

DATE ISSUED: January 18, 2002

REPORT NO. 02-023

ATTENTION: Committee on Rules, Finance and Intergovernmental Relations  
Agenda of January 23, 2002

SUBJECT: Energy Conservation and Management Status Report No. 9

### SUMMARY

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

### BACKGROUND

On February 21, 2001, the Rules Committee directed the Environmental Services Department to provide monthly reports on the status of the City's energy conservation and management efforts. Issues requiring Council action are submitted as separate reports in addition to the monthly status reports. This is the ninth status report in response to the Committee's direction.

### DISCUSSION

#### 2001 Retrospective

The City entered into 2001 in the midst of an unprecedented energy emergency resulting from the 1996 state deregulation plan devised by California's legislature. The plan deregulated the wholesale price, but not the retail price, of electricity and required investor owned utilities to divest themselves of their generation facilities and become energy distribution companies. The plan was based on the assumption that competition would result in new energy generation facilities being brought on line and lower overall energy costs. The plan was flawed and resulted in energy supplies being held off the market, utility companies precluded from entering into long term energy supply contracts at fixed prices and the energy spot market being highly volatile with one instance of wholesale energy prices increasing 4000% in less than one hour of trading.

Energy reliability, which was never an issue prior to deregulation, reached crisis proportions under the new deregulated energy industry. Power plant outage rates increased to three times normal during December 2000 and January 2001 resulting in 40 days of electricity emergencies and rolling blackouts throughout the state on January 17, 18 and 21, 2001.

In response, Governor Davis proclaimed an energy State of Emergency on January 17, 2001 based on the high probability that the electricity supply shortage would worsen during the summer resulting in “rolling blackouts” or “rotating outages” throughout California that could significantly impact the state’s economy, health, safety and environment. On February 8, 2001, the Governor issued a series of Executive Orders intended to increase energy supply and reduce energy demand through conservation during the critical summer period.

On March 22, 2001, the California Independent System Operator (CAISO) issued its “Summer 2001 Assessment” that predicted California would face energy supply shortages of up to 3,500 megawatts during the peak summer usage periods of June through the end of September. CALISO projected that the energy supply shortage would result in 35 days of statewide rolling blackouts totaling up to 260 hours of unscheduled power outages.

However, the summer of 2001 passed with no rotating outages and a trend toward lower wholesale electricity and natural gas prices. This was due to a number of factors including energy conservation, energy efficiency programs, 2537 megawatts of new generating facilities coming on line and long-term energy purchase agreements entered into by the State. While CAISO projected that summer peak demand would reach 61,125 megawatts, the actual peak demand was 48,597 megawatts on August 7, 2001 or 12,528 megawatts less than CAISO had projected.

Unfortunately, energy reliability came at a steep price with the state purchasing over \$10 billion in electricity between January and October 2001 for the three major utility companies (PG&E, SCE and SDG&E) without a revenue source to cover the cost of purchasing the electrical energy. The legislature had earlier placed caps on retail energy prices and required the utility companies to establish balancing accounts to carry the difference between the higher wholesale cost of energy and the retail price charged to consumers until the state begin purchasing electrical energy in January 2001. The SDG&E balancing account reached \$750 million by the time the State began purchasing energy in January 2001. That amount is currently a liability to SDG&E’s customers. In October 2001, the California Public Utilities Commission (CPUC) increased energy rates by 20% for commercial and industrial customers to provide a revenue source for current state energy purchases.

The state planned to issue \$12 billion in bonds to cover the cost of its energy purchases between January and October 2001 and have the CPUC increase energy rates to cover the cost of the bond payments for the bonds projected 15-year term. The bond proceeds were also intended to cover the cost of purchasing the utility companies high voltage

transmission systems and retire the balancing accounts at the three utilities. The various state agencies involved in the bonding activity have not reached agreement on a financing package and how the costs will be passed to the ultimate consumer, so the bonds have not been sold and the issue of the balancing accounts has not been resolved.

