

DATE ISSUED: February 20, 2001

REPORT NO. 01-032

ATTENTION: Rules Committee, Agenda of February 21, 2001

SUBJECT: Status of City Energy Conservation Efforts

SUMMARY

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

BACKGROUND

California is currently in the midst of an unprecedented energy crisis that is causing significant economic impacts for the City, its residents and businesses. The nature of the crisis is highly volatile and changes everyday.

Essentially, the problem was initiated by a 1996 state deregulation plan developed by the California State Legislature. The plan deregulated the wholesale price of electricity but not the retail price based on the assumption wholesale prices would remain low. Additionally, the California Public Utilities Commission adopted rules preventing investor-owned utilities such as San Diego Gas and Electric (SDG&E) from entering into long-term agreements to purchase electricity at the fixed market rates forcing them to purchase electricity on the highly volatile spot market. As a result, Californians paid \$10.9 billion more for electricity than the year before and the States major utility companies were brought to the verge of bankruptcy.

Since March 2000, the City of San Diego has taken a number of significant steps to address the current energy crisis and long-term energy reliability issues. Most recently, working with the County of San Diego Board of Supervisors and State Legislative Representatives, Mayor Murphy participated at an emergency meeting on January 15, 2001 to develop a strategy for legislative and local policy remedies to mitigate the severe financial and energy reliability problems. Additionally, the January 10, 2001 Rule's Committee Meeting focused on the San Diego energy crisis, and an extensive background of deregulation as well as the City's role in State and Federal regulatory proceedings instituted by FERC and the CPUC were presented by the City Attorney's Office. On January 8th, in his State of the City Address, Mayor Murphy listed making San Diego a model city in energy conservation and the utilization of renewable energy resources one of his top ten goals.

Six months prior, in July 2000, the City declared a “State of Economic Emergency” that is still in effect. Mayor Golding also hosted and attended a number of local, State and national forums that brought together experts who tried to untangle the complex convergence of factors leading to the current situation.

In 1980, a comprehensive report was compiled on behalf of the Mayor and City Council as a planning tool for achieving energy goals by 2000. In that document, our current situation was foreseen as a warning unless conservation and generation measures were implemented. The problems that were recognized at a conceptual level twenty years ago are now being experienced today, along with significant social, economic and environmental hardships for our citizens and businesses.

On February 12, 2001, the City Council adopted a comprehensive resolution, R-2001-1112, providing policy direction and guidance with regard to the energy crisis and directed the City Manager to implement the Mayor’s recommendation to establish an energy oversight position to oversee San Diego’s efforts at energy self-reliance and conservation. On February 13, 2001, Robert Epler, Assistant Environmental Services Director, was appointed by the City Manager as the Interim Director of the City’s Energy Program.

This report addresses the recommendations in Mayor Murphy’s State of the City Address, Councilmember Atkins’ January 9, 2001 memo to the Mayor and Members of the Rules Committee, the January 10, 2001 Rule’s Committee Report from the City Attorney’s Office, and discussions at the January 10, 2001 Rule’s Committee Meeting that were not included in the City Attorney’s report of January 24, 2001 and Resolution R-2001-1112.

DISCUSSION

City Energy Status

In FY 2000, the City consumed approximately 212 million KWh of electrical energy at a net cost of approximately \$17.6 million including retroactive price ceiling adjustments. For FY 2001, the total energy budget, including natural gas and electricity, is approximately \$28.1 million. However, due to the volatile and higher priced energy situation that has existed since last summer, it is projected that actual energy costs will be closer to \$36.7 million or \$8.6 million more than is currently budgeted. Of this amount, approximately \$2.2 million is for General Fund accounts and \$6.3 million is for Enterprise Fund accounts primarily in MWW, Water, Street Division (street lights and traffic signals) and Qualcomm Stadium.

