PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

GENERAL ORDER NO. 167-C

ENFORCEMENT OF MAINTENANCE AND OPERATION STANDARDS FOR ELECTRIC GENERATING FACILITIES AND ENERGY STORAGE SYSTEMS

EFFECTIVE SEPTEMBER 02, 2005

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IN RULEMAKING 02-11-039; AS MODIFIED BY
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AS MODIFIED BY RESOLUTION NO. E-4184
ADOPTED AUGUST 21, 2008; AND AS MODIFIED BY
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1.0 PURPOSE

The purpose of this General Order (GO) is to implement and enforce standards for the maintenance and operation of electric generating facilities, power plants, and energy storage systems (ESSs) so as to maintain and protect the public health and safety of California residents and businesses by ensuring that electric Generating Assets (GAs) and ESSs are effectively and appropriately maintained and efficiently operated, and to ensure electrical service reliability and adequacy. The General Order provides a continuing method to implement and enforce Maintenance Standards (MS), and Operation Standards (OS), and any other standard adopted pursuant to Public Utilities (Pub. Util.) Code § 761.3 (Chapter 19 of the Second Extraordinary Session of 2001-02 (SBX2 39, Burton), as amended by Stats. 2022, Chapter 725 (SB 1383, Hueso) and Stats. 2023, Chapter 377 (SB 38, Laird). The General Order also provides a means to enforce the protocols for the scheduling of power plants and ESS outages of the California Independent System Operator. The General Order is based on the authority vested in the California Public Utilities Commission by the California Constitution; California statutes and court decisions; prior Commission decisions and orders; and Federal law including, but not limited to, the Federal Power Act, 16 U.S.C. § 791 *et seq*., and Section 714 of the Energy Policy Act of 1992, 16 U.S.C. § 824(g). Nothing in this General Order diminishes, alters, or reduces the Commission's existing authority to inspect GAs and ESSs to request data from those GAs and ESSs to assure continued maintenance and operation of the facilities in order to support public safety and the reliability of California's electricity supply.

2.0 DEFINITIONS/ACRONYMS

2.1 ACTIVE SERVICE

"Active Service" means the status of an electric generating asset or energy storage system that is interconnected, is capable of operating in parallel with the electricity grid and has achieved commercial operation.

2.2 CALIFORNIA INDEPENDENT SYSTEM OPERATOR OR ISO

"California Independent System Operator" or "ISO" is the nonprofit public benefit corporation authorized under Public Utilities (Pub. Util.) Code § 345 *et seq*. to operate California's wholesale power grid. For the purpose of information-sharing under this General Order, ISO is considered to be a governmental agency.

2.3 COMMISSION

"Commission" means the California Public Utilities Commission.

2.4 EMERGENCY RESPONSE AND EMERGENCY ACTION PLAN

"Emergency Response and Emergency Action Plan" is the emergency response and emergency action plan required by Pub. Util. Code Section 761.3, subdivision (g).

2.5 ENERGY STORAGE SYSTEM OR ESS

"Energy Storage System" or "ESS" means commercially available technology that is capable of absorbing energy, storing it for a period of time, and thereafter dispatching the energy as provided in Pub. Util. Code § 2835-2839 ("Energy Storage Systems"). For the purposes of this General Order, the ESS must have a metered output, or an administratively defined group of generating or storage facilities, that may or may not have individual metered outputs that can be aggregated for performance measurement. However, for the purposes of this General Order, an ESS does not include:

2.5.1 A nuclear powered facility that is federally regulated and subject to standards developed by the Nuclear Regulatory Commission, and whose owner or operator participates as a member of the Institute of Nuclear Power Operations, provided that the owner or operator of such facility shall comply with the reporting requirements of Publ. Util. Code § 761.3 (c) (1) (B), and § 761.3 (c) (1) (c).

2.5.2 A qualifying small power production facility or a qualifying cogeneration facility within the meaning of Federal Power Act

(16 U.S.C. §§ 796 (17), 796 (18) & 824a-3) and the regulations adopted pursuant to those sections by the Federal Energy Regulatory Commission (18 C.F.R. §§ 292.101-602, inclusive), provided that an electrical corporation that has a contract with a qualifying small power production facility, or a qualifying cogeneration facility, with a nameplate rating of 10 megawatts or greater, shall comply with the reporting requirements of Pub. Util. Code § 761.3 (c) (2) (B).

2.5.3 Distributed storage systems owned by individual Load Serving Entity (LSE) customers.

2.5.4 A facility owned by a local publicly owned electric utility.

2.5.5 A facility at a public agency that is used to generate or store electricity incidental to the provision of water or wastewater treatment.

2.5.6 A facility owned by a city and county operating as a public utility, furnishing electric service as provided in Pub. Util. Code § 10001.

2.6 ENERGY STORAGE SYSTEM (ESS) OWNER OR ESSO

"Energy Storage System Owner" or "ESSO" means any person or entity owning, controlling, operating, maintaining, or managing an ESS facility. An ESS Owner includes, but is not limited to, an electrical corporation (as that term is defined in Pub. Util. Code § 218). "ESS Owner" does not include any governmental agency described in Pub. Util. Code § 761.3 (f) (1)-(3). Although for the various purposes of this General Order, more than one person or entity may meet the preceding definition, this section is not intended to require duplicate or redundant filings, or notifications for any particular ESS.

2.7 EXIGENT CIRCUMSTANCE

"Exigent circumstance" means any condition related to the operation and maintenance of a Generating Asset or Energy Storage System that may result in imminent danger to public health or safety, including electrical service reliability or adequacy, or to persons in the proximity of a Generating Asset or Energy Storage System.

2.8 GENERATING ASSET

"Generating Asset" means any device owned by an electrical corporation (as that term is defined in Pub. Util. Code § 218) or located in the State of California used for the generation of electric energy. To be a Generating Asset, the device must have a metered output, or an administratively defined group of generating devices that may or may not have individual metered

outputs that can be aggregated for performance measurement. However, for the purposes of this General Order, a Generating Asset does not include:

2.8.1 A nuclear-powered generating facility that is federally regulated and subject to standards developed by the Nuclear Regulatory Commission, and whose owner or operator participates as a member of the Institute of Nuclear Power Operations, provided that the owner or operator of such a facility shall comply with the reporting requirements of Pub. Util. Code § 761.3 (C)(1)(B), and § 763.1(C)(1)(C).

2.8.2 A qualifying small power production facility or a qualifying cogeneration facility within the meaning of the Federal Power Act (16 U.S.C. §§ 796 (17), 796 (18), & 824a-3) and the regulations adopted pursuant to those sections by the Federal Energy Regulatory Commission (18 C.F.R §§ 292.101-602, inclusive), provided that an electrical corporation that has a contract with a qualifying small power production facility, or a qualifying cogeneration facility, with a nameplate rating of 10 megawatts or greater, shall comply with the reporting requirements of Pub. Util. Code § 761.3 (C) (2) (B).

2.8.3 A generation unit installed, operated, and maintained at a customer site, exclusively to serve that customer's load.

2.8.4 A facility owned by a local publicly owned electric utility.

2.8.5 A facility at a public agency that is used to generate electricity incidental to the provision of water or wastewater treatment.

2.8.6 A facility owned by a city and county operating as a public utility, furnishing electric service as provided in Pub. Util. Code § 10001.

2.9 GENERATING ASSET (GA) OWNER OR GAO

"Generating Asset (GA) Owner" or "GAO" means any person or entity owning, controlling, operating, or managing a Generating Asset. "Generating Asset Owner" includes, but is not limited to, an electrical corporation (as that term is defined in Pub. Util. Code § 218). "Generating Asset Owner" does not include any governmental agency described in Pub. Util. Code § 761.3 (f) (1)-(3). Although for the various purposes of this General Order, more than one person or entity may meet the preceding definition, this section is not intended to require duplicate or redundant filings or notifications for any particular Generating Asset.

2.10 GENERATING ASSET AND ENERGY STORAGE SYSTEM LOGBOOK STANDARDS
Generating Asset and Energy Storage System Logbook Standards are set forth as Appendix A of this General Order and include any subsequent amendments or revisions of those standards.

2.11 GENERATING ASSET AND ENERGY STORAGE SYSTEM MAINTENANCE STANDARDS
"GA and ESS Maintenance Standards" are set forth in Appendix C and include any subsequent amendments or revisions to those standards.

2.12 GENERATING ASSET AND ENERGY STORAGE SYSTEM OPERATION STANDARDS
"Generating Asset and Energy Storage System Operation Standards" are set forth as Appendix D to this General Order and includes any subsequent amendments or revisions to those standards.

2.13 GENERATING AVAILABILITY DATA SYSTEM OR GADS
"Generating Availability Data System" or "GADS" means the data base system maintained by the North American Electric Reliability Corporation (NERC) which collects, records, and retrieves operating information for improving the performance of electric generating equipment.

2.14 HYDROELECTRIC ENERGY LOGBOOK STANDARDS
"Hydroelectric Energy Logbook Standards" are set forth as Appendix B to this General Order and includes any subsequent amendments or revisions to those standards.

2.15 INITIAL CERTIFICATION
"Initial Certification" means the first document filed by a GA or ESS Owner for a specific GA or ESS certifying that the GA or ESS Owner has adopted and is implementing a Maintenance Plan for that GA or ESS as required by Section 6.0 of this General Order, or an Operation Plan for that GA or ESS as required by Section 7.0.

2.16 NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION OR NERC
"NERC" means the North American Electric Reliability Corporation or any successor thereto.

2.17 NOTIFY SAFETY AND ENFORCEMENT DIVISION, FILE WITH THE COMMISSION, FILING, OR FILE
"Notify Safety and Enforcement Division (SED)," "file with the Commission," "filing," or "file" means (unless otherwise indicated) to send an electronic notification to GO167@cpuc.ca.gov. These written communications are not filed with the Commission's Docket Office.

2.18 OUTAGE COORDINATION PROTOCOL

"Outage Coordination Protocol" means that document set forth as Section 9.0 (effective November 1, 2023) in the ISO tariff to coordinate schedules for maintenance, repair and construction of energy storage and generating units, sections of the ISO controlled grid, and interconnections, as well as any subsequent amendments to the document.

2.19 OUTAGE MANAGEMENT SYSTEM OF CALIFORNIA OR OMS

"Outage Management System" or "OMS" is a web-based system application and procedure, and any successor system, used by the ISO and external clients for scheduling of generator outages.

2.20 SAFETY AND ENFORCEMENT DIVISION OR SED

"Safety and Enforcement Division" or "SED" means that division of the Commission, or any successor entity, designated by the Commission to enforce this General Order.

2.21 STANDARDS

"Standards" is a collective term including all the individual standards enforced pursuant to this General Order: Hydroelectric Energy Generating Logbook Standards, GA and ESS Logbook Standards, GA and ESS Maintenance Standards, GA and ESS Operation Standards, and the Outage Coordination Protocol/standards of the ISO, as set forth in Subsection 8.1 of this General Order.

2.22 RENEWABLE GENERATING ASSET

"Renewable Generating Asset" means an electrical generating facility that uses biomass, solar thermal, solar photovoltaic, wind (inland and offshore), geothermal, fuel cells, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and any additions or enhancements to the facility using that technology.

2.23 THERMAL ENERGY

"Thermal Energy" is the production of electricity from heat generated from combustion of fuels, recovery of heat from discharges from a turbine or other device powered by the combustion of fuels.

3.0 REQUIRED COMPLIANCE

3.1 BASIC REQUIREMENT

Unless exempted below, all GA or ESS Owners shall comply with all Standards and all sections of this General Order for each GA or ESS. A GA or ESS's eligibility for an exemption shall be determined by summing the nameplate rating for all units of the GA and/or ESS.

3.2 SMALL FACILITIES

GAs or ESSs, smaller than one megawatt, are currently exempt from enforcement of the Standards pursuant to this General Order. Notwithstanding this exemption, GA or ESS Owners of such Generating Assets and ESSs shall cooperate in any Commission or SED investigation, inspection, or audit by permitting access to those Generating Assets or ESSs and by providing information (orally or written) or documents about the maintenance and operation of those Generating Assets or ESSs if so requested by the Commission or SED.

3.3 MEDIUM FACILITIES

GAs or ESSs of one megawatt or larger but smaller than 50 megawatts are exempt from Hydroelectric Energy Logbook Standards, GA and ESS Logbook Standards, Maintenance Standards, and Operation Standards. Accordingly, such Generating Assets and ESSs are subject to all requirements of this General Order except for Sections 4.0 ("GA and ESS Logbook Standards"), 5.0 ("Hydroelectric Logbook Standards"), 6.0 ("Generating Asset and Energy Storage System Maintenance Standards"), and 7.0 ("Generating Asset and Energy Storage System Operation Standards"). Notwithstanding these exemptions, such facilities must follow prudent practices as required by Sections 4.2, 5.2, 6.4, and 7.4.

