POLICY AND PROCEDURE

Subject: Public Facilities Energy Conservation / Blackouts	***Index:*** City Facilities & Services ***Number:*** 1003-2
Effective Date: August 12, 2004	***Prepared By:*** P.W./Maintenance Services Manager
Supersedes: New	***Approved By:***

1.0 PURPOSE:

1.1 The purpose of this Policy and Procedure is to help address San Diego Gas and Electric's (SDG&E) recent notice of the possibility of unplanned electrical outages in the SDG&E supplied Southern California region of San Diego and southern portions of Orange County. This year, the concern is no longer just about power availability but also about power deliverability. While the California Independent System Operator (ISO) has said statewide power supplies should be adequate this summer, the potential exists for transmission-related problems/outages in Southern California, especially during August and September as were seen during the heat wave in early May, 2004.

Unlike rolling blackouts, transmission-related outages may occur with little or no notice due to the fact that the state may require SDG&E to act immediately. The San Diego region has only two major transmission lines to bring power into the area. So, if the ISO can't get the power to where it's needed, customers in Southern California, including San Diego, could experience blackouts this summer without much warning. SDG&E has made assurances that they will make every attempt to communicate with customers in advance of any outages, but they ask that we be prepared.

Specifically, this policy and procedure shall address this issue by providing instructions and recommendations for City employees to follow beginning immediately that will help to reduce electrical energy consumption and possibly avert any unplanned blackouts, as well as instructions on how to address an unplanned outage.

The City of San Clemente hereby establishes a uniform policy and procedure to guide City employees in their efforts concerning conservation of energy in all of its public facilities and operations and how they should address any outages. The City shall strive to help avert or reduce any unplanned transmission-related or power generation created outages.

The City of San Clemente is committed to reducing energy consumption within its City facilities and operations and to research alternative energy saving methods.

2.0 ORGANIZATIONS AFFECTED:

All City staff

3.0 REFERENCES:

3.1 San Diego Gas and Electric's (SDG&E) has requested customers to find ways to reduce demands for electrical energy, especially during the summer months of August and September 2004, in order to avert the possibility of unplanned outages.

4.0 POLICY:

4.1 The City of San Clemente pledges to implement programs to reduce electrical use in City buildings and facilities and within certain City operations where and when applicable, and to cooperate with SDG&E and the State ISO by taking the following actions in response to the potential for planned and unplanned outages related to transmission issues and power supply issues.

4.1.1 **Appoint an Energy Coordinator (EC) to communicate with SDG&E and the State ISO and to coordinate energy efficiency, conservation and blackout actions in City facilities.** The Emergency Planning Officer shall be appointed as the Energy Coordinator and serve as the primary point person for communication with SDG&E and the State ISO on energy matters and to coordinate and implement energy saving actions presently and when further required within the local government.

4.1.2 **The Energy Coordinator shall notify City staff of any possible threat of planned and unplanned electrical outages which could affect our City government facilities and operations, being provided by the State ISO and/or SDG&E and provide direction to City staff on how to either conserve and reduce energy consumption under this threat or actions to take in the event of an unplanned outage.** The Energy Coordinator shall immediately pass on any State ISO or SDG&E notification of any planned or unplanned electrical outages to all City staff using email and the City's telephone system. The Energy Coordinator will advise City staff of the appropriate conservation and outage actions of this policy and procedure to be implemented to help avert any such outage and/or actions to take during an unplanned outage to this City. The Energy Coordinator will survey buildings to assure proper implementation/conservation actions have been taken as directed during a Stage 1, 2, or 3 Energy Emergency or a possible unplanned transmission-related electrical outage. The City will implement an action plan as

indicated in 6.0 Daily Procedure and 7.0 Blackout Procedure (below). The Energy Coordinator will also develop and recommend additional short and long-term energy efficiency improvements that can be implemented.

4.1.3 **Undertake conservation measures in City government buildings.** To build upon existing conservation activities in City government buildings, the City may establish and implement certain additional conservation measures.