The City has approximately 2,800 individual electrical accounts. Since January 1999, all City electrical energy has been purchased from Sempra Energy Solutions, the unregulated marketing arm of Sempra Energy, which is the parent of SDG&E. This two-year agreement initially provided the City with an \$800,000 discount from SDG&E energy rates. The agreement ended on January 17, 2001 and, by mutual agreement, it is not being renewed primarily because the unstable electrical energy market is not currently conducive to long-term purchase agreements. As a result, electrical energy will be purchased from the default provider, SDG&E, until such

time as the City can enter another long-term purchase agreement under advantageous terms. The goal of a long-term purchase agreement would be to establish a fixed rate per KWh for an agreed upon period of time going forward. While such an agreement would shield the City from the pricing volatility currently being experienced, the current political and regulatory climate and high energy prices make such agreements impractical. Additionally, if the City prematurely entered into such an agreement, it could preclude benefiting from whatever regulatory relief becomes available to return pricing to more normal levels.

SDG&E operates under a 50 year City franchise that was granted in 1970. Under that franchise agreement, SDG&E pays a franchise fee to the City equivalent to 3% of its gross in-city sales of natural gas and electricity. For 1999, franchise fees were approximately \$28 million and, because of the recent higher prices for energy, may be as much as \$4 million higher than previously anticipated for the current year. However, at this time the actual amount is hard to predict because of the many factors taken into consideration in calculating the franchise fee. Additionally, the franchise fee percentage to be paid for the remaining 20 years of the franchise is being renegotiated. If the City and SDG&E are not able to reach agreement, the matter can be referred to binding arbitration.

City Energy Conservation and Management Program

The preliminary scope of work for this program encompasses many of the expansive recommendations made to date and some additional tasks. These include the following:

- a. Conduct a feasibility study of viable options for energy self-efficiency including aggregation or formation of a municipal utility district.
*(Mayor Murphy's State of the City Address Recommendation #4;
January 10, 2001 Rules Committee Recommendation #4;
Council member Atkins' Recommendation #5)*
- b. Work with the City Manager, City Attorney and IRD on legislative issues in Sacramento and Washington, D.C.
*(January 10, 2110 Rules Committee Recommendation #2;
Council member Atkins' Recommendation #2)*
- c. Work with the City's legal team to pursue all remedies at FERC and the CPUC, as well as IRD to prepare a complete analysis on state and federal legislation and proposals, as well as any CPUC and FERC actions.
*(January 10, 2001 Rules Committee Recommendation #1;
Council member Atkins' Recommendation #3);*
- d. Administer all City energy acquisition, bill payment, data collection and analysis.
- e. Lead organizational demand side management to reduce energy consumption through conservation and energy system upgrades and retrofits.

- f. Negotiate energy supply agreements and deregulation issues in coordination with Financial Management.
- g. Coordinate with Engineering and Capital Projects on implementation of green building, energy conservation measures in all new or remodeled City facilities.
- h. Coordinate with Facilities Maintenance on energy retrofit projects, maintenance and standardization of energy control systems.
- i. Acquire technical and other assistance through partnering with DOE through the Livable Community Initiative.
- j. Energy policy review and revision.
- k. Coordinate with departments, such as MWWD, with active internal energy programs.
- l. Education and training of City employees on energy conservation.
- m. Public education and outreach program for energy conservation to include pursuit of innovative technologies to facilitate self-monitoring and management (i.e., real-time meters).
(July 25, 2001, Council Resolution)
- n. Chair Utility Users (U2) Committee to address internal energy management and funding issues and co-chair Financial Management's Electric Restructuring Working Group for external energy procurement issues.

Currently, each City department is responsible for its own energy bills and conservation decisions. There is no City-wide advocate for energy conservation. When SEMPRA was selected as the City's energy supplier, the contract included use of their ENSERV Program to analyze energy use and bills. That program is not longer available to the City. It is anticipated that a focused program in this area will enhance monitoring, analysis, and the City's ability to anticipate issues and employ proactive strategies.

The following paragraphs describe examples of pockets of innovation developed throughout the City to enhance conservation efforts and promote sustainable development . It is anticipated that establishment of a focused program will further maximize many creative opportunities.

