



**RESPONSES TO CEC DATA REQUESTS (#101-112)
ATTACHMENT A (DR 112)**

**APPLICATION FOR CERTIFICATION (07-AFC-8)
Carrizo Energy Solar Farm
Carrizo Energy, LLC**



**Submitted to:
California Energy Commission**



**Submitted by:
Carrizo Energy, LLC**

With Support from:

URS

1615 Murray Canyon Road, Suite 1000
San Diego, CA 92108

September 2008



September 24, 2008

Mr. John Kessler
Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

DOCKET	
07-AFC-8	
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Subject: Carrizo Energy Solar Farm (07-AFC-8)
Applicant's Response to CEC Data Request 112- Attachment A
URS Project No. 27658060.01800

Dear Mr. Kessler:

On behalf of Ausra CA II, LLC (dba Carrizo Energy, LLC), URS Corporation Americas (URS) hereby submits Applicant's Response to CEC Data Request 112 - Attachment A (Carrizo Energy Solar Farm 07-AFC-8).

I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge. I also certify that I am authorized to submit the Applicant's Response to CEC Data Request 112 - Attachment A on behalf of Carrizo Energy, LLC.

Sincerely,

Angela Leiba
Project Manager

AL:ml

Enclosure

Carrizo Energy Solar Farm
Responses to CEC Data Requests 101-112
07-AFC-8

TECHNICAL AREA: PROJECT DESCRIPTION / CUMULATIVE IMPACTS

Data Request 112:

Please provide the following:

- a. an analysis addressing the expected cumulative impacts due to the construction, operation and maintenance of both the CESF and Topaz Solar Farm Projects; The analysis should be prepared to a level of detail that is reasonable based on the amount of information currently available and address the following technical areas: air quality, biology, cultural resources, geology, hazardous materials, land use, noise and vibration, paleontology, public health, socioeconomics, soil and water, transmission line safety and nuisance, traffic and transportation, visual resources, waste, and worker safety and fire protection;
- b. measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation; and
- c. an additional photo simulation using the KOP #4 viewshed showing both the CESF and ,Topaz Solar Farm Projects in the view

Response: Applicant's response to Data Request 112 will be provided in the forthcoming Attachment A.

ATTACHMENT A

ATTACHMENT A – Response to Data Request #112

There are two purposes of this response to Data Request 112: 1) To address any potential cumulative impacts resulting from the construction, operation, and maintenance of the Carrizo Energy Solar Farm (CESF) in consideration of the recent submittal of a draft Conditional Use Permit (CUP) application to the County of San Luis Obispo on behalf of the Optisolar - Topaz Solar Farm Project (TSF); 2) To address the level of contribution to any cumulative effect by the CESF and consider the appropriate response to implement or fund its fair share of a mitigation measure or measures designed to alleviate any potential cumulative impact deemed significant.

This evaluation focuses on the combined impacts of TSF and CESF where there is potential for significant adverse cumulative impacts. This response does not speculate as to the probability of the acceptance of the Optisolar - TSF. Instead, this response assumes, for purposes of the cumulative impacts analysis, that it is reasonably foreseeable that TSF will be developed.

A.1 BACKGROUND

Both the CESF Application for Certification (AFC) (October 2007) and the Supplement to the CESF AFC (July 2008) provide lists of existing and future projects located in the area of influence (defined as an area within a 5-mile radius of CESF) and analysis of potential cumulative effects represented by the CESF project. These earlier cumulative impacts analyses concluded that there were no projects or proposed projects of potential regional significance that were likely to cause cumulative effects in combination with the CESF. However, with the recent submittal of a draft Conditional Use Permit (CUP) application to the County of San Luis Obispo on behalf of the Optisolar – Topaz Solar Farm (TSF) Project, the likelihood of a regionally significant project with the potential to cause significant cumulative impacts to California Valley has been raised.

The earlier analyses included 44 residential projects. At most, nine of those projects are new residential construction. The remaining 41 projects are minor residential construction such as the installation of manufactured and mobile homes, carport additions, roof replacements, deck additions, and residential renovations. In addition, some of the listed projects' permits have expired.

After looking at the difference in scale of the potential impacts from the residential projects in comparison to the CESF and even more so when compared to the TSF project, it is apparent that the real potential for adverse cumulative impacts to California Valley is associated with the contribution of direct impacts by the TSF project. Therefore, although the impacts of smaller residential projects were evaluated, they are not specifically mentioned in the following discussion of cumulative impacts because of the minor nature of their impacts even when evaluated from a cumulative impact standpoint.

A.2 COMPARISON OF TSF AND CESF PROJECT FEATURES

The following discussion and comparison table provides an overview of the CESF and TSF projects for informational purposes. This discussion and comparison table supports, but does not supplant, the cumulative impact analysis required by CEQA that follows.

The CESF Project will occupy one section, 640 acres, and consist of approximately one hundred and ninety-five Compact Linear Fresnel Reflector (CLFR) solar concentrating lines, and associated steam

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drums, steam turbine generators (STGs), air cooled condensers (ACCs), and infrastructure, producing up to a nominal 177 megawatts (MW) net (see Table 1). The construction laydown area will be approximately 380 acres adjacent to the CESF site and will contain ancillary support facilities including restrooms, storage areas, administration buildings, a fueling station, staging area, assembly area, and parking.

The TSF Project will occupy 9.5 sections, 6,210 acres, and consist of approximately 40 percent land cover of photovoltaic panels, transfer station, services complex, and associated infrastructure producing 550 megawatts (MW) net (see Table 1). The construction laydown area will be onsite and will contain ancillary support facilities including restrooms, storage areas, administration buildings, staging and assembly areas and parking.

The TSF has several characteristics that differ from CESF (see Table 1). These differences include but are not limited to the type of solar technology used, visible profile, water use during operation, amount of land occupied, MW per acre, and the permitting authority.

The many differences between the two projects lead to different direct and indirect effects resulting from the construction and operation of each project, which in turn contribute to different impacts to the environment. In addition, the differences between the two projects affect the discussion of Cumulative Impacts because for an impact to be considered a cumulative effect of the CESF project, the impact must be caused by the CESF, and be incrementally increased as a result of other past, present, or reasonably foreseeable future projects (see Methodology and Significance Criteria sections, below). Furthermore, even if a cumulative impact is significant, the effects of CESF must be cumulatively considerable to be a significant adverse impact of CESF.

For the purposes of this response, it is assumed that both CESF and TSF will proceed on a similar timeline for approval, although this may not be the case.

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**TABLE 1
CESF AND TSF COMPARISON**

	CESF – Ausra	TSF – OptiSolar
Technology	CLFR (Compact Linear Fresnel Reflector)	Thin-film amorphous silicon solar photovoltaic (PV) panels
Technology Description	The CESF design will incorporate Ausra’s proprietary CLFR technology to concentrate solar energy on pipes in an elevated receiver. The concentrated solar energy boils water within a row of specially coated stainless steel pipes in an insulated cavity to produce saturated steam. The steam produced in the receivers is collected in a series of pipes, routed to steam drums located in the solar field, and then to two STGs in the power block. Steam used by the steam turbines is condensed in two ACCs and returned to the solar field.	By depositing an extremely thin film (far thinner than the thickness of a human hair) of amorphous silicon, TSF’s solar PV panels require only about 1% of the silicon used in crystalline systems. Combined with OptiSolar’s proprietary manufacturing process, this thin-film technology both lowers module costs and removes the limitations of crystalline silicon availability. This simple design involves essentially no moving parts, no thermal cycle, no water use for electricity generation, a low visual profile of the panels, and an underground medium-voltage collection system.
Total Megawatts	177 MW	550 MW
Megawatts per Acre	0.28 MW/acre	0.09 MW/acre
Acreage (approx)	640-acre (1 section of land)	6,200-acre (approximately 9.5 sections of land)
Water Use	Provided by on-site well.	Provided by on-site well.
	<p>Water needed during construction:</p> <p style="padding-left: 40px;">Daily Water Demand: 6,167 gallons per day (gpd).</p> <p style="padding-left: 40px;">Annual Water Demand: 6.9 acre feet per year (AFY).</p> <p>Water needed during operation:</p> <p style="padding-left: 40px;">Daily Water Demand: 18,500 gpd.</p> <p style="padding-left: 40px;">Annual Water Demand: 20.8 AFY.</p>	<p>Water needed during construction:</p> <p style="padding-left: 40px;">Daily Water Demand: 23,910 gpd.</p> <p style="padding-left: 40px;">Annual Water Demand: 26.7 AFY.</p> <p>Water needed during operation:</p> <p style="padding-left: 40px;">Daily Water Demand: 3,060 gpd.</p> <p style="padding-left: 40px;">Annual Water Demand: 3.5 AFY.</p>

