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Comments on Staff Assessment Section 5-1 Air Quality

See Attached Comment Letter

Additional submitted attachment is included below.

California Energy Commission
Corby Battery Energy Storage System Project
Docket No. 24-OPT-05

Comments on Staff Assessment Section 5.1
Air Quality

Commissioners:

I submit these comments regarding Section 5.1 of the Staff Assessment, Air Quality.

The proposed Corby project would be constructed in an air basin that is already nonattainment for important pollutants, including ozone and particulate matter. Staff has performed extensive emissions calculations and dispersion modeling and proposes numerous construction controls.

My concern is not that Staff failed to study air quality. It is that Staff's own modeling identifies a particulate-matter impact at the project boundary, while the proposed mitigation does not objectively measure the pollutant concentration Staff modeled.

Put simply:

Staff identifies the problem quantitatively but proposes to verify the solution visually.

That disconnect is particularly important at this site because the project is surrounded by open agricultural land, a residence is located directly across Kilkenny Road to the north, and independent regional meteorological sources confirm that winds in the Vacaville/Solano area commonly flow from the southwest toward the northeast. The monitoring program should therefore measure what is actually crossing the downwind property line.

1. Staff's Own Modeling Predicts a PM10 Significant Impact Level Exceedance at the Project Boundary

Staff's construction dispersion modeling predicts a maximum 24-hour PM10 project contribution of approximately 7.31 micrograms per cubic meter.

Staff acknowledges that this exceeds the 5 micrograms per cubic meter Significant Impact Level used in its analysis.

Staff nevertheless concludes that the impact would be less than significant with implementation of AQ-SC3 through AQ-SC5, emphasizing that the maximum modeled concentration occurs at the project fenceline and that modeled concentrations decline before reaching the nearest identified residential receptor.

The location of the maximum concentration is relevant. But it does not eliminate the more basic evidentiary question:

If Staff's own model predicts a PM10 concentration above the significance screening level at the property boundary, where is the quantitative demonstration that the proposed mitigation reduces that modeled concentration?

Staff should not simply assume that implementation of dust-control measures necessarily converts a modeled exceedance into a less-than-significant impact. The Commission should require the record to demonstrate that result.

To be precise, the 5 micrograms per cubic meter figure is the Significant Impact Level (SIL) Staff uses as a screening value; it is not itself the 24-hour ambient PM10 standard. Staff's Table 5.1-6 reports a total modeled-plus-background 24-hour PM10 concentration of approximately 44.91 micrograms per cubic meter against the 50 micrograms per cubic meter limiting standard. That distinction does not eliminate the concern. It makes the evidentiary question more precise: Staff's own screening analysis identifies the project boundary as the point of maximum particulate contribution, yet the mitigation program does not quantitatively verify the particulate concentration actually crossing that boundary.

2. AQ-SC4 Relies Primarily on Seeing Dust Rather Than Measuring PM10

AQ-SC4 establishes a program under which construction personnel observe the site for visible dust plumes. When visible dust is observed, progressively stronger dust-control measures can be required, potentially including suspension of the offending construction activity.

Those provisions are useful. But visible dust is not PM10 monitoring.

The Staff Assessment does not establish that a person standing at the site can determine, by sight, whether the 24-hour PM10 concentration at the property boundary is 4, 7, or 10 micrograms per cubic meter.

Yet those are precisely the kinds of quantitative distinctions upon which Staff's significance determination depends.

Staff's own model predicts an exceedance.

Once the model has identified the project boundary as the location of the maximum PM10 impact, the logical mitigation is objective monitoring at or near the downwind boundary during the construction activities responsible for the modeled emissions.

3. Monitoring Should Follow the Wind and Protect the Residence Across Kilkenny Road

The need for objective monitoring is especially important because this is an open agricultural setting rather than a densely developed urban site.

