PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

May 16, 2025

Luis Carlos
Site Manager
3020 West Country Road 16
Seeley, CA 92273

SUBJECT: **Generation Audit of Imperial Solar Energy Center West (ISECW)**
Audit Number GA2024-10IS

Dear Mr. Carlos:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Emmanuel Salas and Evan Coughran of ESRB staff conducted a generation audit of Imperial Solar Energy Center West from February 24 through February 27, 2025.

During the audit, ESRB observed plant operations, inspected equipment, reviewed data, interviewed plant staff, and identified potential violations of General Order (GO) 167-B. A copy of the audit findings itemizing the violations is attached. Please advise me by email no later than June 13, 2025, by providing an electronic copy of all corrective actions and preventive measures taken and/or planned to be taken to resolve the violations.

Your response should include a Corrective Action Plan with a description and completion date of each action and measure completed. For any violations not corrected, please provide the projected completion dates to correct the violations and achieve full compliance with GO 167-C.

Please submit your response to Emmanuel Salas at emmanuel.salas@cpuc.ca.gov. Please note that although Imperial Solar Energy Center West has been given 30 days to respond, it has a continuing obligation to comply with all applicable GO 167-C requirements; therefore, the response period does not alter this continuing duty.

The CPUC intends to publish the audit report of Imperial Solar Energy Center West on the CPUC website. If you wish to make a claim of confidentiality covering any of the information in the report, you may submit a confidentiality request pursuant to Section 14.4 of GO 167-C, using the heading "General Order 167-C Confidentiality Claim" along with such redactions. The request and redacted version of the audit report should be sent to Emmanuel Salas with a copy to me and the GO-167 inbox GO167@cpuc.ca.gov by June 13, 2025.

Please note that ESRB will also post the Imperial Solar Energy Center West audit report response on the CPUC website. If there is any information in your response that you would like us to consider as confidential, we request that in addition to your confidential response, you provide us with a redacted version of your audit response that can be posted on the CPUC website.

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Thank you for your courtesy and cooperation throughout the audit process. If you have any questions concerning this audit, please contact Emmanuel Salas at emmanuel.salas@cpuc.ca.gov or (916) 347-6415.

Sincerely,

Banu Acimis, P.E.
Program and Project Supervisor
Electric Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission

Attachment: CPUC Generation Audit Findings

Cc: Lee Palmer, Director, Safety and Enforcement Division, CPUC
Eric Wu, Program Manager, ESRB, SED, CPUC
Stephen Hur, Senior Utilities Engineer - Supervisor, ESRB, SED, CPUC
Emmanuel Salas, Utilities Engineer, ESRB, SED, CPUC
Evan Coughran, Utilities Engineer, ESRB, SED, CPUC

CPUC AUDIT FINDINGS OF
IMPERIAL SOLAR ENERGY CENTER WEST
FEBRUARY 24 – FEBRUARY 27, 2025

I. Findings Requiring Corrective Actions

Finding 1: Imperial Solar Energy Center West (ISECW) must implement a method to verify the operational status of the battery room exhaust fans.

General Order (GO) 167-B, Appendix D, Maintenance Standard (MS) 1: Safety states in part:

> *"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."*

GO 167-B, Appendix D, MS 8: Maintenance Procedures and Documentation states:

> *"Maintenance procedures and documents are clear and technically accurate, provide appropriate direction, and are used to support safe and reliable plant 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."*

GO 167-B, Appendix D, MS 11: Plant Status and Configuration states:

> *"Station activities are effectively managed so plant status and configuration are maintained to support safe, reliable and efficient operation."*

During the site inspection, Electric Safety and Reliability Branch (ESRB) inspectors found that the two exhaust fans serving the Dunaway switchyard battery rooms lack a method of functional testing to verify operational status. Exhaust fans in battery rooms are critical for ventilating potentially hazardous gases, such as hydrogen, that may be released during battery charging. Without a means to confirm that these fans are operating as intended, there is an increased risk of gas accumulation, which could lead to fire or explosion hazards. ISECW must develop and implement a method and procedure to regularly test the functionality of the battery room exhaust fans and ensure the results are documented. ISECW must submit the testing method, procedure, and evidence of initial testing to ESRB for review and verification.

Figure 1: Battery room exhaust fan sensor with no method for functional testing.

Figure 2: North and south-side exhaust fans lack a method for functional testing.

