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September 12, 2022

To: All Interested in Receiving Rancho Viejo Solar Project Updates

The AES development team has been working to answer questions submitted by individuals interested in remaining informed about the proposed Rancho Viejo Solar project. Many questions and comments have been submitted via the comment form on the project website, [www.aes.com/rancho-viejo-solar](http://www.aes.com/rancho-viejo-solar), and directly using the project email address [ranchoviejosolar@aes.com](mailto:ranchoviejosolar@aes.com). On September 12, a “Thank You” letter was mailed to Rancho San Marcos residents addressing questions and comments received at the event and through Bob Gonzales, who was at that time presiding as the Rancho San Marcos Board President.

Thank you for sending over these additional questions. The responses will be delivered via email to the distribution list of people who have asked to stay informed about project updates.

Q1. The schematic map shows the main power line out of the Solar Farm—a high-voltage line—bypassing Rancho San Marcos (RSM) to the north and east. Is there any intention to have the Solar Farm serve RSM directly? If so, how? If not, why not?

A1. The electricity generated by Rancho Viejo Solar will be sold to Public Service Company of New Mexico (PNM) under a 20-year power purchase agreement. PNM will, in turn, sell that electricity to its customers. Solar energy costs have decreased significantly in the last decade, making solar cost-competitive with other traditional forms of generation. Utility-scale solar offers several advantages, including a stable, no-cost fuel source; scale and efficiency to optimize costs; and the ability (compared to rooftop solar) to share the costs and benefits of renewable energy equitably across the customer base. As is industry standard for many utility-scale solar projects, after the 20-year PPA with PNM, the project will look to re-contract or sell the electricity in the merchant market for the remaining life of the solar project.

Our goal is to provide the most cost-effective renewable energy to our customers, in this case, PNM. PNM sets the rates that are charged to their customers. We hope that our lower cost of clean energy will result in cost savings for the customer.

Q2. The schematic map does not show the spatial relationship between RSM and the Solar Farm, although it does mark the "Parcel Boundary" with a dotted red line. According to the legend and scale on the PDF file, the closest approach of the solar panels to the Parcel Boundary is about 1,000 ft on the west and over 1,700 ft on the east. However, in the satellite photo with the Solar Farm superimposed, it's hard to tell precisely where the main RSM road (San Marcos Loop) is. Can AES verify and guarantee these minimum setbacks and/or provide a reliable map of the Solar Farm showing the RSM boundaries and roads to scale?

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A1. AES has proposed the layout of the facility to be minimum 1,000' from any neighboring property line. The closest six residences identified on the Rancho San Marcos map have been measured using Google Earth to identify the distance from a residence to the nearest row of panels, and a measurement of distance from an assumed property line to the nearest row of panels. The closest distance from the corner of the RSM community has been measured and sits 1,118 feet from the nearest row of panels. Screenshots of measurements are attached to this email as a PDF (for better zoom-ability). AES can guarantee the proposed facility and rows of panels will not be closer than 1,000' to any property boundary, and in many cases, twice the distance from any residence.

Q3. Is the unit marked "BESS" (battery energy storage system?) in the upper-right quadrant of the schematic map the only facility that will contain utility-scale lithium storage batteries? What precautions/features will the BESS unit have to prevent lithium-battery fires and to put them out if they occur? Will this technology be state-of-the-art?

A3. Yes, the upper-right quadrant is the only area of the proposed facility that will contain utility-scale lithium storage batteries. The proposed technology is state-of-the-art and specification sheets can be found here: [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.samsungsdi.com/upload/ess\\_brochure/201902\\_Samsung%20SDI%20ESS\\_EN.pdf](chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.samsungsdi.com/upload/ess_brochure/201902_Samsung%20SDI%20ESS_EN.pdf)

There are protection systems for both electrical and fire which monitor, alarm, and actively protect the BESS container as well as connected equipment such as the transformers. The battery fire safety system supplies FM-200 agent directly to each battery module inside of each ESS container. The FM-200 release is triggered by heat that physically opens the seal inside each battery module. Electrical protections include fuses, circuit breakers, and protective power relays. All systems coordinate their actions and are under 24/7 monitoring.

