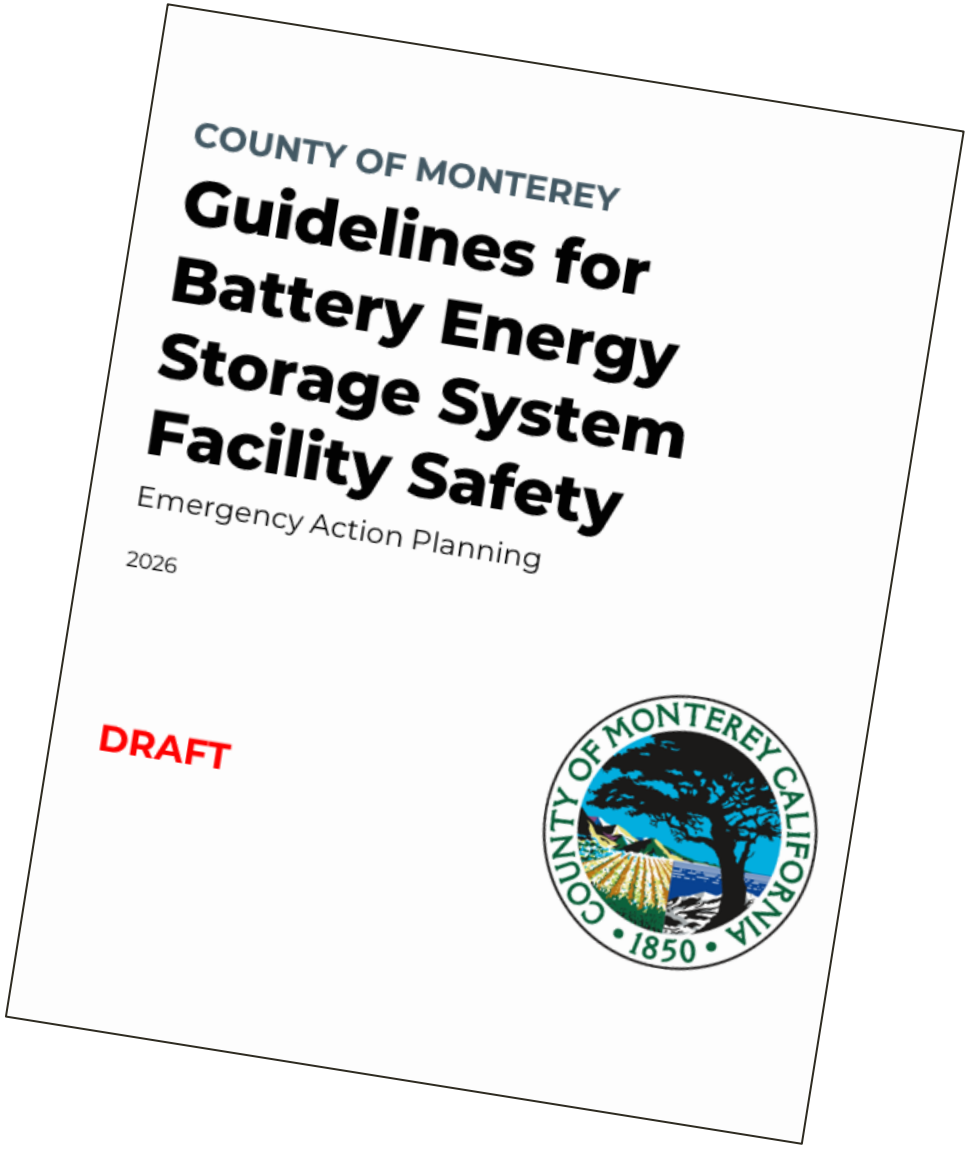
Guidelines for Battery Energy Storage System Facility Safety

OVERVIEW

- Document to provide guidelines for the preparation of an Emergency Action Plan for a BESS facility
- Process not policy document; tool for applicants and reviewers
- Applicability: A facility is assumed to be subject to the CPUC modified General Order (GO) 167-C emergency response and emergency action planning requirements, which apply to all Generating Assets and Energy Storage Systems rated greater than 1 Megawatt (MW).
- This document seeks to facilitate the development of plans that are comprehensive and consistent.
- The objective of this guidance is to improve preparedness by defining clear expectations for risk identification, scenario modeling, interagency coordination, and community protection measures.



