PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

SAFETY AND ENFORCEMENT DIVISION
Electric Safety and Reliability Branch

Resolution -ESRB-13
March 13, 2025

R E S O L U T I O N

RESOLUTION ESRB-13 – Adopts General Order (GO) 167-C, Enforcement of Maintenance and Operation Standards for Electric Generating Facilities and Energy Storage Systems.

OUTCOME: Adopts GO 167-C to: (1) implement the Senate Bill (SB) 1383 (Hueso, 2022) mandate to establish standards for the maintenance and operation of Energy Storage Systems; (2) apply SB 38 (Laird, 2023) requirements for Emergency Response and Emergency Action Plans to Energy Storage System Owners; (3) require Generating Asset Owners to coordinate with local authorities in developing their emergency plans; (4) establish Logbook Standards for Energy Storage Systems and Renewable Generating Assets, and revise Logbook Standards for each Generating Asset; (5) modify Maintenance and Operation Standards for Generating Assets; (6) add provisions to enhance safety and effectiveness of Generating Assets and Energy Storage Systems operation and maintenance; (7) update procedures, references, and definitions; (8) remove obsolete references and add relevant language; and (9) update applicable industry codes, standards, and organizations.

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SAFETY CONSIDERATIONS: Will improve the safety and reliability of California electric generation facilities and energy storage facilities.

ESTIMATED COST: No significant cost.

SUMMARY

The California Public Utilities Commission's (CPUC or Commission) GO 167 establishes standards for electric generating facilities to ensure that they are effectively maintained and operated to ensure safe and reliable service. The GO provides a method for enforcing General Duty Standards for Operations and Maintenance,[1] Generator

[1] R.02-11-039 established the General Duty Standards for temporary and limited purposes, until detailed Maintenance and Operations Standards were adopted by the Commission. See D.04-05-018, p. 23 and D.04-12-049, p. 29.

Maintenance Standards, Generator Operator Standards, Generator Logbook Standards, and other standards adopted pursuant to Pub. Util. Code § 761.3. The GO establishes a program for electric generating facility audits, inspections, and incident investigations. Other requirements established by the GO include reporting safety incidents, submitting periodic compliance filing updates and responding to SED staff information requests. The GO also provides a means to enforce the protocols for scheduling power plant outages of the California Independent System Operator and the other standards in GO 167.

This Resolution modifies GO 167 to comply with Senate Bill (SB) 1383 (Hueso, 2022) and to provide oversight over reporting requirements enacted in SB 38 (Laird, October 7, 2023). It also updates provisions and obsolete references in the GO, as well as addresses industry changes since the GO was initially adopted in 2004.

First, it establishes standards for the maintenance and operation of Energy Storage Systems (ESS), as required by SB 1383. Second, it modifies GO 167 to require the Emergency Response and Emergency Action Plans for each Energy Storage System Owner (ESSO). Because of their importance for public safety and to ensure consistency across all electricity generation technologies, the GO also requires Generating Asset Owners (GAO) to coordinate with local authorities in developing their own emergency plans. In addition, this Resolution establishes Logbook Standards for ESSs and Renewable Generating Assets, revises Logbook Standards for all other Generating Assets (GA), and makes other technical updates to the standards to improve safety, reliability, and effectiveness of operation and maintenance activities.

BACKGROUND

In response to the 2000-2001 Energy Crisis, the Legislature enacted Senate Bill (SB) X2-39 (Stats. 2002, Second Extraordinary Session, Chapter 19, Section 4, effective August 8, 2002), which among other things, added Pub. Util. Code § 761.3. Section 761.3 and directed the Commission to "implement and enforce standards… for the maintenance and operation of facilities for the generation of electric energy owned by an electrical corporation or located in the state to ensure their reliable operation."[2] In enacting SB X2-39 the Legislature declared that it is in the public interest "to ensure that electric generating facilities and power plants are effectively and appropriately maintained and efficiently operated."[3]

In 2002, the Commission opened Rulemaking (R.) 02-11-039 to implement Pub. Util. Code § 761.3. On May 7, 2004, the Commission adopted GO 167 in Decision

[2] See, Pub. Util. Code § 761.3(a) as amended by SBX2-39.

[3] SB 39XX, §1(b).