Recently, the City entered into an agreement with the Federal Government, through the Department of Energy (DOE) to participate in a White House Livable Communities Initiative. This agreement provides the City with unprecedented access to DOE resources, and those of other federal agencies as appropriate, to address City energy issues. Most recently, DOE completed a feasibility study of generating electrical energy using photovoltaic panels on closed portions of the Miramar Landfill and other closed City landfills to provide a source of "peak shaving" energy. Additionally, the City has a grant from the International Council for Local

Environmental Initiatives (ICLEI) to work with local businesses on energy and greenhouse gas reduction plans.

Metropolitan Waste Water Department (MWWD) has developed an energy tracking program that has enhanced its ability to manage its energy use and control costs through time of use management, e.g. avoiding heavy energy usage during peak rate periods. MWWD has also increased the levels of power generated with alternative fuels (methane and landfill gas) to power its facilities and sell to the power exchange to reduce total energy costs.

The Water Department is operating its emergency generators during Stage III alerts to reduce peak demand and has also implemented time of use management programs to reduce peak time operation of pump stations. The department is now seeking grants to upgrade the exhaust systems in its emergency generators so the units would meet Air Pollution Control District emissions standards to increase its ability to use these generators during Stage II alerts.

Energy Conservation and Management Program

Following the Council's action on February 12, 2001, a Task Force of existing City employees from a number of departments has been established in the Environmental Services Department to begin the development of a comprehensive energy conservation plan for all City facilities, evaluate incentives to encourage energy conservation in new private development and to develop proposals for staffing a permanent Energy Program. The Task Force will be operating on a timeline to return to Council with a proposed Energy Conservation Plan in sixty days and proposals for new incentives to encourage energy conservation in new private developments in 90 days.

Initial projections of resource needs for a permanent Energy Conservation and Management Program include 1.00 Deputy Director; 1.00 Project Officer; 1.00 Senior Management Analyst; 1.00 Training Specialist (OESII); 1.00 Public Information Officer; 1.00 Administrative Aide II; 1.00 Account Clerk; and 2.00 Word Processing Operators with total annual cost of about \$441,000 in personnel expenses. Associated non-Personnel expenses approximately \$250 - 300,000 in the first year would also be required and would include contract dollars for an energy rate consultant and for a consult study of the potential for establishing or participating in a municipal utility district. The organization staffing and budget for a permanent program will be developed as part of the FY2002 budget process.

It will be recommended that funding be provided through a reallocation of existing budgets from the primary energy using departments. This funding could be supplemented by grants secured from the California Energy Commission and others. Establishing new positions for the program will require time to be processed through the Personnel Department and Civil Service Commission as will the recruitment of a permanent Energy Program Manager. Therefore, an Interim Director has been appointed and the Energy Program will be staffed temporarily by employees assigned from other City departments.

Baseline Data on City Energy Consumption and Generation

Establishing a baseline for energy consumption, generation, expenditures and revenue is a fundamental step in serious monitoring of the City's energy picture. A simple template with this data could serve to provide Mayor Murphy and the City Council with routine updates of the City's energy usage status. Attachment One graphically depicts the information available thus far. The dramatic impact of Summer 2000 energy price hikes are illustrated in the chart, as well as the stabilization of prices in November 2000 once the rate caps for smaller accounts were put into place. For example, The City's consumption between July and August 2000 decreased from approximately 20.8 million kWh to approximately 17.9 million kWh, and the cost for the electricity increased by nearly \$300,000. In October 1999, the City used 18 million kWh, and the cost was approximately \$1.6 million. By comparison, in September 2000, the same amount of electricity cost the City \$3 million, or nearly twice as much.

As previously noted, the revenue garnered from the franchise fees with SDG&E has not yet been determined. Those numbers should be available in February or March, and with that information the City will be better able to determine a comparison between expenditures and revenue related to electricity use.