The applicant itself identifies a residence directly across Kilkenny Road immediately north of the project site. Independent regional meteorological information supports the local observation that southwest winds are common in this part of Solano County. A City of Vacaville environmental review states that wind direction in northeastern Solano County tends to be southwesterly because of marine breezes through the Carquinez Strait and that local airflow patterns are dominated by wind originating southwest of the area and moving northeast. A recent Caltrans air-quality report using the Travis Air Force Base climatological station likewise states that prevailing winds in the project area flow mainly from the southwest.

Those sources do not establish that every wind at the Corby parcel comes from the south or southwest. They do establish that southwest-to-northeast transport is a recurring and regionally recognized meteorological pattern.

During those conditions, the northern project boundary and the residence across Kilkenny Road can be downwind of dust-producing construction activity.

The Commission should therefore require monitoring that responds to actual meteorology rather than a fixed monitor location selected without regard to wind direction. Onsite wind speed and direction should be measured, and particulate monitoring should be located or operated at representative downwind boundary locations, including the northern boundary when winds are directed toward Kilkenny Road and the residence beyond it.

This is particularly appropriate because Staff's own dispersion model identifies its maximum PM10 contribution at the project boundary.

The relevant question is not whether dust can be seen from the construction site. It is what concentration of particulate matter is crossing the downwind property line.

4. The Commission Should Require Objective Boundary Monitoring During Dust-Producing Construction

AQ-SC4 should be strengthened to require actual particulate monitoring during the construction phases responsible for the highest modeled fugitive-dust emissions.

That monitoring should include appropriate PM10 measurement at representative downwind project-boundary locations, paired with onsite wind-speed and wind-direction data, and predetermined action levels requiring additional dust suppression or temporary suspension of the offending activity.

The purpose is not to create an unnecessary monitoring program. It is to verify the assumption upon which Staff's less-than-significant conclusion depends.

The sequence should be straightforward:

Model predicts elevated PM10 -> mitigation is imposed -> downwind monitoring verifies whether mitigation works -> corrective action occurs if it does not.

The current sequence is instead:

Model predicts elevated PM10 -> mitigation is imposed -> somebody looks for visible dust -> Staff assumes the quantitative impact has been controlled.

The second sequence does not provide the same evidence.

5. The Existing Air-Quality Setting Makes Verification More Important, Not Less

The Sacramento Valley Air Basin already experiences significant air-quality problems. Staff identifies existing nonattainment conditions and incorporates measured background concentrations into its analysis. In several instances, background plus project concentrations consume a substantial portion of the applicable ambient-air-quality standard.

This does not mean that every additional increment of pollution constitutes a significant environmental impact. It does mean that the margin for error deserves attention.

When Staff's own model identifies a particulate-matter exceedance at the project boundary in an already burdened air basin, the Commission should require objective verification that the mitigation upon which the less-than-significant finding depends actually performs as assumed.

Actual fugitive-dust emissions can vary with soil conditions, construction intensity, vehicle activity, moisture, wind speed, and wind direction. Those variables are precisely why field verification is useful.

6. Air Quality Must Account for the Additional Earthwork That May Be Required by GEO-1

Section 5.6, Geology, Paleontology, and Minerals, acknowledges moderate-to-high expansive-soil potential and contemplates subgrade improvement, removal and replacement of shallow shrink-swell clays, and a later final site-specific geotechnical report under GEO-1. The final extent of over-excavation, soil export, imported engineered fill, or alternative soil stabilization therefore has not yet been established.

That matters directly to Air Quality. Staff states that construction emissions were calculated with CalEEMod and that default assumptions were used where detailed project information was unavailable. Grading,

excavation, loading, hauling, material delivery, truck travel, and disturbed-soil exposure are all potential sources of particulate matter and combustion emissions.

The Commission should therefore demonstrate that the construction activity assumptions used in Section 5.1 encompass the additional earthwork and hauling that may be required when GEO-1 is completed. If the final geotechnical design requires materially more soil removal, imported fill, truck trips, or stabilization work than CalEEMod assumed, the emissions inventory on which the less-than-significant finding rests may understate actual construction emissions.