Finding 2: ISECW is not consistently completing or properly retaining Job Briefing and Job Hazard Analysis (JHA) forms for work activities.

GO 167-B, Appendix E, Operating Standard (OS) 1: Safety states in part:

> *"The protection of life and limb for the work force is paramount. GAOs have a comprehensive safety program in place at each site. The company 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."*

GO 167-B, Appendix E, OS 7: Operation Procedures and Documentation states in part:

> *"Operation procedures and documents are clear and technically accurate, provide appropriate direction, and are used to support safe and reliable plant operation."*

During documentation review, ESRB inspectors observed that ISECW personnel are not completing job briefing forms for every job. When job briefing forms are completed, they are not consistently stored for recordkeeping purposes. According to ISECW procedures, ISECW must complete job briefing forms for every job and for each day of the job if the work spans over multiple days. Job briefings are a critical step to ensure that Plant staff and all personnel involved are aware of all associated risks and prepared to perform the work safely. ISECW must ensure that job briefings are completed daily and that records of these briefings are properly retained.

ISECW personnel must also review JHA's each day that qualifying work continues, as part of the daily job briefing process. ISECW must ensure that a JHA is developed for all applicable work and that it is reviewed and documented during the pre-work job briefing.

Finding 3: ISECW's emergency training drills are lacking critical information.

GO 167-B, Appendix E, OS 1: Safety states:

> *"The protection of life and limb for the work force is paramount. GAOs have a comprehensive safety program in place at each site. The company 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."*

GO 167-B, Appendix E, OS 4: Problem Resolution and Continuing Improvement states:

> *"The GAO values and fosters an environment of continuous improvement and timely and effective problem resolution."*

GO 167-B, Appendix E, OS 6: Training Support states:

> *"A systematic approach to training is used to achieve, improve, and maintain a high level of personnel knowledge, skill, and performance. Each GAO provides a site-specific training program including on-the-job training, covering operations, including reasonably anticipated abnormal and emergency operations. Personnel are trained commensurate with their duties."*

GO 167-B, Appendix E, OS 20: Preparedness for On-Site and Off-Site Emergencies states:

> *"The GAO plans for, prepares for, and responds to reasonably anticipated emergencies on and off the plant site, primarily to protect plant personnel and the public, and secondarily to minimize damage to maintain the reliability and availability of the plant. Among other things, the GAO:*
>
> *A. Plans for the continuity of management and communications during emergencies, both within and outside the plant,*
> *B. Trains personnel in the emergency plan periodically, and*
> *C. Ensures provision of emergency information and materials to personnel."*

During the documentation review, ESRB inspectors observed ISECW poorly documents emergency drills and does not document critical elements of the drills. Specifically, the documentation lacks sign-in sheets to verify employee participation and fails to include post-drill debriefs. These deficiencies hinder the ability to confirm that all personnel are receiving emergency preparedness training and prevent a meaningful evaluation of emergency drill effectiveness. ISECW must ensure that it thoroughly documents all emergency drills, including a complete participant sign-in sheet and a formal debrief that identifies any deficiencies and outlines the corrective actions taken.

Finding 4: Company issued vehicles are not adequately equipped with Automated External Defibrillator's (AED).

GO 167-B, Appendix D, MS 1: Safety states in part:

> *"The protection of life and limb for the work force is paramount. GAOs have a comprehensive safety program in place at each site. The company 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."*

GO 167-B, Appendix E, OS 1: Safety states:

> *"The protection of life and limb for the work force is paramount. GAOs have a comprehensive safety program in place at each site. The company 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."*

ESRB inspected ISECW's company issued vehicles and found that ISECW did not equip them with AEDs. According to Section 3.4.5 of the *Emergency Response Plan* and Section 21.2.1 of the *Environmental Health & Safety Manual*, ISEC shall keep AEDs in manned office buildings and in each field worker's company issued vehicle. ISECW must equip all company-issued field vehicles with AEDs and ensure that all work vehicles are consistently outfitted with the required safety equipment. ISECW must provide photographic documentation confirming that all company-issued vehicles have been equipped with AEDs to ESRB for review.

Finding 5: ISECW must keep a list of all confined spaces on site.