4.2 Historical Actions Taken by City

4.2.1 Historical Energy Conservation Actions Taken by City of San Clemente

4.2.1.1 In fiscal year 2000/01, the City completed the retrofitting of its then 44 signalized intersections with green and red colored LED signal indications and retrofitted all flashing-warning beacons. This resulted in a projected saving of 485,870 kilowatt hour (kWh) usage annually and realized a $109,000 energy savings rebate from SDG&E for the project. Prior to this project, the City had taken steps each year since Fiscal Year 1994/95 to retrofit small numbers of traffic signal indications. As well, all new signal installations since Fiscal Year 2000/01 require Cal Trans approved LED light indications to be installed. These efforts have resulted in another 279,504 kWh saved annually.

4.2.1.2 In calendar year 1995 the City awarded a large energy savings performance contract project to Siemens Building Technologies, affecting all primary City facilities. This project reduced the number of fluorescent light bulbs in all City facilities by 50%. This was accomplished by: installing and/or replacing all T-12 fluorescent lights with T-8 fluorescent bulbs and electronic ballasts; installing mirrored reflectors in each light assembly; installing numerous lighting motion sensors in facility offices and meeting rooms; replacing numerous existing and old/inefficient HVAC equipment with high efficiency equipment; replacing and installing new temperature controls; installing outside air economizers on HVAC equipment to utilize cooler outside air instead of refrigerated air in the early part of the day; installing a new high efficiency heat pump at the Ole Hanson Beach Club; replacing an old, leaky roof at City Hall with a new energy efficient reflective roof; installing a new HVAC direct digital control/automation system at City Hall and the Community Center with system operator interface at the Corporation Yard. This performance contract project realized an annual reduction of over 320,565 kWh's and earned a $35,000 rebate from SDG&E for energy savings.

4.2.1.3 Other energy savings have been realized by the City over the past 9 years in projects tied to lighting changes in City facilities, new pump station equipment and new building improvements resulting in another 215,869 kWh annual savings.

5.0 DEFINITIONS:

5.1 **Independent System Operator (ISO):** The ISO has the responsibility for managing the transmission grid, ensuring grid reliability, providing non-discriminatory open access to the transmission system, assuring short-term power supply adequacy, coordinating power schedules and dispatching the power when and where needed. If the ISO believes that energy supplies in the Power Exchanges are insufficient to maintain an Operating Reserve of 7% of the demand, or that transmission lines are at or reaching capacity, ISO initiates one of the following electric emergency notifications: alerts, warnings and emergencies to communicate a loss of resources.

5.2 **Operating Reserve:** The energy requirements for reliable operation of the grid.

5.3 **Stage 1 Emergency:** A Stage 1 Emergency may be declared any time it is clear that an Operating Reserve shortfall (below 7%) is unavoidable, or is forecast to occur within the next two hours. The severity of the Stage 1 Emergency is less than Stage 2 or 3 and indicates that the Operating Reserve is forecast to be below minimum criteria, but not so far below as to require interruption of service to customers. Public appeals for energy conservation are initiated and interruptible customers should prepare for possible interruptions.

5.4 **Stage 2 Emergency:** A Stage 2 Emergency may be declared any time it is clear that a serious Operating Reserve shortfall (i.e. less than 5%) is unavoidable or is forecast to occur within the next two hours. The severity of the Stage 2 Emergency is less than a Stage 3 declaration and indicates that the Operating Reserve is forecast to be below minimum criteria and at a level where significant intervention is required by the ISO. At this level, interruption of service to some or all selected consumers is required to avoid more severe conditions.

5.5 **Stage 3 Emergency:** A Stage 3 Emergency may be declared any time it is clear that a critical Operating Reserve shortfall (i.e. less than 3% based upon Governor's Executive Order D-38-01) is unavoidable, exists in real-time operations or is forecast to occur within the next forty-eight hours. The Cal ISO shall provide frequent updates to the public during periods of forecasted electricity emergencies. SDG&E shall notify the California Office of Emergency Services, the public, the media, the utilities and public safety agencies at least one hour in advance of any firm load curtailment with locations and times of same. Stage 3 is the most severe Stage of Emergency and indicates that, without significant ISO intervention, the electric system is in danger of imminent collapse.

