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**What is proposed?**

- Vistra Energy proposed a 600MW, 2,400MWh Battery Energy Storage Facility.
- Utilizes 24 acres of a 107 acre property for this project.
- Property is old oil tank site on power plant property.
- Proposal is designed with 3 buildings to house batteries.
- Alternative model utilizing 174 cargo style enclosures.

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## Proposed project

- Each building contains 2,400 battery racks.
- 60,000 battery modules per building.
- 2-story buildings each 91,000 sqft.
- Building size 350 ft x 260 ft, 30 ft.



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## Enclosure alternative

- 174 cargo container style enclosures.
- Each enclosure holds 46 battery racks, 736 battery modules.
- Groups of 8 enclosures spaced 10 ft apart.
- Each group of 8 spaced 25 ft from the next group.



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## What is an Offsite Consequence Analysis



EVALUATE POTENTIAL RISKS TO THE PUBLIC IN EVENT OF A FIRE.



PROVIDES ADDITIONAL INFORMATION TO AREA HAVING JURISDICTION (CITY OF MORRO BAY) FOR SITING CONSIDERATIONS.



ESTIMATE SAFE DISTANCES BASED ON KNOWN HAZARDS.



ANALYZE POTENTIAL AIRBORNE EMISSIONS TO EVALUATE IMPACTS TO SURROUNDING COMMUNITY.

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## Components of an Offsite Consequences Analysis



Evaluates potential risks to public in event of a fire.



Assumes a maximum **credible** fire event.



Assumes all active protection features fail.



Utilizes atmospheric conditions that would produce the highest concentration levels.



Assumes fire is closest to nearest residence and occupant is outside for duration of event.



Identifies the furthest distance where serious injuries from short-term exposures would no longer occur.

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## What is not evaluated



ACTIVE FIRE SUPPRESSION ACTIVITIES.



FLOOD, EARTHQUAKE, OR OTHER SYSTEM FAILURES.



GROUND BASED CONTAMINATION, EX. WATER RUN OFF FROM FIREFIGHTING ACTIVITIES.



IMPACTS TO ANIMALS, MARINE LIFE, ENVIRONMENT.

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## Methodology and Assumptions

-  Evaluates gasses known to be in smoke plumes from various Lithium-Ion batteries used in energy storage.
-  Exposure guidelines utilized are Acute Exposure Guideline Levels (AEGLs) and Emergency Response planning Guidelines (ERPG's).
-  Atmospheric conditions that would produce the highest concentrations of pollutants at ground level.
-  Assumes no evacuations and sensitive receptors are outside for highest exposure concentration levels.

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## Air pollutants evaluated

Hydrogen  
Fluoride (HF)

Hydrogen  
Chloride  
(HCl)

Hydrogen  
Cyanide  
(HCN)

Carbon  
Monoxide  
(CO)

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## Definitions of Acute Exposure Guideline Levels (AEGLs)

AEGL-1 is the airborne concentration (expressed as parts per million (ppm) or mg/m<sup>3</sup>) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.

AEGL-2 is the airborne concentration (expressed as ppm or mg/m<sup>3</sup>) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.

AEGL-3 is the airborne concentration, expressed as ppm or milligrams per cubic meter (mg/m<sup>3</sup>), of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death.

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## Definitions of Emergency Response Planning Guidelines (ERPGs)

ERPGs identify the concentration levels at which people will begin to experience health effects if exposed to a hazardous chemical for 1 hour

ERPG-1 is the maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing more than mild, transient adverse health effects or without perceiving a clearly defined objectionable odor.

ERPG-2 is the maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.

ERPG-3 is the maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing or developing life-threatening health effects.

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## Exposure limits evaluated

- AEGL-2 or the ERPG-2 were chosen as the exposure limits.
- Duration of exposure was evaluated at 10- minutes, 30- minutes, 60- minutes, 8- hours based on exposure guideline levels.
- AIRSCREEN dispersion model was chosen for this evaluation.
- AERSCREEN produces estimates of "worst-case" 1-hour concentrations for a single source, without the need for hourly meteorological data, and also includes conversion factors to estimate "worst-case" 3-hour, 8- hour, and 24-hour concentrations.
- Assumes receptor is exposed for the entire duration.

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## Distances to sensitive receptors (Proposed Project)



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## Distances to sensitive receptors (Enclosure Alternative)



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# Concentrations at closest residence

CO	AEGL-2 8-hr	AEGL-2 60-min	ERPG-2 60-min	AEG-2 30-min	AEGL-2 10-min
Exposure Guideline (ppm)	27	83	350	150	420
Enclosure Alternative					
Concentration at the Closest Residence (ppm)	10.8	12	12	14.57	19.81
Concentrations at the Closest Residence as a Percentage of the Limit	40%	14%	3%	10%	5%
Proposed Project					
Concentration at the Closest Residence (ppm)	22.13	24.59	24.59	29.86	40.61
Concentrations at the Closest Residence as a Percentage of the Limit	82%	30%	7%	20%	10%

