VISUAL RESOURCES

GENERAL COMMENTS

1. This Section relies upon the Glint and Glare Safety Impact Assessment (Glare Assessment) attached as Appendix TT1 to the Traffic and Transportation of the PSA. However, as discussed at the PSA Workshop, the Glare Assessment does not provide citations or references to support the assertions in that assessment. Staff has agreed to provide supporting citations for this assessment, but the Applicant has not yet received this information. Applicant is still formulating a specific response to address impacts as described within Appendix TT1.

2. This section of the PSA uses the term glare more than 100 times. The glare from the project receivers is variously described as "nuisance glare", "discomfort glare", "intense discomfort glare", "severe glare effects", "a disruptive source of discomfort glare" or "visual disruption effects". The glare is alleged to cause visual disruption, discomfort, some level of discomfort, considerable discomfort, substantial discomfort, intense discomfort or making viewers highly uncomfortable. Although these various terms are used interchangeably throughout this section of the PSA, none are defined or explained. Because none of these terms are defined nor distinguished, it is not clear whether all these terms are different ways of describing the same glare effect or whether the different terms are intended to describe varying intensity of glare or discomfort. The Commission internationale de l'Eclairage (CIE) defines discomfort glare in the following manner: "a sensation of annoyance or pain from bright lights in the field of view". There is no reason to add adjectives that have not been defined further by the organization that is the authority in this technical field. Therefore, Applicant recommends that staff delete the adjectives in favor of simply referring to "discomfort glare" which, by CIE definition, imparts no damage on the eye.

3. The CEC's Visual Resources Methodology (Appendix *Visual Resources 1* attached) used to conduct the Visual Impact Analysis in the PSA is flawed. The thresholds used to inform the PSA's findings for degree of impact (in terms of viewer sensitivity) are not based on fact. Therefore, the CEC's method and PSA's impact conclusions do not comply with CEQA statute.

   The thresholds in the CEC's methods are arbitrary and the thresholds are so low that following their logic, virtually no development would be allowed at the Project site. For example, the CEC method establishes a "High" degree of impact threshold for any viewer with a view of the project that is longer than 2 minutes. According to this rationale, motorists traveling on I-10, driving 65 miles per hour, who are concentrating on the road, with occasionally obscured views of the Project, would constitute a "High" degree of impact. The CEC's method also states that if more than 100 residences could see a Project; this would cause a "High" degree of impact. It is unclear how the threshold (100 residences with views) was established, or, for that matter how it constitutes fact. The PSA provides no regulatory guidance, adequate justification, or substantial evidence for how these thresholds were established or why they are valid.

   Similar unsupported thresholds throughout the CEC's method cause the PSA to arrive at likewise unsupported statements of overall impact significance. Please see Appendix *Visual Resources 2*

for the Applicant's detailed assessment of CEC's Visual Resource Methodology and how this method serves to overstate the findings for visual impact.

4. The PSA presumes that viewers share the aesthetic sensibilities of its authors – i.e., that of a natural landscape architect or conservationist. The PSA assumes that viewers will find the form, structure and light of the project to be adverse and degrading. The PSA fails to recognize the possibility that many viewers will find the project to be an interesting, or even an attractive feature. The PSA uses the term "industrial" as a negative descriptor of the RMS project, failing to recognize that the project is a renewable resource that provides a clean energy alternative to traditional sources of generation. As a result, on the basis of this unsupported and subjective assumption, the PSA arbitrarily assumes that viewer concern at all KOPs will be moderate or high. As recognized in the Ivanpah FSA, however:

   "the Project will not present conditions visual disorder and disunity that are generally equated with low visual quality or 'visual blight.' For example, a mining operation or manufacturing facility might present scenes of strong visual disorder and thus, low visual quality or 'blight.' The proposed project, in comparison, would exhibit moderate visual quality and would likely appear more acceptable than many other forms of intensive urban or industrial development. Thus, staff notes that within an urban frame of reference not all viewers would find the project disagreeable or unattractive; indeed, many viewers could find the project interesting to view due to its novelty. Overall, it would exhibit moderate visual quality and preserve scenic (though strongly altered) views. Within an urban frame of reference, this level of impact might be considered acceptable. However, within a landscape conservation-oriented frame of reference, the project would represent a substantial change and impairment of a previously intact natural landscape."

5. The PSA treatment of number of viewers is inconsistent. Examples include:

   (1) Occasionally viewer numbers are based on guesses or speculation, rather than hard counts or surveys of users,

   (2) Inconsistent treatment of viewer numbers, so that even within the PSA the same number is characterized differently,

   (3) Very low numbers of viewers are characterized as "moderate" or "moderate-to-high"

6. The PSA does not undertake an objective analysis of each KOP, as is typical CEQA practice and as has always been the case in prior Staff Assessments and other EIRs. Instead, the description of various KOPS is "clustered", so that a group of KOPs is assessed collectively, rather than individually. As a result, the PSA's provided assessment of the KOP's is not precise or accurate when considering the views from each KOP and deprives reviewers the opportunity to understand the project's true visual impact.

7. The viewshed map provided in the PSA as Figure 4 is misleading. The AFC contained separate maps which depicted the viewshed of the heliostat field, and the viewshed of the taller transmission lines and towers. The PSA Figure 4 appears to meld these two maps together in a manner that does not accurately reflect either viewshed. An exaggeration (or "fisheye") view is created by melding the two maps together. This goes against CEC simulation standards of simulating a viewer's angle (as shown in the Applicant's simulations). In addition, Figure 4 also overlays what is purported to be the area in which "illumination from the solar receivers would be visible", however, it is inaccurate. The PSA incorrectly assigns "distracting" glare to viewers in areas where the towers are not visible. In addition, the map indicates that some project features may be visible from portions of these locations.

8. The PSA's definition of scenic vista is too broad. Most other agencies in California and many prior Staff Assessments interpret "scenic vista" to be an *officiallydesignated* scenic vista. For example, the Chula Vista PSA finds no substantial effect on a scenic resource because "There are no State-designated scenic roads or vista points in the nearby (2-mile radius) project viewshed." (Chula Vista PSA 5.13-19) The Rio Mesa PSA does not limit the inquiry to whether the project is located "in the scenic view of a local/state/federal-designated scenic vista". Instead, the PSA defines a scenic vista "For the purposes of this analysis…as….a view of high scenic quality perceived through and along a corridor or opening; or from a designated scenic area." The PSA does not explain why the definition of scenic vista is more expansive than the definition of scenic vista for other projects such as Chula Vista. The PSA presumes to create a new, expansive definition for the term "scenic vista", and therefore should cite the authority.

9. The PSA asserts that the Project would completely dominate the Bradshaw Trail's scenic corridor; however, a "corridor" is not a "scenic resource" as scenic resource is defined in the CEQA Guidelines. This definition is not consistent with CEQA and not consistent with how the CEC has defined Scenic Resources in past cases.

10. The PSA asserts that the Bradshaw Trail has high scenic quality due to its designation as a back country byway. A road or trail may be nominated as a back country byway. Pursuant to USC Title 23, Sec. 162 (National scenic byways program) the Secretary may designate a byway to recognizes roads having outstanding historic, cultural, natural, recreational, archaeological or scenic qualities. Scenic quality is only one of the factors typically considered relevant to such designation and there is no evidence in the PSA that this factor had any bearing on the byway designation assigned to the Bradshaw Trail. Even if portions of the route may have important scenic values, there is no basis in law or fact to assert that views from the entire route qualify as "a designated scenic vista" simply because the route has been designated a byway. Moreover, the byway designation merely allows a route to be promoted as part of a national byways program and to qualify for federal grants. The designation does not confer any degree of federal protection, other than restrictions on outdoor advertising under particular circumstances.

11. The PSA states, "While not the sole criterion for designation of wilderness areas, preservation of scenic values is a key concern underlying the Wilderness Act (P.L. 88-577(16 U.S.C. 1131-1136))."

    Preservation of views within a designated Wilderness Area is one of the purposes of the Wilderness Act. To say that development surrounding a Wilderness Area is subject to the developmental restrictions of the Wilderness Act would overstep the regulatory authority of this Act since views outside of the Wilderness Area are not protected (See Appendix *Visual Resources 2* for further discussion). The PSA should be updated to analyze the number of viewers, if any, within portions of the Wilderness Area from which the Project is visible, the scenic quality of these views and the percent of acreage the viewable areas of Palo Verde Mountain Wilderness Area represents within the entire Wilderness Area. The project will not be visible from "nearly the entirety" of this wilderness area, as the PSA asserts. The PSA should accurately describe the portions of the Wilderness Area from which the Project is actually visible, and the PSA should indicate which, if any, of these visible areas are actually used by or accessible to recreational users. In addition, as discussed above, contrary to the PSA's erroneous conclusion, the views from the Wilderness Area are not designated scenic vistas.

12. The characterization of the project vicinity as a "largely undeveloped valley" is incorrect. The Noise section of the PSA more accurately describes the project setting as, "The project vicinity largely comprises agricultural uses with rural residential land use."

13. CEQA Guidelines Section 15355 requires that the cumulative impacts of the project be Assessed in relation to "closely related" past, present, and reasonably foreseeable future projects. Projects which are outside the viewshed – the natural resource boundary – are not closely related and should not be included in the cumulative impact assessment. Projects which are outside the Project viewshed cannot be seen in combination with the Project and therefore are not relevant to the cumulative impact assessment. Applicant can find no legal authority for the conclusion stated under Regional Cumulative Visual impacts. If such authority exists, please cite.
14. The scale bar in Staff's Figures is incorrect. The scale bar on Figures 1, 4 and 9 shows 1"=12.5 miles, which is incorrect.

FINDINGS OF FACT

No findings of fact listed.

CONDITIONS OF CERTIFICATION

1. Please revise VIS-1 as follows:

VIS-1 The project owner shall treat the surfaces of all project structures and buildings visible to the public such that a) their colors minimize visual intrusion by blending with the landscape or by providing architectural interest; b) their colors and finishes do not create excessive glare; in particular, that the finish of the solar towers <u>(with the exception of the receiver including calibration areas, and the heliostats)</u> does not cause high reflectivity, resulting in potential glare; and c) their colors and finishes are consistent with local policies and ordinances. Surface color treatment shall include <u>natural finish concrete and/or</u> painting or tinting of stacks, dry cooling structures, tanks, ~~heliostat structures~~ and other features in earth tone colors and values to blend in with the surrounding mountains and desert vegetation. Colors shall be chosen from BLM's Standard Environmental Colors ~~and pre-tested in the field~~. Any transmission line poles and conductors associated with the project shall be non-specular and non-reflective, and the insulators shall be non-reflective and non-refractive. The project owner shall submit for compliance project manager (CPM) review and approval, a specific surface treatment plan that will satisfy these requirements. The treatment plan shall include:

a. a description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes~~, including the photographic results of field testing~~;
b. a list of each major project structure, building, tank, pipe, wall, and fencing, specifying the color(s) and finish proposed for each. Colors must be identified by vendor, name, finish and number; or according to a universal designation system;
c. one set of 11" x 17" color photo simulations at life size scale of the treatment proposed for use on project structures, including structures treated during manufacture, from representative points of view, Key Observation Point 1 (Visual

Resources Figure 10b of the Staff Assessment) or color-rendered elevation drawings on 18" x 24" minimum sheet size;

d. color samples on color card or painted steel;
e. a specific schedule for completion of the treatment; and
f. a procedure to ensure proper treatment maintenance for the life of the project.