5.6 **Rolling Blackout or Unplanned Transmission Blackout/Outage:** Involuntary curtailment of service to consumer (i.e. "rolling blackouts") is required during a Stage 3 Emergency in amounts as needed to maintain an Operating Reserve above 3%. Or, unplanned transmission-related outages may occur as needed and implemented by the ISO and SDG&E to prevent damage or failure of the electrical grid transmission lines when demand exceeds the capacity of the two major transmission lines which bring power into the area A rolling blackout may last for a 1 to 1½ hour period of time. An unplanned transmission outage could last longer if consumption is not decreased in the overall area and the transmission lines remain at capacity.

5.7 **Light-Emitting Diode (LED):** A light-emitting diode (LED) is a semiconductor device that uses solid-state electronics to create light. A LED light source (or diode) consists of a layer of electron rich material separated – by a junction – from a layer of electron deficient material. Both sit on a semiconductor base. Power applied in the junction excites the electrons, which in turn emit photons of light. The color composition of the light depends on the chemical composition of the layers.

5.8 **Heating, Ventilation and Air Conditioning (HVAC):** Abbreviation describing internal environmental support equipment providing heating, ventilation and air conditioning to facilities and buildings.

6.0 DAILY PROCEDURE:

6.1 Daily Conservation Measures to be Implemented Immediately

6.1.1 Each Department Director will assign an employee as an Energy Monitor, at each City facility, who will oversee each building and assist in employee energy conservation efforts as stated below. The Energy Monitor shall confirm that all applicable energy conservation measures, which are called for by the City Manager or EC, are adhered to at each City facility and report their findings to the City's EC (Emergency Planning Officer). Each Department Director will notify the City's EC of the names, locations and business telephone numbers of these assigned Energy Monitor's.

6.1.2 Personal computer equipment, including monitors, central processing units (CPU), printers and copiers (except file servers) are to be shut down when leaving for the day. When leaving a workspace for extended periods (over 15 minutes) turn the monitor off. Utilize the energy saving features on each monitor to put it into dark mode after 5 minutes of non-use during the day while at your desk. Office equipment such as printers and copy machines can be left on during business hours but should be turned off during non business hours.

6.1.3 Office, conference room, workshop and restroom area lighting is to be turned off when not occupied. Even if these spaces have motion sensors, or

timer switches, make it a habit to turn the light switch off when you leave the space.

6.1.4 Other electrical devices such as desk lamps, radios and coffee brewers are to be shut off when not in use.

6.1.5 Dishwashers and other appliances should only be operated during non-peak hours, before 11:00 a.m. and after 6:00 p.m. Exceptions would include activities, events, and rentals at City recreation buildings (Community Center, Ole Hanson Beach Club, etc.) that require use of appliances for specific activities, events, and/or rentals.

6.1.6 Exterior "decorative lights " are to be considered for reduction or turning off from the standpoint of public perception.

6.1.7 Metered Street Lights are to have timers set to energize no earlier than 15 minutes prior to sunset and to de-energize 15 minutes after sunrise.

6.1.8 Turn off unnecessary general office area lighting on sunny days when there is adequate illumination through the windows.

6.1.9 City facilities shall continue to maintain outside security lighting. Public Works Maintenance Services Division staff will evaluate outside light systems to determine what lights should have timers or photo cells installed for additional energy savings.

6.1.10 During normal City business hours and days, room temperatures at all City General Government public facilities are to be kept at an ambient temperature of 72 degrees or higher during summer months (especially August and September). The designated Energy Monitors shall make daily inspections to insure that this Policy and Procedure is being adhered to. All City Facility HVAC systems (except City recreation buildings that operate for extended hours, seven days a week) are to be programmed and/or manually addressed to shut off at the end of the scheduled workday. If programmable, each facility will have its HVAC system set to turn on in the morning one hour before business starting time to allow for each facility to acclimate itself for employees arriving to work and for the ensuing business day.

