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**Formal Public Health Objection to Corby BESS Apparent
Inconsistencies in Toxic Plume Distances, Residential Exposure
Levels, an**

Additional submitted attachment is included below.

TO: CALIFORNIA ENERGY COMMISSION

715 P Street
Sacramento, CA 95814

RE: Inquiries on the Corby BESS Project (Docket No. 24-OPT-05): Apparent Discrepancies in Off-Site Hazard Footprints, Exposure Levels, Release-Risk Probability, and Disclosure of Multi-Pollutant Hazard Impacts

Dear Commissioners:

I am a local resident writing to express serious concerns regarding the proposed location of the Corby Battery Energy Storage System. Our community has repeatedly emphasized that public safety is a primary concern. A review of the Staff Assessment and its technical appendices raises significant questions about whether the geographic extent and probability of modeled off-site toxic exposures have been clearly and consistently disclosed to the public.

These concerns are particularly important because the proposed facility would be located adjacent to existing residences and agricultural properties. Appendix D models a non-fire thermal-runaway scenario involving toxic gas venting without ignition and demonstrates that off-site residential receptors can experience concentrations above acute-exposure benchmarks.

The questions below are submitted to obtain clarification of apparent inconsistencies between the Staff Assessment's narrative conclusions, Appendix D's summary tables, and the underlying receptor-specific modeling.

1. APPARENT INCONSISTENCY BETWEEN THE 2,029-FOOT, 2,412-FOOT, AND 2,925-FOOT RESULTS

Section 5.10 states that "a BESS incident could cause an exceedance of the AEGL-1 for 1-hour NO₂ at the closest few receptors within 2,029 ft (0.38 miles) of the incident BESS unit during worst-case meteorological conditions." (Staff Assessment § 5.10-18, PDF p. 756.)

Appendix D likewise reports in Table 12 a maximum modeled distance of 2,029 feet for an NO₂ AEGL-1 exceedance during the non-fire scenario. Appendix D separately analyzes the combined effects of multiple pollutants using a Hazard Index. Table 14 reports a "Maximum Distance to HI greater than 1.0" of 2,412 feet for AEGL-1. (Appendix D, PDF pp. 1337, 1339.)

The underlying receptor-specific results, however, appear inconsistent with both distance figures.

Table 9 identifies West 1 as a residence on Kilkenny Road located 2,925 feet from the closest battery unit. Appendix D explains that Table 9 reports receptor distances to the closest battery units. (Appendix D, PDF p. 1331.)

Yet Attachment 1 reports the following results for West 1: NO2 AEGL-1 hazard quotient 1.56944; combined AEGL-1 Hazard Index 1.96. (Appendix D, Attachment 1, PDF p. 1371.)

Thus, a modeled residence identified as 2,925 feet from the closest battery unit has both an NO2 hazard quotient above 1.0 and a combined AEGL-1 Hazard Index substantially above 1.0, even though Appendix D reports 2,029 feet as the maximum NO2 AEGL-1 exceedance distance and 2,412 feet as the maximum distance for combined AEGL-1 HI greater than 1.0.

Questions:

- How can West 1, identified as 2,925 feet from the closest battery unit, have an NO2 AEGL-1 hazard quotient of 1.569 and a combined AEGL-1 Hazard Index of 1.96 if the reported maximum exceedance distances are 2,029 feet and 2,412 feet, respectively?
- Were the 2,029-foot and 2,412-foot distances calculated from a different source location or under a different modeling assumption than the receptor-specific values reported for West 1? If so, where is that distinction disclosed and explained?
- Which distance accurately represents the maximum modeled geographic extent of off-site AEGL-1 impacts to existing residences?
- Does Staff consider the West 1 result an error, a modeling artifact, or a valid receptor-specific result?
- If it is valid, why is a residence at 2,925 feet not reflected in the Staff Assessment's description of the geographic extent of modeled off-site health effects?
- Will Staff reconcile these internally inconsistent figures in the Final EIR?