3.4 SWITCHING CENTERS

Switching centers controlling 50 megawatts or more of hydroelectric power must keep logbooks concerning switching center operations for all remotely controlled Generating Assets of one megawatt or larger, as provided in Section 5.2.

3.5 HYDROELECTRIC FACILITIES

Hydroelectric facilities licensed by the Federal Energy Regulatory Commission are exempt from Sections 6.0, 7.0, 8.0, 9.3, 9.4, and 14.1.

4.0 GENERATING ASSET AND ENERGY STORAGE SYSTEM LOGBOOK STANDARDS

4.1 REQUIRED LOGBOOKS

Unless exempted, all GA or ESS Owners shall maintain facility logbooks in conformance with the GA and ESS Logbook Standards for Generating Assets. GAs are defined by Section 2.8 and ESSs are defined by Section 2.5.

4.2 EXEMPTION

GAs or ESSs of less than 50 megawatts are exempt from Section 4.0. Notwithstanding this exemption, each Generating Asset one megawatt and larger but less than 50 megawatts is required to maintain a reasonable log of

operations and maintenance in a manner consistent with prudent industry practice.

4.3 VERIFIED STATEMENT

For each nonexempt GA or ESS, the GA or ESS Owner shall file one original verified statement with the Director of the Commission's SED. The verified statement shall include the following:

4.3.1 The identity of the GA or ESS owned by an electrical corporation, Limited Liability Corporation (LLC) or sole proprietor located in California (with relevant identification and contact information);

4.3.2 Confirmation that the facility is maintaining logbooks in compliance with the requirements for GA and ESS Logbook Standards;

4.3.3 Confirmation that the compliance document required by Subsection 4.5 has been prepared and is available at the GA or ESS facility;

4.3.4 Confirmation that logbooks and the compliance document are being and will be updated and maintained as necessary; and

4.3.5 Signature, name, title, address, telephone number, electronic mail address, CAISO Resource ID, and other relevant information regarding the authorized representative of the GA or ESS Owner.

4.4 TIME OF FILING

4.4.1 TIME OF FILING FOR ASSETS IN ACTIVE SERVICE BEFORE THE EFFECTIVE DATE OF GO 167-C

For each GA or ESS placed in Active Service before the effective date of this General Order, the GA or ESS Owner shall file the Verified Statement within 180 days of such effective date.

4.4.2 FOR THE NEW OR ACQUIRED ASSETS

For each GA or ESS placed in Active Service after the effective date of this General Order, the GA or ESS Owner shall file the Verified Statement within 180 days of such effective date of GO 167-C or 30 days of the GA being placed in Active Service, whichever date is later. When a GA or ESS Owner acquires a GA or ESS from an existing GA or ESS Owner, the new owner shall file a verified statement within 180 days of the effective date of GO 167-C, 30 days of the effective date of the transfer of title, or within 30 days of the transfer of possession, whichever date is later.

4.5 COMPLIANCE DOCUMENT

Each GA or ESS Owner shall prepare and maintain a compliance document. The compliance document will be available at the generation facility or energy storage facility site. The compliance document will show:

4.5.1 Where data required by the GA and ESS Logbook Standards are recorded and maintained;

4.5.2 How data are recorded and maintained (*e.g.*, hard copy or electronic);

4.5.3 Any necessary format or presentation protocols that must be understood to decipher the meaning of the electronically or manually maintained data; and

4.5.4 Anything else reasonably necessary to fulfill or demonstrate compliance with the GA and ESS Logbook Standards.

4.6 ELECTRONIC DATABASE MINIMUM REQUIREMENTS

GAs and ESSs which are in the planning stage on the effective date of this subsection, and all future GAs and ESSs, shall employ electronic database systems for maintaining GA and ESS logbooks, and such systems shall meet the following minimum requirements. When logbooks are updated at an existing GA or ESS site to include electronic database systems, the logbook systems shall meet the following minimum requirements. The minimum requirements are that the logbook electronic database systems are:

4.6.1 Electronically searchable; and

4.6.2 Secure (*i.e.,* changes are tracked and documented).

5.0 HYDROELECTRIC ENERGY LOGBOOK STANDARDS

5.1 REQUIRED LOGBOOKS

Unless exempted, all GA Owners shall maintain facility logbooks in conformance with the Hydroelectric Energy Logbook Standards for those GAs generating electricity by the use of hydroelectric energy.

5.2 EXEMPTION

Locally-controlled generating assets smaller than 50 megawatts are exempt from the entirety of this Section 5.0. Notwithstanding this exemption, each locally-controlled GA of one megawatt or larger is required to maintain a reasonable log of operations and maintenance in a manner consistent with prudent industry practice. Switching centers that control 50 megawatts or more do not fall under this exemption and must keep logbooks concerning

switching center operations for all remotely-controlled GAs of one megawatt or larger.

5.3 VERIFIED STATEMENT

For each nonexempt GA, the GA Owner shall file one original verified statement with the Director of the Commission's SED. The verified statement shall include at least the following:

5.3.1 The identity of the GA owned by an electrical corporation or located in California (with relevant identification and contact information);

5.3.2 Confirmation that the facility is maintaining logbooks in conformance with the Hydroelectric Energy Logbook Standards;

5.3.3 Confirmation that the compliance document required by Subsection 5.5 has been prepared and is available at the generation facility site or remote control or switching center;

5.3.4 Confirmation that logbooks and the compliance document are being and will be updated and maintained as necessary; and

5.3.5 Signature, name, title, address, telephone number, electronic mail address, and other relevant information regarding the authorized representative of the Generating Asset Owner.

5.4 TIME OF FILING FOR NEW OR ACQUIRED ASSETS

For each GA placed in Active Service after the effective date of this General Order, the GA Owner shall file the Verified Statement within 30 days of the GA being placed in Active Service. When a GA Owner acquires a GA from an existing GA Owner, the new owner shall file a verified statement within 30 days of the effective date of the transfer of title or within 30 days of the transfer of possession, whichever date is later.

5.5 COMPLIANCE DOCUMENT

Each GA Owner shall prepare and maintain a compliance document. The compliance document will be available at the generation facility site or remote control or switching center. The compliance document will show:

5.5.1 Where data required by the Hydroelectric Energy Logbook Standards are recorded and maintained;

5.5.2 How data are recorded and maintained (*e.g.,* hard copy or electronic);

5.5.3 Any necessary format or presentation protocols that must be understood to decipher the meaning of the electronically or manually maintained data; and

5.5.4 Anything else reasonably necessary to fulfill or demonstrate compliance with the Hydroelectric Energy Logbook Standards.

6.0 GENERATING ASSET AND ENERGY STORAGE SYSTEM MAINTENANCE STANDARDS

6.1 APPLICABILITY OF STANDARDS

All GA and ESS Owners shall maintain their GAs or ESSs in compliance with the GA and ESS Maintenance Standards ("Maintenance Standards"). Guidelines on how a Generating Asset Owner may comply are available from SED.

6.2 MAINTENANCE PLAN

6.2.1 CONTENTS

A Maintenance Plan is a paper or electronic document that shows how the GA or ESS Owner's maintenance practices and policies comply with each Maintenance Standard for each GA or ESS. The Maintenance Plan may be in the form of a narrative, index, spreadsheet, database, web site, or other. The Maintenance Plan shall specifically identify the procedures and criteria that are used to comply with each Maintenance Standard. Existing equipment manuals, checklists, warranty requirements, and other documents may be identified to demonstrate compliance. If any of these documents are contradictory, the Maintenance Plan should resolve the contradiction. Where the GA or ESS Owner maintenance does not satisfy a Maintenance Standard, the Maintenance Plan shall show how and when maintenance will be brought into compliance.

6.2.2 AVAILABILITY

The current Maintenance Plan for each GA or ESS will be available in the vicinity of each GA or ESS, in the case of a plant or facility with multiple Generating Assets or ESSs, in the central business office located at that plant or facility. Upon SED's request, a GA or ESS Owner shall submit the current Maintenance Plan (or requested portion thereof) to SED in the manner specified in Subsection 14.2 of this General Order.

6.2.3 INITIAL CERTIFICATION

The GA or ESS Owner shall file an Initial Certification with SED that certifies either:

6.2.3.1 COMPLIANCE

The GA or ESS Owner has adopted and is implementing a Maintenance Plan that complies with all GA and ESS Maintenance Standards, or

6.2.3.2 NONCOMPLIANCE

The GA or ESS Owner has (a) identified and documented deficiencies in its maintenance practices and policies, and (b) adopted a course of corrective actions that is reasonably designed to achieve compliance with the GA and ESS Maintenance Standards within 180 days of the date of Initial Certification.

6.2.4 FILING DATE FOR INITIAL CERTIFICATION

6.2.4.1 TIME OF FILING FOR ASSETS IN ACTIVE SERVICE BEFORE THE EFFECTIVE DATE OF GO 167-C

For each GA or ESS in Active Service before the effective date of this General Order, the GA or ESS Owner shall file the Initial Certification within 180 days of such effective date.

6.2.4.2 TIME OF FILING FOR NEW OR ACQUIRED ASSETS

For each GA or ESS placed in Active Service after the effective date of this General Order, the GA or ESS Owner shall file the Initial Certification within 180 days of such effective date of GO 167-C or 90 days of the GA or ESS being placed in Active Service, whichever date is later. When a GA or ESS Owner acquires a GA or ESS from an existing GA or ESS Owner, the new owner shall file its Initial Certification within 180 days of the effective date of GO 167-C, 90 days of the effective date of the transfer of title, or within 90 days of the transfer of possession, whichever date is later.

6.3 MAINTENANCE PLAN SUMMARY

6.3.1 CONTENTS

A Maintenance Plan Summary is a paper or electronic document that summarizes the Maintenance Plan. It shall summarize how the

GA or ESS Owner's maintenance complies with each Maintenance Standard. It shall be in the format and include the content elements specified by the Commission's Executive Director. Where the GA or ESS Owner's maintenance does not satisfy a Maintenance Standard, the Maintenance Plan Summary shall summarize how and when maintenance will be brought into compliance.

6.3.2 FILING DATE

6.3.2.1 FILING DATE FOR ASSETS IN ACTIVE SERVICE BEFORE THE EFFECTIVE DATE OF GO 167-C

Each GA or ESS in Active Service before the effective date of this General Order shall file the Maintenance Plan Summary at the same time as it files its Initial Certification.

6.3.2.2 FILING DATE FOR NEW OR ACQUIRED ASSETS

For each GA or ESS placed in Active Service after the effective date of this General Order, the GA or ESS Owner shall file the Maintenance Plan Summary at the same time as it files its Initial Certification. When a GA or ESS Owner acquires a GA or ESS from an existing GA or ESS Owner, the new owner shall file its Maintenance Plan Summary at the same time it files its Initial Certification.

6.3.2.3 UPDATES FOR ASSETS IN ACTIVE SERVICE

The Maintenance Plan Summary shall be updated and refiled with SED every other year pursuant to a schedule to be determined by SED.

6.4 EXEMPTION

GAs or ESSs smaller than 50 megawatts are exempt from the entirety of Section 6.0. Each facility's capacity shall be determined by summing the nameplate capacities of all units of the GA and/or ESS of the facility utilizing the same meter. Notwithstanding this exemption, GAs or ESSs one megawatt or larger but smaller than 50 megawatts are required to observe the following requirements:

6.4.1 Each facility shall be operated in a safe, reliable, and efficient manner that reasonably protects the public health and safety of California residents, businesses, and the community;

6.4.2 Each facility shall be operated so as to be reasonably available to meet the demand for electricity, and promote electric supply system reliability, in a manner consistent with prudent industry practice; and

6.4.3 Each facility shall be operated in a reasonable and prudent manner consistent with industry standards while satisfying the legislative finding that each facility is an essential facility providing a critical and essential good to the California public.

7.0 GENERATING ASSET AND ENERGY STORAGE SYSTEM OPERATION STANDARDS

7.1 APPLICABILITY OF STANDARDS

All GA or ESS Owners shall operate their Generating Assets and ESSs in compliance with the GA and ESS Operation Standards.

7.2 OPERATION PLAN

7.2.1 CONTENTS

An Operation Plan is a paper or electronic document that shows how the GA or ESS Owner's operation practices and policies comply with each Operation Standard for each GA or ESSs. The Operation Plan may be in the form of a narrative, index, spreadsheet, database, web site, or other. The Operation Plan shall specifically identify the procedures and criteria that are used to comply with each Operation Standard. Existing equipment manuals, checklists, warranty requirements, and other documents may be identified to demonstrate compliance. If any of these documents are contradictory, the Operation Plan should resolve the contradiction. Where the GA or ESS Owner's operation does not satisfy an Operation Standard, the Operation Plan shall show how and when operation will be brought into compliance.