(D.) 04-05-018, *Decision Adopting General Order Implementing and Enforcing Electric Generator General Duty Standards, Maintenance Standards and CAISO's Outage Coordination Protocol*.[4] In D.04-05-018, the Commission noted "the GO will codify all standards and requirements applicable to facilities used for the generation of electric energy (pursuant to Pub. Util. Code § 761.3) and set forth the procedures to be used for implementation and enforcement."[5]

Several parties filed applications seeking rehearing of D.04-05-017 and D.04-05-018. In D.09-11-009, the Commission modified GO 167 to provide further clarity and denied the applications for rehearing.[6] GO 167 has since been further modified over the years by Resolution No. E-4184,[7] D.08-11-009,[8] and ESRB-9 in 2021.[9]

EXPANSION OF RENEWABLE GENERATING ASSETS AND ENERGY STORAGE FACILITIES

Since the inception of GO 167 in 2004, there has been a significant increase in the number of renewable electric generation facilities in California. Much of this is attributable to the California's Renewables Portfolio Standard (RPS) program, which was established in 2002 by Senate Bill (SB) 1078 (Sher, 2002) with the initial requirement that 20 percent of electricity retail sales must be served by renewable resources by 2017. The program was accelerated in 2015 with SB 350 (de León, 2015) which mandated a 50 percent RPS by 2030. SB 350 includes interim annual RPS targets with three-year compliance periods and requires 65 percent of RPS procurement to be derived from long-term contracts of ten or more years. In 2018, SB 100 (de León, 2018) was signed into law, which again increases the RPS to 60 percent by 2030 and sets a target for all the state's electricity to come from carbon-free resources by 2045. Through SB 350's integrated resource plan process, all retail sellers of electricity are planning for and procuring new zero-carbon resources to reach California's carbon neutrality goal by 2045. A Joint Agency Report by the CPUC, California Energy Commission (CEC) and

[4] The Commission concurrently issued D.04-05-017, *Interim Opinion Regarding Commission Implementation and Enforcement of Logbook Standards for Thermal Powerplants*. The requirements adopted in D.04-05-017 were subsequently included in GO 167.

[5] D.04-05-018 at 3.

[6] D.06-01-047, *Order Modifying and Denying Rehearing of Decisions 04-05-017 and 04-05-018, issued January 26, 2006*.

[7] Resolution E-4184, *Adoption of Web-Based Emergency Reporting System for Utilities and Generation Asset Owners*, issued August 21, 2008.

[8] D.08-11-009, *Final Decision Regarding Petition to Modify Decision 04-05-018 and General order 167*, issued November 7, 2008.

[9] Resolution ESRB-9, *Modifies Citation Procedures for Violations Commission General Order 167, Enforcement of Maintenance and Operation Standards for Electric Generating Facilities*, issued June 24, 2021.

California Air Resources Board (CARB) recognizes that energy storage systems play a key role in meeting SB 100 goals by balancing intermittent renewable energy and managing grid reliability and stability via ancillary services and capacity.[10] As defined in Pub. Util. Code § 2835, an energy storage system is a technology that is capable of absorbing energy, storing it for a period of time, and thereafter dispatching the energy. The Joint Agency Report also found that energy storage may also reduce the need for gas-fired thermal resources.[11]

Statewide, ESS capacity has grown from 500 MWs in 2019 to 13,300 MWs in 2024.[12] Utility-scale ESS capacity reached 11,462 MWs in 2024,[13] or 22 percent of California's peak demand.[14] The state's projected need for ESS capacity is estimated at 52,000 MWs by 2045.[15]

Because the original GO 167 was written before the widespread adoption of renewable generation and energy storage facilities, a comprehensive review of the GO is needed for provisions related to the operation, maintenance, and safety oversight of non-thermal electric generation technology. Since 2017, however, the Electric Safety and Reliability Branch (ESRB) has been engaged in renewable generation oversight when it conducted its first audit of a renewable GA[16] and issued an information request under Section 10.1 of the GO to notify renewable and thermal GAs of the CPUC Power Plant Outage Reporting (PPOR) requirement.[17]

Incidents at lithium-ion ESS facilities have caused fires, evacuation orders, and shelter-in-place orders for nearby residents; therefore, warranting an investigation by ESRB.

There have been a number of safety incidents at ESS facilities since 2021, including:

1. Vistra; Battery Energy Storage Facility, September 4, 2021
2. Vistra; Battery Energy Storage Facility, February 13, 2022
3. Terra-Gen; Valley Center Energy Storage Center, April 5, 2022

[10] CEC, CPUC, CARB. 2021 SB 100 Joint Agency Report, p. 108.

[11] Ibid, p. 103.

[12] California Energy Commission, California Energy Storage System Survey, California Energy Storage System Survey. Retrieved October 23, 2024.

[13] Ibid.

[14] CAISO highest peak demand of 52,061 MWs occurred on September 6, 2022. CAISO.

[15] California Energy Commission. Retrieved October 23, 2024.

[16] Topaz Solar Farm Audit conducted on October 23-26, 2017, March 14, 2018.

[17] ESRB email to GAOs, "GO 167: Web-based Power Plant Outage Reporting (PPOR) to replace Outage Reporting Form SED-11-110 – GAO response requested by 10/25", October 17, 2017.

4. PG&E; Elkhorn Battery Energy Storage Facility, September 20, 2022
5. Terra-Gen; Valley Center Energy Storage Center, September 18, 2023
6. SDG&E; Kearny South Energy Storage, April 29, 2024
7. Convergent; Orange County Energy Storage 2, July 17, 2024
8. REV Renewables; Gateway Energy Storage Facility, May 15, 2024
9. SDG&E; Northeast Operations Center, Escondido, September 5, 2024
10. Vistra; Battery Energy Storage Facility, January 16, 2025.

