

Service by Email:

November 20, 2023

Penny Ellis-Green, SLDC Administrator, Growth Management Director
pengreen@santafecountynm.gov

Jose Larranaga, Case Manager, Growth Management Department
joselarra@santafecountynm.gov

102 Grant Avenue
Santa Fe, NM 87501

Re: NFPA 855, Hazard Mitigation Analysis, Trade Secrets and the Rancho Viejo Solar Project

Dear Ms. Ellis-Green and Mr. Larranaga:

I'm writing to stress the importance of nine issues in the County's review of the battery storage portion of the Conditional Use Permit application for the Rancho Viejo Solar Project. **The issues all relate to the fact that, in order to obtain a Conditional Use Permit for this project, AES must prove that the Rancho Viejo Solar Project will not be "detrimental to the health, safety and general welfare of the area" or "create a potential hazard for fire, panic, or other danger."**¹

First, the County must promptly amend the Santa Fe County Fire Code to incorporate the 2023 edition of National Fire Protection Association Standard 855 (NFPA 855) instead of the 2020 edition that the County included in Ordinance No. 2023-06 last August.

Second, the County must require AES Corporation to conduct and submit a Hazard Mitigation Analysis in accordance with the 2023 edition of NFPA 855.

Third, the County must apply the updated edition of NFPA 855, including the requirement for a Hazard Mitigation Analysis, in its decision on the merits of AES's Conditional Use Permit application. The Hazard Mitigation Analysis should not be deferred to a later date, at the time of construction after the Conditional Use Permit has been granted, as AES proposes. Establishing the 2023 edition of NFPA 855 only as a permit condition to be satisfied after the Conditional Use Permit has been issued would violate Section 6.3.10.2 of the SLDC.

Fourth, the County must require that the information already submitted in AES's January 2023 Application be revised to address the 2023 edition of NFPA 855.

Fifth, the County must ensure that the public has a meaningful role as a stakeholder as required under NFPA 855 in the development of the Hazard Mitigation Analysis for the project.

¹ Sustainable Land Development Code, Section 4.9.6.5.

Sixth, the County must require AES to submit a new Environmental Impact Report that addresses the issues identified in Terracon's July 10, 2023 report to the County. These include AES's duty to evaluate alternatives such as a no-battery alternative and an alternative that evaluates the feasibility of safer, sustainable, longer-duration batteries.

Seventh, the County should require AES to submit the reports prepared by AES after fires and explosions at AES-affiliated facilities, including the April 2019 fire and explosion at AES's McMicken battery storage facility in Surprise, Arizona and the April 2022 fire at AES's Dorman battery storage facility in Chandler, Arizona on the causes, consequences and lessons learned from the accidents. These can help the County avoid the hazards experienced in prior AES projects.

Eighth, the County must use its authority set out in the Sustainable Land Development Code to ensure that the public has meaningful access to information in the permit application and Hazard Mitigation Analysis about the project's risks -- even if the information qualifies as a trade secret.

Ninth, the County should take further measures in Santa Fe District Court to ensure that further information about the project's risks is made available to the public.

1. Adopt the 2023 edition of NFPA 855.

My November 1, 2023 letter to you and other County officials informed you that the 2020 edition of NFPA 855 that the Commissioners approved in Ordinance No. 2023-06 is obsolete and has been superseded by a revised edition (the 2023 edition) that was issued by the NFPA on August 12, 2022 (with an effective date of September 1, 2022.) The 2023 edition was issued for the specific purpose of addressing the number of fires related to battery energy storage systems that have occurred since the issuance of the 2020 edition. The differences between the two editions are significant.

The introduction to the current 2023 standard states that the 2023 edition was developed expressly to address the fire and other risks of battery energy storage systems that have become known since the 2020 standard was issued:

In response to international incidents of ESS fires, requirements for fire detection and suppression, explosion control, exhaust ventilation, gas detection and thermal runaway have been added or revised. The requirements for fire and explosion testing (formally large-scale fire testing) have been clarified.

Requirements from Chapters 4 and 10 specific to electrochemical ESS have been consolidated and reorganized in Chapter 9. Chapter 13 has been added to address flywheel ESS.

