

ALAMEDA COUNTY COMMUNITY DEVELOPMENT AGENCY
PLANNING DEPARTMENT

Chris Bazar
Agency Director

April 1, 2011

Agenda Item 49
April 12, 2011

Albert Lopez
Planning Director

224
West Winton Ave.
Room 111

Hayward
California
94544

phone
510.670.5400
fax
510.785.8793

www.acgov.org/cda

The Honorable Board of Supervisors
County Administration Building
1221 Oak Street, Fifth Floor
Oakland, CA 94612

Dear Board Members:

SUBJECT: Development of a County Policy for the Siting of Solar Facilities

RECOMMENDATION:

That the Board direct the Planning Department to initiate a series of workshops and/or meetings at the community level to consider the opportunities and constraints for solar facilities in Alameda County, and to return with a report on its findings within 90 days.

BACKGROUND:

The increased demand for solar energy resulting from California's Renewables Portfolio Standard (RPS) target of 33%, combined with State and federal financial incentive programs to encourage the development of solar energy facilities, has led to rapidly increasing interest in locating solar farms in Alameda County. Prospective developers have submitted applications or have indicated to staff that they are close to submitting applications for solar facilities in the Mountain House area. The contemplated facilities range in scale from less than 100 acres to thousands of acres. Several factors make the Mountain House area in the northeast corner of the County particularly attractive for the development of solar farms. Mountain House is in close proximity to the PG&E Kelso and Tesla substations, which provide access to the electrical grid. Because Mountain House is closer to the urbanized area than the sites of many proposed solar farms elsewhere in the State, the distance the power must be transmitted is shorter. Also, the terrain in the Mountain House area is relatively flat, which would make the installation and operation of the solar panels easier than in hillier areas.

DISCUSSION/SUMMARY:

With the growing interest in solar energy in Alameda County, it is in the County's interest to devise a policy for determining appropriate locations for solar development, addressing both small to medium scale urban settings and large utility-scale facilities in rural areas. While development of solar power generation is desirable for many reasons, like most technologies and land uses it requires the consideration of a number of sometimes competing factors. The size of solar panels and structures, and the need for location across large open areas with unobstructed sunlight, would result in potential impacts in many places where they might be proposed.

Solar in Urban Areas

On urbanized land, land where inherent natural resource values such as soil productivity, biological resources, and open space visual values are generally not considered important, and where the landscape is already developed to a great extent, the opportunities for construction of solar energy facilities without sacrificing important resources are relatively abundant. In the interest of maintaining attractive public areas and streetscapes, siting of solar facilities should be done with care, but developed areas such as rooftops, parking lots, commercial and industrial complexes, hospitals, sports stadiums and civic structures could all be considered for placement of solar facilities with relatively small impact. California State Law (the Solar Rights Act) already requires streamlining of permits for solar panel installation on individual structures and in other urbanized settings; as a matter of policy, except in public areas where open space and scenery are important, it would be beneficial to encourage a maximum level of solar development as room and the economy permits.

The County's Draft Climate Action Plan contains two measures to encourage the development of solar facilities in the urban area. Measure E-13 would establish Solar Empowerment Districts that remove barriers to and facilitate the installation of solar photovoltaic systems on eligible commercial and industrial buildings and parking lots. Measure E-15 would develop a comprehensive residential renewable energy program that provides outreach, financing, and other forms of assistance. To develop these programs will require significant resources and discussions at the local level, and will need to include collaboration and coordination between the County, land owners, commercial brokers/realtors, solar contractors, local utilities and others.

Solar in Rural Areas

Unlike urbanized land, undeveloped lands in the rural areas of Alameda County have numerous inherent natural resource and agricultural values; soil productivity and prime agricultural land, biological resources, open space visual values, watershed and natural landforms are all potential considerations in this area. These types of resources are vulnerable to development, and construction of large-scale industrial level solar energy facilities. The kind that can produce large amounts of energy for general supply to the electrical grid, would utilize large acreage of lands that frequently bear one or more of these valuable characteristics. For simple solar installations that would occupy existing developed space (rooftops of residences, barns, sheds, etc.) the construction of a solar facility would not adversely affect the resources of the land, and could easily be treated as though in an urban environment. On rural lands however, if the County chooses to conserve the inherent values of the land, projects proposed in this area should be carefully examined as a matter of policy to ensure that critical resource impacts are identified and, where possible, either avoided or mitigated.