There is currently no provision in GO 167 that requires ESSOs to report safety incidents such as injuries, fatalities, thermal runaways, fires, or other system failures to the CPUC. Regulatory oversight of ESS facilities is necessary because of the safety and reliability risks that can occur if ESS facilities are not properly operated and maintained.

In recognition of these changes and the need for safety oversight of these facilities, the Legislature enacted two bills that further modified Pub. Util. Code § 761.3: SB 1383 (stats. 2022, Ch. 725) and SB 38 (stats, 2023). SB 1383, which pertains to electric storage facilities (i.e., energy storage systems) directs the Commission to implement and enforce maintenance and operation standards for energy storage facilities owned by an electrical corporation or located in the state. SB 1383 also requires the Independent System Operator (ISO) to maintain records of storage facility outages and to provide those records to the Commission daily.

SB 38 requires each battery energy storage facility owned by an electrical corporation or located in the state to prepare an emergency response and emergency action plan that covers the premises of the battery energy storage facility and submit the plan to the county and city where the facility is located. It also requires the owner or operator of the facility to coordinate with the local emergency management agencies, unified program agencies, and local first response agencies.

JURISDICTION

The Commission's authority over the public safety aspects of regulated investor-owned utilities and other generators, including exempt wholesale generators (EWGs), is well-settled. In the most recent iteration of GO 167, the Commission affirmed its jurisdiction over the "maintenance and operation of electric generating facilities and power plants so as to maintain and protect the public health and safety of California residents and businesses, to ensure that electric generating facilities are effectively and appropriately maintained and efficiently operated, and to ensure electrical service reliability and

adequacy."[18] Currently, GO 167 includes language that specifically encompasses any "Generating Asset," in Section 2.8, and any "Generating Asset Owner," in Section 2.9, subject to certain exceptions.

The scope of the Commission's jurisdiction under Pub. Util. Code § 761.3 was discussed in depth in D.04-05-017, D.04-05-018, and D.06-01-047 and need not be repeated here, other than to note that the Commission previously observed that: "[t]he breadth of the legislation extends our authority to many electric generators who have consistently maintained that they are not otherwise subject to our regulation." (D.04-05-018 at 6.)

The citation authority of the Commission is established by Pub. Util. Code § 761.3, D.04-05-017, D.04-05-018, D.06-01-047, D.08-11-009. Resolution ESRB-9, issued on June 21, 2021, modified GO 167 to allow Commission staff to issue citations.

PROPOSED CHANGES

Implementation of SB 1383 for ESSs

The Electric Safety and Reliability Branch (ESRB) of the Commission's Safety and Enforcement Division (SED) proposes updates to GO 167 to implement the provisions of SB 1383. Those updates include revising the definitions in Section 2 to include ESSs and ESSOs and applying the GO 167 standards to ESSs. Other sections were updated to expressly apply GO 167 to ESSs.

Emergency Response and Emergency Action Plans

Additionally, ESRB proposes to add oversight over ESSOs' compliance with SB 38 by incorporating Section 2.4 and revising Operation Standard (OS) 20 to apply to ESSOs. Section 2.4 adds the SB 38 definition of Emergency Response and Action Plan to GO 167. OS 20 requires that an ESSO prepare an emergency response and emergency action plan for an ESS facility and submit the plan to the county and city where the facility is located. The owner or operator of the facility must coordinate with the local emergency management agencies, unified program agencies, and local first response agencies. It also proposes to require GAOs to coordinate with local authorities in developing emergency plans to increase coordination and consistency of safety requirements across all electric generators in the state.

Proposed Changes to GO 167 Impacting GAOs

While the Commission has previously modified GO 167 by issuing Resolution No. E-4184 and D.08-11-009 in 2008, and ESRB-9 in 2021, a comprehensive revision of the GO is necessary to update numerous provisions and obsolete references to more accurately reflect the current state of the electric industry. The proposed changes to GO

[18] GO 167-B, Sections 1.0.

167 incorporate relevant technical language and update concepts and requirements to improve safety, reliability, and effectiveness of operation and maintenance activities. As an example, one proposed change incorporates modern operational concepts, such as requiring up-to-date software for cybersecurity purposes and trend analysis. The proposed changes to the GO also require that renewable GAs comply with Logbook Standards. Other proposed updates include removing obsolete references, such as: Appendix A: General Duty Standards for Operations and Maintenance, removing references to "Committee," removing initial deadlines that were specified in the original GO 167, and replacing the CAISO's Scheduling and Logging in California with the Outage Management System.

