


CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE



Date: April 15, 2016 CF: 15-1478-S2

To: Honorable Members of the Public Safety Committee

From: Alfred Poirier, Interim General Manager
Emergency Management Department 

Subject: **LONG-TERM ELECTRICAL BLACKOUT EMERGENCY
PREPAREDNESS PLAN**

As requested by the Los Angeles City Council on February 2, 2016, per Council File No. 15-1478-S2, the Emergency Management Department (EMD) submits the following report related to a Long-Term Electrical Blackout Emergency Preparedness Plan.

Background:

The 2015 Industrial, Economic, and Administrative Survey (Survey) of the Los Angeles Department of Water and Power (DWP) included a number of significant, security related shortcomings, including vulnerabilities of the electrical grid to cyber and physical threats. Subsequent to this Survey, the City Council introduced a motion to the EMD, with the assistance of the Department of Public Works (LADPW), the Los Angeles Fire Department (LAFD), the Los Angeles Police Department (LAPD), and the US Department of Homeland Security Army Corps of Engineers (USACE), to report on the City's preparedness for a Long-Term Electrical Blackout Emergency Preparedness Plan.

Findings:

A long-term electrical blackout in the City anticipated to last weeks or months would have a major impact on the City, would result in a declaration of Local Emergency and an activation of the City Emergency Operations Center (EOC), and would require a considerable logistical resource request for mutual aid assistance from our County, State and Federal partners.

At the present, many existing City department emergency plans, policies, procedures and practices are in place to mitigate and prepare for this type of scenario. Below is a description of the various departments, policies, plans and programs that presently exist in the City that address a long-term electrical blackout.

Emergency Management Department

The Emergency Management Department (EMD) serves as the focal point for coordination of the City's emergency planning, response and recovery efforts for emergencies/disasters and planned events. EMD serves as a liaison with other municipalities, state and federal agencies, and the private sector; and performs related public education and community preparedness activities. EMD is responsible for the operational readiness of the City's EOC. If power is disrupted for a considerable amount of time, the City's EOC has two permanent diesel powered backup generators capable of operating for up to 72 hours before additional fuel would be needed. The generators are served by a 10,000 gallon underground fuel storage that is filtered and checked annually. The generators are tested monthly by the City's Department of General Services (GSD).

EMD continues to focus on the following key areas of responsibility as outlined in Chapter 29, Article 3 of the Los Angeles Administrative Code (LAAC):

- (a) Prepare Citywide emergency preparedness plans with the assistance of all other City departments, officers and agencies and assist other departments and agencies desiring to initiate or develop emergency preparedness activities;
- (b) Coordinate with public and private officials and agencies outside of City government to address emergency preparedness needs;
- (c) Prepare, coordinate and administer training for City employees and the public on emergency preparedness;
- (d) Conduct public education to assist in emergency preparedness; and
- (e) Perform other duties as provided by ordinance.

Emergency Operations Plan

EMD maintains the City of Los Angeles Emergency Operations Plan (EOP) along with EOP hazard-specific Annexes, one of which is the **Critical Infrastructure Interruption Annex (CIIA)** that addresses the threat of a long-term power disruption.

The EOP is established in accordance with Division 8, Chapter 3 of the LAAC, and describes the authority, responsibilities, functions, and operations of civil government during local emergencies, states of emergency and war emergencies. The Annexes contain City department-specific roles and responsibilities as they pertain to a significant incident or disaster. Each department represented in an Annex has identified key "Pre-Event," "Response" and "Recovery" tasks that are outlined in detail in the Concept of Operations section of the Annex, as well as in summary format within the Department Responsibilities matrices section. The EOP was recently rewritten to voluntarily conform to Federal Emergency Management Agency (FEMA) Comprehensive Planning Guidance 101 standards. The EOP Annexes were developed with the intention to:

- Provide a concept of operations and identify roles and responsibilities for each appropriate department within the City of Los Angeles for various

- types of critical infrastructure interruption, including power outages;
- Define procedures necessary for the rapid notification of City departments in the event of a long-term power outage;
- Identify actions that can realistically be accomplished within a few hours to a few days to mitigate any adverse impact;
- Ensure consistency with Federal, State of California, the Los Angeles County Operational Area, and other local governments' emergency response plans and operations; and,
- Ensure compliance with Federal and State laws pertaining to emergency management and for people with disabilities.

