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**From:** Kaye <kaye@coopmead.com>  
**Sent:** Wednesday, September 6, 2023 1:17 PM  
**To:** Jose Larranaga; Penny Ellis-Green  
**Cc:** Hank Hughes; Anna C. Hansen; Anna T. Hamilton; Justin S. Greene; Camilla M. Bustamante; Gabriel C. Bustos  
**Subject:** AES comments to questions of August 11th and August 15th re: Rancho Viejo Solar Project  
**Attachments:** Distance Images.zip; Q\_A for Kaye Cooper-Mead\_Aug 11.pdf; Q\_A for Kaye Cooper-Mead\_Aug 15.pdf; ResponseAttachments.zip

**Warning:**

**EXTERNAL EMAIL:** Do not click any links or open any attachments unless you trust the sender and know the content is safe.

To: The SLDC Hearing Officer, the Planning Commission, and the Santa Fe County Commissioners

Hi Jose:

Please share this information with all noted above. It is the latest set of answers from AES concerning my emails of August 11th and August 15th.

More significant changes including the reduction of battery cells from the 1,043,280 battery cells they told me on August 4th (which I have asked them to add back in on the information about battery cells so it is a written history of the information they provided and she is saying she will do this next week) to 520,560 battery cells. This change comes about as a result of the new information they are providing on the number of battery storage containers from 69 40' containers as of her Aug 4th email to to the 38 40' containers she now mentions in this email.

I will be doing a response to these documents shortly and will copy all of you on that correspondence but wanted you have all of her attachments before that email as I will be referring to them in my response.

Thank you for reading.

Sincerely,

Kaye

Kaye Cooper-Mead

Sent from my iPad

Begin forwarded message:

**From:** RanchoViejoSolar <RanchoViejoSolar@aes.com>  
**Date:** September 1, 2023 at 4:50:41 PM MDT  
**To:** Kaye <kaye@coopmead.com>  
**Subject: RE: Battery cell discrepancy**

Hi Kaye,

I was able to source additional information from the project team about the battery system at its current design stage. I've updated the Aug 11 document and reattached all the files I sent yesterday.

Please let me know if you have other questions that need to be addressed. I hope you all have a great holiday weekend.

Rebecca

-----Original Message-----

From: Kaye <kaye@coopmead.com>  
Sent: Friday, September 1, 2023 8:44 AM  
To: Rebecca Halford <rebecca.halford@aes.com>  
Subject: Re: Battery cell discrepancy

CAUTION: This email originated from outside AES. Do not click links or open attachments unless you recognize the sender.

Yes that is the difference as  $21 \times 720 = 15,120$ . Could you please send me a newly revised email that you sent yesterday with all the attachments again and the revised Q & A document that shows this correction and could you please add the total number of battery cells over the 38 40' containers on the site?

Thank you very much.

Kaye

Sent from my iPad

On Sep 1, 2023, at 8:30 AM, Rebecca Halford <rebecca.halford@aes.com> wrote:

This information may be the cause of some confusion. Correction: The strings do not include 60 cells. The strings include 720 cells each. I'm not sure where the typo came from.

Please let me know if this creates additional questions.

Rebecca

-----Original Message-----

From: Rebecca Halford

Sent: Friday, September 1, 2023 8:23 AM

To: Kaye <kaye@coopmead.com>; RanchoViejoSolar  
<RanchoViejoSolar@aes.com>

Subject: RE: Battery cell discrepancy

Kaye,

The information provided in the documents yesterday represents the most recent iteration of the project design.

This is correct:

"The total MWh is the same as before with the change being utilization of a 40' container instead of a 20' container. Container density is varied throughout the site. The maximum allowable is 21 strings per 40' container. Each string contains 60 battery cells per string for a physical maximum cell count of 15,120 cells per container"

"The current project design includes 38, 40' containers."

Thanks,

Rebecca

-----Original Message-----

From: Kaye <kaye@coopmead.com>

Sent: Friday, September 1, 2023 7:58 AM

To: RanchoViejoSolar <RanchoViejoSolar@aes.com>; Rebecca Halford  
<rebecca.halford@aes.com>

Subject: Battery cell discrepancy

CAUTION: This email originated from outside AES. Do not click links or open attachments unless you recognize the sender.

