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Prejudicial Errors in Appendix LU and Significant Environmental Impacts for Proposed Agricultural Site

Additional submitted attachment is included below.

September 10, 2026

Renee Longman, Project Manager
California Energy Commission
715 P Street, MS-40
Sacramento, CA 95814

Electronic filing of an 15-Page Letter with 1 Attachment.

Subject: Comments by Nina Audino Pertaining to the Appendix LU Assessment of Metal Deposition on Agricultural Soils from a Hypothetical BESS Fire Prepared for the Proposed Corby Battery Energy Storage System (BESS) Project.

Reference: California Energy Commission Docket Number 24-OPT-05.
Staff Assessment/Draft Environmental Impact Analysis Issued July 15, 2026.

Dear Ms. Longman:

I respectfully offer the following comments on the Staff Assessment and included Draft Environmental Impact Report (DEIR) prepared for the Corby Battery Energy Storage System (Corby BESS) project that is proposed by Corby Energy Storage, LLC and which also includes ancillary transmission facilities that will be owned and operated by North Bay Interconnect, LLC (collectively, applicant). These energy infrastructure developments are undergoing concurrent review by the California Energy Commission pursuant to Public Resources Code §§ 25545–25545.13. The following comments focus on errors and deficiencies noted in the impact analysis of metal deposition on agricultural soils from a BESS fire presented in Appendix LU of the Staff Assessment. I respectfully request that the Commission consider the comments provided herein and pursuant thereto, reverse the Staff Assessment’s position that a battery fire in the proposed Corby BESS project will not result in any significant impacts on agricultural lands and crops.

THE ESTIMATED DEPOSITION IS NOT BASED ON AERMOD MODELING RESULTS AS STATED

One of the most critical inputs into the model to calculate the concentration of lithium and aluminum in the surface subsoil is the amount of lithium and aluminum deposited on the surface soil. According to the Staff Assessment, Appendix LU, section 4 “The AERMOD modeling results mentioned above estimated an upper-bound theoretical

maximum deposition of lithium from a 6-hour BESS fire of 18.0 g/m^2 , and for aluminum 3.4 g/m^2 " (p. 1346/1403). This is not an accurate statement. The AERMOD modeling result in Appendix D evaluated only particulates, not the composition of particulates. The Staff Assessment arrived at the 18.0 g/m^2 by assuming that the Society of Fire Protection Engineers 2025 ("SFPE") concluded that 20.4% of the particulates are lithium and arrived at the 3.4 g/m^2 similarly by assuming that 3.9% of the particulates are aluminum. The SFPE's 2025 "Environmental and Health Impacts of Thermal Runaway Events in Outdoor Lithium-Ion Battery Energy Storage System Installations" is only a literature review and synthesis; it is not based on the study of actual site-specific conditions. These percentages for lithium and aluminum are not based on actual measurable emissions. They are nothing more than assumptions to be input into a model (p. 1346/1403). The SFPE admits that data on lithium-iron-phosphate particulate composition was not found (SFPE, p. 46). Thus, the entire so-called "analysis" in Appendix LU is not based on facts and is nothing more than speculation. Further, the SFPE was limited to "the health and environmental impacts contributed by Li-ion cells, modules, and racks of modules. BESS units contain wiring, electronics, plastic components, cooling liquid, etc. that can contribute to the production of toxic gases and metal particulate" (SFPE, p. 77). Therefore, the so-called "analysis" underestimates any impact.

COMPOUNDING THIS, A CRITICAL AND PREJUDICIAL THREE-ORDER-OF-MAGNITUDE UNIT CONVERSION ERROR IN THE STAFF ASSESSMENT UNDERREPORTS METAL DEPOSITION ON AGRICULTURAL SOIL AND ITS TOXICITY TO CROPS

The Staff Assessment contains a decimal point / unit conversion error that underreports toxic deposition rates by a factor of one thousand, or 1,000x. The Staff Assessment's stated calculated variables are:

- 18.0 grams of lithium per square meter deposited
 - soil weighing 1.3 grams per cubic centimeter
 - mixed into the top 7.6 centimeters of soil
- (p. 708/1403)

Given these variables, the top 7.6 cm of one square meter of soil weighs **98.8 kilograms**. 18.0 grams of lithium in 98.8 kilograms of soil = **182 milligrams per kilogram**. The Staff Assessment erroneously prints **0.18 mg/kg**.

Aluminum is underreported by the identical factor of one thousand. **3.4 g/m^2 produces**

34.4 mg/kg. The staff assessment prints 0.034. Two identical slips in consecutive sentences indicate a pattern, not a typo (p. 708/1403).