The City's EOP Annexes are developed by incorporating a comprehensive planning process that includes the participation of all appropriate City departments that have a significant role and responsibility in response to and recovery from a disaster. A planning cadre is led by the EMD who works with a task force consisting of City agency representatives. Once plans are finalized, they are submitted for approval to the Emergency Operations Board (EOB), and then transmitted to the Mayor and City Council for approval.

In September 2012, EMD initiated a citywide review and revision of more than twenty (20) EOP Annexes and related emergency management policies to ensure they all meet the legal requirements of the Americans with Disabilities Act. The EOP review and revision, required as part of the February 2011 summary judgment against the City, required the detailed review by City response and recovery agencies. This project also included review and revision, or development of department level Standard Operating Procedures (SOP) that provide specific detail on how City emergency services are provided to persons with disabilities and others with access and functional needs. The review and revision of the EOP, Annexes and SOPs was completed and accepted by the courts in December 2014.

Critical Infrastructure Interruption Annex

A long-term power outage occurring in the City would cause numerous problems. The purpose of the **Critical Infrastructure Interruption Annex (CIIA)** is to provide direction and guidance to the City of Los Angeles in responding to long-term power disruptions that exceeds the scope of incidents managed at the field level. The CIIA considers the following services as critical infrastructures in the City:

- Water Supply Systems
- Electrical Power Systems
- Natural Gas/Fuel Distribution System
- Information and Communications
- Government Services
- Transportation
- Emergency Services
- Banking and Finance

A long-term power disruption would impact all of these critical infrastructures mentioned above. Based on these criteria, the CIIA is an excellent resource that could be referenced for response protocols when a long-term power interruption occurs. The impacts from a long-term power outage on the Water Supply System, Information and Communications, Government Services, Transportation system, Emergency Services, and Banking and Finance sector are addressed in the CIIA as well as City department roles and responsibilities, and directives. This plan is maintained to ensure currency and that department response and recovery roles are accurate and sustainable.

Continuity of Operations Plans

In November 2015, all City Departments were required to update their Continuity of Operations (COOP) Plans in order to apply a revised plan template developed in coordination with the Mayor's Office of Public Safety and a COOP Task Force consisting of representatives from the City's major response and recovery departments. The COOP template addresses interruption of critical infrastructure including electrical power, water services and communications capabilities. Departments are responsible for identifying specific processes and procedures they can implement in the event infrastructure is lost or interrupted to ensure that critical missions and functions can still be performed. COOP procedures were a major focus on the City's 2015 Annual EOC Functional Exercise.

Emergency Planning and Training

In conjunction with emergency planning, there are on-going training and exercise programs. EMD conducts training and develops exercises specific to the EOP and Annexes to ensure thoroughness and accuracy. Exercising the EOP is accomplished through tabletop, functional and full-scale exercises involving all departments and agencies that have a direct or indirect responsibility or function. Lessons learned from exercises that include an activation of the EOC are identified through After Action Reports (AAR). An AAR includes a summary of the event, agencies involved in the EOC, and recommendations for corrective actions.

Cyber Security Exercises

In February 2015 and again in February 2016, EMD and representatives from numerous City departments, County, State and Federal government representatives participated in Cyber Security Table-Top Exercises. Specifically, the 2016 exercise employed a scenario that included loss of key portions of the Los Angeles Department of Water and Power's electrical generation and distribution power grid due to cyber hacking. City operating departments were challenged to identify the impacts of this power outage scenario and how they would remain operational. The exercise also walked participants through actions taken by the City's new Information Security Operations Center and Cyber Intrusion Command Center (CICC) programs that monitors, analyzes and makes corrective recommendations regarding threats and actual incidents of cyber hacking.

Annual EOC Exercise

EMD conducts an annual City EOC functional exercise that includes the participation of numerous City departments and partner agencies, each who have specific and pre-identified roles and responsibilities. The past four (4) EOC exercises all dealt with major critical infrastructure/security scenarios. Specifically the exercise scenarios included an improvised nuclear explosive device due to a terrorist attack, a major region wide "Arc Storm" catastrophic flood scenario, a catastrophic 7.9 earthquake in southern California, and a regional anthrax attack that tested our Medical Counter-Measures capabilities in concert with the Los Angeles County of Public Health including distribution of antibiotics to the public. These scenarios all involved disruption and damage to critical infrastructure and test agency's ability to maintain critical missions.

Executive Directive EP (Emergency Preparedness)-1

Each City department is required to develop and maintain a Department Emergency Plan (DEP) which outlines and dictates department-specific roles and responsibilities to a variety of hazards in an "all hazards" approach. These Department Emergency Plans must meet National Incident Management System (NIMS) criteria as well as standards outlined by the EMD.