The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated in the field, until the project owner receives notification of approval of the treatment plan by the CPM. Subsequent modifications to the treatment plan are prohibited without CPM approval.

Verification: At least ~~90~~30 days prior to specifying to the vendor the colors and finishes of the first structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to the CPM for review and approval and simultaneously to Riverside ~~and Imperial c~~County~~ies~~ for review and comment. If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a plan with the specified revision(s) for review and approval by the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to the CPM for review and approval.

Prior to the start of commercial operation, the project owner shall notify the CPM that surface treatment of all listed structures and buildings has been completed and is ready for inspection and shall submit one set of electronic color photographs from the same key observation point identified in (c) above.

The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify a): the condition of the surfaces of all structures and buildings at the end of the reporting year; b) maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year.

2. **VIS-2:** Applicant requests removal of **VIS-2** for the following reasons, as detailed below: a) There is a potential issue with selection of trees that could provide perches for raptors and other migratory birds b) Coordination with Biology and Water Resources Staff has not occurred. c) The cost is unreasonable; and d) The amount of water usage required for all of the potential tree plantings may exceed that associated with a full year of Project operation.

    a. For the purposes of the analysis, the following trees were considered to meet the requirements set forth in VIS-2: Palo Verde, Desert Willow, and Cottonwood. Any large native tree (such as those meeting the requirements in VIS-2) in the desert will be an attractant to raptors and other birds, particularly if there aren't any others around currently. Most tree species listed below are species that make up the preferred habitats of Elf Owl, Gila Woodpecker, and other birds. Implementing VIS-2 would artificially attract migratory birds to the Project vicinity.

    b. Visual Resources Staff would need to coordinate with Biology and Water Resources Staff on the specifics of this COC to assure that resolving impacts in one subject area does not inadvertently increase impacts in another subject area.

    c. A desktop search identified approximately 475 properties within 8.5 miles of either solar tower which could potentially request tree planting. As each property could receive up

to 8 trees, a total of 3,800 trees could be required to be planted by the Applicant. Costs of these trees vary based on tree type but are estimated to be between $55 and $210 per tree. Using an average cost of $130 per tree, the cost of purchase trees for screening these residences would be approximately $494,000, exclusive of additional costs to plant trees along the western boundary of Marlowe Park and other necessary costs of installation (labor, machine rentals, etc.).

d. Water usage will vary based on type of tree planted and location (for example, trees planted to screen residences within the agricultural fields will have a higher water table and require less watering than those outside of these areas). On average, the tree species provided above are suggested to receive an average of 10 gallons per week once established. During the Project's 28 year lifespan (construction and operation), water usage would be 14,560 gallons per week for each tree planted. Assuming an estimate of 3,800 trees planted, water usage would be 170 acre feet, more to a years' worth of operational water use.

For these reasons, please delete VIS-2 in its entirety.

~~**Off-Site Landscape Screening: Palo Verde Valley Tree Plantings**~~

VIS-2 ~~The project owner shall plant trees on the western boundary of Marlowe Park, Ripley; and on properties of any residential property owner within 8.5 miles of either solar tower who indicates an interest in having them and ultimately agrees to having them. The intent is to plant the trees in locations that will screen views looking toward the solar power towers from the residences on the property and from the property's primary outdoor living areas.~~

~~The project owner shall meet the following requirements:~~

~~The project owner shall notify managers of Marlowe Park in Ripley, and residents within an 8.5 mile radius of either solar tower of the opportunity to obtain landscape screening as described in this condition. This letter should explain its purpose and state that the property owner/resident has a specific timeframe within which to respond and ultimately agree.~~

~~The project owner shall employ a professional arborist to identify a list of species that are well adapted to the local conditions and which have characteristics that provide effective screening of views. Selected plants shall avoid invasive exotic species as i[1]ndentified by the USDA and Invasive Species Council of California (ISCC).[1, 2]~~

~~The arborist shall work with residents to select up to eight trees from this list of species and will assist the residents in indentifying appropriate locations for their installation. The project owner will take responsibility for purchasing and installing the trees, which shall be the equivalent of a 15-gallon standard nursery size.~~

~~d) Tree planting is a one-time opportunity for property owners in the Palo Verde Valley. Once installed, irrigation and maintenance of the trees will be the~~

~~[1] NRCS Invasive Species Policy, Invasive Species Executive Order 13112, Invasive and Noxious Weeds, California State Listed Noxious Weeds.~~

~~[2] The California Invasive Species List, Presented on April 21, 2010 by the California Invasive Species Advisory Committee (CISAC) to the Invasive Species Council of California (ISCC).[1]~~

~~responsibility of the property owner and the project owner shall have no further responsibility.~~

~~**Verification:** Within 120 days of beginning construction, the project owner shall contact property owners in the Palo Verde Valley within 8.5 miles of either solar tower, including managers of Marlowe Park, Ripley, and the CPM, by registered mail to notify them of the tree planting program. The project owner shall provide in the Monthly Compliance Report (MCR) a summary of the program, including the following:~~

~~a.) parcel numbers of property owners contacted, and map with property owners/residents to be contacted;~~

~~b.) actions taken to ensure property owners fully understand the program, including draft of letter(s) to be sent to property owners, for review and approval of the CPM;~~

~~c.) list of installations by parcel number;~~

~~d.) quantity and species installed on each parcel;~~

~~e.) documentation of any property owner who declined to participate by parcel number;~~

~~f.) a signed affidavit from project owner or designee; and~~

~~g.) copies and records of all communication with managers of Marlowe Park, Ripley.~~

3. Subparagraph (g) of the lighting mitigation plan is redundant and unnecessary. Also minor edits to account for FAA requirements are warranted. Please revise VIS-3 as follows:

VIS-3 To the extent feasible, consistent with safety and security considerations, the project owner shall design and install all permanent exterior lighting such that:

a. lamps and reflectors are not visible from beyond the project site, including any off-site security buffer areas;
b. lighting does not cause excessive reflected glare;
c. direct lighting does not illuminate the nighttime sky, with the exception of FAA safety lighting;
d. illumination of the project and its immediate vicinity is minimized, and
e. the plan complies with local policies and ordinances.

The project owner shall submit to the CPM for review and approval and simultaneously to Riverside ~~and/or Imperial~~ County as applicable for review and comment a lighting mitigation plan that includes the following:

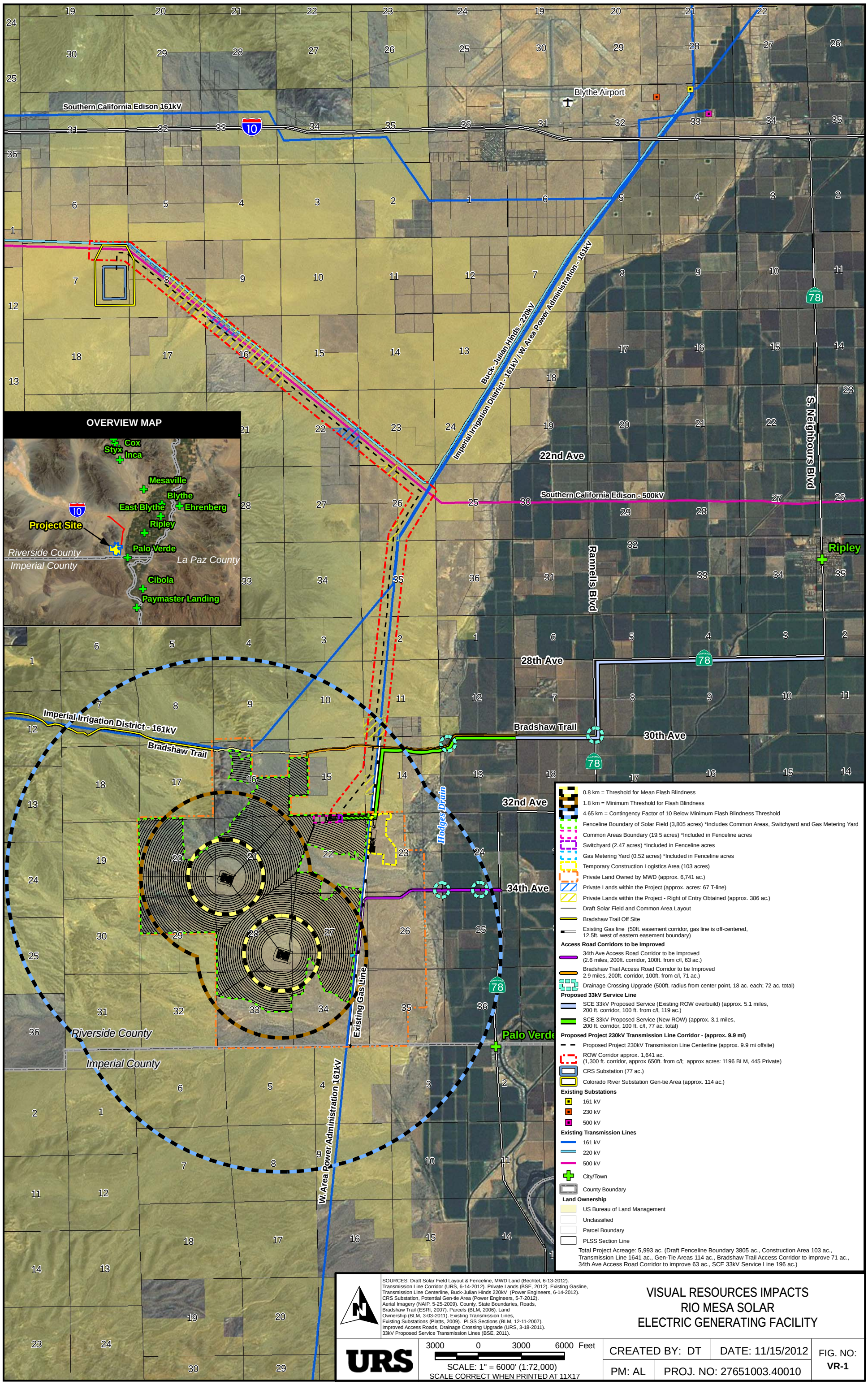
a. location and direction of light fixtures shall take the lighting mitigation requirements into account;
b. lighting design shall consider setbacks of project features from the site boundary to aid in satisfying the lighting mitigation requirements;
c. lighting shall incorporate fixture hoods/shielding, with light directed downward or toward the area to be illuminated;
d. light fixtures that are visible from beyond the project boundary shall have cutoff angles that are sufficient to prevent lamps and reflectors from being visible beyond the project boundary, except where necessary for security;

e. all lighting shall be of minimum necessary brightness consistent with operational safety and security; and
f. lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.~~; and~~
~~g. statement of conformance with all federal, state and local statutes and regulations related to dark skies or glare., including, but not limited to, the Riverside and Imperial County General Plans and related ordinances.~~

Verification: At least ~~90~~ 60 days prior to ordering any permanent exterior lighting, the project owner shall contact the CPM to discuss the documentation required in the lighting mitigation plan. At least ~~60~~30 days prior to ordering any permanent exterior lighting, the project owner shall submit to the CPM for review and approval and simultaneously to Riverside ~~and Imperial~~ County~~ies~~ for review and comment a lighting mitigation plan. If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a revised plan for review and approval by the CPM. The submittal shall include 3 printed sets of full-size plans (not to exceed 24" x 36"), 3 sets of 11" x 17" reductions and a digital copy in PDF format. The project owner shall not order any exterior lighting until receiving CPM approval of the lighting mitigation plan.

