

Aramis Q&A

Q: Why can't you just build 100 MW of rooftop solar instead?

A: California and Alameda County are already well on their way to maximizing the potential of rooftop solar establishments, but rooftop alone is not sufficient to meet the state's ambitious renewable energy and greenhouse gas reduction goals.

The California Public Utilities Commission (CPUC) estimates that over 100 gigawatts of utility-scale solar is needed by 2050. East Bay Community Energy (EBCE) studied the potential for rooftop solar installation, both residential and commercial, and concluded it would take aggregating multiple identified locations to match the electricity that will be generated from the Aramis project alone. This would result in a dramatic loss in economies of scale that the Aramis project is able to capture.

Additionally, rooftop systems cost four to six times as much as utility-scale systems. Beyond the dramatic difference in cost, the Aramis project incorporates 100 MW of battery storage technology, which ensures that the renewable energy generated at the site will be available when and where Bay Area residents need it, not just when the sun is shining brightest. Rooftop systems are generally inefficient because they're constrained by the location, slope, aspect, and shading attributes of the building.

The Aramis solar energy system is optimally oriented to capture the most direct sunlight, and by incorporating single-axis trackers, the panels will capture more of the day's solar energy, rather than just the peak solar hours. The Aramis project will deliver clean, affordable, wholesale electricity, electrical reliability, and local resiliency to EBCE and Clean Power San Francisco (CPSF). The project's electricity will be available when Bay Area homes need it most, not just when the sun is shining.

Q: Is solar permitted in the agricultural district of the East County?

A: Approximately 367 acres of the project site are designated as Large Parcel Agricultural (LPA), 22 acres are designated as Resource Management (RM), and 21 acres are designated as Water Management (WM) under the East County Area Plan. In addition to agricultural and residential, other allowed uses in the LPA land use designation include "public and quasi-public uses, solid waste landfills and related waste management facilities, quarries, windfarms and related facilities, utility corridors, and similar uses compatible with agriculture." The proposed project, inclusive of primarily solar arrays, vegetation,

compacted dirt and graveled access roads, as well as activities like equipment maintenance, sheep grazing, and honeybee foraging, are consistent with the LPA designation.

The Alameda County Planning Commission previously found that a solar electric facility would not be contrary to the specific intent clauses or performance standards established for the Agricultural District and could be permitted under a conditional use permit (CUP). The County reiterated these findings to confirm the conditional permissibility of similar solar uses under the Agricultural District for the Green Volts project, approved in 2008, and the Altamont Solar Energy Project, approved in 2011.

Q: Measure D was designed to maintain open space, which this project is in direct conflict with. How is this project not conflicting with Measure D?

A: The County has found that solar facilities are compatible with the agricultural district under Measure D. The solar facility will not involve pavement or concrete, but rather solar panels that will be mounted on I-beams driven into the soil. The project would not involve the creation of impermeable surfaces, and it would be a largely open space use - about 95% of the soils will be free of infrastructure, and when panels are at their most horizontal position, 50% of the ground surface within the arrays is visible from a bird's-eye-view. Additionally, only 410 acres of the 677-acre site will include solar and energy storage equipment. The rest will be left as open space for the enjoyment of all.

Q: Will approval of this project usher in a wave of other solar projects in the valley?

A: The Aramis Solar Project has secured the last remaining interconnection position at the PG&E Cayetano Substation as it is currently configured. A future project attempting to interconnect to the 230kV bus of the PG&E Cayetano Substation would require substantial upgrades (\$25M+) to reconfigure the substation and create a new interconnection position.

Q: Shouldn't the County adopt a solar policy before considering any individual solar project?

A: Drafting a solar policy would achieve some, but not all, of the environmental review obligations of an individual solar project proposal. For a solar policy, the County would prepare an Initial Study or an Environmental Impact Report to evaluate the opportunities and impacts of siting large-scale solar facilities throughout the County; however, the information will be coarse in scale and will not be sufficient to inform the public and decisionmakers about any particular site. The Aramis Environmental Impact Report currently being prepared by the County will include a wealth of site-specific environmental

data, information, and analysis, and will also evaluate cumulative effects of the Aramis project in combination with other potential projects. The Aramis EIR will therefore be more comprehensive and serve decisionmakers and the public much better than the development of a solar policy.