PURPOSE & VALUE

Why a standardized framework matters

Establishes a standardized framework for developing Battery Energy Storage System (BESS) Facility Emergency Action Plans — built to be consistent, complete, and coordinated across every site.

Standardized & Consistent

- Uniform plan format improves clarity and usability
- Promotes consistent emergency planning across all BESS facilities
- Common structure supports easier stakeholder coordination

Comprehensive Preparedness

- Covers preparedness, response, recovery, and public safety in every plan
- Defines clear roles, responsibilities, and communication protocols
- Spells out concrete response actions for each scenario

Compliance & Accountability

- Formalizes plan submission, review, and approval steps
- Supports SB38 compliance across the operational area
- Creates a documented, auditable planning trail

Coordination & Community Safety

- Aligns operators, responders, local government, and regulators
- Strengthens community safety through shared expectations
- Builds standardized, region-wide emergency readiness

GUIDE DEVELOPMENT PROCESS

1

RESEARCH

Reviewed federal, state, and local guidance and regulations; identified applicable compliance requirements.

2

HISTORICAL INCIDENT REVIEW

Analyzed past incidents for gaps, challenges, and lessons learned.

3

STATE & NATIONWIDE BEST PRACTICES

Aligned with state and national response frameworks **(Cal OES, FEMA, NIMS/ICS).**

4

RESPONSE MODELS REVIEWED

Benchmarked against dams, levees, refineries, nuclear facilities, and other high-consequence sectors.

5

ENGAGED PARTICIPATING AGENCIES

Environmental Health, Salinas HAZMAT, North County Fire, MCSO, HCD, County Counsel.

6

AGENCY REVIEW PROCESS

Draft circulated for subject-matter review; feedback incorporated into final guide.

EAP SUBISSION & REVIEW

Plan Submission

- ISO submits EAP to County of Monterey Housing and Community Development (HCD), which oversees intake and routing

Review Timeline

- Initial review: ~30 days | Technical comments: 60 days | Final review/revision request: 90 days
- ISO must designate a technical contact; follow-up meetings may be requested for plume modeling review

Multi-Agency Review

- HCD coordinates multi-agency review, compiles comments for ISO
- Shall review: Emergency Management, Environmental Health, Housing and Community Development, Sheriff's Office, Local Fire District
- May review: Salinas HAZMAT Team, CHP, Caltrans, CalEPA, County Administrative Office, Monterey Bay Air Resource District, National Weather Service

Plan Distribution

- Distributed to all Notification List agencies; current version kept accessible on-site
- Updates shared promptly with all recipients
- Redacted version (no restricted technical/contact data) available for public requests

EMERGENCY ACTION PLANNING

ISOs are responsible for developing, updating, and maintaining a site-specific EAP. The recommended planning process offers a structured approach to build readiness, support interagency coordination, and promote an effective response.

1. **Risk Assessment and Hazard Identification**
2. **Stakeholder Engagement and Roles Definition**
3. **Develop Site-Specific Emergency Scenarios**
4. **Establish Notification and Communication Protocols**
5. **Emergency Response Procedure Development**
6. **Environmental Monitoring and Sampling Plan**
7. **Documentation and Compliance**
8. **County Submission and Review**
9. **Training and Drills**