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**TABLE 1
CESF AND TSF COMPARISON
(Continued)**

	CESF – Ausra	TSF – OptiSolar
Water Runoff/Drainage	During operations, the on-site stormwater will be directed from the paved and non-paved areas to local collection/infiltration areas where it will percolate and evaporate. The runoff generated from the offsite upgradient watershed will be directed around the site via the proposed perimeter drainage swales. The runoff will flow across SR-58, confluence with the existing creek, traverse the proposed Construction Laydown Area and continue on its historical flow path in the southeasterly direction, ultimately to Soda Lake.	The PV panels will be located slightly above the ground and will shade about 40 percent of the total TSF site. Stormwater runoff will be able to percolate into the soil beneath the panels, recharging the groundwater table. In order to prevent soil erosion and provide dust control, the Applicant will plant a vegetated understory that will mimic annual grassland vegetation under the panels. The vegetation will be kept to a height of less than approximately eighteen inches by planting a slow-growing grass and/or by mowing between rows periodically.
Permitting Authority	California Energy Commission	County of San Luis Obispo
Schedule	35-month construction schedule	36-month construction schedule
Construction Start Date	Site construction activities will commence in the first quarter of 2009	Unknown
Construction Work Force	85-396 (peak) workers	Average 250 workers
Construction Traffic	Average Daily Round Trips: 106 Peak Daily Round Trips: 188	Workers (roundtrips): 60 vehicles, assuming 10 shuttle buses of 20 people each and 50 workers driving individual vehicles Deliveries (roundtrips): 85 Construction trucks/vehicles: 135
Height of Structures	Air cooled condensers: 115 ft Reflector loop: 8 ft (diameter) Reflector assembly height: 56 ft Perimeter chain link fencing w/ 3-wire barb and privacy slat: 6.5 ft tall	PV panel: not exceeding approximately 3 ft in height Inverter and transformer: less than 8 ft high Perimeter chain link fencing w/ 3-wire barb: 6-8 ft tall

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**TABLE 1
CESF AND TSF COMPARISON
(Continued)**

	CESF – Ausra	TSF – OptiSolar
Operation Staff	75	10
Visual and night lighting	CESF’s alignment removes the possibility of glare on State Route 58 (SR-58) during emergence from and return to “stow” position.	No panels are planned to be closer than half a mile from SR-58 and, therefore, are away from the view shed of those traveling the main gateway to California Valley and the Carrizo Plain National Monument
	Building heights have been adjusted and latticed perimeter fencing will reduce visual obstruction to area residents and travelers.	The PV panels have a very low profile of less than 3 feet in height; they tend to rapidly recede into the distance in the visual analysis.
Noise	Noise sources within the 640-acre CESF site include the ACCs, STGs, and feedwater pumps.	The only noise sources for the TSF, the transformers and inverters, located in the center of each PV block or within the Project substation, will be at least 200 feet from the nearest road and much further from the nearest noise receptors, including any residences.
Hazardous Materials used/stored during operation	The CESF will not generate industrial wastes or toxic substances during operation. Hazardous materials that will be used onsite during CESF operations include the insulating oil, lubricating oil, gasoline/diesel fuel, various solvents, detergents, paints, other cleaners, and ethylene glycol.	The TSF will not generate industrial wastes or toxic substances during operation. The thin film PV technology utilized by the TSF contains no toxic metals, such as Cadmium, that occur in other types of solar technology. Hazardous materials that will be used onsite during TSF operations include diesel, gasoline, motor oil, and transformer oil.

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TABLE 1
CESF AND TSF COMPARISON
(Continued)

	CESF – Ausra	TSF – OptiSolar
Potential Environmental Issues	A total of seven special status wildlife species were detected during the 2007/2008 field surveys that include raptors (burrowing owl, golden eagle, prairie falcon, northern harrier), horned lark, San Joaquin kit fox, and badger. The CESF site is mostly a pass a through area and marginal foraging habitat for San Joaquin kit fox and pronghorn antelope. Tule elk do not utilize the CESF site; but are known to use the habitat to the east and north of the site.	Northern 60% of the TSF site is within Williamson Act Lands. TSF site used as foraging area and habitat for the San Joaquin kit fox and seasonal feeding ground for the tule elk and pronghorn antelope.
	A CNDDDB query listed 16 special-status plant species that historically occur or have potential to occur in the CESF study area and vicinity. No rare, threatened, or endangered plants were detected onsite.	Three special status plants identified on TSF site: Salinas milkvetch (CNPS List 4 species), Paso Robles navarretia (CNPS List 4 species), and Lost Hills Crownscale (CNPS List 1B).
	Suitable habitat is not present for any of the special-status plants in the CESF project survey area, as the majority of the plant species have been recorded to the north or southeast in alkali soils, chenopod scrub, chaparral, saltbush scrub, or vernal pools/salt marshes and are not found in disturbed habitat such as agricultural land uses. One individual of pale yellow tidy-tips (<i>Layia heterotricha</i> , CNPS 1B.1) was detected during 2008 rare plant surveys. This detection of a single individual plant is not considered significant.	Species observed at the TSF site during preliminary biological surveys include: Pacific Chorus Frog, Pacific Gopher Snake, Side-blotched Lizard, Red-winged Blackbird, Tricolored Blackbird, Golden Eagle, Burrowing Owl, Red-tailed Hawk, Ferruginous Hawk, House Finch, Turkey Vulture, Lark Sparrow, Common Raven, California Horned Lark, Brewer’s Blackbird, American Kestrel, Savannah Sparrow, Western Meadowlark, European Starling, Western Kingbird, Mourning Dove, Pronghorn antelope, Coyote, Tule Elk, Feral Cat, California Ground Squirrel, Wild Boar, American Badger, Valley Pocket Gopher, and San Joaquin Kit Fox.

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A.3 METHODOLOGY

In analyzing the cumulative impacts of both projects, CESF used a two-step analysis first evaluating the potential for cumulative impacts from both projects and then evaluating whether CESF's incremental effects are cumulatively considerable.¹ Where CESF's incremental effects are cumulatively considerable, this analysis addresses the level of contribution to any cumulative effect by the CESF and considers the appropriate response to implement or fund its fair share of a mitigation measure or measures designed to alleviate any potential cumulative impact deemed significant.

This analysis distinguishes between; the direct and indirect impacts attributable to the TSF and CESF projects, respectively, and the potential for cumulative effects of the TSF and CESF project in combination. For the purposes of this analysis, it will be necessary to define the terms used to describe effects caused by a project (direct, indirect, and/or cumulative effects). Additionally it is necessary to establish the definitional difference between the potential direct and indirect impacts caused by a specific project and a potential for cumulative impacts (additive and/or interactive) associated with a specific project in combination with past, present or future projects.

The CEQA Guidelines define Direct, Indirect, and Cumulative Effects as follows:

Direct Effects: Primary effects that are caused by a project and occur at the same time and place (14 CCR Section 15358[a][1]).

Indirect Effects: Secondary effects that are reasonably foreseeable and caused by a project, but occur at a different time or place (14 CCR Section 15358[a][2]). An indirect physical change in the environment is a physical change...which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect change in the environment (14 CCR Section 15064 [d][2]). Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems (14 CCR Section 15358[a][2]).

Cumulative Effects: Cumulative effects refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor, but collectively significant projects taking place over a period of time (14 CCR Section 15355). A cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts (14 CCR 15130[a][1]). *“An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.”*

¹ The analysis herein is based upon the limited information available in TSF's application for a conditional use permit filed with San Luis Obispo County. Because no impacts have been identified in a project EIR, assumptions had to be made based upon that limited application information in order to analyze the TSF project's direct and indirect impacts.

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The discussion of cumulative impacts shall focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects that do not contribute to the cumulative impact (14 CCR 15130 [b]).

