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*Comment Received From: Wendy Breckon
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Comment Opposing Approval of Vaca Dixon BESS opt-in Application

See attached

Additional submitted attachment is included below.

Vaca Dixon Power Center- Opposition

This project would be constructed at the corner of Willow Road and Kilkenny Road, adjacent to Interstate 80 and residents of Vacaville.

a. **Foreseeable Harm caused by Lithium-Ion Storage systems Is Not Adequately Considered**

Lithium-Ion Battery Storage systems are known to catch fire in a chemical reaction called "thermal runaway". These fires create hazmat conditions, cause evacuations and often burn for several days at a time. Just recently, in 2024 a lithium-ion battery storage system in Otay Mesa, CA burned for 14 days. See 90 lithium-ion battery incidents at https://storagewiki.epri.com/index.php/BESS_Failure_Incident_Database. The following harms occur from fire caused at these facilities.

- Ejection of toxic gas (for example, hydrogen cyanide), shrapnel and/or particulates (violent cell venting)
- Hazmat conditions and fires burn at extremely high temperatures
- Smoke affecting sensitive groups
- Potential toxic run-off to creek or waterway
- Creation of Brownfields (toxic sites)
- Freeway shut-downs and decreased economic productivity when roads are blocked off and people are shut-in to their homes and businesses. See e.g., <https://www.cbsnews.com/sanfrancisco/news/tesla-moss-landing-power-storage-facility-fire-shuts-down-highway-1-residents-told-shelter-in-place/>
- Ties up first responders and resources for days at a time
- Injured firefighters

As a result of thermal runaway, firefighters have been injured. For example, on April 19, 2019, In Surprise, Arizona, one male career Fire Captain, one male career Fire Engineer, and two male career Firefighters received serious injuries as a result of cascading thermal runaway within a 2.16 MWh lithium-ion battery energy storage system (ESS) that led to a deflagration event. See https://efaidnbmnnnibpcjpcglclefindmkaj/https://fsri.org/sites/default/files/2021-07/Four_Firefighters_Injured_In_Lithium_Ion_Battery_ESS_Explosion_Arizona_0.pdf.

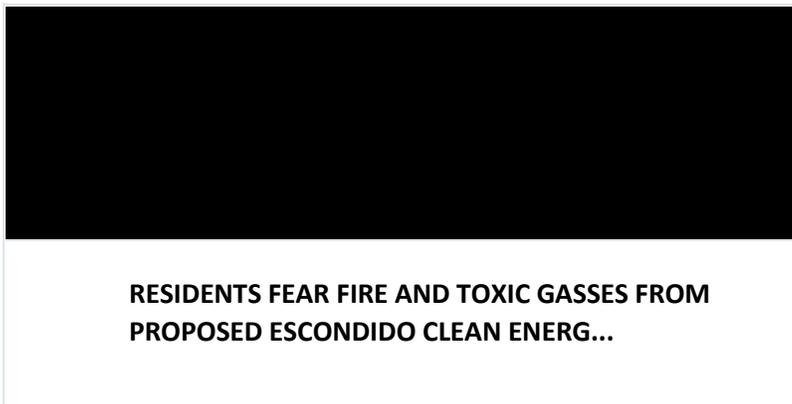
In addition, community members are at risk and freeways are closed when thermal runaway occurs in BESS facilities. See for example, <https://www.cbsnews.com/sanfrancisco/news/tesla-moss-landing-power-storage-facility-fire-shuts-down-highway-1-residents-told-shelter-in-place/>

The application does not address the lack of a County plan for a BESS Lithium-ion fire, the lack of sufficient fire fighting equipment and resources, how toxics or hazardous waste will be safely handled, or an emergency plan to protect people from the consequences of thermal- runaway. We note that the applicant's brief conversation with the Dixon Fire Department, where it is unknown whether that Fire Department has any experience or knowledge with lithium-ion battery fires, is irrelevant and does not

provide sufficient evidence that the surrounding community is prepared to address the risks associated with this proposed project.

b. Harm to Community has not been considered

The BESS facilities have noise levels that are considered hazardous (See NFPA attachment), and due to the risk of fire and toxic air, communities have been organizing against BESS facilities. See e.g. [RESIDENTS FEAR FIRE AND TOXIC GASSES FROM PROPOSED ESCONDIDO CLEAN ENERGY BATTERY SITE | East County Magazine](#). As a result of a BESS in a community, property values decrease, people move away, and the risk is the creation of blighted, disadvantaged community. In Vacaville, California, alone, energy companies are planning to locate three to four mega-BESS facilities. This cost has not been taken into account. Who will want to live here? Why shouldn't the local community have their elected officials decide if this major change in their community should be permissible rather than politically appointed commissioners with no ties to the community?