The City generates power from sludge digester gas and landfill gas at three facilities:

1. Point Loma Wastewater Treatment Facility Cogeneration Plant.
 - Owned and run by the Metropolitan Waste Water Department (MWWD)
 - Capacity: 4.57 Megawatts (MW) or 38,031,540 kWh per year, about 18 % of the total City loads. In FY 2000 it produced 27,271,000 kWh.
 - Approximately 2 MW (17,520,000 kWh per year) is used to run the plant.
 - Previous Operations: Under the City's contract with Sempra Energy, which has expired, the excess power was sold to Sempra then provided to the City's smaller meters (under 100kW). The City was also able to take advantage of green power credits of up to \$1000 per meter.
 - MWWD is seeking a new energy partner to pursue a similar arrangement. However, as of July 2001 the City will no longer be able to take advantage of green power credits.
 - A new hydro facility at Point Loma, with a capacity of 11,388,000 kWh of power per year, is due to open in mid-May of 2001. This power will likely be sold to the PX.
 - The cogeneration plant can run 24 hours a day, seven days a week

2. North City Water Reclamation Plant (NCWRP) Cogeneration Plant
 - Capacity of 3.8 MW, or 33,288,000 at 100% efficiency
 - Owned and operated by Minnesota Methane
 - Provides 3.5 MW (30,660,000 kWh per year) of power at 4 cents a kWh (plus fees paid to SDG&E for a total of 4.3 cents a kWh). This power runs the NCWRP.
 - MWWD has first rights to the excess power, but would have to pay for a scheduling coordinator to sell power to the grid.

- Plant operates 24 hours a day, seven days a week, but is allowed 620 hours of downtime per year. During this downtime, MWWD must pay SDG&E for power at the going rate.
3. Metro Biosolids Center (MBC) Cogeneration Plant
- Capacity of 6.8 MW, or 59, 568, 000 kWh per year;
 - Owned and operated by Minnesota Methane
 - Provides 3 MW or 26, 280,000 kWh per year of power at 4 cents a kWh (plus fees paid to SDG&E for a total of 4.04 cents a kWh) to run the MBC. This rate is linked to the Consumer Price Index (CPI)
 - Minnesota Methane sells the excess to the PX, and the City gets 2% of the profits, which goes into a fund for improvements to the landfill gas collection system.
 - The plant could provide 33, 288,000 kWh, or roughly 15.9 % of the City's load if the excess were purchased from Minnesota Methane.
 - In order to have access to this excess power, the City would have to restructure the contract with Minnesota Methane. This could eliminate the fixed rate of 4 cents a kWh. Depending on the new rate negotiated, the City could lose or make money on the deal.
 - The MBC plant is also allowed 620 hours of downtime, but because the plant has excess capacity, a unit can be taken down and not affect MBC's power.

Summary:

- The City currently generates 15.17 MW or 132, 889, 200 kWh, which is roughly 63.4 % of the annual load, of power per year. Roughly half of this generating capacity (74,460,000 kWh or 31.7% of the City's load) is used by MWWD to run Pt. Loma, MBC, and NCWRP while the remainder is sold to the PX at market prices to reduce MWWD's total energy costs.
- 22,513,200 kWh per year of excess power, or 10.7% of the City's load, is produced at Point Loma, and is currently sold to the grid through the PX. To use this power in a cost-effective way, the City would have to sell it to a power provider, who would sell it to the grid, and then back to the City at a discount. MWWD is currently seeking a power provider, but does not expect much interest in this option until the market settles down.
- Roughly 2,628,000 kWh per year of excess power, or 1.25 % of the City's load, at NCWRP is available at the 4-cents/kWh rate, but must be sold to the grid first through a scheduling coordinator. This would not be cost effective, as the costs the City would have to pay for a scheduling coordinator would exceed its savings from buying the power.
- 33,288,000 kWh per year, or 15.9 % of the City's load, from MBC could be purchased from Minnesota Methane, but the contract would have to be renegotiated. Also, there would be extra costs for scheduling coordinators.
- In mid-May of 2001, the new hydro facility at Point Loma is anticipated to provide 11,388,000 kWh a year, or 5% of the City's load. Current arrangements for selling power would not make wheeling this energy to other City facilities cost effective. The City currently would see as much revenue by selling power to the grid.