Prior to commercial operation, the project owner shall notify the CPM that the lighting has been completed and is ready for inspection. If after inspection the CPM notifies the project owner that modifications to the lighting are needed, within 30 days of receiving that notification the project owner shall implement the modifications and notify the CPM that the modifications have been completed and are ready for inspection.

Within 48 hours of receiving a lighting complaint, the project owner shall provide the CPM with a complaint resolution form report as specified in the Compliance General Conditions including a proposal to resolve the complaint, and a schedule for implementation. The project owner shall notify the CPM within 48 hours after completing implementation of the proposal. A copy of the complaint resolution form report shall be submitted to the CPM within 30 days.


OVERVIEW MAP
Cox
Styx
Inca
Mesaville
Blythe
East Blythe
Ehrenberg
Ripley
Project Site
Palo Verde
Riverside County
La Paz County
Imperial County
Cibola
Paymaster Landing
Blythe Airport
Southern California Edison 161kV
Buck- Julian Hinds - 220kV
Imperial Irrigation District - 161kV / W. Area Power Administration - 161kV
22nd Ave
S. Neighbours Blvd
Southern California Edison - 500kV
Rannells Blvd
Ripley
28th Ave
Imperial Irrigation District - 161kV
Bradshaw Trail
30th Ave
Hodges Drain
32nd Ave
34th Ave
Existing Gas Line
W. Area Power Administration 161kV
Palo Verde
Riverside County
Imperial County
0.8 km = Threshold for Mean Flash Blindness
1.8 km = Minimum Threshold for Flash Blindness
4.65 km = Contingency Factor of 10 Below Minimum Flash Blindness Threshold
Fenceline Boundary of Solar Field (3,805 acres) *Includes Common Areas, Switchyard and Gas Metering Yard
Common Areas Boundary (19.5 acres) *Included in Fenceline acres
Switchyard (2.47 acres) *Included in Fenceline acres
Gas Metering Yard (0.52 acres) *Included in Fenceline acres
Temporary Construction Logistics Area (103 acres)
Private Land Owned by MWD (approx. 6,741 ac.)
Private Lands within the Project (approx. acres: 67 T-line)
Private Lands within the Project - Right of Entry Obtained (approx. 386 ac.)
Draft Solar Field and Common Area Layout
Bradshaw Trail Off Site
Existing Gas line (50ft. easement corridor, gas line is off-centered, 12.5ft. west of eastern easement boundary)
Access Road Corridors to be Improved
34th Ave Access Road Corridor to be Improved (2.6 miles, 200ft. corridor, 100ft. from c/l, 63 ac.)
Bradshaw Trail Access Road Corridor to be Improved 2.9 miles, 200ft. corridor, 100ft. from c/l, 71 ac.)
Drainage Crossing Upgrade (500ft. radius from center point, 18 ac. each; 72 ac. total)
Proposed 33kV Service Line
SCE 33kV Proposed Service (Existing ROW overbuild) (approx. 5.1 miles, 200 ft. corridor, 100 ft. from c/l, 119 ac.)
SCE 33kV Proposed Service (New ROW) (approx. 3.1 miles, 200 ft. corridor, 100 ft. c/l, 77 ac. total)
Proposed Project 230kV Transmission Line Corridor - (approx. 9.9 mi)
Proposed Project 230kV Transmission Line Centerline (approx. 9.9 mi offsite)
ROW Corridor approx. 1,641 ac. (1,300 ft. corridor, approx 650ft. from c/l; approx acres: 1196 BLM, 445 Private)
CRS Substation (77 ac.)
Colorado River Substation Gen-tie Area (approx. 114 ac.)
Existing Substations
161 kV
230 kV
500 kV
Existing Transmission Lines
161 kV
220 kV
500 kV
City/Town
County Boundary
Land Ownership
US Bureau of Land Management
Unclassified
Parcel Boundary
PLSS Section Line
Total Project Acreage: 5,993 ac. (Draft Fenceline Boundary 3805 ac., Construction Area 103 ac., Transmission Line 1641 ac., Gen-Tie Areas 114 ac., Bradshaw Trail Access Corridor to improve 71 ac., 34th Ave Access Road Corridor to improve 63 ac., SCE 33kV Service Line 196 ac.)
SOURCES: Draft Solar Field Layout & Fenceline, MWD Land (Bechtel, 6-13-2012). Transmission Line Corridor (URS, 6-14-2012). Private Lands (BSE, 2012). Existing Gasline, Transmission Line Centerline, Buck-Julian Hinds 220kV (Power Engineers, 6-14-2012). CRS Substation, Potential Gen-tie Area (Power Engineers, 5-7-2012). Aerial Imagery (NAIP, 5-25-2009). County, State Boundaries, Roads, Bradshaw Trail (ESRI, 2007). Parcels (BLM, 2006). Land Ownership (BLM, 3-03-2011). Existing Transmission Lines, Existing Substations (Platts, 2009). PLSS Sections (BLM, 12-11-2007). Improved Access Roads, Drainage Crossing Upgrade (URS, 3-18-2011). 33kV Proposed Service Transmission Lines (BSE, 2011).
URS
3000 0 3000 6000 Feet
SCALE: 1" = 6000' (1:72,000)
SCALE CORRECT WHEN PRINTED AT 11X17
VISUAL RESOURCES IMPACTS
RIO MESA SOLAR
ELECTRIC GENERATING FACILITY
CREATED BY: DT
DATE: 11/15/2012
PM: AL
PROJ. NO: 27651003.40010
FIG. NO: VR-1
Path: G:\gis\projects\1577\27651002\map_docs\mxd\Flash_Blindness\RMS_Composite_Map_Flash_Blindness_Buffers.mxd, paul_moreno, 11/15/2012, 12:39:36 PM

Appendix Visual Resources 1

APPENDIX VR-1

INTRODUCTION

California Energy Commission, Environmental Protection Office staff (staff) assess if a proposed project and a forecasted publicly visible water vapor plume (visible plume) that may be emitted at operation by the project, potentially create a significant aesthetic effect on the environment according to policies in the California Environmental Quality Act (CEQA) (California Public Resources Code § 21000 et seq.).

The "State CEQA Guidelines"[1] defines a "significant effect on the environment" to mean "*a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance*" (14 California Code of Regulations §15382).

This appendix presents staff's procedure for evaluating a selected key observation point for a proposed project and a visible plume that may be emitted by the proposed project for the purpose of addressing CEQA and the State CEQA Guidelines specific to aesthetics.

The determination of significance under CEQA, as identified by staff in this appendix, is based to the extent possible on scientific and factual data specific to the issues found under Aesthetics, Appendix G of the State CEQA Guidelines[2], thresholds recommended by other public agencies or subject matter experts, performance and professional standards, and thresholds identified by staff as supported by "substantial evidence."[3]

Staff reviews aerial photographs and other photographs, photographic simulations, maps, and visits the selected key observation point location(s), the project site and vicinity to determine if a proposed project and its visible plume would "*substantially degrade the existing visual character or quality of the project site and its surroundings*" (Aesthetics, Appendix G, State CEQA Guidelines).

[1] The "State CEQA Guidelines" are provided by the California Resources Agency to detail guidance on how agencies should comply with CEQA. The State CEQA Guidelines are codified at the California Code of Regulations, Title 14, Division 6, Chapter 3, Articles 1-20 (Sections 15000-15387). Each public agency is responsible for complying with CEQA and the State CEQA Guidelines (14 Cal. Code Regs. §15020).

[2] California Code of Regulations, Title 14, Division 6, Chapter 6, Article 20, Appendix G - Environmental Checklist. The initial study/environmental checklist contained therein is only a sample that may be modified as necessary to suit the lead agency and to address the particular circumstances of the project under consideration (California Natural Resources Agency, "Final Statement of Reasons for Regulatory Action," pg. 74, December 2009).

[3] "Substantial evidence" as used in the State CEQA Guidelines means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached . . . Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts (14 Cal. Code Regs. §15384).

I. KEY OBSERVATION POINTS

It is difficult to describe visual appearance in words, visual assessments of the existing environment and the consequences of project alternatives should be based on *illustrations of actual views*. Because resources and time are always limited, it is also necessary to limit the number of views analyzed: it is essential that these be *representative views*, neither understating nor overstating the visual effects of the project. Viewpoint selection may be even more important to credible visual analysis than artistic sophistication.[4]

Staff uses a key observation point instead of viewpoint in its analysis. Staff has defined a "*key observation point*" (KOP) as a publicly accessible location that represents a critical surface area where the proposed project would be most open to view (revealing) to the public (e.g., a recreational or residential area, travel route, waterway, historic or scenic location).[5] A KOP may also represent a primary public viewer group(s) that would be affected by the proposed project (e.g., trail and park users, river and floatboat users). Staff participates in the selection of the KOP(s) with the applicant.

The applicant provides color photograph(s) showing an actual view of the existing physical environment from the selected KOP(s) towards the proposed project site (*existing condition*), and photographic simulation(s) that show the proposed project as it would actually be viewed by people, and most clearly display its visual effects in the existing physical environment from the KOP(s) (*proposed condition*). Selecting views which "show off" particular design features or give the best impression of a project, be it at its most dramatic or least intrusive is not valid.[6]

The KOP existing condition photograph and the KOP proposed condition photographic simulation are provided at similar scale to allow reproduction of the images at life-size scale when they are printed on 11" x 17" paper.[7] The existing condition photographs and the proposed condition photographic simulations are provided in the applicant's application and are attached to the staff's visual analysis for a proposed project.

[4] "Foundation for Visual Project Analysis," edited by R. C. Smardon, J. F. Palmer, and J. P. Felleman, Wiley, 1986, pg. 225.

[5] The use of a key observation point (KOP) or similar type observation point (e.g., observer viewpoint, landscape control point) is common in federal public agency aesthetic/visual resources analysis. The U.S. Department of Interior, Bureau of Land Management defines a "*key observation point*" (KOP) as **"**one or a series of points on a travel route or at a use area or a potential use area, where the view of a management activity would be most revealing" (U.S. Department of Interior, Bureau of Land Management — Manual 8400 Visual Resources Management, pg. 6). The Federal Highway Administration uses "*observer viewpoint*," defined as "a point from which a selected view is analyzed and/or evaluated. Analogous concept: Landscape control point (Litton)." (U.S. Department of Transportation, Federal Highway Administration, "Visual Impact Assessment for Highway Projects" (FHWA-HI-88-054), March 1981, Reprinted 1983, pg. 27). A "*landscape control point,"* used by the U.S. Department of Agriculture, Forest Service, is defined as a"fixed station from which a broad, intermediately distant view of the landscape may be seen." "Criteria for LCP (*landscape control point*) affecting their location and use involve relationships to: (a) roads and trails, air routes; (b) areas of congregation and concentrated use; (c) overviews covering landscapes of special value; (d) places and conditions offering best viewing opportunities; and (e) overlapping fields of view and different views of the same landscape segment" (R. Burton Litton, Jr. "Landscape Control Points: a procedure for predicting and monitoring visual impacts," USDA Forest Service Research Paper PSW-91, Pacific Southwest Forest and Range Experiment Station, Berkeley, Calif., 1973, pg. 1 and pg. 4).