Hi Rebecca:

Thanks for your email yesterday which I will review and come back to you on. But there is one glaring change about the battery cells and containers that I wanted to discuss with you immediately.

On August 4th you said,

“Each enclosure has 21 strings, each with 720 cells: 15,120 cells/enclosure for a grand total of 1,043,280 battery cells across 69 containers”. At that time you informed us the containers were 40’ instead of 20’.

Yesterday, your document attached below, says:

“The total MWh is the same as before with the change being utilization of a 40’ container instead of a 20’ container. Container density is varied throughout the site. The maximum allowable is 21 strings per 40’ container. Each string contains 60 battery cells per string for a physical maximum cell count of 15,120 cells per container”

“The current project design includes 38, 40’ containers.

If the maximum allowable is 21 strings per 40’ container and there are 60 battery cells per string (not the 720 battery cells per string you mentioned Aug 4th) that would total 1,260 battery cells per container not the physical maximum cell count of 15,120 cells per container you quoted on both Aug 4th and yesterday.

Please provide the correct information as to how many maximum strings per container, maximum battery cells per string per container and total maximum battery cells per container.

Was the 720 battery cells per string you mentioned on August 4th an incorrect number? I don’t know how this figure could go from 720 per string to 60 per string you mentioned yesterday.

What is the grand total number of battery cells for the site — on August 4th it was 1,043,280. What is it now?

And please confirm that it is now 38 40' containers instead of the 69 40' containers you mentioned on August 4th.

Would very much appreciate hearing from you today on this matter as it doesn't make sense mathematically in the document you sent yesterday,

Thank you very much.

Kaye

Sent from my iPad

On Aug 31, 2023, at 4:46 PM, RanchoViejoSolar  
<RanchoViejoSolar@aes.com> wrote:

Hi Kaye,

I've attached responses to your letters dated August 11 and August 15 and files including additional requested information. Just so you know, responses to your questions sent on August 28 are still being processed and will be returned to you as soon as possible.

Thank you,  
Rebecca

-



1. Samsung SDI E5S - I see that you have now changed to a different Samsung battery. Since you indicate you cannot release the crucial information on the battery's chemistry and its environmental testing and rating information without an NDA, I have asked the County to get involved with obtaining this information. No safety review of this project can be done without the details on the battery as requested.

Comment noted. Responses are being provided to the County, as appropriate.

2. Battery containers – the draft specification you attached is dated December 14, 2022. More than a month before you submitted your Conditional Use Permit Application. Why weren't we told about the larger containers until I asked? In the fall meeting you had in San Marcos, the containers were to be 39 45' containers, then it became 69 20' containers and now you say 69 40' containers. During that fall meeting, it was said that project would not expand. This is clearly an expansion of the project.

Project refinements are made as part of design development. The current project design includes 38, 40' containers. Storage capacity has not expanded, and remain 48 MW, for 4-hours.

3. Battery cells -- Talk about an expansion of the project! This is a shocking increase in the number of battery cells indicated previously from 415,000 to almost triple of 1,043,280 cells. Why have the battery cell numbers which hold the most fire risks along with the electrical equipment in the substation area, been raised to this level and how does this impact the MW numbers you have stated for the project of 96MW solar and 48 MW BESS? What is the storage MW now?

As stated above, the total energy storage capacity has not changed and remains 48 MW - r hour system. The total MWh is the same as before with the change being utilization of a 40' container instead of a 20' container. Container density is varied throughout the site. The maximum allowable is 21 strings per 40' container. Each string contains 720 battery cells per string for a physical maximum cell count of 15,120 cells per container. The number of strings per container and containers per site is in adjustment through final design. Currently, the design includes 38 enclosures.

The current BESS design is as follows and is subject to change as we progress through design:

30% Design Stage:

48 MW - 4 Hour System

Total Qty. 38 of the CEN 40' Containers

Total Qty. 723 of Samsung E5S battery strings Total Qty. 8676 battery modules Total Qty. 520,560 battery cells

The last 10% design stage was as follows:

10% Design Stage:

48 MW - 4 Hour System





Total Qty. 69 of the CEN 20' Containers

Total Qty. 690 of Samsung E5S battery strings Total Qty. 8280 battery modules Total Qty. 496,800 battery cells

4. Battery transportation – how can battery cells be protected in cardboard boxes on their long journey here from South Korea and how long does it take to install 1,043,280 battery cells in 69 containers. I don't believe the statement that installation will "occur immediately upon arrival." How long does it take to install battery cells in just one container? You say battery cells will be inspected during manufacturing but damage to any one cell (all it takes to start a thermal runaway fire) can happen in any step of the process from boat shipment, to the truck loading and shipment and during the installation process. When installing, does the installer inspect each battery cell?