Incentives and Education Programs to Encourage Energy Conservation

The Department of Energy (*DOE*) has agreed to provide expertise and resource contacts to City staff as a means to optimize energy conservation and to facilitate the development and use of renewable energy (Brightfields), as per the October 2000 Partnership Agreement, signed by Mayor Golding and *DOE* Secretary Bill Richardson as part of the San Diego Livable Community Initiative. It is recommended that an updated Partnership Agreement be reviewed and resigned by the Bush Administration's new *DOE* Secretary Christie Whitman and Mayor Murphy. The *DOE* and other Federal agencies will provide assistance to the City of San Diego in pursuit of implementing the initiative, which is consistent with the policy direction adopted by the Council on February 12, 2001. As currently structured, the initial phase of the San Diego Livable Community Initiative began July 1, 2000, and will continue until June 30, 2005. The City of San Diego agrees to develop a project plan, with Environmental Services Department as the lead, and provide the coordination required with local, State and Federal partners.

The *DOE* has provided the following recommendations in terms of private sector initiatives that have been successful in other communities:

A. Seattle, Washington

Seattle City Light, the municipal utility, offers the following incentives

- Free Energy audits
- Cash incentives for energy-efficient equipment and energy-efficient design
- Lighting incentives for small businesses
- Rebates for energy-saving washing machines

B. Portland, Oregon

The Portland Energy Office, the municipal utility, offers:

- a. Free home energy audits
- b. Incentives for weatherization, energy-efficient lighting and appliances
- c. Free workshops
- d. Loans and tax credits for building improvements
- e. Technical assistance to businesses
- f. An awards program for energy-efficient and innovative businesses

C. Austin, Texas

As part of its Green Building Program, the City of Austin offers the following services to businesses constructing commercial buildings:

- Technical seminars, individualized technical assistance
- Cash incentives for commercial new construction and major renovations
- Programming assistance, construction document review
- Marketing for new structures
- Technical analysis for energy efficiency, natural resource conservation, healthy indoor environments

- Assistance in coordinating rebates when applicable

D. Phoenix, AZ Energy Conservation Savings Re-Investment Plan

In 1984, Phoenix established the Plan with seed money from state oil overcharge funds. Under the plan, the city reinvests half of all documented energy savings, up to a limit of \$750,000, in a fund that finances energy efficiency capital projects for the coming year.

Currently, the City of San Diego has the following incentive programs in place that encourage public and private sector energy conservation:

- Climate Wise Program

The City ESD began working to develop this program in the mid-1990's as part of a grant from the International Council for Local Environmental Initiatives (ICLEI). The purpose of the program is to encourage energy conservation and transportation alternatives as a means to reducing greenhouse gas emissions. The facility-specific measures are identified and tracked in an "Action Plan". The production and use of energy by way of natural gas and coal-fired power plants accounts for the largest contribution nationally of greenhouse gasses, followed by air emissions from motor vehicles. The Climate Wise Program currently has 22 public and private entities actively participating, and each have committed to reducing greenhouse gases through energy efficiency, alternative transportation, and waste reduction and recycling. These entities include leading companies such as Qualcomm, Solar Turbines, Callaway Golf and Unisys, and prestigious educational institutions, including SDSU and UCSD. ESD serves as a facilitator, suggesting possible energy efficiency projects and offering assistance in obtaining incentives from SDG&E, the California Energy Commission and the federal government. ESD also publicly recognizes Climate Wise Partners for their achievements at public events

Expanding City staff services through Climate Wise could be done in the same way the City offers recycling services. These services would include free or low-cost energy audits, assistance with navigating City regulatory structures, and an awards program for the most energy efficient area businesses.

- Community Energy Partnership

This program, approved by the City Council in October 2000, offers expedited plan check to multifamily residential and commercial buildings that exceed the State Title 24 Energy Code by certain percentages. It limits the number of participants to 20 in the first year. If the projects were large enough, there could be substantial energy savings from this project.