GO 167-B, Appendix E, OS 1: Safety states in part:

> *"The protection of life and limb for the work force is paramount. GAOs have a comprehensive safety program in place at each site. The company 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."*

GO 167-B, Appendix E, OS 7: Operation Procedures and Documentation states in part:

> *"Operation procedures and documents are clear and technically accurate, provide appropriate direction, and are used to support safe and reliable plant operation."*

ESRB inspectors noted that ISECW does not have a comprehensive list of all confined spaces located on their premises. Section 6.2.2.2 of the Confined Space Entry Procedure states that ISECW must maintain a list of all active confined spaces throughout the Plant in the Confined Space Entry Logbook. ISECW must create and maintain a list of all active confined spaces throughout the Plant and submit it to ESRB for review.

Finding 6: ISECW must perform and retain annual SP001 inspection records for aboveground storage tanks.

GO 167-B, Appendix D, MS 1: Safety states in part:

> *"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."*

GO 167-B, Appendix D, MS 11: Plant Status and Configuration states:

> *"Station activities are effectively managed so plant status and configuration are maintained to support safe, reliable and efficient operation."*

During the documentation review, ESRB inspectors noted that the Plant does not have records of annual SP001 aboveground storage tank inspections for previous years, as required by section 6.2 *Integrity Testing* of the Spill Prevention Control and Countermeasure Plan (SPCC). The ISECW team conducted the 2025 SP001 during the time of the site visit, but ISECW was not able to provide documentation for prior annual inspections. Moving forward, ISECW must ensure that personnel perform SP001 inspections annually and that records are maintained and readily accessible for review.

Finding 7: ISECW must add an annual review sign-off page to the Emergency Action Plan (EAP).

GO 167-B, Appendix E, OS 1: Safety states:

> *"The protection of life and limb for the work force is paramount. GAOs have a comprehensive safety program in place at each site. The company 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."

GO 167-B, Appendix E, OS 7: Safety states:

"Operation procedures exist for critical systems and states of those systems necessary for the operation of the unit including startup, shutdown, normal operation, and reasonably anticipated abnormal and emergency conditions. Operation procedures and documents are clear and technically accurate, provide appropriate direction, and are used to support safe and reliable plant 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."

During the documentation review, ESRB inspectors noted that Section 17.1 of the EAP states the EAP must be reviewed annually. However, the current version of the EAP does not include a mechanism to verify that ISECW is conducting these annual EAP reviews. Without a documented sign-off process, there is no way to confirm compliance with the annual review requirement. ISECW must update the EAP to include an annual review sign-off sheet to ensure accountability and facilitate verification of compliance during future inspections. ISECW must submit the updated EAP with the sign-off sheet to ESRB for review.

Finding 8: ISECW did not conduct the required annual review of the Confined Space Procedure and the North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection (CIP) 003 - Low Impact Compliance Plan.

GO 167-B, Appendix E, OS 1: Safety states in part:

"The protection of life and limb for the work force is paramount. GAOs have a comprehensive safety program in place at each site. The company 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."

GO 167-B, Appendix E, OS 7: Operation Procedures and Documentation states in part:

"Operation procedures and documents are clear and technically accurate, provide appropriate direction, and are used to support safe and reliable plant operation."

ESRB inspectors noted that ISECW's Confined Space Procedure and NERC CIP-003 - Low Impact Compliance Plan state that ISECW must conduct an annual review of the documents to ensure the accuracy of the information contained in each plan. However, the attached logs indicate that ISECW has not performed these reviews in over a year. ISECW must follow its procedures by keeping all plans accurate, up to date, and properly maintained. ISECW must review both the Confined Space Procedure and the NERC CIP-003 Low Impact Compliance Plan annually, and ISECW must update the associated review logs to reflect completion of the review. ISECW must submit updated review logs and confirmation of completed document reviews to ESRB for verification.

Finding 9: Work orders were found to be lacking detail on completed work.

GO 167-B, Appendix D, MS 9: Conduct of Maintenance states:

"Maintenance is conducted in an effective and efficient manner so equipment performance and materiel condition effectively support reliable plant operation."

GO 167-B, Appendix D, MS 10 Work Management states:

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

GO 167-B, Appendix E, OS 7: Operation Procedures and Documentation states in part:

"Operation procedures and documents are clear and technically accurate, provide appropriate direction, and are used to support safe and reliable plant operation."

During the documentation review, ESRB inspectors noted that several completed work orders lacked details pertaining to the work being performed. ISECW must consolidate all relevant details and information on completed work orders in the work order management system to ensure that the information related to the completed work is properly documented and stored. Moving forward, ISECW must ensure that work orders include clear, detailed descriptions of the work performed and all pertinent information related to the task.