The changes include:

- **Required Compliance**: Applies the compliance requirement in Section 3 to ESSs, as appropriate, thus requiring ESS compliance with all standards and all sections of GO 167. This section clarifies the compliance requirements, based on the nameplate capacity of the facility as defined below:
    - Large facilities, GAs and ESSs, 50 MWs and greater in size, are subject to all requirements of GO 167.
    - Medium facilities, greater than 1 MW and less than 50 MWs, are subject to all requirements of GO 167 except for Sections 4, 5, 6, and 7: 4 ("GA and ESS Logbook Standards"), 5 ("Hydroelectric Logbook Standards"), 6 ("Maintenance Standards"), and 7 ("Operation Standards"). However, Medium facilities must follow prudent practices as required by GO 167, Sections 4.2, 5.2, 6.4, and 7.4.
    - Small facilities, smaller than one megawatt, are currently exempt from enforcement of the standards pursuant to GO 167. However, Small facilities are required to cooperate in any Commission or SED audit, inspection, and investigation by permitting Commission staff access to those GAs or ESSs and by providing Commission staff information (orally or written) or documents about the maintenance and operation of those GAs or ESSs, if requested by the Commission or SED.

- **Logbook Standards Verified Statement, and Updates**: Adds logbook requirements for ESSs and renewable facilities in Section 4 and Appendix A. Logbooks are an existing requirement for thermal and hydroelectric energy facilities as part of the Logbook Standards of GO 167. Additional edits to the thermal logbook requirements are included to incorporate relevant technical language and updated concepts, enhance operation and maintenance safety and

effectiveness, and added Exception 3 to allow maintenance activities to be tracked in work order management systems.

- **Maintenance Standards, Maintenance Plan Summary, Initial Certification, and Updates**: Revises the maintenance standards to apply to ESSs in Section 6 and Appendix C and revises the existing maintenance standards for GAs to incorporate relevant technical language, update concepts, and enhance maintenance safety and effectiveness. The standards are updated to enhance maintenance activities by applying industry best practices, lessons learned, and proven safety measures for the safety and reliability of both the GAs and ESSs. GAOs and ESSOs are also required to address corrosion (Maintenance Standard (MS) 13).
- **Operation Standards, Operation Plan Summary, Initial Certification, and Updates**: Revises the operation standards to apply to ESSs in Section 7 and Appendix D. This section also revises the existing operation standards for GAs to incorporate relevant technical language and concepts and enhance operations safety and effectiveness. The updates include: the annual review of procedures and documentation (OS 7), routine software updates for cybersecurity (OS 9), trend analysis from routine inspections (OS 13), and corrosion control (OS 27). OS 20 applies emergency response and emergency action plan and communication requirements to ESSOs and requires GAOs to coordinate with local emergency management agencies, unified program agencies, and local first response agencies in developing their emergency plans.
- **Safety-Related Incidents Reporting**: Requires reporting for ESSOs in Section 9, similar to that required for GAOs.
- **CAISO Outage Coordination Protocol**: Applies enforcement of Section 8 (CAISO Outage Coordination Protocol) to ESSs, requiring outage reports to the CAISO, as specified in Section 9.3.
- **Information Requests**: Applies Section 9 requirements to ESSs to respond to ESRB information requests and directives, which include submitting outage reports under the ESRB PPOR requirements, authorizations of release of information to the North American Electric Reliability Corporation (NERC) for historical and current GADS[19] data as applicable and responding to ESRB data requests.
- **Audits, Inspections, and Investigations**: Applies Section 10 requiring an ESSO's cooperation during any audit, inspection, or investigation including providing

[19] "Generating Availability Data System" or "GADS" means the data base system maintained by NERC which collects, records, and retrieves operating information for improving the performance of electric generating equipment.

records pertaining to the specifications, warranties, logbooks, operations, or maintenance of the ESS.

- **Violations, Commission Proceedings, and Sanctions**: Applies Sections 11 (Violations), 12 (Formal Proceedings), and 13 (Sanctions) to ESSOs regarding failure to comply with a requirement of this General Order.
- **Miscellaneous Provisions**: Applies Section 14 (Miscellaneous Provisions) to ESSs including ongoing reporting obligations (e.g. periodic recertifications), filings and submissions, provisions for confidentiality, etc.
- **Added Appendix E:** Updates applicable Industry Codes, Standards, Organizations, and Abbreviations and Acronyms.

STAKEHOLDER INPUT AND PARTICIPATION

Prior to developing its proposed updates, ESRB staff met with industry stakeholders and solicited feedback at three technical workshops. The workshops were held on March 26, 2024, May 30, 2024, and August 23, 2024. The workshops were publicly noticed in the Commission's Daily Calendar. Notice was sent to ESSOs, GAOs, and the service lists for Rulemaking (R.) 23-10-011 (Resource Adequacy) and R.20-05-003 (Integrated Resource Planning).

