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Comments on Staff Assessment Section 5-12 Solid Waste Management

Please 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 5.12
Solid Waste Management

Commissioners:

I submit these comments regarding Section 5.12 of the Staff Assessment, Solid Waste Management.

Staff's analysis focuses primarily on conventional construction debris, ordinary operational waste, and available landfill capacity. Staff estimates approximately 5,000 cubic yards of construction waste and concludes that even if none of that material were recycled, it would represent only about 0.005 percent of the remaining capacity of the two identified Class II/III landfills.

That may adequately address ordinary construction debris.

It does not adequately address the defining waste stream of this project: the batteries themselves.

The Corby project is a 300-MW/1,200-MWh battery energy storage facility. Over its operating life, battery cells and modules will age, fail, be replaced, potentially be augmented, and eventually reach end of life. Section 5.12 does not presently provide a complete lifecycle analysis of what happens to that material.

1. Staff Analyzes Ordinary Solid Waste but Does Not Adequately Analyze the Battery Waste Stream

Staff states that routine BESS maintenance is not expected to generate significant quantities of solid waste and that the facility would not have regular onsite employees producing ordinary municipal-type waste.

That may be true. But the environmental question is not limited to routine trash and maintenance debris.

Elsewhere in the project record, used lithium-ion battery cells are recognized as potentially hazardous waste and are expected to be recycled or otherwise lawfully managed. Yet the record does not quantify expected battery waste volumes, onsite storage duration, disposal capacity, or what happens if anticipated recycling or reclamation pathways are unavailable.

The Staff Assessment should therefore disclose, to the extent reasonably foreseeable, expected battery replacement over the life of the project; anticipated module or cell failure; any battery augmentation program; the quantity of battery material expected to leave service during operation and at final decommissioning; temporary storage requirements; facilities capable of receiving the material; and the contingency if the intended recycling pathway is unavailable.

A conclusion that ordinary operational waste is negligible does not answer those questions.

2. Landfill Capacity Is Not the Central End-of-Life Question

Staff places considerable emphasis on the capacity of nearby landfills. But lithium-ion batteries cannot simply be analyzed as ordinary municipal solid waste.

The relevant issue is whether retired, damaged, or end-of-life battery material can be lawfully stored, transported, treated, recycled, or otherwise disposed of through facilities capable of accepting that material.

Therefore, the fact that Hay Road Landfill or another Class II/III landfill has substantial remaining volume does not establish that the project has an adequate end-of-life management pathway for its batteries.

Section 5.12 should distinguish clearly between ordinary construction and maintenance debris and battery and electrical equipment that may require specialized handling, recycling, treatment, transportation, or hazardous-waste management.

The present analysis does not adequately make that distinction.

3. WASTE-1 Defers Important Project-Specific Information Until After Approval

Staff relies on Condition of Certification WASTE-1.

WASTE-1 requires the project owner to prepare a Construction Waste Management Plan and an Operations Waste Management Plan, but those plans are not submitted until shortly before construction and operation. Staff's own condition requires those future plans to identify all waste streams; projected frequency and quantities; hazardous classifications; treatment methods and treatment companies; waste-testing methods; transportation methods; disposal requirements and disposal sites; and recycling and waste-minimization/reduction plans. The Construction Waste Management Plan is due no less than 30 days before site mobilization, and the Operations Waste Management Plan no less than 30 days before project operation.

That framework has value. But it leaves important questions unanswered at the time the Commission is being asked to approve the project.

The Commission does not presently know the projected quantity of battery waste over the project life; how much battery material may be stored onsite at one time; maximum storage duration; which battery recycling or treatment facilities are expected to be used; whether those facilities can accept the quantity and chemistry involved; how damaged batteries would be handled differently from normally retired batteries; what happens if the preferred recycler is unavailable; or what alternative lawful disposition pathway is available.

WASTE-1 also relies on formulations such as recycling 'to the greatest extent possible' without establishing a clear diversion or performance standard.

That timing is important. WASTE-1 demonstrates that Staff considers waste quantity, hazardous classification, treatment capacity, transportation, disposal destinations, and recycling methods necessary to proper waste management. Yet the project-specific answers to those questions are deferred until after certification. For ordinary office trash that may be unremarkable. For the defining material in a 1,200-MWh battery facility, the Commission should know before approval that a feasible lifecycle pathway exists.

Every operational detail need not be frozen decades in advance. But the Commission should require enough information now to demonstrate that a feasible and enforceable lifecycle waste-management framework actually exists.

4. Battery Replacement and Augmentation Should Be Included in the Operational Waste Analysis

Battery energy storage systems are not static installations.

Battery performance declines over time. Individual cells, modules, racks, or enclosures may require replacement. Additional battery capacity may also be installed to maintain project performance.

Those activities can generate substantial quantities of removed battery material even before final decommissioning.

Section 5.12 should therefore identify the assumptions Staff used regarding battery service life, module replacement, failed-cell replacement, augmentation, equipment replacement, and the resulting material quantities.

If Staff assumed that these lifecycle events would generate only insignificant amounts of waste, that assumption should be disclosed and supported. If Staff did not quantify them, the operational waste conclusion is incomplete.

5. Decommissioning Is a Foreseeable Waste Event and Should Be Evaluated

The largest waste-management event may occur at the end of the project's life.

At decommissioning, a substantial portion of the facility will have to be removed, reused, recycled, treated, or disposed of. That includes batteries, electrical equipment, inverters, transformers, wiring, steel, fencing, concrete, structures, and other facility components.

Some of those materials may have salvage value. Some may be recyclable. Some may require specialized management. But labeling material recyclable or salvageable does not eliminate the need to evaluate what will happen to it.