[6] "Foundation for Visual Project Analysis," edited by R. C. Smardon, J. F. Palmer, and J. P. Felleman, Wiley, 1986, pg. 192.

[7] Staff assesses the representativeness of a photographic simulation by printing out an 11" x 17" sized color photographic simulation(s), taking it to the location of the selected key observation point, extending the photographic simulation 10 inches from the viewer's eyes lined up with the horizon.

Staff reviews the submitted photographs showing the existing condition and the proposed condition photographic simulations using the eight factors shown on the **Key Observation Point Evaluation Diagram**. Staff assesses the visual sensitivity of the existing landscape, and the visual change introduced to the landscape by the project at operation (project effect) to determine the proposed project's visual impact significance to the selected KOP. Staff also uses aerial photographs and other photographs, maps, and visits the KOP(s), the project site and vicinity in this evaluation.

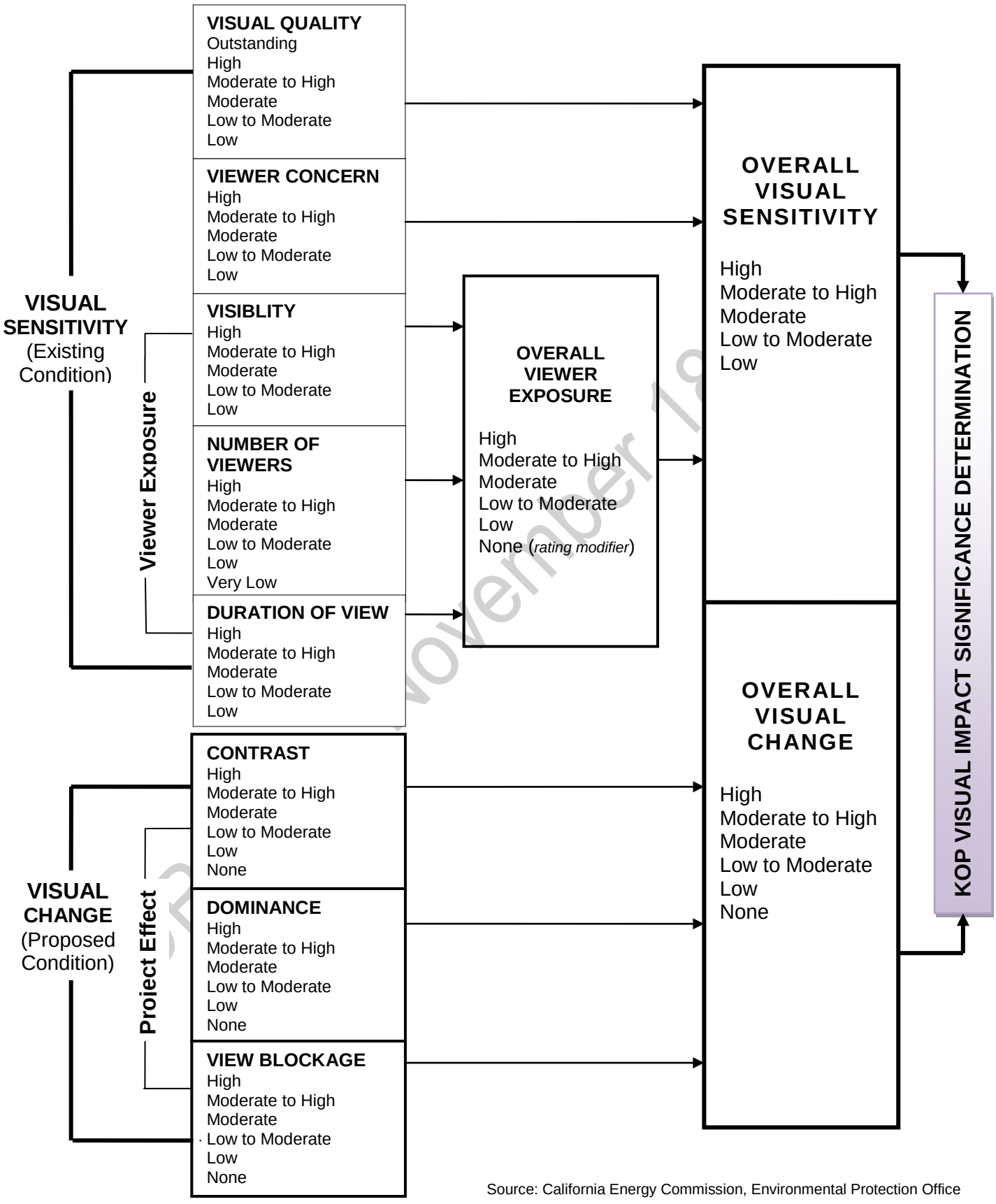
Distance Zone

Staff uses a five (5) mile distance zone around a proposed project site in the selection of the KOP(s). Several federal public agencies use a similar distance zone. The U.S. Bureau of Land Management subdivides landscapes into three (3) distance zones based on relative visibility from travel routes or observation points. The three zones are foreground-middleground, background, and seldom seen. Foreground-middleground zone includes areas seen from highways, rivers, or other viewing locations which are less than three to five miles away. Areas beyond the foreground-middleground zone but usually less than 15 miles away are in the background zone. Areas not seen as foreground-middleground or background are in the seldom-seen zone.[8] The U.S. Forest Service subdivides landscape viewing into four (4) distance zone classifications; immediate foreground = 0 to 300 feet, foreground = 300 feet to ½ mile, middleground = ½ mile to 4 miles, and background = 4 miles to the horizon.[9]

[6] U.S. Department of Interior, Bureau of Land Management — Manual Handbook 8410-1, Visual Resources Inventory, Distance Zones, pg. 4.

[9] U.S. Department of Agriculture, Forest Service - Agriculture Handbook Number 701. Landscape Aesthetics, A Handbook for Scenery Management. December 1995, pg. 4-5.

Key Observation Point Evaluation Diagram



Source: California Energy Commission, Environmental Protection Office

VISUAL SENSITIVITY (Existing Condition Without Project)

Visual sensitivity involves evaluating the existing physical environment from the KOP using the following factors: *visual quality*, *viewer concern*, *visibility*, *number of viewers*, and *duration of view* to achieve the *overall viewer sensitivity*. The visual sensitivity factors are described below.

Visual Quality

Visual quality is an expression of the visual impression or appeal of a given landscape[10] and the associated public value (rating) attributed to it. Landscapes that contain comfortable spaces for people or pleasant places for people to be in have higher visual quality. People feel comfortable in landscapes that appear to offer opportunities for reflection. Landscapes that contain this attribute have higher visual quality.[11]

The presence of natural features has an influence on visual quality. People are often fascinated or intrigue by visually significant natural features. A visually significant natural feature is one that sets a landscape apart from a similar landscape that does not contain the natural feature. The degree of influence a natural feature has on visual quality depends on how visible or visually apparent the feature.[12]

Generally, visually significant man-made alterations of the landscape or structures in the natural landscape have a negative influence on visual quality. The extent to which man-made structures and alterations either have a negative impact on the visual quality of the natural landscape or inspired awe depends on how visual they are in the landscape.[13]

Table 1 provides a landscape visual quality scale found in the article *An AI Methodology for Landscape Visual Assessments,*" prepared by Gregory J. Buhyoff, Patrick A. Miller, John W. Roach, Dan Zhou, and Leslie G. Fuller from Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

[10] A section or expanse of scenery, usually extensive, that can be seen from a single viewpoint.

[11] G.J. Buhyoff, P.A. Miller, J.W. Roach, D. Zhou, and L.G. Fuller. "An AI Methodology for Landscape Visual Assessments." *AI Applications*. 1994, Vol. 8, No. 1, pg. 7.

[12] Ibid., pg. 6.

[13] Ibid.

Table 1

LANDSCAPE VISUAL QUALITY SCALE	
RATING	**DESCRIPTION**
Outstanding Visual Quality	A rating reserved for landscapes with exceptionally high visual quality. These landscapes are significant regionally and/or nationally. They usually contain interesting "natural features" that contribute to this rating. They would be what we think of when we think of "picture postcard" landscapes. People would be attracted to these landscapes to be able to view them.
High Visual Quality	This rating is for those landscapes that have high scenic quality value. This may be due to "man-made or natural features" contained in the landscape, to the "arrangement of spaces" contained in the landscape that causes the landscape to be visually interesting or a particularly comfortable place for people. These landscapes have high potential for recreational activities in which the visual experience is important.
Moderate to High Visual Quality	This rating is for landscapes which have above average scenic value, but are not of high scenic value. The scenic value of these landscapes may be due to "man-made or natural features" contained in the landscape, to the "arrangement of spaces" in the landscape or to the two-dimensional attributes of the landscape. These landscapes often have considerable recreational potential and visual quality.
Moderate Visual Quality	These are landscapes which have average scenic value. They usually lack significant "man-made or natural features." Their scenic value is primarily a result of the "arrangement of spaces" contained in the landscape and the two-dimensional visual attributes of the landscape. These landscapes often have considerable recreation potential and visual quality.
Low to Moderate Visual Quality	These are landscapes which have below average scenic value but not low scenic value. They may contain visually discordant man-made alterations, but the landscape is not dominated by these features. They often lack "spatial arrangements*" which provide comfortable places for people and provide little interest in terms of two-dimensional visual attributes of the landscape. These landscapes often have limited recreation potential or provide limited opportunities for recreational activities in which the visual experience is less important.
Low Visual Quality	These are landscapes which have low scenic value. The landscape is often dominated by visually discordant man-made alterations; or they are landscapes with "spatial arrangements" which do not provide comfortable places for people and lack interest in terms of two dimensional visual attributes. These landscapes often have little recreational potential. Management concerns for visual quality either address rehabilitation of visually discordant man-made alterations or are limited to minimizing adverse visual impact.

*"Spatial arrangement" is the promise of additional information if one could move into and through the landscape. This aspect is important to people's cognitive map or understanding of the landscape.

Source: G.J. Buhyoff, P.A. Miller, J.W. Roach, D. Zhou, and L.G. Fuller. "An AI Methodology for Landscape Visual Assessments." *AI Applications*. 1994, Vol. 8, No. 1, pg. 9.

Viewer Concern

Viewer concern is an observer's anticipated awareness and appreciation of the existing public view; interest in preserving the existing physical environment. Table 2 lists examples of publicly accessible view locations identified by the U.S. Department of Agriculture, Forest Service, the U.S. Department of Agriculture, Soil Conservation Service, the U.S. Department of the Interior, Bureau of Land Management, and the U.S. Department of Transportation and the sensitivity rating assigned to the view by them

that was presented in the Final Environmental Impact Report Tranquillon Ridge Oil and Gas Development Project (Santa Barbara County EIR No.: 06-EIR-000000-00005, State Clearinghouse No.: 2006021055).

