

**General Order No. 166**

**PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

**Standards for Operation, Reliability, and Safety  
During Emergencies and Disasters**

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**Applicability:** This General Order applies to all electric utilities subject to the jurisdiction of the CPUC with regard to matters relating to electric service reliability and/or safety.

**Purpose:** The purpose of these standards is to insure that jurisdictional electric utilities are prepared for emergencies and disasters in order to minimize damage and inconvenience to the public which may occur as a result of electric system failures, major outages, or hazards posed by damage to electric distribution facilities. The standards will facilitate the Commission's investigations into the reasonableness of the utility's response to emergencies and major outages. Such investigations will be conducted following every major outage, pursuant to and consistent with Public Utilities Code Section 364(c) and Commission policy.

**Summary:** The following rules require each jurisdictional electric utility to:

- Prepare an emergency response plan and update the plan annually. Standard 1.
- Enter into mutual assistance agreements with other utilities. Standard 2.
- Conduct annual emergency training and exercises using the utilities emergency response plan. Standard 3.
- Develop a strategy for informing the public and relevant agencies of a major outage. Standard 4.

- Coordinate internal activities during a major outage in a timely manner. Standard 5.
- Notify relevant individuals and agencies of an emergency or major outage in a timely manner. Standard 6.
- Evaluate the need for mutual assistance during a major outage. Standard 7.
- Inform the public and relevant public safety agencies of the estimated time for restoring power during a major outage. Standard 8.
- Train additional personnel to assist with emergency activities. Standard 9.
- Coordinate emergency plans with state and local public safety agencies. Standard 10.
- File an annual report describing compliance with these standards. Standard 11.
- Be subject to a restoration performance benchmark for major outages. Standard 12.
- Be subject to a call center performance benchmark for major outages. Standard 13.

## **Definitions**

**Accessible:** A condition which permits safe and legal access.

**Appropriate Regulatory Authority:** The agency or governmental body responsible for regulation or governance of the utility.

**Critical Customers:** Customers requiring electric service for life sustaining equipment.

**Emergency or Disaster:** An event which is the proximate cause of a major outage, including but not limited to storms, lightning strikes, fires, floods, hurricanes, volcanic activity, landslides, earthquakes, windstorms, tidal waves, terrorist attacks, riots, civil disobedience, wars, chemical spills, explosions, and airplane or train wrecks.

**Essential Customers:** Customers requiring electric service to provide essential public health and safety services.

**Major Outage:** Consistent with Public Utilities Code Section 364, a major outage occurs when 10 percent of the electric utility's serviceable customers experience a simultaneous, non-momentary interruption of service. For utilities with less than 150,000 customers within California, a major outage occurs when 50 percent of the electric utility's serviceable customers experience a simultaneous, non-momentary interruption of service.

**Measured Event:** A Measured Event is a Major Outage (as defined herein), resulting from non-earthquake, weather-related causes, affecting between 10% (simultaneous) and 40% (cumulative) of a utility's electric customer base. A Measured Event is deemed to begin at 12:00 a.m. on the day when more than one percent (simultaneous) of the utility's electric customers experience sustained interruptions. A Measured Event is deemed to end when fewer than one percent (simultaneous) of the utility's customers experience sustained interruptions in two consecutive 24-hour periods (12:00 a.m. to 11:59 p.m.); and the end of the Measured Event in 11:59 p.m. of that 48-hour period.

**Safety Standby:** Interim activities undertaken to mitigate immediate public safety hazards.

**Serviceable Customer:** A customer prepared and properly equipped to receive service where both the customer's electrical service facilities and those facilities of the utility necessary to serve the customer can be legally and physically accessed in a safe manner.

**Transmission Facilities:** Transmission facilities are those facilities subject to control by the Independent System Operator pursuant to Federal Energy Regulatory Commission orders.

## **Standard 1. Emergency Response Plan**

The utility shall prepare an emergency response plan ("plan") setting forth anticipated responses to emergencies and major outages. The plan will help assure the utility is best able to protect life and property during an emergency or major outage and communicate the scope and expected duration of an outage. The plan shall include the following elements:

### **A. Internal Coordination**

The plan shall describe the utility's internal coordination function, including how the utility will gather, process, and disseminate information within the service area, set priorities, allocate resources and coordinate activities to restore service. The utility will coordinate internal activities in an emergency operations center or use some other arrangement suitable for the purposes of internal coordination.