## 2001 City Impacts and Actions

The City was impacted by the energy emergency in two significant ways. The first was the impact of the supply shortage and the rolling blackouts, experienced for the first time since World War II, that occurred on March 19 and 20, 2001. Those events showed that City facilities were vulnerable to unscheduled outages. Of greatest concern were traffic signals that were subject to energy outages without an adequate notice for police units to be dispatched and ready to direct traffic when the outage occurred.

The second was the financial impact of higher energy costs at the retail level. The biggest increase in City energy costs were from FY 2000 to FY 2001 when energy costs increased from \$17 million to \$34 million and continued at that level, not including rebates, through the remainder of calendar 2001.

The City responded to the energy emergency in a variety of ways. Following the Mayor's January 2001 State of the City Message, establishing the pursuit of energy independence as Goal 9, an interim energy conservation and management program was established in February and became the Energy Conservation and Management Division in the Environmental Services Department on July 1, 2001.

Emergency Management Services, under Deputy Fire Chief D.P. Lee, worked with SDG&E and other agencies to establish a streamlined notification process that provided the Police department with additional time to dispatch units to critical locations. Under the previous process, when SDG&E was directed to shed load by CALISO, they would notify the County Office of Emergency Services of the circuits that would be taken off line and the County would have to call each jurisdiction individually. Now, when a Stage 3 Energy Emergency is predicted, City Emergency Management staff members are present in SDG&E's emergency control center and get real time information on which circuits in the City will be taken off line and the estimated time of the outage. A database of critical City facilities in each SDG&E circuit area has been developed to allow City facilities that would be impacted by an outage to be quickly identified and prioritized for the dispatch of emergency crews as appropriate. Street Division identified the 115 most critical intersections in non-exempt circuits that could be subject to unscheduled outages and installed battery backup systems to provide either four way flashing red signals or full system operation in the event of a power outage. As a result, the City is much better prepared to respond to unscheduled electrical service outages and the most critical impacts have been mitigated.

The City also implemented an aggressive program of energy conservation through its Summer Action Plan and energy efficiency projects, such as the LED traffic signal bulb conversions, installation of an active "daylighting" system at Golden Hills Recreation

Center and chiller replacements in the City Administration Building, with excellent results. Total energy use for January through November 2001 was down 12%, or 24 million kWh, compared to the same period in 2000. This resulted in avoided cost savings of \$3.5 million and almost \$200,000 in State 20/20 Energy Conservation Program rebates. Additionally, the City received \$2.9 million in retroactive rebates based on a CPUC action. As a result, the City's cost of energy for January through November 2001 was \$22.4 million as compared to a potential cost of \$29.1 million, if energy use had stayed at the same levels as during 2000 and there had been no state energy rebate programs.

## 2002 Outlook

In December 2001, the California Energy Commission (CEC) issued a report entitled "Emergency Conservation and Supply Response 2001" to the Governor and the Legislature as required by Public Resources Code Section 25705 that allowed the CEC to expedite the permitting of power plants. The report covers the nature, extent and estimated duration of the energy emergency, a summary of results for the energy emergency in 2001, the challenge or projections for 2002, projected energy generation capacity additions in 2003-2004, recommendations for further energy conservation and recommendations for further energy supply measures.

The report indicates the overall energy situation for 2002 looks better than it did for the summer of 2001. This outlook is based upon a demand reduction of 1,700 megawatts from continuation of the state's energy conservation efforts, the 3,140 megawatts of new generating capacity brought on line in 2001 and 340 megawatts in new out-of-state energy contracts and voltage reduction programs.

Where in 2001, CEC's projection for peak demand was 61,125 megawatts with a deficit of 4,966 megawatts; in 2002, they are projecting a peak demand of 57,691 megawatts with a resource surplus of 2,950 megawatts. Even though the overall energy prospects for the state are greatly improved, electricity system reliability continues to be a concern in Northern California (San Francisco Bay, Sacramento, Humboldt) and in Fresno where additional generation, transmission system improvements or targeted energy conservation and load management programs would be especially beneficial.