Information has been added in Annex B to provide guidance on the hazards associated with different battery types. Annex G has been added as a guide for suppression and safety of lithium-ion battery ESS.²

Both the 2020 and 2023 editions establish site-specific Hazard Mitigation Analyses as a key focus of permitting. However, among the differences between the 2020 and 2023 standards, the 2023 edition adds a new "Annex G" as an appendix titled "Guide for Suppression and Safety of Lithium-Ion Battery (LIB) Energy Storage Systems (ESS)." Annex G supplements the mandatory requirements of NFPA 855 with 41 pages of "information for designers, users, and enforcers planning, approving, or encountering installations of LIB-based ESS."³

This annex focuses on hazard identification and assessment, firefighting, fire protection, and fire and gas detection. It represents information on LIB properties and characteristics, guidance on implementing minimum safety requirements, maintenance and operation of fire protection systems, and other information that can be used to promote safety of LIB installations.⁴

It is encouraging that in the November 17 BCC meeting, an ordinance was proposed to adopt the 2023 edition of NFPA 855. This ordinance should be adopted as soon as possible. The adoption should be made, at minimum, before the County proceeds further with its review on the request for a Conditional Use Permit for the Rancho Viejo Solar Project.

2. Require AES to conduct and submit a Hazard Mitigation Analysis in accordance with the 2023 edition of NFPA 855 as part of AES's application for the Conditional Use Permit.

The County's Sustainable Land Development Code (SLDC) requires that Environmental Impact Reports prepared for Conditional Use Permits identify mitigation measures for significant environmental effects of a project.⁵ To satisfy this requirement, the County must require AES to submit a Hazard Mitigation Analysis.

The SLDC also requires that development comply with the Santa Fe County Fire Code.⁶ Since Santa Fe County Ordinance 2023-06 revised the Santa Fe County Fire Code to include the 2020 edition of NFPA 855, AES's Hazard Mitigation Analysis must at least comply with the standards

² NFPA 855, Standard for the Installation of Stationary Energy Storage Systems, 2023 Edition, National Fire Protection Association, at 855-1.

³ Id., Annex G, Section G.1.1.

⁴ Id.

⁵ SLDC, at Section 6.3.10.1. The County "may, in the course of processing an application, request the owner/applicant to clarify, amplify, correct, or otherwise supplement the information required for the application, if [the information] is required to render a final development order on the merits." Id., at Section 4.4.6.6.

⁶ Section 7.1 of the SLDC states that development approvals "shall not occur unless the applicant demonstrates compliance with all applicable standards" of Chapter 7-Sustainable Design Standards and Chapter 4-Procedures and Permits. Section 7.2 states that all development shall comply with the most current applicable codes adopted by the State of New Mexico, Santa Fe County, and other entities, including but not limited to the Santa Fe County Fire Code. See, SLDC, Sections 7.1, 7.2, 7.16.

in the 2020 edition. If Santa Fe County adopts the 2023 edition of NFPA 855, the Hazard Mitigation Analysis will have to comply with the 2023 edition.

Both the 2020 and 2023 editions of NFPA 855 require the preparation of Hazard Mitigation Analyses for proposed battery energy storage systems. The 2023 edition includes a new Annex G that elaborates on issues specific to lithium-ion systems.

Section G.1.2.1 of the 2023 edition of NFPA 855 states that the purpose of Annex G "is to help stakeholders, designers, and authorities having jurisdiction (AHJs) understand and implement minimum safety requirements through a permitting and inspection process to ensure efficiency, transparency, and safety in their local communities."

Section G.3.5 of the 2023 standard (not addressed in the 2020 edition) establishes site-specific Hazard Mitigation Analyses as a key focus of permitting. Section G.3.5 states that Hazard Mitigation Analyses should document the level of risk that stakeholders are willing to accept and the resulting "fire and explosion protection design criteria" for the facility.