The battery modules are transported in individual non-conductive casing (formed from cardboard), strapped to pallets inside ISO shipping enclosures, designed for water tight transport across the sea. The packaging restricts motion and prevents any module from touching another module. Installation of batteries in one enclosure requires roughly one day. Multiple construction teams can install multiple enclosures simultaneously and the project schedule allows contingency for adverse weather and shipping delays, maintaining the integrity and ambient conditions required for battery health. The batteries are packed tightly and the only way for damage to occur in shipment is via collision with an external object. Detailed inspection of the container and module casing upon arrival ensures that only undamaged modules are installed. Other commissioning steps review the status of key parameters (temperatures, voltages, and functional sensors) prior to connection to other parts of the plant or the grid. The BMS communicates with every cell. Any abnormalities result in repair or replacement.

5. It is frightening to hear you talk of cell failure as an "unfortunate reality." This unfortunate reality is what leads to fires so please go into detail with what exact mitigation measures you will use to stop fires. Please provide details on the "different approach to hazard mitigation" you mention. How does it differ from what you stated in the Conditional Use Permit Application? What is the exact firefighting suppressant you intend to use and how is this applied in the battery containers? You indicate the battery containers are not occupiable and first responders do not open any of them. How do the containers vent the toxic gases that build up in a thermal runaway fire?

The containers include self-contained fire suppression that can address both non-battery electrical fires (via conventional suppressant) and battery fires via direct injection of clean agent fire suppressant into the cell on fire. The solution has been tested by UL and found to fully suppress a fire internal to the battery enclosure. Fires external to the enclosure are mitigated by first reducing combustible load, and then through conventional firefighting measures.

6. Maps – you did not include any new maps as requested and some of the distance measures may be inaccurate as you are using a cut off version of the original map when the facility still had the left arm area that was close to Rancho San Marcos.



The maps previously provided are as accurate as possible, using the ruler feature on Google Earth Maps. The boundary on the left side of the map indicates the location of the access road from Hwy 14 to the facility's entrance.  
Images are provided again as an attached zip folder.

7. Substation photo -- not sure why you have to wait for a future meeting to provide this. When is the meeting to occur?

Representative substation photo provided on August 11. A higher resolution file is included in this response.

8. Proposed high voltage transmission line and H-frames -- you dropped out this entire question from my July 9th email in your recent response so I repeat it below:  
Please provide a photo of the proposed high voltage transmission line and its supporting H-frames. I believe these are to be 40' to 50' (one place said 50') with structural spans of 250 feet. What is the correct measurement for these? How many support structures (H-frames) will be used to cover the run of the line stated to be 2.3 miles in one section and 2.4 miles in another section? Believe you indicated 10 poles per mile. I assume the H-frames are different than the poles, so how many of each will be used?

Response provided on August 11.

Photo is representative of what would be anticipated for the transmission line.

What is the correct measurements for these?

- 50' H-Frame structures with an average span of 376 feet.

How many support structures (H-frames) will be used to cover the run of the line stated to be 2.3 miles in one section and 2.4 miles in another section?

- 31 H-Frame structures for the 2.3 miles.

9. Why is the high-voltage transmission line not buried underground to avoid the huge fire risk of transmission lines? Many of California's biggest fires were caused by transmission lines to they have started burying them.

Fault detection: for overhead lines, the detection and clearance of a fault is readily discernable while it is very difficult to detect and clear the fault in underground cables.

Line life expectancy is over double for overhead vs underground.



10. HVAC to Dual Compressor Chiller Units - please advise why you went to these units over the HVAC units.

What specific type of glycol (you mentioned glycol but I believe you meant glycol) you intend to use in the chiller units?

Will these be a closed-loop design?

How many gallons of water does each chiller unit hold and how many chiller units will be required for the 69 40' containers?

Will you be using distilled or reverse osmosis purified water or municipal water in the chiller units?

How and how often will the chiller units be monitored for leaks which happen in even a closed-loop system?

