

DOCKETED	
Docket Number:	24-OPT-05
Project Title:	Corby Battery Energy Storage System Project
TN #:	272435
Document Title:	Michael Geller Comments - Comments on Staff Assessment Section 5-3 Climate Change and GHG
Description:	N/A
Filer:	System
Organization:	Michael Geller
Submitter Role:	Public
Submission Date:	9/10/2026 6:46:05 AM
Docketed Date:	9/10/2026

Comment Received From: Michael Geller
Submitted On: 9/10/2026
Docket Number: 24-OPT-05

Comments on Staff Assessment Section 5-3 Climate Change and GHG

See Attached Comment Letter

Additional submitted attachment is included below.

COMMENTS ON SECTION 5.3 - CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

CORBY BATTERY ENERGY STORAGE SYSTEM

To the California Energy Commission:

I submit these comments regarding Section 5.3, Climate Change and Greenhouse Gas Emissions, of the Staff Assessment for the Corby Battery Energy Storage System.

I am not challenging the general proposition that battery energy storage can assist California in integrating renewable energy and reducing reliance on fossil-fueled generation. My concern is narrower.

Staff attributes an extraordinarily large greenhouse gas benefit to this particular project - approximately 159,717 to 220,599 metric tons of CO₂ equivalent per year in net displaced emissions. That claimed benefit is central to Staff's conclusion that the Project will result in a net reduction in greenhouse gas emissions.

The question is whether the Staff Assessment adequately demonstrates that those reductions are reasonably expected to result from operation of the Corby Project as actually proposed and approved, rather than from an assumed operating scenario that the Project is not required to follow.

I do not believe the Staff Assessment presently answers that question.

I. STAFF'S CLAIMED GREENHOUSE GAS BENEFIT DEPENDS UPON ASSUMPTIONS ABOUT HOW THE PROJECT WILL OPERATE

Staff estimates that a natural-gas-fired power plant generating an equivalent 1,200 MWh of electricity would emit approximately 462 to 629 MTCO₂e. Assuming as many as 365 charging and discharging cycles annually, Staff calculates that the BESS could displace approximately 168,630 to 229,512 MTCO₂e per year.

Staff then states that, based upon years of CAISO data, the Project is expected to follow the predominant pattern of charging during the middle of the day and discharging when electricity is scarcer. After accounting for indirect emissions, Staff arrives at its estimated net displacement of 159,717 to 220,599 MTCO₂e annually.

This analysis appears reasonable only if its underlying operating assumptions actually occur.

A battery does not generate electricity. It consumes electricity when charging, loses some electricity in the storage process, consumes additional electricity through auxiliary systems, and subsequently returns a smaller amount of electricity to the grid.

Accordingly, the greenhouse gas consequence of operating the Corby BESS necessarily depends upon such matters as:

- when the batteries charge;
- what generating resources are supplying the grid while they charge;
- how frequently the batteries cycle;
- the actual round-trip efficiency achieved;
- the electricity consumed by auxiliary equipment;
- when the stored electricity is discharged; and
- what generation is actually displaced when that discharge occurs.

Yet the Staff Assessment does not appear to demonstrate through project-specific dispatch modeling that Corby will operate according to the pattern upon which Staff's enormous claimed GHG benefit depends. I therefore question whether the record adequately establishes the Project's expected dispatch, charging sources, curtailment conditions, and marginal generator displacement.

General CAISO experience may provide useful context. But describing how batteries commonly operate on the California grid is not necessarily the same as demonstrating how this Project will operate over its proposed life.

II. STAFF SHOULD IDENTIFY WHAT REQUIRES CORBY TO OPERATE IN THE MANNER ASSUMED IN ITS GHG CALCULATION

This leads to what I believe is the central unanswered question in Section 5.3:

What enforceable provision requires the Corby Project to operate in the manner upon which Staff's claimed 159,717 to 220,599 MTCO₂e annual greenhouse gas reduction depends?

For example, does any Condition of Certification require the Project to:

- charge primarily during periods of renewable-energy surplus;
- avoid charging during periods when marginal electricity is supplied substantially by fossil-fueled generation;
- achieve a specified minimum round-trip efficiency;
- limit auxiliary electricity consumption;
- cycle at or near the frequency assumed by Staff; or
- discharge during periods in which the electricity actually displaces natural-gas-fired generation?

If such requirements exist, they should be identified.

If they do not exist, Staff should explain why the Commission can nevertheless treat the resulting GHG reductions as a reasonably assured environmental consequence of approving this Project.

That distinction matters because Table 5.3-1 ultimately reports total net Project emissions ranging from approximately negative 159,546 to negative 220,428 MTCO₂e.