For each workshop, staff suggested proposed changes to GO 167 and discussed these changes with the participants. Participants were provided with an opportunity to ask questions and make comments on the proposals. Workshop participants were also able to submit written comments in response to each proposal. Eleven organizations submitted comments:[20] Applied Energy Services, Calpine Corporation, California Energy Storage Alliance, Clearway Energy Group, Independent Energy Producers Association, MegaWatt Storage Farms, REV Renewables, Rural County Representatives of California, San Diego Gas & Electric Company, Southern Power Company, and Terra-Gen, LLC. The stakeholder comments focused on the following topics. First, many comments emphasized the need for clarity in the terms and reporting requirements. Second, several commenters suggested changes to the implementation and reporting timelines because of the complexity involved in implementing new reporting requirements and the differing operating processes of systems, respectively. Third, some comments suggested that the revisions to the GO should take place in a Commission rulemaking proceeding.

[20] The comments from the three workshops are available here: March 26, 2024 Workshop, May 30, 2024 Workshop, and August 23, 2024 Workshop and may also be found on the ESRB website.

The current proposal for GO 167 reflects the input received from these external stakeholders as part of that iterative process.

NOTICE

Pub. Util. Code § 311(g)(1) provides that this Resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. Section 311(g)(2) provides that this 30-day period may be reduced or waived upon stipulation of all parties in the proceeding.

The 30-day comment period for the draft of this Resolution was neither waived nor reduced. Accordingly, this draft resolution was distributed for comment pursuant to Commission Rule of Practice and Procedure 14.5 on January 27, 2025. Comments were received on February 25, 2025 by Electric Power Research Institute, Inc. (EPRI) and on March 3, 2025 by 24M Technologies (24M), Aypa Power (Aypa), The California Energy Storage Alliance (CESA), California State Association of Electrical Workers and the Coalition of California Utility Employees (CSAEW/CCUE), Independent Energy Producers Association (IEP), NextEra Energy Resources, LLC (NEER), and Southern Power Company (Southern Power).

COMMENT SUMMARY

All commenters support the adoption of ESRB-13. Several commenters submitted suggested revisions detailed below. Aypa comments that the proposed changes are beneficial to public safety, service reliability, and may help prevent future incidents involving fatalities, injuries, and safety and reliability issues.[21] CESA relays appreciation for the updates to the implementation timeline allowing existing facilities 180 days to comply with the requirements set forth in the order and expresses eagerness to comply.[22] Southern Power comments that the proposed changes more clearly define the applicability of GO 167-C to assets in active service.[23] NEER states its support for the Commission's effort to enforce maintenance and operations standards, as well as track safety related incidents in the ESS fleet.[24] Neer also finds the Commission's efforts particularly important given recent safety-related incidents and the potential for those incidents to undermine the valuable contributions that ESS offers to California in its efforts to maintain reliability while transitioning to a carbon neutral economy.[25] NEER

[21] Aypa Comments on Draft Resolution ESRB-13 (Aypa Comments) at 1.

[22] CESA Final Comments – Draft Resolution ESRB 13 (CESA Comments) at 2.

[23] Reply Comments of Southern Power on Proposed GO-167-B Revisions (Southern Power Comments) at 1.

[24] NextEra Energy Resources Comments – Draft Resolution ESRB 13 (NEER Comments) at 1.

[25] NEER Comments at 1.

agrees it is reasonable for SED to request an ESS owner conduct a test or technical evaluation for determining compliance standards enforced by the Draft Resolution.[26] CSAEW/CCUE agree that the amendments are an essential first step toward reducing the likelihood of catastrophic incidents caused by ESS facilities.[27] Similarly, IEP recognizes the need for the Commission to adopt such amendments, stating that it believes most generators and energy storage owners will be able to accept and comply with the proposed changes.[28] 24M expresses strong support for the Commission's efforts to enhance battery storage facilities.[29] Lastly, EPRI finds that CPUC's mandates in OS- 20(d) aligns with leading industry practice.[30]

Logbook Standards

IEP and Southern Power raise several concerns about the proposed revisions to the Logbook Standards. They argue that the standards were written to apply to a range of categories of generation and storage resources but fail to account for operational differences between conventional thermal and ESS and Renewable Generating assets. They state ESS and Renewable Generating assets have inherent output and available capacity variances due to weather and other factors.[31] Facilities are required to log "any changes to the facility MW output," which could be burdensome if a renewable energy source, such as wind and solar, changes output or availability frequently.[32] To resolve this issue, Southern Power suggests removing language surrounding changes to the future scheduled facility output or clarifying the frequency of reporting to account for output variances.[33] To address facility-specific operating characteristics, ESSOs are required to establish facility-specific written logbook protocols. We require logbook protocols for all ESSs to address facility specific operating characteristics. EPRI agrees that the ESS logbook standards are in accordance with leading industry practices.[34]

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[26] NEER Comments at 4.

[27] Comments of the California State Association of Electrical Workers and the California Coalition of Utility Employees on Draft Resolution ESRB-13 (CSAEW and CCUE Comments) at 1.