Q4. Some residents of RSM are concerned about dust pollution, both in the process of constructing the Solar Farm and in its normal operation. In building the facility, will AES clearcut the land or just mount the solar arrays on pylons? What, if any, measures will AES take to preserve existing desert vegetation and/or reduce/prevent dust from the facility from blowing into RSM?

A4. The project will be constructed at existing grade to the greatest extent possible, minor grading and/or grubbing may occur throughout the portions of the solar facility, BESS, foundation pads, equipment storage and staging areas. Grading will conform to accepted slope stability requirements. Pole mounts used in the solar racking system do not require leveling the land or installing complex foundations. The installation method will be either pile or screw driven, depending on the compactness of the soil. Reclamation would include establishment of native vegetation. Certified weed free native seeds would be used.

Active construction would take approximately 12 months. Dust control best management practices that would be employed during construction would generally include:

- Limit vehicular speeds on non-paved roads.
- Apply water or dust palliative to disturbed soil areas of the project site to control dust and maintain optimum moisture levels for compaction, as needed.
- Apply the water using water trucks. Minimize water application rates, as necessary, to prevent runoff and ponding.

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- Apply dust control measures to haul roads to adequately control wind erosion during windy conditions (forecast or actual wind conditions of approximately 25 mph or greater).
  - Cover exposed stockpiled material areas.
  - Suspend excavation and grading during periods of high winds.

When a project reaches the end of its project life, the project is responsible for executing the approved Decommissioning Plan, including abiding by all local and state decommissioning requirements. This includes the removal, recycling, and disposal of all equipment and other structures associated with the project, as applicable. The land surface within the project area will be sensibly restored to pre-project conditions to allow a return to desert vegetation status or other uses consistent with the land-use policies at the time.

Please don't hesitate to reach out if you have further questions. You can also find more information, and a general FAQ, on our website: <https://www.aes.com/rancho-viejo-solar>.

Sincerely,



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## Rancho Viejo Solar Website Questions #2

September 13, 2022

**Question:** How will this project directly impact the homeowners in Rancho Viejo?

- a. Thanks for your question. Based on my Google map search of your address and neighborhood, I do not anticipate that your community will be impacted during construction or during the life of the facility. Your address is approximately 3 miles from the top portion of the facility. The overhead power lines will extend from the northeast corner of the facility and connect into an existing overhead power line located within the El Dorado neighborhood. The map on the website is now clearly labeled and can pop-out for larger viewing. Please take a look at that map and let me know if you have any questions. I've also attached a map showing a line from the top edge of the facility to the address that you provided. I'm assuming that your question is related to views, but let me know if you need further clarification.

The construction of the project will last approximately 1 year and equipment will be delivered from the access road off of Hwy 14. No construction equipment or crews are expected to use roads associated with the Rancho Viejo neighborhood.

The power generated by the facility will be delivered directly to the PNM grid, and then it will be distributed out to customers. Typically, customers closest to an array are the first to receive the electrons from its point of generation. But once electrons are on the grid, there is no distinction between electrons generated from renewable energy or traditional fossil fuels sources.

If I interpreted your question correctly, I could say that homeowners in Rancho Viejo are not expected to be impacted by the array – not during construction, or by views. If you have specific concerns about impacts not related to views or construction, please send me those questions and I will do my best to answer them right away.

**Follow-Up Question:** Didn't ask about impact of construction. Wanted to know if Rancho Viejo residents would benefit from solar on their bills. Sorry I wasn't clear.

- a. The power generated by this facility will be delivered to the PNM grid and then distributed out to PNM customers. Our goal is to provide the most cost-effective renewable energy to our customers, in this case, PNM. PNM sets the rates that are charged to their customers. We hope that our lower cost of clean energy will result in cost savings for the customer.