Levels of acceptable risk are important because different levels of risk might be acceptable for different sites, and different levels of risk translate into lesser or greater expense to the developer. Less risk can mean more expensive design criteria. Conversely, the acceptance of greater risk can mean less expensive design criteria. Examples could potentially include measures such as redundant fire protection systems, permanent water supplies for fire protection, and manned versus remotely controlled battery sites. The Fire Risk Assessment prepared by an AES consultant, for example, recommended that "additional mitigation measures (evaporative cooling) be considered within the required Hazard Mitigation Analysis to control adjacent BESS surface temperatures to lessen the probability of cascading container fire propagation."⁷

In addition, Section G.3.5 of the 2023 edition also states that the Hazard Mitigation Analysis should "[i]dentify each hazard and consequence, identify which prevention/protection features are to be provided or omitted, and summarize the decision-making process:"

G.3.5 Fire Protection HMA or FRA (Deliverables)

G.3.5.1 The scope of the HMA should be to establish the fire and explosion protection design criteria for the facility. The development of the HMA should be an iterative process. The HMA should be revised as the design progresses and technical design aspects are selected and finalized, based on dialogue among the stakeholders. The HMA should outline the protection/prevention design basis for achieving the fire hazard control objectives agreed upon by the stakeholders, including the following:

- (1) Identify assumptions and threats (including Section 3.3.2).
- (2) Identify source documents.
- (3) Identify each hazard and consequence, identify which prevention/protection features are to be provided or omitted, and summarize the decision-making process.

⁷ *Hiller FRA*, at 5.

(4) Identify where operational and administrative controls are assumed to be in place to mitigate the need for fire protection features.⁸

The information contained in a Hazard Mitigation Analysis is directly relevant to the issues of risk that are central to the issuance of a Conditional Use Permit for the proposed Rancho Viejo battery storage system. The County should, therefore, insist that AES prepare the Hazard Mitigation Analysis as an element of AES's permit application and EIR and that the documents be reviewed by the County (and the public) before the County makes a decision on the Conditional Use Permit request.

3. The Hazard Mitigation Analysis must be completed, considered and approved during the Conditional Use Permit process, not after the Permit is issued.

The SLDC requires that "[f]ormulation of mitigation measures shall be identified at the first discretionary approval and under no circumstances deferred until the ministerial development process."⁹

This means that the Hazard Mitigation Analysis should be conducted and submitted for review as part of the Conditional Use Permit process (i.e., the first discretionary approval for the project). It should not be deferred until after the County has granted the Conditional Use Permit.

The risks to "the health, safety and general welfare of the area" and the "potential hazard for fire, panic, or other danger" are central issues in the County's review of the Conditional Use Permit that AES requests. But AES's application and the Environmental Impact Report AES submitted for the Conditional Use Permit state only that a Hazard Mitigation Analysis "will be performed as part of the detailed engineering process." AES's Application and EIR state that "[t]his HMA will include site and product specific fire risk assessment and a first responder plan."

Further, it has been suggested that the County might not immediately apply the standards in the 2023 edition of NFPA 855 to AES's Application. The County might instead include compliance with the 2023 edition as a permit condition when the County issues the Conditional Use Permit. This approach would align with AES Corporation's Application, in which AES states that it will prepare a Hazard Mitigation Analysis for the project after the Conditional Use Permit has been issued.

However, delaying the application of NFPA 855 (2023) until after a permit decision has been reached would be a big mistake and a violation of the SLDC. The core issues in this case for issuing a Conditional Use Permit are whether the proposed project will be "detrimental to the health, safety and general welfare of the area" or "create a potential hazard for fire, panic, or other danger."¹⁰ NFPA 855 (2023) needs to be applied in the course of the Conditional Use Permit review to determine whether the proposed project will satisfy those conditions. If the risks of fire, explosions and toxic gases are too great for the location proposed, the permit should not be issued -- period. Issuing the permit with a requirement that NFPA 855 be complied with

⁸ NFPA 855 (2023), Annex G, G.3.5.1. (Emphasis added).

⁹ SLDC, at Section 6.3.10.2. (Emphasis added.)

¹⁰ SLDC, Section 4.9.6.5.

after a decision on the permit has been made for that location would violate the Conditional Use Permit application process as set out in the County's SLDC.

4. Require that the information already submitted in AES's January 2023 Application be revised to address the 2023 edition of NFPA 855.

Although the new edition of NFPA 855 is titled as the 2023 edition, it was acted on by NFPA membership during the 2022 NFPA Technical Meeting held on June 8-9, 2022 and issued by the NFPA Standards Council on August 12, 2022, to become effective on September 1, 2022.¹¹ But the information already submitted in AES's application, submitted in January 2023, appears to have addressed the superseded 2020 edition.