The Staff Assessment identifies “natural background levels” of lithium as 15-30 mg/kg for Solano County (p. 705/1403). **The corrected peak soil deposition of 182 mg/kg represents a massive spike 6 to 12 times higher than natural background levels and contaminates farmland.**

The Staff Assessment’s finding of no significant impact for soil contamination by metal deposition from a BESS fire is falsified by gross math miscalculation. **The resulting underreporting of metal deposition on agricultural soil and its toxicity to crops constitutes prejudicial error.**

THE STAFF ASSESSMENT CHERRY-PICKS BETWEEN EXISTING POST-FIRE METAL DEPOSITION SAMPLING, ESTABLISHING PREJUDICIAL EXCLUSION BIAS AT THE OUTSET OF ITS ANALYSIS

The Staff Assessment’s metal deposition calculations are based on the standard agricultural or regulatory soil depth of 7.6 cm (3 inches), which is a standard environmental zero-till soil sampling threshold for surface deposition when studying the impact of contamination on deep-rooted plants like fruit trees.

However, when calculating the leaching of atmospheric metal particulate fallout from a BESS fire or thermal runaway plume into the soil-groundwater system, it is best to use the initial ultra-shallow <5mm surface footprint and its total mass deposition. In reactive transport and hydrogeological modeling, artificially diluting the source-term concentration at the surface can cause vast underestimation of the peak concentration of metals that will leach down into groundwater, shallow aquifers and wells, thereby also impacting tree crops. Using the <5mm surface layer provides a more accurate, scientifically validated and conservative approach for groundwater impact modeling. As revealed in Dr. Ivano Aiello’s landmark study pertaining to the surface deposition of metals from the Vistra Moss Landing BESS 300 battery fire, calculating the total mass deposition within this thin surface layer accurately captures the true depositional “pulse” concentration that precipitation or firefighting water will dissolve and deeper vertical core sampling will dilute, underestimating surface contamination.¹ Aiello’s study determined that because the initial microparticle metal contaminant fallout from BESS fires sits in an ultra-shallow <5mm layer and is quickly relocated by rain and wind, standard coring dilutes the sample, while delayed testing misses the “thin,

¹<https://www.nature.com/articles/s41598-025-25972-8>

transient and patchy distribution” entirely.² The study calls “attention to the limitations of standard environmental sampling protocols. Conventional soil sampling depths, such as the [EPA’s] commonly used top ~ 6 cm of soil³ may fail to detect thin, spatially heterogenous layers.”⁴ It emphasizes the need to use “adaptive” sampling strategies “designed to capture contamination at multiple spatial scales and depths which is especially critical in the first few days following an event, since over time, rainfall, tides and wind can rapidly redistribute surface-bound contaminants.”⁵

Dr. Aiello’s study exposes an urgent blind spot in current post-disaster environmental protocols – namely relying on standard deep sediment coring for all metrics and the resulting dilution bias. When the deposition calculated in Appendix LU is spread out over an agricultural threshold of untilled soil 7.6 centimeters (3 inches) deep, it is mathematically diluted by a factor of roughly 15. Yet, although the Staff Assessment mentions Dr. Ivano Aiello’s work at the outset of its analysis and discussion, unfortunately the Assessment does not acknowledge or address his critical findings regarding the aforementioned dilution bias.

Instead, the Staff Assessment misapplies and discounts Dr. Aiello’s landmark findings, dismissing his critically essential work as irrelevant, stating that it is “in conflict” with the other two named soil sampling studies (Terraphase and Cahn) of the Vistra Moss Landing battery fire location because it found, quoting Aiello’s study, a “*significant but transient surface enrichment*” of metals, but subsurface (greater than 5 mm deep) samples showed no increase (p. 704/1403). Dr. Aiello, on the other hand, has authored a formal statement (Please see Attachment 1) in response to the Vistra-contracted Terraphase study’s review of his surface soil sampling in which he confirms the scientific rigor of his study and states that the different data sets “should not be viewed as competing estimates, but as complementary datasets that characterize different stages of the temporal evolution of contamination.” He states further that final synthesis should “incorporate all scientifically rigorous datasets collected following the fire, recognizing that each was designed to address different questions and different stages of the event. Such an integrated assessment would provide a more complete understanding of both the initial deposition of battery-derived metals and their subsequent redistribution and environmental fate.”

Minimizing, mischaracterizing and misapplying a study because its data “conflicts”

²<https://www.nature.com/articles/s41598-025-25972-8>

³https://www.epa.gov/sites/default/files/201403/documents/appendix_n_soil_sampling.pdf

⁴<https://www.nature.com/articles/s41598-025-25972-8>

⁵Ibid.

with the desired outcome is termed cherry-picking or suppression of relevant evidence and in scientific context can also lead to exclusion bias or reporting bias, as it does in the Staff Assessment. **Cherry-picking soil sampling studies and excluding relevant evidence constitutes prejudicial error.**

THE STAFF ASSESSMENT'S CHERRY-PICKING AND EXCLUSION BIAS RESULTS IN PREJUDICIALLY SUPPRESSED EVIDENCE, FLAWED REASONING, AND OMITTED ANALYSES FOR THE IMPACT OF METAL DEPOSITION ON THE AGRICULTURAL SOIL-GROUNDWATER SYSTEM

How this applies to the Staff Assessment's flawed and faulty analysis of metal deposition on agricultural lands from a hypothetical BESS fire is three-fold.