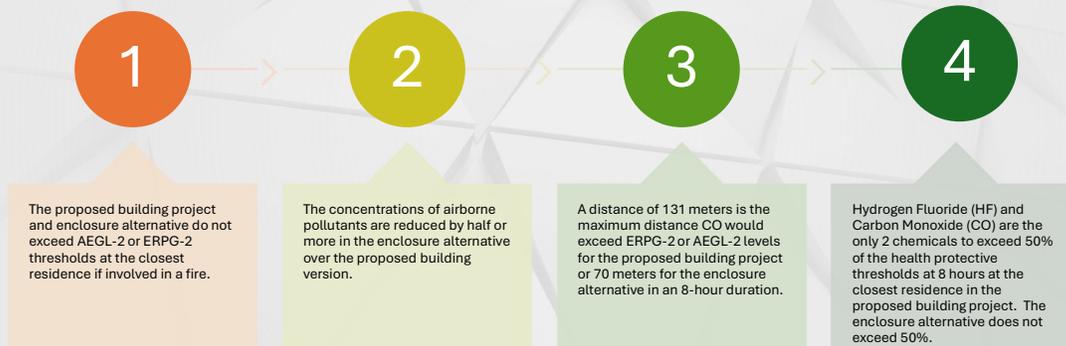
HF	AEGL-2 8-hr	AEGL-2 60-min	ERPG-2 60-min	AEG-2 30-min	AEGL-2 10-min
Exposure Guideline (ppm)	12	24	20	34	95
Enclosure Alternative					
Concentration at the Closest Residence (ppm)	3.7	4.11	4.11	4.99	6.79
Concentrations at the Closest Residence as a Percentage of the Limit	31%	17%	21%	15%	7%
Proposed Project					
Concentration at the Closest Residence (ppm)	7.59	8.43	8.43	10.23	13.92
Concentrations at the Closest Residence as a Percentage of the Limit	63%	35%	42%	30%	15%

HCl	AEGL-2 8-hr	AEGL-2 60-min	ERPG-2 60-min	AEG-2 30-min	AEGL-2 10-min
Exposure Guideline (ppm)	11	22	20	43	100
Enclosure Alternative					
Concentration at the Closest Residence (ppm)	0.46	0.51	0.51	0.62	0.85
Concentrations at the Closest Residence as a Percentage of the Limit	4%	2%	3%	1%	1%
Proposed Project					
Concentration at the Closest Residence (ppm)	0.95	1.05	1.05	1.28	1.74
Concentrations at the Closest Residence as a Percentage of the Limit	9%	5%	5%	3%	2%

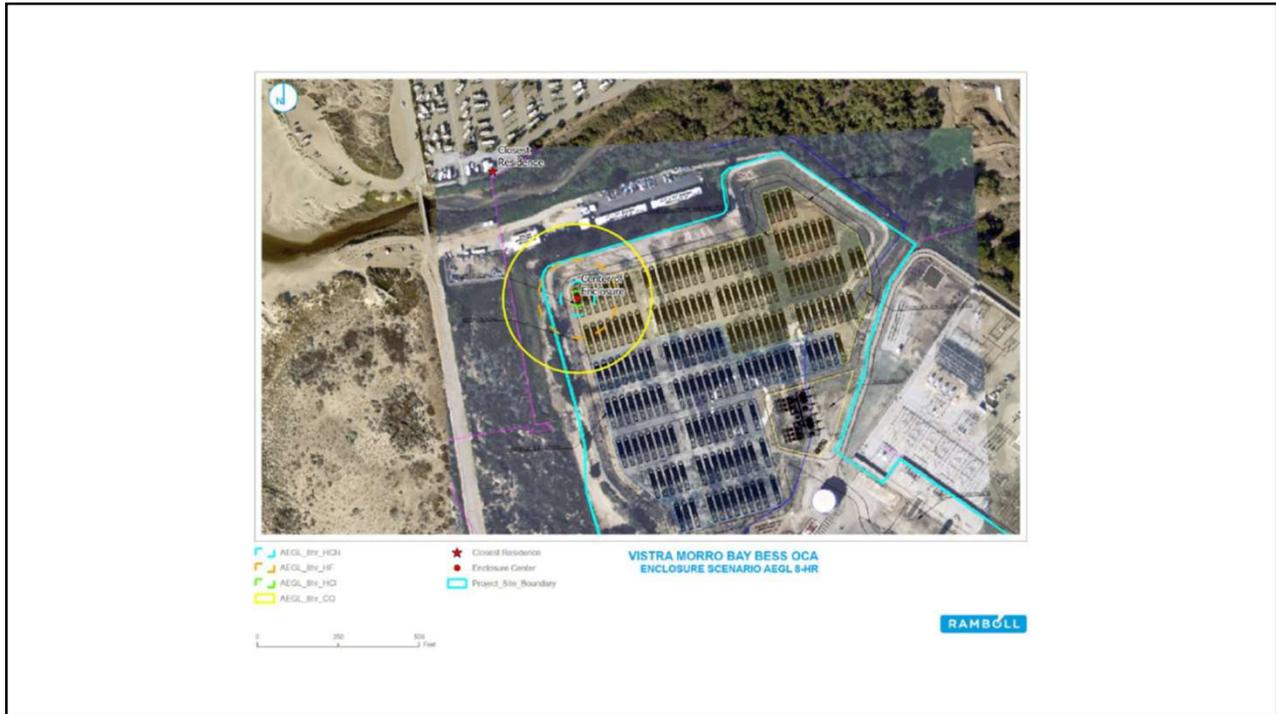
HCN	AEGL-2 8-hr	AEGL-2 60-min	ERPG-2 60-min	AEG-2 30-min	AEGL-2 10-min
Exposure Guideline (ppm)	2.5	7.1	10	10	17
Enclosure Alternative					
Concentration at the Closest Residence (ppm)	0.3	0.34	0.34	0.41	0.56
Concentrations at the Closest Residence as a Percentage of the Limit	12%	5%	3%	4%	3%
Proposed Project					
Concentration at the Closest Residence (ppm)	0.62	0.69	0.69	0.84	1.14
Concentrations at the Closest Residence as a Percentage of the Limit	25%	10%	7%	8%	7%

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# Findings



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