As an example of the problem, AES submitted to the County a *Fire Risk Assessment* (first issued on November 26, 2019 and last revised on April 14, 2022) that asserts that the batteries proposed by AES satisfy the Hazard Mitigation Analysis requirements in NFPA 855. Given the April 2022 revision date of the *Assessment*, the document addresses the edition of NFPA 855 in effect at that time, i.e., the *2020 edition of NFPA 855*. It does not address the *2023 edition*.¹²

There may also be additional examples of other application materials that address the superseded 2020 edition of NFPA 855.

The County should require AES to revise its application to eliminate information that addresses the *2020 edition of NFPA 855* and replace it with information that satisfies the requirements of the current *2023 edition* of NFPA 855.

5. Provide for stakeholder input in the Hazard Mitigation Analysis.

The 2023 edition of NFPA 855 provides for the early input of stakeholders in the preparation of the Hazard Mitigation Analysis. The 2023 edition highlights the importance of considering in the Hazard Mitigation Analysis the input of stakeholders on the level of risk that is acceptable to parties with an interest in the fire and explosion risks of the project:

G.3.2 Stakeholders

G.3.2.1 Stakeholders with an interest in the scope and applicability of the fire protection design should be identified early in the process.

G.3.2.2 Stakeholders should establish goals and objectives and evaluate whether the requirements of NFPA 855 are adequate to meet these goals and objectives. The criteria for acceptability of the level of fire and explosion protection should consider the perspective of the various stakeholders.¹³

The County should be a stakeholder in its role of evaluating the level of risk to be assumed by the public. And the public should also be a stakeholder as they will be asked to assume the level of risk.

¹¹ NFPA 855 (2023), at 855-1.

¹² *Fire Risk Assessment for Outdoor, Remote, Non-Walk-in BESS Enclosures*, AES Corporation, Rev 3. Updated for SDI E4L batteries, April 14, 2022, at 11-15 of 19.

¹³ NFPA 855 (2023), Annex G, G.3.2. (Emphasis added).

6. Require AES to submit a new Environmental Impact Report

Terracon, the consultant the County hired to review the Environmental Impact Report (EIR) that AES submitted with its Conditional Use application, issued a report on July 10, 2023. The Terracon Report consisted of 18 pages of comments and criticisms. The County must require AES to submit a new Environmental Impact Report that addresses the issues identified by Terracon.

Among the most important of the issues, Section 6.3.11 of the SLDC requires EIRs to describe a range of reasonable alternatives to the project, which would feasibly attain some of the basic objectives of the project but would avoid or substantially lessen the significant and adverse impacts or effects of the project. Section 6.3.11 requires EIRs to evaluate the comparative merits of the alternatives, even if those alternatives would impede the attainment of the project objectives or would be more costly.¹⁴

Section 6.3.11 requires EIRs to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. And it requires the EIR to describe the rationale for selecting the alternatives to be discussed. Further, the EIR must identify any alternatives that were considered but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the determination.¹⁵

AES's analysis of alternatives was woefully inadequate, consisting of three whole sentences on alternative locations for the proposed solar array:

Alternative locations for the solar array were explored within the larger parcel. Specifically, partially siting the Project in Sections 5 and 6 was examined but dismissed due to natural resource constraints along the southern branch of Bonanza Creek and the north-facing slopes. Locating the Project closer to State Road 14 was also considered but discouraged because it is part of the Turquoise Trail National Scenic Byway.¹⁶

Terracon's Report stated that alternative locations should also have been considered for the project's tie-line to PNM's transmission line, the access roads, battery facilities and substation:

It does not appear that alternatives to the gen-tie route, access roads, BESS, or substation location were considered in the EIR. No screening analysis was presented in the EIR for the identification of feasible alternatives (gen-tie routes for example) that would allow for identification and selection of the least level of impact to be carried forward and evaluated in detail.¹⁷

¹⁴ SLDC, Section 6.3.11.1.

¹⁵ SLDC, Sections 6.3.11.2 - .3.

¹⁶ AES EIR, at p. 2-6.

¹⁷ Terracon Report, at p. 10.

Location of facilities, however, should not be the only issue for which alternatives are identified and evaluated.