Firefighters in Solano County are generally ill-equipped to deal with a lithium-ion battery explosion or fire that emits toxic gasses. This is not a usual hazardous waste event. Equipment and training needs would need to be explored in detail as well as costs to the municipality. The bottom line is that BESS facility should be far from sensitive receptors, including schools, hospitals and residential areas due to the potential toxin exposure during an incident. The Vacaville Fire Department's union opposed the Corby project for this reason.

c. Harm to the Environment has not been considered

As mentioned above, assumptions need to be reevaluated. The alleged need to create many BESS mega- storage facilities on agricultural land and other open space, is a threat to the environment. In this case, they are proposing construction on prime agricultural land that is recognized by the State and County as such. Due to foreseeable thermal run-way at these facilities, toxics are released into the surrounding air, water, and land. The cost for fighting the fire and cleaning-up hazardous waste has not been taken into account in assuming these facilities are a public benefit. Furthermore, when the LLC that owns the BESS goes out of business, there is often no plan for decommissioning the facilities. The removal of the very heavy lithium-ion batteries is dangerous, and there can be the need to do hazardous waste clean-up. For example, the Moss-Landing BESS has exploded three times and is a hazardous

waste fiasco. Finally, the Department of Defense has discovered that BESS facilities can be cyber-attacked, and weaponized by heating the batteries. For further information, see attachment, "Risks of Lithium-ion Battery Energy Storage Systems (BESS)". The Bottom line is that Lithium-ion BESS facilities should not be placed on prime agricultural land where that land and the surroundings could be impacted by toxic water and/or land contamination in the event of a thermal runaway incident.

d. Market Manipulation and Proof of Negligible Benefit of Battery Storage Facilities

Please read the LA Times article, "*Solar power glut boosts California electric bills. Other states reap the benefits.*"

This article highlights how California ratepayers and taxpayers are being overcharged and scammed by California's energy sector. California ratepayers pay roughly twice the national average for energy, and "*when batteries are added to solar facilities, the cost is twice as expensive as solar alone.*" (Quote from Andrew Chien, a computer science professor at the University of Chicago).

Another concerning statement in the article from "Officials in the governor's office" who issued a statement saying the curtailments are often because of "congestion on transmission lines, rather than a statewide oversupply of power." Thus, adding more battery storage facilities will only cause more congestion of the transmission lines.

California is making so much solar energy that large commercial operators "*are increasingly forced to stop production*" and even **pay** other states to take excess energy. The article states that "*In the last 12 months, California's solar farms have curtailed production of more than 3 million megawatt hours of solar energy...*" This is enough to power 518,000 homes in California per year and worth roughly \$1 billion dollars. Furthermore, the amount of energy we waste each year is increasing at an alarming rate. California ratepayers have essentially paid for curtailed energy that goes to ratepayers in Arizona, Washington, and New Mexico. Federal taxpayers then pay for credits when the energy goes on the grid.

There are also serious concerns that battery storage will facilitate market manipulation with regard to trading of energy stored in batteries (which is supposed to be deployed at night). Market manipulation is enriching those that trade in energy, and hurting the middle class and poor in California communities. The energy trading market is largely hidden from the public. The entire purpose of battery storage facilities appears to be storing renewable energy to manipulate the market. When the transmission lines are congested, energy traders make more money and ratepayers pay more. Thus, the industry is incentivized to build more storage.

"*Last year, prices plunged to negative \$145 per megawatt-hour or below as the sun was shining...then the sun sets. And power prices can spike to \$50, \$100 or far more.*" Therefore, there's a real concern for market manipulation for prices of energy that is stored by batteries since that stored energy is used after the sun sets (i.e., night time). That means green energy paid for by California electricity customers is sent away, lowering bills for residents of other states. Arizona's largest public utility reaped \$69 million in savings last year by buying from the market California created to get rid of its excess solar power. The utility returned that money to its customers as a credit on their bills. Also reaping profits are electricity traders, including banks and hedge funds. The increasing oversupply of solar power has created a situation where energy traders can buy the excess at prices so low they become negative, said energy consultant Gary Ackerman, the former executive director of the Western Power Trading Forum.

That means the solar plant is paying the traders to take it. "This is all being underwritten by California ratepayers," Ackerman said.

In order to create enough battery storage to soak up the wasted 3 million megawatt hours of curtailed energy, irreparable harm to the environment and communities would occur all across the state. The State would need to build battery storage on over 625 square miles of land! This is in addition to the miles of solar projects increasingly taking up wildlife habitat and farmland.

The California ratepayers and taxpayers should not be further burdened by market manipulation due to energy trading and BESS facilities, and a thorough study of this issue should occur before further harm is caused. The State Auditor should be requested to investigate battery storage facilities that received state grants/funding or other government incentives for any waste, fraud or abuse.