Firstly, as mentioned, the Staff Assessment ignores Aiello's finding of the urgent blind spot in existing standard post-disaster testing protocols which use deep sediment coring and as a result dilute the actual initial toxic metal contaminant deposition level in an initial thin <5mm surface footprint baseline layer. A standard coring sampling depth of 7.6 centimeters (3 inches) mathematically dilutes the metal concentration by a factor of roughly 15. Applying the 5-millimeter soil depth as the more accurate, scientifically validated and conservative approach for groundwater impact modeling to the Staff Assessment's formula for calculating initial deposition of lithium and aluminum on agricultural soil:

- 18.0 grams of lithium per square meter deposited
- soil weighing 1.3 grams per cubic centimeter
(p. 708/1403)
- mixed into the top 5 millimeters of soil

produces 2, 769 mg/kg of lithium in the top 5 millimeters of soil, and not the (mathematically corrected) 182mg/kg in the top 7.6 millimeters.

- 3.4 grams of aluminum per square meter deposited
- soil weighing 1.3 grams per cubic centimeter
(p. 708/1403)
- mixed into the top 5 millimeters of soil

produces 523 mg/kg of aluminum in the top 5 millimeters of soil, and not the (mathematically corrected) 34.4 mg/kg in the top 7.6 millimeters.

The Staff Assessment's exclusion of Aiello's critically relevant data results in the prejudicial exclusion of mass lithium and aluminum contamination amounts in the initial ultra-shallow <5mm surface footprint baseline layer and disguises a massive underestimation of the peak concentration of metals that will leach down into shallow aquifers and wells.

Secondly, the Staff Assessment ignores Aiello's finding that the thin <5mm surface layer of "transient" and patchy metal contaminant fallout is highly unstable, characterized by a swift lateral environmental redistribution mechanism rather than a localized accumulation on the topsoil or downward vertical leaching into deep aquifers.⁶ Aiello's real-world data shows that a major portion of heavy metal contamination, possessing low water solubility or binding heavily to the immediate organic matter of the upper soil, does not behave like traditional agricultural soil dissipation.⁷ Rather than degrading or leaching downward, the thin surface layer of heavy metal microparticle dust is mobilized laterally by stormwater runoff, wind and tides and redistributed into downstream aquatic zones. The Staff's impact analysis disregards the study's findings and instead appears to conclude, citing the paucity of studies where soil samples have been collected and studied, and without evidentiary support, that "once contaminants deposit on the ground, the contaminants tend to remain in place," which is presumably how the real-world, swiftly transient and ultra-thin <5mm surface layer of microparticle dust, documented in a peer reviewed and published study, ends up in the Staff Assessment without any evidentiary analysis existing "in the top 7.6 centimeters of soil" (p. 703, 708/1403).

At the proposed Corby BESS site, without tides to resuspend, mix and transport the <5mm surface layer of metallic dust through estuarine channels or out to open marine environments, the ultra-shallow initial metallic footprint will still be characterized by high mobility, its ephemeral surface footprint rapidly redistributed by precipitation and wind. Precipitation and winds will mobilize the ultra-fine surface dust into local terrestrial depressions or deeper into the topsoil or move it via surface runoff into Solano Irrigation District (SID) canals, ponds or shallow groundwater tables rather than dispersing it across a wide coastal marsh. **It can be reasonably inferred that this redistribution will extend beyond the Staff Assessment's current alleged peak deposition location.** As well, the patchy redistribution could result in significantly higher concentrations of deposition in variably occurring pockets and soil depressions. None of this is reflected in the Staff Assessment's presumption that the standard agricultural soil sampling depth of 7.6 centimeters applies equally to how an initial

⁶<https://www.nature.com/articles/s41598-025-25972-8>

⁷Ibid.

<5mm surface footprint layer leaches into the soil-groundwater system. In fact, **the highly mobile 5-millimeter surface layer sample depth results in aerosolized lithium residues (modeled at 2769 mg/kg), aluminum deposits (modeled at 523 mg/kg), hydrofluoric acid byproducts, and fluoridated toxic compounds deposited onto and into surrounding prime agricultural soils, adjacent Solano Irrigation District (SID) canals, and nearby Gibson Canyon Creek and the deposition's subsequent leaching. This creates an unanalyzed risk of long-term soil toxicity, crop bioaccumulation, and agricultural irrigation supply degradation.**

Thirdly, lithium's potential migration profile is distinct from the heavy metal transport and fate being documented by Aiello's research team, and notably, there is a lack of published research on the fate and transport of lithium contamination in soil-groundwater systems. Tracking the specific behavior of lithium in topsoil is difficult. Lithium is a highly mobile, water-soluble element that behaves differently than heavy metals that tend to bind to topsoil. Core scientific challenges with tracking lithium leaching include both the dilution previously discussed in standard core or bulk soil samples and also the fact that highly water-soluble lithium salts can migrate quickly downward if exposed to heavy rainfall or firefighting water, making it challenging to capture a stable "surface footprint" baseline before leaching occurs. Tracking and analyzing the exact soil leaching and migration profile of lithium remains an active research challenge.