The Staff Assessment should disclose the reasonably foreseeable material quantities generated during decommissioning and explain how those materials will be managed.

Otherwise, the analysis creates the appearance of very low operational waste by focusing on routine annual maintenance while leaving the project's largest foreseeable material-removal event outside the quantitative analysis.

6. Routine Retired Batteries and Damaged Batteries Require Different Management Pathways

Section 5.12 should also distinguish between ordinary end-of-life batteries and batteries damaged by fire, thermal runaway, mechanical damage, electrical failure, or other incidents.

A normally retired battery may be suitable for a standard recycling or reclamation pathway. A thermally damaged or otherwise compromised battery may require different packaging, isolation, transportation, treatment, and storage.

That distinction matters because the Staff Assessment elsewhere recognizes the possibility of battery thermal runaway and fire.

Accordingly, the Operations Waste Management Plan should expressly address at least two categories: routine retired or replaced battery material, and damaged or incident-generated battery material.

The Commission should not assume that the same recycler, transportation method, temporary storage method, or destination will necessarily be appropriate for both.

This distinction also cross-correlates directly with Staff's Hazards analysis. Section 5.12 itself sends hazardous-waste management to Section 5.7 rather than analyzing it here. That division of subjects should not create a gap: Section 5.12 should identify the lifecycle waste stream, while Section 5.7 addresses the hazardous characteristics and incident consequences. Together, the two sections should establish how damaged batteries and contaminated incident debris will actually be classified, stored, transported, treated, and ultimately disposed of.

7. 'Many Manufacturers Offer to Reclaim' Is Not the Same as an Enforceable Disposal Pathway

The broader project record indicates that battery manufacturers may offer reclamation or recycling programs.

That is encouraging. But it is not equivalent to an enforceable project commitment.

A recycling program available today may not exist decades from now. The original battery manufacturer may no longer own the technology, may no longer be in business, or may not accept damaged material. Market conditions may change. The project itself may be sold.

The Commission therefore should require a waste-management framework that does not depend solely on the continued voluntary availability of a particular manufacturer's reclamation program.

The appropriate question is:

What enforceable mechanism ensures that retired and damaged batteries will have a lawful management pathway throughout the project's operating life?

Section 5.12 does not presently answer that question.

8. The Cumulative Analysis Focuses on Conventional Waste Generation

Staff's cumulative analysis evaluates nearby projects, including the Vaca-Dixon Power Center, and compares their solid-waste generation with regional landfill capacity.

That is useful for conventional construction and municipal-type solid waste.

But if multiple large BESS projects are constructed in the same region, they also create a future regional stream of retired lithium-ion battery material. That waste stream is materially different from ordinary landfill-bound debris.

The cumulative analysis should therefore address, at least qualitatively, whether multiple large battery-storage facilities are expected to rely on the same specialized recyclers, transporters, treatment facilities, or hazardous-waste infrastructure.

The question is not whether regional landfills have room. The question is whether the specialized battery-management system is adequate for the reasonably foreseeable future volume.

Staff also identifies Solano County General Plan Policy PF.P-27, which calls for responsible waste-management practices, including recycling. That policy does not by itself resolve the battery-lifecycle issue, but it reinforces the need for a concrete recycling and disposition framework rather than an assumption that recycling will remain available decades into the future.

9. Requested Action

I respectfully request that the Commission require Staff to revise or supplement Section 5.12 before adopting final findings.

Specifically, Staff should:

1. Quantify, to the extent reasonably foreseeable, battery material expected from replacement, failure, augmentation, and decommissioning;
2. Distinguish ordinary solid waste from lithium-ion batteries and other materials requiring specialized recycling, treatment, transportation, or hazardous-waste management;
3. Identify the types of facilities expected to receive retired battery material and explain whether adequate capacity is reasonably available;
4. Require the Operations Waste Management Plan to address maximum onsite battery-waste storage quantity and duration;
5. Require separate procedures for routine retired batteries and damaged or incident-generated batteries;

Require an explicit crosswalk between Section 5.12 and Section 5.7 showing how fire-damaged batteries, contaminated debris, and other incident-generated waste will be classified and managed;

6. Establish a contingency management pathway if the preferred recycler, manufacturer reclamation program, or treatment facility is unavailable;
7. Strengthen WASTE-1 with objective reporting, documentation, and verification requirements rather than relying solely on recycling to the greatest extent possible;
8. Evaluate decommissioning as a foreseeable lifecycle waste event rather than limiting the operational discussion to routine maintenance waste; and
9. Evaluate whether foreseeable regional BESS development could create cumulative demand on specialized lithium-ion battery recycling and treatment infrastructure.

Staff's landfill-capacity arithmetic may be correct. But that is not the central waste-management question presented by a 1,200-MWh battery project.

The relevant question is what happens to the batteries when they fail, are replaced, are damaged, or ultimately reach the end of their useful life.

Those batteries are not ordinary construction debris. They cannot simply be assumed to disappear into the same landfill-capacity calculation used for concrete, wood, paper, and packaging.

Before determining that Solid Waste Management impacts are less than significant, the Commission should require a lifecycle analysis that follows the defining material in this project - the batteries - from installation through replacement, incident response, and final disposition.

For these reasons, I do not support approval of the Corby BESS at the proposed Kilkenny Road location on the present Solid Waste Management record. The Commission should not certify a 1,200-MWh battery facility while postponing until after certification the project-specific information needed to demonstrate where its defining material will go when it fails, is replaced, is damaged, or reaches the end of its useful life. That unresolved lifecycle burden is another reason to give full consideration to an appropriate industrial alternative rather than placing the project on this agricultural site.

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

Respectfully submitted,

Michael Geller