The claimed displacement benefit therefore does far more than marginally improve the Project's GHG analysis. It overwhelms the Project's positive emissions and transforms the overall calculation into a very large net environmental benefit.

The evidentiary support for that benefit should be correspondingly clear.

III. ROUND-TRIP EFFICIENCY AND AUXILIARY LOADS ARE REAL EMISSIONS, NOT MERELY THEORETICAL VARIABLES

Staff acknowledges that operation of the BESS itself causes indirect greenhouse gas emissions.

The applicant estimates approximately 8,913 MTCO₂e per year from round-trip efficiency losses and auxiliary loads.

Those emissions are significant to the logic of Staff's analysis because every megawatt-hour lost during storage must first be generated, and auxiliary equipment must also consume electricity.

The applicant's own project-specific efficiency calculations make this issue concrete. Those calculations estimate Corby's overall round-trip efficiency at approximately 84.6 percent in Year 1 and approximately 80.4 percent in Year 15. They further indicate that approximately 1,343 MWh of grid electricity would be

required in Year 1 to produce a full 1,200-MWh discharge, increasing to approximately 1,404 MWh by Year 15 for the same discharge. The expected decline in efficiency therefore is not a theoretical possibility; it is reflected in the applicant's own project-specific calculations.

That decline is directly relevant to Section 5.3. Staff attributes approximately 159,717 to 220,599 MTCO₂e per year in net displaced emissions to Corby and evaluates a Project expected to operate for approximately 30 years. Staff should disclose the round-trip-efficiency assumption embedded in that GHG calculation and demonstrate how the claimed GHG benefit changes as efficiency declines from approximately 84.6 percent in Year 1 to approximately 80.4 percent in Year 15 and potentially changes further over the remainder of the Project life. The efficiency assumptions used in Section 5.3 should also be reconciled expressly with the project-specific efficiency information evaluated in Section 5.5, Efficiency and Energy Resources.

Yet Staff recommends no additional Conditions of Certification concerning climate change or greenhouse gas emissions. I therefore question whether the operating assumptions underlying Staff's calculations will ever be verified against actual Project performance.

The Commission should explain whether actual charging energy, discharge energy, round-trip efficiency and auxiliary consumption will be measured and reported.

If actual performance materially differs from the assumptions used in Section 5.3, the Commission should also explain what consequence, if any, follows.

IV. THE STAFF ASSESSMENT SHOULD EXPLAIN THE BASIS FOR USING THE 900 MTCO₂e SIGNIFICANCE THRESHOLD

Staff acknowledges that Yolo-Solano Air Quality Management District has not established an updated greenhouse gas threshold designed to meet SB 32 targets beyond 2020.

Staff therefore relies upon CAPCOA's interim industrial-project threshold of 900 MTCO₂e per year, which was designed around a 90-percent emissions-capture concept.

I do not contend that the age of this threshold automatically makes its use improper.

I do believe, however, that Staff should explain why this particular interim threshold remains appropriate for evaluating a project being considered under California's present greenhouse gas reduction framework.

The question is straightforward:

What substantial evidence demonstrates that 900 MTCO₂e per year remains an appropriate significance threshold for the Corby Project under California's current climate policies and reduction targets?

The Commission should provide that analytical explanation rather than relying upon the threshold simply because a newer local numerical threshold has not been adopted.

V. THE 30-YEAR AMORTIZATION OF CONSTRUCTION EMISSIONS REQUIRES A COMPLETE LIFECYCLE ASSUMPTION

Staff also averages the Project's one-time construction greenhouse gas emissions over a 30-year Project life, producing an annualized construction contribution of approximately 123 MTCO₂e per year.

Again, my concern is not that amortization is inherently improper.

The concern is what the 30-year assumption represents.

A battery energy storage facility operating for 30 years may require battery augmentation, battery replacement, replacement of electrical equipment, additional truck trips, equipment removal, and ultimately decommissioning.

The Staff Assessment should therefore disclose the lifecycle assumptions incorporated into its GHG analysis. Specifically:

What battery replacement or augmentation is anticipated during the 30-year Project life?

Are the emissions associated with manufacturing, transporting, installing, removing and replacing those components included in Staff's calculation?

What other major equipment replacement is anticipated?

What emissions are expected from decommissioning?

And if those emissions are not included, why does Staff consider the 30-year amortized construction figure an adequate representation of the Project's lifecycle greenhouse gas effects?

VI. THE COMMISSION SHOULD DISTINGUISH BETWEEN A POSSIBLE GHG BENEFIT AND AN ENVIRONMENTAL BENEFIT REASONABLY ATTRIBUTABLE TO THE APPROVED PROJECT

This is ultimately the central problem with Section 5.3.