7.2.2 AVAILABILITY

The current Operation Plan for each GA or ESS will be available for each GA or ESS or, in the case of a plant or facility with multiple GA or ESSs, in the central business office. Upon SED's request, a GA or ESS Owner shall submit the most current copy of the Operation Plan (or requested portion thereof) to SED in the manner specified in subsection 14.2 of this General Order.

7.2.3 INITIAL CERTIFICATION

The GA or ESS Owner shall file an Initial Certification with SED that certifies either:

7.2.3.1 COMPLIANCE

The GA or ESS Owner has adopted and is implementing an Operation Plan that complies with all GA and ESS Operation Standards, or

7.2.3.2 NONCOMPLIANCE

The GA or ESS Owner has (a) identified and documented deficiencies in its operation practices and policies, and (b) adopted a course of corrective actions that is reasonably designed to achieve compliance with the GA and ESS Operation Standards within 180 days of the date of Initial Certification.

7.2.4 FILING DATE FOR INITIAL CERTIFICATION

7.2.4.1 FILING DATE FOR ASSETS IN ACTIVE SERVICE BEFORE THE EFFECTIVE DATE OF GO 167-C

For each GA or ESS In Active Service before the effective date of this General Order, the GAO or ESSO shall file the Initial Certification within 180 days of the effective date.

7.2.4.2 FILING DATE FOR NEW OR ACQUIRED ASSETS

For each GA or ESS placed in Active Service after the effective date of this General Order, the GA or ESS Owner shall file the Initial Certification within 180 days of such effective date of GO 167-C or 90 days of the GA or ESS being placed in Active Service, whichever date is later. When a GA or ESS Owner acquires a GA or ESS from an existing GA or ESS Owner acquires an ESS from an existing Owner, the new owner shall file its Initial Certification within 180 days of the effective date of GO 167-C, 90 days of the effective date of the transfer of title, or within 90 days of the transfer of possession, whichever date is later.

7.3 OPERATION PLAN SUMMARY

7.3.1 CONTENTS

An Operation Plan Summary is a paper or electronic document that summarizes the Operation Plan. It shall summarize how the GA or ESS Owner's operation complies with each Operation Standard. It shall be in the format and include the content elements specified by the Commission's Executive Director. Where the GA or ESS Owner's operation does not satisfy an Operation Standard, the Operation Plan Summary shall summarize how and when operation will be brought into compliance.

7.3.2 FILING DATE

7.3.2.1 FILING DATE FOR ASSETS IN ACTIVE SERVICE BEFORE THE EFFECTIVE DATE OF GO-167-C

Each GA or ESS in Active Service before the effective date of this General Order shall file the Operation Plan Summary at same time as it files its Initial Certification.

7.3.2.2 FILING DATE FOR NEW OR ACQUIRED ASSETS

For each GA or ESS placed in Active Service after the effective date of this General Order, the GA or ESS Owner shall file the Operation Plan Summary at the same time as it files its Initial Certification. When a GA or ESS Owner acquires a GA or ESS from an existing GA or ESS Owner, the new owner shall file its Operation Plan Summary at the same time it files its Initial Certification.

7.3.2.3 UPDATES FOR ASSETS IN ACTIVE SERVICE

For each GA or ESS in Active Service, the GA or ESS Owner shall update the Operation Plan Summary and refile with SED every other year pursuant to a schedule to be determined by SED.

7.4 EXEMPTION

GAs or ESSs smaller than 50 megawatts are exempt from the entirety of Section 7.0. Notwithstanding this exemption, generating assets and Energy Systems one megawatt or larger and smaller than 50 megawatts are required to observe the following requirements:

7.4.1 Each facility shall be operated in a safe, reliable, and efficient manner that reasonably protects the public health and safety of California residents, businesses, and the community;

7.4.2 Each facility shall be operated so as to be reasonably available to meet the demand for electricity, and promote electric supply system reliability, in a manner consistent with prudent industry practice; and

7.4.3 Each facility shall be operated in a reasonable and prudent manner consistent with industry standards while satisfying the legislative finding that each facility is an essential facility providing a critical and essential good to the California public.

8.0 INDEPENDENT SYSTEM OPERATOR (ISO) OUTAGE COORDINATION PROTOCOL

8.1 COMPLIANCE

All GA and ESS Owners shall comply with the Outage Coordination Protocol adopted by the California Independent System Operator.

9.0 INFORMATION REQUIREMENTS

9.1 PROVISION OF INFORMATION

Upon SED's request, a GA or ESS Owner shall provide information in writing concerning (a) a GA or ESS; (b) the operation or maintenance of the GA or ESS; (c) the Initial Certification, Recertification, Corrective Plan, or Notice of Material Change pertaining to the GA or ESS; (d) any Maintenance, Operation, or Corrective Plans pertaining to the GA or ESS; (e) the design, performance, or history of a GA or ESS; (f) event or outage data concerning a GA or ESS including, but not limited to, unavailability reports or outage cause reports; (g) accounts, books, contracts, memoranda, papers, records, inspection reports of government agencies or other persons; and (h) any other documents or materials. These information requests shall be reasonably related to the requirements of this General Order. If SED has indicated when, where, and in what form the information is to be provided, the GA or ESS Owner will provide the information in that manner and will otherwise cooperate with SED in the provision of information. Except for an exigent circumstance, a minimum of five business days will be provided for the response. If SED determines the existence of an exigent circumstance, SED may establish a shorter response period for information reasonably required for SED to understand or respond to the exigent circumstance.

9.2 AUTHORIZATION FOR RELEASE OF INFORMATION

Upon SED's request, a GA or ESS Owner shall authorize governmental agencies to release and provide directly to SED any information in that agency or entity's possession regarding the operation or maintenance of that GA or ESS Owner's GA or ESS. To the extent such agencies have designated information as confidential, SED will not disclose that information to the public unless (a) SED has been authorized by that agency or entity to disclose the information; (b) the Commission orders or permits disclosure; or (c) a court of competent jurisdiction orders or permits disclosure. Where appropriate, the Commission may enter into a confidentiality agreement with such agency. Upon SED's request, a GA or ESS Owner shall authorize other persons or entities to release and provide directly to SED any information in the possession of that person or entity regarding the operation or maintenance of that GA Owner's GA or ESS Owner's ESS, in which case the GA or ESS Owner may make a claim of confidentiality pursuant to Subsection 14.4 of this General Order.

9.3 GENERATING ASSET AND ENERGY STORAGE SYSTEM INFORMATION

A GA or ESS Owner's obligations to provide or authorize the release of information specified in Subsections 9.1 and 9.2 include, but are not limited by, the following specific requirements concerning GAs and ESSs:

9.3.1 OUTAGE REPORT TO CALIFORNIA INDEPENDENT SYSTEM OPERATOR (CAISO)

As required by Pub. Util. Code § 761.3 (e), each GA or ESS Owner owning or operating a GA or ESS in California shall provide an outage report to the ISO that identifies any periods when the generating or storage facility is unavailable to produce or discharge electricity or is available only at reduced capacity. The report shall also identify the reasons for any such unscheduled unavailability or reduced capacity.

9.3.2 SUBMISSION OF INFORMATION TO NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION (NERC)

Except for Generating Assets or ESSs for which NERC does not accept data, each GA or ESS Owner shall submit design, performance, and event data to NERC for inclusion in GADS. Within the categories of data that NERC accepts, SED may specify the data the GA or ESS Owner must submit to NERC. If requested by SED, a GA or ESS Owner shall concurrently provide

SED with a copy of all data submitted to NERC for inclusion in GADS.

9.3.3 COMPARABLE DATA AVAILABILITY

If upon the effective date of this General Order, a GA or ESS Owner has not submitted design, performance, or event data concerning a GA or ESS to NERC for inclusion in GADS, the GA or ESS Owner shall make available comparable data to SED. Upon SED's request, the GA or ESS Owner shall provide comparable data directly to SED until the GA or ESS Owner begins to submit that information to NERC and the information becomes available to SED.

9.3.4 HISTORICAL INFORMATION

Upon SED's request and for any period after January 1, 1998, a GA or ESS Owner shall provide SED and/or NERC with design, performance, or event data concerning the GA or ESS.

9.3.5 NUCLEAR FACILITY DATA

9.3.5.1 As required by Pub. Util. Code § 761.3(c)(1)(B), each GA Owner who owns or operates a nuclear-powered generating facility shall file with SED an annual schedule of maintenance, including repairs and upgrades, for each generating facility. The annual schedule of maintenance shall be filed with SED by October 15th for the maintenance scheduled for the following calendar year and shall be updated quarterly thereafter on the fifteenth (15th) day of each January, April, and July. The first such schedule shall be filed by October 15, 2005. The filing with SED shall be the same as the filing with the ISO (pursuant to the ISO's Outage Coordination Protocol or other ISO requirement) or, if different, shall clearly indicate that it is different and briefly summarize the differences. The owner or operator of a nuclear-powered generation facility shall make good faith efforts to conduct its maintenance in compliance with its filed plan and shall report to the ISO any significant variations from its filed plan.

9.3.5.2 As required by Pub. Util. Code § 761.3(c)(1)(C), each GA Owner who owns or operates a nuclear-powered generating facility shall report on a monthly basis to

SED all actual planned and unplanned outages of each facility during the preceding month. The report shall be filed with SED by the 10th day of each month for the period covering the immediately prior month (*e.g.,* filed by September 10th for outages in August), with the first report filed by September 10, 2005. The filing with SED shall be the same as the filing with the ISO (pursuant to the ISO's Outage Coordination Protocol, or other ISO requirement) or, if different, shall clearly indicate that it is different and briefly summarize the differences. The owner or operator of a nuclear-powered generating facility shall report on a daily basis to the ISO the daily operational status and availability of each facility.

9.3.6 QUALIFYING FACILITY DATA

Pursuant to Pub. Util. Code § 761.3(c)(2)(B):

9.3.6.1 An electrical corporation that has a contract with a qualifying small power production facility, or a qualifying cogeneration facility, with a name plate rating of 10 megawatts or greater, shall report the information specified below (§ 9.3.6.4) to SED. The specified information shall be reported by the electrical corporation only if the information is provided to the electrical corporation by the qualifying facility pursuant to a contract.

9.3.6.2 Each qualifying facility with a name plate rating of 10 megawatts or greater shall report the information specified below (§ 9.3.6.4) directly to the ISO if the information is not provided to an electrical corporation by the qualifying facility pursuant to a contract with the electrical corporation.

9.3.6.3 Each electrical corporation shall file a report with SED and ISO by the thirty-first (31st) day of March covering the period of the immediately prior calendar year (*e.g.,* January 1 through December 31). The first report shall be filed by March 31, 2006, and be updated annually thereafter on each subsequent thirty-first (31st) day of March. The report shall list each qualifying facility with which the electrical corporation had a contract for

part or all of the prior calendar year. The list shall identify whether or not the information specified below (§ 9.3.6.4) was provided by the qualifying facility to the electrical corporation pursuant to a contract. If so, the electrical corporation shall include the specified information in its report. If not, the electrical corporation need not provide the specified information in its report, but the qualifying facility shall provide the information directly to the ISO. On the same day the report is filed with SED, the electrical corporation shall serve a copy of its report on each qualifying facility which it determines did not provide the specified information pursuant to a contract along with a cover letter. The cover letter shall inform the qualifying facility that the qualifying facility must provide the data specified below (§ 9.3.6.4) directly to the ISO pursuant to Pub. Util. Code § 761.3(c)(2)(B), or pursue the matter with the electrical corporation within 30 days of the date of the letter.

9.3.6.4 Specified Information: The maintenance schedules for each qualifying facility, including all actual planned and unplanned outages of the qualifying facility, and the daily operational status and availability of the qualifying facility.

9.4 SAFETY-RELATED INCIDENTS

Within 24 hours of its occurrence, a GAO or ESSO shall report to the Commission's emergency reporting website any safety-related incident involving a GA or ESS. If internet access is unavailable, the GAO or ESSO may report using the backup telephone system. Such reporting shall include any incident that has resulted in death to a person; an injury or illness to a person requiring overnight hospitalization; a report to Cal/OSHA, OSHA, or other regulatory agency; or damage to the property of the GAO or ESSO or another person of more than $200,000, or involves a GA or ESS malfunction or failure resulting in fires, explosions, hazardous emissions, or safety related reports to other agencies. The GAO or ESSO shall also report any other incident involving a GA or ESS that has resulted in significant negative media coverage (resulting in a news story or editorial from one media outlet with a circulation or audience of 50,000 or more persons) when the GAO or ESSO has actual knowledge of the media coverage. If not initially provided, a written report also will be submitted within five business days of the incident. The report will include copies of any reports

concerning the incident that have been submitted to other governmental agencies.