The cumulative impacts analysis evaluates additive or interactive effects resulting from the incremental effect of the project when added to other past, present, and reasonably foreseeable future actions regardless of which agency or person undertakes such actions. *Additive Effects* are the incremental addition to prior effects by subsequent effects, amounting to the sum total of all effects. *Interactive effects* may be either countervailing (the net cumulative effect is less than the sum of individual effects) or synergistic (the net cumulative effects is greater than the sum of individual effects).

A.4 SIGNIFICANCE CRITERIA

This assessment is based on CEQA (California Public Resources Code [PRC] Section 21000 *et seq.*) and the CEQA Guidelines (Title 14 California Code of Regulations [CCR] Section 15000 *et seq.*), which requires that the discussion of cumulative impacts be “*guided by the standards of practicality and reasonableness.*” CEQA requires that cumulative impacts are discussed when they are significant, and that the discussions of cumulative impacts reflect the severity of the impacts and their likelihood of occurrence; however, the CEQA Guidelines state that the discussion need not provide the impacts discussion in as much detail as is provided for project-specific impacts.

In conducting a cumulative impacts analysis, a lead agency generally undertakes a two-step analysis to determine whether the project’s cumulative impact is significant. First, the lead agency must determine whether the combined effects from both the proposed project and other projects will be cumulatively significant. Second, if the combined effect is cumulatively significant, then the lead agency must determine whether the proposed project’s incremental effects are cumulatively considerable (*Communities for a Better Environment v. California Resources Agency* [2002] 103 Cal. App. 4th 98, 120).

For the purposes of this analysis, an effect is a cumulatively considerable effect of the CESF project only if the effect results in part from the CESF. This is based on CEQA Guidelines (14 CCR 15130[a][1]) definitions stated above. If the effect does not result in part from the CESF, but arises in consideration of the TSF, then that effect is not considered a cumulative effect of the CESF and should be considered in the cumulative impacts analysis of the TSF project.

Section 15130(a)3 of the Guidelines for the California Environmental Quality Act (CEQA) provides guidance on the determination of Cumulative Effects and to address “fair share” of any mitigation of a significant Cumulative Effect. According to the CEQA Guidelines a lead agency may determine that a project’s incremental contribution is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (14 C.C.R. 15064 [h][3]). Alternatively, Section 15130 (a)(3) of the CEQA Guidelines states: “*An EIR may determine that a project’s contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project’s contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative*

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impact. The lead agency shall identify facts and analysis supporting its conclusion that the contribution will be rendered less than cumulatively considerable.”

Where CESF addresses the level of contribution to any cumulative effect by the CESF and considers the appropriate response to implement or fund its fair share of a mitigation measure or measures designed to alleviate any potential cumulative impact deemed significant, it is determined that the effect of CESF will be considered less than cumulatively considerable per CEQA regulations.

Conforming to the CEQA guidelines, this analysis concludes that cumulative impacts attributable in part to the CESF project could be considered significant after mitigation:

- If the TSF Project impacts would contribute to the unmitigated impacts of the CESF Project in some way, or incrementally increase unmitigated impacts associated with the CESF; or
- If the approval of the CESF Project would remove some barrier to the approval of the TSF, and
- If the Project does not comply with a previously approved plan or mitigation, or the Project is not conditioned upon implementing or funding the Project’s fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

A.5 ENVIRONMENTAL CONSEQUENCES

The CESF is not expected to result in significant cumulative impacts to environmental resource areas during the construction or operation phases. Below is a general discussion of the potential for cumulative impacts that is posed by the development (construction and operation) of both projects, followed by a discussion of potential cumulative effects specific to each resource area and whether CESF’s contribution is cumulatively considerable. Where potential cumulatively considerable effects resulting from CESF are identified, an appropriate response to implement or fund its fair share of a mitigation measure or measures designed to alleviate any potential cumulative impact deemed significant is identified.

A.5.1 Construction-Related Cumulative Impacts

Construction related impacts are temporary and are not considered permanent significant impacts under CEQA. The magnitude of temporary construction related cumulative impacts depends, in part, on the extent of construction overlap in time and geographic area. For the purposes of this cumulative impact assessment, it is anticipated that the construction phase for the CESF Project will begin in the first quarter of 2009. The County of San Luis Obispo received the TSF CUP application on July 18, 2008. It is unknown at this time what the schedule of development for the TSF project will be; however, it is assumed that the projects could potentially overlap in construction for approximately one to two years. Therefore, there may be potential cumulative issues related to construction.

However, should the projects overlap and cumulatively considerable construction related impacts occur, they will be temporary and, depending on the intensity of TSF construction, may be mitigated to a less than significant level. Potential temporary direct construction-related cumulative impacts to Air Quality, Noise, and Traffic may occur if the construction schedules of both projects overlap substantially. At this time temporary construction related impacts are considered less than significant.

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A.5.2 Operations-Related Cumulative Impacts

The CESF project does not affect the agency (County of San Luis Obispo) discretionary decision to allow the TSF project. No barriers to the development of TSF will be removed by the approval of the CESF project by the CEC. Therefore, no cumulative impacts are considered to arise through the removal of a barrier to the development of the TSF.

Although the CESF AFC identified no direct and/or indirect significant impacts to the environment after mitigation, it is foreseeable that the TSF project has the potential for some significant direct and indirect impacts to the environment. Therefore, the addition of TSF's potentially significant impacts to CESF's less than significant impacts may cause the sum total of effects to be regionally and/or cumulatively significant. The potential for cumulative effects to result from the combination of both projects are additive effects not synergistic effects. There are no foreseeable synergistic effects that are likely to increase the net cumulative effect beyond the sum of the combined direct and/or indirect effects of both projects (see Methodology). Therefore, only additive cumulative effects were identified in the analysis.

The development of the TSF project would effectively transform the California Valley into a regional center for the production of solar power. Foreseeable potential direct operations-related cumulative impacts may arise with the development of TSF relative to Biological Resources, Land Use, and Visual Resources. Potential indirect operations-related cumulative impacts may also occur as a result of TSF development relative to Biological Resources.

Potential operations-related direct impacts of the TSF project correlate directly to its size and scale. Size and scale driven cumulative impacts may result from the TSF project development such as removal of protected agricultural lands and loss of habitat and/or blockage of wildlife corridors (see Biological Resources discussion), relocation of residents, visual resources effects, and change in regional land use. CESF's contribution to these effects is relatively minor in comparison to the potential effects added by the much larger TSF project, however the contribution of CESF to specific resource area effects are discussed below. Some effects that are a result of CESF development may be increased by the development of the TSF project; CESF has proposed mitigation to address its fair share of those impacts.

Beyond the description herein, more specific identification of the TSF project's specific direct and indirect impacts is speculative at this time since a project EIR has not been completed.

A.5.3 Air Quality

The proposed TSF would be located immediately to the north and west of the CESF, and at full buildout would extend several miles from the CESF property toward the northwest. As indicated by the wind rose presented in the CESF AFC (see Figure 5.2-2), local winds are predominantly channeled by terrain to flow either from the northwest or the southeast, which would result in frequent occurrences of winds that would either transport TSF emissions toward the CESF or vice versa. This would not be an important issue during periods when both solar power plants have become operational, because of the general lack of routine emission sources associated with such facilities. In the case of the CESF, the only stationary emission sources during the operational phase will be diesel emergency engine drivers for a firewater pump and backup generator, both of which will be operated only a few hours per month to test their operability in the event of an emergency. Similar equipment will presumably be used for the TSF facility,

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but the potential for combined emission plumes to produce significant air quality impacts would appear to be negligibly small. Depending on the size and makeup of the fleet of equipment and vehicles that will serve the operational TSF facility on an ongoing basis, the combined effects with the emissions from similar equipment on the CESF may be of slightly more concern. However, when operational, TSF will employ only 10 people. Given the information available to date on TSF and the limited number of employees on site at any time, it is certainly not likely that the combined operation emissions of the two projects would exceed an air quality standard or significantly contribute to a violation of an air quality standard.