Finding 10: ISECW must centralize employee training record management to ensure accurate and up-to-date employee certifications and training records.

GO 167-B, Appendix E, OS 1: Safety states:

"The protection of life and limb for the work force is paramount. GAOs have a comprehensive safety program in place at each site. The company 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."

GO 167-B, Appendix E, OS 6: Training Support states**:**

"A systematic approach to training is used to achieve, improve, and maintain a high level of personnel knowledge, skill, and performance. Each GAO provides a site-General Order specific training program including on-the-job training, covering operations, including reasonably anticipated abnormal and emergency operations. Personnel are trained commensurate with their duties."

During the documentation review, ESRB inspectors found that ISECW does not maintain employee training records in a centralized database. Some of the employee training records that ISECW provided were outdated or indicated expired certifications, despite Plant staff possessing valid certification cards. The decentralized and inconsistent state of training documentation makes it difficult to verify compliance and track training status across personnel. Proper training record management is essential for maintaining workforce qualifications and ensuring regulatory compliance. ISECW must establish a centralized system for managing and storing all training records to ensure timely tracking, verification, and accessibility of up-to-date certifications.

ISECW must submit the proposed method for centralizing training records along with a timeline for implementation to ESRB for review.

Finding 11: ISECW must verify contractor employee status and ensure training certifications are current.

GO 167-B, Appendix D, MS 1: Safety states in part:

> *"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."*

GO 167-B, Appendix D, MS 6: Training Support states**:**

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

During the documentation review, ESRB inspectors identified deficiencies in the tracking and management of contractor employee training records and certification status. Specifically, ISECW submitted expired certifications for a Hampton Tedder employee, with no confirmation of whether the individual is still employed by the contractor or currently working on-site. If the individual is no longer with the contractor, ISECW must properly archive the outdated records and exclude them from active documentation. Submitting expired or irrelevant certifications creates confusion and undermines efforts to verify compliance. ISECW must implement a process to ensure that they regularly review contractor records, archive outdated records, and only provide current certifications for active personnel during audits. ISECW must submit a plan to ESRB outlining how it will review and manage contractor training records going forward, including how outdated records will be archived and how current certifications for active personnel will be tracked and provided, along with a timeline for implementation.

Finding 12: ISECW personnel must implement and document subcontractor spot checks.

GO 167-B, Appendix D, MS 1: Safety states in part:

> *"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."*

GO 167-B, Appendix E, OS 12: Operations Conduct states in part**:**

> *"To ensure safety, and optimize plant availability, the GAO conducts operations systematically, professionally, and in accordance with approved policies and procedures. The GAO takes responsibility for personnel actions, assigns personnel to tasks for which they are trained, and requires personnel to follow plant and operation procedures and instructions while taking responsibility for safety."*

During the documentation review, ESRB inspectors found that ISECW personnel do not document periodic spot checks of subcontractor work as required by section 5.4 of the Subcontractor Management Program. Regular oversight of subcontractor activities is essential to ensure compliance with safety procedures and work quality standards. The absence of documented spot checks limits accountability and may lead to lapses in safe work practices.

ISECW must implement and document periodic spot checks on subcontractor work. ISECW must maintain documentation of spot checks and ensure they are available for review.

Finding 13: ISECW is missing safety signage in multiple areas.

GO 167-B, Appendix E, OS 1: Safety states:

> *"The protection of life and limb for the work force is paramount. GAOs have a comprehensive safety program in place at each site. The company 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."*

GO 167-B, Appendix E, OS 8: Plant Status and Configuration states:

> *"Station activities are effectively managed so plant status and configuration are maintained to support safe, reliable and efficient operation."*

National Fire Protection Association (NFPA) 704: 4.2.3.3 states in part:

> *"Where more than one chemical is present in a building or specific area, professional judgement shall be exercised to indicate ratings using the following methods:*
>
> 1) *Composite Method. Where many chemicals are present, a single sign shall summarize the maximum ratings contributed by the material(s) in each category and the special hazard category for the building and/or area."*

During the site inspection, ESRB inspectors observed that NFPA hazard diamond placards were not posted at the front gate of the Plant or at the front gate of the Dunaway switchyard. The absence of these placards represents a potential safety and emergency response concern, as NFPA hazard diamonds provide critical information to first responders regarding flammability, health, and reactivity hazards present on-site. Without proper hazard identification signage, emergency personnel may lack the necessary information to respond safely and effectively in the event of an incident. ISECW must install clearly visible NFPA hazard diamond placards at all primary points of entry, including the front gates of the Plant and the switchyard.