The East County Area Plan (ECAP), the County's general plan that applies to most of the rural area, has a small group of policies that address the development of utilities and infrastructure on the rural lands. In general, the Large Parcel Agriculture designation description explicitly permits "...utility corridors, and similar uses compatible with agriculture"; the descriptions for the Resource Management and Water Management designations contain no mention of utility uses, although in many cases, electrical transmission lines and water service utilities, among others, are located on lands bearing these designations in the ECAP.

The ECAP also contains policies for protection of agricultural, biological, water and visual resources that would pertain to solar energy projects. These represent limitations in terms of both policy consistency and environmental review. Please see the attached policy paper for a full discussion of pertinent issues.

Solar Policies in Other Counties

Many California counties are considering these same issues as interest in developing solar farms grows throughout the state, although few counties have developed comprehensive policies to address these issues.

Tulare County Resource Management Agency staff created an entitlement process for large-scale solar projects located on both prime and non-prime agricultural lands, including lands under Williamson Act contract. Tulare County considers these solar facilities to be temporary uses (limited to 35 years) and requires a reclamation plan for removal of the facility at any point in time if the facility is no longer functioning or at the end of the lease term/use permit. The entitlement process includes a Use Permit, CEQA determination/ documentation, Developer Agreement, and Reclamation Plan with financial assurances. If the property is under Williamson Act contract, the staff analysis includes a discussion of the findings of compatibility and/or cancellation based on the State statutes. The Planning Commission reviews the use permit request along with the CEQA determination, while the County Board of Supervisors hears the Williamson Act findings of compatibility and/or cancellation during a public hearing. The County BOS also addresses the Developer Agreement and Reclamation Plan with Financial Assurances. For the most part, Tulare County encourages solar facilities to be located on non-prime agricultural land with little or no water to support a viable agricultural operation, and located near electrical transmission lines.

Yolo County is considering a draft ordinance to address solar facilities on agricultural land. The ordinance would establish standards for small, medium, large, and very large solar energy systems. Proposed provisions include setbacks and height limits, as well as requirements to minimize impacts on adjacent agricultural land and significant environmental resources. Mitigation for the permanent loss of agricultural land or Swainson's hawk habitat would be required at a ratio of 1:1. Large solar energy systems, utility-scale facilities that would generate between 5 and 20 megawatts (MW), would require approval of a Major Use Permit by the Planning Commission. Very large solar energy systems, utility-scale facilities that would generate 20 MW or more, would require a Major Use Permit approved by the Board of Supervisors. In addition, for large and very large systems the draft ordinance would require a Development Agreement to address community benefits including potentially higher agricultural mitigation levels; and an Alternative Sites Analysis to demonstrate that no equivalent non-prime farmland sites are available within the surrounding area.

Sacramento County is considering amendments to the Public Facilities, Energy, and Agriculture Elements of the County general plan to provide clear direction for the Planning Commission when considering renewable energy projects. These amendments would clarify that the County supports both dispersed renewable energy facilities and "properly sized, large, centralized facilities." Land use and visual impacts such as noise and glare would also be addressed; and "appropriate landscaping and security barriers" would be required to reduce the "industrial and/or institutional appearance" of large solar facilities. In addition, proposed policies would require that impacts to sensitive biological resources, cultural resources, prime farmlands, and nearby farm operations be minimized.

CONCLUSION:

If the goal of supporting solar farms is a desire of the county, significant policy issues (which sometimes are in conflict with each other) will have to be reconciled. It may be that given the desire for open space, agricultural production and biological resources, solar farms are viewed as impractical and should not be encouraged in our rural lands. On the other hand, the environmental benefit to having renewable energy close to the end user also is a laudable goal and there are significant regional and state-wide efforts to promote renewable (solar) energy in our area.