[28] Comments of the Independent Energy Producers Association on Draft Resolution ESRB-13, Regarding Adoption of General Order 167-C (IEP Comments) at 5.

[29] Comments of 24M Technologies on Draft Resolution ESRB-13 Regarding Adoption of General Order 167-C (24M Comments) at 2.

[30] Comments of the Electric Power Research Institute on California Public Utility Commission CPUC Resolution ESRB-13 (EPRI Comments) at 4.

[31] IEP Comments at 7-8; Southern Power Comments at 1-2.

[32] IEP Comments at 7-8; Southern Power Comments at 1-2.

[33] Southern Power Comments at 1-2.

[34] EPRI Comments at 4.

IEP also notes that the standards apply to "Renewable Generating Assets" but that term is not defined in the draft General Order, which only refers to "solar, wind, [and] geothermal energy."[35] Based on the comments, we clarify the definition of 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."

Southern Power also recommends adding an additional category for significant equipment trips where the cause is initially unknown that could be updated after the GA or ESSO determines the cause.[36] They suggest that reductions to minimum load should only be reported if determined to be caused by abnormal operating conditions, and seek a new exemption allowing a GAO to utilize an Outage Management System to track outage related activities.[37] They also make other recommendations to reduce reporting requirements, such as removing the Operator Control Log and only requiring recordable communications with external entities to be reported if they are telephone conversations.[38] We believe reducing reporting and increasing exemptions would be at the detriment of public safety and decline to adopt these recommendations.

CESA requests an additional exemption for GA and ESS Logbook standards relating to facility status entry requirements.[39] For the same reasons, we decline to adopt CESA's recommendation.

Maintenance Standards and Operations Standards

CSAEW/CCUE, CESA, NEER, and EPRI request clarification of specified terms. CSAEW/CCUE argue Maintenance Standard and Operation Standards 5 and 6, are vague because they fail to define the phrases "trained and qualified," "knowledge and skills needed," what constitutes a "high level of personnel knowledge, skill and performance," and fail to establish minimum workforce training requirements.[40] CESA believes the term "equipment" within the logbook standard is unclear.[41] EPRI requests clarification of various terms, including "prudent practices," "prudent industry

[35] IEP Comments at 8.

[36] Southern Power Comments at 2.

[37] Southern Power Comments at 2.

[38] Southern Power Comments at 2.

[39] CESA Comments at 2.

[40] CSAEW/CCUE at 2.

[41] CESA Comments at 2.

practices," and "reasonable,"[42] EPRI also notes that specific references to standards established by outside industries could be a useful resource. We believe these terms are clear and subject to well-known and understood industry standards as well as the existing General Order 167 and decline to adopt these recommendations.

Southern Power believes the reporting requirements in Operations Standard (OS) 25 should not apply to changes in minority ownership that do not impact facility operations.[43] It is essential to our authority and oversight that we are aware of any changes in ownership by a "person or entity owning, controlling, operating, maintaining, or managing an ESS facility"[44], and any parent company that owns, controls, operates or manages the ESS whose change of ownership may impact the operations and maintenance of that asset. The OS 25 notification requirement does not apply if a change in ownership does not meet this definition.

CSAEW/CCUE offer joint comments relating to workforce standards. They ask the Commission to address workforce qualifications and training for ESS personnel. They argue that all facilities exceeding 1 MW should be required to meet the workforce standards in GO 167-C.[45] They also believe all electrical work on large and medium ESS facilities should be required to be performed by certified electricians, and at least 50% of onsite electricians should be required to hold an Energy Storage and Microgrid Training Certification.[46] The Maintenance and Operations Standards apply to all maintenance and operations activities, not only electrical work. While ensuring personnel are trained and qualified is essential, listing specific training for every role would be overly prescriptive. The current language allows facilities to develop training programs aligned with regulatory codes, engineering standards, operational needs, and best practices in the industry, ensuring personnel have the necessary skills for safe and effective facility management. As such, we decline to adopt their recommendation.

Safety-Related Incidents Reporting (Section 9)
NEER and Southern Power raise concerns that the reporting requirements are too broad, leading to excessive and burdensome over-reporting of non-hazardous instances. NEER suggests that the Commission modify its position about which safety related incidents require notification, asserting that emissions below permissible limits

[42] EPRI Comments at 2.

[43] Southern Power at 3.

[44] Draft GO 167-C, Attachment to Draft Resolution ESRB-13 at 3.

[45] CSAEW/CCUE at 2.

[46] CSAEW/CCUE at 3-5.

established by Cal/OSHA do not represent a safety risk.[47] It requests the proposed language be changed to define hazardous emissions as "hazardous emissions beyond the permissible exposure limits set by Cal/OSHA."[48] NEER also requests the property damage threshold be added as a qualifying requirement for the "malfunction or failure" rule. We believe the public is better protected by reporting all hazardous emissions, not just those beyond permissible limits. Additionally, the language in GO 167-C is clear that reporting is limited to occasions where there is a fire, explosion, hazardous emission, or other safety related event. Because all hazardous emissions should be reported, we decline to accept this recommendation.