When the chiller units leak how are you going to prevent the glycol from entering the groundwater?

How will you continuously monitor the ratio of glycol to water in each chiller unit to make sure the 50% is being maintained?

How and how often will the chiller units be monitored for corrosion?

How will the chiller units be pre-cleaned?

How will the chiller units be filtered to prevent corrosion?

States, counties and cities have different regulations regarding the use of glycol to protect water tables, drainage and disposal of fluids. Have you contacted the state and county regarding any regulations for these chiller units to ensure compliance with the regulations?

What other AES BESS facilities have used the chiller units instead of HVAC units? Please specify those facilities, how long they have been running and where they are located?

Many battery suppliers have discontinued air-cooled battery modules and packs. Liquid cooling can enable more uniform temperatures throughout a bank of batteries, which helps balance voltages (allowing for more consistent use of the full energy capacity) and improve lifetime. Liquid cooling has demonstrated additional safety features in some batteries as well (reducing the potential for thermal runaway propagation). Importantly, the integration headaches with early liquid cooled systems have largely been sorted out with the recent generation of batteries - leaks are no longer a concern.

These are closed-loop systems. The coolant is specified as a 50-50 water-ethylene-glycol mixture.

Each 40' enclosure utilizes roughly 65 gal of coolant.



The mixture is shipped to site and not mixed on-site. Pressure and flow rates are monitored continuously - this data is available multiple times per minute.

The EPA says "Ethylene glycol may be discharged into wastewater from its production and use." - <https://www.epa.gov/sites/default/files/2016-09/documents/ethylene-glycol.pdf>

However, AES first response can include dry absorbent spill kits.

Glycol and water form a solution; the mixture does not separate.

Annual maintenance includes inspection of the enclosure and ancillary gear to monitor for defects and degradation, like corrosion.

I'm not aware of any pre-cleaning for the chiller units.

Filtering provisions are source from the chiller manufacturer.

Relevant government-issued permits address the specific technology and equipment specified at these plants.

AES and its affiliates have been operating liquid cooled energy storage systems since 2019. These are located in the US in CA and NY, Chile, and several locations in Europe.

11. Sound level of chiller units – at 70dB you are now above what you stated in your Conditional Use Permit Application for the 60 dB for the HVAC's. Have you filed an amendment with the County to increase the dB level above what was stated in your Application?

Updates to the CUP Application will be provided to the County, accordingly.

12. With the increase in the dB level for the chillers, it is important that you answer all the other dB level questions I asked in my letter of July 9th so we can look at the overall dB for the facility with all the other equipment that will be emitting sound.

Responses provided on August 11.

Chiller db:

The units now forego HVAC in favor of chillers to supply liquid coolant directly to the battery modules. These units operate near 70 decibel (dB), which is similar to a dishwasher. At 15 meters the sound attenuates to less than 50 dB, very faint – similar to moderate rainfall.

Inverter db:

The project will have approximately 25 solar inverters, which are dispersed throughout the facility. The project will also have approximately 19 battery storage inverters.





Inverters have a sound that can be characterized as a low hum. At 15 meters have a decibel (dB) level of 61, which is similar to a normal conversation. At 50 meters the sound attenuates to 50 dB, very faint – similar to moderate rainfall. At 200 meters the sound attenuates to 44 dB, which is a very low perceptibility.

**Transmission db:**

During relatively dry conditions, High voltage transmission lines emit noise levels of 40 to 50 dBA in close proximity to the transmission line, such as at the edge of the right-of-way. In many locations, this noise level is similar to ambient noise conditions in the environment. Depending on conditions, wet weather could cause levels to increase to 50 to 60 dBA.

**Transformer db:**

Transformer 115MVA

High Voltage (H): 115kV, 550kV BIL, 1200A  
continuous (minimum)

Typical noise level(Max): 73 dbA

13. Panels – since you have changed about everything else in the project, how many solar panels will be used on the entire site and what is their size and height in various positions?

Project refinements are made as part of design development. Panel numbers may change as part of final design. The current design includes 205,712 panels, which are 2,278 x 1,134 x 35 millimeters. Module and distance presented are subject to further refinement as part of design development. Assuming the currently proposed panels in the 30 percent design are used, the distance from the ground to the highest point of the solar module at maximum tilt (52 degrees) is approximately 8 feet.