2. MULTI-POLLUTANT HAZARD FOOTPRINT AND NUMBER OF RESIDENTIAL RECEPTORS ABOVE HI 1.0

Section 5.10 does disclose that the maximum combined AEGL-1 Hazard Index is 3.44 at the nearest sensitive receptor. It further states that this represents combined impacts 3.44 times the AEGL-1 level. (Staff Assessment § 5.10-18, PDF p. 756.)

However, the main Public Health discussion does not disclose the full receptor-specific pattern shown in Attachment 1.

Attachment 1 reports combined AEGL-1 Hazard Index values above 1.0 at six of the twelve modeled receptors:

Receptor	Combined AEGL-1 HI
North 1	3.44
South 1	2.94
West 1	1.96

North 3	1.50
North 2	1.48
North 4	1.05

(Appendix D, Attachment 1, PDF p. 1371.)

Table 9 identifies these modeled receptors as residences or residential/worker locations on Kilkenny Road or Byrnes Road. Appendix D itself explains that a Hazard Index greater than 1.0 indicates that the combined effects of pollutants might exceed the safe exposure thresholds. It further explains that the HI approach was used because people may be exposed simultaneously to multiple pollutants and AEGLs, standing alone, do not calculate their additive effects. (Appendix D, PDF pp. 1338-1339.)

Appendix D therefore contains at least three pieces of information not clearly presented together in the main impact discussion: (1) six modeled residential receptors have combined AEGL-1 Hazard Indices above 1.0; (2) the Appendix reports a nominal maximum combined AEGL-1 HI distance of 2,412 feet; and (3) West 1 nevertheless has an HI of 1.96 despite being identified as 2,925 feet from the closest battery unit.

An EIR is evaluated for “adequacy, completeness, and a good faith effort at full disclosure.” (Cal. Code Regs., tit. 14, § 15151.)

Questions:

- Why does Section 5.10 disclose the maximum HI of 3.44 but not disclose that six modeled residential receptors have combined AEGL-1 Hazard Indices above 1.0?
- Why is the 2,412-foot combined Hazard Index result not disclosed alongside the 2,029-foot single-pollutant NO₂ result in the main Public Health discussion?
- Why is the West 1 result at 2,925 feet not disclosed when discussing the geographic extent of off-site impacts?
- Will Staff identify the six affected modeled residential receptors and their corresponding distances in the Final EIR?
- If occupancy information exists in the record, will Staff disclose the estimated number of people represented by those receptors?
- What significance criterion did Staff apply to a combined AEGL-1 Hazard Index above 1.0 in an accidental-release scenario?
- Is the HI-above-1.0 criterion being used merely as a screening tool, or as a health-protective threshold?
- If correction or disclosure of these results constitutes significant new information or materially changes the disclosed geographic extent of an environmental effect, will the Commission evaluate whether recirculation is required under CEQA Guidelines § 15088.5?

3. MEANING OF THE AEGL-1 AND HAZARD-INDEX RESULTS IN EMERGENCY PLANNING

The Staff Assessment reports that the nearest modeled receptor experiences a worst-case NO₂ concentration of 2,587.5 µg/m³, above the 1-hour NO₂ AEGL-1 of 941 µg/m³; a combined AEGL-1 Hazard Index of 3.44; and a combined AEGL-2 Hazard Index of 0.18. (Staff Assessment § 5.10-18, PDF p. 756.)

AEGLs were developed for acute chemical-release and emergency-response applications. U.S. Environmental Protection Agency materials describe AEGLs as threshold exposure limits used for emergency planning and response involving airborne chemical releases. U.S. Army Public Health guidance likewise explains that AEGLs can be combined with dispersion modeling to establish chemical plume or vulnerability zones and inform protective-action decisions. That guidance distinguishes the AEGL tiers: AEGL-1 concerns notable discomfort, irritation, or certain asymptomatic nonsensory effects that are not disabling and are transient and reversible upon cessation of exposure; AEGL-2 concerns irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape. Protective actions such as shelter-in-place or evacuation are therefore not automatically triggered by every AEGL-1 exceedance.

Accordingly, an AEGL-1 exceedance should not be characterized as automatically requiring evacuation. At the same time, AEGL-1 is an emergency-exposure benchmark and is relevant to incident planning, notification, monitoring, and protective-action decisions.