The most obvious alternative would be a solar facility as proposed by AES but without battery storage facilities. AES should prepare an analysis of the technical and financial feasibility of such a project. This more limited project would mitigate the risks of fires, explosions and toxic gases that are central to the issues to be decided by the County for AES's requested Conditional Use Permit.

A second alternative should substitute safer, longer-duration and more sustainable battery storage facilities for the lithium-ion battery facilities proposed by AES. Fire, explosion and toxic gas releases are documented risks of lithium-ion battery facilities. Much has also been reported about the environmental impacts (including impacts on workers' health) of the mining practices associated with the lithium, cobalt and other minerals used for lithium-ion batteries. Lithium-ion batteries also generally have four-hour durations, which are shorter than needed to replace the nighttime capacity that will be lost with the replacement of coal and natural gas generation.

Public Service Company of New Mexico (PNM) and other public utilities are seeking battery storage systems with longer durations than the four-hour durations of lithium-ion batteries. As examples, earlier this year, Xcel Energy (the parent company of Southwestern Public Service Company, which serves eastern and southeastern New Mexico) entered into agreements for the deployment of 10 MW (1000 MWh) iron-air batteries in Minnesota and Colorado. Georgia Power Company also entered into an agreement for a 15 MW (1500 MWh) iron-air battery. Great River Energy, a wholesale generation and transmission cooperative in Minnesota serving 27 member distribution cooperatives in Minnesota and Wisconsin, is installing a 1.5 MW iron-air battery in central Minnesota.

Iron-air batteries have long duration times (up to 100 hours) and, unlike lithium-ion batteries, are not subject to thermal runaway. They use iron and other sustainable materials. Santa Fe County could be a leader in the deployment of these innovative battery storage technologies if AES were to pursue them.¹⁸

7. Require AES to submit accident reports for fires and explosion at AES-affiliated battery storage facilities.

The County should require AES to submit the reports prepared by AES on the causes, damages and lessons learned after fires and explosions at AES-affiliated battery storage facilities. The

¹⁸ Further information about iron-air batteries and their deployments can be found at the following websites:

<https://formenergy.com/technology/battery-technology/>

<https://www.pbs.org/wgbh/nova/article/iron-air-battery-renewable-grid/>

<https://www.utilitydive.com/news/minnesota-puc-xcel-form-energy-battery-sherco-solar/685460/>

<https://www.cbsnews.com/colorado/news/xcel-colorado-pueblo-power-plant-renewable-energy-storage-ldes/>

<https://www.mprnews.org/story/2023/02/10/rusty-batteries-could-hold-key-to-carbonfree-power-future>

<https://formenergy.com/wp-content/uploads/2023/04/24-7-Carbon-Free-Resource-Portfolio-4.24.23.pdf>

accidents include the April 2019 fire and explosion at AES's McMicken battery storage facility in Surprise, Arizona and the April 2022 fire at AES's Dorman battery storage facility in Chandler, Arizona. The reports should also include any other less publicly reported accidents at AES facilities plus any accidents at facilities involving Fluence, the joint venture designer and facility integrator of AES and Siemens. The reports should be reviewed by the County's experts and be made available to the public. The information in the reports can help the County avoid the hazards experienced in prior AES projects.

8. Insist that fire, explosion and toxic gas risks be made available to the public -- even if the information qualifies as a trade secret.

The development and content of the Hazard Mitigation Analysis must be transparent. This is especially important, given the potential impacts of the project on the adjacent residential communities.

AES has submitted to the County two Fire Risk Assessments in support of the Rancho Viejo project -- one prepared by an AES consultant and the other by AES. The assessments were prepared under NFPA 551 as generic analyses (not site-specific Hazard Mitigation Analyses under NFPA 855) for the types of batteries proposed by AES, and, in both assessments, AES redacted large amounts of information about the project's risks of fires, explosions and releases of toxic gases that are central to the Conditional Use review here and of critical interest to the public.¹⁹ The assessments redact, for example, information about the chance of accidents and their consequences, including fires, explosions and the composition of toxic gases expected to be released.