Yet, despite the lack of published research on the fate and transport of lithium contamination in soil-groundwater systems, research indicates that ionic lithium, once released as a mobile contaminant or dissolved in water, becomes readily bioavailable whether it originates from the soil matrix or a liquid groundwater source. It will readily leach through porous soil profiles into shallow aquifers or local water bodies, becoming a largely unstudied contaminant in plant-soil systems. In an eight-year-old research paper titled, "Lithium as an emerging environmental contaminant: Mobility in the soil-plant system," its authors warn that "the low toxicity of Li has probably resulted in this element being largely overlooked as an emerging environmental contaminant. The pervasion of Li-based batteries into society will likely result in greatly increased incidences of soil contamination. Lithium is mobile in the soil-plant system and therefore soil contamination with Li may result in rapid and extreme increases in Li concentrations in groundwater and in food crops." The authors conclude that in contaminated environments, plants are likely to be an important exposure pathway for lithium to enter humans or ecosystems.⁸ None of this is reflected in the Staff Assessment's presumption that the standard agricultural soil sampling depth of 7.6

⁸<https://www.sciencedirect.com/science/article/abs/pii/S0045653518300122>

centimeters applies equally to how an initial <5mm surface footprint layer leaches into the soil-groundwater system. **The project site is located within the Solano Subbasin, characterized by shallow water tables, highly permeable agricultural soils and strong surface-to-groundwater hydrologic connectivity. There is no analysis, calculation or discussion of lithium (or other chemical) deposit migration and fate in these hydrogeologic conditions or the attendant risk of long-term soil toxicity, crop bioaccumulation, and agricultural irrigation supply degradation.**

THE STAFF ASSESSMENT FAILS TO INCLUDE TOXIC METAL DEPOSITION ON AGRICULTURAL SOILS FROM FIREFIGHTING WATER RUNOFF IN ITS IMPACT CALCULATIONS

Published research confirms that BESS fires deposit toxic metals, including lithium, into the environment and onto soil from both airborne smoke plumes and firefighting water runoff. Controlled laboratory tests have analyzed the exact chemical composition of water used to extinguish burning lithium-ion battery modules.⁹ These studies confirm that firefighting water runoff carries highly concentrated dissolved lithium salts as well as hydrofluoric acid (HF).^{10, 11} Millions of gallons of water used during a multi-day thermal runaway event will become contaminated with toxic lithium, aluminum, hydrochloric acid (HF) and fluoridated chemicals. The Staff Assessment ignores the impact of firefighting water runoff as a depositor of toxic metal contaminant and chemicals into the soil. **There is no analysis, calculation or discussion of the cumulative impact of toxic metal and chemical deposition on nearby agricultural soils from firefighting water runoff in addition to deposition from an airborne smoke plume.**

THE STAFF ASSESSMENT RECOMMENDS A SCIENTIFICALLY INDEFENSIBLE LITHIUM CONTAMINATION REMEDIATION STRATEGY, FURTHER DISGUIISING AND MINIMIZING THE TRUE IMPACTS OF LITHIUM CONTAMINATION ON THE SOIL-GROUNDWATER SYSTEM SURROUNDING THE PROPOSED SITE

The Staff Assessment incorrectly asserts in a sub-section titled “Managing Lithium Exposure,” that lithium contamination can be “managed” by certain agricultural practices that “can help mitigate the damage,” namely: soil leaching. The Staff Assessment further details their recommended “soil leaching,” stating that “because

⁹<https://www.mdpi.com/2313-0105/10/4/118>

¹⁰<https://www.sciencedirect.com/science/article/pii/S0269749125018111#bib53>

¹¹<https://www.sciencedirect.com/science/article/pii/S0043135426014259>

lithium is highly mobile, thoroughly flushing the soil with low-lithium, high-quality irrigation water can leach the element below the root zone” (p. 707/1403).

