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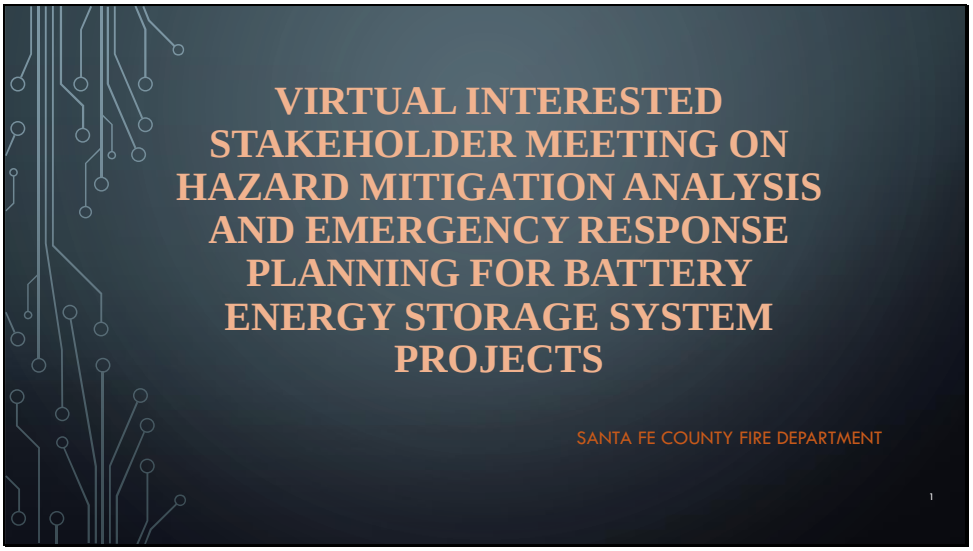
VIRTUAL INTERESTED STAKEHOLDER MEETING ON HAZARD MITIGATION ANALYSIS AND EMERGENCY RESPONSE PLANNING FOR BATTERY ENERGY STORAGE SYSTEM PROJECTS
SANTA FE COUNTY FIRE DEPARTMENT
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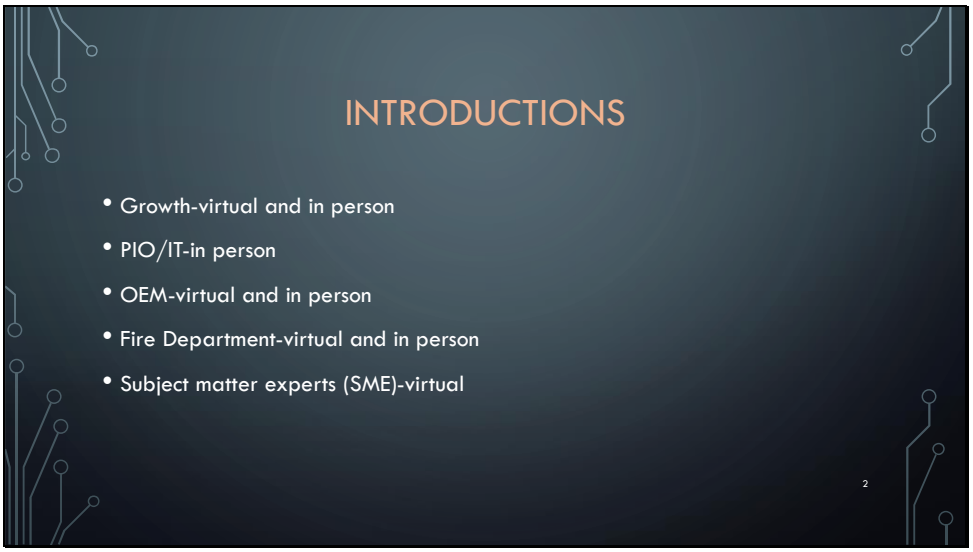
INTRODUCTIONS
• Growth-virtual and in person
• PIO/IT-in person
• OEM-virtual and in person
• Fire Department-virtual and in person
• Subject matter experts (SME)-virtual
2

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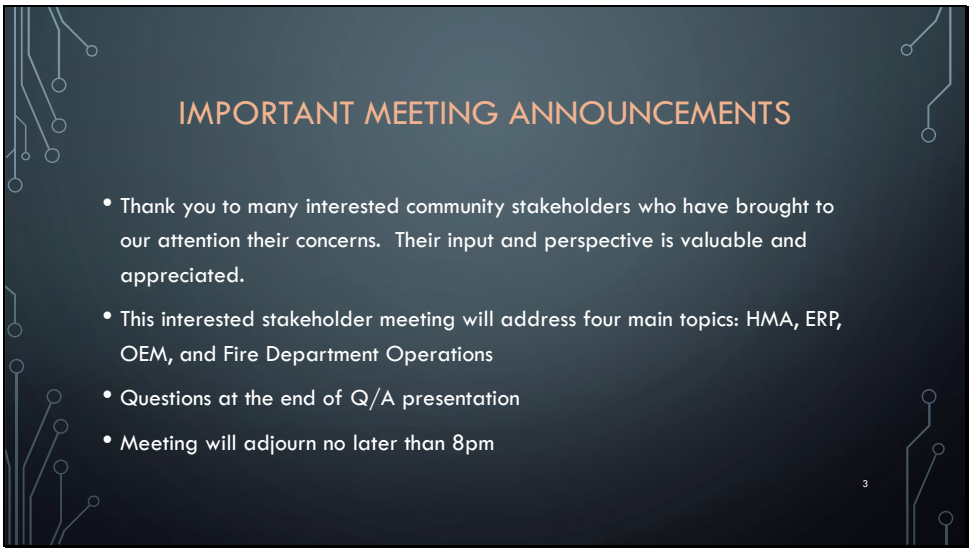


Today's meeting is not a public hearing as contemplated by the SLDC or by the County's Open Meetings resolution. It is an informal meeting to share and discuss appropriate standards for fire departments and other emergency response teams, particularly regarding solar facilities and battery energy storage systems pursuant to National Fire Protection Association (NFPA) 855 Annex G, which provides best practices for Fire Departments nationwide. While these best practices provided by the NFPA are not mandatory, these are useful guidelines to follow. To be clear, information provided this evening is not part of the record in any pending application. It is not evidence in any pending application. And while we strive to be accurate and transparent, information is subject to change with the passage of time and as circumstances change.

We have received well over 100 questions in advance of this evening's meeting. We will not be able to answer all questions but will focus on those questions that were most frequently asked and are most directly related to the topic for this meeting.

Some of our discussion will focus on the unique attributes and risks associated with battery energy storage systems (BESS) and the standards that have been adopted and/or suggested for such facilities, such as NFPA 855. Please understand, however, that we will not discuss the specific application for the Rancho Viejo Solar project. It is inappropriate to discuss a pending application with interested third parties outside of the public hearing framework, particularly when the applicant is not present.

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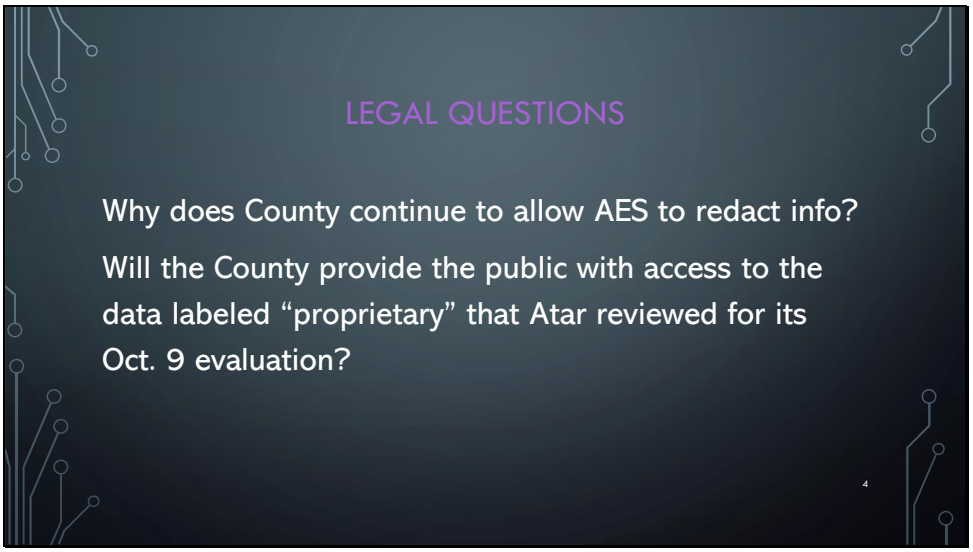


The County neither allows nor disallows the redaction of documents. Occasionally an applicant provides documents as part of an application, and notifies the County that it considers certain information contained in the documents to be confidential. In those instances, if a request that covers such documentation is made under the Inspection of Public Records Act, the County notifies the applicant of the request. At that time, the applicant can elect to seek protection of such information through judicial proceedings. If an applicant goes that route, the County will abide by whatever resolution is reached in that proceeding. If an applicant does not seek to protect such information, the records will be released.

There has been no ruling from the First Judicial District Court declaring that any member(s) of the public is/are entitled to information or documents in the Rancho Viejo Solar application.

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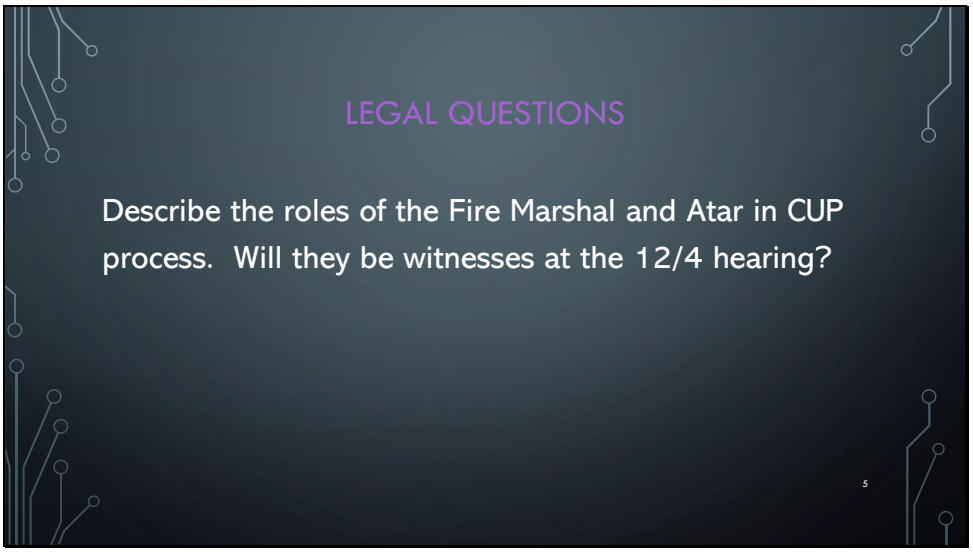


Neither office has been notified that it will be called on to testify. We are still four weeks before the hearing, so that might change.

Ordinance 2023-06 Section 7 C states"103.1 General. The Fire Prevention Division of the Santa Fe County Fire Depart-ment (the "Division") is under the direction of the Fire Marshal. The function of the Division includes implementation, administration and enforcement of the Fire Code."

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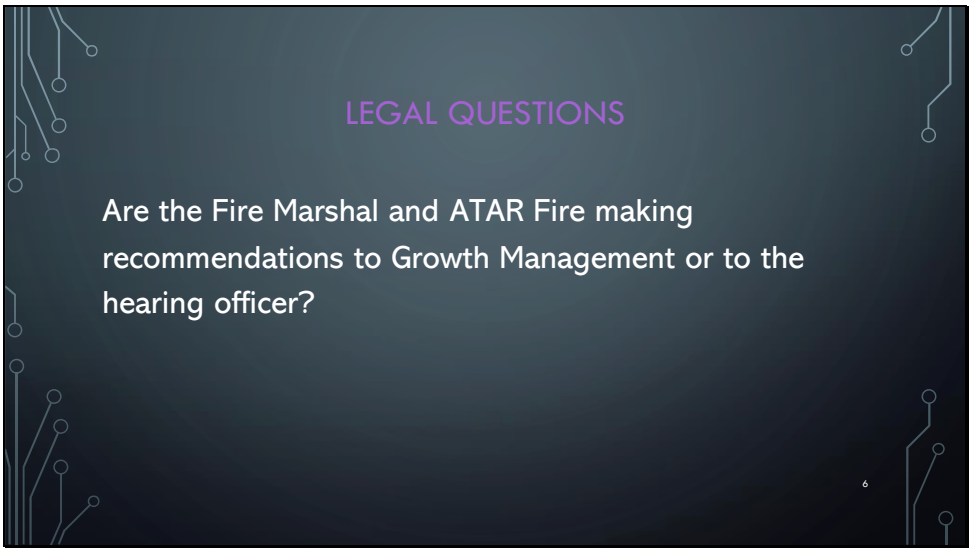


No. As reflected in the 10-11-24 CUP Plan Review from Fire, the Fire Dept. and Atar Fire simply concluded that a sufficient level of information has been provided by the applicant to validate the issuance of a Conditional Use Permit.