10.0 AUDITS, INSPECTIONS, AND INVESTIGATIONS

10.1 GENERAL REQUIREMENT

A GA or ESS Owner shall cooperate with SED during any audit, inspection, or investigation (including but not limited to tests, technical evaluations, and physical access to facilities). An audit, inspection, or investigation may extend to any records pertaining to the specifications, warranties, logbooks, operations, or maintenance of the GA or ESS. GA and ESS Owners as entities subject to ongoing regulation under this General Order, are hereby notified that these audits, inspections, or investigations will occur on a regular, systematic, and recurring basis supplemented as needed by additional audits, inspections, or investigations to ensure compliance with this General Order.

10.2 INTERVIEWS AND TESTIMONY

Upon SED's request, a GA or ESS Owner, its employees, and its contractors shall provide testimony under oath or submit to interviews concerning a GA or ESS, its specifications, warranties, logbooks, operations, or maintenance.

10.3 TESTS AND TECHNICAL EVALUATIONS

Upon SED's request, a GA or ESS Owner shall conduct a test or technical evaluation of a GA or ESS (or shall contract with an auditor, consultant, or other expert, mutually selected by SED and the GA or ESS Owner, to conduct the test or technical evaluation) so as to provide information reasonably necessary for determining compliance with the Standards enforced by this General Order. The GA or ESS Owner will pay all costs and liabilities resulting from such tests or technical evaluations, except for SED's own staff expenses. If a test or technical evaluation may reasonably result in the reduced or suspended generation from a GA or ESS, the GA or ESS Owner shall notify CAISO as soon as the GA or ESS Owner becomes aware of the test or technical evaluation. To the extent feasible, Commission staff shall schedule such tests or evaluations to minimize generation disruptions and shall, as appropriate, coordinate its activities with CAISO.

10.4 PRESERVATION OF RECORDS

A GA or ESS Owner shall retain all records including logbooks, whether in paper or electronic format, concerning the operation and maintenance of a GA or ESS for five years. Any subsequent modification to a record must show the original entry, the modified entry, the date of the modification, the person who made or authorized the modification, and the reason for the modification.

10.5 THIRD-PARTY AUDITS, TESTS, OR TECHNICAL EVALUATIONS

During an audit, test, or technical evaluation conducted under this Section 10.0, a GA or ESS Owner may submit, or authorize access to, audits, contractual or other tests, inspections, or technical evaluations previously performed by government agencies, insurance companies, or other persons or entities. While this third-party information may be relevant to the inquiry, the information may not be sufficient, in and of itself, to demonstrate compliance with the standards. SED will determine whether a third-party audit, test, inspection, or technical evaluation is sufficient for the purposes of this Section 10.0.

11.0 VIOLATIONS

11.1 VIOLATION

A violation is the failure of a GA or ESS Owner to comply with a requirement of this General Order. A GA or ESS Owner's lawful and reasonable assertion of its rights under this General Order or state or federal law will not be considered a failure to cooperate under any provision of this General Order.

11.2 RETALIATION

Any adverse action, as that term has been used and applied under Title VII of the Civil Rights Act, 42 U.S.C. § 2000e *et seq.* or the California Fair Employment and Housing Act, Gov. Code § 12940 et seq., taken by a GA or ESS Owner against an officer, employee, agent, contractor, subcontractor, or customer of a GA or ESS Owner for reporting a Violation of the Standards, reporting a Violation of this General Order, or providing information during the course of an audit, inspection, or investigation is also a Violation of this General Order.

12.0 COMMISSION PROCEEDINGS

12.1 FORMAL ENFORCEMENT PROCEEDINGS

In responding to alleged Violations of this General Order, the Commission may initiate any formal proceeding authorized by the California Constitution, the Pub. Util. Code, other state and federal statutes, court decisions or decrees, the Commission's Rules of Practice and Procedure, or prior Commission decisions or rulings.

12.2 OTHER COMMISSION REMEDIES

In enforcing the provisions of this General Order, the Commission may pursue any other remedy authorized by the California Constitution, the Pub.

Util. Code, other state or federal statutes, court decisions or decrees, or otherwise by law or in equity.

12.3 IMPOSITION OF FINES FOR VIOLATIONS

12.3.1 VIOLATIONS

For Violations of this General Order, the Director of SED and his/her designee may assess a scheduled fine or, in the alternative, proceed with any remedy otherwise available to SED or the Commission. For any violation of this General Order, citations may be issued pursuant to Pub. Util. Code Section 2111 or other applicable authority, following the processes and procedures of the Commission's electric citation program, as set forth in Decision (D.) 14-12-001 as modified by D.16-09-55 and D.18-05-023, or its successor. SED shall notify the GA or ESS Owner, in writing, of any Violations and assessed fines, and shall include notice of the right to contest the fine.

12.3.2 EX PARTE COMMUNICATIONS

From the date that SED issues a citation to and including the date when the final order is issued, neither the GA or ESS Owner, nor SED staff, or any agent or other person acting on behalf of the GA or ESS Owner, or SED, may communicate regarding the appeal, orally or in writing, with a Commissioner, Commissioner's advisor, or Administrative Law Judge, except as expressly permitted under these procedures.

13.0 SANCTIONS

13.1 SANCTIONS

Consistent with prior Commission decisions, the following factors will be considered in determining the sanctions to be imposed against a GA or ESS Owner for violating this General Order:

13.1.1 The diligence and reasonableness demonstrated by the GA or ESS Owner in attempting to prevent a Violation, in detecting a Violation, in disclosing a Violation to SED and other requisite government agencies, and in rectifying a Violation;

13.1.2 The seriousness of the Violation in terms of injury, if any, to persons, property, and the integrity of the regulatory process;

13.1.3 The number and seriousness of any prior Violations;

13.1.4 The GA or ESS Owner's financial resources;

13.1.5 The totality of the circumstances in furtherance of the public interest; and

13.1.6 Commission precedent.

13.2 MITIGATION OF SANCTIONS

The following factors may be considered as mitigation in considering the sanctions to be imposed for violating this General Order:

13.2.1 The GA or ESS Owner's demonstrated substantial compliance with any guidelines or other guidance issued by the Committee or the Executive Director concerning the Standards and requirements of this General Order.

13.2.2 Conflicting or competing requirements imposed on the GA or ESS Owner by other governmental agencies; warranty requirements; power contract requirements; or requirements imposed by the CAISO, NERC, or the Western Electricity Coordinating Council.

13.2.3 Penalties already imposed on the GA or ESS Owner by other governmental agencies, contracts, or other regulatory bodies for the same acts or omissions resulting in Violations of this General Order.

13.2.4 The GA or ESS Owner's demonstrated cooperation in assisting the Commission and SED in the enforcement of this General Order.

13.3 ENHANCEMENT OF SANCTIONS

The following enhancing factors may be considered in increasing the sanctions that would otherwise be imposed for violating this General Order:

13.3.1 The GA or ESS Owner's demonstrated substantial noncompliance with any guidelines or other guidance issued by SED or the Executive Director concerning the Standards and requirements of this General Order.

13.3.2 The GA or ESS Owner's repetitive violations of the Standards, Pub. Util. Code, or this General Order.

13.3.3 The GA or ESS Owner's violations of the Standards or this General Order have resulted in the failure to deliver electricity as scheduled by the ISO or in actual power outages.

13.3.4 The GA or ESS Owner's failure to report, as required, or cooperate with the Commission and SED in any investigation, audit, inspection, test, or technical evaluation.

13.3.5 The GA or ESS Owner's efforts to impede or frustrate SED in the enforcement of this General Order. A GA or ESS Owner's lawful and reasonable assertion of its rights under this General Order or state or federal law will not be used to enhance a sanction.

14.0 MISCELLANEOUS PROVISIONS

14.1 ONGOING REPORTING OBLIGATIONS

14.1.1 PERIODIC RECERTIFICATIONS

For each GA or ESS not exempted under Subsections 4.2, 5.2, 6.4, or 7.4, the GA or ESS Owner shall file a recertification that it continues to maintain logbooks as required under Sections 4.0 or 5.0 of this General Order and continues to implement a Maintenance Plan and an Operation Plan, as described in Sections 6.0. and 7.0. of this General Order, in a manner that complies with the GA and ESS Maintenance Standards and GA and ESS Operation Standards. The recertifications will be filed every other year pursuant to a schedule to be determined by SED.

14.1.2 NOTICE OF MATERIAL CHANGE

A GA or ESS Owner shall notify SED of (a) any previously unreported deficiency in its operation or maintenance practices (including logbook practices); or (b) any correction or amendment to the Initial Certification, Recertification, Maintenance Plan Summary or Operation Plan Summary pertaining to a GA or ESS that is required because of a material change in the operation or maintenance of the GA or ESS. A material change is a modification of the characteristics, operation, or maintenance of a GA or ESS when that change reasonably could be expected to significantly improve or degrade the reliability, output, or performance of the GA or ESS. The GA or ESS Owner shall file a Notice of Material Change within thirty (30) days of the known occurrence of the material change.

14.2 FILINGS AND SUBMISSIONS

All Certifications, Recertifications, Notices, or other submissions of information or data in response to Commission requests and the requirements of this General Order will be filed directly with SED, Electric Safety and Reliability Branch, at 505 Van Ness Avenue., San Francisco, CA 94102. Documents must be received by SED on the day they are due. In addition to or instead of paper filings, SED may require electronic submissions of all filings that can reasonably be created in that format.

14.3 OATH, AFFIRMATION OR VERIFICATION

Each formal filing with the Commission (*i.e.,* Certification, Recertification, Notice, Contest, Maintenance Plan Summary, Operation Plan Summary, Updates of Plan Summaries) will be under the written oath, affirmation, or verification of a corporate officer of the GA or ESS Owner.

14.4 CONFIDENTIALITY

All claims of confidentiality related to the implementation and enforcement of this General Order must be based on the provisions of this subsection.

14.4.1 BURDEN OF ESTABLISHING PRIVILEGE

A GA or ESS Owner has the burden of establishing any privilege that it claims regarding requested documents or information. A GA or ESS Owner has the right to claim an absolute statutory privilege, such as the attorney-client privilege, for information requested. If such a privilege applies, the GA or ESS is not required to provide such information to the Commission. However, the GA or ESS Owner must specify the statutory privilege applicable to particular information. A GA or ESS Owner may also assert a claim of privilege for documents or information provided to the Commission on a confidential basis, such as the trade secret privilege. In such cases, the GA or ESS Owner must assert the specific privilege(s) it believes the GA or ESS Owner and/or the Commission holds and why the document, or portion of document, should be withheld from public disclosure.

14.4.2 CONFIDENTIALITY CLAIMS REQUIRING BALANCING OF INTERESTS

If a confidentiality request is based on a privilege or exemption requiring a balancing of interests for and against disclosure, rather than on a statutory prohibition against disclosure or a privilege held by the GA or ESS Owner, the GA or ESS Owner must demonstrate why the public interest in an open process is clearly outweighed by the need to keep the material confidential. A GA or ESS Owner, which is a public utility, should not cite Pub. Util. Code § 583 as a sole basis for the Commission's nondisclosure of information since, as noted in D.91-12-019, § 583 does not create for a utility any privilege that may be asserted against the Commission's disclosure of information or designate any specific types of documents as confidential.

14.4.3 REQUIREMENTS

A GA or ESS Owner desiring confidential treatment of information provided to the Commission shall at a minimum:

14.4.3.1 Specifically indicate the information that the GA or ESS Owner wishes to be kept confidential, clearly marking each page, or portion of a page, for which confidential treatment is requested.

14.4.3.2 Identify the length of time the GA or ESS Owner believes the information should be kept confidential and provide a detailed justification for the proposed length of time. The business sensitivity of information generally declines over time and the balancing of interests for and against disclosure may change accordingly.

14.4.3.3 Identify any specific provision of state or federal law the GA or ESS Owner believes prohibits disclosure of the information for which it seeks confidential treatment and explain in detail the applicability of the law to that information.

14.4.3.4 Identify any specific privilege the GA or ESS Owner believes it holds and may assert to prevent disclosure of information and explain in detail the applicability of that law to the information for which confidential treatment is requested. For example, if a GA or ESS Owner asserts that information is subject to a trade secret privilege (Evidence Code § 1060 *et seq.*, the GA or ESS Owner must explain how the information fits the definition of a trade secret (*e.g.,* how the information provides the holder with economic value by virtue of its not being generally known to the public and what steps the GA or ESS Owner has taken to maintain the secrecy of the information.

14.4.3.5 Identify any specific privilege the GA or ESS Owner believes the Commission holds and may assert to prevent disclosure of information and explain in detail the applicability of that privilege to the information for which confidential treatment is requested. For example, if the privilege is one that involves a balancing of public interests for and against disclosure, such as the official information privilege in Evidence Code § 1040(b)(2), the GA or ESS Owner must demonstrate that the information at issue falls within the definition of official information and the Commission's disclosure

of the information is against the public interest because there is a necessity for preserving the confidentiality of the information that outweighs the necessity for disclosure in the interest of justice.