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**Question:** We live in the Las Lagunitas community in Las Cienega and hope we might be in the area you provide solar to!

- a. Thank you for your comment and support. I hope that you can attend our Open House event on Aug 3. We anticipate a fair amount of people attending from the surrounding area, and would appreciate attendance from those who support solar in Santa Fe. I would be very happy to meet you in person.

**Question:** I would like to see a map of the proposed project in relation to Eldorado.

- a. Thank you for your question. This map is available to view on the project website and if you hover your mouse and click, it will open up in a large view where you should be able to see surrounding areas, including El Dorado, in relation to the project.

**Question:** I am a resident of Rancho San Marcos, the neighborhood which the Rancho Viejo Solar farm will be next to. My house is across the street from two homes whose property will be next to the solar farm. I attended the public meeting on Wed Aug 3, and learned that one of the most frequently asked questions asked by members of the our community is why the project has to be so close to the back of several of our properties. Many of us were told that there are several geographical features and topography issues that must be taken into consideration, and some examples given, but not a whole lot of detail. I would like to understand more comprehensively and in detail the particular reasons why the site must be where it is, and exactly what factors prevent it from being moved further away in any direction. This information will likely make no sense to me unless is is accompanied by some type of geographical / topographical map. This is more than just a NIMBY reply - I just want to understand why it has to be at this location, and why it cannot be located elsewhere within Ranch Viejo, since it is so darned close to the edge of several of our properties. Thank you in advance for your anticipated reply.

- a. The current location was prioritized to avoid Gallina Arroyo and Bonanza Creek and all associated tributaries and drainages. Lands to the north are physically constrained by steeper slopes, north facing aspects and multiple drainages.

PNM's existing Zia - Valencia (Eldorado) transmission line only has 96 MW of available capacity. The solar farm is setback 1 mile from Hwy 14, and approximately 1000' (1/4 mile) from the southern property line. Topography and drainageways/arroyos constrain our ability to push the project to the north.

I topographical and Google Earth map is attached to help illustrate the land constraints.

**Follow up Question:** I see that this site selection makes sense for the area assessed, but Rancho Viejo is a very large piece of land. Was the whole area of the property looked at as a potential site, or was it limited to the area you assessed? I have heard that the owner of the land and your company have been working together for many years. Did the owner or your company initiate this process or did you? Did the owner offer this

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particular area to be assessed, or was he considering all available land on his property? If the entire property was assessed, what factors ruled out another location within the entire property?

- a. Thank you for your question. Commencing in 2015, AES examined the entire property and ultimately identified the current project area as most suitable for solar development. Rancho Viejo Solar has been designed to follow natural land contours and avoid environmentally sensitive features on the property. The project is situated northwest of the Gallina Arroyo and floodplain, south of Bonanza Creek and is being designed to avoid the smaller tributaries/ephemeral drainages bisecting the property. The location for this project was selected based on an assessment of 1) PNM's transmission network, 2) available substation capacity, and 3) an examination of the landowner's property to identify the most suitable lands.

**Question:** Could you explain the energy storage strategy? I am referring to the Rancho Viejo project.

I see in the brochure the following:

- 96 MW Solar + 48 MW Battery Energy Storage
- 96 MW ac solar photovoltaic
- 192 MWh containerized lithium-ion battery energy storage system (BESS)

At a power of 96 MW (which I assume is peak power over the entire year, at the actual Rancho Viejo site (Latitude ???) with lower power in winter, overnight, in cloudy weather, etc., but maybe I am mistaken), the battery system could provide storage to replace two hours of peak power generation, or some longer time (obviously) if some fraction of peak power is assumed.

Where does the figure of 48 MW come from? What does it mean? Obviously, with the batteries at maximum capacity (would that ever happen?), you could continue to deliver 48 MW for 4 hours (would that ever happen?).