Slide 7


The applicant simply notified the County that it considers the information to be proprietary/confidential. As stated above, if it seeks to avoid disclosure of the information, the request will be made in a judicial proceeding and not to the County. The County will not make a determination regarding the protection or disclosure of such information.

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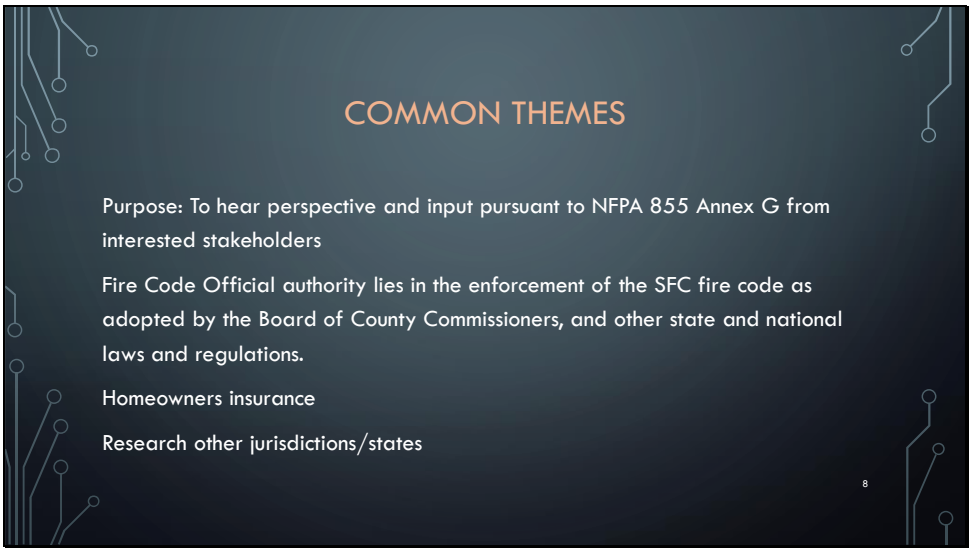


Please be aware Annex G of NFPA 855 guidelines are “best practices” that identify useful standards and procedures, but which is not mandatory.
Approval of a CUP application is at the discretion of the SFC governing body; for example, Planning commission or Board of County Commissioners.
SFC is aware of many homeowners facing challenges relative to home insurance, but the cause does not seem to be link to BESS installations.
Fire Departments across the nation have adopted or are in the process of adopting the latest version of the International Fire Code and NFPA 855. Submittal of both a Hazard Mitigation Analysis and Emergency Response Plan, including staff and emergency responders training to the Authority Having Jurisdiction is required.

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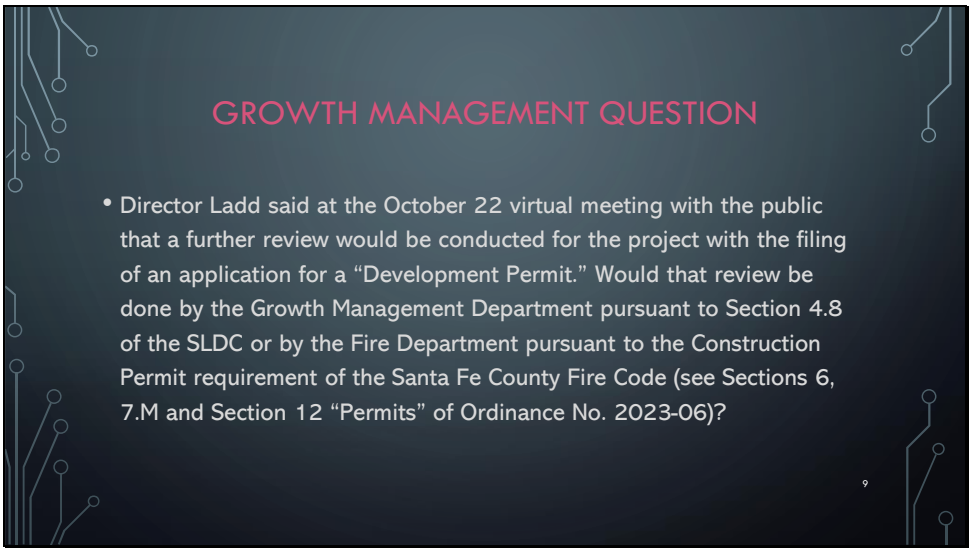


Should this CUP application be approved by the governing body, the fire department, in collaboration with SME,  will exhaustively and rigorously review and evaluate for compliance with the highest level of safety in accordance with local, state, and national codes and standards, as are all projects within Santa Fe County  The full and complete construction document package would be submitted for review and approval by the SFCFD prior to commencing project construction. This is established in Chapter 1 of the Fire Code as adopted by the SFCFD.

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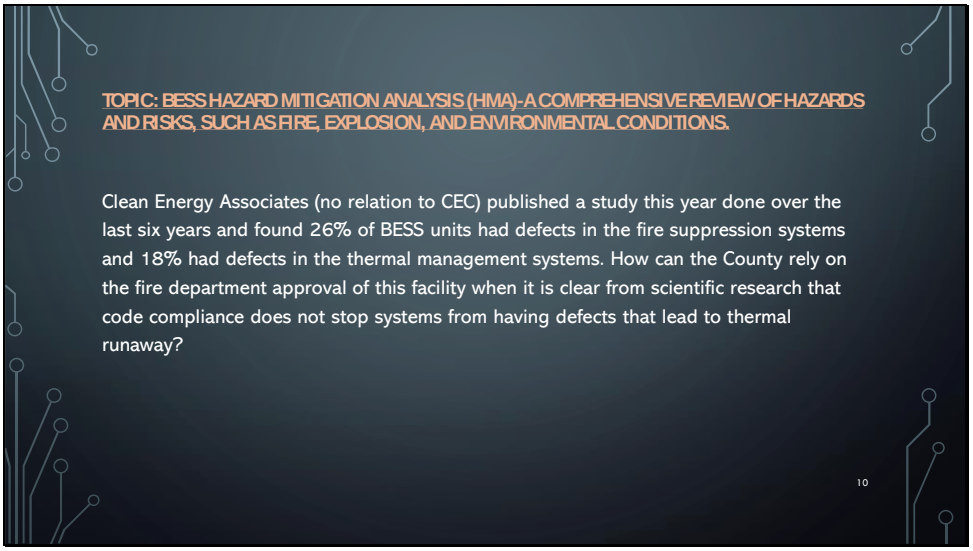


Issues identified by the CEA report can be mitigated through commissioning and ongoing inspection, testing, and maintenance, which is required by NFPA 855. The CEA identified issues at factories. These systems were not yet in the field and tested/commissioned.

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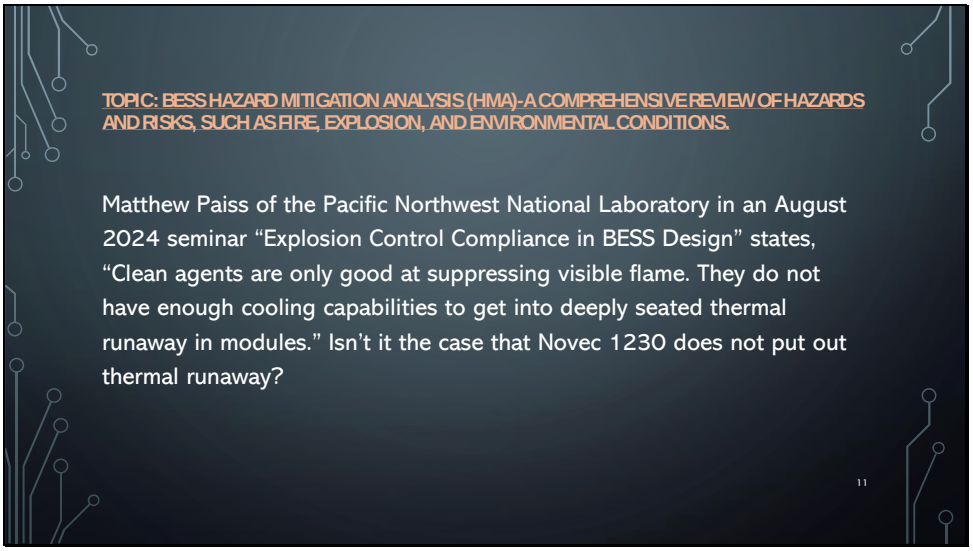
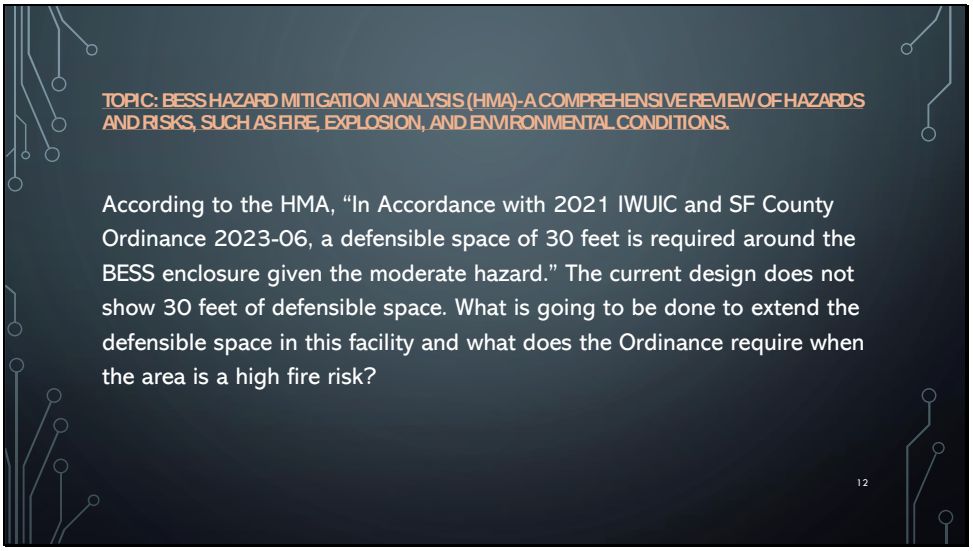



The proposed system is not classified as fire suppression or extinguishing system as it pertains to NFPA 855. It is a thermal runaway propagation prevention system. The NOVEC is injected at a module level, not at a container level. Matt Paiss is referring to container level fire suppression. Container level fire suppression is not provided on this project. The proposed NOVEC system has been validated via UL 9540A testing. Installation and Unit Level testing for this project has indicated that when a single cell goes into thermal runaway, it does not spread to adjacent cells due to the NOVEC direct injection system.

Slide 12




The fuel modification distances increase as the fire hazard severity area increases, with a minimum distance of 30 feet. The intent of fuel modification is to create a defensible space so that an approaching wildland fire cannot easily move through the defensible space and ignite the structure. The defensible space also provides fire fighters an area to set up hose lines between the structure and the approaching fire. Reducing the density of brush and undergrowth is necessary to reduce the intensity of the fire, reduce flame lengths and reduce radiant heat.