Q: Why can't we do carbon sequestration instead of building large-scale solar facilities?

A: Carbon sequestration would be wonderful! Unfortunately, we don't yet have the resources, scientific understanding, and cost-effective solutions to make sequestration a reality. In contrast, solar energy generation has emerged as one of the most affordable and reliable forms of electricity on the planet.

Q: Won't removing plants and installing solar panels eliminate the carbon sequestration qualities of the soils?

A: Contrary to popular belief, we won't be removing plants, but integrating extensive plantings into the facility. 95% of the facility is open space with plant cover, and the carbon sequestration values of the existing site will be enhanced with perennial plants as well.

Q: Climate change doesn't affect this area, so why not put solar farms where the impacts are?

A: California's CalAdapt microclimate prediction model predicts that the North Livermore Valley and Alameda County should expect average temperatures to rise by 4.7 degrees (F) by the end of the century. It predicts 18 extreme heat days (temperatures 103 degrees or above) per year by the end of the century compared with the historical average of 2 days per year. This includes predicting that 11 days--- versus 2 historically--- will reach above 105 degrees and 2 days--- versus zero historically--- will reach above 110 degrees. Climate change affects everyone, it's true, and it is already hurting disenfranchised communities far greater than any others and is predicted to continue this way. The impacts of climate change are global, but we can make local changes now by committing to contributing our fair share toward a carbon-free economy.

Q: Will the panels generate heat and change the microclimate of North Livermore?

A: Photovoltaic panels absorb light and convert it into electricity through the photovoltaic effect. The Aramis project is a photovoltaic project, not a thermal solar project. Aramis will

contain no mirrors or heat-powered turbines, unlike thermal solar systems. The Aramis project will not generate heat or change the microclimate.

Q: Won't the industrial solar facility destroy habitat for sensitive species?

A: A complete set of focused pedestrian surveys have been conducted at the Aramis site, and there are no sensitive species currently using the site other than common birds and raptors for foraging and nesting in trees lining Cayetano Creek. The project site consists of grazing and hay cultivation land that is routinely disked and has served as poor quality habitat for a majority of species that used to occupy the valley. Trees will not be removed as a part of project development, and the riparian habitat along Cayetano Creek is proposed to remain fully intact. The solar array areas of the site are proposed to be replanted with habitat enhancing vegetation, and the project fence will be wildlife-friendly, allowing species to use the site during project operations. Because of its environmentally friendly design, we anticipate that the Aramis project will improve habitat relative to baseline agricultural conditions.

Q: Will washing the solar panels create toxic runoff in Cayetano Creek?

A: The electrical and chemical components of solar panels are solid state and securely contained within glass panels. These elements cannot wash off the panels onto the ground or into surface water or groundwater. Panel washing is an extremely water-efficient operation, and will not be required if there is sufficient rainfall. During periods of prolonged drought, panels will be washed by backpack sprayers or water trucks, using only 1 gallon per panel. The panel surfaces are soiled with ambient dust, which will be washed off and settle into the onsite vegetation. The wash water will absorb into the soil or evaporate into the air and will not runoff the site. During both construction and operations, the site will be equipped with water quality Best Management Practices in compliance with our Stormwater Pollution Prevention Plan ensuring that water quality is maintained. Onsite detention basins will contain any sedimented stormwater runoff, which will not flow offsite.

Q: Are solar panels made of toxic chemicals that we will be exposed if the panels break or if there is a fire?

A: PV modules are constructed with the solar cells laminated into polymers, and the minute amounts of heavy metals used in some panels cannot mix with water or vaporize into the air. Even in the case of module breakage, there is little to no risk of chemicals releasing into the environment. Our supervisory control and data acquisition (SCADA) system will immediately alert us to a broken module, which will be replaced within 48 hours using spare parts stored on site.

Q: Aren't batteries full of toxic chemicals that will harm residents if there is a fire?