Air pollutant emissions from either of the individual facilities will be greatest during construction. Accordingly, it is the potential for overlapping construction periods that would be the most important consideration for understanding maximum potential cumulative impacts to air quality. The analysis of construction impacts for CESF indicated that the highest emissions due to both equipment exhaust and dust generation from disturbance of exposed land will occur during roughly the first six months of the construction schedule. This is when the most extensive use of the heavier equipment will occur and when the activities most likely to produce dusty conditions (site clearing, grading, and earthmoving) will be concentrated. Given that construction of the TSF facility is scheduled to commence about a year after the CESF, the period of highest CESF emissions will have passed prior to the start of similar activities on the TSF site. However, construction emissions from both projects will occur over periods of three years or longer, so concurrent emissions from the two projects will only cease entirely when construction of the first facility, the CESF, has been completed.

At this time CESF does not have an air quality analysis of the construction impacts of TSF. In addition, CESF does not know how TSF will be constructed in critical areas for determining the potential emissions from construction equipment and ground disturbance. For example, the construction emissions of TSF would be lower if the area of disturbance at any one time was limited to less than a section of land at a time instead of an entire phase of construction. Furthermore, CESF is unaware of the mitigation measures TSF will use to control its construction emissions and whether those emissions are fugitive dust or combustion emissions from construction equipment. CESF is also unaware of the order in which TSF will proceed with construction outside of the general phasing described in the TSF application. If TSF would begin construction at locations further away from CESF, the potential cumulative impacts of combined construction emissions would be less. With the limited information available, it would be speculation for CESF to conduct a more detailed construction emissions evaluation without the air quality analysis of construction emissions from TSF, including their proposed mitigation measures.

Nonetheless, control of construction emissions can be accomplished by each project at each individual construction site. Control of fugitive dust from grading and prepared site areas can be controlled with water and chemical stabilizers. Furthermore, the amount of equipment operating at any one time and the amount of time that equipment is allowed to idle can also be controlled by each project individually. CESF has proposed several measures to reduce the emissions from construction of the project. These measures will reduce CESF's contribution to the potential cumulative impacts of construction of CESF and TSF at the same time. Given the measures proposed by CESF to control its construction emissions, CESF will be reducing its potential construction emissions and reducing its share of the potential cumulative impacts. Therefore, with the information available to CESF about TSF, CESF's construction

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mitigation measures will provide adequate mitigation for CESF’s contribution to the potential cumulative impacts of construction of both TSF and CESF.

A.5.4 Geologic Hazards and Resources

No cumulative impacts to geologic and mineral resources have been identified. Construction related impacts to the geologic or mineral resources primarily involve grading operations and installation of foundations. The grading and installation for CESF and TSF would be geographically isolated from each other, and the geologic and mineral resource impacts from CESF would not combine with those from TSF.

Cumulative impacts from geologic hazards on CESF and TSF during operation of both projects include seismic shaking of near-surface expansive soil. CESF will address these potential impacts through the measures identified in Section 5.3.4 of the CESF AFC. CESF expects TSF to employ similar measures as required by the California Building Code, local ordinances, and the proper handling and storage of minimal amounts of hazardous materials that may be required for the operation of both CESF and TSF. Neither CESF nor TSF will contribute to any existing geologic hazards. No cumulative impacts from geologic hazards are expected and no impacts to geologic or mineral resources are expected by the operation of CESF and TSF.

A.5.5 Soils

No cumulative soil erosion or sedimentation impacts have been identified. Soil erosion and sedimentation impacts associated with CESF will not combine with those of TSF.

A.5.6 Water Resources

The CESF and TSF projects are not expected to result in significant cumulative impacts to water resources. The CESF and TSF projects are not expected to contribute to flooding risk. CESF is designing the project to avoid stormwater impacts to offsite locations through the engineered design of swales and water retention facilities. CESF does not have stormwater management information for TSF. At this time, CESF does not anticipate cumulative impacts from CESF and TSF on flooding risk.

The CESF and TSF projects will not result in significant cumulative impacts to water supply. The projects are widely distributed and have relatively low water use requirements, in comparison to a clustered residential development or local irrigated agricultural uses. Based on groundwater modeling results for the CESF, the extraction of groundwater for water supply will not have an adverse impact on groundwater levels in existing water supply wells within a 2-mile radius of the site. Groundwater will also serve as the water supply for the TSF project. The TSF project has a lower anticipated operational phase water use compared to CESF (3,060 gpd [2.5 gpm] for TSF versus approximately 18,500 gpd [13 gpm] for CESF). The combined use of 15.5 gpm is not a significant impact because it is less than the water used for current irrigated agricultural practices in the area. Furthermore, the TSF project is spread over a larger project footprint. Therefore, it is not expected that the projects will cause a significant cumulative impact to groundwater supply or use – including Soda Lake, located several miles to the southeast of the project site.

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Additionally, as requested by the CEC, a model run considering the possible combined effects of both CESF and TSF was completed. Results indicate that pumping the combined projects' wells will not have a significant cumulative impact on neighboring wells and groundwater levels in the Basin. Refer to the Applicant's Revised Hydrology and Hydrogeology Report (Section 3.6.3.2 and 3.6.3.3).

A.5.7 Biological Resources

There are no significant cumulative impacts associated with the CESF project with respect to Biological Resources. However, due to the scale of the TSF project, wildlife use areas and corridors utilized by pronghorn and tule elk within northern portions of California Valley would no longer be available due to the TSF development alone. The Consultant Biologists for the TSF project (Althouse & Meade, Inc. 2008) concluded the following in regards to pronghorn and elk impacts:

“Certain tule elk and pronghorn antelope groups that are part of the greater Carrizo Plains region herds utilize habitats at the Topaz Site year round. The site appears to be most important as summer foraging habitat and as fawning grounds for pronghorn antelope. The proposed TSF project would temporarily displace tule elk and pronghorn antelope from a large portion of the project site. Displacement from the summer foraging habitat and fawning grounds may be detrimental to the viability of these local groups of elk and pronghorn antelope utilizing the Topaz Site, resulting in overall population declines of the Carrizo Plains herds (CDFG 2008c). In addition to displacement, the Topaz Site is situated at the extreme northwest end of the Carrizo Plains in an area that is an important wildlife movement corridor for animals making long-range movements into Bitterwater Valley and beyond. Perimeter fencing would force tule elk and pronghorn antelope movements around the site. Lands adjacent to the Topaz Site, including the foothills of the Temblor Range to the north and east, and Bitterwater Road and the San Juan Creek watershed to the west, are less desirable habitats for dispersal than the flat bottomlands at the Topaz Site. Displacement from a large portion of Topaz Site and degradation of an important movement corridor may be a significant adverse impact to the tule elk and pronghorn antelope herds in the Carrizo Plains region.”

The TSF would result in a large area (6,210 acres) of pronghorn and elk habitat removed and potential blockage of wildlife corridors for pronghorn. The construction and operation of TSF could also result in significant impacts to common and special status species onsite.

In contrast, tule elk do not utilize the CESF site in any significant level. Nonetheless, the CESF project, which results in permanent disturbance of one section and temporary disturbance of another half section, is preparing a mitigation plan for potential effects on wildlife corridors and compensatory mitigation for pronghorn habitat presumed to be permanently lost due to the CESF project build-out. In Section 5.6, Biological Resources, of the CESF AFC, it is noted that seven special status wildlife species, and 16 special status plant species inhabit the project vicinity for the CESF project. While construction of the CESF will permanently remove 640 acres of foraging and potential nesting habitat for certain wildlife species, the site is a small area of a much larger landscape. Adjacent habitats are similar to the CESF site and can be utilized by these species in the same manner. As part of the CESF project, mitigation for constraining wildlife corridors would be provided by setting aside adjacent sections in perpetuity for

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continued agricultural use, thereby ensuring access to suitable wildlife corridors around the CESF site. In addition, CESF proposes the following mitigation for each identified species identified below.

Proposed Mitigation Measures for CESF Project

San Joaquin Kit Fox

Mitigation for impacts to SJKF should be consistent with USFWS Recovery Plan for San Joaquin Valley Upland Species. According to the Recovery Plan and Figures 1 and 2, the CESF site is not located within: 1) Any area along the valley's edges within which a contiguous band of natural lands and wildlife-compatible farmlands should be maintained, 2) any proposed specialty reserve areas, or 3) any proposed areas where connectivity and linkages should be maintained, as displayed by the attached figure.