14. Power – glad to hear you will have UPS systems but you only say AES BESS systems can be equipped with black start capabilities to enable self supply of auxiliary power in the event of an outage. Why don't you confirm that the facility will be equipped with these capabilities?

Where are the UPS systems located and are these battery back ups or some other technology?

You mention “wide temperature swings (while not desirable for battery longevity) are acceptable and pose no hazard when the batteries are in shutdown” but what if the batteries have not been shutdown by the Battery Management System before these temperature variations occur? The previous Battery Management Systems in your Arizona facilities did not function properly during the thermal runaway events there with only 3,000 battery cells in your Chandler, AZ facility as compared to the 1,043,280 battery cells you intend to use here -- why should we trust that these systems will work when you are monitoring such an incredibly exponential number of battery cells here?



AES incorporates backup power procedures into our storage sites. We confirm this. The UPS systems are located inside the battery enclosures (traditional data center style UPS systems). The BMS have been tested and confirmed for this operation. The events occurring elsewhere were not the result of poor performance of a BMS and those lessons learned have been incorporated into other subsystems: enclosure design, mitigation design, and mitigation procedures. We don't trust that those systems work - we rely on multiple layers of safety in which the BMS is a first line of defense (not the last).

15. Construction Waste Management – you say “These are not anticipated release of liquid hazardous waste.” I don’t trust when people insert “anticipated” into any statement so you can just say we did not anticipate this when it happens. This statement is in direct conflict with what you have stated on page 2-5 of the EIR when you say, “Most of the hazardous waste generated during construction will consist of liquid waste such as flushing and cleaning fluids and solvents.” Your EIR needs to be amended officially with the County to reflect what you are now saying or your current ERI information allows you to have hazardous liquid waste which cannot be permitted due to the contamination of groundwater when we are on wells in neighboring communities.

Please recognize that there is a difference between a release of hazardous waste and hazardous waste generated as part of construction. As stated, releases during construction are not anticipated, and any such release would be incidental (e.g. drips) and would be immediately cleaned up and disposed of in accordance with federal, state, and local regulations.

16. Hazard Mitigation Analysis – surely you prepared, at minimum, a Hazard Mitigation Analysis for the site when you chose the site so this should be provided to the County at this time. And now that you have chosen a new battery cell, battery containers and the chiller units why would you not have this Hazard Mitigation Analysis for these products? It makes no sense for the County to provide any review or approval of your Conditional Use Permit Application without complete information on what hazards and mitigation strategies AES would have already had to research. Why would you withhold this information from the County at this time? The County absolutely needs this information to properly evaluate and assess the dangers of this facility and would be remiss if they did not ask you for these documents before evaluating your Application.

We want to know if your Hazard Mitigation Analysis has the natural gas line that runs along the boundary of Eldorado and has a gas regulating station that comes up above ground about 150 feet from residences on the west end. A gas company representative told us the regulating station with rubber gaskets that could be damaged in a fire and stop regulating the gas flow would cause an explosion at this site. On your list of companies that you contacted we see no mention of the Gas Company. Did you contact the Gas Company to discuss where the gas lines are in the area and any possible hazards if a fire should sweep the area?

AES does create the HMAs and has no intent to operate ESS without one. AES is prepared to share any and all details of our HMAs. This enclosure is a derivative design of enclosures deployed by AES for the previous 6 years. All changes have been documented and the final HMA will be available prior to any construction.



A crossing consent will be obtained from the Gas Company for the gen-tie crossing.

17. UL 9540A tests for the cells, module and unit level tests – you have confirmed you have these and we have asked the County to get involved to request this information which you must supply to the fire department and as you have them now, you should provide them now. Your Application should not be reviewed without these safety details.

Comment noted. Responses are being provided to the County, as appropriate.

18. All the missing water and dB level questions in my letter of July 9th – please provide the date you will deliver this very important information.

Responses provided on August 11.

19. When looking back at the San Marcos video of the meeting you had in the fall, a Matthew from AES said you were completing an analysis of property value studies from a national firm and a local firm and it would be part of your Application. Please provide this analysis from these firms.

A property values impact study was performed by Kirkland Appraisals, LLC in February, 2023. A professional opinion states that the solar farm proposed at the subject property will not be injurious to or diminish the use, value and enjoyment of other property in the immediate vicinity.