NEER, Southern Power and IEP express concern that the $50,000 threshold for reporting property damage in Section 9.4 of GO 167-C is too low. Southern Power Company seeks an increase in the property damage threshold from $50,000 to $500,000, while NEER suggests increasing this threshold to $1,000,000.[49] IEP notes that a preliminary draft of the proposed changes to GO 167-C also suggested raising this threshold to $200,000 and argues that a higher number may be justified.[50] The $50,000 property damage threshold was established in 2005. We agree that the reporting requirement threshold should be raised to $200,000 to reflect inflation and rising costs of technology and equipment.

Aypa requests the requirement to house spare parts at the facility site be revised, stating that in some instances it is impractical to store spare parts on-site.[51] We decline to adopt Aypa's recommendation. We believe requiring spare parts to be on-site ensures they will be available to keep operations running smoothly and avoid unnecessary downtime due to equipment failures, which will enhance energy reliability.

EPRI requests collection of outage and availability data be refined by creating ESS specific codes for CAISO's generator data.[52] They argue that more detailed information gathering will help inform future actions. EPRI also requests more detailed environmental information, investigations, and root cause analyses be mandated for reportable incidents.[53] We decline to accept EPRI's recommendations. We rely on environmental protection partners to analyze and evaluate environmental impacts. While we agree with EPRI that additional information could be informative, sometimes

[47] NEER Comments at 2.

[48] NEER Comments at 2.

[49] Southern Power Comments at 1; NEER Comments at 3.

[50] IEP Comments at 7.

[51] Aypa Comments at 4.

[52] EPRI Comments at 4.

[53] EPRI Comments at 3.

environmental testing is not available at the time incident reports are submitted. When a facility experiences a significant catastrophic or systemic failure, we gather root cause analyses through data requests to identify the cause and to prevent failures from reoccurring. Some incidents are not serious enough to require a root cause analysis, so requiring one in every incident would be unduly burdensome.[54] We acknowledge the value of collecting information and analyzing significant incidents and failures, however they are not publicly available and not every safety-related incident will require a root cause analysis.

Audits, Inspections, and Investigations (Section 10)
NEER raises concerns that repeated testing and enforcement by SED could result in insufficient time for ESS facilities to implement new requirements, imposing significant cost to the ESS facility that would ultimately be borne by consumers.[55] NEER suggests changes to Section 10.3 of GO 167-C to specify when SED is authorized to request testing, retesting, and technical evaluations.[56] We decline to adopt this recommendation. SED fills the compliance and enforcement role within the Commission for purposes of protecting the public from harm. SED follows proactive enforcement procedures, rather than reactive, to prevent public harm before it occurs. Imposing limitations and burdens on SED's ability to ensure compliance with GO 167-C by ESS facilities would constitute an unreasonable threat to public safety.

Southern Power seeks an extension of the time to report non-OSHA-recordable events from 24 to 48, or even 72, hours to allow sufficient time for investigation and mitigation during ongoing situations.[57] To ensure we are aware of safety incidents, an initial report is required within 24 hours. Initial reports can be filed with available information and supplemented at a later time, but we decline to adopt this recommendation to ensure we are well-informed and up to date. They also request the scope of reportable injuries and illnesses be modified to require admission to a hospital to align with OSHA-reportable requirements, and that third-party audits and tests conducted pursuant to a Power Purchase Agreement be allowed in lieu of tests and technical evaluations requested by the Commission where appropriate.[58] We will accept results of tests and audits if they are applicable to the type of test or technical evaluation sought at our discretion, and this is already practiced in relation to tests performed for CAISO or other contracts. We decline to impose further limitations on reporting, as it is important we are aware of all injuries and illnesses.

[54] CESA Workshop 2 Comments (June 27, 2024) at 4.

[55] NEER Comments at 4-5.

[56] NEER Comments at 4-5.

[57] Southern Power at 1.

[58] Southern Power at 1.

EPRI states that reviewing emergency response plans on an annual basis would ensure they are up to date.[59] Operation Standard 20 requires ESSOs and GAOs to train personnel in the emergency plan periodically, which can be comprised of annual emergency drills. We do not believe there is a need to further specify the frequency of review and decline to adopt this recommendation.

IEP notes that the revisions remove the word "monthly" in Section 9.3.1 relating to outage reports to the ISO.[60] They state that, while the reports are required to be submitted monthly by statute,[61] removing the word in GO 167-C could cause confusion and inconsistency. The statute requires that the CAISO provide a daily report of generation and storage outages to the Commission, and "each entity that that owns or operates an electric generating unit in California with a rated maximum capacity of 10 megawatts or greater shall provide a monthly report."[62] The reference to the monthly report does not apply to ESS. Current CAISO outage reporting rules require that GAOs and ESSOs report outages of 10 MWs and greater or 5% of PMAX within an hour of the outage start.[63] We disagree with IEP and decline their recommendation to add the word "monthly" to Section 9.3.1.