Or peak power of 96 MW for two hours. And so on.

Or is the battery system primarily for power leveling, to help with short-term power management of the grid? Not storage to compensate for cloud cover (e.g., thunderstorms), snowfall, nighttime, dust storms, and so on.

Probably I should direct this question to PNM, but before that, I would appreciate any clarification that you might provide.

- a. I am happy to try and answer your questions as best as I can. I reworked your email questions into a list form and have responded to each below. Feel free to reach back out with any follow up questions you may have after you've had

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a chance to review.

Q1: Could you explain the energy storage strategy? I am referring to the Rancho Viejo project.

A1: The Battery Energy Storage System (BESS) will be primarily used for energy shifting. The BESS will charge from solar during daytime hours and then discharge during the evening peak to help alleviate PNM's system demand. The BESS is directly controlled by PNM so they will ultimately determine the exact charge/discharge schedules.

Q2: I see in the brochure the following: 96 MW Solar + 48 MW Battery Energy Storage, 96 MW ac solar photovoltaic, 192 MWh containerized lithium-ion battery energy storage system (BESS)

A2: These spec's are correct. For clarification, the BESS is AC-coupled. Meaning, it is connected to the grid with its own separate inverters feeding the same grid connection as the solar inverters. The peak output of the system (if BESS is discharged at same time as peak solar output) is  $96+48=144$  MW-AC.

Q3: At a power of 96 MW (which I assume is peak power over the entire year, at the actual Rancho Viejo site (Latitude ???) with lower power in winter, overnight, in cloudy weather, etc., but maybe I am mistaken), the battery system could provide storage to replace two hours of peak power generation, or some longer time (obviously) if some fraction of peak power is assumed.

A3: Including system losses, the BESS requires slightly more than 4 hours at 48 MW to fully charge from zero percent state-of-charge. Assuming a round-trip-efficiency (RTE) of 85%, the maximum charging time is  $192\text{MWh}/0.85/48\text{MW}=4.71\text{hr}$ . Since the PV is capable of 96 MW (2x the max rate of the BESS), a typical day will always be capable of providing full charge energy to the battery. The goal of the battery is not necessarily to replace the "peak generation" of the PV, but rather to shift solar generated energy into hours of greater need on the grid.

A3b: Project GPS Latitude, Longitude: 35.5415, -106.0106

Q4: Where does the figure of 48 MW come from? What does it mean? Obviously, with the batteries at maximum capacity (would that ever happen?), you could continue to deliver 48 MW for 4 hours (would that ever happen?). Or peak power of 96 MW for two hours. And so on.

A4: 48 MW is the peak power that the BESS can charge or discharge to/from the grid. The BESS is AC-coupled which means it has its own inverters separate from the solar which allows the BESS to charge or discharge independent of solar production. The BESS controls system will only allow the BESS to charge at rates equal or below current solar production to prevent it from pulling energy from the grid (the idea is to only discharge renewable solar energy from the BESS). The BESS will, on a daily basis, deliver 48 MW for a period of 4 hours. The BESS will charge from solar during the day as a function of available solar energy, and then discharge in later afternoon or evening for a period of 4 or more hours (depending on PNM requirements to balance load and generation). The



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BESS can never generate at 96 MW because it is limited by its inverter capacity of 48 MW.

Q5: Or is the battery system primarily for power leveling, to help with short-term power management of the grid? Not storage to compensate for cloud cover (e.g., thunderstorms), snowfall, nighttime, dust storms, and so on. Probably I should direct this question to PNM, but before that, I would appreciate any clarification that you might provide.

A5: It is my understanding that the primary use case of the battery will be energy shifting of solar energy. PNM may also use it for solar smoothing (evening out fluctuations in generation from clouds), frequency regulation, and other grid ancillary functions but that will ultimately be at the discretion of PNM.

**Question:** Someone told me there was a wind farm being installed. I see no evidence of that - it's only solar photovoltaic panels, correct? Looks like a wonderful project.