Impacts to 640 acres of marginal San Joaquin kit fox (SJKF) habitat (active agricultural field) are considered significant. SJKF use of the CESF site appears to be limited to pass through habitat and marginal foraging habitat. No fox dens are present, and it is presumed that the presence of an American badger territory onsite would further preclude SJKF dens from being established onsite. The proposed SJKF mitigation measures are:

- Mitigate impacts to 640 acres of marginal SJKF foraging / pass-through habitat at a 1.1:1 ratio (705 acres of aglands or naturalized habitats supporting SJKF). This mitigation ratio is consistent with other CEC permitted projects located on active agricultural lands within a landscape dominated by aglands.
- Provide SJKF refugia dens within the lands being conserved adjacent to the CESF site.

Pronghorn Antelope

Impacts to pronghorn are anticipated to be significant due to permanent loss of 640 acres of foraging habitat and habitat that is used to access other habitats north of the CESF project site. 380 acres of temporary loss of pronghorn habitat would be less than significant because the habitat will be returned to its original land use (agriculture) that currently supports pronghorn. There is currently no CDFG Management Plan for pronghorn in the Carrizo Plain that defines a policy directive that guides long-term protection of the species in the Carrizo Plain. Proposed mitigation measures for impacts to pronghorn are provided below.

- Mitigate at a 1.1:1 ratio via purchase of an agricultural easement not to exceed 705 acres within key parcels (Sections 32 and 33) adjacent to Highway 58 and the CESF Project site, to facilitate continued pronghorn movement past the CESF site.
- Revert 380 acres of temporary laydown area in Section 33 back to aglands upon completion of project implementation.
- Modify existing fencing along Highway 58 in the CESF project vicinity, where appropriate, to be compatible with pronghorn movement.
- Maintain the watering facility at the southeastern end of Section 33 for pronghorn use.

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- Place additional watering facilities along the western perimeter of the project boundary on Section 28 (and Section 33 during construction) as supplemental water sources for pronghorn and other wildlife.
- Work with Caltrans to slow down traffic along Highway 58 in this segment of the highway, especially at night. Provide wildlife movement signage and solar powered speed sensor signs to keep drivers attuned to their speed in the highway segment that includes the pronghorn crossing location.

American Badger

Impacts to badger are anticipated to be significant due to permanent loss of 640 acres of habitat that accounts for a portion of one badger territory. 380 acres of temporary loss of badger habitat would be less than significant because the habitat will be returned to its original land use that currently supports badger. Purchase of the agricultural easement for SJKF and pronghorn mitigation would provide habitat for badger. Proposed mitigation for potential loss of individual animals includes:

- The applicant must retain a qualified biologist to survey the project site for the presence of the American badger no earlier than 3 days prior to any grading activity.
- If an active badger and its burrow is found onsite, a qualified biologist should be present to monitor the burrow during construction. It is likely that the badger will leave the site once construction begins. Because of the fierce nature of this species, it is recommended that the badger be allowed to leave on its own.

Tule Elk

Tule elk do not substantially utilize the habitat within the CESF Project area; Elk data show elk use areas and movement routes are well east of the CESF site. Therefore, impacts to Tule elk are less than significant, and no mitigation is required.

Burrowing Owl

Burrowing owl or their sign were not detected during 2008 surveys at the CESF project site or laydown area. In addition, none were detected on the CESF project site (Section 28) during 2007 or 2008 surveys. The burrow that was present at the south end of the laydown area (Section 33) was destroyed by cultivation activities between the 2007 and 2008 surveys. If burrowing owl re-establish a territory in the Project area, it is likely that burrowing owl would be able to use the laydown area in Section 33 during project construction and after the laydown area is reverted to current conditions.

Loss of 640 acres of marginal, unoccupied habitat is not considered a significant impact to burrowing owl. Temporary loss of 380 acres of burrowing owl habitat on the CESF laydown site is not considered significant. The proposed compensatory mitigation for SJKF and pronghorn would also benefit burrowing owl. A pre-construction survey for burrowing owls should be completed during the non-breeding season prior to the start of initial ground-disturbance activities. If a burrowing owl is detected on the project site

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during the preconstruction surveys, the following BMP measures to minimize impacts to burrowing owl shall be followed prior to ground disturbing activities:

- Passively relocate any owls if the burrow is located within 100 feet of proposed ground disturbing activities.
- Any active owl burrow within 100 feet of ground disturbing activities should be monitored by a qualified biologist at weekly intervals.
- Provide three (3) man-made owl burrows along the project perimeter or in the conserved aglands after project build-out.

Large Raptor Foraging Habitat

Impacts to large raptor species (northern harrier, golden eagle) are anticipated to be significant due to the permanent loss of 640 acres of raptor foraging habitat. The temporary loss of 380 acres of raptor foraging habitat would be less than significant because the habitat will be returned to its original land use that currently supports foraging for raptors. Larger raptors will be less able to forage onsite after project build-out. Smaller raptors (including burrowing owl) will still be able to use the site. Mitigation for loss of raptor foraging habitat will be provided through the compensatory mitigation acreage provided for SJKF and pronghorn mitigation. Additional proposed BMP measures include:

- Pre-construction nest surveys of trees within CESF Project area during the non-breeding season.
- If nests are detected, removal of nest trees must occur during the non-breeding season.

The mitigation suggested above would represent mitigation that would alleviate a fair share of any potential cumulative effect to Biological Resources posed by the CESF development. Thus, inasmuch as the CESF will add incrementally to the scale-driven effects of the TSF project, CESF's impacts are less than cumulatively considerable after considering the proposed mitigation (CCR Section 15064[h][2]).

A.5.8 Cultural Resources

CESF has not seen a detailed cultural resources analysis of the potential impacts of TSF. Given the information available to CESF about TSF, the CESF, when assessed with the TSF, is not anticipated to have any foreseeable cumulative impacts to cultural resources. Although CESF is not aware of any cultural resource sites, the potential cultural resource impacts to any cultural resource sites from the two projects would be geographically isolated. Moreover, no significant or unique cultural resources were found in the CESF's Areas of Potential Effects (APEs) during the archaeological pedestrian survey and historic architecture survey. Furthermore, there are no properties within the APEs that are recommended as appearing to be contributors to a potential cultural landscape within the California Valley. The potential effects from the TSF are unknown at this point since the cultural resources analyses have not been completed for the TSF. Although it is not foreseeable that the two projects will result in combined cultural resources impacts, mitigation measures have been provided that would reduce potential impacts to a less than significant level in the event that significant archaeological site(s) is/are identified within the CESF boundaries during construction. In the event that significant archaeological site(s) is/are encountered during construction, data recovery and/or site avoidance would ensure that the information

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content of the site would be retained. These measures would limit the cumulative impacts the CESF would have on cultural resources in the region. In summary, the cumulative impact the CESF may have on cultural resources would be less than significant.

A.5.9 Paleontological Resources

The CESF, when assessed with the TSF, is not anticipated to have any foreseeable cumulative impacts to paleontological resources. No known paleontological resources exist on the CESF site. The paleontological impacts from the two projects will be geographically isolated. If significant paleontological finds were to be encountered during CESF construction, the potential for cumulative effects would exist. Mitigation measures would be implemented to salvage such resources and reduce cumulative effects to a level that is less than significant. The mitigation measures proposed in Section 5.8.4 of the CESF AFC would effectively preserve the value to science of any significant fossils uncovered during CESF-related excavations.

A.5.10 Land Use

Although not an incompatible or inconsistent land use, the addition of the TSF project will represent a shift in the primary use of lands within the California Valley. Currently there is a mix of agricultural and rural residential use within the area. San Luis Obispo County considers solar farming to be consistent with its General Plan pursuant to a CUP. Solar farming is compatible with agriculture insofar as solar farming does not involve pollutants and will not disrupt agricultural activities on adjacent lands. Furthermore, the installation of photovoltaic solar systems is an allowed use within the Agriculture Rural Lands district of San Luis Obispo County. Nonetheless, and although CESF would shift 640 acres' primary use to production of solar energy, the sheer size of the additional 6,210 acre TSF project would transform the California Valley into a regional center for the production of solar energy. Thus, although the change is considered consistent with existing land uses, the cumulative land use impact does include a significant change in land use, largely driven by the scale of the TSF project.