Table 2

VIEWER CONCERN SCALE	
SENSITIVITY RATING	**DESCRIPTION**
High	
	Views of and from areas the aesthetic values of which are protected in laws, public regulations and policies, and public planning documents. Views of and from designated areas of aesthetic, recreational, cultural, or scientific interest, including national, state, county, and community parks, reserves, memorials, scenic roads, trails, interpretive sites of scientific value, scenic overlooks, recreation areas, and historic structures, sites, and districts. Views from resort areas or urban residential subdivisions. Views from national- or state-designated scenic highways or roads, or designated scenic highways or roads of regional importance and from segments of travel routes, such as roads, rail lines, pedestrian and equestrian trails, and bicycle paths near designated areas of aesthetic, recreational, cultural, or scientific interest leading directly to them. Views seen while approaching an area of interest may be closely related to the appreciation of the aesthetic, cultural, scientific, or recreational significance of that destination.
Moderate	
	Views from segments of travel routes near highly sensitive use areas of interest, serving as a secondary access route to those areas. Views from rural residential areas and segments of roads near them, which serve as their primary access route. Views of and from undesignated but protected or popularly used or appreciated areas of aesthetic, recreational, cultural or scientific significance at the local, county, or state level. Views from highways or roads locally designated as scenic routes and of importance only to the local population, or informally designated as such in literature, road maps and road atlases. Views from travel routes, such as roads, trails, bicycle paths, and equestrian trails leading directly to protected or popularly used undesignated areas important for their aesthetic, recreational, cultural, or scientific interest. Views of and from religious facilities and cemeteries.
Low	
	Views from travel routes serving as secondary access to moderately sensitive areas. Views from farmsteads, groupings of fewer than four residences, industrial, research/development, commercial, and agricultural use areas.

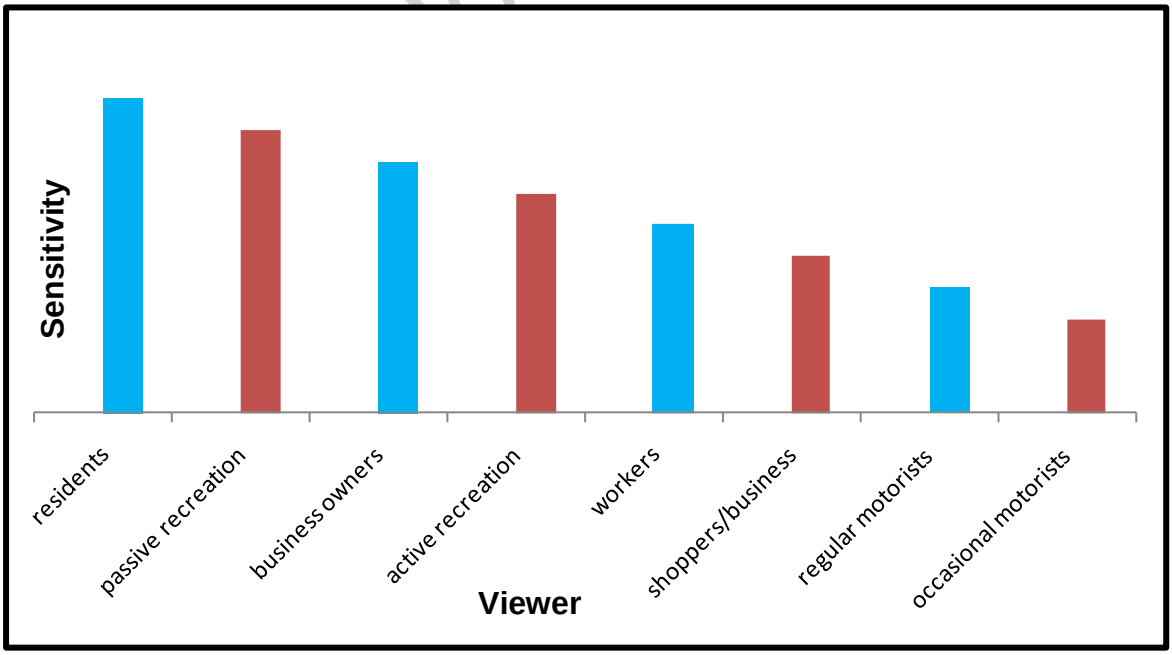
Source: Tranquillon Ridge Oil and Gas Development Project Environmental Impact Report, pg. 5.13-5-6, April 2008.

Viewer concern can vary depending on the characteristics and preference of a viewer group. Residents are very interested in changes in views from their residence. Viewer concern for residential viewers is often considered high. Recreational sightseers may be highly sensitive to any changes. Regular viewers from a commercial or industrial area largely consist of employees and patrons (commercial area viewers). These viewers tend to focus their attention on the services and products associated with the commercial/industrial use on the site.

Viewer concern for motorists generally depends on when and where travel occurs, the angle of observation, view distance, and the frequency of travel by the motorist in the particular area. For example, a daily commuter who experiences normal freeway speeds generally has an increased awareness of views from the freeway. A daily commuter using an inner city freeway in heavy traffic would primarily be focused on the freeway itself and the drive. Motorists who are local residents and/or business owners typically have a higher concern due to their personal investment and greater familiarity with the local area.

The Final Environmental Impact Statement/Environmental Impact Report for the State Route 22/West Orange County Connection Project, dated March 2003, included a diagram showing the comparative viewer sensitivity of the various types of viewers in the State Route 22/West Orange County Connection viewshed.[14] The project conducted by the Orange County Transportation Authority and the California Department of Transportation improved a 13 mile segment of State Route 22, known as the West Orange Connection, from the Interstate 405/605 interchange to State Route 55 in Orange County, California.

Comparative Viewer Sensitivity Diagram



Source: State Route22/West Orange County Connection Project FEIS/EIR, pg. 3.13-1, March 2003.

[14] State Route22/West Orange County Connection Project FEIS/EIR, pg. 3.13-1, March 2003.

Visibility

Visibility is an assessment of how easily seen or noticed; readily visible or observable, a proposed project would be from the KOP. Visibility depends on the angle or direction of view, and the extent of existing human-made and natural visual screening (e.g., buildings or structures, landscape elements, topography). Visibility is determined by considering any and all obstructions that may be in the sightline. Would the visibility of the proposed project be dependent on the season (e.g., screened by summer foliage but exposed during winter)? The visibility rates from low to high.

Number of Viewers

Number of viewers is the estimated number of individuals who may see the proposed project from the KOP. Estimating the number of viewers may include using the number of residences, the Annual Average Daily Vehicle Trips (AADT) on a surface street or highway, or the number of individuals per day participating in a recreational activity. Table 3 provides a rating for the number of viewers.

Table 3

NUMBER OF VIEWERS			
Residential (number of residences)	**Recreationists** (number of individuals per day)	**Motorist** (number of motor vehicles per day)	**Rating**
More than 100	More than 200	More than 10,000	High
51-100	101-200	5,001 to 10,000	Moderate to High
21-50	51-100	2,501-5,000	Moderate
6 to 20	26-50	501-2,500	Low to Moderate
2 to 5	11 to 25	125-500	Low
None or 1	Less than 10	Less than 125	Very Low
Source: California Energy Commission, Environmental Protection Office [15]			

Duration of View

Duration of view is the estimated length of time of the view by an observer of the proposed project from the KOP. The view duration varies depending on the viewer and the activity in which the viewer is engaged or focused. A view from a residence towards a proposed project longer than two minutes would be considered a high duration of view depending on the orientation of the residence. For a motorist, the duration of view depends on the speed of travel, view distance, and angle of observation. A motorist traveling 60 miles per hour on a highway having a direct view of a proposed project,

[15] During the year spanning 2000-2001, California Energy Commission visual resources technical staff and consultants met in a series of meetings to develop procedures to assess aesthetics and visual resources related impacts introduced by a proposed power generating station for the purposes of addressing CEQA and the State CEQA Guidelines. The design-based classification assessment created by the visual resources group consists of a hybrid of the U.S. DOI, BLM Visual Resources Management system, the USDA Forest Service Visual Management System and subsequent Scenery Management System, and includes aspects of the Federal Highway Administration, Visual Impact Assessment for Highway Projects. The design-based classification assessment included the creation of several visual resources guidance tables (Viewer Exposure, Overall Visual Sensitivity, Overall Visual Change, and Impact Significance). Other tables and diagrams have been subsequently added to the assessment. The original visual resources group members who participated in these technical meetings included the following: Energy Commission staff - Dale Edwards, Eric Knight, and Gary Walker (technical lead); and, consultants - Joe Donaldson from Jones & Stokes Associates, Michael Clayton of Michael Clayton & Associates, and William Kanemoto of William Kanemoto & Associates.

where the approximate initial point of observation to the project is one mile away would have a 60 second duration of view.

The duration of view for recreationists will vary depending on whether the particular outdoor recreation activity is “active” or “passive.” Active recreation entails direct participation in an activity and typically requires use of an organized play area (e.g., a sports field such as a football or soccer field, or an off-highway vehicle area). An individual observing or engaged in these activities is likely to be focused on the activity at hand and less on the periphery. The duration of view for an observer of the activity or a participant in it of a proposed project is likely to be low to moderate.

Passive recreation activities often occur in tranquil, peaceful and solitary environments. In the outdoors the activities foster appreciation and understanding of the elements of the "natural environment" or wilderness (wild animals, rocks, forest, beaches), in general those things that have not been substantially altered by human intervention. The activities primarily require human muscle-power. Examples include bird watching, hiking, and rock climbing. The duration of view for an observer of a proposed project can be for an extended period.

Staff uses the following table to establish a rating for the duration of view.

Table 4

DURATION OF VIEW	
Length of Time	**Rating**
Longer than 2 minutes	High (extended period)
1 minute to 2 minutes	Moderate to High
20 seconds to 60 seconds	Moderate (mid-length period)
10 to 20 seconds	Low to Moderate
Less than 10 seconds	Low (brief period)
Source: California Energy Commission, Environmental Protection Office[16]	

Overall Viewer Exposure

Overall viewer exposure involves totaling the factors *visibility*, *number of viewers*, and *duration of view*. Staff’s premise under *overall viewer exposure* is that any proposed project introduced to the existing physical environment is exposed to a viewer, therefore rating at least a “low” or “very low.” However in unique cases, staff may adjust one or more of the three factor(s) to include a rating of “none” (a rating modifier). An example where this would be applicable using the factor *visibility*, if a view of the proposed project would be completely screened from the public by existing massive buildings or topography. The visibility factor could rate as none. Overall viewer exposure normally rates from low to high.

Overall Visual Sensitivity

Overall visual sensitivity is staff’s estimated rating of the public viewer’s sensitivity of the existing physical environment from the KOP considering *visual quality*, *viewer concern*, and *overall viewer exposure*. Overall visual sensitivity rates from low to high.

[16] Ibid.

VISUAL CHANGE (Proposed Condition With Project)

Visual change involves evaluating the proposed project effect introduced to the existing physical environment from the KOP using the factors of *contrast*, *dominance*, and *view blockage* to achieve the *overall visual change*. The visual change factors are described below.