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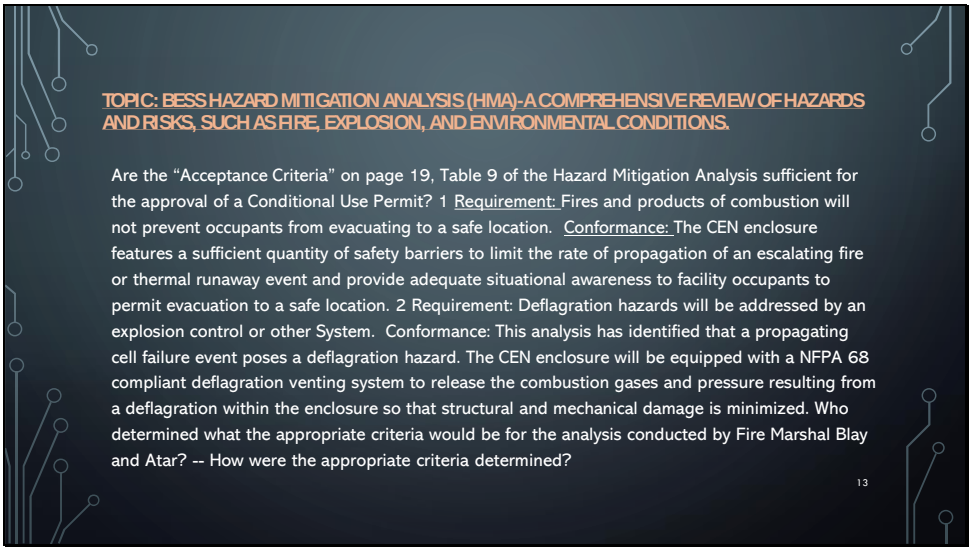


The acceptance criteria are defined by NFPA 855 (2023), Section 4.4 and the 2021 IFC Section 1207.1.4.2. These are national consensus standards.

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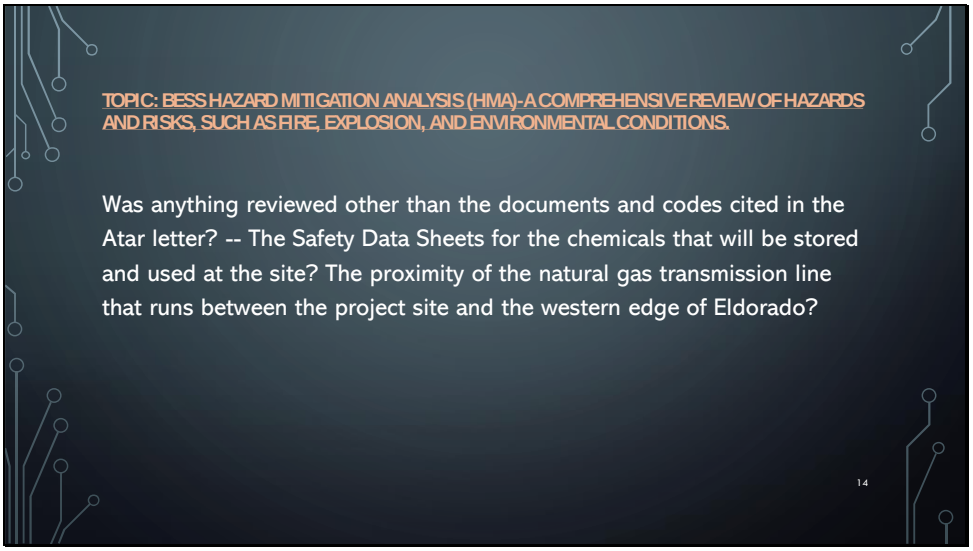
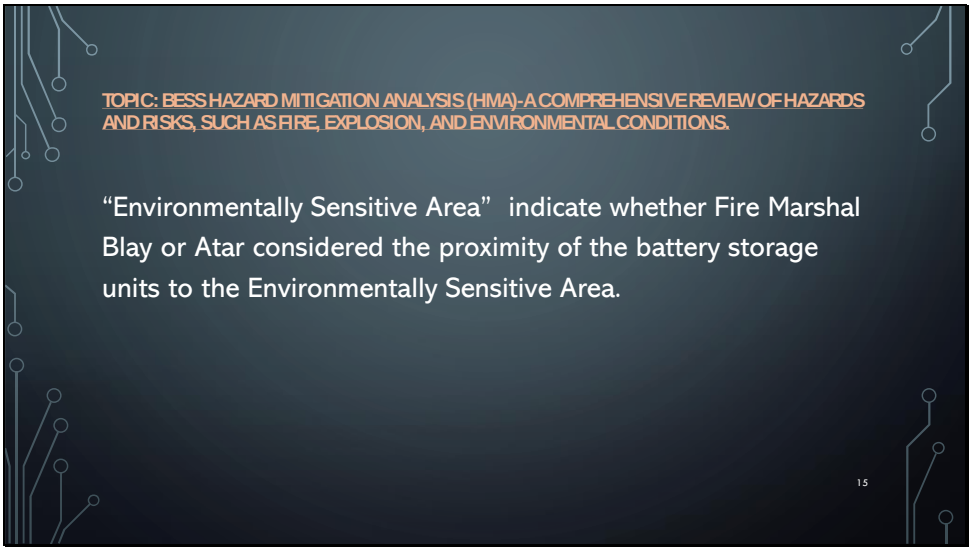



All items reviewed by Atar Fire are outlined in the review letter. The documents were then compared against the applicable codes and standards. NFPA 855 does not require review of SDS.

Slide 15

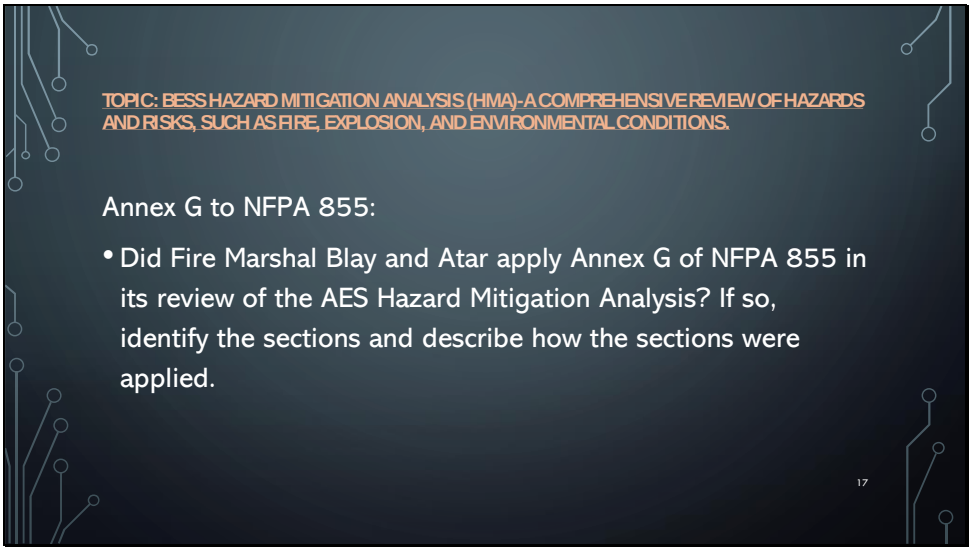



NFPA 855 (2023) and the 2021 IFC do not provide explicit requirements regarding Energy Storage System installations and environmentally sensitive areas. Separation distances as required by the 2021 IFC and 2023 NFPA 855 have been adhered to.

Slide 16

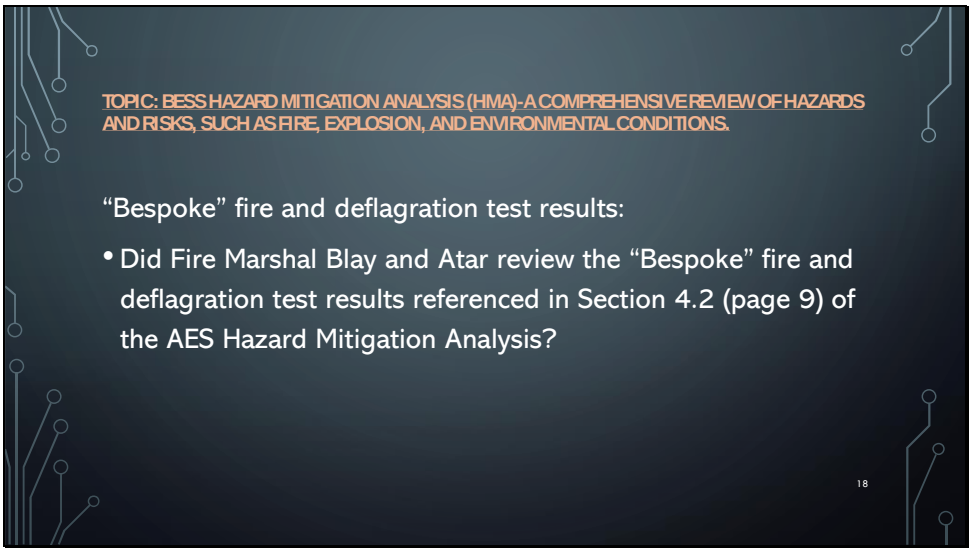

Choosing a data source closer to the site is not expected to impact results of the HMA. Wind is not used for any modeling as part of the HMA and is used in a qualitative manner. ESS safety is a layered approach.

Slide 17




Atar Fire considered Annex G conceptually. In some instances, it is referenced directly in review comments (for example, comments 13, 42, 83, 85). Annex G is nonmandatory text and is for information only. The NFPA 855 technical committee places items that to do not rise to the level of a requirement, or are simply extra information, in the Annex. Note the absence of the use of the word ‘shall’ in Annex material. Also reference the NFPA Manual of Style for more information on the intent of Annex material.

Slide 18


TOPIC: BESS HAZARD MITIGATION ANALYSIS (HMA)-A COMPREHENSIVE REVIEW OF HAZARDS AND RISKS, SUCH AS FIRE, EXPLOSION, AND ENVIRONMENTAL CONDITIONS.
"Bespoke" fire and deflagration test results:
• Did Fire Marshal Blay and Atar review the "Bespoke" fire and deflagration test results referenced in Section 4.2 (page 9) of the AES Hazard Mitigation Analysis?
18

Yes

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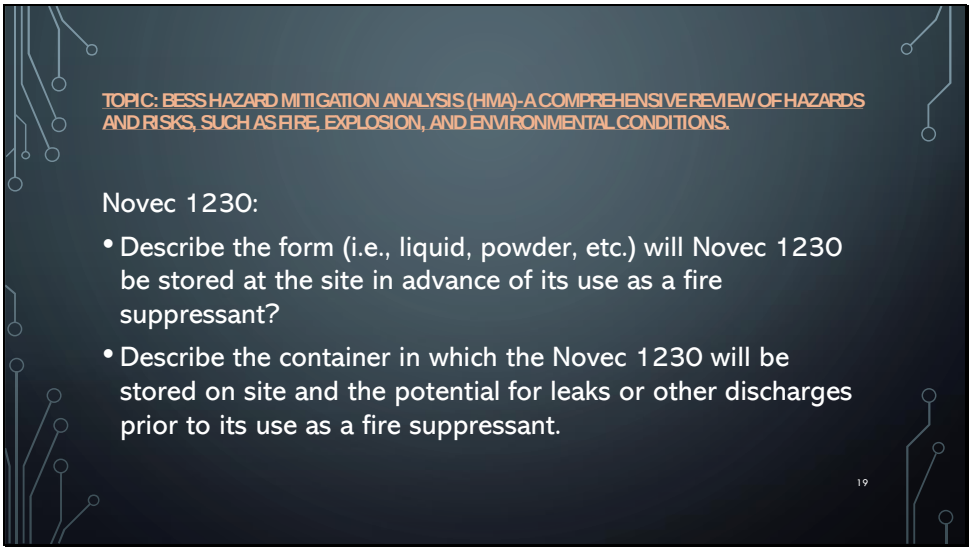
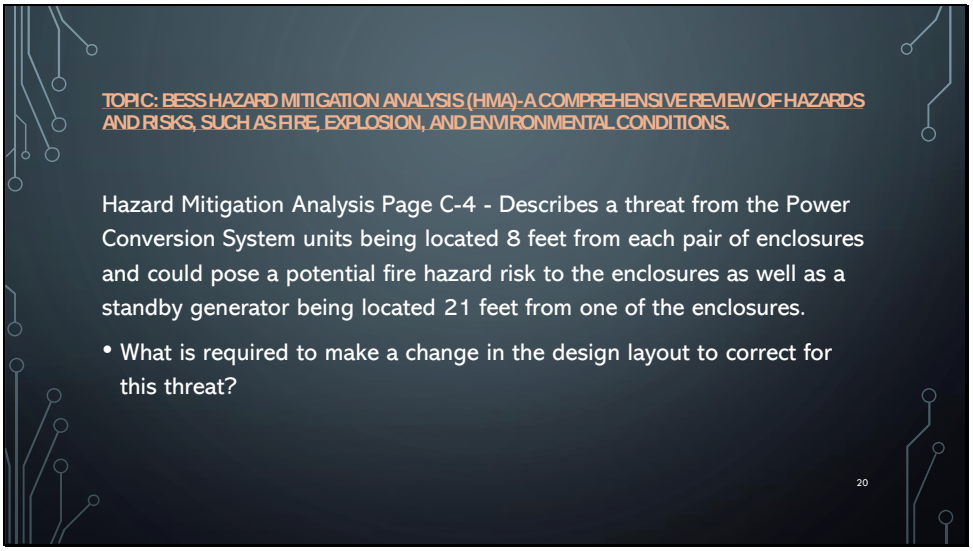