In accordance with Executive Directive No. EP-1, dated December 3, 2002, EMD reports annually to the Mayor on the State of the City's Emergency Preparedness. This annual report, approved through the EOB, includes activities related to planning, training, exercises and Emergency Operations Center activations.

Commodities Points of Distribution (C-POD)

Following any catastrophic disaster, it is critical for the City to have the capability and capacity to efficiently distribute life-sustaining commodities to all members of an affected community. The Commodity Points of Distribution (C-POD) Plan will enhance the capabilities of the City of Los Angeles by providing life-sustaining commodities to those the affected by a long-term power outage or other type of disaster.

The purpose of the C-POD Project is to pre-identify locations and develop site-specific Commodity Distribution Plans. Using strategies provided by the California Office of Emergency Services (Cal OES) and FEMA Region IX, in addition to the USACE and FEMA guidance documents, specific commodities distribution needs and parameters have been identified. Modeling using Geographic Information Systems (GIS) will facilitate the selection of sites to be used in this project. The site specific plans include a facility assessment, facility usage, traffic management strategies, and a security plan.

Currently, there are 15 (fifteen) identified C-PODS in the City.

California Standardized Emergency Management System

The City of Los Angeles has been compliant with the State of California Standardized Emergency Management System (SEMS) since 1995. EMD provides at least four (4) SEMS introductory course per year to employees and other classes are available

through Cal OES. More than 10,000 City staff have been trained in SEMS since 1995. SEMS training is of particular value to enhancing coordination between the City, LA County Operational Area and the State for disasters such as earthquakes.

National Incident Management System Compliant City

The City of Los Angeles adopted the NIMS as its official emergency management model by Council action in 2004. Since then, more than 5,000 City staff (sworn and civilian) with emergency response and support roles have been trained in NIMS. The City trains an average of 800 responders per year in NIMS through on site and off site training programs as well as self study on-line courses. EMD and LAFD offer advanced incident command system training to City and outside agencies at no direct cost resulting in a program has a regional preparedness value. All of these classes impact our capabilities to respond to and recover from catastrophic events such as a major earthquake.

EOC Readiness--EMD Duty Officer/Duty Team Program

In order to provide ongoing multi-agency coordination services supporting the City's response to an emergency, EMD has established the Duty Officer/Team Program. Emergency Management Coordinator (EMC) II, EMC I, and MA II level staff assume rotating scheduled responsibility for performing EOO duties to maintain situational awareness and to ensure effective inter-agency and inter-jurisdictional coordination of emergency preparedness, response and recovery activities affecting the City of Los Angeles. All EMD Emergency Management Coordinators (EMCs) are assigned to a Duty Team to carry out numerous tasks associated with the City's EOC facility, the readiness of all its rooms and equipment, and various other responsibilities the Duty Team must do each day. Each Duty Team is managed by an assigned Duty Officer who will be at the classification of EMC II. Duty Team members consist of EMC I staff. Duties also include coordination and liaison responsibilities during the staff's regular work schedule, after hours, weekends and, as necessary, during planned events and actual emergencies.

Department of Homeland Security - US Army Corps of Engineers/City Partnership

Following a natural disaster or emergency, the USACE can provide state and local officials with a variety of support specific to emergency power needs at critical public facilities. This is permitted in support of FEMA as part of the federal government's unified national response under the National Response Framework.

The USACE has Emergency Power Planning and Response Teams (PRT) throughout the country with the capability to deploy and provide support ranging from technical expertise to "turn key" installation of emergency generators at critical public facilities, such as hospitals and emergency shelters.

The Emergency Power PRTs work closely with the 249th Engineer Battalion, who provides technical expertise and performs assessments to determine the type and size

of generator required at each facility, as well as, the connection materials required at critical public facilities during emergencies.

The Emergency Power PRTs work closely with FEMA, the Department of Energy, local and state entities, and contractors to execute this mission.

Key Points on the Emergency Power Mission PRTs

- Emergency Power PRTs, 249th Engineering Battalion and contractors can provide many services during emergency situations, which include:
 - Assessing the emergency power requirements needed at a facility
 - Assessing the conditions and capabilities of existing emergency generation equipment
 - Installation, operations, fueling and maintenance of emergency power generation equipment
 - Safety inspections and damage assessments of electrical distribution systems and equipment
 - Preparation and installation of generators, along with their operation and maintenance
 - De-installation and return of generators once the normal power grid is operational.