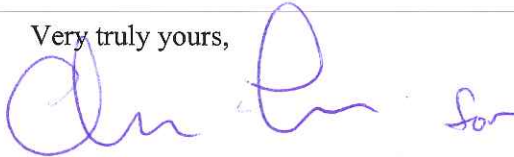
Honorable Board of Supervisors

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In sum, staff recommends that the Board direct the Planning Department to initiate a series of workshops and/or meetings at the community level to consider the opportunities and constraints for solar facilities in Alameda County, and to return with a report on its findings within 90 days.

Very truly yours,

A handwritten signature in blue ink, appearing to read "Chris Bazar", with a stylized flourish at the end.

Chris Bazar, Director
Community Development Agency

Attachments:

Attachment A: Issues to Be Considered in the Development of a County Policy for the Siting of Solar Facilities, April 12, 2011

Attachment A

Issues to Be Considered in the Development of a County Policy for the Siting of Solar Facilities April 12, 2011

BACKGROUND:

In 2009, Governor Schwarzenegger signed Executive Order S-21-09 directing the State's Air Resources Board (ARB) to adopt regulations increasing California's Renewables Portfolio Standard (RPS) to require retail sellers of electricity to demonstrate by 2020 that 33% of the electricity sold to their customers is generated from renewable energy resources. This executive order provided more guidance to state regulators about how to achieve this target than the Governor's 2008 executive order that established the 33% goal. On September 23, 2010, the (ARB) approved a Renewable Electricity Standard (RES) regulation to implement the 33% target. The State legislature recently passed Senate Bill 2X which would require both private and public utilities to obtain 33% of their electricity from renewable energy sources by 2020. The bill is currently awaiting the Governor's signature.

According to the document, 33% Renewable Portfolio Standard Implementation Analysis Preliminary Results, prepared by the California Public Utilities Commission (June 2009), the 33% RPS target will require almost a tripling of renewable electricity, from 27 terawatt hours (TWh) in 2009 to approximately 75 TWh in 2020. The State's three major investor-owned utilities (IOUs) (Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E)) all failed to reach the previous RPS target requiring 20% of their retail sales to be from eligible renewable energy resources by December 31, 2010.

The increased demand for solar energy resulting from the RPS combined with State and federal financial incentive programs to encourage the development of solar energy facilities, has led to rapidly increasing interest in locating solar farms in Alameda County. Prospective developers have submitted applications or have indicated to staff that they are close to submitting applications for solar facilities in the Mountain House area. The contemplated facilities range in scale from less than 100 acres to thousands of acres. Several factors make the Mountain House area in the northeast corner of the County, particularly attractive for the development of solar farms. Mountain House is in close proximity to the PG&E Kelso and Tesla substations which provide access to the electrical grid. Because Mountain House is closer to the urbanized area than the sites of many proposed solar farms elsewhere in the State, the distance the power must be transmitted from where it would be generated to where it is needed would be shorter. Also, the terrain in the Mountain House area is relatively flat which would make the installation and operation of the solar panels easier than in hillier areas.

Currently there is only one small-scaled solar facility operating in rural Alameda County (Greenvolts, Inc.) On January 13, 2011, the East County Board of Zoning Adjustments approved a Modified Conditional Use Permit to increase its production capacity from 2 megawatts (MW) to 3 MW using a new system of solar tracker arrays, and to increase the facility area from 10.76 acres to 14.08 acres. This facility is located on Kelso Road.

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consideration of a number of trade-offs. The size of solar panels and structures, and the need for location across large open areas with unobstructed sunlight, would result in potential impacts in many places where they might be proposed.