A: Either lithium ion batteries or vanadium flow batteries could be used at the Aramis site. Lithium ion batteries are the same as those used in electric cars and have been found safe and effective for automobile use. Vanadium flow batteries contain no toxic elements. All battery systems would be fully contained in electrical enclosures meeting electrical safety design standards. Each battery unit would be constantly monitored by a Battery Management System (BMS) to ensure safe operations, including individual cell temperature, voltage, current, charge and discharge parameters, and other metrics to ensure health and safety of the batteries. In the event that a battery unit has a warning or error, the BMS system immediately creates a warning or error flag for the O&M team to investigate and may shut down the particular battery unit to avoid further potential issues. If there were multiple failures in this multi-level safety system, and if a fire were to break out, an automatic fire suppression system would kick in.

Q: Will the solar facility decrease my property value?

A: An analysis of property values across the United States demonstrates that large-scale solar arrays often have no measurable impact on the value of adjacent properties, and in some cases may even have positive effects.

Proximity to solar facilities does not deter the sales of agricultural or residential land. The Aramis project will have similar characteristics to a vineyard, with panels no more than 8 feet high, and enclosed by farm-style fencing and landscaping to minimize visibility of panels.

Q: I'm all for renewables, but can't you put this somewhere else?

A: Our approach to providing clean power is to find sites with impaired soils, lacking in habitat for sensitive plants and animals and located near existing substations so additional large transmission lines aren't needed; we then work closely with the community and planning department to identify appropriate design and mitigation strategies to address issues of concerns. The Aramis renewable energy project, sited in Livermore, where there is an abundance of sunshine, is adjacent to the PG&E Cayetano Substation and will take the remaining load available from this location to generate local power to EBCE. The project also will improve the property by adding a public hiking trail, sheep grazing and pollinator-friendly vegetation.

Q: Will this project negatively impact agricultural land that is critical to the valley's economy?

A: The project site has low quality soils that impair its use for higher value agricultural purposes. The land has been used for lower-value grazing and hay production for many decades. Once constructed, the project will continue agricultural operations by grazing sheep and allowing beekeepers to graze their hives amongst the arrays.

Q: Will this project be an eyesore on the scenic viewshed of this valley?

A: While this project is not sited along a designated scenic corridor, we have worked closely with area residents to design the project with aesthetic enhancements and mitigation measures. First, the fencing and panels will be set back from public roadways. The closest panels will be over 70 feet from the property line. Second, the fencing design has been revised to be 5-foot agricultural fencing instead of 8-foot chain link fencing. No barbed wire will be used. Third, we are proposing vegetation screening along North Livermore Ave. and Manning Road to screen the facility from public views. We encourage you to check out our [video and photo simulations with these mitigation measures incorporated](#).

Q: Will the project be visible from Highway 580?

A: The project is not visible from Highway 580. Computer simulations of the project from public vantage points are available for review in the County's Draft Environmental Impact Report, available on the County's website:

<https://www.acgov.org/cda/planning/landuseprojects/currentprojects.htm>

Q: Won't everyone driving down the road will be unpleasantly surprised by the industrial nature of this "facility"?

A: People are often surprised at how unimposing and non-industrial solar photovoltaic projects can be when they're designed appropriately. Behind the project's extensive landscaping along public roads, which will screen the facility from public view, the solar system looks a lot like a vineyard, because it has a similar height and layout. The Aramis project will use photovoltaic technology, not solar thermal technology which involves large turbines, mirrors, pipes and heating fluids. Photovoltaic panels generate electricity passively, slowly tracking the sun's arc throughout the day. The project will include hundreds of acres of open grasslands and will be set back from Cayetano Creek. Sheep will graze between the arrays, and shrubs and wildflowers will screen the facility from public views. Hikers will be able to enjoy a closer view of the facility if they wish, because Aramis is



proposing to dedicate a public hiking trail along the creek adjacent to the facility. This educational hiking experience will be an excellent destination for local schools.

Q: Will reflection off the solar panels negatively impact pilots flying over the site?

A: Solar photovoltaic panels are designed to absorb as much light as possible, not reflect it. The panels are safe for pilots, and in fact, many commercial airports have installed solar photovoltaic systems directly next to their runways. In a huge vote of confidence to the safety of solar PV for aviators, Naval Air Station Lemoore, proud home of Strike Fighter Wing Pacific and primary training location for some of our nation's bravest fighter pilots, worked with the Intersect Power team to develop a 167 MW solar PV project at the Naval base, right next to the runways. (<https://thebusinessjournal.com/large-lemoore-solar-project-cleared-takeoff/>)