- a. Thank you for your inquiry. You are correct – there is no wind energy included in this project. This project is solely solar and battery energy storage. Please let us know if you have any other questions.

**Question:** I attended the open house on August 3rd, studied all the photos and available information and asked questions. Tried to hear other residents questions and answers, but it was so noisy, I had a lot of trouble hearing and understanding the conversation. A slide presentation and an adequate question and answer period would have been more educational. I would like to see this very large commercial solar array sited somewhere other than right next to Rancho San Marcos. There are thousands of acres between our border and north of us toward town. I think more effort needs to be made to find an alternative site that is not directly adjacent to a residential development. The concept of the project is good for the environment, but the location is questionable.

I would like to attend another presentation that is structured to provide us with more information and opportunities for group discussion. The casual open house was a pleasant beginning, but next time, this needs to be addressed by AES as the serious issue it is for our community.

- a. Thank you for taking the time to attend the open house on August 3rd and provide feedback. We approached the open house with the goal of getting face to face time with all community members who wanted to discuss the project in depth. We felt this was more personal than a mass presentation and Q&A, but I'm sorry to hear you didn't get the information you needed. I encourage you to ask any unanswered questions here.  
We would like to have another meeting with the community as well, and will take into consideration the desire for a group presentation in planning the meeting.

**Question:** Please direct me to where I can obtain a copy of your Environmental Impact Statement. I am also looking to obtain more information as to the interconnection powerline and its potential impacts to the Eldorado Viewshed



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- a. Thank you for your inquiry. The project is not required to prepare an Environmental Impact Statement pursuant to the National Environmental Policy Act. However, the project is required to prepare an Environmental Impact Report in accordance with the requirements of Santa Fe County. The Environmental Impact Report includes an assessment of visual resources and will be part of the public record when submitted to Santa Fe County as part of the Conditional Use Permit application package. Until then, the point of interconnection and its powerline (Gen-Tie) can be seen on the project website labeled on the various maps.

I hope this helps you find the information you need. Please don't hesitate to reach out if you have any questions.

**Question:** I'm looking for more information on the proposed Battery Electric Storage System you are proposing for the Rancho Viejo site.

1. A drawing of the site for BESS storage
2. A data sheet on Bess storage containers
3. The specific type of Lithium batteries in the containers
4. What system is in place to impede/stop a runaway/overload condition.
5. The design and type of fire retardant system
6. Plan for disposal of contaminants from the after affects of a possible fire
7. What type of foundation the containers sit on
8. What the area between containers is covered with

I'm a retired engineer from the Coast Guard so I'm very familiar with fire flooding systems on ships which are quite effective. Drawings and technical data sheets are best.

Thanks in advance for your help.

- a. Thank you for your patience while we sourced answers to your questions from our subject matter experts. Please review what our team has provided and let me know if you have any questions.

1. A preliminary drawing of the site for BESS storage
  - a. See attached "Rancho Viejo 5% Design with BESS 220527 (Topo).pdf"
2. A data sheet on Bess storage containers
  - a. Data sheet is not yet available. Design is being finalized with the container manufacturer CEN. See information on Samsung battery modules via link below in 3.b.
3. The specific type of Lithium batteries in the containers
  - a. Samsung E5D
  - b. Here's a link to info on the current generation of product on Samsung's website (E5D product data is still confidential) ->  
[https://www.samsungsdi.com/upload/ess\\_brochure/201902\\_Samsung%20SDI%20ESS\\_EN.pdf](https://www.samsungsdi.com/upload/ess_brochure/201902_Samsung%20SDI%20ESS_EN.pdf)
4. What system is in place to impede/stop a runaway/overload condition