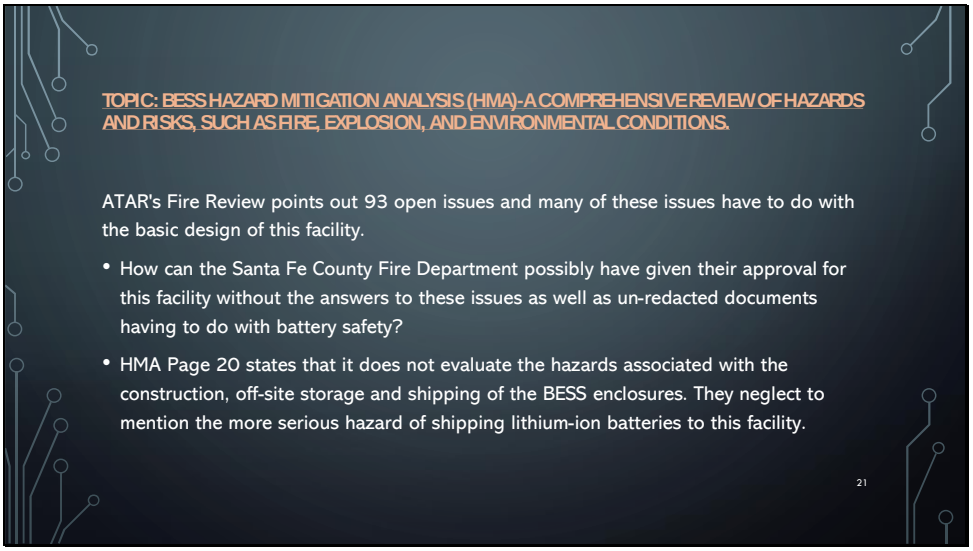

Gas.
Each container will have a dedicated NOVEC cylinder. The system will be inspected and commissioned in accordance with the manufacturer's instructions and the applicable portions of NFPA 2001, as is the accepted industry practice. All components of the NOVEC system are included in and have been evaluated as part of the Installation Level UL 9540A test.

Slide 20




Power Conversion Equipment, which is composed of electrical equipment, typically has low heat release rates (Reference NUREG 2178, for example). These heat release rates, and associated heat fluxes, are generally not sufficient to heat battery cells inside a metal insulated container 8 feet away to above the thermal runaway temperature.

Slide 21




The fire department has not given their approval; it has deemed the conditional use permit application complete based on the review by ATAR fire. However, all of the items in the review letter by ATAR Fire must be satisfactorily addressed prior to commissioning of the facility, should a CUP approval be granted by the Planning Commission or BCC.

Transport of lithium ion batteries is regulated by the Department of Transportation.

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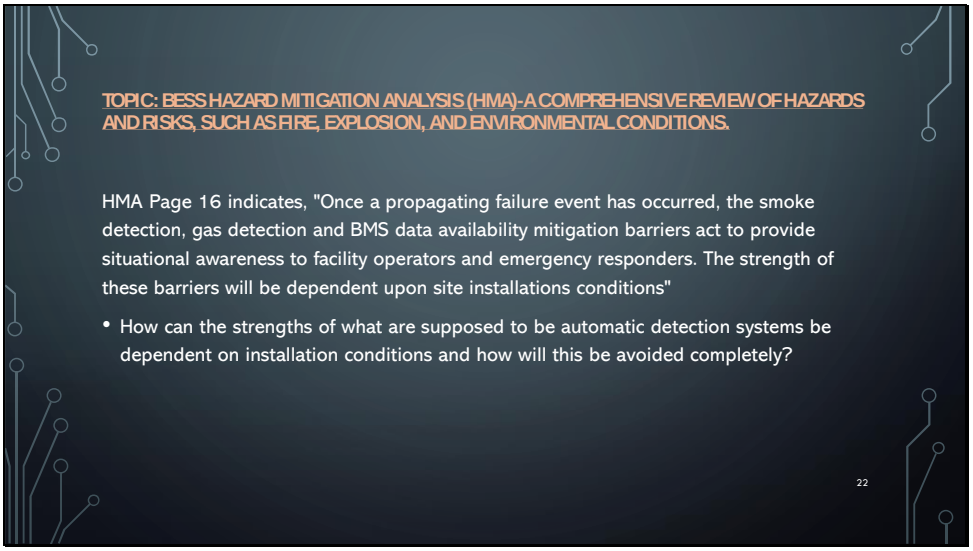
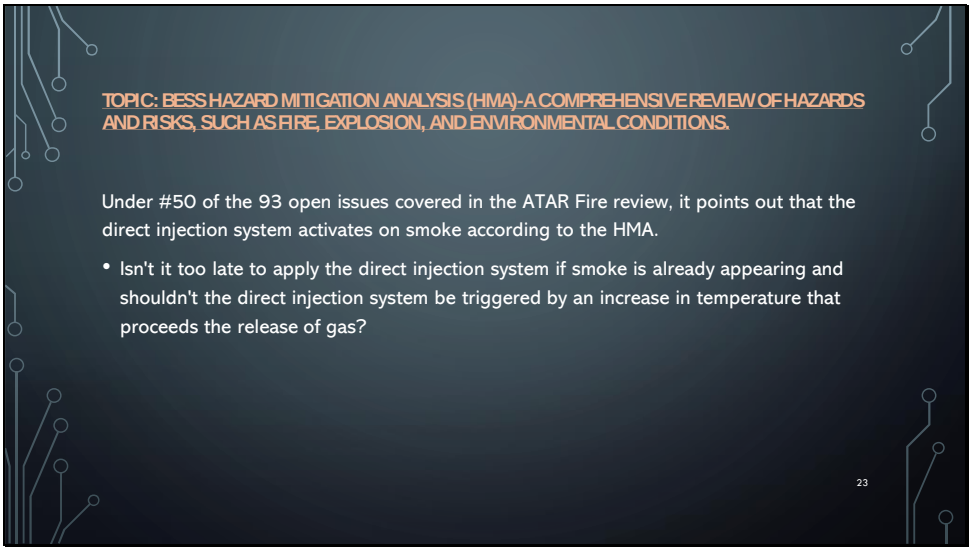


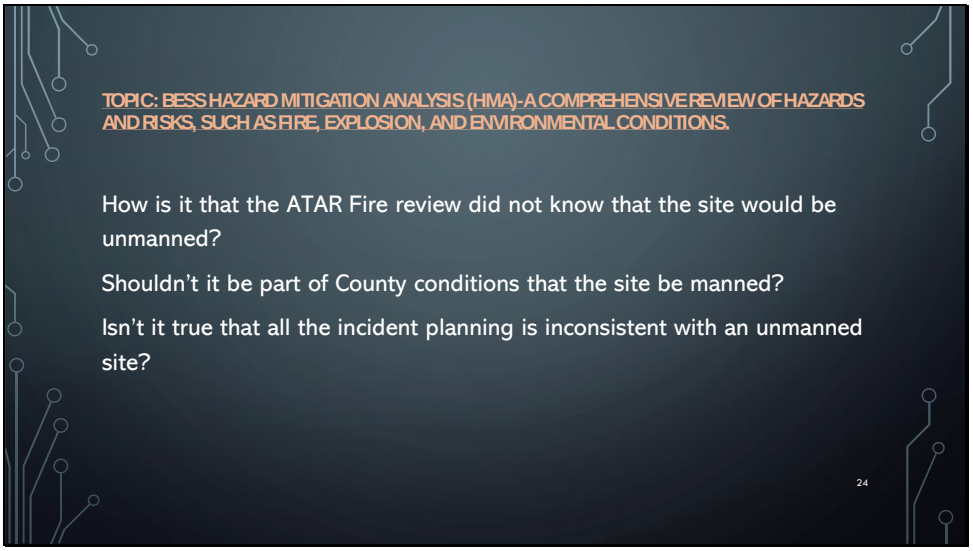

All systems will be reviewed for compliance with applicable nationally recognized standards, as well as inspected and tested.

Slide 23




The performance of the system is validated by the UL 9540A testing as it pertains to mitigating cell to cell propagation. The comment pertains to something specific mentioned in the HMA regarding the statement that this will increase the amount of time of detection. Atar Fire disagrees with the statement, but it does not invalidate the performance and safety of the BESS as a whole. Comment #50 requires an editorial revision to the HMA.

Slide 24




Atar Fire did not assume the site would be manned, rather, was requesting an update to the ERP based on information presented in the CUP application. NFPA 855 (2023) and the 2021 IFC do not require an ESS site to be 'manned'. Data from various systems are monitored by a constantly attended location as required by NFPA 855 and the IFC.

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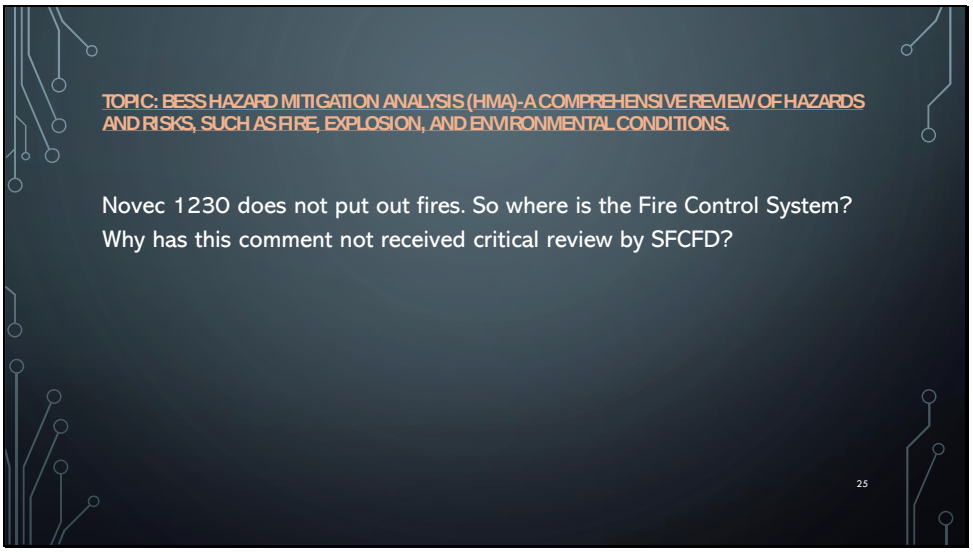
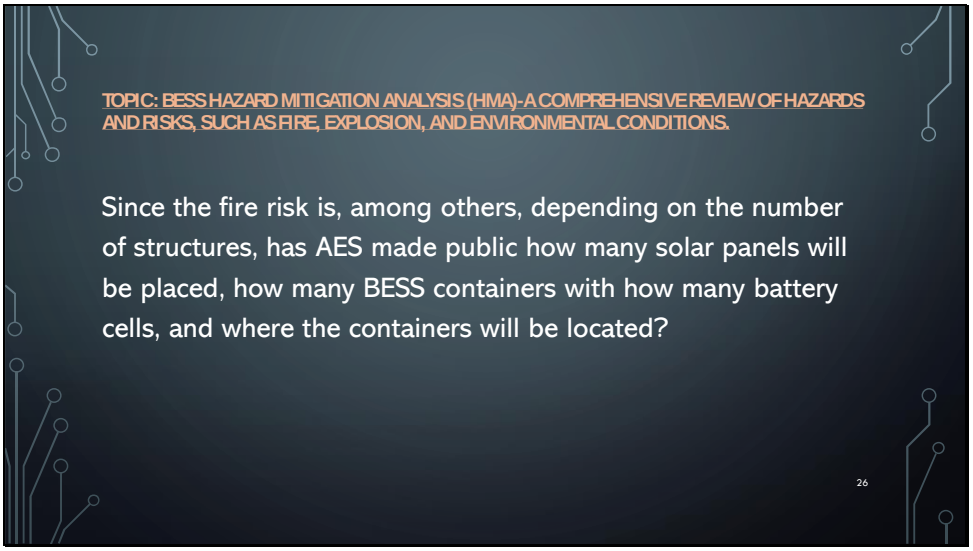