The idea that flushing soil safely removes lithium from the environment is a myth. Flushing shifts lithium into groundwater, aquifers and wells where it is nearly impossible to treat conventionally.¹² An EPA-aligned study published in the *National Library of Medicine PMC* revealed that once lithium hits the water supply, conventional water treatment infrastructures (including standard filtration, manganese removal filters and biological aerobic treatment) are entirely ineffective at removing it.¹³ The idea that leached soil returns to a healthy baseline is also a myth. Leaching strips macronutrients (N, K), sparks extreme salinization and hardens the soil matrix. A landmark study published in *Sustainability*, "Investigation of Lithium Application and Effect of Organic Matter on Soil and Plant Health," tracked how lithium moves through soil columns. The researchers discovered that flushing lithium through the soil significantly increased soil alkalinity, salinity, and hardness, while severely reducing vital nutrients like nitrogen (N), potassium (K), and sodium (Na). The study explicitly concluded that lithium extraction through fluid mobility leaves the treated soil stripped of fertility.¹⁴ The idea that lithium rinses away completely is also a myth. Simple flushing assumes that lithium behaves like a fully soluble salt that can be cleanly rinsed out. In reality, lithium's interaction with soil minerals involves complex, linear kinetic pathways that trap residual concentrations. Research published in *Water, Air, & Soil Pollution*, "Lithium Sorption/Desorption in Some Alkaline Soils: Modeling of the Kinetics Behavior," found that reversible and irreversible chemical bounds leave toxic, restricted-desorption residues behind, particularly in sandy soils. This means that simple flushing cannot eliminate bound lithium, ensuring long-term toxicity remains embedded in the soil matrix.¹⁵ This is another reason why once contaminated, the farmland surrounding the proposed site would not be suitable for crops.

THE CEC FAILS TO UTILIZE AN ADOPTED THRESHOLD OF SIGNIFICANCE

The CEC proposes to find that because “the analysis determined that the levels of deposition for each metal would be a small fraction of the natural background levels that exist within agricultural soils in Solano County” “impacts to Farmland outside of the project site would be less than significant during project operation.” (See page 5.8-23 to 5.8-24; see similar conclusions from 5.8-27 to 5.8-28.) Under Public Resources

¹²<https://pubmed.ncbi.nlm.nih.gov/29324285/>

¹³<https://pubmed.ncbi.nlm.nih.gov/29324285/>

¹⁴<https://www.mdpi.com/2071-1050/13/4/1705>

¹⁵<https://link.springer.com/article/10.1007/s11270-022-06035-4>

Code, section 25545.7(b), the regulatory program implementing Chapter 6.2 (Public Resources Code §§ 25545–25545.13) is explicitly declared not to be a certified regulatory program under section 21080.5. Instead, the CEC must conduct standard CEQA review as the lead agency including preparing an environmental impact report (“EIR”) pursuant to CEQA's standard requirements. Under CEQA, the CEC cannot simply declare thresholds of significance. A threshold of significance is "an identifiable quantitative, qualitative or performance level of a particular environmental effect, noncompliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." (Cal. Code Regs., tit. 14, § 15064.7(a).) A threshold must be adopted by ordinance, resolution, rule, or regulation, developed through a public review process, and supported by substantial evidence. (Cal. Code Regs., tit. 14, § 15064.7(b).)¹⁶

Even if the CEC had properly adopted a threshold of significance, which it did not, there is no evidence that the CEC's threshold for farmland impacts meets this standard. Further, thresholds are not determinative: they do not result in automatic findings, and an agency must still consider any fair argument that an effect may be significant notwithstanding compliance with a threshold. (Cal. Code Regs. tit. 14, § 15064.)

Appendix LU concedes that almond trees and stone fruits are highly sensitive to lithium. (See pages LU-3 to LU-4.) Therefore, the CEC cannot assume that if the farmland is contaminated with lithium or aluminum, the land would continue to be suitable for these crops. The project could result in the conversion of farmland and conflict with local land use plans, policies and ordinances, and thus, the potential impact is significant. (Appendix G).

THE SIGNIFICANT IMPACT OF METAL DEPOSITION ON AGRICULTURAL SOILS FROM A BESS FIRE CAN BE REDUCED TO LESS THAN SIGNIFICANT BY SELECTING AN ALTERNATIVE LOCATION

The Lambie Park alternative site is a county designated industrial and manufacturing zone situated in Solano County on 1,410 - 1,461 acres. The site is zoned MG-3 and is consistent with large-scale utility operations: it is perfectly suited for expanding an existing substation and for high-voltage grid interconnection. The site aligns with Solano County's BESS land-use ordinances, and is far removed from schools, hospitals, major transit routes like the I-80 corridor, residential neighborhoods, rural homes, Solano Irrigation District (SID) canals and Measure A and T protected agricultural land.

¹⁶This applies to all conclusions regarding whether the project's impacts are significant in the entire EIR.

There is ample room to “microsite” the Corby BESS within Lambie Park on the approximately 25 acres needed on the far side of the industrial park facing away from the Suisun Marsh protected habitats. According to the Bay Area Air Quality Management District, the Lambie Industrial Park is a designated heavy industrial zone often discussed as a prime location for major energy grid additions, serving as a vital existing transmission and distribution grid.