In addition, this project will not benefit the surrounding community because the project applicant has a contract with San Francisco's PUC for the sale of its energy. Given the above analysis involving market manipulation, there is no proven community benefit to the City of Vacaville, the County, its ratepayers and taxpayers associated with this project. Accordingly, the application is incomplete.

I appreciate your consideration of my concerns, and please feel free to contact me at wbreckon7@yahoo.com should you have any questions or wish to discuss the above.

Sincerely,

Wendy Breckon, Vacaville Resident

Attachment:

Below is a quote from an NFPA document entitled, "Risk of Lithium Battery Storage Systems".

"There are no safe methods of preventing thermal fire and the release of toxics in Lithium-Ion Battery Storage Systems. There are safer alternative battery storage systems that have not been considered. Additional submitted attachment is included below. Risks of Lithium-ion Battery Energy Storage Systems (BESS) What are the hazards associated with lithium-ion BESS?

Thermal Runaway/Failures (Battery Fires) Rapid uncontrolled release of heat energy from a battery cell; it is a condition when a battery creates more heat than it can effectively dissipate. Thermal runaway in a single cell can result in a chain reaction that heats up neighboring cells. As this process continues, it can result in a battery fire or explosion. This can often be the ignition source for larger battery fires.

Toxic and Flammable Gases Generated

Most batteries create toxic and flammable gases when they undergo thermal runaway. If the gases do not ignite before the lower explosive limit is reached, it can lead to the creation of an explosive atmosphere inside of the ESS room or container.

Fires can burn for days and can reignite later

Additionally, there could also be stranded energy. As with most electrical equipment there is a shock hazard present, but what is unique about ESS is that often, even after being involved in a fire, there is still energy within the ESS. This is difficult to discharge since the terminals are often damaged and presents a hazard to those performing overhaul after a fire. Stranded energy can also cause reignition of the fire hours or even days later.” Source: NFPA (<https://www.nfpa.org/forms/energy-storage-systems-safety-fact-sheet>)

What toxins could be in the smoke from a lithium battery fire? “They can feature high percentages of hydrogen, and compounds of hydrogen, including hydrogen fluoride, hydrogen chloride and hydrogen cyanide, as well as carbon monoxide, sulphur dioxide and methane, among other dangerous chemicals. In terms of hazards to the well-being of those in the vicinity of such an incident, one particularly problematic component is hydrogen fluoride (HF). Although HF is lighter than air and would disperse when released, a cloud of vapor and aerosol that is heavier than air may be formed (EPA 1993). On exposure to skin or by inhaling, HF can result in skin burns and lung damage that can take time (hours to weeks) to develop following exposure. HF will be quickly absorbed by the body via skin and lungs depleting vital calcium and magnesium levels in tissues, which can result in severe and possibly fatal systemic effects. The hydrogen content of the released gases can give rise to vapor cloud explosion risks which have the potential to cause significant damage.”

Source: <https://www.strategic-riskglobal.com/catastrophe-risk/spotlight-on-health-risks-from-gases-released-in-lithium-ion-batteryfires/1445595.article>

How often does this happen?

Since 2018, there have been 75 documented large scale battery storage fires worldwide and 21 battery storage fires in the USA and the numbers are increasing. National Electric Power Research Institute (NEPRI) has created a database that documents these incidents in one place. The database has the location, size of system, age of system and an accompanying news article attached. See link: Source: National Electric Power Research Institute Database on BESS fires: https://storagewiki.epri.com/index.php/BESS_Failure_Event_Database

Additional Information

“A six-year audit by Denver-based consultancy Clean Energy Associates (CEA) found quality issues in components that identify and suppress fire in 26% of battery energy storage systems (BESS) and defective components that manage temperature in 18%.” (Source: <https://www.rechargenews.com/energy-transition/fire-safety-tech-manufacturing-defects-in-more-than-a-quarter-of-grid-battery-storage-systems-study/2-1-1607937>) A newer battery type, lithium iron phosphate (LFP) has a slightly higher temperature tolerance and is frequently being used instead of lithium-ion chemistry for large scale BESS. (Source examples: manufacturer fact sheet for lithium-ion Batteries: Fluence 113 F, vs. Powin manufacturer fact sheet for LFP batteries 122 F) However, there have been recent battery failure events using LFP as noted in the EPRI database as recent as October 2023. Five out of the seven lithium BESS fires that occurred in 2023 were LFP chemistry. Four out of five of those systems were less than two years old. Source: Source: National Electric Power Research Institute Database on BESS fires: https://storagewiki.epri.com/index.php/BESS_Failure_Event_Database . . .”