Solar in Urban Areas

On urbanized land, land where inherent natural resource values such as soil productivity, biological resources, and open space visual values are generally not considered important, and where the landscape is already developed to a great extent, the opportunities for construction of solar energy facilities without sacrificing important resources are relatively abundant. In the interest of maintaining attractive public areas and streetscapes, siting of solar facilities should be done with care, but developed areas such as rooftops, parking lots, commercial and industrial complexes, hospitals, sports stadiums and civic structures could all be considered for placement of solar facilities with relatively small impact. California State Law (the Solar Rights Act) already requires streamlining of permits for solar panel installation on individual structures and in other urbanized settings; as a matter of policy, except in public areas where open space and scenery are important, it would be beneficial to encourage a maximum level of solar development as room and the economy permits.

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Solar in Rural Areas

Unlike urbanized land, undeveloped lands in the rural areas of Alameda County have numerous inherent natural resource and agricultural values; soil productivity and prime agricultural land, biological resources, open space visual values, watershed and natural landforms are generally important in this area. These types of resources are vulnerable to development, and construction of large-scale industrial level solar energy facilities, the kind that can produce large amounts of energy for general supply to the electrical grid, would utilize large acreage of lands that frequently bear one or more of these valuable characteristics. For simple solar installations that would occupy existing developed space – rooftops of residences, barns, sheds, etc., or over staging or operational area, especially when these installations are primarily for the purpose of energy supply onsite – the construction of a solar facility would not adversely affect the resources of the land, and could easily be treated as though in an urban environment. On rural lands however, if the County chooses to conserve the inherent values of the land, projects proposed in this area should be carefully examined as a matter of policy to ensure that critical resource impacts are identified and, where possible, either avoided or mitigated.

The East County Area Plan (ECAP), the County's general plan that applies to most of the rural area, has a small group of policies that address the development of utilities and infrastructure on the rural lands. In general, the Large Parcel Agriculture designation description explicitly permits "...utility corridors, and similar uses compatible with agriculture"; the descriptions for the Resource Management and Water Management designations contain no mention of utility uses, although in many cases, electrical transmission lines and water service utilities, among others, are located on lands bearing these designations in the ECAP.

Policy 13 of the ECAP prohibits providing or authorizing expansion of infrastructure that would create more capacity than needed to meet development permitted in the ECAP or would result in growth-inducing impacts. This provision is logical for a number of infrastructure types such as local roadways or water supply systems, where the design of the facility could either respond to growth or provide impetus to growth in the specific area of concern. However, for energy supply systems, in which the transmission facilities for energy produced is shared among many suppliers and customers across jurisdictional boundaries; where specific scaling of the production facilities solely to local needs is not typically commercially viable; and where a single energy producer may be designed not to serve growth in a specific location, but to serve varying existing energy needs regionally within the range of the existing transmission facilities and outside of the County, the requirement that infrastructure be limited by purely local needs becomes less logical and clear-cut.

The ECAP allows a maximum building intensity for non-residential buildings of .01 FAR (floor area ratio) but not less than 20,000 square feet on property with land use designations of Large Parcel Agriculture, Resource Management, or Water Management. FAR is a ratio of the gross building square footage permitted on a parcel to the square footage of the parcel. Application of the traditional means to calculate FAR is not clear cut for solar farms. Up to now, Planning staff has not considered solar facilities as structures per se, as the ground attachment has been limited and not exceeded the FAR requirements of ECAP/Measure D. Diversity in the technology and the speed in which it changes complicates the matter; podium mounted solar collectors generally have more space between them and could co-exist with other passive agricultural use and be more friendly to natural habitats. Photo voltaic systems which generally strive for as much surface area as possible are more problematic in that they reduce or preclude opportunities for agricultural or biological resources.

The ECAP also contains policies for protection of agricultural, biological, water and visual resources that would pertain to solar energy projects. These represent limitations in terms of both policy consistency and environmental review.

Agricultural Resources

Solar facilities on agricultural land would to some extent, remove some acreage of land from potential agricultural production. In the case of projects where lands and soils have been designated as Prime Agricultural Lands, Unique Farmlands, or Farmlands of Statewide Significance, or where the land has been placed under an Agricultural Conservation Contract (Williamson Act Contract, WAC), the impact and complexity of the project can become even more critical.