6.1.11 Allow employees to wear casual, cool attire, during summer months rather than formal business attire. Each Department Director shall define what constitutes acceptable "casual attire" for their staff during this time.

6.1.12 For City recreation buildings i.e.: Community Center, Ole Hanson Beach Club, etc., the room temperature shall be 68 degrees or higher during the summer based upon the specific needs of activities, events and rentals. These variances in room temperatures are provided due to the high athletic action and occupancy activities, events, and rentals that create excessive heat

and humidity. Because of these high use activities, events and rentals, more latitude is needed to provide an enjoyable environment and to protect the health, safety and welfare of the occupants.

7.0 BLACKOUT/OUTAGE PROCEDURE

7.1 Preparing Employees for Blackout/Outages

7.1.1 The Energy Coordinator (E.C.) shall notify all City employees of each stage of alert, and as much as possible, in advance of a Stage 3 Alert or a transmission related impending outage/blackout, via email and/or, by telephone of ISO or SDG&E declarations. All City employees shall read and understand the following "outage/blackout" issues and react accordingly during an "outage/blackout".

7.1.2 Lighting – Except for facilities with back-up generators, all lighting will go out except for emergency lighting. Lighting from windows should provide enough light to exit a building safely. At night, the building's emergency lighting system, if equipped, will allow safe exiting of a building, but usually for a limited time only. Energy Monitors should check with Maintenance Services, Facilities Maintenance regarding backup power and emergency lighting questions.

7.1.3 Ventilation – In a power outage, heating, ventilating and air conditioning systems shut down, returning when power is restored. A lack of operating ventilation equipment, for a few hours, should not pose a health or safety concern in any City facility.

7.1.4 Communications – Phone systems may not function, depending on the setup in each building and whether the outage is widespread. Energy Monitors should verify with Maintenance Services, Communications as to how their particular phone system works during a power outage. Cell phones may or may not work during outages.

7.1.5 Elevators – There are elevators in 2 facilities. These are located at 910 Negocio and at the Maintenance Services Corp Yard, Bldg. "A" at 390 Avenida Pico. At 910 Negocio, each elevator car has an emergency telephone with a battery-backup that will automatically dial an answering service when the receiver is lifted. The services will then call out the appropriate elevator service company, as well as Building Division staff at 910 Negocio, and notify them of the emergency need. Response by the elevator company will occur in less than 1 hour. At the Corporation Yard, the emergency telephone in the elevator car will continue to operate and has an emergency number listed above the phone for the elevator service. Employees can also call the front desk of Bldg. "A" to alert them of the problem.

Do Not attempt to exit the elevator car by climbing through the overhead or by opening doors when between floors.

7.1.6 Plumbing – Buildings with multiple floors, normally have on-site booster pumps for the water system that may not function in a power outage. This could cause a loss of water pressure in the upper floors. In such situations, employees and other building occupants are cautioned to limit use of the restrooms during a power outage.

7.1.7 Security – Electronic locks will generally fail (if not battery powered) in a locked condition for entrances. Exiting from a building is always available. All of the electronic locks at City Hall, except the City Council Chambers, are "stand alone", battery operated locks. They are not affected by power outages. The Council Chambers locks operate on 110 volt alternating current (A.C.) power, however they have a battery back up system that will allow it to operate normally for approximately 8 hours in the event of a power outage. After the batteries are exhausted the door will release. Therefore, if a power outage lasts beyond the capacity of the back up batteries, Facilities Maintenance would provide a method of securing that door. Fortunately, it is very rare for a power outage to last that long.
For 910 Negocio, check with the Building Division, Building Official concerning any electronic locks/security system limitations.

7.1.8 Work Activities – Employees shall continue to work during outages completing tasks that can be done safely. Decisions for work stoppage will be made by the City Manager.