- During emergency power response activities, priorities are ultimately determined by state and/or local officials and fall into the following categories:
 - Life saving (911 centers, police and fire stations and medical facilities)
 - Life sustaining (shelters, water and wastewater treatment and pumping facilities)
 - Other municipal facilities to reinstitute local command and control and post-event recovery
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City Emergency Power Facility Assessment Tool (EPFAT) Task Force

Since November 2014, EMD formed what is called the City's Emergency Power Facility Assessment Tool (EPFAT) Task Force. The EPFAT Task Force has been working with the USACE, with the assistance of FEMA, and six (6) key City departments that include LAFD, GSD, Department of Recreation and Parks, Public Works Bureau of Street Services, Public Works Bureau of Sanitation, to provide Emergency Power Facility Assessments for select City facilities. Utilizing the EPFAT, the USACE assisted EMD and the six (6) listed City departments to assess a select number of public facilities, critical or essential to the City's emergency response and recovery. To date, City departments have assessed nearly 75 City critical facilities that would be used in the response and recovery process following a catastrophic power outage.

Following disasters that disrupt the commercial power service, generators are often required at critical public facilities, such as water treatment plants, hospitals, wastewater

treatment plants and shelters. The USACE is often called upon by FEMA to assist in providing temporary emergency power at critical public facilities identified by state officials. Facility assessment data is required before a generator can be sourced and installed.

The EPFAT is a secure web-based tool that can be used by critical public facility owners/operators, or emergency response agencies, to input, store, update and/or view temporary emergency power assessment data. Having pre-installation assessment data in advance will expedite USACE's abilities to provide temporary power.

Background:

- EPFAT was developed by USACE and FEMA to expedite the installation of generators following major disasters.
- Following a disaster, it can take the USACE many hours and possibly days to deploy assessment teams to all of the impacted critical public facilities so that the right generators can be properly installed.
- By adding information to EPFAT prior to a disaster, USACE will have the assessment data and generator size requirements needed to expedite the installation process.
- The database also provides the facility manager and the local/state/federal Emergency Management staff a permanent off-site repository for this information which is password protected and under controlled access.

Preparedness Actions:

- Department facility owners and managers considered installing generators and/or providing transfer switches to speed the delivery of temporary power following a disaster.
- Critical facility assessments were completed by qualified City electricians (Journeyman or Master Electricians, Electrical Engineers) who were on-site/staff, contracted electricians, or volunteers.
- Information and data was stored in a "Google-Map" type geo-referenced database that can be easily retrieved and/or updated. The tool can be viewed by authorized emergency response personnel at the City, County, State, FEMA Region, or National level authorized personnel.

Los Angeles Police Department

It is the mission of the Los Angeles Police Department (LAPD) to safeguard the lives and property of the people we serve. During an electrical blackout, whether it is a result of a disaster or a rolling blackout, the Department has emergency plans in place to maintain order, protect lives, protect vital facilities, arrest violators, and the protection of property. When there is a loss of power at a Department facility or facilities, Facilities Management Division (FMD) will contact General Services Department (GSD) to check the fuel of the generators at the affected locations. The generators at Department facilities typically carry enough fuel for 4-8 hours of run time. Generators for both Metro and Valley Communications will run enough power for full operational procedures. All other facility generators will run enough power for minimal operation procedures. Should the blackout cause communication issues, Communications Division has protocols in place to facilitate the continuation of communication between Department personnel.

- Communications Division (CD) has 5 levels for Master Radio System Degradation.
- Level 5- Fully operational.
- Level 4- Dispatch and field units unable to communicate with each other on Area's Area's base frequency. Communications will call Watch Commander(s) of Area(s) affected and notify them of the problem and new frequency to switch to. RTO (Radio Telephone Operator) shall send a message to area units affected to notify them of new frequency. Watch Commander(s) shall make several radio notifications to affected Area units to notify frequency switch.
- Level 3- Loss of all radio communications between dispatch and field units. Field units can communicate normally on their base frequency. Rover emergency trigger is non-functional. CD supervision will determine if one or both dispatch centers is affected. City wide radio control shall be assumed but the unaffected dispatch center. In the case where both center are affected, RTOs will establish an open landline at each station via the Fallback telephone number. Information regarding emergency calls for service will be communicated to the Area for dispatch. Area Watch Commander(s) shall ensure adequate staffing to dispatch calls to Area units and relay information back to the RTOs via open landline.
- Level 2- Loss of radio communications due to major failure at Mount Lee. Dispatch is unable to send or receive radio transmissions. Field units are unable to communicate with each other on their base or tactical frequencies. CD will notify Area Watch Commanders that the Department is in Fallback Mode and provide the appropriate Fallback channel for their Division. The same procedures for Level 3 will be followed as well.
- Level 1- "SURVIVAL". Widespread equipment damage and/or failure. Dispatch is unable to send or receive radio transmissions. Field units are unable to communicate with each other on their base or tactical frequencies. Same protocols as Level 2. Field units are strongly encouraged to use their vehicle radio, as vehicle radio transmits at a much higher power output.