The Staff Assessment appears to move through the following chain of assumptions:

Corby charges primarily during midday -> charging captures lower-carbon or surplus electricity -> Corby later discharges when electricity is scarcer -> that discharge displaces natural-gas generation -> the displaced natural-gas generation produces approximately 160,000 to 220,000 MTCO₂e in annual GHG reductions.

The conclusion depends upon the chain.

But Staff's analysis should demonstrate that the chain is reasonably attributable to the Project that the Commission is actually being asked to approve.

A generalized expectation about California battery operation should not substitute for project-specific analysis where Staff is claiming an environmental benefit of this magnitude.

Nor should the Commission assume that every megawatt-hour discharged by Corby necessarily represents a megawatt-hour of avoided natural-gas generation unless the record demonstrates why that assumption is reasonable.

VII. THE CONSTRUCTION GHG INVENTORY SHOULD BE RECONCILED WITH THE EARTHWORK NOW IDENTIFIED ELSEWHERE IN THE STAFF ASSESSMENT

The final review of the Staff Assessment reveals an additional cross-resource issue that should be addressed in Section 5.3. Staff calculates approximately 3,688 MTCO₂e for the 14-month construction period (or 15 months if a groundwater well is constructed), based on the applicant's modeled construction activity and vehicle use.

Elsewhere in the Staff Assessment, however, Staff identifies shallow groundwater and expansive soils and leaves important final geotechnical investigation and design decisions to GEO-1. Those conditions may require additional excavation, soil export, imported fill, stabilization, dewatering, hauling, or other earthwork beyond the assumptions used in the present construction inventory.

That matters here because Section 5.3 annualizes the construction inventory over 30 years and then compares the resulting 123 MTCO₂e/year figure with the 900 MTCO₂e/year significance threshold. If the underlying construction inventory omits reasonably foreseeable geotechnical work, the annualized figure is understated before the comparison is even made.

The Commission should therefore require Staff to demonstrate that the GHG construction inventory includes the reasonably foreseeable earthwork, hauling, dewatering-related equipment use, imported material, and other construction activity that may result from the geotechnical conditions identified in Section 5.6. This is the same construction scope that must be reconciled with the Air Quality and Transportation analyses.

VIII. STATEWIDE STORAGE NEED DOES NOT ESTABLISH THE GHG PERFORMANCE OF THIS PROJECT OR JUSTIFY THIS LOCATION

Staff also relies upon California's statewide decarbonization strategy, renewable-energy targets, and projected need for approximately 52,000 MW of battery storage by 2045. Those policies explain why battery storage may be useful to the State. They do not establish that this particular facility will achieve the specific GHG reductions Staff assigns to it, and they do not establish that the Corby site is necessary to obtain those benefits.

That distinction is especially important because the Alternatives analysis must separately consider whether the Project's objectives can be achieved at a feasible alternative location with fewer environmental effects. A statewide need for storage cannot be converted into a site-specific environmental credit for Corby, nor can it substitute for analysis of a preferable industrial location such as the Lambie Industrial Center.

Staff cites Solano County General Plan policies encouraging renewable energy and energy-efficient development. The same General Plan framework also calls for minimizing adverse environmental effects of energy-production facilities. Consistency therefore cannot be reduced to the proposition that battery storage is renewable-energy infrastructure. The Commission must consider the environmental consequences of where this Project is placed and whether a feasible alternative location could provide the same grid-storage function with fewer impacts.

IX. THERMAL-RUNAWAY AND REFRIGERANT ASSUMPTIONS SHOULD BE CONSISTENT ACROSS RESOURCE SECTIONS

Section 5.3 assigns approximately 25 metric tons of CO₂ to a BESS thermal-runaway/fire event and, using the frequency analysis cited from Appendix D, amortizes an assumed event frequency into approximately 1.7 to 2.5 MTCO₂e per year. Staff also estimates operational emissions from refrigerant leakage and sulfur hexafluoride (SF₆). These figures are small compared with Staff's claimed avoided-emissions benefit, but they depend upon assumptions that are also used in the Project's Hazards, Public Health, Air Quality, and Transmission Line analyses.

The Commission should ensure that the event frequency, event magnitude, equipment inventory, refrigerant leakage rates, SF₆ assumptions, and replacement schedules used in Section 5.3 are consistent with the assumptions ultimately adopted in those other resource sections. A favorable GHG calculation should not rest on a different fire-frequency, equipment, or operating scenario from the one used to evaluate public-health or safety consequences.