14.4.3.6 State whether the GA or ESS Owner would object if the information were disclosed in an aggregated format.

14.4.3.7 State whether and how the GA or ESS Owner keeps the information confidential and whether the information has ever been disclosed to a person other than an employee of the GA or ESS Owner.

14.4.4 DURATION OF CONFIDENTIALITY CLAIMS

A confidentiality claim, whether or not specifically acted upon by the Commission, expires on the earliest of the following dates: (a) at the end of the period specified by the GA or ESS Owner pursuant to Subsection 14.4.3.2; (b) at the end of a period specified in a specific Commission ruling or decision; or (c) two years after the claim was first asserted before the Commission. To reassert the confidentiality claim, the GA or ESS Owner must again satisfy the requirements of this Subsection 14.4 before the end of the confidentiality period. Staff may disclose information provided under a claim of confidentiality if the Commission has already authorized disclosure of that class of information.

14.5 DISCLOSURE TO OTHER AGENCIES

If the Commission provides any information to another governmental agency (whether in response to a request, subpoena, or on the Commission's own initiative), the Commission will ensure that the information is accompanied with a copy of any confidentiality claim that has been submitted pursuant to Subsection 14.4 of this General Order. Where appropriate, the Commission may enter into a confidentiality agreement with the other governmental agency. When the Commission obtains information indicating a possible violation of any federal, state, or local law, the Commission may provide that information to the appropriate governmental agency. Even though a claim of confidentiality has been made, the claim of confidentiality will not prevent the Commission from providing that information to the appropriate governmental agency.

14.6 COMPLIANCE WITH OTHER LAWS

Pursuant to California Pub. Util. Code § 761.3(d), enforcement of any Standard will not modify, delay, or abrogate any deadline, standard, rule or regulation that is adopted by a federal, state, or local agency for the

purposes of protecting public health or the environment including, but not limited to, any requirements imposed by the California Air Resources Board, an air pollution control district, or an air quality management district pursuant to Division 26 (commencing with section 39000) of the California Health and Safety Code.

14.7 DURATION OF STANDARDS

The Standards, as on file with the Commission will remain effective and enforceable by the Commission under this General Order. The Commission may amend the Standards in a rulemaking proceeding and enforce the Standards as amended, all in exercise of its responsibilities under the California Constitution, Pub. Util. Code, and this General Order.

14.8 EXTENSION OF TIME

For good cause shown, a GA or ESS Owner may request the extension of any deadline established in or pursuant to this General Order. The request must be in writing and submitted in advance of the deadline to the Executive Director or the Executive Director's designee. Pursuant to the request, the Executive Director may grant one or more extensions, if the Executive Director determines that a good and sufficient reason exists for the extension. The extension will specifically indicate its duration.

14.9 GUIDANCE

The Executive Director may promulgate forms, instructions, advisories, and other guidance to GA and ESS Owners aiding them in achieving compliance with this General Order.

14.10 SEVERABILITY

If a court of competent jurisdiction determines that any provision of this General Order is void or unenforceable, the Commission will continue to enforce the remainder of the General Order without reference to the void or unenforceable provision.

14.11 EFFECTIVE DATE

This General Order is effective on the third day following the mailing of the Commission's decision adopting this General Order. The initial Commission decision adopting this General Order was mailed on May 7, 2004, and the General Order became effective May 10, 2004. Changes to this General Order are effective immediately. This includes changes regarding Section 1.0 (Purpose), 2.0 (Definition/Acronyms), 3.0 (Required Compliance), Hydroelectric Energy Logbook Standards (Section 5.0 and Appendix B), 8.0 Independent System Operation (ISO) Outage Coordination Protocol, 9.0 (Information Requirements), 10.0 (Audits, Inspections, and Investigations), 11.0 (Violations, 12.0 (Commission Proceedings), 130. (Sanctions), and 14.0 (Miscellaneous

Provisions). GA and ESS Maintenance Standards and GA and ESS Operation Standards (Sections 6.0, 7.0, Appendix C and Appendix D are also effective immediately.

APPENDIX A
GENERATING ASSET AND
ENERGY STORAGE SYSTEM LOGBOOK STANDARDS

I. PURPOSE

The intent of this document is to define the requirements for facility logs for plants generating electricity by the use of thermal, solar, wind, geothermal energy, and energy storage systems.

II. GENERAL REQUIREMENTS

Each generating or energy storage facility shall maintain a Control Operator Log that contains the chronological history of the facility including detailed entries regarding the operations and maintenance of the facility. Where information is unit specific, information for each unit must be recorded and so identified.

The Control Operator Log is a formal record of real time operating events as well as the overall status of the GAs, ESSs, and auxiliary equipment under the purview of the Control Room Operator. The log shall also contain an accurate and concise record of important and/or unusual events involving operations, maintenance, water chemistry, safety, accidents affecting personnel, fires, contractor activities, environmental matters, and any other pertinent information concerning the operation of the facility. The log shall also record communications between the facility and outside entities including but not limited to the Independent System Operator (ISO), scheduling coordinators or headquarters facilities, regulators, environmental agencies, Cal OSHA, emergency responders or other agencies. The log shall be maintained notwithstanding and in addition to any other similar requirements that mandate that events be recorded. The Generating Asset Owner (GAO) or Energy Storage System Owner (ESSO) must collect and record all information specified in these standards. All such information must be readily available to operators, California Public Utilities Commission staff, and other authorized personnel at all times.

Notwithstanding the above, generators and energy storage resources may elect to record certain kinds of information in separate logs, as authorized by Exception 1, Exception 2, or Exception 3 below. The information specified in Exception 1 may be recorded in an Equipment Out of Service Log. Similarly, the information specified in Exception 2 may be recorded in a Work Authorization log. The information specified in Exception 3 may be recorded in the Work Order Management system or electronic database system for maintenance activities including corrective, preventive, and predictive maintenance. Information recorded in these separate logs need not be recorded in the Control Operator log.

All required logs entries shall be retained in hard copy, electronic format, or both for a minimum period of five (5) years from the date of the log entry. Each log entry shall start by recording the time of the event. The GAO or ESSO is responsible for maintaining the integrity of the generating asset or Energy Storage System facility logs.

III. LOGBOOK REQUIREMENTS

A. Thermal Generating Facilities

Each facility must record a Facility Status Entry at least once each calendar day. If practicable, the control operator shall make that entry at midnight; however, a facility may for operational reasons elect to make that entry at another time. In any case, the Facility Status Entry must be made at the same time each day, except when emergency conditions require a postponement. In the case of such emergency conditions, the entry for that day shall be made as soon as it is safe to do so.

Information in the Facility Status Entry shall include as applicable:

1) Unit status, if on-line, including:
   - Current megawatt (MW) load;
   - Generator Voltage (kV) and MVAR readings;
   - Fuel type and availability;
   - Dispatch instruction records;
   - For units equipped with Automatic Generation Control (AGC) or Automatic Dispatch System (ADS), the status of AGC or ADS equipment, including the availability of AGC or ADS, its operational status (on or off), and the normal range of output possible when the unit is operating under AGC or ADS;
   - Condenser water box differential pressures, condenser back pressure/vacuum readings, boiler, and pre-boiler water chemistry readings (if applicable); and
   - Status of environmental monitoring equipment.
2) Any unit MW output outages or restrictions (derates) including, but not limited to, reasons for and expected time/date of release (including the ISO outage ID number).
3) Status of any environmental constraints such as, but not limited to, total annual NOx allowable emissions vs. year-to-date total emissions or, for peaker plants, total allowable run time vs. current year to date actual run time.
4) Equipment out of service, including any equipment that has been isolated and prepared for an upcoming work authorization with particular emphasis on redundant equipment that if the primary equipment fails, will result in a load restriction or a unit trip (*see* Exception 1).
5) Any abnormal operating conditions.

6) Outstanding work authorizations which may be commonly referred to as clearances (*see* Exception 2) and outstanding maintenance activities (*see* Exception 3).
7) Status of any retention/waste basins.
8) Status of any water conditioning equipment such as facility demineralizers and in stream demineralizers.
9) The on-hand quantities of large consumables including distilled water, hydrogen, nitrogen and hypochlorite, if applicable.
10) Any other pertinent information regarding the status and reliability of the facility.

The first entry in the Control Operator Log at the start of a shift shall identify each operator on that shift and by some regular means distinguish his/her responsibilities (list in a regular order the identity of the Shift Supervisor(s), Control Operator(s), Assistant Control Operator(s) and Plant or Facility Equipment Operator(s)). This initial entry shall indicate that the crew has ascertained the plant or facility status through the shift turnover, review of the log and a check of the indications and alarms in the control room.

Events shall be logged chronologically as they occur. Significant entries will include the control operator's name at the end of the entry preceded by the name(s) of others involved in the activity.

The events recorded in the Control Operator log shall include, but are not limited to, the following:

1) Any changes to facility MW output (except when on AGC and ADS). The current load of the unit shall be recorded as well as the new target load and the reason for the load change including:
    a) As directed by the day ahead schedule;
    b) Deviations from the schedule as directed by a scheduling coordinator;
    c) Load reductions for scheduled equipment outages (cleaning condensers, pump repairs, etc.);
    d) ISO directions;
    e) Unplanned unit equipment problems (forced derates) including load restrictions for environmental causes;
    f) Reducing to minimum load; and
    g) Any other reason.
2) Starting and stopping of equipment and any associated abnormal conditions.
3) Significant operations and milestones in the process of major operations such as start-ups, shutdowns, and heat-treats.

4) During a unit start up, once on-line, each facility load increment released to the scheduling coordinator.
5) Each instance where a unit is placed on or removed from AGC, including a notation if the AGC limits are set for a different value than the normal AGC range for that unit.
6) Any changes to the future schedule for facility output.
7) Detailed account of unit trips including any known or suspected causes and remedial action taken.
8) Load limit position anytime it is placed at any value less than full load and reason for such action.
9) All operating information that affects, efficient, safe, and reliable operation, such as, but not limited to, pressure, temperature, volumetric flow, level, vibration, speed, amperage, and voltage.
10) Information regarding a derate related to weather.
11) All information related to planned outages or derates, including but not limited to communications with scheduling coordinators, headquarters, or the ISO regarding such outages (including requests to take an outage; and notification to the facility that such outages have been approved or denied), the nature of the work to be completed during the outage, initial and revised return-to-service dates, completion of milestones in such work, requests to the ISO or others for extension of such outages including the reason for that extension, and completion of such outages. All entries shall include the date, time, duration, reason or explanation and the identities of all involved.
12) All information related to forced outages or derates, including but not limited to communications with scheduling coordinators, headquarters, or the ISO regarding such outages; the nature of the problem; progress reports on further diagnosis of the problem or on ongoing repairs; estimated and revised return-to-service dates; the nature of any extended work to be completed during the outage; completion of milestones in such work; and completion of such outages. All entries shall include the date, time, duration, reason or explanation and the identities of all involved.
13) All work authorizations issued and released and the reason for such work.
14) Equipment placed in a not normal status.
15) Equipment declared out of service (OOS) including date and time of the initial OOS declaration.
16) Any current or potential fuel-supply problems.
17) Results of performance tests including, but not limited to, hotwell drop tests, turbine stop valve tests, DC lube oil pump test.

18) Equipment outages of environmentally sensitive equipment or environmental monitoring devices.
19) All out-of-limit water chemistry conditions including duration and remedial actions, as well as all boiler chemical feeds and boiler drum blowdowns where applicable.
20) Changes in equipment/systems' normal operating status such as, but not limited to, a suspected boiler tube leak, fouled condensers, a feedwater heater tube leak, excessive vibration, or overheating.
21) Detailed information regarding environmental limitations exceeded, including the date, time, duration, amount, and any known or suspected cause.
22) Detailed reports of observations related to transmission system or facility trouble involving frequency or voltage deviations.
23) Report of any industrial accident including all details of the incident and the names of all parties involved.
24) All other pertinent information concerning the operation of the facility including names of all individuals involved.

B. Renewable Generating Assets and Energy Storage Systems

Each GAO or ESSO must establish written protocols of logbook requirements for each facility (or "site") that address the facility's specific operating characteristics, which may be controlled by remote operating centers. A facility may be comprised of multiple units. An energy storage unit is one or more devices assembled together to store electrical energy and supply electrical energy selected loads at a future time. The GAO or ESSO logbook protocols should define logbook content and how frequently information should be recorded for safe and reliable operation. The protocol must specify all requirements in Appendix A, Section II: General Requirements.

1) Renewable Generating Assets and Energy Storage Systems Control Operator Log Requirements

The Control Operator Log consists of the facility status entry and the event entries and can be recorded by the facility operator and/or the remote operation center operator. The facility operator monitors and controls the operation of each GA and/or ESS facility. The remote operating center operator may monitor and control multiple facilities of renewable GAs and ESSs.