- 1997 "Green Building" Council Policy

Stricter adherence to the City's 1997 "Green Building" Council Policy would increase the use of superior demand-side management of energy use at City, replicating ESD's "Ridgehaven Building" experience and reducing the amount of energy the City would need to purchase.

With the increasing significance of energy conservation at the local, State, and federal level, new programs and services are being designed to encourage energy retrofits. The State of California is upgrading its building efficiency standards, and as a result, new construction is likely to be much more efficient. Old building stock will dominate the City's energy picture for the foreseeable future. However, the critical limiting factor in energy efficiency retrofits is that -- even though they have a relatively short payback -- they impose up front capital costs. Thus, what is in fact a good and prudent investment shows up as a financial liability when budgeting is done on an annual basis. A variety of approaches have been used to get around this impediment, and leverage scarce resources.

- Energy Audits for Small Businesses

Energy Service Companies (ESCOs) have teamed up with lenders such as GMFC to underwrite the up front costs of energy efficiency and recoup the expenses from future savings. These Energy Savings Performance Contracts recognize the future savings from reduced energy costs as collateral to secure the funds advanced for the energy efficiency retrofit projects. The result is that the participant gets the efficiency measures funded at no initial capital cost. The current City contract with Onsite Energy could be altered to include a limited amount of free or low-cost energy audits to Climate Wise Partners and small to medium sized businesses. Onsite or any other ESCO could then offer Energy Saving Performance Contracts to those businesses where the payback period of the savings matched the ESCO and the businesses needs.

- Revolving Loan Programs Revolving Loan Programs

There are other innovative financing schemes that have been tried -- the Texas Loan Star Program is a \$97 million revolving fund that has an average payback period of 2.7 years. This means the initial seed money is "evergreened" that is, it becomes a permanent fund that is replenished from a portion of the savings garnered in electricity bills.

Business Development Funds

Reliable, low cost energy is cash on the barrelhead issue for private industry. San Diego has already lost a major industrial company who was proposing to locate there as a result of concerns about energy costs and reliability. Distributed energy systems such as micro turbines, fuel cells, and renewable energy can: 1) provide more reliable power at competitive prices; 2) reduce demands during peak prices; 3) turn a liability into an asset. Focusing the tax credits, low interest loans, and other financial subventions that the city uses to attract and retain businesses and well as create jobs could help stimulate public and private investment in distributed energy systems.

- Residential Time of Use Meters

SDG&E offers two types of interval data recorder or time of use (TOU) meters for residential use. With a standard meter energy is priced on the weighted average cost of power purchases by SDG&E through the power exchange for the billing period. With a TOU meter, residents are billed based on the hourly cost of electricity through the power exchange for that hour's energy use. This would be advantageous if the resident used power primarily during off peak hours. TOU meters have a one time cost of \$57 for installation, a \$10 cost for removal of the old meter AND a monthly fee of \$9 in addition to the fees for energy usage, transmission, distribution, taxes and other fees.

Municipal Utility Districts

Under State law and the California Constitution, cities are authorized to provide utility services to their residents and businesses. For cities this can be through an internal department or through a municipal utility district. The establishment of municipal utility district is a complex undertaking that require an in-depth evaluation before a recommendation can be brought forward. The County of San Diego has engaged a consultant and entered into discussions with a potential sponsor of legislation to authorize the formation of a countywide Municipal Utility District. As currently envisioned, the district would be independent of the County and would have a board of directors fully representing all of the participants in the district. Individual cities in the county would have full discretion to join or not join the countywide district if it is formed.

A priority task of the new City Energy Manager will be to study the feasibility of establishing a municipal utility district or participating in a regional public utility district.

CONCLUSION

California's energy crisis has had severe financial impacts on the City and its residents and businesses although to date we have been spared the rolling blackouts experienced in Northern California. Although City actions will not resolve the crisis, those actions can place the City in the best possible circumstances as legislative, regulatory and market forces attempt to address and resolve the current energy crisis.