Given the documented risks of offsite metal contamination of soil-groundwater systems from BESS lithium battery fires, a contamination that mobilizes, redistributes and persists over time, under the Warren-Alquist Act and CEQA, the CEC’s mandate is to certify the location that avoids nearly unmitigable and unnecessary environmental impacts. Lithium contamination, specifically, is notoriously difficult to clean up. Effective methods for removing lithium from soil and water exist, but treating large volumes is technically difficult and expensive because of its extreme mobility as an ion. The processes for water are difficult, necessitating an exclusive reliance on advanced ex-situ membrane filtration like high-pressure reverse osmosis (RO) with high energy and capital costs.¹⁷ Treating lithium-contaminated soil is even harder and extremely expensive.^{18, 19} The CEC’s recommendation to approve the current rural Kilkenny Road site is a choice to approve a location with avoidable, significant environmental impacts. Building the Corby BESS at the current site consumes 40.3 acres of productive, active prime farmland and places the risk of lithium-ion thermal runaway fire with its toxic metal and chemical fallout directly on these 40 acres as well as on immediately adjacent active farmland. The Lambie Park alternative removes the high-voltage, high-risk lithium-ion batteries, the risk of thermal runaway battery fire and its toxic metal deposition from the immediate vicinity of active agricultural land, rural homes, residential wells, schools, hospitals, major transit routes like the I-80 corridor and SID canals. The CEC’s mandate must be to choose the lower-risk, industrial alternative at Lambie Industrial Park. It is the “environmentally superior” site for the Corby BESS project.

THE EIR IS REQUIRED TO BE RECIRCULATED FOR FURTHER PUBLIC REVIEW AND COMMENT

Under Public Resources Code, section 21092.1 and Cal. Code Regs. tit. 14, § 15088.5, a lead agency must recirculate a draft EIR when "significant new information" is added to

¹⁷<https://pmc.ncbi.nlm.nih.gov/articles/PMC13137999>

¹⁸<https://www.fehrgraham.com/about-us/blog/evaluating-contaminated-soil-removal-costs-and-considerations-fg>

¹⁹<https://frtr.gov/matrix/cost/>

the EIR after the initial public notice and comment period has been completed. There are four non-exclusive examples of disclosures that constitute "significant new information" requiring recirculation:

- a new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented;
- a substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance;
- a feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental Impacts of the project, but the project's proponents decline to adopt it; and
- a draft EIR that was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

In this case, the EIR must be recirculated under three of the four standards: the corrections identified above required to correct the modeling constitutes a new significant environmental impact would result from the project; the corrections would show a substantial increase in the severity of an environmental impact; and the current draft EIR is so fundamentally and basically inadequate meaningful public review and comment were precluded.

CONCLUSION AND REQUEST

Because the Staff Assessment and included DEIR do **not** provide:

- mathematically correct calculations free of prejudicial gross error for a standard core soil sample 7.6 centimeters deep that measures lithium and aluminum deposition from a BESS fire at the proposed site
- mathematically correct calculations free of prejudicial gross error for almond tree, stone fruit tree and grapevine phytotoxicity impacts on nearby croplands
- assessment of Dr. Ivano Aiello's landmark study's findings that is free of prejudicial exclusion bias
- scientifically and mathematically accurate calculation of the initial metal deposition in an ultra-shallow <5mm microparticle surface layer from a BESS fire at the proposed site
- analysis of that <5mm microparticle surface footprint baseline layer's impacts to the

soil-groundwater system in nearby croplands and SID canals

- analysis for how swift precipitation and wind driven lateral mobilization of the initial surface lithium deposition will impact its fate and transport in the soil-groundwater systems near the proposed site, including peak deposition locations farther from the facility than the Assessment's current calculations
- analysis for how lithium contaminant's high mobility, leaching and bioavailability indicators impact its migration profile and transport in the soil-groundwater systems of nearby croplands that accounts for key structural variables inclusive of the following: that most of the facility will be surfaced with crushed rock and gravel over native soil, the site is situated over an unshielded shallow aquifer with a 15-foot water table that drains into local subbasins and the applicant has planned perimeter drainage ditches and two unlined retention basins incapable of preventing toxic fire-suppression runoff and chemical condensate that includes lithium from directly infiltrating the groundwater
- calculation and analysis of the cumulative impact of toxic metal deposition on the local agricultural soil-groundwater system and nearby croplands from firefighting water runoff in addition to deposition from an airborne smoke plume
- an adopted threshold of significance
- scientifically substantiated remediation necessary for lithium contamination in soil-groundwater systems

...the finding of a "less than significant" impact of a BESS fire on agricultural lands and crops is not supported by substantial evidence.