Additionally, ESRB inspectors noted the absence of high voltage warning signage around the fencing of the Dunaway switchyard. The absence of high voltage signage poses a safety hazard by failing to warn personnel and visitors of the presence of energized equipment within the switchyard. Clear and visible high voltage signage is necessary to help mitigate unauthorized access and reduce the risk of electrical injury or fatality. ISECW must install high voltage warning signs around the fence of the Dunaway switchyard.

ISECW must submit photographic documentation of the installed NFPA 704 placards and high voltage signage to ESRB for review.

Figure 3: Plant front gate with missing NFPA 704 placard.


Figure 4: Dunaway switchyard front gate with missing NFPA 704 placard and high voltage signage.

II. List of Documents Reviewed

Category	Reference #	CPUC-Requested Documents
Safety	1	Orientation Program for Visitors and Contractors**
	2	Evacuation Procedure
	3	Evacuation Map and Plant Layout
	4	Evacuation Drill Report & Critique (last 3 years)
	5	Hazmat Handling Procedure
	6	MSDS for All Hazardous Chemicals
	7	Injury & Illness Prevention Plan (IIPP) (last 3 years)
	8	OSHA Form 300 (Injury Log) in last 4 years
	9	OSHA Form 301 (Incident Report) in last 4 years
	10	List of all CPUC Reportable Incidents (last 5 years)
	11	Root Cause Analysis of all Reportable Incidents (if any)
	12	Fire Protection System Inspection Record and Fire Sprinklers Test Report (last 3 years)
	13	Insurance Report / Loss Prevention / Risk Survey (last 3 years)
	14	Lockout / Tagout Procedure (last 3 revisions, if applicable)
	15	Arc flash Analysis
	16	Confined Space Entry Procedure
	17	Plant Physical Security and Cyber Security Procedures and Records
Training	18	Safety Training Records*
	19	Skill-related Training Records*
	20	Certifications for Welders, Forklift & Crane Operators*
	21	Hazmat Training and Record*
Contractor	22	Latest list of Qualified Contractors*
	23	Contractor Selection / Qualification Procedure
	24	Contractor Certification Records
	25	Contractor Safety Program Procedure and Training Records
Regulatory	26	Water Permit (if applicable)
	27	Spill Prevention Control Plan (SPCC) (if applicable)
	28	CalARP Risk Management Plan (RMP)

O&M	29	Daily Round Sheets / Checklists
	30	Logbook**
	31	List of Open/Backlogged Work Orders*
	32	List of Closed/Retired Work Orders (last 3 years)*
	33	Work Order Management Procedure (last 3 revisions, if applicable)
	34	Computerized Maintenance Management System (Demonstration On-site)**
	35	All Root Cause Analyses (if any)
	36	Maintenance & Inspection Procedures, or Related Documents (last 3 revisions, if applicable)
	37	SCADA system (Demonstration On-site)**
	38	Maintenance and Inspection Records for Solar Inverters
	39	Maintenance and Inspection Records for Solar Trackers
	40	Maintenance and Inspection Records for Solar Arrays/Collectors/Solar Field
	41	Maintenance and Inspection Records for Mounting System
	42	Maintenance and Inspection Records for Switchgear/breaker/relays
	43	Maintenance and Inspection Records for Electrical System
	44	Maintenance and Inspection Records for Main Transformer(s)
	45	Maintenance and Inspection Records for Switchyard & Transmission Equipment
	46	Maintenance and Inspection Records for other equipment
Documents	47	P&IDs*
	48	Vendor Manuals*
	49	Solar Farm Equipment Design Data
	50	Procedure Compliance Policy
Spare Parts	51	Spare Parts Inventory List
	52	Shelf-life Assessment Report
Management	53	Organizational Chart
Instrumentation	54	Instrument Calibration Procedures and Records
Test Equipment	55	Measuring & Testing Equipment List
	56	Test Equipment Calibration Procedures and Records
Internal Audit	57	Internal Audit Procedures and all Records

* Provide data in a searchable format such as a searchable PDF, Word Document, Excel Spreadsheet, etc.

** These items may be provided on-site by the first day of the audit.