The study, along with additional project information is available on the project website as a downloadable PDF - <https://www.aes.com/new-mexico/project/rancho-viejo-solar>

20. High winds – You mention requirements for high wind periods. What are those guidelines and at what wind speed (mph) would you stop work as you mention during construction? We have so many wind advisory and red flag days here that this could push your construction time frame considerably.

Requirements for stopping work during high wind periods would be identified in coordination with New Mexico Environmental Department (NMED), Air Quality Bureau.

21. Please provide your wind upload analysis for the panels due to our high wind conditions in this area.

AES hired a third party consultant to conduct a wind and snow load study analysis. These results have been incorporated into AES 30 percent structural design.

22. The two black and white map diagrams on your website of the facility look like they have different boundaries to the right between the two. The first one shows the C-106 and c-109 sections to the right and then a boundary line. On the diagram below it you don't see the site boundaries or it is right up to the panels? Also on the Legend the section that has the crosses design that are supposed to denote the prairie dog colonies but this same symbol seems to be used in the pond areas, why is that? The unusual shape above Pond C1-A and the triangle shape above Pond C2 have similar markings – horizontal marks – that do not seem to appear in the Legend. What are the symbols in those shapes supposed to represent? These diagrams have no dates on them. When were they done? Do you have any updated site plans?

Updates to the site plan will be provided to the County, accordingly.



23. You mention in the EIR, that construction work could be done on Saturdays. Your Conditional Use Permit Application has removed mention of Saturdays. Which is correct?

The typical construction work schedules are included in the EIR.

24. Understand the greatest damage to solar panels from all weather events is actually hail which we certainly have here. Is the system designed to change the panels into a different position quickly in the event of a hail storm to minimize damage? Saw that all panels in a solar farm in Nebraska were completely destroyed recently.

Based on the Swiss Re CatNet report this facility is in an area with a very low risk of hail, thus a severe hail storm is not expected. However, the facility can have a procedure to pre-emptively manually stow the arrays to protect against hail based on forecast of severe convective storm where hail is expected. Also while hail may be prevalent in that part of New Mexico as indicated by the comment the size of hail stones are small, thus the low hail risk identified by the Swiss Re.

25. IRB – have you received or applied for an Industrial Revenue Bond from the County for this facility? What are the details on this IRB?

AES has not yet applied for an IRB from the County for this facility. This application would occur following the acquisition of the CUP.

26. Battery Management System (BMS) – how is the BMS connected to the battery modules – over the internet or on an icloud platform? Our internet service here is very unreliable. What happens to the BMS when it goes down? How is it protected from security/hacking concerns?

BMS will have UL approved ethernet cables connecting container BMS to site controls. AES works with plant construction teams to select proper shielding and armoring (in addition to conduit protection) for all cables deployed throughout the site based on environmental conditions such as soil corrosivity and animals. Internet is often sourced via fiber connections and backed up with cell connections. When a portion of the BMS is offline, plant controls issue a shutdown to the affected power blocks. PCS do not operate without data from the BMS, which is maintained live via "heartbeat" signals that ensure data is representative of a live connection to the source.

27. Battery Cell Cycling – how are the battery cells to be cycled? What is the planned Depth of Discharge (DOD)? If it is limited, what percentage is the DOD limited to?

The batteries are able to cycle many times each day, but our expectation is that the best use for this plant will be 1-2 cycles per day at a depth of discharge of approximately 80%. The DOD is unlimited and available between 0% and 100% chemical state of charge.

28. Are there any other changes you have made to the system that I have not asked about?

Project refinements are made as part of design development.

29. Please provide a list of any changes you have made in the facility that differ from what you submitted in your Conditional Use Permit Application and any underlying attached documents you provided as part of your Conditional Use Permit Application.

Updates to the CUP Application will be provided to the County, accordingly.





1. Thanks for providing the photo/diagram of the substation but these images as well as the transmission line photo are not high enough resolution to read. Can you please provide a higher resolution image of these?

Higher resolution images are attached.

2. Thanks for the measurements of the H-frame. In addition you mentioned that there were ten poles per mile so I assume these poles are different than the H-frames? If so, please advise with the number and height of poles that will be used in addition to the H-frames.

The current design includes 31 H-frame structures.

3. We still need to know the dB level of the 72 tracker motors that will be at the site. What is the individual dB level of each and what is the combined dB for 72.