X. QUESTIONS REQUIRING A WRITTEN RESPONSE

I respectfully request that the Commission address the following questions in its response to comments:

1. What project-specific modeling demonstrates the expected hourly or seasonal charging and discharging pattern of the Corby BESS?
2. What generating resources are expected to provide the marginal electricity used to charge Corby?
3. What evidence demonstrates that Corby's discharge will actually displace natural-gas-fired generation in the quantities assumed by Staff?
4. What enforceable Project requirement ensures that Corby will charge and discharge in the manner assumed in calculating the claimed GHG reduction?
5. What annual number of charge/discharge cycles was used in the analysis, and what happens to the calculated GHG benefit if actual cycling is materially lower?
6. What round-trip efficiency was assumed in calculating the claimed 159,717 to 220,599 MTCO₂e annual GHG reduction, and how does that assumption account for the applicant's project-specific estimate that overall round-trip efficiency declines from approximately 84.6 percent in Year 1 to approximately 80.4 percent in Year 15?
7. Has Staff performed a sensitivity analysis showing how the claimed GHG benefit changes as round-trip efficiency declines over the Project's 30-year operating life, including the effect of battery degradation, augmentation, and any further efficiency change after Year 15?
8. Will actual charging energy, discharge energy, auxiliary consumption and round-trip efficiency be monitored and reported?
9. What substantial evidence supports continued use of the 900 MTCO₂e/year significance threshold for this Project?
10. What battery augmentation or replacement is anticipated during the assumed 30-year Project life?
11. Are emissions associated with battery augmentation, replacement, transportation, equipment replacement and decommissioning included in the lifecycle GHG analysis?
12. Has Staff performed a sensitivity analysis showing Project GHG emissions under alternative charging scenarios, including periods when natural-gas generation is on the margin?
13. Does the 3,688 MTCO₂e construction inventory include the additional excavation, soil export, imported fill, stabilization, dewatering-related equipment use and hauling that may be required by the geotechnical conditions identified elsewhere in the Staff Assessment?
14. Are the thermal-runaway frequency and magnitude assumptions, refrigerant leakage assumptions, SF₆ inventory and equipment-replacement assumptions in Section 5.3 consistent with those used in the Hazards, Public Health, Air Quality and Transmission Line analyses?
15. What evidence demonstrates that the statewide need for battery storage requires this Project at the Corby location, rather than a feasible alternative industrial location capable of providing the same storage function with fewer environmental effects?
16. Most importantly, if Corby may legally operate in a manner different from the charging, dispatch, cycling, efficiency and natural-gas displacement assumptions used in Staff's calculations, on what basis can the Commission treat the resulting 159,717 to 220,599 MTCO₂e annual reduction as an environmental consequence of the Project it is actually approving?

XI. CONCLUSION

The issue raised by these comments is not whether battery energy storage can help California reduce greenhouse gas emissions.

It can.

The issue is whether the Staff Assessment has adequately demonstrated the greenhouse gas benefit attributed to this Project.

Staff's less-than-significant conclusion relies heavily upon a very large claimed reduction in greenhouse gas emissions from displaced natural-gas generation. But that benefit depends upon assumptions concerning charging, dispatch, cycling, efficiency and the generation actually displaced by Corby's operation.

Before relying upon an annual GHG benefit approaching 220,000 MTCO₂e, the Commission should identify the project-specific evidence supporting those assumptions and explain whether the Project is required to operate consistently with them.

If the Project is not so constrained, the Commission should evaluate reasonable alternative operating scenarios and disclose how those scenarios affect Staff's conclusions.

The Commission should not confuse what a battery energy storage facility can accomplish under favorable operating conditions with what the Corby Project is reasonably demonstrated and required to accomplish under the approval before it.

The deficiencies identified above concern the evidentiary basis for Staff's less-than-significant finding, not merely the wording of the analysis. Staff has not demonstrated that the enormous avoided-emissions credit attributed to Corby is an enforceable or reasonably assured consequence of the Project as approved; the construction inventory must be reconciled with the additional earthwork reasonably foreseeable from the geotechnical record; and statewide policy favoring storage does not answer the site-specific environmental questions presented here.

On the present record, the Commission should decline to adopt the Section 5.3 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

Member of the Public

Solano County, California

Sources Cited

- Corby Battery Energy Storage System Project, Staff Assessment, Section 5.3, Climate Change and Greenhouse Gas Emissions, including Tables 5.3-1 and 5.3-2.
- Corby Battery Energy Storage System Project, Staff Assessment, Section 5.6, Geology, Paleontology and Minerals, including Condition of Certification GEO-1.
- Corby Battery Energy Storage System Project, Staff Assessment, Section 5.1, Air Quality.
- Corby Battery Energy Storage System Project, Staff Assessment, Sections addressing Hazards, Public Health, and Transmission Line Safety and Nuisance, as applicable to thermal-runaway, refrigerant, and SF₆ assumptions.
- Solano County 2008 General Plan, policies cited by Staff in Section 5.3, including RS.P-53 and RS.P-57.
- Corby Battery Energy Storage System Project, Staff Assessment, Chapter 8, Alternatives.