### **B. ISO/TO Coordination**

The plan shall provide for utility coordination with the ISO, including gathering, processing and disseminating information from the ISO, and providing information regarding how the utility will establish priorities and estimates of service restoration. A utility that does not deal directly with the ISO shall describe how it will coordinate its efforts with the TO.

### **C. Media Coordination**

The plan shall address the utility's provision of timely and complete information available to the media before, during and immediately after a major outage. Such information shall include estimated restoration times and a description of potential safety hazards if they exist.

### **D. External and Government Coordination**

The plan shall address the utility's efforts to coordinate emergency activities with appropriate state and local government agencies. The utility shall maintain lists of contacts at each agency which shall be included in the plan

and readily accessible to employees responsible for coordinating emergency communications. The utilities may address the use by governmental agencies of California's Standardized Emergency Management System (SEMS).

#### **E. Fire Prevention Plan**

Those investor-owned electric utilities identified below shall have a Fire-Prevention Plan that:

- A. Lists and describes the measures the electric utility intends to implement, both in the short run and in the long run, to mitigate the threat of power-line fires generally and in the specific situation where all three of the following conditions occur simultaneously: (i) The force of 3-second wind gusts exceeds the structural or mechanical design standards for the affected overhead power-line facilities, (ii) these 3-second gusts occur during a period of high fire danger, and (iii) the affected facilities are located in a high fire-threat area. A utility's fire-prevention plan may address other situations than required by this General Order, but not in lieu of this General Order.
- B. Identifies the specific parts of the electric utility's service territory where all three of the fire-weather conditions listed in Item A, above, may occur simultaneously. In making this determination, the utility shall use a minimum probability of 3% over a 50-year period that 3-second wind gusts which exceed the design standards for the affected facilities will occur during a Red Flag Warning in a high fire-threat area.
- C. Lists the other fire-threat indicators that the electric utility elects to use, in addition to those required by Item A, above, to timely identify and/or forecast elevated fire-weather conditions that increase the risk of fire associated with overhead power-line facilities.
- D. For the purpose of this Standard, the following definitions apply: (i) Structural and mechanical design standards are the maximum working stresses set forth in General Order 95, Section IV, for installed overhead electric facilities; (ii) period of high fire danger is the period

covered by a Red Flag Warning issued by the United States National Weather Service; and (iii) high fire-threat areas are areas designated as the High Fire-Threat District as defined in GO 95, Rule 21.2-D.

The requirement to prepare a fire-prevention plan applies to investor-owned electric utilities with overhead electric facilities located in the High Fire-Threat District as defined in GO 95, Rule 21.2-D.

**F. Safety Considerations**

The plan shall describe how the utility will assure the safety of the public and utility employees and the utility's procedures for safety standby. The plan shall include contingency measures regarding the resources required to respond to an increased number of reports concerning unsafe conditions.

**G. Damage Assessment**

The plan shall describe the process for assessing damage and, where appropriate, the use of contingency resources required to expedite a response to the emergency. The plan will generally describe how the utility will set priorities, facilitate communication, and restore service.

**H. Restoration Priority Guidelines**

The plan shall include guidelines for setting priorities for service restoration. In general, the utility shall set priorities so that service is restored first to critical and essential customers, and so that the largest number of customers receive service in the shortest amount of time.

**I. Mutual Assistance**

The plan shall describe how the utility intends to employ resources available pursuant to mutual assistance agreements for emergency response. Mutual assistance shall be requested when local resources are inadequate to assure timely restoration of service or public safety. Mutual assistance need not be requested if it would not substantially improve restoration times or mitigate safety

hazards. The plan shall recognize the need to communicate mutual assistance activities with the State Office of Emergency Services, through the UOC/OES Utility Branch, during an emergency.