The Staff Assessment itself appears to recognize the emergency-response significance of the modeled toxic-release scenario. Staff recommends an Emergency Response Plan; an emergency notification system for thermal-runaway non-fire, fire, and explosion events; real-time air-quality monitoring; hand-held detectors capable of detecting CO, NO₂, and HF; and a drone capable of monitoring toxic air contaminants within the plume. (Staff Assessment, PDF pp. 756-757.)

Questions:

- How did Staff incorporate the fact that six modeled residential receptors exceed a combined AEGL-1 Hazard Index of 1.0 into its less-than-significant determination?
- If an accidental release can produce off-site concentrations requiring emergency notification, real-time toxic-air monitoring, specialized gas detectors, plume-monitoring equipment, and an Emergency Response Plan, how were those potential off-site consequences weighed in determining whether the proposed site is appropriate adjacent to existing residences?
- What specific concentration or monitoring result would trigger notification, shelter-in-place, evacuation, or other protective action under PH-1 and PH-2?
- Are those action levels based upon AEGL-1, AEGL-2, the combined Hazard Index, another toxicological benchmark, or emergency-responder judgment?

- If West 1 can experience a combined AEGL-1 Hazard Index of 1.96 at a reported distance of 2,925 feet, what geographic area must the Emergency Response Plan address?
- Does the currently contemplated notification area extend at least that far from the affected battery unit?

4. CLARIFICATION OF THE 0.7-PERCENT METEOROLOGICAL FREQUENCY AS AN EVENT-LEVEL “PROBABILITY”

The Staff Assessment states that “the probability that nearby residents would experience notable but temporary symptoms is only 0.7 percent under worst-case meteorological conditions.” (Staff Assessment § 5.10-18, PDF p. 756; see also § 5.1, PDF p. 201.)

The basis for that number appears to be Appendix D's meteorological-frequency calculation. The Staff Assessment explains that AERMOD evaluated 43,824 modeled meteorological hours, assuming emissions were occurring during each modeled hour. The NO₂ AEGL-1 threshold was exceeded at the nearest receptor during 301 of those hours, or approximately 0.687 percent. Appendix D similarly states that the 301 hours represent meteorological conditions during which AEGL-1 would be exceeded “if an incident is occurring.” (Appendix D, PDF p. 1343.)

The modeled non-fire incident, however, is not a one-hour event. Appendix D assumes that two racks containing 3,360 cells off-gas simultaneously over a 10-hour duration. (Appendix D, PDF p. 1326.)

This creates an important methodological question. A finding that 301 individual meteorological hours out of 43,824 produce an exceedance does not, without further analysis, necessarily establish that an entire 10-hour release event has only a 0.7-percent probability of producing an exceedance.

The ten consecutive hours of an actual release are not statistically independent meteorological events. Wind direction, wind speed, atmospheric stability, mixing height, and related conditions can persist or change systematically over a multi-hour period. For that reason, merely multiplying 0.687 percent by ten would also not establish a valid event-level probability.

The appropriate question is whether Staff actually evaluated sequential 10-hour incident windows using the five-year meteorological record.

Questions:

- Does the 0.7-percent figure represent the percentage of individual modeled meteorological hours in which a one-hour AEGL-1 exceedance occurred?
- If so, why does the Staff Assessment characterize that hourly meteorological frequency as “the probability that nearby residents would experience notable but temporary symptoms” if a BESS event occurs?

- Did Staff evaluate all possible 10-hour sequences in the five-year meteorological dataset to determine whether one or more hours during a modeled 10-hour release would produce an exceedance?
- If Staff did perform such an analysis, what was the resulting per-event probability of at least one AEGL-1 exceedance during a 10-hour non-fire incident?
- If Staff did not perform that analysis, what technical or statistical basis supports treating 301/43,824 as the probability of exposure during an entire 10-hour event?
- Were serial correlation and persistence of wind direction, atmospheric stability, and other meteorological variables considered?
- How many separate 10-hour release windows in the five-year meteorological record would have resulted in at least one modeled exceedance at North 1?
- How many would have resulted in exceedances at South 1, West 1, North 2, North 3, and North 4?
- What is the probability that any residential receptor, rather than only the nearest receptor, would exceed AEGL-1 or combined HI 1.0 during a 10-hour release?
- Were corresponding event-duration calculations performed for the modeled fire scenario?