Potential missions unique to blackouts are as follows:

- Traffic control. Officers should be prepared to direct traffic at major incidents.
- Security at critical facilities. Each area has pre-identified critical facilities in their geographic area that the Watch Commander shall determine if security is needed.
- High-profile crime prevention. Certain high profile retail centers may require directed visible patrol to maintain public order.
- Welfare checks. Family of our at-risk population may request welfare checks during or after the blackout.
- Code 30 alarm calls. Power outages frequently cause alarm systems to trigger or malfunction, the Department will handle these calls per normal procedures.

Los Angeles Fire Department

The Los Angeles Fire Department (LAFD) has identified seven (7) areas with potential challenges and actions that would be taken during a City wide long term power outage. This power outage could potentially come from a natural disaster, infrastructure failure, cyber-attack or terrorist attack.

The seven (7) areas of concern are:

- Staffing / Personnel
- Fire Department Facilities
- Communications
- Water (For Emergency Operations)
- Back-Up Power / Generators
- Fuel
- Emergency Response

Staffing / Personnel

The LAFD consists of approximately 4000 sworn and civilian personnel. While some of the sworn personnel work in offices on a 4/10 schedule, the majority are assigned to the field on a platoon duty schedule. The LAFD operates three 24 hour platoons (A, B, C). In a time of need, Fire Department management has the ability to “Hold Over” the off going shift / platoon. By doing so, we effectively double our daily staffing. Additional staffing would be use to staff reserve apparatus, augment first line emergency apparatus and augment critical support functions.

“Recall” is another policy the department can implement to temporally bolster staffing levels.

At the present time there are approximately 800 C.E.R.T. (Community Emergency Response Team) members trained to assist the Fire Department and their communities.

LAFD members are committed sworn public safety professionals and it is expected that the vast majority of firefighters will respond quickly to Hold Over and Recall orders.

Fire Department Facilities

The LAFD occupies and maintains 106 fire stations, maintenance and training facilities and numerous offices throughout the city. A prolonged power outage presents several challenges. In the beginning phases of the crisis, security of the facility itself and the critical documents and records become the priorities. These will be addressed by ensuring LAFD Facilities, including Fire Stations, are locked when empty and having at least one fire department member on site at all times or utilizing a C.E.R.T. volunteer. When security of fire department facilities cannot be accomplished, all critical documents and records will be removed from the facility and securely stored on emergency apparatus. Security of apparatus will be maintained at all times.

Because firefighters live and work at the fire stations on a platoon duty schedule (24 hour shifts), a certain amount of food and water is kept on-hand. In most cases the food on hand should last at least 2 to 3 days. Every fire station also stores a three (3) day supply (per member) of Meals Ready to Eat (M.R.E's). A limited supply of additional M.R.E's and bottled water are kept at the downtown fire department supply and maintenance facility.

Another priority regarding fire department facilities will be the restoration of critical utilities and services (Electric, Gas, Water, Sewage and Trash Collection).

Communications

Communications can be broken down into three (3) areas of concern:

- 911 calls to the Fire Department from the public
- Internal Fire Department Communications
- Communications between the Fire Department and other agencies, both within the City of Los Angeles (i.e. LAPD, DWP, GSD, etc. and agencies outside the city i.e. Mutual aid partners, Cal OES, FEMA, etc.)

911 calls to the Fire Department from the public

If an extended city wide power outage were to occur, the ability to call 911 would be greatly compromised. Under normal conditions cell phones can be used to call 911. Unfortunately during a major power outage many cellular phone calls might not get through.

1. Cell Phones rely on a battery for power. Many people may not have the means to recharge their cell phone batteries.
2. Cell towers, antennas and base stations. The FCC imposes "specific mandates" on wireless carriers including "backup electric power at most cell sites." Therefore, cell towers typically have battery backup arrangements that support operations for two to four hours, depending upon call traffic. In critical service areas, battery backup is enhanced by generators that automatically start when the batteries cannot provide enough power. The generators will be limited by the fuel to run them.