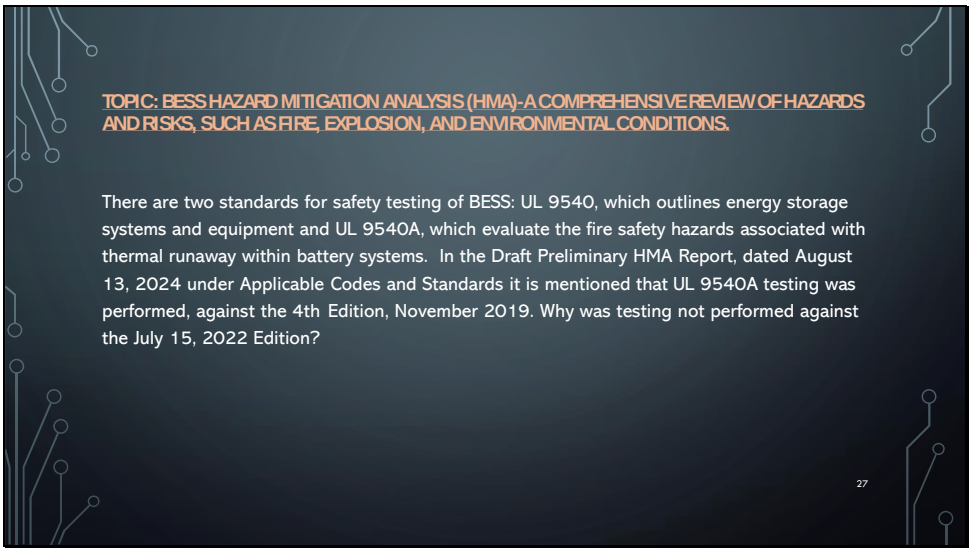

This comment is requesting an editorial clarification in the HMA. Atar Fire agrees Novec 1230 does not extinguish lithium-ion fires when used for container based fire suppression. The NFPA 855 committee has recognized this. Future editions of NFPA 855 will prohibit this (reference the NFPA website, NFPA 855 Next Edition tab, 'View Public Comment' for Second Draft' Section 4.9 has been revised to remove NFPA 2001 and NFPA 2010 systems). NOVEC 1230 is provided at a module level to mitigate cell to cell propagation and is considered a thermal runaway propagation prevention system. The NOVEC system being provided by AES is not required by code, yet has demonstrable benefits via UL 9540A testing showing it limits cell to cell propagation to a single cell.

Slide 26



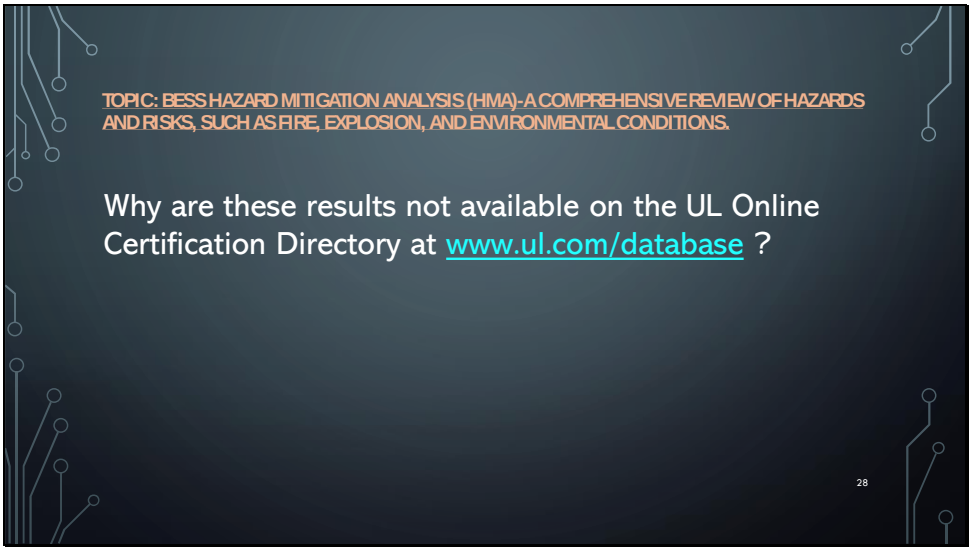

The HMA provides details on the number of containers, the location of the containers, and the number of cells in each container and module. These items, among many others, are considered in the HMA. Solar panels are remotely located from the BESS containers.

Slide 27



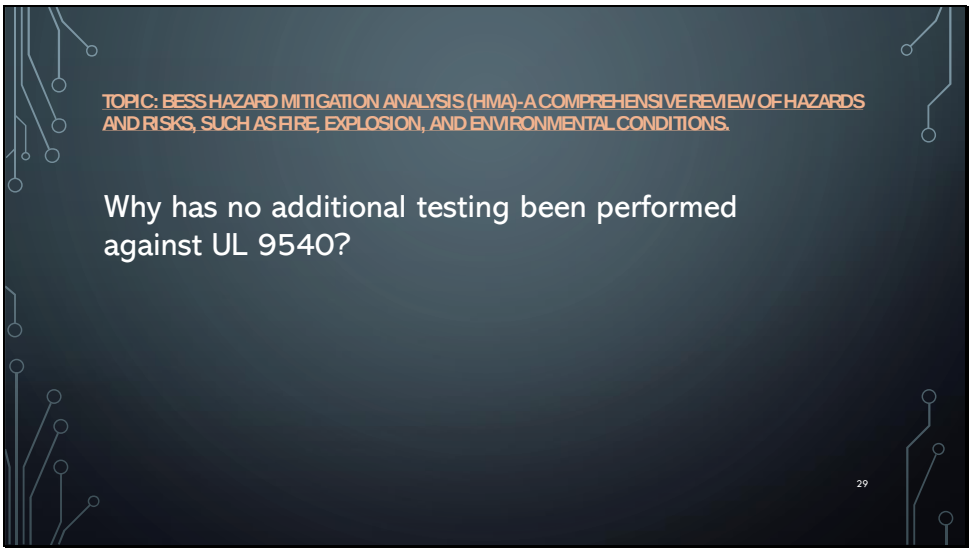

The latest published edition of UL 9540A is the 4th Edition, dated November 12, 2019. The testing under this project has been performed to UL 9540A, 4th Edition. The latest published edition for UL 9540 is the 3rd Edition, dated June 28, 2023.

Slide 28



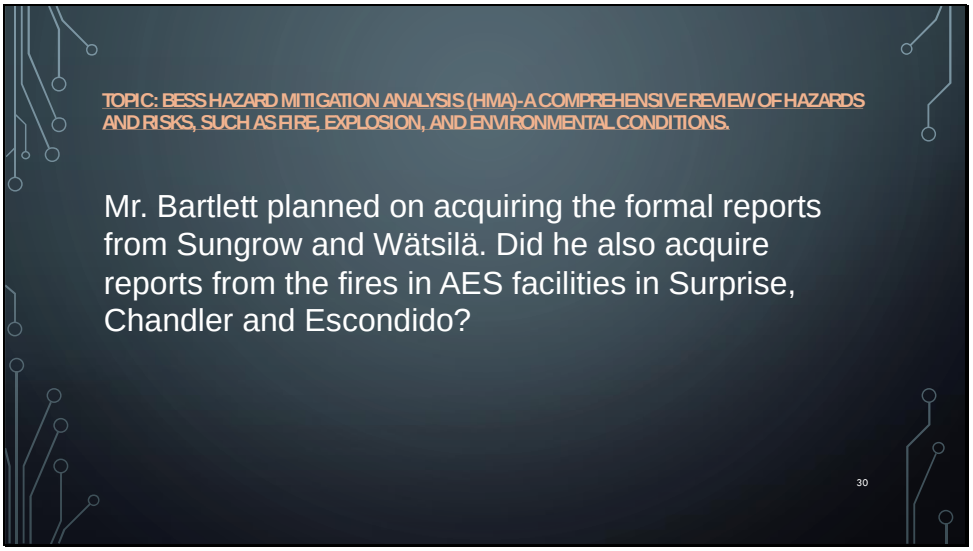

UL 9540A is a test, not a Listing or Certification. UL 9540A results are not typically published by Nationally Recognized Testing Laboratories online. Results are given to the client that requests the test. Regarding the product certification standard, UL 9540, UL 9540 Listing can be achieved through Underwriters Laboratories or any other Nationally Recognized Testing Laboratory (NRTL), that is certified by OSHA to UL 9540. For this project, AES has used the NRTL called SGS for the UL 9540 Listing. The UL Online Certifications directory only shows products listed specifically by Underwriters Laboratories (and not other OSHA NRTL such as SGS, CSA, TUV, etc)

Slide 29



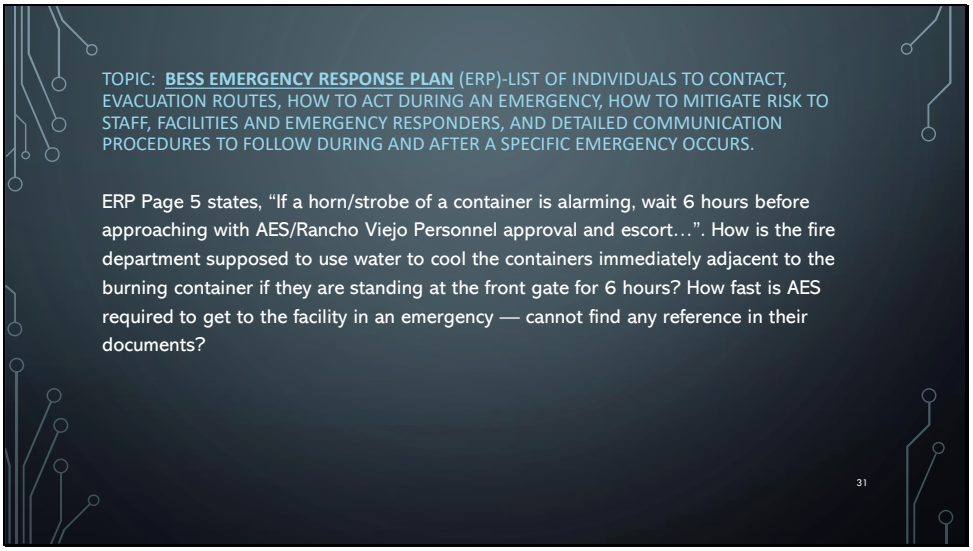

Testing is currently being performed and is nearly complete. The BESS units used on this project  will be UL 9540 Listed. Certification is in progress.