**J. Plan Update**

The plan shall be updated annually to incorporate changes in procedures, conditions, law or Commission policy. The utility shall submit plan updates as part of the annual report required by Standard 11.



**Standard 2. Mutual Assistance Agreement(s)**

The utility shall enter into mutual assistance agreement(s), such as those facilitated by the California Utilities Emergency Association, to the extent that such agreements are practical and would improve emergency response. The utility shall submit the agreements annually to CPUC designated staff as part of the report required by Standard 11. The agreements shall include the following elements:

- A.** Resources that are available to be shared.
- B.** Procedures for requesting and providing assistance.
- C.** Provisions for payment, cost recovery, liability and other financial arrangements.
- D.** Activation and deactivation criteria.

**Standard 3. Emergency Training and Exercises**

- A.** The utility shall conduct an exercise annually using the procedures set forth in the utility's emergency plan. If the utility uses the plan during the twelve-month period in responding to an event or major outage, the utility is not required to conduct an exercise for that period.
- B.** The utility shall annually evaluate its response to an exercise or major outage. The evaluation shall be provided to the CPUC as part of the report required by Standard 11.
- C.** The utility shall annually train designated personnel in preparation for emergencies and major outages. The training shall be designed to overcome problems identified in the evaluations of responses to a major outage or exercise and shall reflect relevant changes to the plan.

- D. The utility shall provide no less than ten days notice of its annual exercise to appropriate state and local authorities, including the CPUC, state and regional offices of the OES or its successor, the California Energy Commission, and emergency offices of the counties in which the exercise is to be performed. The utility shall participate in other emergency exercises designed to address problems on electric distribution facilities or services, including those emergency exercises of the state and regional offices of the OES or its successor, and county emergency offices.

**Standard 4. Communications Strategy**

The utility shall develop and maintain a written strategy for how it will communicate with the public before, during and immediately following major outages and emergencies as follows:

**A. Customer Communications - Media & Call Center**

The communications strategy shall describe how the utility will provide information to customers by way of its call center and other communications media before, during and immediately following a major outage. The strategy shall anticipate the use of radio, television, newspapers, mail and electronic communications media.

**B. Government**

The communications strategy shall include pre-event coordination with appropriate state and local government agencies, including the appropriate methods for information exchange, to enhance communications activities during and immediately following a Major Outage.

**C. Independent System Operator/Transmission Owner**

The communications strategy will describe how the utility will coordinate its communications with the ISO and/or the TO. The utility shall cooperate with the ISO/TO to coordinate the information provided to customers, media, and governmental agencies when the operation of the transmission system affects customer service.

**Standard 5. Activation Standard**

Within one hour of the identification of a major outage, the utility shall begin coordinating its internal resources as set forth in its emergency plan.

**Standard 6. Initial Notification Standard**

Within one hour of the identification of a major outage or other newsworthy event, the utility shall notify the Commission and Warning Center at the Office of Emergency Services of the location, possible cause and expected duration of the outage. The Warning Center at the OES is expected to notify other state and local agencies of the outage. Subsequent contacts between state and local agencies and the utility shall be conducted between personnel identified in advance, as set forth in Standard 4.B. From time to time the Commission staff may issue instructions or guidelines regarding reporting.

**Standard 7. Mutual Assistance Evaluation Standard**

No later than 4 hours after the onset of a major outage, the utility shall begin the process of evaluating and documenting the need for mutual assistance. The utility is not required to seek assistance if it would not substantially expedite restoration of electric service or promote public safety. The utility should reevaluate the need for assistance throughout the period of the outage.

**Standard 8. Major Outage and Restoration Estimate Communication Standard**

- A.** Within 4 hours of the identification of a major outage, the utility shall make information available to customers through its call center and notify the media of the major outage, its location, expected duration and cause. The utility shall provide estimates of restoration times as soon as possible following an initial assessment of damage and the establishment of priorities for service restoration.
- B.** Within 4 hours of the initial damage assessment and the establishment of priorities for restoring service, the utility shall make available through its call center and to the media the estimated service restoration times by geographic area. If the utility is unable to estimate a restoration time for a certain area, the utility shall so state.