Contrast

Assigning values to visual resources is a subjective process. The phrase, "beauty is in the eye of the beholder," is often quoted to emphasize the subjectivity in determining scenic values. Yet, researchers have found consistent levels of agreement among individuals asked to evaluate visual quality. Designers have used the basic design elements of *form*, *line*, *color*, and *texture* to describe and evaluate landscapes for hundreds of years.[17]

Contrast is measured by comparing the proposed project's major buildings, structures and equipment with prominent human-made and natural features in the existing landscape using the basic design elements of form, line, color, and texture.[18]

Modifications in a landscape which repeat the landscape's basic design elements are said to be in harmony with their surroundings. Repeating these elements reduces contrasts between the landscape and the proposed activity or development and results in less of a visual impact.[19] The "basic design elements" are described as follows:

> *Form* - contrast in form results from changes in the shape and mass of landforms or structures. The degree of change depends on how dissimilar the introduced forms are to those continuing to exist in the landscape.
>
> *Line* - contrast in line results from changes in edge types and interruption or introduction of edges, bands, and silhouette lines of shapes or masses in the landscape. New lines may differ in the sub-elements of visual strength of a line (boldness), degree of simplicity or intricacy of a line (complexity), and overall relationship of the line to the horizontal axis of the landscape (orientation) from existing lines.
>
> *Color* – contrast in color results from changes in the degree of lightness or darkness (value), or a gradation or variety of a color (hue), the degree of saturation or brilliance of a color (chroma), and reflectivity.[20]

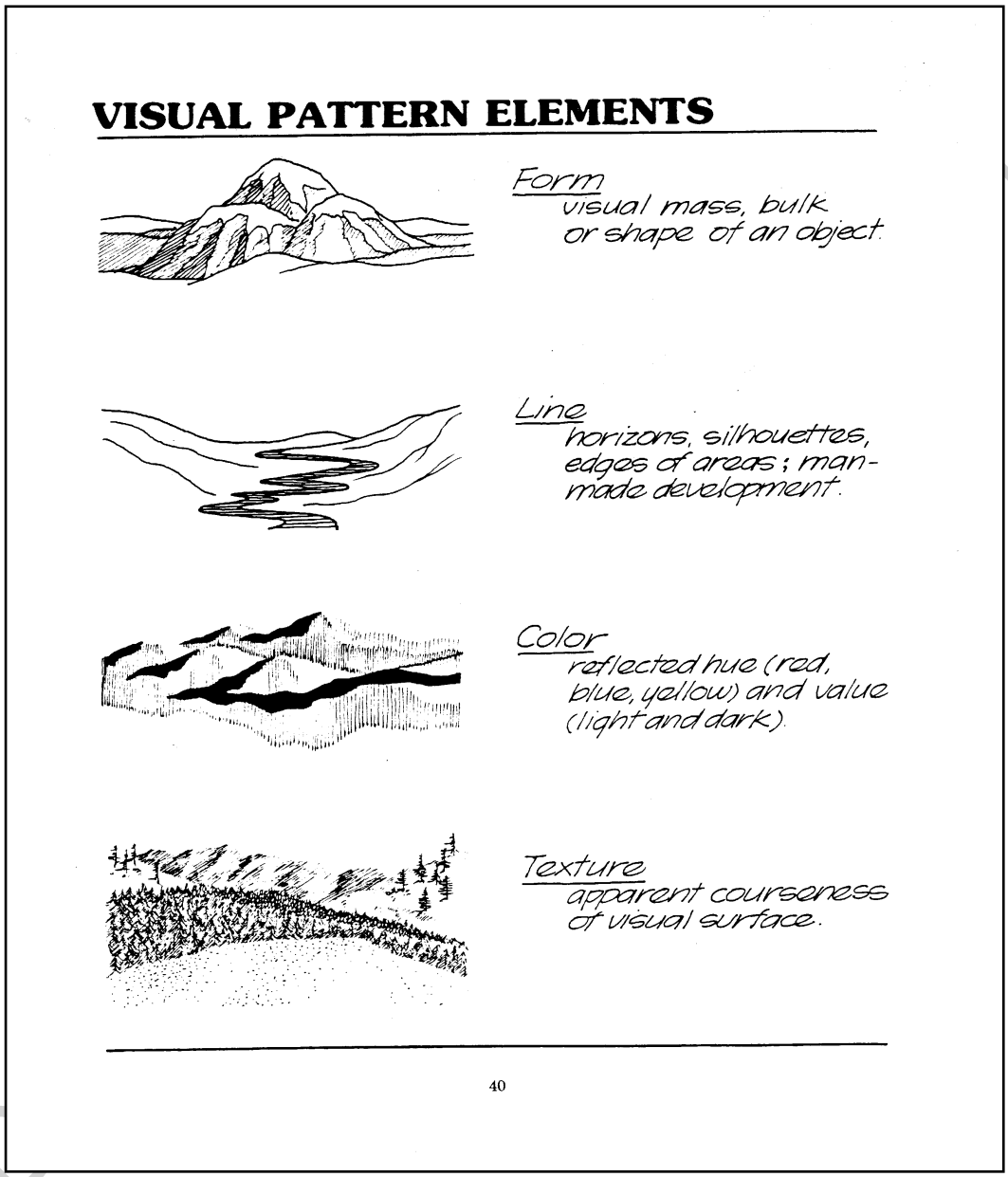
[17] U.S. Department of Interior, Bureau of Land Management, Manual Handbook 8400 Visual Resources Management, "Overview of Visual Resource Management System," pg. 4.

[18] U.S. Department of Interior, Bureau of Land Management, Manual Section 8431 - Visual Resources Contrast Rating Management, pg. 2.

[19] U.S. Department of Interior - Bureau of Land Management, Visual Resources Management – Design Techniques, "Repeating the Elements of Form, Line, Color, and Texture," pg. 1.

[20] Reflectivity from the surface of an object (e.g., building surface) depends on the intensity of the light striking it, the age and type of material used, its location, position and gradient, the particular time of day and year, and the position of the sun ("Reflectivity From Existing Building Surfaces," BlueScope Steel, 2007). All surfaces reflect light. Visual reflectance is caused by white light being

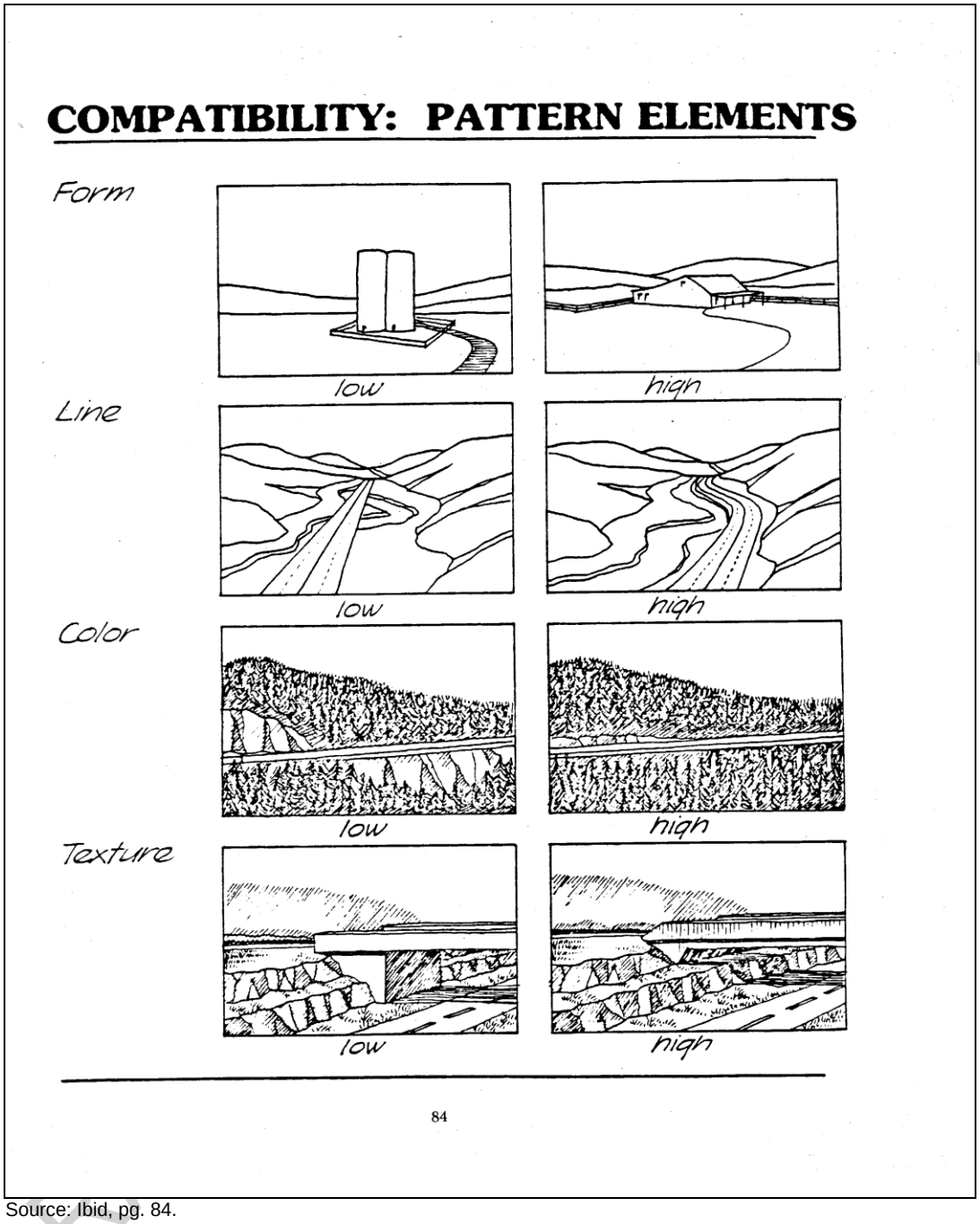
Texture - noticeable contrast in texture usually stems from differences in the relative dimensions of the surface variations (grain), spacing of surface variations (density), and the degree of uniform recurrence and symmetrical arrangement of the surface variation (regularity).[21]



Source: U.S. Department of Transportation, federal highway Administration, "Visual Impact Assessment for Highway Projects" (FHWA-HI-88-054), pg. 40, March 1981.

reflected. If large amounts of white light are reflected in a bundled it is called glare ("A Guide To Reducing Glare And Reflection In The Queenstown Lakes District," Civic Corporation Limited).

[21] U.S. Department of Interior, Bureau of Land Management, Manual Section 8431 - Visual Resources Contrast Rating Management, pg. 5.



Source: Ibid, pg. 84.

Strong contrast between the visual character of a project and that of its setting is an important indicator of potential visual impact (Appleyard and Fishman 1977). Important aspects of visual character include form (the height, bulk, and shape of structures), line (setbacks, roof lines, floor and window levels), color and texture (structure materials, site improvements), scale or apparent size (plant materials and details of structures), proportion (the relationships between horizontal and vertical dimensions), and rhythm (the spacing of repeated elements).[22]

[22] "Foundation for Visual Project Analysis," edited by R. C. Smardon, J. F. Palmer, and J. P. Felleman, Wiley, 1986, pg. 239.

Table 5 provides a contrast assessment table for a proposed project's major buildings, structures and equipment.