This is not an argument that the additional geotechnical work necessarily creates a significant air-quality impact. It is an argument that Staff cannot know whether its present emissions estimate is complete until it establishes that the reasonably foreseeable GEO-1 work is included in that estimate.

7. Dust-Control Water Is Part of the Mitigation Assumption and Should Be Accounted For

AQ-SC3 relies heavily on water as a fugitive-dust control measure. Staff requires exposed surfaces, unpaved roads, stockpiles, disturbed areas, and other dust-producing work areas to be watered or otherwise stabilized, with frequency adjusted as necessary to control visible dust.

Because Staff relies on those measures to support its less-than-significant construction finding, the associated water demand should be included in the Project's construction water assumptions and coordinated with the Water Resources analysis. This becomes more important if GEO-1 ultimately requires additional excavation, soil handling, hauling, or stabilization beyond the earthwork presently assumed.

The Commission should identify whether the construction-water estimate includes the full dust-control program required by AQ-SC3 under reasonably foreseeable peak summer conditions and whether additional geotechnical earthwork would materially increase that demand.

8. The Cumulative Analysis Should Address Reasonably Foreseeable Overlapping Construction

Staff's cumulative analysis relies substantially upon background air-quality concentrations and the conclusion that Corby's contribution, with mitigation, would not produce significant cumulative effects.

Historical background concentrations are important. But they do not necessarily capture emissions from future construction projects occurring simultaneously with Corby.

Another substantial battery-storage development, the Vaca-Dixon Power Center, is proposed in the same broader Vaca-Dixon energy area.

I do not contend that its construction will necessarily overlap Corby's. The presently available record does not establish that overlap.

That is precisely the question Staff should answer.

Before concluding that cumulative construction impacts are less than significant, Staff should identify the reasonably foreseeable projects considered, determine whether their construction schedules could materially overlap, and explain whether simultaneous construction emissions alter the cumulative conclusion.

If there is no meaningful overlap, the answer should be simple. If there is, it should be analyzed. Historical monitoring data should not silently substitute for that inquiry.

9. Thermal Runaway Connects Air Quality Directly to Hazards and Public Health

Section 5.1 also considers air emissions resulting from a BESS thermal-runaway event.

This issue should not be unnecessarily duplicated across multiple sections of the Staff Assessment. But Air Quality contains information that directly reinforces concerns raised in Hazards and Public Health.

Staff's modeling recognizes that a serious battery incident can generate hazardous combustion products capable of traveling beyond the project boundary and reaching nearby residences.

If real-time air monitoring is relied upon during an incident, the Commission should ensure that predetermined protective-action thresholds identify what happens when hazardous concentrations are detected.

Air monitoring can tell emergency responders that a plume exists. It does not, by itself, protect the resident standing downwind.

The protective value comes from what happens next: warning, shelter-in-place, evacuation, road closure, or other emergency action.

For that reason, the Air Quality findings should be consistent with the enforceable emergency-response thresholds ultimately required under the Hazards and Public Health analyses.

10. Air Quality Should Be Consistent With the Fire Scenario the Commission Ultimately Accepts

The battery-fire consequence modeling relies upon a defined accident scenario. As discussed in comments on Section 5.7, the project's Hazard Mitigation Analysis acknowledges that a larger event involving more than one BESS enclosure is physically possible under failure conditions.

If Staff ultimately establishes with substantial evidence that a single-container fire reasonably bounds foreseeable offsite consequences, the Air Quality analysis can rely upon that determination.

But if the Commission determines that a multi-container event must be evaluated, the corresponding air-quality and public-health consequences must also be reconsidered.

The Commission should not approve different sections of the Staff Assessment based upon inconsistent assumptions concerning the same battery-fire event.

11. Staff Should Distinguish Modeled Compliance From Verified Performance

Air-quality modeling is necessarily predictive. It estimates what will occur based upon assumed construction schedules, equipment, activity levels, emission factors, meteorology, and mitigation.