Each facility must record a Facility Status Entry in the Control Operator Log at least once each calendar day. The Facility Status must be made at the same time each day, except when emergency conditions require postponement. In the case of such emergency conditions, the entry for that day shall be made as soon as it is safe to do so.

The first entry in the Control Operator Log at the start of a shift shall identify each operator on that shift and by some regular means distinguish his/her responsibilities (list in a regular order the identity of the Shift Supervisor(s), Control Operator(s), Assistant Control Operator(s), and any other operation staff. This initial entry shall indicate that the crew has ascertained the plant or facility status through the shift turnover, review of the log, and a check of the indication and alarms in the control room.

Information in the Facility Status Entry shall include as applicable:

a) Facility status, including:
   - Current power (MW) and/or energy output (MWh);
   - Available capacity of the facility;
   - GA or ESS Voltage (kV) and VAR readings;
   - Dispatch instruction records;
   - For facilities equipped with AGC or ADS, the status of AGC or ADS equipment, including the availability of AGC or ADS, its operational status (on or off), and the normal range of output possible when the facility is operating under AGC or ADS; and
   - Status of environmental monitoring equipment.

b) Any facility (or site) MW output outages or restrictions (derates) including, but not limited to, reasons for and expected time/date of release (including the ISO outage ID number);
c) status of any environmental constraints such as, but not limited to, weather information or conditions, temperature, ambient derates, etc.;
d) Equipment out of service, including any equipment that has been isolated and prepared for an upcoming work authorization with particular emphasis on redundant equipment that if the primary equipment fails, will result in a load restriction or outage a facility trip (*See* Exception 1);
e) Any abnormal operating conditions affecting efficient, safe, or reliable operation;
f) Changes in equipment/systems' normal operating status such as, but not limited to, HVAC malfunction, leaks, equipment faults, connection/disconnection of equipment, loss of communications, triggered alarms, high equipment temperature alarms, equipment reset, etc.;
g) Outstanding work authorization which may be commonly referred to as clearances (*See* Exception 2);
h) For the ESS and not limited to:

i. Current charge and discharge capacity of the systems MW; and
ii. State of energy such as maximum usable energy the ESS can be charged of discharged (MWh); and charging/discharging status

i) Any other pertinent information regarding the status and reliability of the facility.

Event entries shall be logged chronologically as they occur. Significant entries will include the control operators' name at the end of the entry preceded by the name(s) of others involved in the activity.

The events recorded in the Control Operator Log shall include, but are not limited to, the following:

a) Any changes to the facility MW output (except when on AGC and ADS). The current load of the facility (or sites) shall be recorded as well as the new target load and the reason for the load change including:
   i. As directed by the day ahead schedule;
   ii. Deviations from the schedule as directed by a scheduling coordinator;
   iii. Load reduction for scheduled equipment outages;
   iv. ISO directions;
   v. Unplanned facility equipment problems (forced derates) including load restrictions for environmental causes;
   vi. Reducing to minimum load; and
   vii. Any other reason.
b) Significant operations and milestones in the process of major operations such as start-ups, shutdowns, and derates;
c) Each instance where a facility is placed on or removed from AGC, including a notation if the AGC, limits are set for a different value than the normal AGC, and the normal AGC range for those facilities;
d) Any changes to the future schedule for facility output;
e) Detailed accounts of significant equipment trips including any known or suspected causes and remedial actions taken;
f) Load limit position any time it is placed at any value less than full load and reason for such actions;
g) Abnormal operating issues on parameters affecting efficient, safe, and reliable operation;
h) All information related to forced outages or derates, including but not limited to, communications with scheduling coordinators,

headquarters, or the ISO regarding such outages, the nature of the problem; progress reports on further diagnosis of the problem or on ongoing repairs; estimated and revised return-to-service dates, the nature of any extended work to be completed during the outages; completion of milestones in such work; and the completion of such outages. All entries shall include the date, time, duration, reason or explanation and the identities of all involved;

i) All work authorizations issued and the reason for such work;
j) Equipment placed in a not normal status;
k) Equipment declared OOS including date and time of the initial OOS declaration;
l) Any current or potential energy source problems for ESS, an energy source may be electricity from the grid or a co-located or hybrid photovoltaic (PV), wind, or other electric generator;
m) Equipment outages of environmentally sensitive equipment or environmental monitoring devices. Environmentally sensitive equipment are components which are easily affected by external factors, such as weather conditions and/or atmospheric pollutants. These types of equipment can not only be impacted by these factors, but also pose a potential risk to the nearby environment and operations if it fails or is damaged;
n) The functional status of communication systems and supervisory Control Data Acquisition (SCADA) systems;
o) Record communication with internal and external entities;
p) Detailed information regarding environmental limitations exceeded, including the date, time, duration, amount, and any known or suspected cause;
q) Detailed reports of observations related to transmission system or facility trouble involving frequency or voltage deviations;
r) Report of any industrial accident including all details of the incident and the names of all parties involved; and
s) All other pertinent information concerning the operation of the facility including names of all individuals involved.

C. Exceptions

1) In lieu of logging equipment out of service (OOS) information in the facility status entry, an Equipment OOS Log may be utilized, at the discretion of the GAO or ESSO, to track equipment declared out of service. The work authorization program is intended to provide a safe work environment for current maintenance activities. If a delay is encountered in the repair process, the work authorization should be released, and the equipment declared OOS. If the OOS designation is

expected to be of short duration (five days or less), the OOS entry should be carried forward in the facility status Control Operator Log entry. If a longer period is anticipated, the OOS entry can be recorded in the OOS log to avoid carrying it forward repeatedly in the Control Operator Log. Information in the Equipment OOS Log shall include the following:

- Equipment description;
- Date declared OOS;
- Reason for being declared OOS;
- Estimated time for equipment to return to service;
- Name of person declaring equipment OOS;
- Maintenance order number or similar tracking mechanism;
- Contact person(s); and
- Date equipment returned to service.

2) In lieu of logging outstanding work authorizations in the plant status entry, a Work Authorization Logbook may be utilized, at the discretion of the GAO or ESSO, during periods of construction, overhauls, or major work; and contains work authorizations, commonly referred to as clearances issued, released, and associated with the special activity. All other entries pertaining to the special activity shall be entered in the Control Operator Log. Work authorization log entries do not need to be carried forward for each facility status but may remain for the duration of the special activity. Information in the Work Authorization Log shall include the following:

   - Date and time the clearance was issued;
   - Name of the Control Operator or Assistant Control Operator issuing the clearance;
   - Identification of clearance; and
   - Name of person the clearance is issued to.

3) In lieu of logging outstanding maintenance activities, a work order management system or electronic database system may be utilized at the discretion of the GAO or ESSO to track maintenance activities and status. This method of recordkeeping is intended to keep track of maintenance records according to maintenance requirements of original equipment manufacturers or industry best practices. Information in the work order management shall include the following but is not limited to:

   - Equipment issue;
   - Work order tracking number;
   - Date and time the work order was issued and completed;

- Names of persons who created, approved work orders and performed the work;
- Maintenance requirement (e.g., OEM recommendation, Non-Destructive Examination, Post heat treatment, etc.,);
- Maintenance activities performed;
- Parts and tools information;
- Job safety and environmental analysis information; and
- Permit information such as hot work, confined space entry, etc.

IV. GENERATING ASSETS AND ENERGY STORAGE SYSTEMS TO WHICH THESE STANDARDS ARE APPLICABLE

Generating Asset and Energy Storage System Logbook Standards are applicable to each facility that generates electric energy by the use of thermal, wind, solar, or other resources or stored energy owned by an electrical corporation or is located in California that is 50 MW or larger. GA and ESS Logbook Standards are not applicable in the following cases (*see* California Pub. Util. Code §§ 761.3 (c)(1)(A)761.3 (c)(2)(A).

1) Nuclear-powered generating facilities that are federally regulated and subject to standards developed by the Nuclear Regulatory Commission, and that participate as members of the Institute of Nuclear Power Operations.
2) Qualifying small power production facilities or qualifying cogeneration facilities within the meaning of §§ 201 and 210 of Title 11 of the federal Public Utility Regulatory Policies Act of 1978 (16 U.S.C. Secs. 796(17), 796(18), and 824a-3), and the regulations adopted pursuant to those sections by the Federal Energy Regulatory Commission (18 C.F.R. Secs. 292.101 to 292.602, inclusive).
3) Generation units installed, operated, and maintained at a customer site, exclusively to serve that customer's load. For the purposes of this General Order, ESS does not include distributed storage systems owned by individual Load Serving Entity (LSE) customers.
4) Facilities owned by a local publicly owned electric utility.
5) Any public agency that may generate electricity incidental to the provision of water or wastewater treatment.
6) Facilities owned by a city and county operating as a public utility, furnishing electric service as provided in California Pub. Util. Code § 10001.

Electrical corporation does not include electric plant:

a) Where electricity is generated on or distributed by the producer through private property solely for its own use or the use of its tenants and not for sale or transmission to others (California Pub. Util. Code § 218(a)),

b) Employing cogeneration technology or producing power from other than a conventional power source solely for one or more of three named purposes (California Pub. Util. Code § 218(b)),
c) Employing landfill gas technology for one or more of three named purposes (California Pub. Util. Code § 218(c)),
d) Employing digester gas technology for one or more of three named purposes (California Pub. Util. Code § 218(d)), and
e) Employing cogeneration technology or producing power from other than a conventional power source for the generation of electricity that physically produced electricity prior to January 1, 1989, and furnished that electricity to immediately adjacent real property for use thereon prior to January 1, 1989 (California Pub. Util. Code § 218(f)).

(END OF APPENDIX A)

APPENDIX B
HYDROELECTRIC ENERGY LOGBOOK STANDARDS

I. PURPOSE

The intent of this document is to define requirements for operation logs for attended and unattended hydroelectric generating facilities. These standards are intended to ensure that operating information associated with normal operation, maintenance, and abnormal activities are properly recorded and available for review and analysis by regulatory agencies.

II. GENERAL

Owners of hydroelectric generating facilities shall maintain logbooks or other data collection systems that contain the chronological, real-time operational history of the facilities. Logbooks shall include accurate and concise entries regarding the operations and maintenance of the facility and overall status of the generating units and auxiliary equipment. Logbooks shall be maintained at attended facilities, control centers for unattended facilities, and unattended facilities, as described more fully below.

Logbooks shall include, as appropriate, entries of important and/or unusual events relating to safety, accidents, environmental matters, and any other information pertinent to operations. Where information is unit specific, information for each unit must be recorded and so identified. Logbooks shall also contain entries noting operations and maintenance communications between the facility operator and outside entities, including but not limited to the Independent System Operator (ISO), scheduling coordinators or headquarters facilities, regulators, environmental agencies, CalOSHA or similar agencies. The logbooks shall be maintained notwithstanding and in addition to any other similar requirements that mandate that events be recorded.

Owners of hydroelectric generating facilities must collect and record, either through automated data collection systems, written logbooks, or both, all information specified in this standard. Such information must be readily available to operators, California Public Utilities Commission staff, and other authorized personnel at all times, and must be kept for a minimum period of five years from the date of collection. The owner of the hydroelectric facility is responsible for maintaining the integrity of the information collected and recorded. Any corrections to logbook entries shall be made in a manner that preserves the legibility or integrity of the original entry and identifies the date and time of the correction. Each utility (and facility) will maintain a list of any approved abbreviations used by operators in that utility (and that particular facility), along with a definition of each abbreviation.

III. REQUIRED INFORMATION

A. Attended Facilities and Control Centers for Unattended Facilities

Logbooks at attended facilities and control centers for unattended facilities shall be the chronological, real-time record of the operation and maintenance activities that occur either at the attended facility or the unattended facilities within the jurisdiction of the control center, respectively.

Information collected and recorded by automatic devices may be maintained separately and need not be entered in the logbook itself, provided that the information is available for review and shall be maintained in accordance with the standards set forth herein for the daily operations logbooks.

Each logbook shall consist of accurate, concise entries and shall contain at least the information specified below. To the extent any of the information below is not available to the control center operator, it shall be captured either by automated systems or recorded in the Unattended Facilities Log.

1) Orders and other communications received and transmitted by the operator, as appropriate, including but not limited to those from or to the Independent System Operator (ISO); scheduling coordinators, headquarters facilities and/or dispatchers; transmission operating centers; regulators; environmental agencies; CalOSHA; or similar agencies;
2) Actions taken by the operator to change load, derate the unit, or take the unit off line;
3) Operational data, including power production (load) levels, water flows, the availability and operation of AGC, and any generation limits applicable to AGC operation other than the normal limits specified in the Participating Generator Agreement with the California Independent System Operator;
4) Operation of system protection relays;
5) Water regulation (*e.g.,* downstream water requirements, FERC license requirements);
6) Unit separation and parallel times;
7) Clearances/Work authorizations;
8) Reporting on and off clearances;
9) Start and completion of switching operations;
10) The application, removal, moving, or change in location and/or number of grounding devices;
11) Site emergency activities; including but not limited to accidents, spills and earthquakes;
12) Trouble reports; including but not limited to those involving equipment failures and those from outside persons or entities;
13) Daily operations, including unit outages and deratings, Automatic Voltage Regulator/Power System Stabilizer operations, voltage operations, governor operations, and black-start operations, if applicable; and
14) Special system setups for hydraulic, mechanical, electrical or pneumatic systems.