Table 5

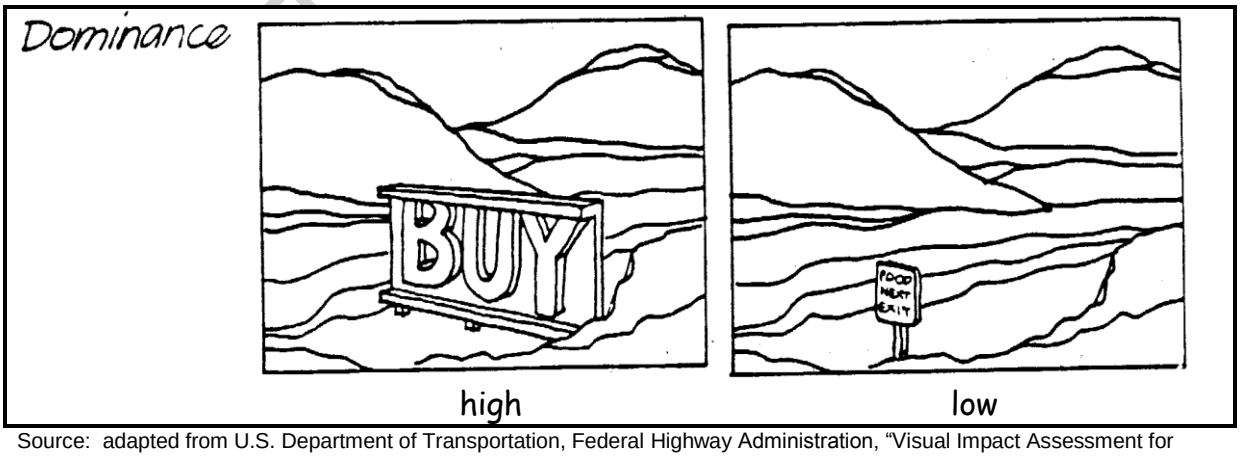
CONTRAST ASSESSMENT							
KOP Location	**Basic Design Elements**	**Degree of Contrast**					
		High	**Moderate to High**	**Moderate**	**Low to Moderate**	**Low**	**None**
	Form						
	Line						
	Color						
	Texture						

Degree of Contrast Criteria*	**Rating**
The contrast demands attention, will not be overlooked, and is dominant in the landscape.	High (strong contrast)
	Moderate to High
The contrast begins to attract attention and begins to dominate the characteristic landscape.	Moderate
The contrast can be seen but does not attract attention.	Low to Moderate (weak contrast)
	Low
The contrast is not visible or perceived.	None

*Source: U.S. Department of Interior, Bureau of Land Management, Manual 8431 - Visual Resource Contrast Rating, pg. 4

Dominance

Dominance is "the proportionate size relationship between an object and the surroundings in which it is placed."[23] Would the proposed project's major buildings, structures and equipment occupy or be in a commanding or elevated position in the existing view? How dominant a project feature would be in the existing view also depends on the distance to the observer. Table 6 provides a dominance assessment.



Source: adapted from U.S. Department of Transportation, Federal Highway Administration, "Visual Impact Assessment for Highway Projects" (FHWA-HI-88-054), pg. 85, March 1981.

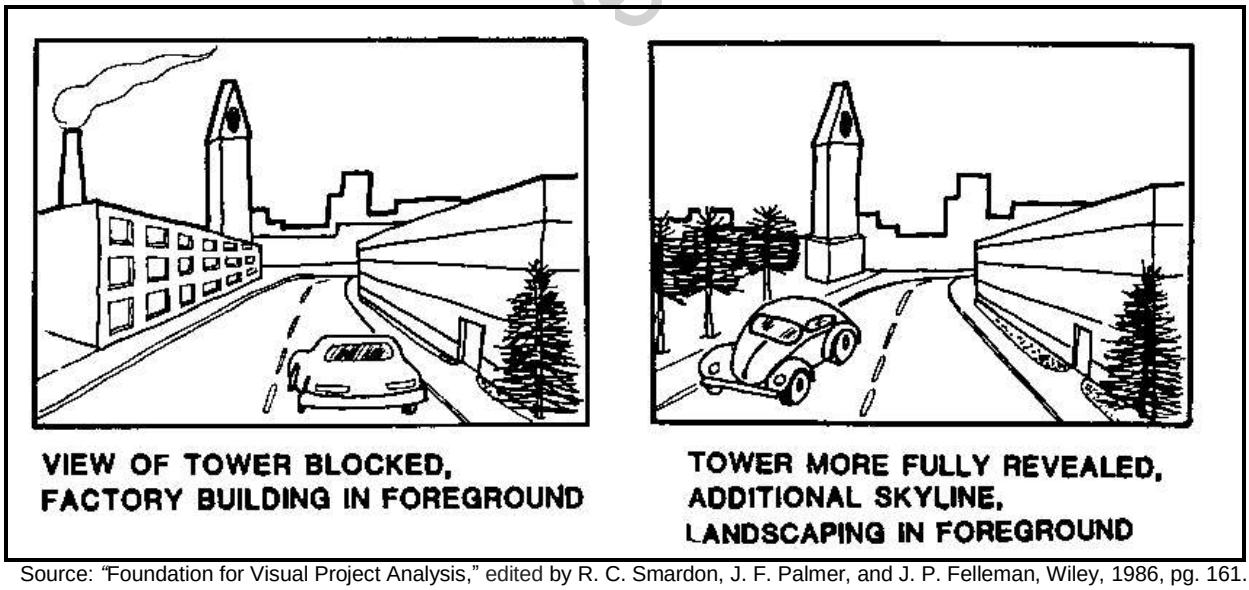
[23] U.S. Department of Interior, Bureau of Land Management, Manual Section 8431 - Visual Resources Contrast Rating Management, Illustration 7.

Table 6

DOMINANCE ASSESSMENT	
Measurement Description	**Rating**
a. Estimate the proportion of the *visual field** that the proposed project feature would occupy.	High (dominant)
	Moderate to High
b. Estimate the proposed project feature's apparent size relationship to existing human-made and natural features contained within the landscape.	Moderate (co-dominant)
	Low to Moderate
c. Estimate the conspicuousness (*how easily seen or noticed*) of the proposed project feature due to its location in the visual field.	Low (subordinate)
	None
* The entire expanse of space visible at a given instant without moving the eyes.[24]	
Source: California Energy Commission, Environmental Protection Office	

View Blockage

View blockage is the extent that a prominent human-made and natural feature(s) within the existing landscape would be obstructed from public view by the proposed project's buildings, structures and equipment. Estimate the degree of view blockage. View blockage rates from none to high.



Source: "Foundation for Visual Project Analysis," edited by R. C. Smardon, J. F. Palmer, and J. P. Felleman, Wiley, 1986, pg. 161.

Overall Visual Change

Overall visual change is staff's estimated rating of the proposed project effect introduced to the existing physical environment from the KOP considering *contrast*, *dominance*, and *view blockage*. Overall visual change rates from none to high.

[24] Dictionary.com.

KOP VISUAL IMPACT SIGNIFICANCE DETERMINATION

The KOP Visual Impact Significance Determination involves comparing the rating for *Overall Visual Sensitivity* and *Overall Visual Change* using the following table.

Table 7

OVERALL VISUAL SENSITIVITY	OVERALL VISUAL CHANGE				
	High	**Moderate To High**	**Moderate**	**Low to Moderate**	**Low**
High	Significant*	Significant	Significant	Less Than Significant	Less Than Significant
Moderate to High	Significant	Significant	Potentially Significant	Less Than Significant	Less Than Significant
Moderate	Significant	Potentially Significant	Less Than Significant	Less Than Significant	Less Than Significant
Low to Moderate	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant	Insignificant
Low	Less Than Significant	Less Than Significant	Less Than Significant	Insignificant	Insignificant

*The proposed project's building(s), structure(s), and/or equipment would substantially degrade the existing visual character or quality of the site and its surroundings for the purposes of CEQA and the State CEQA Guidelines. Architectural design and landscape treatments cannot mitigate the visual impacts of the proposed project. An alternative project design may be necessary to avoid highly adverse visual related impacts.

The State CEQA Guidelines defines a "*significant effect on the environment*" as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance (14 Cal. Code Regs. §15382).

Source: California Energy Commission, Environmental Protection Office

II. PUBLICLY VISIBLE WATER VAPOR PLUMES

Staff assess if a forecasted publicly visible water vapor plume (visible plume) emitted by a proposed thermal power generation facility "*would substantially degrade the existing visual character or quality of the project site and the surrounding area*," and create a "*substantial adverse effect on a scenic vista*" (Aesthetics, Appendix G, State CEQA Guidelines).

When a cooling tower[25] for a thermal power generation facility is in operation, the warm moisture (water vapor) filled exhaust emitted from the cooling tower fan stack will

[25] A cooling tower is a heat rejection device which extracts waste heat to the atmosphere through the cooling of a water stream to a lower temperature. The type of heat rejection in a cooling tower is termed "evaporative" in that it allows a small portion of the water being cooled to evaporate into a moving air stream to provide significant cooling to the rest of that water stream. The heat from the water stream transferred to the air stream raises the air's temperature and its relative humidity to 100%, and this air is discharged to the atmosphere ("*What is a (wet, atmospheric) cooling tower?",* Cooling Technology Institute).

condense as it rises depending on the ambient air temperature and relative humidity.[26] When the exhaust and ambient air mix the resultant plume may be more saturated in water content than the carrying capacity at the mixed plume/air temperature, so that condensing microscopic water vapor droplets form as the plume cools and mixes with the ambient air. The condensing microscopic droplets of water refract sun light at different angles appearing as a white to gray colored plume (see photograph below). The appearing plume (visible plume) may at times be very noticeable to a community and perceived as aesthetically unpleasing.

Lake Side Power Station at Vineyard, Utah a 545 megawatt natural gas fired turbine power generating station operating its cooling tower (10 cell) during early morning on February 28, 2008. Notice the water vapor plume (visible plume) emitted from the cooling tower. Photograph by Mscalora. Source: "Lake Side Power Station." Wikipedia, 2008. Wikipedia Foundation, Inc.12 October 2011.

Staff calculates plume frequency using the six month portion of the year, November through April (seasonal period), when the ambient air temperature and relative humidity are such that visible plumes are most likely to form.

Staff uses the Combustion Stack Visible Plume (CSVP) model[27] to forecast (predict) a proposed cooling tower's visible plume frequency and size at operation.[28] This model provides a conservative estimate for the plume frequency and plume size. If the CSVP model predicts a seasonal daylight "clear hour" plume frequency of 20 percent or greater, staff evaluates the "*20th percentile plume.*"

[26] Relative humidity is the ratio of the fraction of water vapor in a given sample of moist air to the fraction in an air sample saturated at the same temperature and pressure.