The City's continuing actions to the energy crisis should encompass four aspects:

- Managing and conserving energy use by the City in its own buildings and operations.
- Actively working to formulate, recommend and support legislation and pursuing all remedies at FERC and CPUC to ensure the reliable supply of electricity and natural gas at reasonable prices.
- Identifying how the City could effect energy use of others within the city through policies such as land use planning, permitting, local codes and standards, education programs and incentives for residents and businesses, etc.
- Becoming a municipal energy utility either independently or as part of a regional agency.

Respectfully submitted,

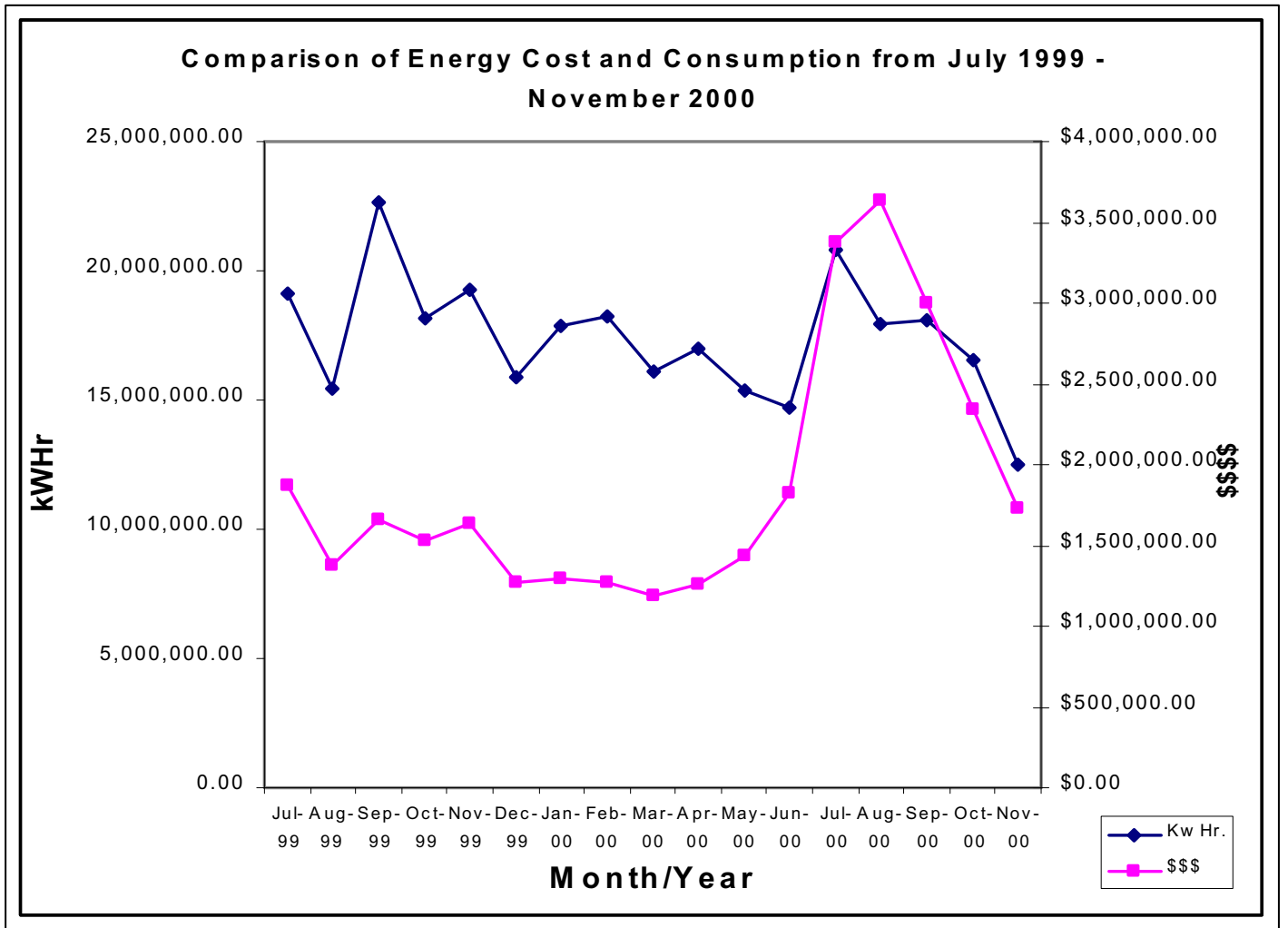
Approved: George I. Loveland
Senior Deputy City Manager