I respectfully request that the CEC:

1. **Deny approval** of the Corby BESS as currently proposed, or
2. **Require a revised assessment of metal deposition on agricultural soils from a hypothetical BESS fire** that includes:
 - mathematically correct lithium (and aluminum) deposition calculations free of prejudicial gross error for a standard 7.6 centimeter depth core soil sample for lithium and aluminum deposition from a BESS fire at the proposed site

- mathematically correct calculations free of prejudicial gross error for almond tree, stone fruit tree and grapevine phytotoxicity impacts on nearby croplands
 - assessment of Dr. Ivano Aiello's landmark study's findings that is free of prejudicial exclusion bias
 - scientifically and mathematically accurate calculation of the initial metal deposition in an ultra-shallow <5mm microparticle surface layer from a BESS fire at the proposed site
 - analysis of that <5mm microparticle surface footprint baseline layer's impacts to the soil-groundwater system in nearby croplands and SID canals
 - analysis for how swift precipitation and wind driven lateral mobilization of the initial surface lithium deposition will impact its fate and transport in the soil-groundwater systems near the proposed site, including peak deposition locations farther from the facility than the Assessment's current calculations
 - analysis for how lithium contaminant's high mobility, leaching and bioavailability indicators impact its migration profile and transport in the soil-groundwater systems of nearby croplands that accounts for key structural variables inclusive of the following: that most of the facility will be surfaced with crushed rock and gravel over native soil, the site is situated over an unshielded shallow aquifer with a 15-foot water table that drains into local subbasins and the applicant has planned perimeter drainage ditches and two unlined retention basins incapable of preventing toxic fire-suppression runoff and chemical condensate that includes lithium from directly infiltrating the groundwater
 - calculation and analysis of the cumulative impact of toxic metal deposition on the local agricultural soil-groundwater system and nearby croplands from firefighting water runoff in addition to deposition from an airborne smoke plume
 - an adopted threshold of significance
 - analysis of remediation required to remove lithium contamination from the soil-groundwater system surrounding the proposed site, inclusive of costs
3. **Revise the Staff Assessment with included Draft EIR to clarify that the Lambie Industrial Park alternative is "environmentally superior" to the Corby BESS project and is the choice the Staff recommends.**

4. **Recirculate the Draft EIR with the changes to the Appendix LU section for public and inter-agency review.**

Respectfully submitted,

Nina Audino

ATTACHMENT 1

Dr. Ivano Aiello Response to Terraphase Technical Review of
Aiello, et al (2025) Journal Article – Response Letter
Submitted to County of Monterey Health Department on
August 8, 2026

Submitted to:

Ric Encarnacion, MPH, REHS
Bureau Chief and Director of Environmental Health

Marni Flagg, REHS
Assistant Bureau Chief

Environmental Health Bureau
County of Monterey Health Department
1270 Natividad Road
Salinas, California 93906

Re: *Technical Review of Aiello et al. (2025) Journal Article*, Appendix C, Terraphase Engineering (2026)

Submitted by:

Ivano W. Aiello, Ph.D., on behalf of the authors of Aiello et al. (2025)
Moss Landing Marine Laboratories
San José State University

Date: August 2026

Dear Mr. Encarnacion and Ms. Flagg,

We have carefully reviewed the Terraphase technical review (Terraphase Engineering, 2026, *Technical Review of Aiello et al. (2025) Journal Article*. Appendix C).

Before addressing specific comments, it is important to note that the Terraphase report does **not dispute the central finding of our study**: the post-fire enrichment of Ni, Mn, and Co in surface soils and its rapid decline over the following weeks. The disagreement concerns the quantitative interpretation of the data, particularly the estimation of deposited mass, rather than the occurrence of a transient deposition event. The review therefore challenges primarily the quantification of the deposition, not the evidence that deposition occurred.

The Terraphase report was prepared as part of a regulatory risk assessment commissioned by Vistra to evaluate whether the fire resulted in persistent environmental contamination requiring further action. In contrast, our study was designed as a rapid response environmental investigation documenting the initial deposition and short-term evolution of battery derived metals at a recently restored tidal marsh. Our study has a unique pre-fire baseline dataset that was collected 2 years prior to the fire using the same instrument and sampling approach, allowing direct before and after comparisons. The study underwent independent peer review prior to publication, and many of the methodological limitations and uncertainties emphasized in the Terraphase review were already discussed in detail in the accompanying Supplementary Information. However, several criticisms in the Terraphase report evaluate our study against the expectations of a regulatory site investigation rather than those of an environmental process study.

The principal scientific issues can be summarized as follows:

- **Portable XRF is an established scientific tool.** The review treats FpXRF primarily within the context of EPA Method 6200, a regulatory site screening protocol. Our study used FpXRF for a different purpose: rapid, high-density mapping of an extremely transient surface deposition signal. This capability was fundamental to documenting a rapidly evolving deposition signal that would likely have been missed using conventional laboratory-based sampling alone. This application is well established in the peer reviewed geoscience literature, and the limitations of FpXRF were explicitly discussed in both the manuscript and the Supplementary Information.
- **Different analytical methods interrogate different sampling scales.** The review implicitly assumes that FpXRF and ICP MS should produce highly correlated concentrations. However, in situ FpXRF measures the immediate soil surface where freshly deposited particles accumulate, whereas ICP MS analyzes homogenized bulk samples that dilute any thin surface enriched layer. Imperfect agreement between the two methods is therefore expected and is consistent with the study's central hypothesis.
- **Elemental ratios are widely used for provenance studies.** The Ni/Co ratio was not presented as definitive proof of battery derived material, but as one independent line of evidence interpreted together with spatial patterns, temporal

evolution, SEM observations, and laboratory analyses. While the review does not demonstrate that the use of elemental ratios for source attribution is scientifically inappropriate, geochemical ratios are commonly used in the scientific literature to characterize sediment sources and provenance.