In the longer term, ten new facilities generating almost 6,300 megawatts of additional capacity are projected to become available in 2003 and 2004. In addition, almost 11,000 megawatts of capacity additions are undergoing review in the CEC's certification process and an additional 2,936 megawatts of projects are to begin the CEC review process during the first quarter of 2002. However, the CEC report also indicated that over 30 percent of California's existing power plants are more than 40 years old. This increases the potential for unscheduled outages due to breakdowns and some older plants may be taken out of service when the new, more efficient facilities come on line, thus reducing the reported increase in state wide energy generation capacity.

The report indicates that while California (and San Diego) had great success in 2001 reducing electricity consumption through conservation efforts, further reductions are possible though reinforcing the energy efficiency gains achieved last summer and improving the demand responsiveness programs offered by the State.

Specific recommendations by the CEC to the Governor and Legislature include:

#### Energy Efficiency and Conservation:

1. Continue funding public awareness programs to transform energy savings from temporary changes in usage habits to permanent reductions in energy usage.
2. Continue funding CEC and CPUC programs such as:
  - Innovative programs for demand reduction and efficiency enhancements,
  - Demand Responsive Systems Programs to shift electricity loads away from peak demand periods,
  - Cool Savings Programs to provide incentives for the use of heat reflecting building materials to reduce air conditioning loads, and
  - Public water system, wastewater system and building efficiency improvement programs to reduce energy costs in publicly owned and operated facilities.
3. Ensure the CPUC interruptible program rulemaking results in preserving the current load curtailment capacity and ensures effective participation by commercial and industrial customers with state provided real time metering capacity.

#### Energy Supply Measures

1. Continue to permit new power plants for 2002 through the four-month permitting process established by Senate Bill 28x.
2. Do not continue use of the emergency siting process and return siting decisions for new power plants to local government.
3. Provide updates to the Governor, Legislature and other state agencies on the statewide energy supply and demand balance and identify specific local supply and demand issues.
4. Continue to work with the Department of Water Resources, Public Utilities Commission, California Power Authority, Electricity Oversight Board and the California Independent System Operator to resolve differences in energy supply and demand projections and exchange of all critical energy information.
5. Assist local agencies in creating, updating and implementing Energy Plans.

#### California Public Utility Commission Rate Setting Proposal

In 2001, the California Department of Water Resources (DWR) purchased just over \$10 billion in electricity, for the state's three investor owned utilities, without a source of revenue to cover the cost of those purchases. The DWR has now submitted its revenue requirements to the CPUC and requested the CPUC to allocate those requirements among PG&E, SCE and SDG&E through increased energy rates to their customers.

There are two proposals for allocating those costs. The first is a statewide allocation on a pro rata basis in proportion to the net short (energy used) position of each utility with some limited adjustments. This approach has been referred to as the “postage stamp” method. The second allocation proposal is based on the discrete costs to specific utility service territories by attributing specific supply sources to specific utilities. Proponents of the “postage stamp” method argue that DWR did not purchase energy for individual utilities, but for the state as a whole. DWR did not procure three separate portfolios of supplies but pursued a statewide purchasing strategy to procure one overall portfolio as a result of the statewide energy crisis. SCE and SDG&E argue that the “postage method” is over simplistic and results in an unfair and inefficient allocation of DWR costs among customers. They assert there are differences in the cost of electricity from different sources and differences in transmission costs that should be considered. Under this approach, Northern California would pay a higher share of the costs compared to Southern California.

Indications are the CPUC will adopt the postage stamp method to allocate DWR’s revenue requirements resulting in a \$250 million higher cost to SDG&E customers and the City than under the most favorable allocation proposed by SDG&E. The City’s share of that cost, through increased energy bills would be about \$7 million. A strong reason to believe that the “postage stamp” method will be adopted is a provision in AB 1X, Section 80002.5 of the Water Code that requires the power sold (cost) to be allocated to all classes of customers to the extent practicable. Under the “postage stamp” allocation method the energy rate for SDG&E customers would be between 9.9 and 10.1 cents per kilowatt hour compared to 8.4 cents per kilowatt hour under the SDG&E proposal.