3. Switching Equipment. Cellular phone providers have backup power for their switching equipment, which should continue to work for as long as they need it to, however the expected heavy call load will likely tax the equipment. Some calls may experience delays.
4. Voice Over Internet Protocol (VOIP). These services may be impacted by a loss of power. DSL modems require electricity to function and will also be impacted by any power loss.
5. Battery Operated Cordless Landline Phones. These will be limited by the ability to keep the handset battery charged.
6. Hard Wired Landlines. Wired, landline phones actually receive their minimal amount of electrical power directly through the physical phone line. A phone will work as long as it is getting between 6 and 12 volts at about 30 milliamps. Landlines should continue to work during an extended power outage. Unfortunately, many people are giving up their landline phones and are relying strictly on cellular phones or on an internet based communication system.

Internal Communications within the Fire Department

The LAFD has many fall back plans and back-up systems build into its overall communication system.

- Central 911 processing, dispatch and communication center (MFC)
- Nine (9) Base Station Transmit / Receive Stations located throughout the city.
- Back-up portable repeaters.
- One (1) back-up repeater (Mt. Lukens, City Wide Voice Back-up System).
- All emergency and most non-emergency apparatus are fitted with an 800 MHz radio system.
- All on duty emergency first responders, command staff and essential support staff are assigned an 800 MHz handi-talkie radio.
- All emergency apparatus, command staff and essential support staff are assigned a Cellular telephone
- All Fire Stations have one or more hard wired landline telephones.
- Two (2) Mobile Command Post Vehicles each equipped with an on-board generator, extra hand held handi-talkies, an installed 800 MHz radio system, FAA airport radios and Marine radios.
- The LAFD also a number of Satellite radios and phones.
 - Iridium hand-held satellite phones (This consists of the Iridium satellite constellation, a system of 66 active satellites used for worldwide voice and data communication from hand-held satellite phones and other transceiver units. The Iridium network is unique in that it covers the whole Earth, including poles, oceans and airways).
 - MSAT (MSAT, short for Mobile Satellite, is a satellite-based mobile telephony

service developed by the National Research Council of Canada. Supported by a number of companies in the US and Canada, MSAT hosts a number of services, including the broadcast of CDGPS signals. The MSAT satellites were built by Hughes (now owned by Boeing) with a 3 kilowatt solar array power capacity and sufficient fuel for a design life of twelve years. The American Mobile Satellite Consortium (now LightSquared) referred to its MSAT as AMSC-1, with each satellite providing backup for the other).

- The “Red Phones” a satellite based phone system

All of the satellite based phones/radios are designed to work during a major power outage, if all internet service is lost and during total loss of all cellular service. MFC, the Fire Chief, key command staff and certain fire department apparatus have one or more satellite based communication systems available to them.

In addition, the department HAM Radio operations are utilized with the assistance of the CERT program.

Communications between the Fire Department and other agencies, both within the City of Los Angeles and agencies outside the city.

During an extended city wide power outage, there are several ways the fire department and other agencies will attempt to interact.

- Staffing their DOC's
- Staffing the EOC
- Satellite based Phones / Radios
- UHF and VHF radios (with interoperability)
- Back-up communication and dispatch center (OCD)

MFC, EMD, mutual aid partners, Cal OES, FEMA as well as most of the General Managers within the various departments in the City of Los Angeles all have satellite phone capability. The Fire Chief, the Deputy Chiefs and other key command staff positions also maintain satellite phone capability.

The building which houses EMD, MFC, the fire departments DOC and the City's EOC is designed to sustain itself for an extended period of time in the event of a city wide crisis including an extended power outage. This building is equipped with Two 1800 KW generators, 10,000 gallons of diesel fuel and battery back-up. The generators should be able to keep the building supplied with enough power to stay operational. The limiting factor will be the ability to resupply the diesel fuel tanks.

Generators (Auxiliary Power)

According to GSD, there are 25 Fire Stations in the City that have a “Fixed Generator” to provide back-up power to the fire station in the event of a power outage. Some of the other auxiliary power sources the fire department maintains are:

- Small portable generators stored on trailers at various fire stations throughout the city.
- Portable generators stored within most fire stations.
- Onan generators on most LAFD Truck Companies
- Portable generators carried on LAFD Truck Companies.
- Back-up generator and fuel at the fire departments downtown shop (S&M).
- MFC, the DOC, the EOC all have back-up generator capability.
- Fire Department headquarters (Back-up generator and fuel).
- Three (3) Light Utility Vehicles

The limiting factor for all of the above will be the fuel needed to keep the generators running.