IEP also expresses confusion about whether reports of significant media coverage are required to be submitted within 24 hours of an incident as specified.[64] They believe it is reasonable to allow 5 business days to report those incidents. We believe the language of GO 167-C is clear as to the reporting timelines and decline to adopt their recommendation.

Other Comments

CESA and IEP express concerns about instituting changes to GO 167 through a resolution.[65] They request instead that the Commission open a rulemaking proceeding for consideration of future amendments to GO 167-C and to create a more structured forum for stakeholders to provide feedback.[66] EPRI observes that annual training and workshops would improve emergency response and coordination with local first

[59] EPRI at 4.

[60] IEP Comments at 6.

[61] Pub. Util. Code § 761.3(e).

[62] Pub. Util. Code 761.3(e).

[63] CAISO Tariff Section 9 and CAISO Business Practice Manual (BPM) for Outage Management, Section 4.0 Outage Reporting at 28.

[64] IEP Comments at 6-7.

[65] IEP Comments 1-6; CESA Comments at 1.

[66] IEP Comments at 5-6; CESA Comments at 1.

response agencies, which could occur through an ongoing rulemaking proceeding.[67] We reiterate that it is appropriate to institute changes to General Order 167 through a Commission resolution. Whether to open a rulemaking to consider further amendments to GO 167-C is outside of the scope of this resolution.

CESA and Aypa support the 180-day timeline for existing facilities to comply with the requirements of GO 167-C but express concern with the shorter implementation deadlines for new facilities, defined as facilities with a Commercial Operation Date (COD) within six months of the final approval of GO 167-C.[68] The current proposal requires new facilities to submit the Verified Statement for Logbook Standards within 30 days of their COD and the Initial Certification of Maintenance and Operations Standards within 90 days of their COD. Aypa and CESA both suggest extending the 180-day timeline for existing facilities to also apply to new facilities.[69] In response to these comments, we have revised the deadlines. New facilities must submit their Verified Statement within 180 days of the effective date of GO 167-C or 30 days of being placed into active service, whichever is later. New facilities must submit their Initial Certification within 180 days of the effective date of GO 167-C or 90 days of being placed into active service.

24M Technologies recommends the Commission recognize and encourage advanced battery safety technologies and consider adopting performance-based standards for in-cell safety technologies that are equivalent to industry standards and best practices.[70] EPRI suggests the Commission link specified requirements to guidelines established by the North American Electric Reliability Corporation.[71] We are advancing safe technology and industry standards through this General Order to ensure public protection and increase availability of safe, affordable, and reliable energy for the state.

[67] EPRI Comments at 4.

[68] CESA Comments at 2; Aypa Comments at 4.

[69] Aypa Comments at 4; CESA Comments at 2.

[70] 24M Comments at 2.

[71] NERC at 2.

FINDINGS

1. SB 1383 mandated the implementation and enforcement of standards for the maintenance and operation of ESS.
2. SB 38 required the creation of requirements for Emergency Response and Emergency Action Plans applied to ESSOs.
3. The Commission should modify Section 2 of GO 167 to include definitions of ESS and ESSOs and to revise other sections relevant to ESSs.
4. The changes proposed by ESRB to GO 167 provide necessary updates to definitions, references, industry codes, and standards.
5. The changes proposed by ESRB to GO 167 modify Maintenance and Operation Standards for Generating Assets, add provisions to enhance safety, reliability, and effectiveness of Generating Assets and Energy Storage Systems operation and maintenance, update procedures, references, and definitions, and remove obsolete references and add relevant language.
6. Regulatory oversight of ESS facilities is required by statute and necessary because of the safety and reliability risks that can occur if ESS facilities are not properly operated and maintained.
7. The proposed changes to GO 167 represent time-sensitive safety measures required for the CPUC to ensure the safety and reliability of ESSs.
8. The proposed changes are beneficial to public safety, service reliability, and may help prevent future incidents involving fatalities, injuries, and safety and reliability issues.
9. The proposed changes to GO shall be effective today.
10. GO 167 was adopted in 2004 and has been revised by both resolution and decision over the past twenty years.

THEREFORE, IT IS ORDERED that:

1. General Order 167-C (as shown in Appendix A to this Resolution) is adopted to supersede General Order 167-B.
2. GO 167-C is effective today.
3. Within 15 days of the effective date of this resolution, the Safety and Enforcement Division shall post a revised GO 167-C on the Commission's web site.
4. This resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed, and adopted at a conference of the Public Utilities Commission of the State of California held on March 13, 2025 the following Commissioners voting favorably thereon:

/s/ RACHEL PETERSON
Rachel Peterson
Executive Director

ALICE REYNOLDS
President
DARCIE L. HOUCK
JOHN REYNOLDS
KAREN DOUGLAS
MATTHEW BAKER
Commissioners