In addition, in a recent District Court hearing on September 28, 2023 involving only AES and the County, AES obtained orders from the First Judicial District Court in Santa Fe declaring the redacted information to be trade secrets and prohibiting the County from disclosing the information to the public.²⁰ The County took a neutral position at the hearing, declaring that it lacked sufficient personnel to challenge AES's claims -- this despite the Board of County Commissioners' adoption of Resolution 2023-093 which authorized County staff to hire expert consultants in connection with the County's review of permit applications for commercial renewable energy projects.

For example, AES redacted Hiller's estimate of the likelihood of a thermal runaway occurring:

Based on our continued research, and the completed numerical analysis, there remains approximately less than a **[redacted]** likelihood across the global battery energy storage system market sector that an event resulting in an exothermic reaction and thermal runaway could occur.²¹

¹⁹ *AES Clean Energy 40' CEN Battery Energy Storage System Project Battery Energy Storage System (BESS) Level Fire Risk Assessment*, Hiller Companies, January 5, 2023 ("Hiller FRA"); see also AES FRA.

²⁰ See, Order Granting Preliminary Injunction, *AES Clean Energy Development, LLC v. The Board of Commissioners of Santa Fe County*, No. D-101-CV-2023-02249, October 26, 2023.

²¹ *Hiller FRA*, at 4.

released and will react with atmospheric air (with fresh oxygen and moisture). --
[Redacted]--[Redacted]--[Redacted]--[Redacted]--[Redacted]--[Redacted]--[Redacted]--[Redacted]--.²³

AES made similar redactions in the Fire Risk Assessment it prepared and submitted to the County.

Nevertheless, regardless of any information found to constitute a trade secret, the County has the authority to require the disclosure of the information under Section 6.3.1 of the SLDC. Section 6.3.1 of the SLDC states that "[n]o EIR or SRA prepared pursuant to this Chapter that is available for public examination shall require the disclosure of a trade secret, except where the preservation of any trade secret involves a significant threat to health and safety."²⁴ The redacted information relates to the risks (i.e., fire, explosion, toxic gas) to which the public would be exposed if the Conditional Use Permit is granted. The County therefore has the authority to insist that the redacted information be disclosed to the public.

9. The County should take actions to ensure that information about the project's risks is made available to the public.

Information about the project's risks must be made available to the public in the permit review process before the County takes action on AES's permit request.

The preliminary injunction issued by the District Court is, in fact, a *preliminary* order. Further, because it is a *preliminary* injunction, the issues in the case have not been determined with finality. Parties, such as Santa Fe County or an intervenor, still have the option to request a further hearing in the matter.

The County's Resolution 2023-093 authorized County staff to hire expert consultants in connection with the County's review of permit applications for commercial renewable energy projects. With an expert witness, the County could present evidence challenging AES's trade secret claims.

Further, as noted above, the County has the authority under Section 6.3.1 of the SLDC to require the disclosure of the information. The Order issuing the preliminary injunction has two parts. First, it finds, based upon the evidence presented at the September hearing, that the redacted information in the two reports constitutes privileged trade secrets. Second, because the information is protected, the Order prohibits the County from publicly disclosing the information.

The current language of the preliminary injunction issued on October 26, 2023, however, contains a flat prohibition against the County disclosing the information. It does not recognize the County's authority under Section 6.3.1 of the SLDC.

²³ *Hiller FRA*, at 13.

²⁴ SLDC, Section 6.3.1. (Emphasis added).

The County, therefore, should seek a further hearing before the District Court to either challenge the trade secret status of the documents at issue in that case. Alternatively, the County should ask the Court to modify its preliminary injunction to recognize the County's authority to disclose the information at issue there under its authority in the SLDC.

Finally, it is also important to recognize that the preliminary injunction issued in October applies only to the redacted information in the two documents that were reviewed in that case. It is likely that AES will submit additional information in support of its Conditional Use Application for which it will seek trade secret protection. The County should exercise its authority to disclose trade secret information to the public under the conditions established in Section 6.3.1 of the SLDC.

Please enter this letter as a comment in the administrative record for the Conditional Use Permit request for the Rancho Viejo Solar Project.

Respectfully submitted,

Ashley C. Schannauer

cc: Gregory S. Shaffer, County Manager
Jeffrey S. Young, County Attorney
Jacob Black, Fire Chief
Jaome Blay, Fire Marshal