In addition, the CESF will contribute a minor increase in the amount of lands removed from active agricultural production. CESF's contribution is minor as compared to the total land removed from agricultural production as a result of CESF in combination with the much larger TSF project. To compensate for its impacts, CESF will provide a conservation easement over 705 acres of agricultural land to address impacts to biological resources that will also provide mitigation for CESF's cumulative agricultural impacts. Through implementation of the mitigation plan, CESF would fulfill its obligation to mitigate its contribution to the cumulative impact, rendering any potential impact to agricultural lands caused by the CESF project less than significant and not cumulatively considerable.

A.5.11 Socioeconomics

The additive effects of both the CESF project and the TSF project are not expected to be adverse, and therefore will not cause any significant adverse cumulative impacts. However, the development of several large solar power facilities in this area may contribute to further indirect economic growth within the area.

Based on the CUP application provided for the TSF project, potential for the displacement of a small number of existing residents may result due to the large size of the TSF project. However, the CESF will

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not contribute to the displacement of residents, nor does it physically divide the community further through any additive effect when combined with the TSF project.

The projects would not contribute to substantial increases in local population. The majority of permanent CESF employees are expected to come from within the local area (within an hour commute distance) which includes Atascadero, Templeton, and San Luis Obispo. Currently there is adequate housing for permanent employees of both projects, and additional housing is available for small numbers of employees to relocate to the local area as defined by a one hour commuting distance (see Section 5.10.1.2 of the CESF AFC).

Economic impacts include increased sales tax revenue due to the wages and salaries that would be spent by local residents who become employees of the respective projects and local expenditures by the projects during construction and operation. No adverse economic impacts are expected to result from either project.

Neither of the projects contributes to the pollution of these areas. Additionally, California Valley is not considered an area with a high relative mix of minority populations. Environmental justice considerations are rendered moot by these facts.

A.5.12 Traffic and Transportation

Based on the project trip generation information provided by Optisolar in their CUP application, a Cumulative Level of Service (LOS) Analysis was conducted. The results of the analysis show that even with the cumulative trips added to the peak CESF construction traffic, the LOS on SR-58 (east and west of the CESF site) would remain at acceptable levels; LOS A during both AM and PM peak hours. The LOS at Bitterwater Road would change from LOS A to LOS B during both AM and PM peak, but will not result in a significant cumulative traffic impact.

Since there is no traffic study yet for the TSF project, assumptions were made to evaluate the cumulative traffic impacts based on current information to date. Findings of no cumulative impacts as described in Section 5.11.3 of the CESF AFC remain the same.

Table 2 summarizes the trip generation potential of the proposed cumulative project within the project study area.

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**TABLE 2
CUMULATIVE PEAK CONSTRUCTION TRIP GENERATION**

	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
		In	Out	In	Out
Peak Construction (Workers) Buses	40	10	10	10	10
Heavy Vehicles	100	15	8	0	15
Deliveries	170	26	13	0	0
Construction Trucks	270	41	20	0	41
Total Trips Per Peak Hour		92	51	10	66

The estimated cumulative construction passenger car equivalent traffic is summarized in Table 3.

**TABLE 3
ESTIMATED CUMULATIVE PEAK CONSTRUCTION TRAFFIC (PCE)**

Vehicle Type	Passenger Car Equivalence (PCE)	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour In	PM Peak Hour Out
Peak Construction (Workers) Buses	3	30	30	30	30
Heavy Vehicles	3	45	24	0	45
Deliveries	3	78	39	0	0
Construction Trucks	3	123	60	0	123
TOTAL		276	153	30	198

Table 4 shows the results of the LOS analysis with the addition of cumulative project trips to the Year 2010 with Peak Project construction conditions.

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TABLE 4
ROADWAY SEGMENT LOS -
YEAR 2010 PEAK PROJECT CONSTRUCTION CONDITIONS
CUMULATIVE ANALYSIS

Roadway	Segment	Cross-Section Classification	Peak Hour Traffic Volume AM / PM	Level of Service (LOS) AM/PM
SR-58	At Cammati Creek	2-Lane Collector	166 / 166	A / A
SR-58	West of Soda Lake Road	2-Lane Collector	233 / 187	A / A
Bitterwater Road	North of Bitterwater Valley	2-Lane Collector	305 / 208	B / B

As shown in Table 4, all of the study roadway segments are forecast to operate at acceptable LOS-B or better under Year 2010 Peak Project Construction Plus Cumulative Project conditions.

A.5.13 Noise

The CESF project is not expected to result in significant cumulative impacts related to noise during construction, concurrent construction, and partial CESF operation, and full operation when construction is complete.

The addition of the TSF would not result in increased cumulative operational noise. While noise is an unwanted release of sound energy that is logarithmically additive among several sources, it also dissipates with propagation over distance and is also absorbed by both air and ground cover, ultimately converting into heat. Hence, because it geographically covers much larger area in combined acreage than CESF, the TSF is not expected to generate levels of operational noise that would meaningfully contribute to the aggregate background sound level or “ambient” at noise-sensitive receivers studied in the CESF AFC. This expectation is based primarily on the understanding that electrical systems (*e.g.*, substation, transformers, etc.) that are part of the TSF project are likely to be surrounded by, effectively due to its large aggregate area, a large buffer distance over which plant operation sounds will naturally dissipate.

The addition of the TSF could increase the cumulative construction noise as perceived at a noise-sensitive receiver location. At the time of this writing, the best available information indicates that TSF would involve conventional construction techniques and may be located less than a quarter-mile from some of the noise-sensitive receivers considered in the CESF AFC. At this distance from these receivers, noise from construction activity at the TSF might meaningfully contribute to the ambient containing construction noise from the CESF. However, construction noise being temporary in nature, by CEQA standards, is considered a less than significant impact.

In sum, the cumulative noise impact from the CESF is anticipated to be less than significant.

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A.5.14 Visual Resources

Absent mitigation, the development of both TSF and CESF would result in a potentially significant cumulative impact on visual resources. Figure 3 provides a simulation of proposed development of both projects. The cumulative visual effect is largely attributable to the TSF project's scale, and the fact that it will cover a vast, formerly open plain. Measures to mitigate the more discrete and localized visual impacts of the CESF project have been identified and include, for example, screening of views from nearby homes. Furthermore, CESF will set aside nearby lands that will retain the agricultural character of the existing plain. These measures mitigate CESF's contribution to the cumulative effects and, therefore, visual effects are not considered a cumulative impact of the CESF project.

CESF has modified the orientation of the solar field to remove the possibility of glare impacts to drivers on SR-58 when the mirrors are stowed. TSF is located further away from SR-58 and, from the information available to CESF, will not result in glare impacts to drivers. Therefore, with the limited information available to CESF, there will be no cumulative glare impacts to drivers on SR-58 from both projects.

At this time CESF does not have sufficient information about the night lighting of the TSF to evaluate the potential night lighting impacts of both TSF and CESF. Thus, any evaluation of cumulative night lighting impacts would be speculative. Nonetheless, night lighting impacts can only be mitigated by each project at each project. CESF has created a night lighting plan to reduce its contribution of light to the night sky by reducing and shading exterior lighting and using task lighting only where needed and as needed for maintenance of the facility. In this way CESF can effectively reduce its contribution to any cumulative impact to night light.

A.5.15 Waste Management

The Class I and Class III landfills and soil and water recycling facilities in the CESF site area have adequate recycling and disposal capacities for the CESF and TSF projects; therefore, cumulative impacts from the CESF site and TSF are not expected to be significant.

A.5.16 Hazardous Materials

Long-term or cumulative impacts will be avoided by cleaning up any accidental leaks or spills of these materials as soon as they occur. Both projects must comply with conditions of certification and appropriate mitigation and compliance conditions that ensure that the project utilizes hazardous materials in compliance with all applicable LORS, in a manner that ensures no significant environmental impacts. Furthermore, due to the solar technologies proposed for the projects, very little hazardous materials would be used during operation. Also, during construction the use of hazardous materials will be limited to standard construction materials that will be properly handled. Therefore, there are no cumulative impacts anticipated relative to hazardous materials from the construction and operations of both projects.

A.5.17 Public Health and Safety

It is not anticipated that any cumulative public health and safety impacts would be significant. None of the sources of cumulative impacts utilize acute pollutants. All of the emissions are either fugitive dust or

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criteria pollutants from construction equipment, maintenance vehicles, or emergency generators. As discussed in the Air Quality section above, the emissions during operation are minimal because both projects use solar technology. The highest risk of air quality issues would occur if the project construction for both projects was to overlap. For a discussion of cumulative effects related to air quality during overlapping construction, please see the Air Quality discussion, above. No cumulative impacts are anticipated that would affect Public Health and Safety.