Preservation of Productive Soils

ECAP Policy 71 states: "The County shall conserve prime soils (Class I and Class II, as defined by the USDA Soil Conservation Service Land Capability Classification) and Farmland of Statewide Importance and Unique Farmland (as defined by the California Department of Conservation Farmland Mapping and Monitoring Program) outside the Urban Growth Boundary."

According to the most recent information from the State Important Farmland Mapping and Monitoring Program (FMMP) there were 3,957 acres of prime farmland in Alameda County in 2008, a reduction of nearly 3,000 acres (43%) from the year 2000 total of 6,926 acres. For the purposes of the FMMP, prime farmland "has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date." The majority of the remaining prime agricultural land in the County is in the Mountain House area which means that development of solar farms in this

area could result in the loss of a substantial portion of the County's remaining prime farmland.

At the time the ECAP was adopted in 1994, the Mountain House area in Alameda County was subject to significant development pressure due to the approval of the Mountain House community in San Joaquin County, just across the boundary between the two counties. Policy 72 of the ECAP states, "The County shall preserve the Mountain House area for intensive agricultural use." The ECAP defines intensive agricultural use as "... high yield agricultural production including vineyards, orchards, and row crops as distinguished from low-intensity agriculture such as cattle and horse grazing." Irrigated row crops are currently the typical agricultural use in the Mountain House area.

Concern is being expressed throughout the state regarding how the loss of productive agricultural land to solar facilities may affect agriculture in California, particularly in light of increasing interest in locally grown food and potential future need to expand local food production. At the California Farm Bureau Federation's (CFBF) annual meeting in November of 2010, CFBF delegates took the position that solar power generation projects located on private, agriculturally productive lands should be subordinate to the agricultural operation, and should not permanently impede or reduce the productive capacity of the state's irreplaceable soil resources. (Ag Alert – "CFBF Updates Policies on Water and Land Issues," December 15, 2010, <http://www.cfbf.com/agalert>)

In its comment letter to San Luis Obispo County regarding the Topaz Solar Facility proposed in that county, the State Department of Conservation's Division of Land Resource Protection stated that, "It is the position of the Division that when determining the agricultural value of land, the agricultural value may have been reduced over the years due to inactivity, but it does not mean that there is no longer any agricultural value. The inability to farm land, rather than the choice not to do so, is what could constitute a reduced agricultural value." The letter goes on to state that "... The Department of Conservation considers the construction of a solar facility that removes and replaces agriculture on agricultural lands to have a significant impact on those agricultural lands ...". The Department of Conservation recommends the following conditions to address the loss of agricultural land:

- Require a reclamation plan suited for solar facilities, based on the Surface Mining and Reclamation Act (SMARA) principals. As part of this plan, a performance bond or other similar measure may be used.
 - A typical requirement would be for the soil to be restored to the same condition it was prior to the solar facility's construction. Whatever project-related materials have been brought in, or changes made to the land ... is to be removed once the solar (or portions of) is no longer active.
- Solar facility projects are generally considered to be temporary. Counties could require a time frame for the conditional use permit where a new permit must be applied for after a certain period of time.
- Require permanent agricultural conservation easements on land of at least equal quality and size as partial compensation for the direct loss of agricultural land.

Williamson Act

Under the California Land Conservation Act (Williamson Act), an agricultural property owner who enters into a ten-year contract with the County will receive a property tax reduction in exchange for continuing the agricultural operation on the property. The contract automatically renews annually unless the property owner files for non-renewal or the contract is cancelled using the process prescribed in state law. ECAP Policy 86 states, "The County shall not approve cancellation of Williamson Act contracts within or

outside the County Urban Growth Boundary except where findings can be made in accordance with state law, and the cancellation is consistent with the Initiative. In no case shall contracts outside the Urban Growth Boundary be canceled for purposes inconsistent with agricultural or public facility uses. Prior to canceling any contract inside the County Urban Growth Boundary, the Board of Supervisors shall specifically find that there is insufficient non-contract land available within the Boundary to satisfy state-mandated housing requirements. In making this finding, the County shall consider land that can be made available through reuse and rezoning of non-contract land.”