But where the prediction itself identifies a potential exceedance, the Commission should not rely entirely upon another prediction that mitigation will eliminate it when the result can reasonably be measured during construction.

The project has a defined boundary. Staff has identified PM10 as the pollutant of concern. Staff has identified construction as the source and a numerical level against which the modeled concentration is being evaluated.

Measure it.

And because wind direction determines which property boundary is downwind, measure it where the emissions are actually going.

If mitigation works as Staff predicts, monitoring will confirm that conclusion. If it does not, corrective measures can be imposed promptly.

12. Requested Action

I respectfully request that the Commission require Staff to revise or supplement Section 5.1 before adopting final findings.

Specifically, Staff should:

1. Explain quantitatively how AQ-SC3 through AQ-SC5 reduce the modeled PM10 impact upon which Staff's less-than-significant conclusion depends;
 2. Require objective PM10 monitoring at representative downwind project-boundary locations during construction activities responsible for the highest fugitive-dust emissions;
 3. Require onsite measurement of wind speed and direction so that particulate monitoring addresses the boundary actually downwind of construction activity, including the northern boundary when winds are directed toward the residence across Kilkenny Road;
 4. Establish enforceable particulate-matter action levels requiring additional suppression measures and, where necessary, suspension of the offending activity;
 5. Clarify that visual observation of dust is a supplemental compliance tool and not a substitute for quantitative verification where Staff's own model predicts a numerical exceedance;
 6. Identify the reasonably foreseeable projects included in the cumulative air-quality analysis and determine whether their construction schedules could materially overlap Corby construction;
 7. If overlapping construction is reasonably foreseeable, evaluate the combined construction emissions rather than relying solely upon historical background concentrations;
 8. Ensure that thermal-runaway assumptions used in Air Quality are consistent with those ultimately adopted in Hazards and Public Health; and
 9. Ensure that incident air monitoring is connected to enforceable protective-action thresholds for nearby residents.
10. Demonstrate that the construction-emissions inventory includes the reasonably foreseeable excavation, soil export, imported fill, hauling, and stabilization work that may be required under GEO-1; and
11. Demonstrate that the Project's construction-water assumptions include the dust-control water required by AQ-SC3 under reasonably foreseeable peak conditions, including any additional earthwork required by final geotechnical design.

Staff has already done the work necessary to identify where the construction particulate problem is most likely to occur. Its own model identifies the project boundary.

Regional meteorological evidence also confirms that southwest winds are a recurring feature of this part of Solano County, while the applicant identifies a residence directly across Kilkenny Road north of the site.

The remaining step is not complicated.

If Staff relies upon mitigation to reduce a modeled PM10 exceedance to a less-than-significant level, require the project to measure PM10 and demonstrate that the mitigation actually works.

A person looking across a construction site for a visible dust plume cannot establish compliance with a numerical particulate-matter standard. And a monitor that is not positioned with regard to the wind may fail to measure the boundary receiving the emissions.

The Commission should require objective, wind-responsive verification of the mitigation upon which its environmental finding depends.

The deficiencies identified above concern the evidence supporting Staff's less-than-significant findings, not merely the wording of the mitigation conditions. On the present record, the Commission should decline to adopt the Section 5.1 findings and should not certify the Corby Project at this location.

In addition to my comments, I formally incorporate by reference and fully support the technical comment letter submitted by Keep Vacaville Safe.

Respectfully submitted,

Michael Geller

Supporting Meteorological Sources

City of Vacaville, Southtown Project Final Environmental Impact Report, Air Quality section: identifies southwesterly winds associated with marine breezes through the Carquinez Strait and southwest-to-northeast local airflow patterns.

Caltrans, Interstate 80 Westbound Truck Scales Project Air Quality Report (2024): identifies the Travis Air Force Base climatological station as representative of nearby meteorological conditions and reports that prevailing winds flow mainly from the southwest.

Corby BESS Opt-in Application, Air Quality section: identifies a residence across Kilkenny Road directly north of the project site.