**Standard 9. Personnel Redeployment Planning Standard**

The utility shall maintain a training and redeployment plan for performing safety standby activities and assessing damage during a major outage. The utility should plan to have personnel available to augment the number of employees whose duties include safety standby and damage assessment activities. The utility shall identify and train additional employees to perform safety standby activities and assess damage during emergencies requiring such activities and major outages, and in lieu of their normal duties.

**Standard 10. Annual Pre-Event Coordination Standard**

The utility shall annually coordinate emergency preparations with appropriate state, county and local agencies and the ISO/TO. As part of such activities, the utility shall establish and confirm contacts and communication channels, plan the exchange of emergency planning and response information, and participate in emergency exercises or training.

## **Standard 11. Annual Report**

The utility shall annually report to the CPUC and other appropriate governmental agencies by October 31 regarding its compliance with this general order for the previous twelve months ending June 30. The annual report shall identify and describe any modifications to the utility's emergency plan.

Further, the utility shall report on the number of repair and maintenance personnel in each personnel classification in each county (and total throughout the company), as of June 30 of the current and previous year.

## **Standard 12. Restoration Performance Benchmark For A Measured Event**

The Commission shall perform a review of utility performance following every Major Outage. This standard sets a benchmark for the Commission to use in reviewing utility restoration performance only during Measured Events.

### **A. Benchmark**

A utility's restoration performance during a Measure Event shall be presumed reasonable if the CAIDI is 570 or below, and presumed unreasonable if the CAIDI is above 570. These presumptions are rebuttable.

### **B. CAIDI Calculation**

CAIDI stands for Customer Average Interruption Duration Index and is computed using the following equation:

$$\frac{\text{total customer minutes of interruption}}{\text{total number of customer interruptions}}$$

If a single customer experiences more than one sustained interruption during a Measured Event, each interruption shall count as a separate customer interruption. CAIDI shall be measured from the beginning of the Measured Event and shall continue until all customers experiencing interruptions during the Measured Event have been restored.

### **C. Transmission Outages**

Customer minutes of interruption caused by outages of Transmission Facilities owned by the utility during a Measured Event are included in the calculation of CAIDI for purposes of this standard.

Customer minutes of interruption attributable to utility compliance with ISO directives, including its protocols, tariffs, transmission agreements or other written or verbal instructions specific to the event, which prevent the utility from restoring service it is otherwise able to provide shall be excluded in the calculation of CAIDI for purposes of this standard.

### **D. Exemption**

Utilities with fewer than 150,000 electric customers are exempted from application of this standard.

## **Standard 13. Call Center Benchmark For A Measured Event**

The Commission shall perform a review of utility performance following every Major Outage. This standard sets a benchmark for the Commission to use in reviewing utility call center performance only during Measured Events.

### **A. Benchmark**

A utility's call center performance during a Measured Event shall be presumed reasonable if the percent busies calculation is lower than Level-1, and presumed unreasonable if the percent busies calculation is greater than Level-2. These presumptions are rebuttable. Performance equal to or between Level-1 and Level-2 is subject to no presumption.

Level-1 is defined as 30% busies over the day of the outage (12:00 a.m. to 11:59 p.m.).

Level-2 is defined as 50% busies over the day of the outage (12:00 a.m. to 11:59 p.m.) *plus* at least 50% busies in each of six one-hour increments (these increments need not be consecutive).

## **B. Percent Busies Calculation**

Percent busies calculation measures the levels of busy signals encountered by customers at the utility's switch and that of its contractors. Mutual aid partners are not considered "contractors" for purposes of this standard, and busies encountered as a result of mutual aid assistance are not included in measurements to which this standard applies.

Percent busies indicator is measured on a 24-hour basis for outage-related calls (on energy outage and general call lines) from the time the Measured Event begins (12:00 a.m. to 11:59 p.m.), and separately for each 24-hour period until the Measured Event ends.

Either of the following methods for calculating percent busies is acceptable:

- Percent of call attempts reaching the utility which receive a busy signal
- Percent of time that trunk line capacity is exhausted.

## **C. Exemption**

Utilities with fewer than 150,000 electric customers are exempted from application of this standard.