In 2009, the Department of Conservation issued a policy paper regarding the placement of solar facilities on property under Williamson Act contract. A revised paper was issued this month. The paper identifies four ways in which solar facilities may be located on property under contract: 1.) as a compatible use, subordinate to the primary agricultural use on the property; 2.) after the property owner has filed for non-renewal and the contract expires; 3.) upon cancellation of the contract pursuant to required statutory processes under appropriate circumstances; or 4.) upon purchase of the property under contract by a public agency through eminent domain, thereby nullifying the contract.

The County is in the process of revising its Williamson Act program. Draft Uniform Rule 2 would allow solar facilities on property under contract as a compatible use, as defined by state statute, on 10% of the parcel or 10 acres, whichever is smaller. Cancellation of the contract would be required for facilities that would cover a larger portion of the parcel or would displace the agricultural operation entirely.

Incompatible Uses

Another consideration for the location of solar facilities in agricultural areas is compatibility with agricultural operations on adjacent properties. Dust or crop spraying related to adjacent agricultural activities may adversely affect the solar facility; while activities such as chemical weed abatement on the solar site may impact the agricultural activities. The County’s Right-to-Farm Ordinance provides agricultural operations some protection from conflicts with adjacent properties by establishing a process to resolve disputes.

ECAP Policy 73 states, “The County shall require buffers between those areas designated for agricultural use and new non-agricultural uses within agricultural areas or abutting parcels. The size, configuration and design of buffers shall be determined based on the characteristics of the project site and the intensity of the adjacent agricultural uses, and if applicable, the anticipated timing of future urbanization of adjacent agricultural land where such agricultural land is included in a phased growth plan. The buffer shall be located on the parcel for which a permit is sought and shall provide for the protection of the maximum amount of arable, pasture, and grazing land feasible.” Policy 74 states, “The County shall require that, where conflicts between a new use and existing use are anticipated, the burden of mitigating the conflicts be the responsibility of the new use. Policy 75 states, “The County shall enforce the provisions of the Alameda County Right-to-Farm Ordinance on all lands within and adjacent to agricultural areas.

Biological Resources

On biologically-important lands, habitats of sensitive or special-status plant and animal species could be altered or lost. The following ECAP goal pertains to biological resources: “To preserve a variety of plant communities and wildlife habitat.” ECAP Policy 125 states: “The County shall encourage preservation of areas known to support special status species.” Although much of the land being sought for solar facilities has been disturbed for agricultural use, its value for biological habitat is not unimportant. Citing security or trade protection many solar farms will require significant solid fencing that could disturb small animals using these lands as part of their habitat corridor.

Visual Resources

Near scenic corridors and parklands, viewsheds could be dramatically altered by the presence of tens or hundreds of acres of solar facility equipment. While fencing may screen views of the panels, the fencing itself may impact views by altering the natural landscape. ECAP Policy 115 states: "In all cases appropriate building materials, landscaping and screening shall be required to minimize the visual impact of development. Development shall blend with and be subordinate to the environment and character of the area where located, so as to be as unobtrusive as possible and not detract from the natural, open space or visual qualities of the area. To the maximum extent practicable, all exterior lighting must be located, designed and shielded so as to confine direct rays to the parcel where the lighting is located."

Fire Hazard

Since the areas that are of greatest interest for solar farms are also susceptible to wildland fires, the Alameda County Fire Department has concerns about how the facilities are designed and operated. The most significant issue for the Fire Department is vegetation management. Vegetation growth under the panels must be controlled so a fire cannot start beneath the panels. Access routes and water supplies must also meet Fire Department standards.

CONCLUSION:

If the goal of supporting solar farms is a desire of the county, significant policy issues (which sometimes are in conflict with each other) will have to be reconciled. It may be that given the desire for open space, agricultural production and biological resources, solar farms are impractical and should not be encouraged in our rural lands. On the other hand, the environmental benefit to having renewable energy close to the end user also is a laudable goal and there are significant regional and state-wide efforts to promote renewable (solar) energy in our area.