Each entry shall include the time, location and description of event, including, as relevant, the equipment involved, loads and other readings, voltage orders, directed load changes, deviations from generation schedules, weather, annunciator alarms or other indications, relay target information including device number, limitations, notifications, and corrective actions. Entries noting communications between the operator and outside parties shall include the names of the people involved in the communication.

B. Unattended Facilities

Logbooks at unattended facilities shall be the chronological record of operation and maintenance activities that occur when personnel visit an unattended facility. Entries in logbooks at unattended facilities shall be made consecutively and shall include the following information, as applicable:

1) Time and date of entry and exit;
2) Name(s) of personnel entering/exiting the station;
3) Location of event;
4) Text description of event/reason for entering station;
5) All information pertinent to event, including but not limited to equipment involved, loads and other readings, voltage orders, directed load changes, deviations, weather, annunciator alarms or other indications, relay target information including device number, curtailments, limitations, notifications, corrective actions;
6) The application, removal, moving, or change in location and/or number of grounding devices;
7) Clearances/Work authorizations.

(END OF APPENDIX B)

APPENDIX C
MAINTENANCE STANDARDS FOR GENERATING ASSET AND ENERGY STORAGE SYSTEM OWNERS

Maintenance Standards (MS) 1 through 18 apply to each covered generating asset and energy storage system. (*See* GO 167, §§ 3 and 6.) A separate document containing guidelines may be obtained from the Commission's Safety and Enforcement Division (or successor entity). (*See* GO 167 § 14.2.) The guidelines are intended to assist each GAO and ESSO in determining how it may comply with these MS.

1. MS 1 – Safety

The protection of life and limb for the work force is paramount. The company behavior ensures that individuals at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority. The work environment, and the policies and procedures foster such a safety culture, and the attitudes and behaviors of individuals are consistent with the policies and procedures.

2. MS 2 - Organizational Structure and Responsibilities

The organization with responsibility and accountability for establishing and implementing a maintenance strategy to support company objectives for reliable facility operation is clearly defined, communicated, understood, and is effectively implemented. Reporting relationships, control of resources, and individual authorities support and are clearly defined and commensurate with responsibilities.

3. MS 3 – Maintenance Management and Leadership

Maintenance managers establish high standards of performance and align the maintenance organization to effectively implement and control maintenance activities.

4. MS 4 – Problem Resolution and Continuing Improvement

The company values and fosters an environment of continuous improvement, timely and effective problem resolution, and problem prevention. This can be accomplished by applying industry best practices, lessons learned, and proven safety measures for the safety and reliability of both the GA and ESS.

5. MS 5 - Maintenance Personnel Knowledge and Skills

Maintenance personnel are trained and qualified to possess and apply the knowledge and skills needed to perform maintenance activities that support safe and reliable facility operation.

6. MS 6 - Training Support

A systematic approach to training is used to achieve, improve, and maintain a high level of personnel knowledge, skill, and performance.

7. MS 7 – Balance of Maintenance Approach

The maintenance program includes the proper balance of the various approaches to maintenance, *e.g.*, preventive, predictive, or corrective. The approach is adequately documented with consideration of economics and reliability of equipment or components, and their effect on reliable operation of the unit. Operating experience is factored into the program. Maintenance procedures and documents should include the generation and/or ESS equipment, and all components owned and operated by the ESSO/GAO directly connected to the plant. All integral parts of delivering power to the grid (*e.g.* fuel supply systems, electrical switchyards, transmissions lines, control systems, penstocks, flumes, heating and cooling systems, exhaust system, communications systems, etc.) are included.

8. MS 8 – Maintenance Procedures and Documentation

Maintenance procedures and documents are clear and technically accurate, provide appropriate directions, and are used to support safe and reliable facility operation. Procedures must be current to the actual methods being employed to accomplish the task and are comprehensive to ensure reliable energy delivery to the transmission grid.

9. MS 9 – Conduct of Maintenance

Maintenance is conducted in an effective and efficient manner, so equipment performance and material condition effectively support reliable facility operation.

10. MS 10 – Work Management

Work is identified and selected based on priority to maintaining reliable facility operation. Work is planned, scheduled, coordinated, controlled, and supported with resources for safe, timely, and effective completion.

11. MS 11 – Facility Status and Configuration

Station activities are effectively managed, so facility status and configuration are maintained to support safe, reliable, and efficient operation.

12. MS 12 – Spare Parts, Material and Services

Correct parts and materials are in good condition and are available for maintenance activities to support both forced and planned outages. Procurement of services and materials for outages are completed on time to ensure materials will be available without impact to the schedule. Storage of parts and materials support maintaining quality and shelf life of parts and materials.

13. MS 13 - Equipment Performance and Material Condition

Equipment performance and material condition support reliable facility operation.

This is achieved using a strategy that includes methods to anticipate, prevent, identify, and promptly resolve equipment performance problems, corrosion, and degradation.

14. MS 14 – Engineering and Technical Support

Engineering and technical support activities are conducted such that equipment performance is optimized for reliable facility operation. Engineering and technical support implements industry best practices, lessons learned, proven safety measures, and technical information necessary for the facility to be operated and maintained within the operating parameters defined by facility design.

15. MS 15 – Chemistry Control

Chemistry controls optimize chemical conditions during all phases of facility operation and system non-operational periods.

16. MS 16 – Regulatory Requirements

Regulatory compliance is paramount in the operation of the facility. Each regulatory event is properly identified, reported and appropriate action is taken to prevent recurrence.

17. MS 17 – Equipment History

Maintenance standards or procedures clearly define requirements for equipment history for the systems and equipment, including, what information or data to collect, how to record data, and how the data are to be used.

18. MS 18 – Maintenance Facilities and Equipment

Facilities and equipment are adequate to effectively support maintenance activities.

(END OF APPENDIX C)

APPENDIX D
OPERATION STANDARDS FOR GENERATING ASSET AND ENERGY STORAGE SYSTEM OWNERS

Operating Standards (OS) 1 through 28 apply to each covered GA and ESS. (*See* GO 167, §§ 3 and 7.) A separate document containing guidelines may be obtained from the Commission's Safety and Enforcement Division (or successor entity). (*See* GO 167 § 14.2.) The guidelines are intended to assist each GA and ESS owner in determining how it may comply with these OS.

1. OS 1 - Safety

The protection of life and limb for the work force is paramount. GAOs and ESSOs have a comprehensive safety program in place at each site. The company's behavior ensures that personnel at all levels of the organization consider safety as the overriding priority. This is manifested in decisions and actions based on this priority. The work environment and the policies and procedures foster such a safety culture, and the attitudes and behaviors of personnel are consistent with the policies and procedures.

2. OS 2 - Organizational Structure and Responsibilities

The organization with responsibility and accountability for establishing and implementing an operation strategy to support company objectives for reliable facility operation is clearly defined, communicated, understood, and is effectively implemented. Reporting relationships, control of resources, and individual authorities support, are clearly defined, and commensurate with responsibilities.

3. OS 3 - Operations Management and Leadership

Operations management establishes high standards of performance and aligns the operations organization to effectively implement and control operations activities.

4. OS 4 - Problem Resolution and Continuing Improvement

The GAO and ESSO value and foster an environment of continuous improvement and timely and effective problem resolution.

5. OS 5 - Operations Personnel Knowledge and Skills

Operations personnel are trained and qualified to possess and apply the knowledge and skills needed to perform operations activities that support safe and reliable facility operation.

6. OS 6 - Training Support

A systematic approach to training is used to achieve, improve, and maintain a high level of personnel knowledge, skill, and performance. Each GAO and ESSO provides a site-specific training program including on-the-job training, covering operations, including reasonably anticipated abnormal and emergency operations. Personnel are trained to ensure safe and reliable facility operation.

7. OS 7 - Operation Procedures and Documentation

Operation step wise procedures exist for critical systems and the states of those systems are necessary for the operation of the unit including startup, shutdown, charging, discharging, normal operation, failure detection, alarm response, reasonably anticipated abnormal and emergency conditions, and restoration. Operation procedures and documents are clear and technically accurate, provide appropriate directions, and are used to support safe and reliable facility operation. Procedures are current to the actual methods being employed to accomplish the task and are comprehensive to ensure reliable energy delivery to the transmission grid. Procedure shall be reviewed annually to ensure current procedures are up-to-date and OEM recommendations are implemented.

8. OS 8 - Plant Status and Configuration

Facility activities are effectively managed, so the facility status and configuration are maintained to support safe, reliable, and efficient operation.

9. OS 9 - Engineering and Technical Support

Engineering activities are conducted such that equipment performance supports reliable facility operation. Engineering provides the technical information necessary for the facility to be operated and maintained within the operating parameters defined by facility design. Software is up-to-date for cyber security and routinely backed up for safety, reliability, and operational purposes. Engineering and technical staff provide support, when needed, to operations and maintenance groups to resolve operations and maintenance problems.

10. OS 10 - Environmental Regulatory Requirements

Environmental regulatory compliance is paramount in the operation of the facility. Each regulatory event is identified, reported and appropriate action taken to prevent recurrence.

11. OS 11 - Operations Facilities, Tools, and Equipment

Facilities and equipment are adequate to effectively support operations activities, including housekeeping, tool storage, and equipment storage. Physical separation such as, but not limited to, egress requirements, clearance for electrical equipment, and ESS equipment shall be maintained.

12. OS 12 - Operations Conduct

To ensure safety and optimize facility availability, the facility conducts operations systematically, professionally, and in accordance with approved policies and procedures. The facility takes responsibility for personnel actions, assigns personnel to tasks for which they are trained, and requires personnel to follow

facility and operation procedures and instructions while taking responsibility for safety. Among other things:

a) All personnel follow approved policies and procedures. Procedures are current and include a course of action to be employed when an adopted procedure is found to be deficient.
b) All operations are performed in a professional manner. Professional conduct applies throughout the facility site at all times.
c) All personnel on duty are trained, qualified, and capable of performing their job functions. Personnel are assigned only to duties for which they are properly trained and qualified.
d) Personnel take immediate actions to prevent or correct unsafe situations. Anyone shall have the right to stop work if they see an unsafe condition.

13. OS 13 - Routine Inspections

Routine inspections by facility personnel ensure that all areas and critical parameters of facility operations are continually monitored, equipment is operating normally, and that routine maintenance is being performed. Results of data collection and monitoring of parameters during routine inspections are utilized to identify and resolve problems, to improve facility operations, and to identify the need for maintenance. All personnel are trained in the routine inspection procedures relevant to their responsibilities. Among other things, each GAO or ESSO creates, maintains, and implements routine inspections by:

a) Identifying systems and components critical to system operation such as, but not limited to, those listed in the guidelines to Operating Standard 28.
b) Establishing procedures for routine inspections that define critical parameters of these systems, describe how those parameters are monitored, and delineate what action is taken when parameters meet alert or action levels.
c) Training personnel to conduct routine inspections.
d) Monitoring and conducting trend analysis from routine inspections.

14. OS 14 - Clearances

Work is performed on equipment only when safe. When necessary, equipment is taken out of service, de-energized, controlled, and locked-out and/or tagged-out in accordance with a clearance procedure. Personnel are trained in the clearance procedure and its use, and always verify that equipment is safe before any work proceeds. Among other things:

a) The GA or ESS Owner prepares and maintains a clearance procedure.
b) The clearance procedure contains requirements for removing a component from service and/or placing a component back into service.
c) The GA or ESS Owner ensures that personnel are trained in and follow the clearance procedure.

15. OS 15 - Communications and Work Order Meetings

The availability of the GA and/or ESS and safety of personnel is ensured during the execution of work orders by adequate communications and meetings, which may be scheduled or as needed, to review work plans with all affected personnel before work begins. Clear lines of communication exist between personnel responsible for operations, maintenance, and engineering groups. Among other things:

a) The GAO or ESSO prepares and maintains a procedure for review of work plans through communications and work order meetings at the facility.
b) Work is analyzed to determine what personnel, components, and systems are affected.
c) Affected personnel meet before work begins to define the work, identify safety issues, to minimize the impact on facility operation, and to determine the need for further meetings.
d) Personnel are trained in and follow the procedure.