Because the Staff Assessment expressly relies on the 0.7-percent figure as a material basis for concluding that substantial pollutant exposure would be “very unlikely,” the distinction between an hourly meteorological frequency and an event-level probability is consequential. (Staff Assessment, PDF p. 756.)

5. EXPOSURE DURATION AND USE OF ONE-HOUR AEGL VALUES FOR A TEN-HOUR RELEASE

A related question warrants clarification. Appendix D models the non-fire release as continuing for approximately 10 hours. (Appendix D, PDF p. 1326.) Yet the Staff Assessment principally reports comparisons to one-hour AEGL values.

AEGLs are duration-specific emergency exposure levels. Federal AEGL guidance recognizes that exposure duration matters when AEGL values are applied to chemical-release scenarios and addresses application of AEGL values to different exposure durations.

Questions:

- Why was the one-hour AEGL used as the principal benchmark for a release modeled to continue for ten hours?
- Did Staff separately evaluate four-hour or eight-hour AEGL values where available?
- How was the tenth hour addressed where the modeled release duration exceeds the standard eight-hour AEGL duration?

- Does the use of a one-hour concentration threshold potentially understate the consequence of prolonged exposure if a residence remains within the plume for multiple hours?
- Conversely, if Staff determined that plume direction would not remain fixed at a particular residence throughout the release, where is that sequential meteorological analysis documented?
- What exposure duration was assumed for a resident who shelters in place rather than evacuates?
- Has Staff evaluated whether an occupied residence provides sufficient protection against NO₂, HF, HCl, HCN, and the other modeled contaminants during a prolonged release?

6. REQUESTED CLARIFICATION BEFORE RELIANCE ON THE LESS-THAN-SIGNIFICANT CONCLUSION

The issue raised here is not that every AEGL-1 exceedance necessarily requires evacuation, nor that a combined HI above 1.0 establishes that every exposed individual will experience injury.

The issue is whether the Staff Assessment transparently and consistently describes what its own modeling actually predicts.

At present, the record appears to show:

- an NO₂ AEGL-1 maximum-distance statement of 2,029 feet;
- a combined AEGL-1 HI >1 maximum-distance statement of 2,412 feet;
- a residential receptor at 2,925 feet with an NO₂ hazard quotient of 1.569 and combined HI of 1.96;
- six modeled residential receptors with combined AEGL-1 Hazard Indices greater than 1.0;
- a maximum combined AEGL-1 HI of 3.44;
- a ten-hour modeled non-fire release;
- 301 individual exceedance hours among 43,824 meteorological hours; and
- a narrative characterization of that hourly frequency as a 0.7-percent probability that residents would experience symptoms if an event occurs.

These figures do not appear to tell one coherent story without additional explanation.

Before the Commission relies upon the conclusion that off-site public-health impacts would be less than significant, the public should be able to understand:

1. how far the modeled toxic plume actually extends;
2. how many modeled residential receptors exceed the applicable health benchmarks;
3. why a residence 2,925 feet away exceeds HI 1.0 when the reported maximum distance is 2,412 feet;
4. how Staff converted hourly meteorological results into an event-level probability;

5. how the ten-hour duration of the modeled non-fire release was incorporated into that probability analysis; and
6. what emergency protective actions would be required if the modeled conditions actually occurred.

These are particularly important questions for a project proposed immediately adjacent to an established residential and agricultural community.

Until the apparent spatial inconsistencies are reconciled, the full receptor-specific multi-pollutant results are clearly disclosed, and the event-probability methodology is explained, it is difficult to determine whether the Staff Assessment provides a complete and internally consistent presentation of the modeled off-site public-health risk.

Given that the modeling places existing residences within the modeled toxic-release footprint, these questions should also inform a meaningful comparison between the proposed site and feasible alternative locations offering greater separation from existing residences.

Thank you for your consideration of these inquiries.

Respectfully submitted,

Macy Nielson