipt of the Flex Your Power award.

CONCLUSION

Energy continues to be a critical issue for both the City of San Diego and the State of California. The Energy Division does not consider energy expenses "a cost of doing business" but instead a manageable operational expense. The Energy Division has successfully reduced the energy consumption in City owned facilities saving \$3,550,000 each year. Continuing local efforts in energy efficiency, conservation, participation in legislative and regulatory action, and LEED certification of new construction will contribute to quality environmental leadership in the region.

Respectfully submitted,

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Elmer L. Heap, Jr.
Environmental Services Director
Works

Approved:

R. F. Haas
Deputy Chief of Public

HEAP/TB