## 2002 City Impacts and Proposed Activities

The CEC report validates the conclusion reached in Status Report No. 8 “While the ... energy supply and reliability emergency has abated ... the energy crisis is not over but has just evolved to a different phase.” Energy supplies now seem to be adequate, with a prudent reserve, to meet projected demand during the summer of 2002. Additionally, the snow pack in the Pacific Northwest is greatly improved this year compared to the past two years and hydroelectric energy may again be available to the California market during summer peak usage periods. However, energy costs in 2002 will be higher than in 2001 because of a retail energy rate increase adopted in October 2001, further increases planned to be adopted by the CPUC on February 7, 2002 and the end of the rebate programs that reduced 2001 energy costs. As previously indicated, the City received \$3.1 million in one-time 20/20 Energy Conservation Program rebates and CPUC ordered retroactive rebates during the second half of 2001.

## City Energy Usage and Cost

Higher energy rates since deregulation have significantly increased the City’s total cost of electrical energy since 1999 even though energy consumption has decreased through energy conservation and efficiency. In FY 2000, total energy costs were approximately \$17.8 million and increased to \$32.4 million in FY 2001. For FY 2002, total costs were

again expected to exceed \$30 million even with capped energy rates, 20/20 rebates, energy efficiency improvements and conservation efforts by City employees. However, with the addition of retroactive rebates directed by the California Public Utilities Commission and cost avoidance resulting from reduced energy consumption, the City's energy costs for FY 2002 are now projected to be closer to \$25 million.

The following table shows a comparison of energy consumption and costs from January through November 2000 and 2001:

Energy Consumption and Cost Comparison, January – November 2000 v. 2001

Month	Consumption (kWh)		Cost (Dollars)	
	2000	2001	2000	2001
Jan	17,872,471	13,831,796	\$1,294,900	\$2,743,702
Feb	18,251,637	14,461,656	\$1,264,821	\$2,669,273
Mar	16,082,192	14,912,895	\$1,194,095	\$2,955,593
Apr	16,949,804	16,869,673	\$1,255,014	\$3,125,122
May	15,466,431	14,868,166	\$1,438,665	\$1,930,502
Jun	14,726,251	17,668,803	\$1,822,731	\$1,863,959
Jul	32,691,718	18,674,183	\$3,403,707	\$2,144,576
Aug	17,908,196	18,174,826	\$3,636,824	\$1,876,971
Sept	18,066,366	16,900,441	\$3,001,732	\$1,945,526
Oct	16,533,767	16,808,477	\$2,340,513	(\$487,683)
Nov	19,358,931	16,922,026	\$2,684,349	\$1,678,003
Total	203,907,764	180,092,942	\$23,337,351	\$22,445,544
% Change		<b>-12%</b> <b>-23,814,822</b>		<b>-4%</b> <b>-\$891,807</b>

It is difficult to compare actual energy costs for FY 2001 with projected costs for FY 2002 because of the variables impacting total costs including legislatively capped rates versus market prices, retroactive rebates, the 20/20 rebate program and the impacts of the proposed February 2002 energy rate increase. Once the CPUC has adopted specific energy rates to meet the DWR revenue requirements, we can analyze the cost impacts to the City and make a more accurate estimate of total FY 2002 energy costs.

#### Status of City Projects and Activities

For 2002, the City's energy management activities will be focused on reducing the amount of electrical energy purchased from SDG&E through continuing energy conservation efforts, enhanced energy efficiency in existing facilities, designing new facilities to be highly energy efficient and increasing the amount of City energy generating capacity. The following are examples of those approaches:

#### Photovoltaic Energy Generation Projects

In June 2001, the Environmental Services Department (ESD) issued a Request for Qualifications to pre-qualify design/build teams for the purpose of designing and installing photovoltaic energy generation (PV) systems on a variety of City facilities.