FUEL

Fuel will be critical during an extended power outage. The LAFD must have fuel and the ability to resupply its fuel tanks. Both gasoline and diesel fuels are of utmost importance. Without a steady supply of fuel, the fire department will not be able to operate to its full potential. Fuel will be needed to:

- Operate generators, both portable and fixed.
- Keep both Fire and Medical apparatus responding to emergencies
- Power generators supplying back-up power to critical dispatch and communication components (MFC, Repeaters, mobile command post vehicles, etc.)

Many Fire Stations throughout the city have on-site fuel tanks. Fuel tanks found at fire stations can be either the in-ground type or the above-ground type. Fuel capacity can range between 1000 to 10,000 gallons. In order to pump fuel from these tanks, a power source is needed. In the event of a power outage the fire department will have a way of accessing this fuel stockpile. The above-ground tanks can use gravity to supply fuel. Most Fire Stations have hand operated pumps that can be used to get fuel out of the below-ground tanks.

Other sources of fuel are:

- All fire stations and all heavy apparatus carry a limited supply of fuel in portable cans.
- One LAFD fuel tender.
- Ten (10) 305 gallon portable "Fuel Pods" located throughout the city.
- By department policy, all fire department apparatus shall maintain at least a $\frac{3}{4}$ full tank of fuel at all times.

In summary, In the event of a large scale power outage the LAFD will respond to calls for service in accordance with our existing plans, policies and procedures. These include the adaptation of our earthquake plan and the implementation of our Maximum

Commitment Plan. The Department will need priority in restoring electrical service, and fuel delivery.

Public Works

Bureau of Sanitation

LA Sanitation has a critical reliance on electrical power to maintain our critical functions, including wastewater collection and treatment. The power failure is one of our top concerns, and many strategies and infrastructure are in place to mitigate the adverse effects. All facilities have emergency operating procedures in the event of a power failure. In addition, all critical operations have back-up power on-site or immediately available. Both portable and fixed generators are maintained and tested on a regular schedule to ensure they are ready when needed.

Power Outage Concept of Operations

In the Wastewater program, the collection system is 85% gravity fed. The remaining 15% relies on pumping. If electrical power is lost, most of the pumping plants have back-up generators that will operate automatically for 24 hours and can be re-supplied with fuel as needed. The remaining pumping plants will be powered by a portable generator. These pumping plants have been built to allow time to set up the emergency generator before a spill occurs. Refueling will be dependent on locating GSD fuel pumps with backup power.

Wastewater treatment operations will continue with on-site generators providing power for the most critical parts of the treatment process. The Hyperion Treatment Plant is the main plant for the City of Los Angeles. Other plants are Terminal Island in San Pedro, Tillman in Van Nuys, and LA/Glendale. In the event of a power outage, Hyperion and Terminal Island would operate on generator power to run only critical processes that perform a minimum treatment before discharge to receiving waters. When the power outage extends past 24 hours, this minimum treatment may not meet permit standards and will result in the receiving waters being closed to the public. The Tillman Plant and LA/Glendale has generator power to continue some wastewater treatment, while a portion of the flow will bypass downstream. The service vehicles at each plant are dependent on local GSD Gas pumps that will need generators to operate.

For the storm water program, 99% of the system is gravity-based and needs no power to operate. The remaining 1% relies on 10 storm water pump plants. If electrical power is lost, some of the pumping plants have back-up generators that will operate automatically for 24 hours and can be re-supplied with fuel as needed. The remaining pumping plants will be powered by a portable generator.

The Solid Resource Collection yards and facilities require electrical power to fuel the trucks. Refuse collection can continue operations one day without power. The yards have about a three day supply of fuel but lack generators to power the dispensers.

Resource shortfalls

For power outages greater than 24 to 48 hours, LA Sanitation will be requesting resources such as fuel and portable fueling trucks to supply our fixed and portable generators, vehicle fleet, and additional generators to power office buildings at each yard. Generators will also be needed for yards with fuel dispensers: treatment plants, solid resources collection yards and Dorris Place.

Hyperion Treatment Plant is currently installing turbines capable of generating electrical power to provide all electric power needs at our facility. It is scheduled to be operational late 2016.