Slide 30



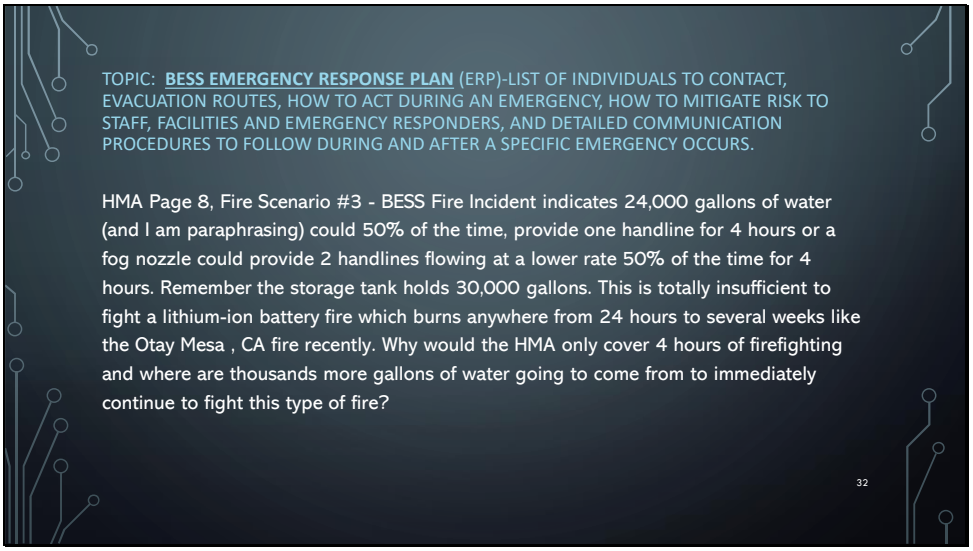

The full scale fire testing performed by Sungrow and Wartsila is under NDA and has not been released to Mr. Bartlett. There has not been an investigation report issued for Escondido.

Slide 31



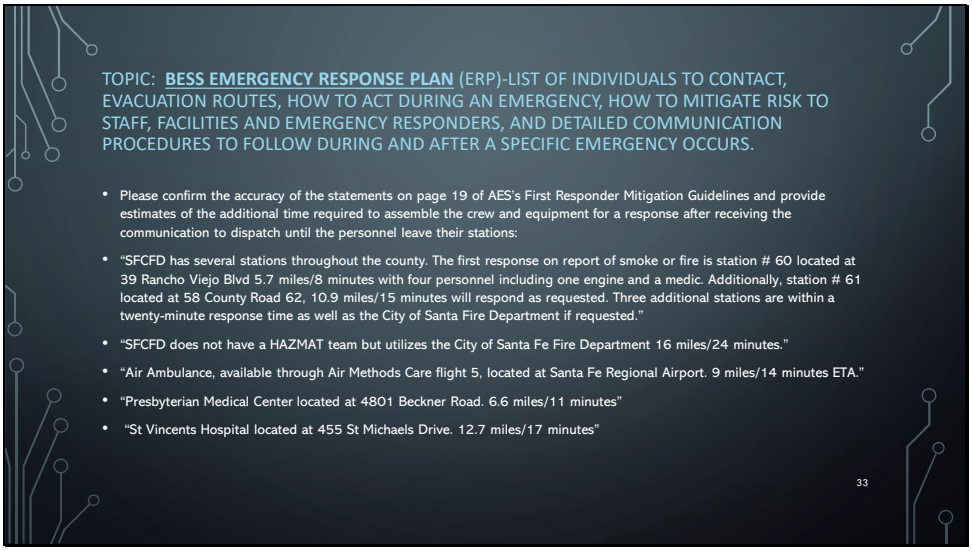

The fire department is in the process of developing Standard Operating Procedures and Guidelines to address this and other potential scenarios. Should this application be approved by the SFC governing body, the ERP shall undergo further evaluation of more specific guidelines.

Slide 32



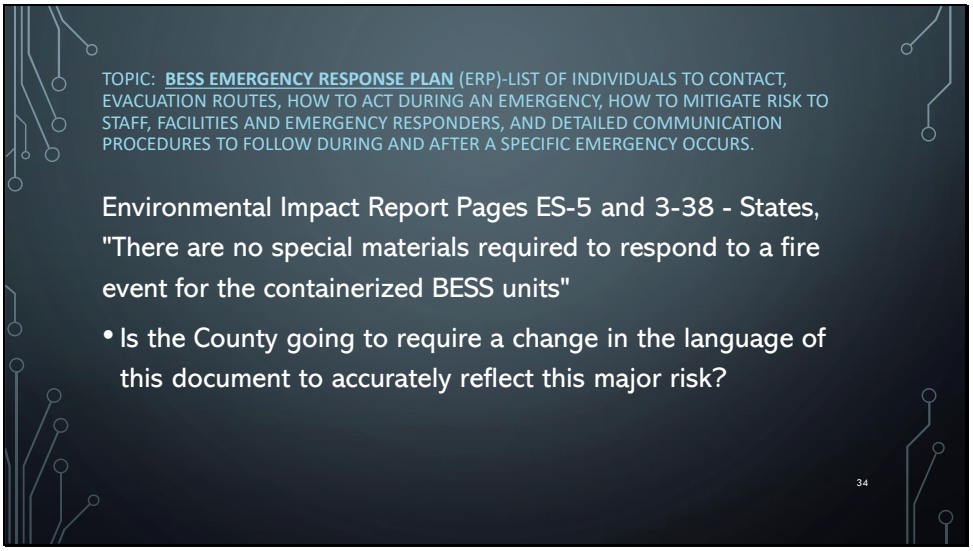

The fire department has the capability to bring water to any location in Santa Fe County by way of tanker shuttle operations. In addition to the 30,000 gallons at the site, the average water brought to the scene by First Alarm responding units is 10,000 gallons. When a Second Alarm is issued, an average of 5,000 additional gallons of water is brought to the scene. Once on scene a tender shuttle operation will be put into operation to maintain 250 gallons of water per minute for 2 hours.

Slide 33



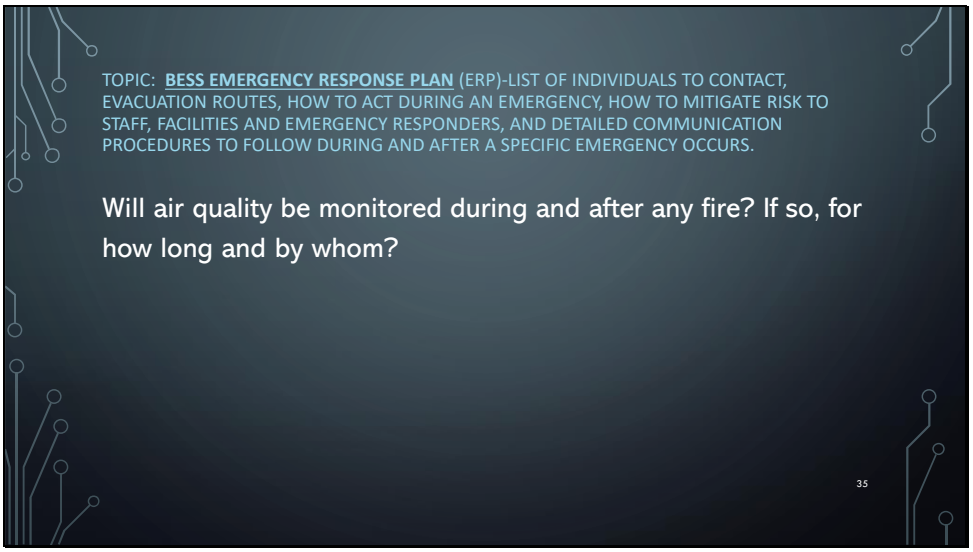

We also have district members (volunteers) who could provide additional resources. We also have mutual aid agreements with the City of Santa Fe and other neighboring fire departments when needed. The SFC Office of Emergency Management would coordinate with the Red Cross, Sheriff's Office, and other agencies as needed. In the event of a shelter-in-place order, OEM would issue a reverse 911 system call that allows them to notify a specific area by text or automated phone call, providing residents with the necessary safety information. Concerning our response times, several factors can affect them, including ongoing calls or incidents such as structure fires, wildland fire or standard medical calls, etc. However, we have systems in place to ensure the next available closest crew is dispatched to these emergencies as efficiently as possible. This applies not only to a potential incident involving the battery storage project but to all emergencies the fire department responds to daily. We are fully committed to maintain the highest standards of safety and readiness.

Slide 34



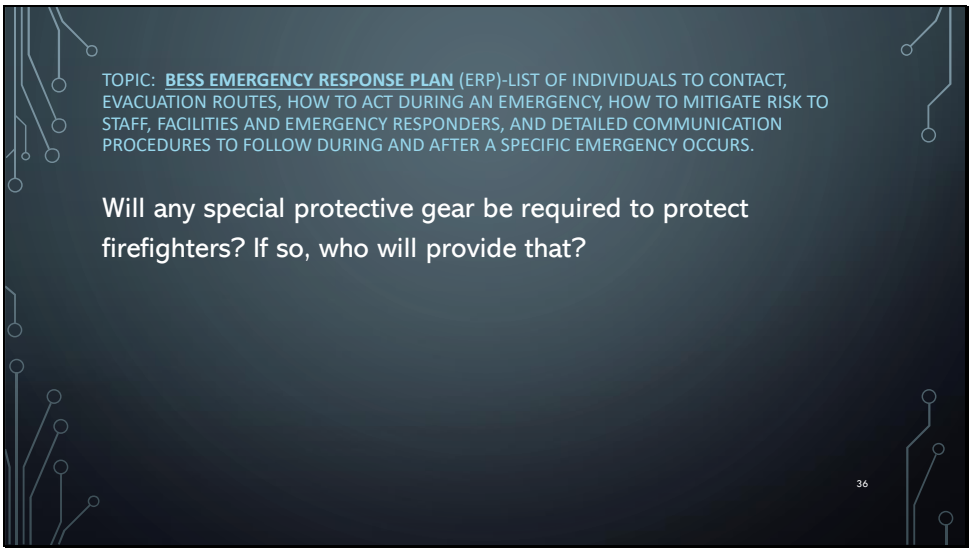

Since we would not be fighting a BESS fire directly, our current firefighting gear should be sufficient. What we may need to do is upgrade our gas metering devices (air monitoring) for the specific gasses that could be produced in these fires. We are currently looking at some of the new meters for home battery systems and electric vehicles, which, if they cause a lithium-ion fire, we would need to monitor. For the most part fires at this facility would be treated as a defensive fire (Protecting exposures). The fact is we will not commit our firefighters into the facility unless there was an immediate life threat. Risk a lot to save a lot, risk nothing to save nothing.

Slide 35



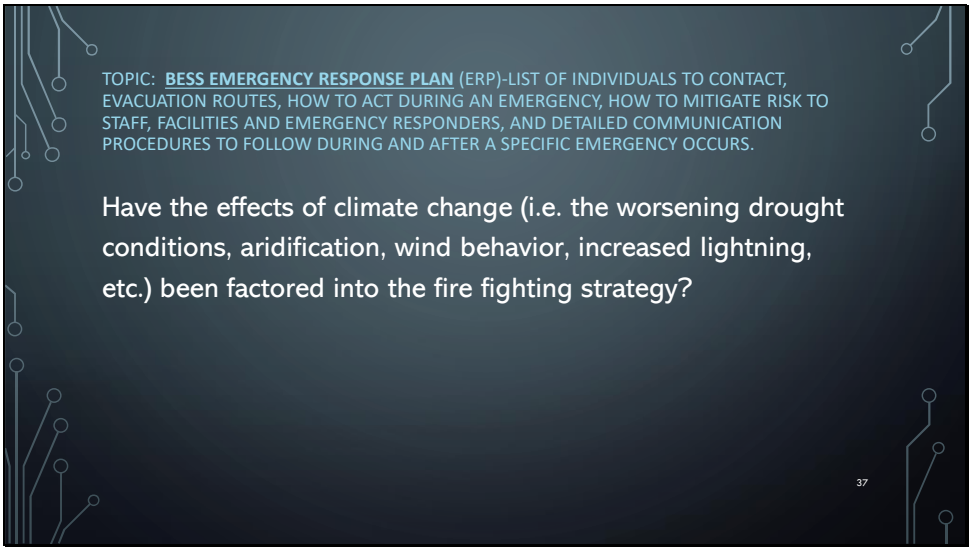

The fire department would initially monitor the air while on-scene; applicant is to provide responders that are specialized in these systems.