A.5.18 Transmission Line Safety and Nuisance

CESF project transmission line structures will pose no threat to aviation safety according to Federal Aviation Administration Regulations, Part 77. Minimum clearances specified in the California Public Utility Commission (CPUC) General Order 95 (GO 95) will be imposed on the CESF project. The proposed 230 kV transmission interconnection will be designed and constructed in conformance with CPUC GO 95 and Title 8 CCR 2700 requirements. Therefore, hazardous shocks are unlikely to occur as a result of CESF construction or operation.

The CESF will be connected at 230 kV, and it is expected that no corona-related design issues will be encountered, and that the construction and operation of the CESF will not result in any significant increase in electromagnetic field (EMF) levels or audible noise.

It is assumed that the TSF project will comply with CPUC GO 95 and Title 8 CCR 2700 requirements and endeavor to work with local authorities to reduce EMF levels resulting from transmission lines.

Furthermore, it is expected that TSF will not build above heights acceptable under Federal Aviation Administration Regulations, Part 77.

Therefore, no cumulative impacts are anticipated to result from CESF project development.

A.5.19 Worker Safety and Fire Protection

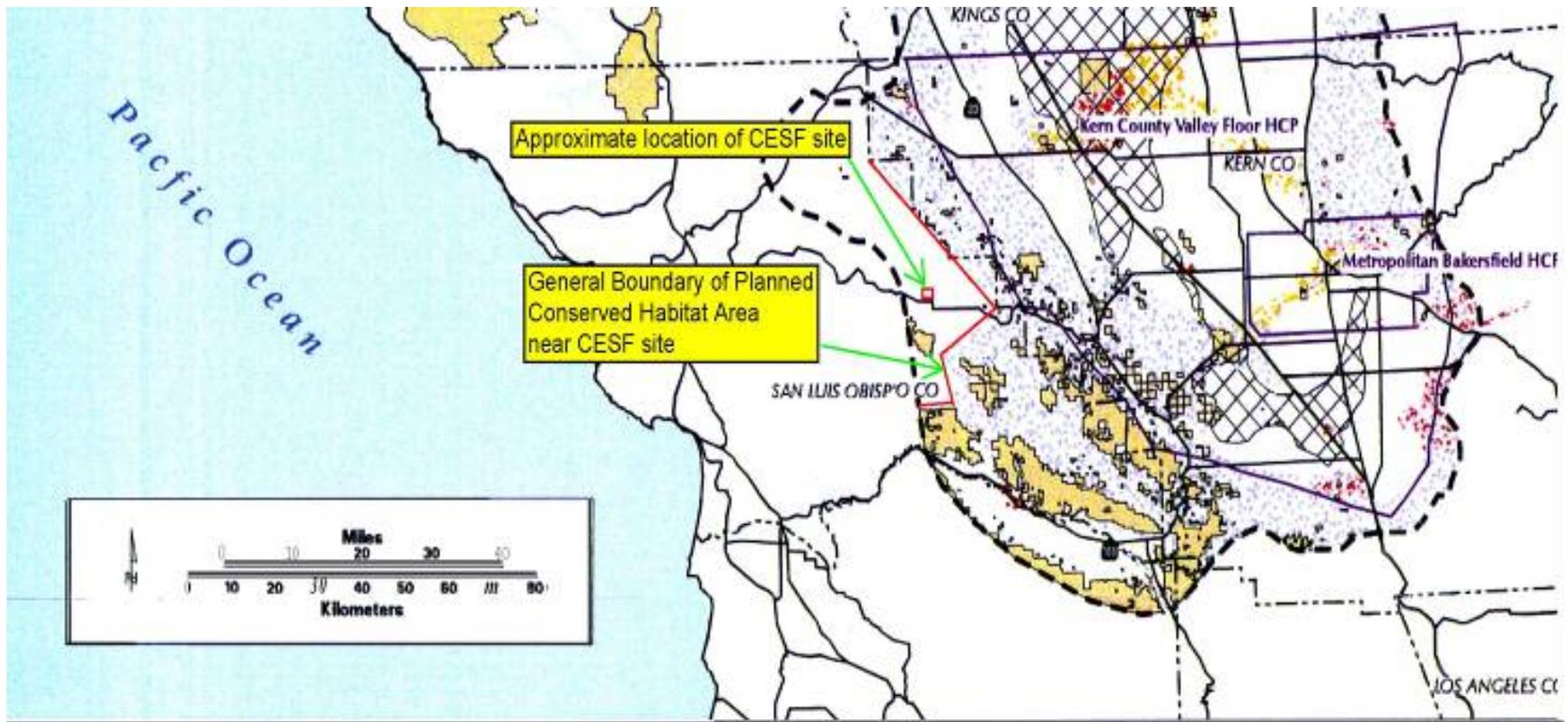
As both the CESF and TSF projects in this cumulative impact evaluation will be responsible for complying individually with applicable worker safety requirements, no cumulative impacts on worker safety are expected as a result of the CESF.

It is assumed that fire safety requirements will be met by the TSF project and the CESF project separately through both onsite fire protection systems and local fire protection services. The CESF will rely on both onsite fire protection systems and local fire protection services as described in Section 5.17, Worker Safety, and Section 3.0, Project Description and Location, of the CESF AFC. Furthermore, the CESF will meet fire safety requirements and be approved by CalFire engineers to not exceed the capability of fire prevention equipment. A temporary fire protection and prevention plan will be developed and followed throughout all phases of construction of CESF. The specified firefighting equipment will be provided to site personnel.

It is expected that the TSF project will also implement a permanent fire safety plan, meet fire safety requirements, and be approved by CalFire engineers to not exceed the capability of fire prevention equipment. Currently, there is insufficient information available on the TSF project regarding the level of

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fire service required to adequately address cumulative fire suppression service needs for the TSF project. It is anticipated that any combined effects of both projects on the current levels of available area fire service could be addressed by dividing mitigation according to each project's contribution to any additional need for increased levels of service. Therefore, no cumulative impacts resulting from CESF development have been identified.



-  Public lands: Federal, State & Conservation lands (some lands unsuitable for species addressed in this plan)
-  Areas along the valley's edges within which a contiguous band of natural lands and wildlife-compatible farmlands should be maintained
-  Proposed Specialty Reserve areas
-  Proposed areas where connectivity and linkages should be promoted

-  Drainage problems areas
Data Source: U.S. Bureau of Reclamation
-  San Joaquin Valley Multispecies Recovery Plan study area
-  Existing and proposed Habitat Conservation Plans