16. OS 16 - Participation by Operations Personnel in Work Orders

Operations personnel identify potential system and equipment problems and initiate work orders necessary to correct system or equipment problems that may inhibit or prevent facility operations. Operations personnel monitor the progress of work orders affecting operations to ensure timely completion and closeout of the work orders, so that the components and systems are returned to service. Among other things:

a) Operations personnel identify problems requiring work orders, and initiate work orders to correct those problems.
b) The operations manager or other appropriate operating personnel periodically review work orders that affect operations to ensure timely completion and closeout of the work orders, so that components and systems are returned to service.
c) Personnel responsible for prioritizing work orders consult operations personnel to assure that work orders affecting the operations of the plant are properly prioritized.
d) Appropriate personnel are trained in and follow procedures applicable to work orders.

17. OS 17 - Records of Operation

The GAO or ESSO assures that data, reports, and other records reasonably necessary for ensuring proper operation and monitoring of the GA or ESS are collected by trained personnel and retained for at least five years, and longer if appropriate.

18. OS 18 - Unit Performance Testing

The GAO or ESSO conducts periodic performance tests as appropriate to identify trends and possible improvements in unit operation. The GAO or ESSO responds to test results with changes to equipment, policies, routines, or procedures necessary to maintain unit availability and the unit's ability to support grid operations consistent with the Unit Plan.

19. OS 19 - Emergency Grid Operations

The GAO or ESSO prepares for conditions that may be reasonably anticipated to occur during periods of stress or shortage on the state's electric grid. During such periods of stress or shortage, the GAO or ESSO makes operational decisions to maximize each unit's availability and ability to support grid operations. Among other things the GAO or ESSO:

a) Takes reasonable steps to maintain the ability to always communicate with the Control Area Operator.
b) In preparing for periods of stress or shortage, take steps to clarify the regulatory requirements, such as emissions, water discharge temperature, etc., which will apply during emergencies.
c) When emergencies appear imminent, seeks regulatory relief from those regulatory requirements that reduce output.
d) Assists the Control Area Operator in responding to the various kinds of possible problems on the electrical grid, including restoration of service after a disturbance.
e) ESSO prepares for periods of stress or shortage, by ensuring that availability is adequately monitored and maintained.
f) When practical, during periods of stress or shortage, consults with the Control Area Operator before derating a unit or taking a unit offline and defers outages and derates at the Control Area Operator's request when continued operation is:

    1. Possible and practical;
    2. Safe to facility personnel and to the public;
    3. In accordance with applicable law and regulations; and
    4. Will not cause major damage to the facility.

20. OS 20 - Preparedness for On-Site and Off-Site Emergencies

The GAO or ESSO plans for, prepares for, and responds to reasonably anticipated emergencies on and off the plant site, primarily to protect facility personnel and the public, and secondarily to minimize damage to maintain the reliability and availability of the facility. Among other things, the GAO or ESSO:

a) Plans for the continuity of management and communications during emergencies, both within and outside the facility;
b) Trains personnel in the emergency plan periodically;
c) Ensures provision of emergency information and materials to personnel;
d) In developing any emergency plans, the GAO and ESSO will coordinate with local emergency management agencies, unified program agencies, and local first response agencies; and
e) The owner or operator of each ESS facility shall develop and submit an emergency response and emergency action plan for the ESS that complies with Public Utilities Code, Section 761.3, subdivision (g). The owner or operator of the ESS facility shall submit the emergency response and emergency action plan to the county, local emergency management agencies, local first response agencies, and if applicable, the Authority Holding Jurisdiction (AHJ) and the city where the facility is located.

21. OS 21 - Plant Security

To ensure safe and continued operations, each GAO or ESSO provides a prudent level of security for the facility, its personnel, operating information, communications, and stepping up security measures when necessary.

22. OS 22 - Readiness

Until a change in a unit's long-term status, except during necessary maintenance or forced outages, the GAO or ESSO is prepared to operate the unit at full available power if the Control Area Operator so requests, after reasonable notice, when such operation is permitted by law and regulation. Among other things, the GAO or ESSO:

a) Maintains contingency plans to secure necessary personnel, fuel, and supplies; and
b) Prepares facilities for reasonably anticipated emergencies.

23. OS 23 - Notification of Changes in Long-Term Status of a Unit

The GAO or ESSO notifies the Commission and the Control Area Operator in writing at least 90 days prior to a change in the long-term status of a unit. The notification includes a description of the planned change.

24. OS 24 - Approval of Changes in Long-Term Status of a Unit

The GAO or ESSO maintains a unit in readiness for service in conformance with Operation Standard 22 unless the Commission, after consultation with the Control Area Operator, affirmatively declares that a generation or ESS facility is unneeded during a specified period of time. This standard is applicable only to the extent

that the regulatory body with relevant ratemaking authority has instituted a mechanism to compensate the GAO or ESSO for readiness services provided.

25. OS 25 - Transfer of Ownership

The GAO or ESSO notifies the Commission and the Control Area Operator in writing at least 90 days prior to any change in ownership.

26. OS 26 - Planning for Long-Term Unit Storage

At least 90 days before a change in the long-term status of an electric generation or ESS unit, other than permanent shutdown and/or decommissioning, the GAO or ESSO shall submit to the Commission plans and procedures for storage, reliable restart, and operation of the unit.

27. OS 27 - Corrosion Control

Where circumstances require it, the GAO or ESSO shall prepare and follow a comprehensive corrosion mitigation and control programs for all types of corrosions to identify vulnerable systems, implement appropriate corrective actions, and preventive measures to maintain facilities with designed performance condition.

28. OS 28 - Equipment and Systems

GAO or ESSO complies with these Operation Standards (1-28) considering the design bases (as defined in the Appendix) of facility equipment and critical systems. The GAO or ESSO considers the design basis of facility equipment when as required by other standards it, among other things:

a) Establishes procedures for the operation of critical systems at each unit (OS 7);
b) For each system, identifies critical parameters that require monitoring (OS 8 and 13);
c) For each critical parameter, establishes value at which to increase observation of the system or take actions to protect it (OS 8 and 13);
d) Assures that systems are monitored, and actions are taken (OS 8 and 13);
e) Establishes parameters for operation during periods of stress or shortage on the state's electric grid (OS 9 and 19); and
f) Assures that personnel operating critical systems are trained and qualified (OS 6).

(END OF APPENDIX D)

APPENDIX E
DEFINITIONS, INDUSTRY CODES, STANDARDS, AND ORGANIZATIONS SUMMARY OF ABBREVIATIONS AND ACRONYMS

A. Definitions

Design Basis Documents – Vendor and engineering documents used in the design or used to instruct in the correct operation and maintenance, of the systems and equipment used in the power plant, GA and ESS. Design basis documents consist of OEM Manuals, vendor documents, industry standards, codes, and documented engineering assessments.

Documented deviations from the above documents are also considered part of the design basis documents provided there is documented reasoning for those deviations. Documented reasoning includes the benefit of the deviation and why the deviation is consistent with the Unit Plan.

B. Industry Codes, Standards, and Organizations

ASME Boiler and pressure vessel code, Section 1, (including all amendments)
ASME Boiler and pressure vessel code, Section V111

ANSI/ASME B 31.1 Power Piping

Note on Codes: Any boiler designed and approved to an earlier issue and amendment of these standards is maintained and repaired to the design as originally issued. However, advances in engineering knowledge and experience reflected in the subsequent issues of the codes are taken into consideration in the operation and maintenance of the boiler.

Weld repairs and alterations of boilers designed to ASME Boiler and Pressure Vessel Code, Section 1, is carried out in accordance with the rules of the National Board Inspection Code, published by the National Board of Boiler and Pressure Vessel Inspectors.

These standards are intended to augment the GA and ESS Operation and Maintenance Standards and not conflict with other standards, which are pertinent to specific components and systems at each facility such as standards issued by organizations including but not limited to:

A&WMA	Air & Waste Management Association
AAQS	Ambient Air Quality Standard
ABMA	American Boiler Manufacturer's Association
AMCA	Air Movement and Control Association
ANSI	American National Standards Institute
APCD	Air Pollution Control District
API	American Petroleum Institute
ARB	Air Resources Board (see CARB)
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASNT	American Society for Nondestructive Testing

ASTM	American Society for Testing and Materials
AWS	American Welding Society
CAISO	California Independent System Operator
CAL OSHA	California Occupational Safety and Health Administration
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CEC	California Electrical Code
CEC	California Energy Commission
CFC	California Fire Code
CMC	California Mechanical Code
CPUC	California Public Utilities Commission
CSA	Canadian Standards Association
EPA	Environmental Protection Administration
GAO	Generating Asset Owner
HEI	Heat Exchange Institute
HI	Hydraulic Institute
IBC	International Building Code
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IFC	International Fire Code
ISA	The Instrumentation, Systems, and Automation Society
NEC	National Electrical Code
NECA	National Electrical Contractors Association
ISO	International Organization for Standardization
NERC	North American Reliability Corporation
NEMA	National Electrical Manufacturer's Association
NESC, ANSI Standard C2	National Electric Safety Code
NIPC	National Infrastructure Protection Center
NFPA	National Fire Protection Association
NRTL	Nationally Recognized Testing Laboratories
OSHA	Occupational Safety and Health Administration
PFI	Pipe Fabrication Institute
SNL	Sandia National Laboratories
SSPC	Steel Structures Painting Council
TEMA	Tubular Exchanger Manufacturer's Association
UBC	Uniform Building Code
UL	Underwriters Laboratories
UPC	Uniform Plumbing Code

C. Summary of Abbreviations and Acronyms

ACC	Air-Cooled Condenser
ADS	Automatic Dispatch System
AGC	Automatic Generation Control
AOD	Ammonia On Demand
AVG, avg	Average
BACT	Best Available Control Technology
BMS	Burner Management System
BTA	Best Technology Available
BTU, Btu	British Thermal Unit
BCW	Bearing Cooling Water
CA	California
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CO2	Carbon Dioxide
CO	Carbon Monoxide
CT	Combustion Turbine
CTM	Conditional Test Method
CWP, CWS	Circulating Water Pump, Circulating Water System
DC	Direct Current
DLN	Dry Low-NOx
DOD	Battery Depth of Discharge
EAP	Emergency Action Plan
EOH	Equivalent Operating Hour(s)
ERP	Emergency Response Plan
ESRB	Electric Safety and Reliability Branch
ESS	Energy Storage System
ESSO	Energy Storage System Owner
°F & °C	Degree Fahrenheit and Degree Celsius
ft3	Cubic Feet
GA	Generating Asset
GADS	Generating Availability Data System
GAO	Generation Asset Owner
GO	General Order
gpm	Gallons per minute
H2	Hydrogen
H2SO4	Sulfuric Acid
HAP	Hazardous Air Pollutant
HHV	Higher Heating Value
HP	Horsepower
HR, hr	Hour
HVAC	Heating, Ventilation, and Air Conditioning

HVDC	High Voltage Direct Current
Inj.	Injection
ISO	Independent System Operator
kV	Kilovolt
KVA	Kilovolt Amp
kW	Kilowatt
LAER	Lowest Achievable Emission Rate
LEC	Low Emission Combustor
LEL	Lower Explosive Limit
LB, LBs, lbs	Pound, Pounds
Li-Ion	Lithium Ion
MACT	Maximum Achievable Control Technology
MBtu	Million British Thermal Units
MS	Maintenance Standard
MVAR	Megavolt Amp Reactive
MW	Megawatt
MWe	Megawatt Electrical
MWh	Megawatt-hour
NH3	Ammonia
NiCd, NiCad	Nickel Cadmium
Nm	Nanometer
NO	Nitric Oxide
NO2	Nitrogen Dioxide
NOx	Oxides of Nitrogen or Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination Standard
O&M	Operation & Maintenance
O2	Oxygen
OEM	Original Equipment Manufacturer
OMS	Outage Management System
OOS	Out of Service
OS	Operation Standards
Pb	Lead
PbA	Lead Acid
PM	Particulate Matter
PM<10	Particulate Matter (10 microns or less)
PM<2.5	Particulate Matter (2.5 microns or less)
ppm	Parts per Million
ppmvd	Parts per million by volume, dry
PSD	Prevention of Significant Deterioration
QA/QC	Quality Assurance/Quality Control
RATA	Relative Accuracy Test Audit
RA	Resource Adequacy
RMP	Risk Management Plan
S/S	Startup and Shutdown

SCADA	Supervisory Control and Data Acquisition
SCR	Selective Catalytic Reduction
SED	Safety and Enforcement Division
SNCR	Selective Non-Catalytic Reduction
SO2	Sulfur Dioxide
SOC	State of Charge
SOE	State of Energy
SOH	State of Health
SOTA	State-of-the-Art
SOx	Sulfur Oxides
TDS	Total Dissolved Solids
UPS	Uninterruptible Power Supply
UV	Ultraviolet
V	Volts
VAC	Volts Alternating Current
VDC	Volts Direct Current
VOC	Volatile Organic Compound
Yr	Year
ZAT	Zero Ammonia Technology

(END OF APPENDIX E)

END OF GENERAL ORDER