Submitted by: Robert A. Epler
Interim Energy Program Director

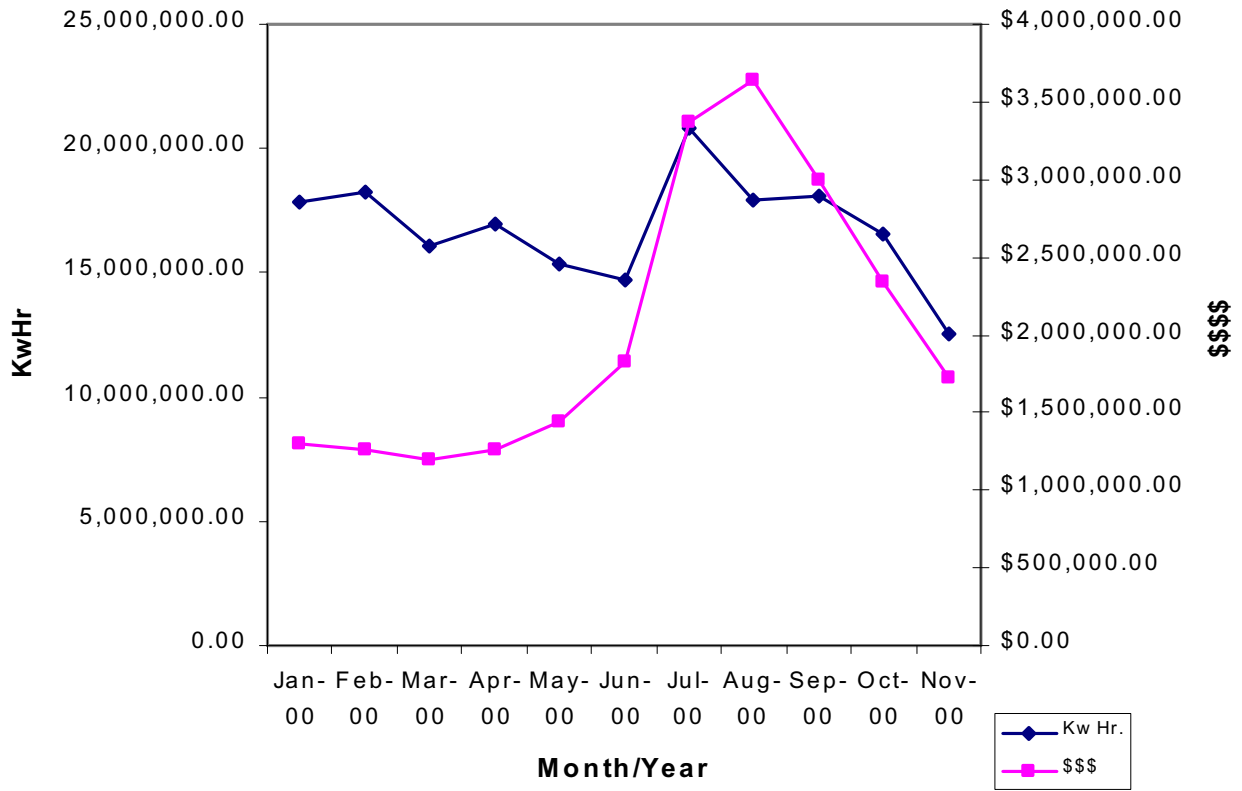
LOVELAND/EPLER

Attachment: Comparison of City Power Consumption and Energy Costs

Comparison of City Power Consumption and Energy Costs 1999-2000



Comparison of Energy Cost to Consumption from January 2000 - November 2000



Comparison of Energy Cost and Consumption from June 2000 - October 2000