Slide 36



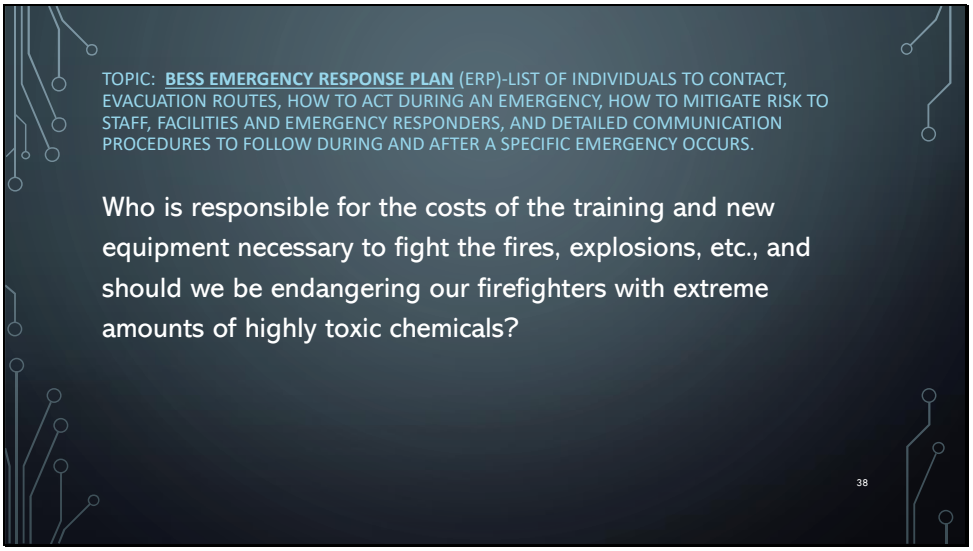

Our current protective gear should be sufficient *see previous answer.

Slide 37




The fire department was concerned about these conditions long before BESS in the county. We cannot change these weather events, but we have taken steps to provide more safety for our staff. One example is a robust firefighter rehabilitation policy. Additionally, what climate change has truly caused is we have shifted from a fire ‘season’ to a year round fire risk in our state. This has been acknowledged and is contributing to different mitigation approaches.

Slide 38




Firefighters are already exposed to many, if not all, of these harmful substances. We have policies and procedures to reduce the harm to our staff. Second sets of gear and industrial extractors are at the stations—SCBAs to prevent inhalation of gases.

Concerning our response times, several factors can affect them, including ongoing calls or incidents such as structure fires, wildland fire or standard medical calls, etc. However, we have systems in place to ensure the next available closest crew is dispatched to these emergencies as efficiently as possible. This applies not only to a potential incident involving the battery storage project but to all emergencies the fire department responds to daily.

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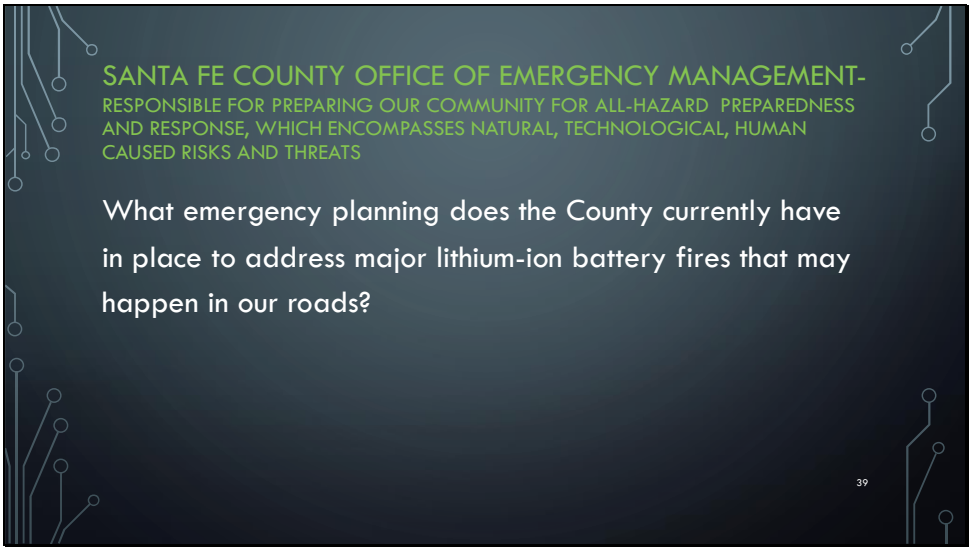
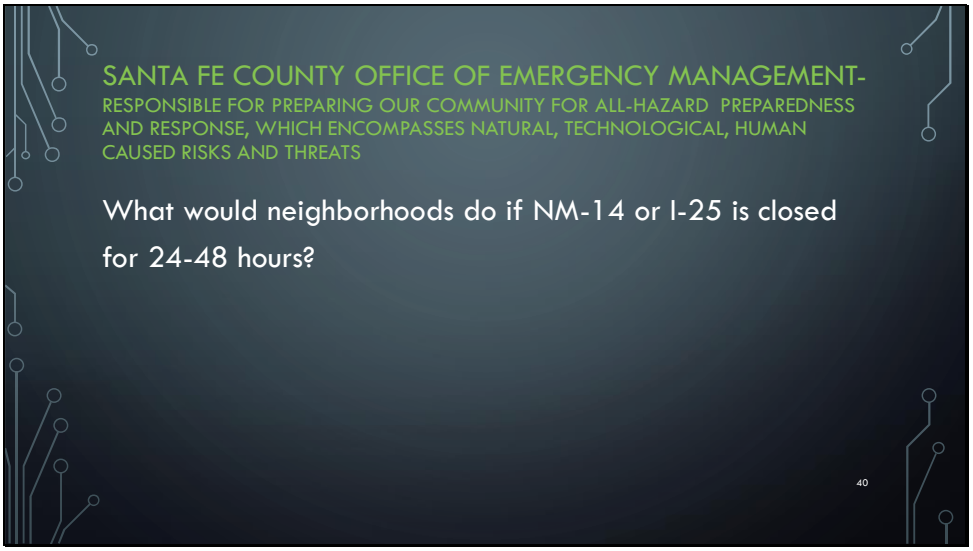



These concerns are being addressed on the traffic congestion/road closure side in the current rewrite of the Emergency Operations Plan that is currently taking place.

Slide 40




Depending on the location traffic would be diverted to seek alternate routes such as NM 285 to NM 41 or I 25 or NM 14; all of which have access to I 40 and therefore able to reroute traffic depending on the location of the incident/emergency.

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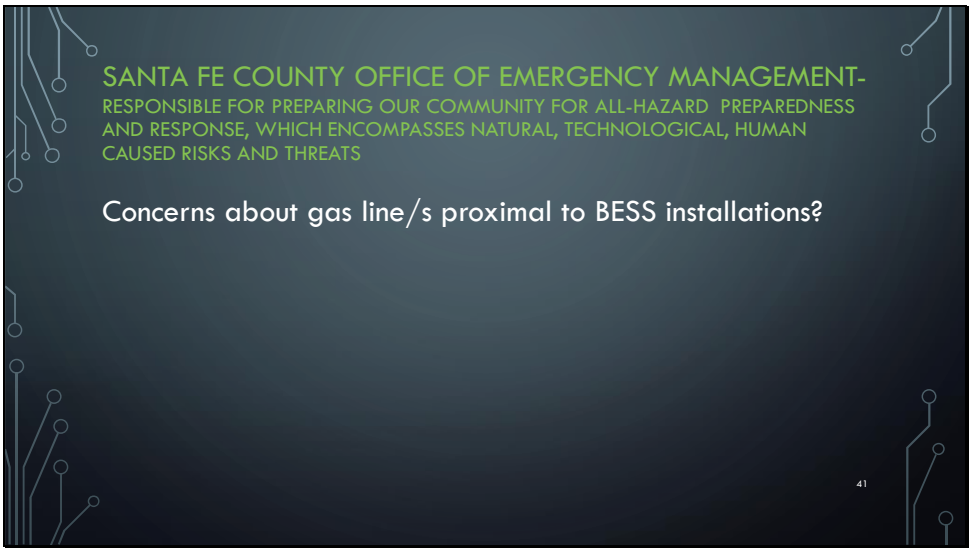


OEM and responding officials would utilize the Emergency Response Portal to identify and collaborate with pipeline owners before, during, and after an emergency.

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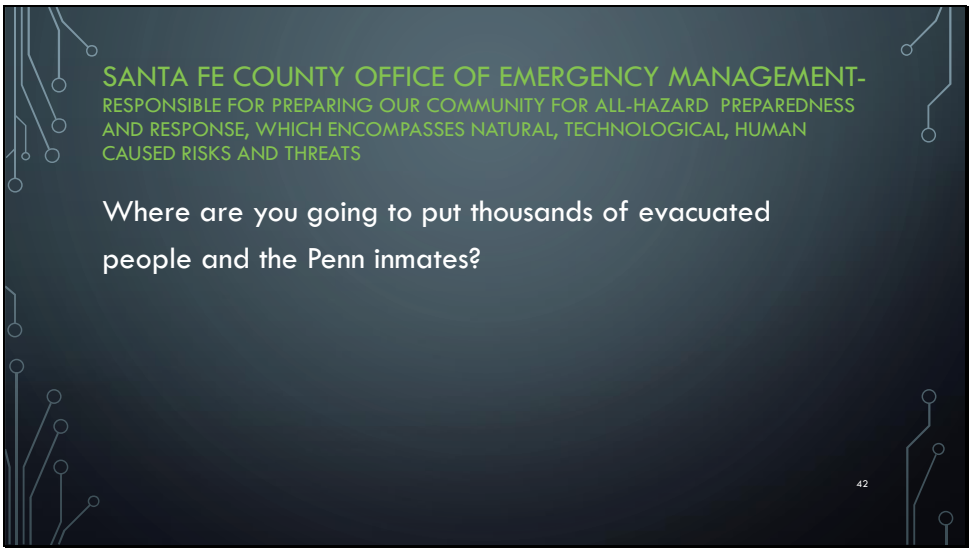


Evacuated plans are also part of the rewrite of the Emergency Operations Plan (EOP) along with implementation of Evacuation Zones. Collaboration with the New Mexico State Corrections Emergency Manager would also be available if needed.

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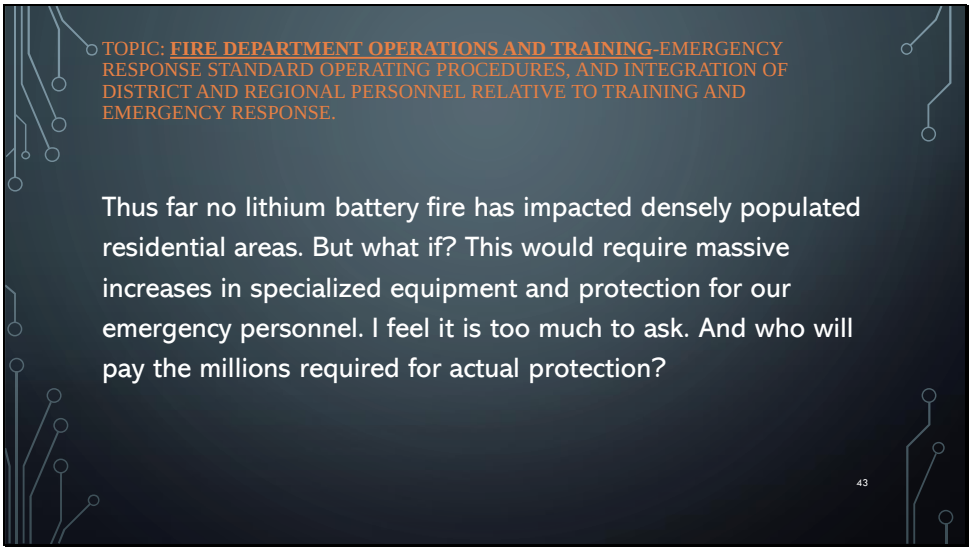


The best practice for fighting a BESS facility is to take a defensive posture and protect the exposures. This tactic does not require a great deal of specialized equipment and is a practice we currently use when the safety of our staff demands it. The Fire Department would not directly engage the BESS fire but protect the surrounding area. I would expect the Department to need equipment to alert/monitor for hazardous gases produced by burning BESS components. I don't know the cost of this equipment, but I doubt it would be in the millions. Since the owner of the BESS system must respond with a team/expert, it would stand to reason that their team would have the ability to monitor the environment.