- **The deposited mass estimate was explicitly presented as a first order approximation.** The paper emphasizes that the calculation should be interpreted with caution, evaluates multiple plausible contamination thicknesses, and discusses the associated uncertainties. Most Terraphase criticisms of the mass budget are therefore not independent but stem directly from the review's earlier assumption that FpXRF data are unsuitable for quantitative interpretation.
- **Known analytical limitations were acknowledged, not overlooked.** The tendency of XRF to overestimate absolute concentrations relative to ICP MS, together with the effects of moisture, organic matter, and matrix effects, were explicitly discussed in the manuscript and Supplementary Information. The study relied primarily on relative temporal and spatial changes measured consistently with the same instrument rather than on absolute concentrations.

Finally, several statements in the review move beyond technical analysis and into assertion. For example, the conclusion that the sampling density was "insufficient" to estimate inventories across Hester Marsh is presented without reference to any scientific, statistical, or geostatistical criterion defining what constitutes sufficient sampling. Environmental inventories are routinely estimated from spatially distributed observations using interpolation, extrapolation, and explicitly stated assumptions. The relevant scientific question is therefore not whether uncertainty exists, but whether that uncertainty has been appropriately acknowledged and incorporated into the interpretation.

In summary, the Terraphase memorandum raises reasonable questions regarding the uncertainty of the deposited mass estimate, but it does not invalidate the principal findings of the study. The evidence supporting a transient post fire enrichment of Ni, Mn, and Co in surface soils, its rapid decline over time, and its association with battery derived material remains robust and is supported by multiple independent lines of

evidence, including temporal trends, spatial patterns, laboratory analyses, and SEM observations.

The executive summary indicates that our dataset was not incorporated into the synthesis because it was considered unsuitable for evaluating long-term chronic exposure. While that rationale may be appropriate for certain regulatory questions, it also excludes one of the few datasets collected immediately after the fire and therefore one of the few capable of characterizing the transient surface deposition documented during the first weeks following the event.

Many independent datasets have now been collected following the Moss Landing battery fire. Each provides information on different aspects of the event and operates at different spatial and temporal scales. Our study characterizes the initial surface deposition and its rapid evolution during the first weeks following the fire. Ghostwipe and terrestrial vegetation surveys document spatial patterns of deposition in upland environments. The EMBER water chemistry data characterize the transport and transformation of battery-derived metals within the estuary, while the EMBER biota data provide information on biological uptake and exposure. The Terraphase investigation provides information on deeper soils and longer-term environmental conditions. Considered individually, each dataset has limitations. Considered together, they provide a more complete understanding of the environmental consequences of the fire.

We encourage the County to request that the final synthesis incorporate all scientifically rigorous datasets collected following the fire, recognizing that each was designed to address different questions and different stages of the event. Such an integrated assessment would provide a more complete understanding of both the initial deposition of battery-derived metals and their subsequent redistribution and environmental fate.

We also encourage that the human and ecological risk evaluation consider the range of concentrations documented by the available datasets, including the laboratory ICP-MS measurements from samples collected during the initial post-fire period and the deeper soil concentrations measured by Terraphase months later. These datasets should not be viewed as competing estimates, but as complementary datasets that characterize different stages of the temporal evolution of contamination. Considering both would

provide a more balanced and scientifically robust framework for evaluating potential environmental and health impacts.

We hope that this response will contribute constructively to the County's evaluation and to the broader effort to integrate the different scientific datasets collected following the fire.

My understanding is that written responses can be posted alongside the Terraphase report on the County website, and we would appreciate having our response included there as part of the public record.

Thank you for your consideration, and please let me know if you need any additional information from us.

Best regards,

Ivano

References:

Aiello, I. W., Endris, C., Cunningham, S., Fountain, M., Grand, M. M., Heim, W., Kahn, A. S., & Wasson, K. (2025). *Supplementary Information for "Coastal wetland deposition of cathode metals from the world's largest lithium ion battery fire."* Scientific Reports.

<https://doi.org/10.1038/s41598-025-25972-8>

Terraphase Engineering Inc. (2026). *Technical Review of Aiello et al. (2025) Journal Article*. Appendix C in *Characterization and Screening Level Risk Evaluation Report, Vicinity of Moss Landing Power Plant, Moss Landing, California*. Prepared for Vistra Corp., June 19, 2026.

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