Additional operations impacted by loss of power

In addition to the top priority of wastewater pumping and wastewater treatment, other important operations that affect public health and safety may be interrupted or suspended. These include dead animal collection, household refuse collection, environmental monitoring and testing as well as flood control and catch basin cleaning. LA Sanitation's two major office work centers, Public Works Building (PWB) and Media Center, are completely reliant on outside electrical power and have no backup generators except for critical computer equipment. Both Customer Care Center locations at LA Sanitation do not have backup power.

Bureau of Street Services

In the event of an electrical blackout the Bureau of Street Services (BSS) will immediately mobilize to secure its facilities and resources. The BSS Operations Center (BOC) will activate to receive and compile information on BSS resource status and prepare to support City functions.

Contingencies

- The BOC in the PWB is connected to generator power and will be fully functional during a blackout. The BOC will have access to computers located within the BOC and the City's intranet as long as ITA has back up power for that purpose. Telephone landlines, cell phones, and 800 MHz radios during an activation may not be available dependent upon the ability of the service providers.
- There are nineteen (19) BSS operated facilities with unleaded gas and diesel fuel. The sites are equipped with portable generators to power the fuel pumps during power outages. The availability of fuel ensures equipment and trucking will be available for response to mission essential functions.
- The BSS maintains light towers and message/arrow boards which may be positioned to assist with traffic control or to disseminate information to the public. The light towers and message/arrow boards are solar and generator powered.

- If mobile technology service provision is not impeded by a blackout, BSS personnel will communicate with cell phones and mobile devices. If electronic communication is not available, the BSS will use vehicular “runners” to transfer information.
- To ensure communication is not disrupted, all electrical devices will use generator power to recharge cell phones, radios, and mobile devices.
- Administrative functions:
 - BSS payroll/timekeeping functions will revert to hard copy tracking
 - All field information will revert to hard copy tracking
 - Service Requests will be received via phone, internet, radio depending on what services are available
 - Hard copy documentation will be instituted for all communications, task tracking, job tracking, etc.
 - Information movement will occur via vehicular “runners” transporting information as needed from field offices to headquarters, HQ to City Hall, Council offices, other City agencies
 - Staff may be allocated to different work locations during emergency as needed.
 - The BSS possesses fuel tanker trucks. As long as the GSD maintains its ability to obtain and transport large fuel quantities to BSS facilities, the BSS can assist other Departments and Agencies needs for mobile fuel transport.

Challenges

- All administrative functions for the BSS are centered at the PWB. In the event of a blackout the power capability at the PWB is limited to lighting the exit signs and select lights. There will not be power for office equipment (computers, printers, etc.) which will disrupt all administrative functions. The exception is as previously stated, only the BOC will be fully functional.
- BSS facilities will only function to operate the fuel sites. During a blackout office and warehouse buildings will be without electricity. The lack of power will render the asphalt plants inoperable.
- BSS equipment which runs on Compressed Natural Gas (CNG) will have to travel alternate fuel sites, taxing the capability of those sites. Currently, the Bureau of Sanitation operates four alternate fueling sites with emergency power.

Outside source fuel cards will be obtained to allow for using outside agencies for CNG.

- Refilling unleaded gas and diesel fuel sites will depend on the capabilities of the GSD to obtain fuel and deliver fuel to Bureau sites. If GSD is unable to provide fuel, BSS fuel capabilities will be limited to the fuel currently contained in Bureau facilities underground tanks. The fuel is used for BSS equipment, support to other City departments, and provides the means to fuel the site itself.

Recommendations:

1. EMD recommends that the development of an exercise, in which the scenario involves a long-term power outage, be considered.
2. Continue the EPFAT Task Force and continue to assess City Critical Facilities.
3. Continue to require City departments to keep their Continuity of Operations Plans (COOP) up-to-date.
4. Continue community training, planning and exercise programs to better prepare residents and business for such events.
5. Request that LAPD and LAFD review the Critical Infrastructure Interruption Annex and add workarounds where viable, or suggest possible solutions if no work around is available for issues related to a long-term power outage.
6. Identify how the DWP will address a Long-Term Power Outage and the mitigation efforts they have implemented to prevent or reduce the chances of such an event from happening.

This report provides a comprehensive summary of numerous efforts being undertaken by EMD, LAPD, LAFD, and the USACE to ensure the City remains ready, without notice, of a long-term power outage. The planning, training and operational readiness for such an event requires the collaborative efforts of every City department, commission and board.

If there are any questions or additional material is needed, please call me at 213-484-4821 or Larry Meyerhofer at 213-484-4814.

c: Jeff Gorell, Deputy Mayor for Public Safety