EMERGENCY PLANNING ZONES

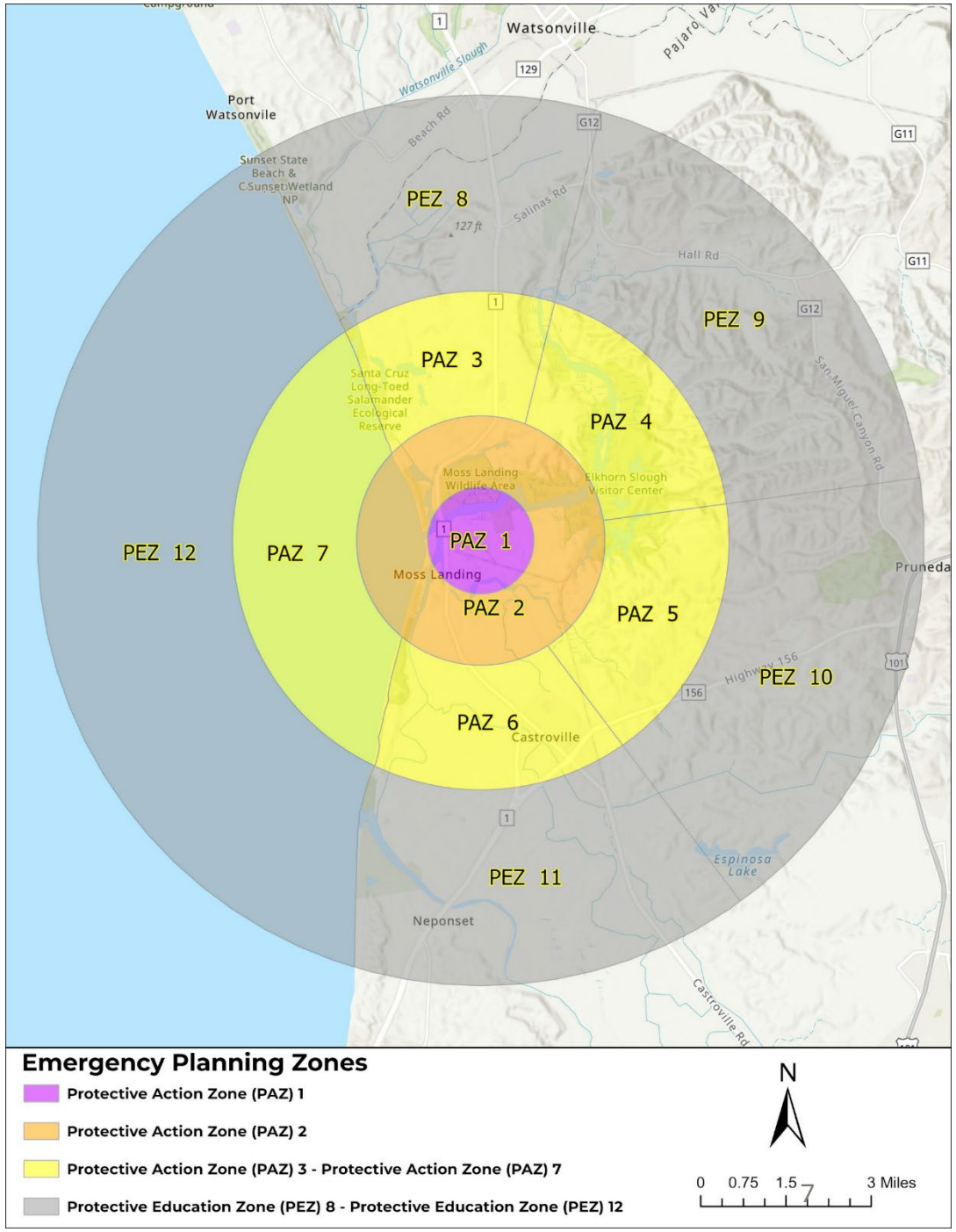
- Facility-specific zones developed using site conditions, geography , population, Plume modeling
- Used to guide protective actions, public messaging, and emergency response planning

PROTECTIVE ACTION ZONES (PAZs)

Immediate area(s) around a facility where protective measures, like evacuation or sheltering, may implemented to safeguard the public from potential exposure to hazardous materials.

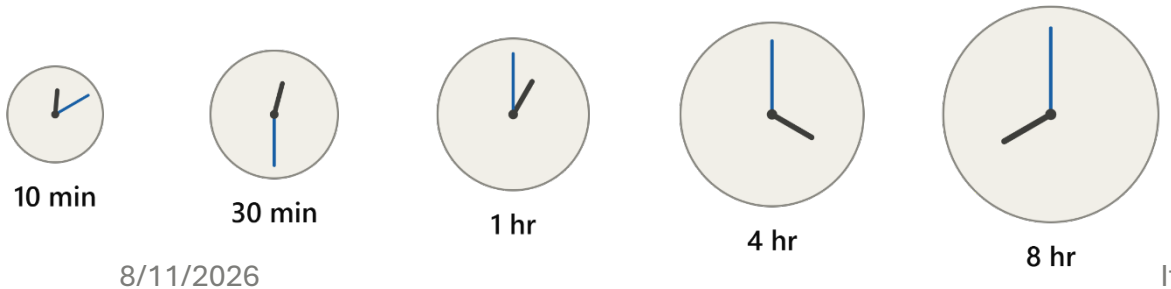
PUBLIC EDUCATION ZONES (PEZs)