Five teams were qualified through the process, placed on a “short list,” and in September 2001 were sent a Request for Proposals for PV systems on ESD’s Ridgehaven Green Building and the administration building at the department’s Miramar Place Operations Center. Proposals were received in December and have been evaluated by staff.

In an action report that will be brought to Council for consideration in February 2002, staff will be recommending the award of two separate contracts to install a total of 125 KW of PV systems on the two buildings. The system at the Ridgehaven building will be a “peak shaving” system designed to supply up to 80% of the building’s annual energy needs. The system at the Miramar Operations Center will be designed as a “Net-Zero” system supplying 100% of the building’s average annual energy needs. After the PV system becomes operational, the building will no longer receive a monthly energy bill, but only an annual reconciliation bill if the building used more SDG&E energy than the PV system sent to SDG&E. The estimated cost of the two systems is \$1.2 million, which will be reduced by approximately \$450,000 in incentive rebates from the California Energy Commission.

A second RFP will be issued by the Metropolitan Wastewater Department in February for the installation of approximately 100 KW of PV systems on three buildings in its Kearny Mesa operations center complex. Following the installation of these two demonstration projects, staff will be investigating additional facilities for further installations of PV systems.

#### Conversion of Traffic Signals to LED Bulbs

Because of the extraordinary energy savings provided by converting incandescent traffic signal bulbs to LED bulbs, the LED bulbs have been in high demand and short supply. On January 15, 2002, Street Division received the LED bulbs needed to convert the 492 incandescent green bulbs at the 30 signalized intersections on Rosecrans Street and Balboa Avenue that were transferred to the City for maintenance by the State. The conversion to LEDs at these intersections will be completed by early February 2002.

That will leave approximately 1,000 incandescent traffic light bulbs throughout the City (less than 3%) that still need to be converted to LED bulbs. Staff will be seeking State or SDG&E grant funds to buy down the costs of converting the remaining bulbs to LEDs.

#### California Public Utilities Commission Program Funding

Part of Goal 9 – Pursue Energy Independence – is to provide a public education program to encourage citizen energy conservation. To date the City has not had access to the public goods charge monies that are used to fund such programs. To obtain San Diego’s fair share of the public good charge monies, the Energy Conservation and Management Division is submitting three separate proposals to the California Public Utilities Commission to fund programs for 2002 and 2003 calendar years. If the funding is granted, the programs will begin in the 2<sup>nd</sup> quarter of 2002. The programs submitted include:

- **A Whole House Energy Retrofit Incentive Program** – This program provides a



monetary incentive to homeowners of pre-1978 constructed dwellings who retrofit their homes with energy efficient materials and equipment. It provides a sliding scale of incentive payments based on income to boost the 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 in San Diego by the year 2020.

- A **Children’s Energy Education Program** – This program targets San Diego school children grades K-12 to teach them about energy resources and energy conservation. The proposal includes the addition of an energy module for the existing Earth Camp Program, expansion of the “Green Schools” Program, and additional interactive elementary school energy presentations.
- An **Adult Energy Education Program** – This program focuses on informing the City’s citizens on current energy related issues, educating them about energy conservation measures they can take to lower their energy consumption, and notifying them about available programs to assist them in their efforts. The program proposes funding for a Power PaLooza 2000 outreach energy event, creation of energy educational videos, development of electronic energy kiosks, and creation of a Spanish version of the City’s energy portal website.

Each of these programs has been designed to be fully funded by the CPUC program funding and will not require supplemental or matching City funding.

#### CONCLUSION

2001 was a difficult energy year for the State, City and our residents and businesses. The outlook for 2002 is much better with the prospect of adequate energy supplies but at a higher cost to the consumer. The City prepared a foundation for a long-term energy management strategy in 2001 and, with the arrival of the permanent Energy Administrator on February 1, 2002, is projected to make major strides in implementing Goal 9 during 2002.

Respectfully submitted,

Approved by:

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LOVELAND/HAYS/RAE