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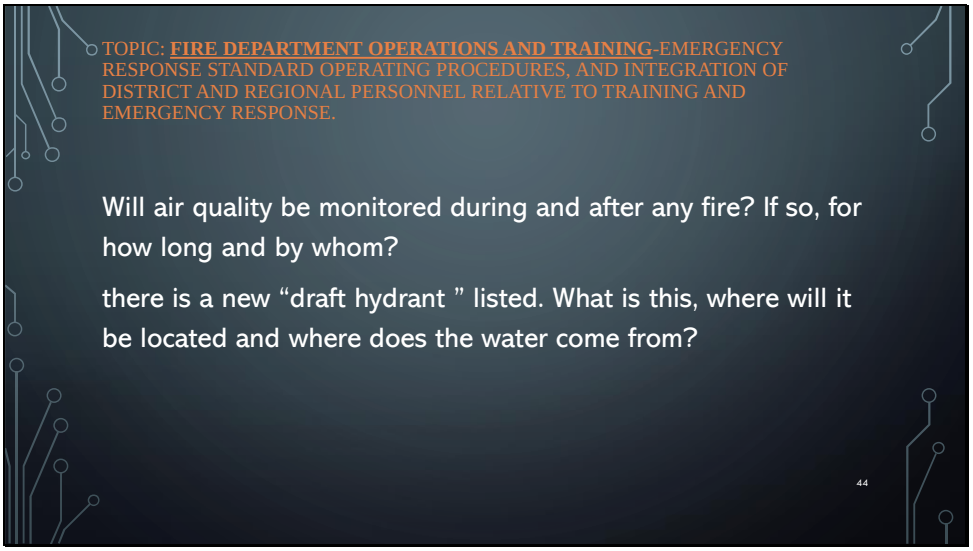


The fire department would initially monitor the air while on-scene; applicant is to provide responders that are specialized in these systems.
A draft hydrant will be attached to a 30,000 gallons water storage tank located near the access road that leads to the BESS.  Draft fire hydrants are used by fire departments to draft/suction water from a storage tank for fire protection and mitigation measures

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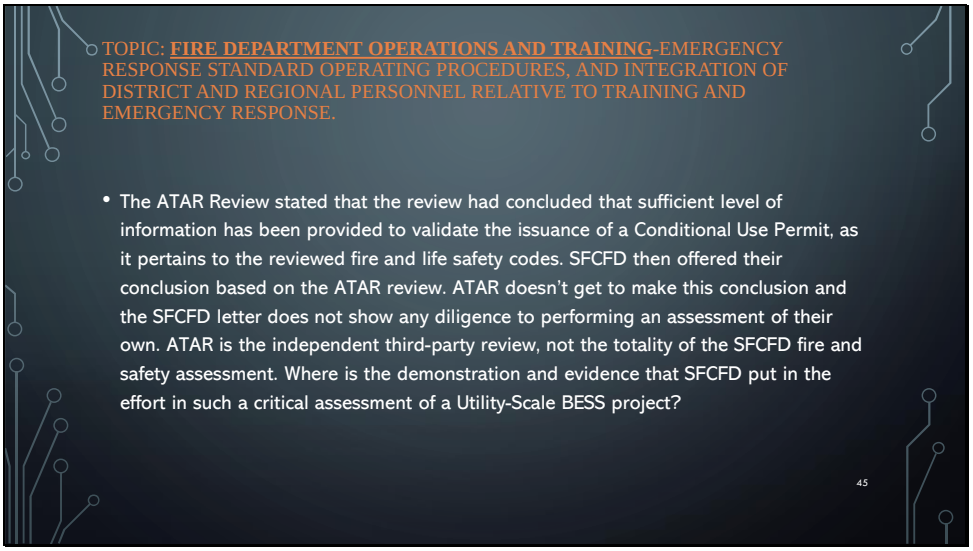


The fire department diligently adopted the latest edition of the IFC and NFPA 855 2020 edition on august 29th 2023 by way of SFC Ordinance 2023-06. Weeks after the aforementioned adoption, the fire department received suggestions from interested stakeholders that the newer 2023 edition of NFPA 855 would be better suited to ensure the latest requirements on fire and life safety mitigation measures. The fire department responded by diligently and swiftly adopting the 2023 edition of NFPA 855, and subsequent newer editions as they are published, on December 13th 2023 via SFC Ordinance 2023-09 . The fire department has also attended BESS webinars and training courses. The fire department does not claim to be an expert on the BESS subject matter, hence why Santa Fe County Fire Department (SFCFD) retained the services of ATAR Fire to leverage the expertise of their personnel as it pertains to Battery Energy Storage System (BESS) fire and life safety aspects. We recognize that not every Fire Department can have the detailed expertise required across the totality of fire and life safety hazards that may be present in various projects. Similar to other Jurisdictions' protocols, SFCFD retained the services of an outside, third-party engineering firm with specific technical expertise in BESS. This is commonplace for many Fire Departments, even those in large cities, as this method provides an economically prudent method of having specialized technical expertise available as needed, rather than retaining a large and permanent staff that burdens the county's limited funds. This also ensures financial prudency of our constituents' tax dollars.

ATAR Fire personnel are licensed Fire Protection Engineers in the State of New Mexico (and others), and collectively have been working in the Fire Protection Engineering field for more than 40 years. They have specific expertise in BESS, with the Principal Engineer for

ATAR Fire being a voting alternate on the NFPA 855 Technical Committee, as well as being a technical member of battery related product safety standards such as UL 9540, UL 9540A, UL 1973, UL 1487, and CSA C801. ATAR Fire personnel have written Hazard Mitigation Analysis, performed 3rd party reviews Hazard Mitigation Analysis and overall ESS projects, written Emergency Response Plans, trained over 100 fire department personnel in hands on energy storage system response, and are experienced in the design of all safety systems related to energy storage system systems. Both Fire Protection Engineers providing support through ATAR Fire serve or have served as Authorities Having Jurisdiction (AHJ's) for over 10 years, have experience teaching NFPA 855 and the International Fire Code (having taught NFPA 855 to over 600 AHJs and engineers in 2024), and in reviewing project construction documents for BESS installations. ATAR Fire personnel have presented at national battery safety conferences such as the 2024 Energy Storage Safety and Reliability Forum.

Whereas the ATAR Fire Report concluded that issuance of the Conditional Use Permit (CUP) was reasonable based on documents submitted for review, the ATAR Fire Report did not state that the project was at this point compliant with the breadth of applicable Codes and Standards. The project construction documents still require full and complete development, which are not typically available during the CUP process. The CUP process grants the applicant the authority to pursue the development of project documents for construction; however, it does not grant the applicant a construction permit. The CUP application approval authority lies with the SFC Planning Commission or Board of County Commissioners. Should this CUP application be approved by the governing body, the fire department will exhaustively review, in collaboration with SME, and require compliance with the highest level of safety in accordance with local, state, and national codes and standards. The full and complete construction document package must, then, be submitted for review and approval by the SFCFD prior to project construction commencing. This is established in Chapter 1 of the Fire Code as adopted by the SFCFD. The project documents that will be submitted for construction permit will be, again, rigorously evaluated for compliance with the adopted Codes and Standards, as are all projects within Sante Fe County. ATAR Fire's scope is for their expertise in the fire and life safety hazards specific to BESS installations. Santa Fe County personnel retain the additional project scope expertise in house.

The ATAR Fire Report does not approve the CUP application, nor will future reports approve the construction drawing package. The retention of ATAR Fire by the SFCFD ensures that Fire Protection Engineers with specific experience, knowledge, and expertise in the BESS field are engaged to support the SFCFD. This will ensure an elevated level of safety, scrutiny, and transparency of the project for our constituents. The SFCFD is knowledgeable in the fire and life safety hazards associated with BESS installations; however, we believed it was prudent in this case to take the extra steps of hiring outside experts who have a detailed and experienced level of understanding of these complex systems.

The fire department is not recommending for or against this CUP application. The ultimate purpose of this meeting is to engage with SFC interested stakeholders, as described in the

2023 edition of NFPA 855 Annex G.3, to hear their perspective and input on this matter and to ensure transparency.

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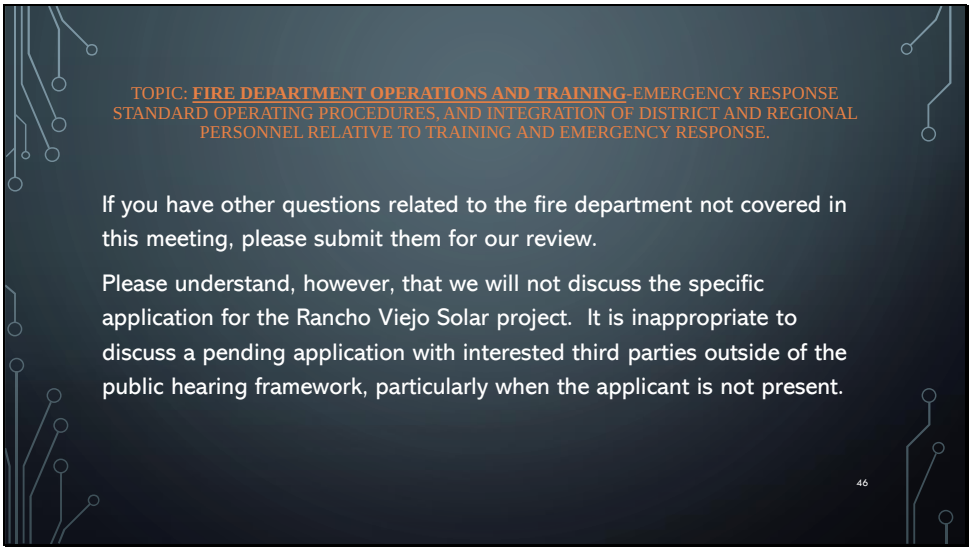
TOPIC: FIRE DEPARTMENT OPERATIONS AND TRAINING-EMERGENCY RESPONSE STANDARD OPERATING PROCEDURES, AND INTEGRATION OF DISTRICT AND REGIONAL PERSONNEL RELATIVE TO TRAINING AND EMERGENCY RESPONSE.
If you have other questions related to the fire department not covered in this meeting, please submit them for our review.
Please understand, however, that we will not discuss the specific application for the Rancho Viejo Solar project. It is inappropriate to discuss a pending application with interested third parties outside of the public hearing framework, particularly when the applicant is not present.
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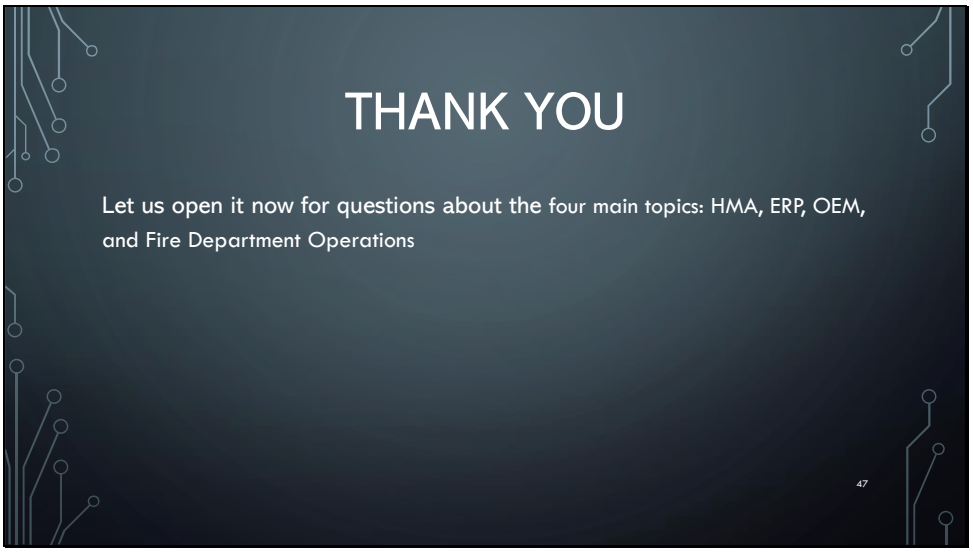
THANK YOU
Let us open it now for questions about the four main topics: HMA, ERP, OEM, and Fire Department Operations
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