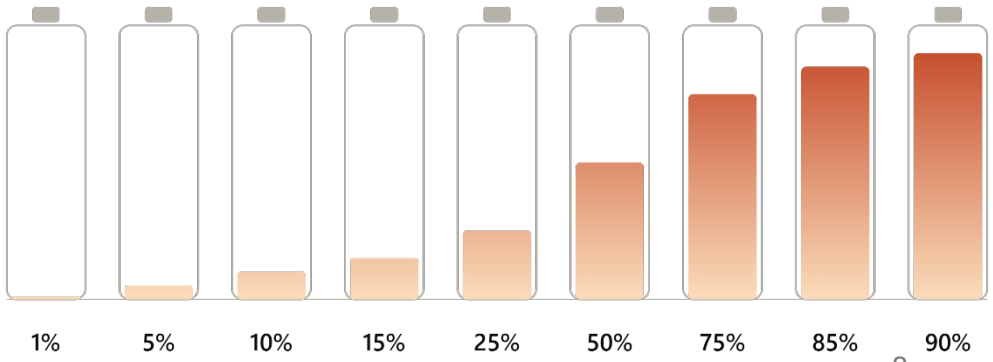
Areas near a facility where residents are not expected to be directly affected. However, because these zones are located near a facility, outside the PAZs, residents may still experience concern, misinformation, or indirect impacts such as traffic disruptions.



PLUME MODELING

- Plume modeling reflects a realistic range of potential impacts
- Multiple scenarios should be evaluated using a sensitivity analysis
- Recommends modeling:
  - 1%, 5%, 10%, 15%, 25%, 50%, 75%, 85% and 90% of the battery inventory for
  - Five exposure periods for 10 minutes, 30 minutes, 60 minutes, 4 hours, and 8 hours.





ENVIRONMENTAL SAMPLING

An environmental sampling plan and corresponding sample collection protocols help:

1) Establish an environmental baseline
2) Facilitate timely and effective sampling and data gathering after an incident occurs.

Sampling Protocols & Standards

- Sampling conducted using standardized control protocols to ensure data consistency
- Procedures apply to soil, water, air and in both baseline and post-incident sampling
- Procedures include:
  - Specified, consistent sampling depths and methods
  - Equipment decontamination between locations
  - Standard labeling
  - Field QA/QC e.g., blanks, duplicate

Screening Levels & Evaluation Criteria

- Results screened against health-based regulatory standards
- Hierarchy of use:
  1. Department of Toxic Substances Control (DTSC-modified Screening Levels)
  2. EPA Regional Screening Levels
  3. Toxic Equivalency Factors (used for dioxins)
- Where no standard exists → ISO develops a defensible site-specific screening level subject to DTSC review

Sampling Locations

Immediate Site & Fence Line: Surface soil samples every 250–500 feet along the perimeter, with higher density downwind of the fire plume or in depositional areas.

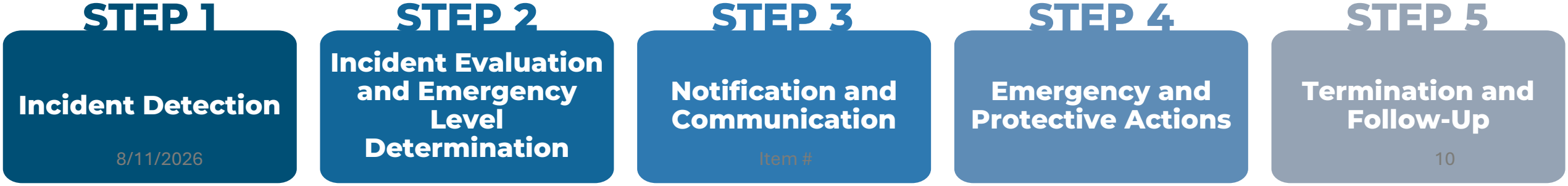
Near-Community Band (0–1 mile): 2–4 soil samples per square mile, targeted to sensitive receptors

Broader Community (>1 mile): Lower density, 1–2 soil samples per square mile, focused on depositional zones identified by modeling or visual ash fall.