1997

**PLANNED LINKAGES FIGURE FROM USFWS
RECOVERY PLAN (PAGE 225)**

URS

NO SCALE

CREATED BY: TM

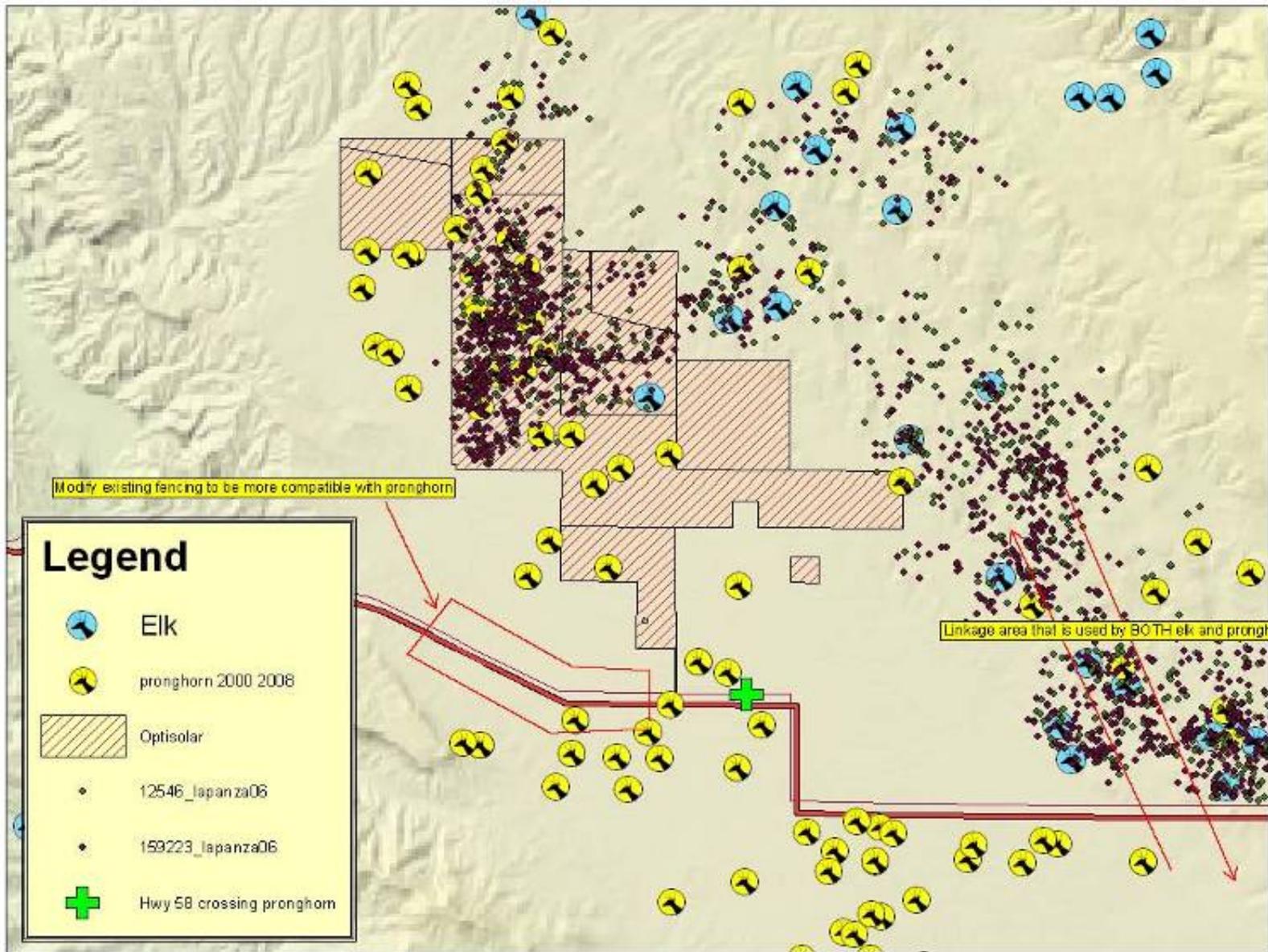
DATE: 9-23-08

FIG. NO:

PM:AL

PROJ. NO: 27658060

1



**RESULTS OF PRONGHORN AND ELK AERIAL
AND RADIO TELEMTRY SURVEYS AND APPARENT CORRIDORS**

URS

NO SCALE

CREATED BY: TM

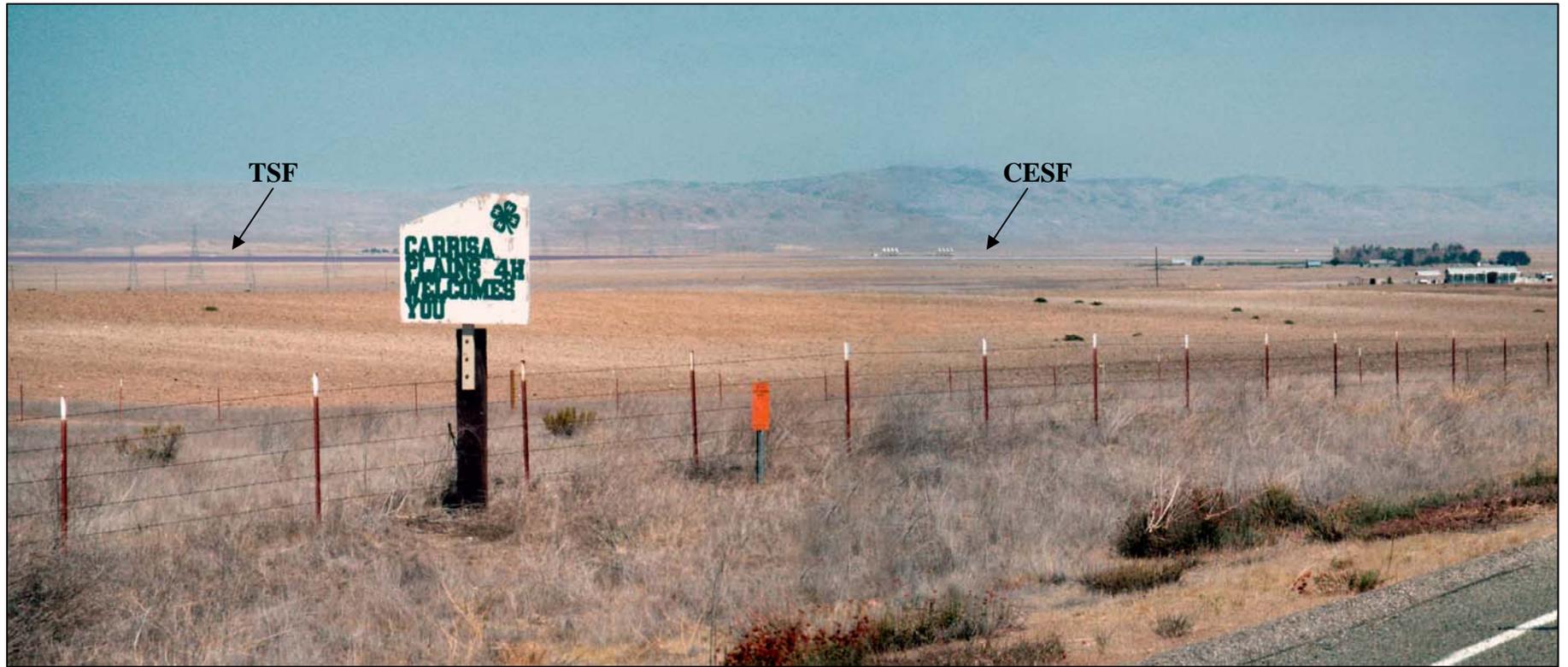
DATE: 9-23-08

FIG. NO:

PM:AL

PROJ. NO: 27658060

2



KOP 4: Simulated view from the Hubbard Hill - Freeborn Mountain open space area looking northeast toward CESF and TSF site (approximately 3.5 miles southwest of CESF). This photo location is meant to represent “worst-case” views (e.g. elevated, unscreened, closest proximity views) for potential recreational users



within the Hubbard Hill-Freeborn Mountain area.*

*This photo location also represents traveler views along SR-58 from an elevated location.

This photograph has been cropped to show a wide angle view with the above photograph's area shown in yellow.

**SIMULATED VIEW OF CESF AND TSF FROM KOP #4
CARRIZO ENERGY SOLAR FARM (CESF)**



NO SCALE

CREATED BY: AG

DATE: 8-21-08

FIG. NO:

PM:AL

PROJ. NO: 27658060

3

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE
STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION
For the CARRIZO ENERGY
SOLAR FARM PROJECT

Docket No. 07-AFC-8

PROOF OF SERVICE

(Revised 7/24/2008)

INSTRUCTIONS: All parties shall either (1) send an original signed document plus 12 copies or (2) mail one original signed copy AND e-mail the document to the address for the Docket as shown below, AND (3) all parties shall also send a printed or electronic copy of the document, which includes a proof of service declaration to each of the individuals on the proof of service list shown below:

***CALIFORNIA ENERGY COMMISSION**

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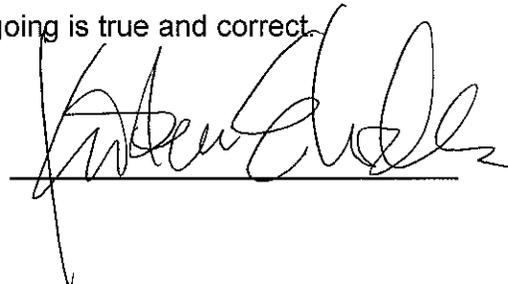
DECLARATION OF SERVICE

I, Kristen E. Walker, declare that on September 24, 2008, I deposited copies of the attached Applicant's Response to CEC Data Request 112 - Attachment A in the United States mail with first-class postage (FedEx) thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.



A handwritten signature in black ink, appearing to read 'Kristen E. Walker', is written over a horizontal line.