Trackers are powered by quiet 2 HP motors that power up to 32 trackers, which is about 703' E/W distance powered by 1 ATI tracker motor.

4. We are glad to see that AES nor your construction partners will be using well water at the site or drilling any wells on the property of the facility. We are now asking that you put these changes and any other changes you have made in information provided previously in your Conditional Use Permit Application or any attachments including the Environmental Impact Report in writing to the County in an Amendment to your Application so the amended information becomes the legally operable information for your Application.

Updates to the CUP Application will be provided to the County, accordingly.

5. Please confirm what water supply will be used to fight fires in the BESS.

Water supply will be identified in coordination with Santa Fe County Fire Department. Provisions for on-site water storage are available and may be applied to minimize disruption to neighboring communities.

6. Please confirm what water supply will be used for Operations and Management since you mention on page 2-5 of the EIR, "Water will be trucked to the Project site and will be sourced from local production wells."

Water may be acquired from the following offsite sources, or a combination thereof: Santa Fe County bulk water station commercial pipe water; Ranchland Utility Company Class A reclaimed water; Santa Fe County reclaimed water; or any other legally permitted commercial water sales.

7. This question from my July 9th letter was not included:

On page 3-1 of the CUP you mention a fire suppressant to be used but provide no specific information as to the suppressant. In the fall meeting you mention Novec 1230 but as we know this is a "forever chemical" along with other forever chemicals produced by 3M, for which it has just been fined \$10.3 Billion for polluting waterways and will no longer be manufactured by them by the end of 2025. The money from the settlement is to be used to build water treatment plants to try and remove the toxic chemical from the municipal water supplies but no one has a way to remove this from the wells they polluted. No "forever



chemical" or toxic chemical can be allowed to be used to contaminate our groundwater so I believe the Commissioners must ensure that the CUP is revised to specify this before any evaluation of the CUP can go forward.

In your latest response, you mention "The enclosures include self-contained fire suppression that can address both non-battery electrical fires (via conventional suppressant) and battery fires via direct injection of clean agent fire suppressant into the cell on fire."

Please provide the exact details on what the conventional suppressant is as well as the clean agent fire suppressant to be injected directly into the cells.

You mention "Fires external the enclosures are mitigated by first reducing combustible load, then through conventional fire fighting measures." Please explain what mitigation is used to reduce the combustible load and what conventional fire fighting measures include. If a chemical suppressant is used, please provide specifics and if water is used, what is the source of the water?

AES ESS apply FK-5-1-12 fire suppressant to mitigate propagation of thermal runaway in the enclosure. Based on independent assessment, AES finds this chemical poses no threat to the environment.

[https://www.nist.gov/system/files/documents/el/fire\\_research/R0301570.pdf](https://www.nist.gov/system/files/documents/el/fire_research/R0301570.pdf)  
"atmospheric lifetime of FK-5-1-12 to be on the order of 5 days or about one week"

"FK-5-1-12, like other compounds containing only the halogen fluorine, has an ozone depletion potential of zero"

"Both the direct and indirect GWP for FK-5-1-12 are less than one."

"Though FK-5-1-12 degrades rapidly in the environment, use as a clean agent requires that the material possess the chemical stability to remain unchanged throughout the working life of a fire protection system. Several factors need to be considered for their potential effects on an agent during handling, storage and use in a fire protection system."

A small aerosol fire suppressant (FirePro) is employed in the auxiliary electrical compartment of the enclosure (similar to what would be used in an industrial kitchen or even in a home). This poses no additional threat to the environment from what would already be present in the surrounding environment due to human occupation.

It has been listed by the EPA, UL, and California State Fire Marshall.

[https://www.hochikiamerica.com/img/product/description/FirePro%20Xtinguish%20Datasheet\\_02-2017.pdf](https://www.hochikiamerica.com/img/product/description/FirePro%20Xtinguish%20Datasheet_02-2017.pdf)

The enclosures are designed to avoid paper and other easily ignitable products. The site and operations have been designed to enable low and regular maintenance, with defensible separation between enclosures and brush as well as regular brush removal. This minimizes the combustible load. Conventional fire fighting relies on on-site water. This water source is coordinated with local utilities



and may be trucked in and stored locally if unavailable on-site. This will be planned ahead of construction to minimize any disruption to the neighboring communities.