Background Sites: At least 1–2 upwind/out-of-plume reference soils, ideally in areas with similar land use/soil type.

RESPONSE

- **Incident Detection –** Promptly detect, evaluate, and report abnormal conditions to maintain safety and enable timely response
- **Evaluation & Emergency Level Determination –** Classify incidents into established emergency levels based on severity
- **Notification & Communication –** Notify public safety authorities when an incident is anticipated, imminent, or has occurred
- **Emergency & Protective Actions –** Stabilize/mitigate the incident; assess situation against Emergency Planning Zones; inform public protective actions
- **Termination & Follow-Up –** Confirm incident is controlled/stabilized; safely manage damaged battery handling, storage, transport, and disposal



EMERGENCY LEVELS

Level	Impact and Action	Description	Example Incidents
Level 0	**On-Site Only** ***Notification Only***	An event involving a minor equipment malfunction with no impact to safety or operations but warrants documentation.	• Coolant Leak • Abnormal readings requiring monitoring
Level 1	**On-Site with Possible Off-Site** ***Awareness Messaging***	An event with potential safety or operational impacts, requiring increased readiness and coordination with public safety.	• Loss of primary systems with backups operational • Abnormal readings requiring enhanced monitoring
Level 2	**Minor Off-Site Impact** ***Public Health Advisory***	A serious incident impacting facility operations and on-site personnel, with **potential** for off-site impacts and consequences.	• Partial battery system loss with potential off-site impact • Fire, spill, or system failure impacting critical systems
Level 3	**Off-Site Impact** ***Public Protective Actions***	A severe incident with substantial impacts to facility operations and/or off-site areas, requiring immediate protective actions, multi-agency coordination, and rapid mobilization of on-site and emergency resources.	• Thermal runaway, large fire, or explosion • Structural failure or severe operational degradation • Uncontrolled release requiring public protective actions

Emergency Level 0

- On-Site leadership and designated company operations or safety management contacts
- Regulatory agencies or utility/grid partners, if applicable under permit or operational agreements

Emergency Level 1

- On-Site leadership and designated company operations or safety management contacts
- Applicable regulatory agencies
- Utility and grid partners
- Local First Responders such as police or fire
- 911 Dispatch Center

Emergency Level 2

- On-site leadership and facility emergency response team
- Designated company operations, safety, and executive leadership
- 911 Dispatch Center
- Local Emergency Management
- Utility and grid partners
- Applicable regulatory agencies
- Local fire and hazardous materials response agencies
- Local Law Enforcement
- National Weather Service (NWS) Local Weather Forecast Office
- Local environmental health agencies

Emergency Level 3

- On-site leadership and facility emergency response team
- Designated company operations, safety, and executive leadership
- Local Emergency Management
- 911 Dispatch Center
- Local fire, hazardous materials response, and law enforcement agencies
- Local public health authorities
- Local environmental health agencies
- Utility and grid partners
- Applicable regulatory agencies
- National Weather Service (NWS)
- State and Federal Environmental Agencies (Cal EPA, US EPA, etc.)
- Public sector stakeholders near the facility (special districts, infrastructure agencies, etc.)
- State emergency management authorities
- Neighboring Emergency Management authorities

Recommended Public Safety Notification List by Emergency Level

TRAINING & EXERCISES

- Develop a comprehensive training program.
- All facility personnel with EAP responsibilities receive regular training to ensure familiarity with emergency procedures, equipment, notification protocols, and their specific roles during an incident.
- Exercise the EAP in coordination with public safety officials.
- Exercises reveal the strengths and gaps of the plan, improve readiness, and strengthen coordination with emergency response partners.

BESS EAP Exercise Frequency Recommendations

Exercise Type	Recommended Frequency
Seminars with primary public safety officials	Annually
Drills to test the Notification List and EAP procedures	Annually
Tabletop Exercise	Every 1-2 years or before functional exercises
Functional Exercise	Every 5 years




THANK YOU