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- a. There are protection systems for both electrical and fire which monitor, alarm, and actively protect the BESS container as well as connected equipment such as the transformers. The battery fire safety system supplies FM-200 agent directly to each battery module inside of each ESS container. The FM-200 release is triggered by heat that physically opens the seal inside each battery module. Electrical protections include fuses, circuit breakers, and protective power relays. All systems coordinate their actions and are under 24/7 monitoring.
  - b. Here is a link to 3M's website with information on FM-200 ->  
[https://www.3m.com/3M/en\\_US/p/d/b00021959/](https://www.3m.com/3M/en_US/p/d/b00021959/)
  5. The design and type of fire-retardant system
    - a. See response to #4 above
  6. Plan for disposal of contaminants from the after affects of a possible fire
    - a. Water is managed by using portable baker tanks and then is hauled to a proper facility for disposal.
  7. What type of foundation the containers sit on
    - a. Supports can be concrete slab or pile or pier structures. Depends on detailed geotechnical study of site soil conditions.
  8. What the area between containers is covered with
    - a. Typically, the area between containers will be covered with a mix of crushed granite and gravel. The exact composition of top grade will be a function of the ground grid design which may be required to extend beyond the high voltage substation and into the BESS yard area for worker and equipment safety.

**Question:** Dear Madam, Sir,

I saw on your website that several Environmental and technical studies have been completed. Is it possible for me to receive copies of the

- Aquatic Resources Inventory Report: Completed May 2022
- Biological Survey Report: Completed May 2022
- Phase I Environmental Site Assessment: Completed May 2022
- Environmental Impact Report: Completed July 2022
- Cultural Resources Pedestrian Survey Report: Completed July 2022

- a. The Environmental Impact Report and associated environmental and technical studies will be part of the public record when submitted to Santa Fe County as part of the Conditional Use Permit application package. After that time, you will be able to access copies through your county database.

**Follow-up Question:** Thanks for your answer, I am aware I can get copies when you submit your application.

But given that my house is the closest to the facility and we will become neighbors I thought it would be a nice gesture if you were willing to provide them to me beforehand. I mean, I am sure you have nothing to hide.

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I have two follow up questions:

How many individual panels will be put up?

How many battery containers will there be?

- a. We appreciate the opportunity to build a relationship with you as a neighbor to this property. We are preparing the CUP application package, including the Environmental Impact Report, and will be submitting it in accordance with the requirements of the Santa Fe County Sustainable Land Development Code.

There will be 39 BESS containers and approximately 205,000 modules (panels). You can also find more of this information by clicking the site plan on the website.

Project Website: <https://www.aes.com/rancho-viejo-solar>

Site Plan: <https://www.aes.com/sites/default/files/RanchoViejo.pdf>

**Follow-up Question:** The site plan on the website is still not working.

Another question:

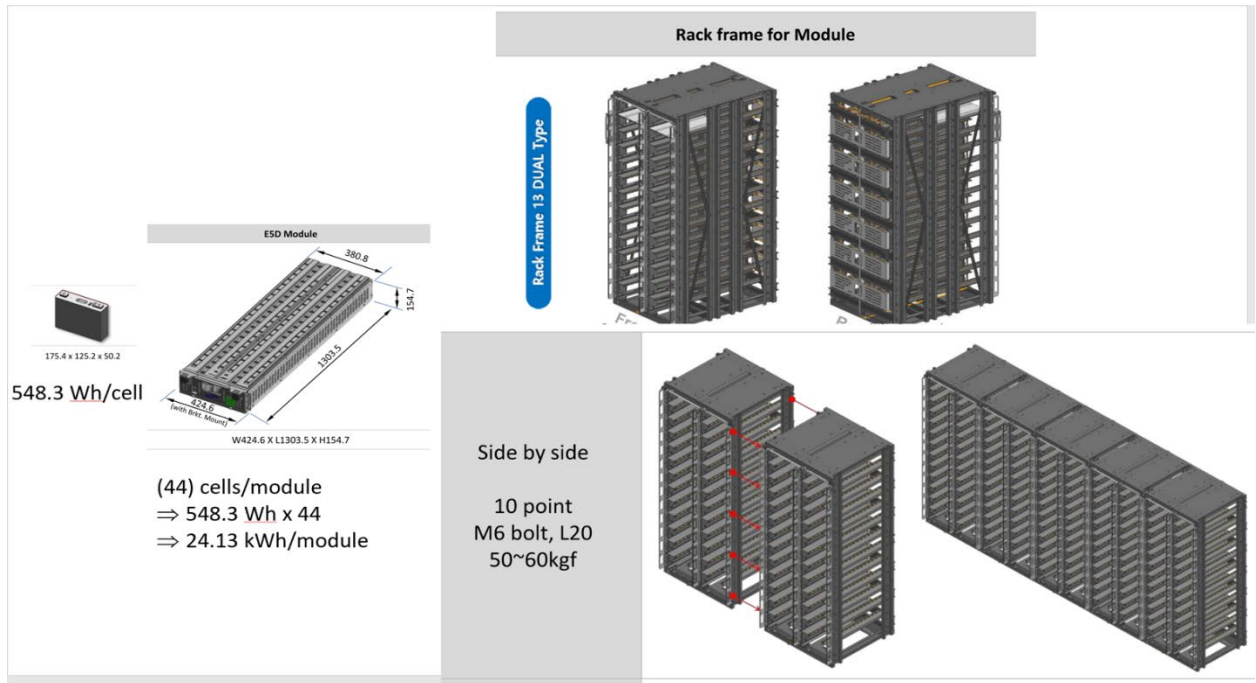
You organized a community open house meeting for the residents of Rancho San Marcos on August 3.

Are you planning a similar meeting for Eldorado and if so, when will that be?

- a. My apologies for a late response to your email and for the troubles you have had in trying to download materials from the website. I've attached the documents you requested. Please let me know if you have any questions.

I've requested a response regarding the number of batteries stored in each of the 39 containers from our engineer. I will send the answer to you as soon as I receive it.

**Follow-up Question:** how many lithium ion batteries will be stored in each of the 39 containers and how many cells would one battery have?



a.

**Follow-up Question:** Can you tell me whether the lithium-ion batteries have liquid electrolytes? I also did not get an answer to my question if and when AES is planning a community open house meeting for the residents of Eldorado and ranch Viejo like you did for Rancho San Marcos on August 3?

- a. Our engineering team is gathering equipment specification sheets and will share those with you when available. I don't know the answer to your question but will forward materials as soon as possible.

The development team is planning an additional community meeting with a presentation scheduled for Oct. 4. You will be notified in advance of this meeting via email and notice on our website once details are confirmed. We are not defining it as a meeting specifically for Eldorado or Rancho Viejo residents, nor was the previous meeting specifically for Rancho San Marcos. We are notifying all addresses that are within 500' of the leased property line. We will also notify all people who have submitted requests to stay informed through our website.

I will send a follow up email with equipment specifications and meeting details once all of the information is confirmed and available.

- b. Here's a link to info on the current generation of product on Samsung's website (E5D product data is still confidential) ->

[https://www.samsungsdi.com/upload/ess\\_brochure/201902\\_Samsung%20SDI%20ESS\\_EN.pdf](https://www.samsungsdi.com/upload/ess_brochure/201902_Samsung%20SDI%20ESS_EN.pdf)

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**Question:** Assuming your PR about this project is honest and accurate, I am so excited and happy that this is happening. It will make a nice addition to my little 7kW array over in Galisteo :)

- a. Thanks for your note of support. Our PR is as accurate as possible, with a few exceptions made in the article that ran Aug 9 in the Santa Fe New Mexican. There was a miss-count of solar panels and CO2 offset in the article but corrected in the comment section.

We are excited about the opportunity to serve New Mexico's renewable energy needs. We hope to have success with both PNM and Santa Fe County to move forward.

Thanks again for your words of encouragement. Please let me know if you have any questions.