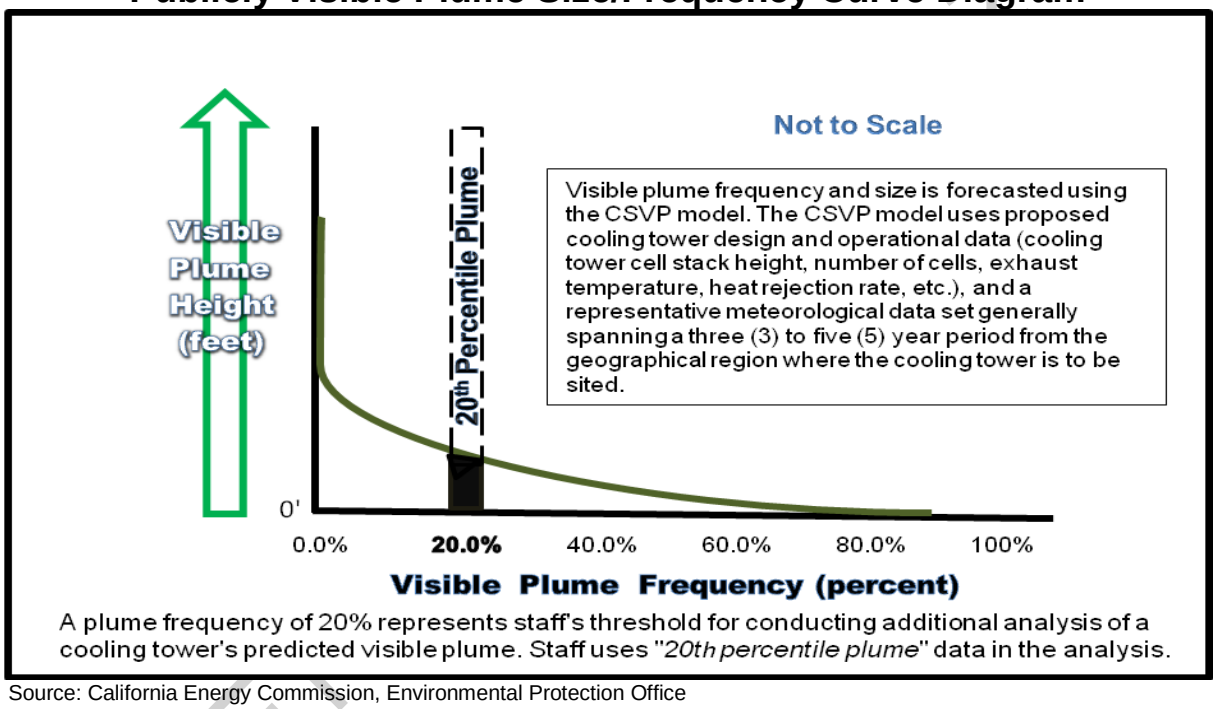
[27] The CSVP model is used to estimate plume frequency and plume dimensions for the cooling tower exhaust. This model uses both hourly cooling tower exhaust parameters and hourly ambient condition data to determine plume frequency. The model is based on the algorithms of the Industrial Source Complex model (Version 2) that determine temperatures at the plume centerline. The model does not incorporate building downwash.

[28] Other potential thermal power generation facility visible plumes sources (e.g., combined cycle gas turbine exhausts, geothermal steam exhausts) are evaluated in the same manner as cooling tower emitted visible plumes.

In conjunction with the CSVP model, staff has defined "*clear hours*" as "*daylight, no rain, no fog, high visual contrast hours*," and has created a *"clear sky category"*[29] to distinguish a sky minus (without) any clouds. It is during clear hours when a clear sky condition exists that a visible plume would show the greatest contrast with the sky. Visible plumes emitted during rain and fog conditions, other covered cloud conditions, or at nighttime would not introduce substantial contrast with the sky.

Staff has established a 20 percent (%) plume frequency during clear hours as a reasonable worst case scenario to conduct additional analysis of a cooling tower's predicted visible plume. A plume that occurs more frequent than 20% of the time would be smaller in size than a plume that occurs less frequent than 20%. In other words, 80% of the time the size of a visible plume would be smaller than the 20th percentile plume.

Publicly Visible Plume Size/Frequency Curve Diagram



Source: California Energy Commission, Environmental Protection Office

As shown on the Publicly Visible Plume Size/Frequency Curve Diagram, using a visible plume frequency range 0 to 100%, a one (1) percentile plume could be extremely large

[29] Staff has identified a "clear sky category" for the purpose of determining high visual contrast hours, when a visible plume would have the greatest visual contrast with the sky. The specifics of the clear sky determination depends on the format of the available meteorological data set, but in general are based on separation of hours with clear, scattered/broken, and overcast sky conditions; where all clear hours and half of the scattered/broken sky cover hours are considered as part of the clear sky category. High visual contrast hours are determined for National Climate Data Center Hourly United States Weather Observation (HUSWO) meteorological data sets as follows: a) all hours with total sky cover equal to or less than 10% plus; b) half of the hours with total sky cover 20-90%. The rationale for including these two components in the clear sky category is as follows:

a) visible plumes typically contrast most with the sky under clear conditions, and when total sky cover is equal to or less than 10%. Clouds either do not exist or they make up such a small proportion of the sky that conditions appear to be virtually clear; and,

b) for a substantial portion of the time when total sky cover is 20-90% the opacity of sky cover is relatively low (equal to or less than 50%). This sky cover does not always substantially reduce contrast with visible plumes. Staff has estimated that approximately half of the hours meeting the latter sky cover criteria can be considered high visual contrast hours and are included in the "clear sky" definition.

in size, very noticeable to a wide area, but would rarely occur. At 100% a visible plume would be nonexistent. Predicted visible plumes having less than a 20% frequency of occurrence are considered by staff to be insignificant for the purposes of CEQA and the State CEQA Guidelines due to limited plume frequency.

Staff analyzes the modeled 20th percentile plume dimensions and frequency, considering the *Overall Visual Sensitivity* and *Overall Visual Change* (see Key Observation Point Evaluation Diagram) from a key observation point(s), to determine if the visible plume predicted would substantially degrade the existing visual character or quality of the project site and surrounding area, and if it would create a substantial adverse effect on a "scenic vista."[30]

III. PUBLICLY VISIBLE WATER VAPOR PLUME ABATEMENT

Staff has identified several ways to lower plume frequency and abate or eliminate a publicly visible water vapor plume(s) emitted from a cooling tower.

Increase Cooling Tower Air Flow - Increasing the cooling tower air flow will lower the exhaust temperature and reduce plume frequency, but would not eliminate the potential for visible plumes under all conditions. This method focuses on the design of the cooling tower fan flow capacity versus the amount of heat rejected in the cooling tower. Any specific cooling tower design needs to be fully modeled to determine the effective final plume frequency reductions.

Wet Surface Air Cooler - The basic operating principle of a wet surface air cooler (WSAC) is rejection of heat by evaporation. The fluid/vapor to be cooled or condensed flows through tube bundles in a closed-loop system. The cooling fluid(s) used for the intercooler and any auxiliary cooling systems could be piped directly into the WSAC which can operate as a non-contact heat rejection system that uses water sprays over the cooling pipes to increase the heat rejection when necessary. The expected hot temperature of the cooling fluid would increase the efficiency of this type of system. There may still be the potential for visible plumes under high cooling load periods during certain ambient air conditions, but the WSAC could be designed to maintain a minimal plume frequency well below 20% during "clear hours."

Wet-Dry Cooling Tower - This type of cooling tower reduces visible plume formation by adding heat or heated ambient air to the saturated wet cooling section exhaust to

[30] The term "scenic vista" is not defined in CEQA or the State CEQA Guidelines. For the purposes of this analysis, staff has defined scenic vista as the following:

- A panoramic view of a publicly recognized broad landscape feature of visual concern such as a bay, a mountain range, or the ocean.
- A public view to a publicly recognized human-made or natural scenic feature of exceptional importance in the landscape such as a view of the Golden Gate Bridge spanning the entrance to San Francisco Bay or Niagara Falls in western New York.
- A public view from an actual designated view location such as a view overlook in a national/state forest or park, or a Caltrans public vista point along a highway.
- Scenic view locations designated in a federal, state or local government adopted land use planning related document (e.g., Resource Management Plan, General Plan, Local Coastal Plan, highway corridor plan), or cultural resources or historical preservation plan and survey.

reduce its saturation level. The saturated exhaust can be heated using a separate dry module above the wet cooling tower. Alternatively, outside air can be pulled into separated areas where a dry section heats the air to reduce humidity and a wet section creates warm, humid exhaust. The heated ambient air and humid exhaust are mixed to reduce the humidity of the combined exhaust steam to avoid creating a visible plume when meeting ambient air.

The amount of plume reduction that can be accomplished by this type of system can vary from a relatively moderate reduction to a significant reduction in visible plume frequency. The specific wet-dry design would be based on the desired degree of visible plume reduction.

Air Cooled Condenser (Dry Cooling) – The use of an air cooled condenser (ACC) would eliminate the formation of a visible plume. Air cooled condensers condense exhaust steam from the steam turbine inside finned tubes which are externally cooled by ambient air instead of water. Steam enters the air cooled condenser above the heat exchangers, flows downward through the heat exchanger tubes, where it condenses and is captured in pipes at the base of the heat exchangers. Mechanical fans force air over the heat exchangers. The condensate is then returned to the boiler water system. The air mass discharged from the ACC introduces heat but no water vapor to the ambient air.

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Appendix Visual Resources 2

APPENDIX VISUAL RESOURCES 2

REVIEW TEAM: Gregg Wheatland, Todd Stewart, Brian Madigan, Brian Biering, Corinne Lytle Bonine

Introduction

The CEC's visual resource assessment guidelines used in this analysis are designed to address State CEQA guidelines pertaining to aesthetic resources. The approach used by the CEC (see Appendix B) includes components adopted from existing visual impact methodology developed by federal agencies (U.S. Department of Interior, Bureau of Land Management; the U.S. Department of Agriculture, Forest Service; and, the U.S. Department of Transportation, Federal Highway Administration). Because no procedures developed by federal agencies include significance thresholds, these measures have been developed exclusively by the CEC.

The CEC's approach to significance determination contends that the "significance of environmental effect under CEQA and the State CEQA Guidelines specific to physical and visible aesthetics identified in the PSA is based to the extent possible on scientific and factual data, performance and professional standards, thresholds recommended by public agencies or subject matter experts, and thresholds identified by staff as supported by substantial evidence." The term substantial evidence (as defined by CEQA Guidelines) is further defined as "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made that the project may have a significant effect on the environment is to be determined by examining the whole record before the lead agency... Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts," (14 Cal. Code Regs. §15384).

We contend that the significance determinations made in the PSA are not based on fact because they are based on assumed thresholds that are not predicated on fact. Because the thresholds in the CEC's Method are not based on fact, the PSA makes erroneous findings of impact significance. The following response is intended to provide background information on the methodology used in the PSA with an emphasis on identifying how assumptions made in the PSA result in overstated findings of significance.

1. Significance Determination Criteria

The PSA's significance determinations are based on the combined metrics of visual sensitivity and visual change (see Table 1 below), the individual components of which, are also defined below. Overall Visual Change is measured by considering visual contrast, spatial dominance, and view blockage. Visual Sensitivity is measured by considering visual quality, viewer concern, visibility, number of viewers, and duration of view.

Though qualitative, the identified measures of visual change are arguably objective, particularly when implemented by a trained visual analyst. Therefore, this response does not focus on the analytical measures implemented to make the determinations made in the PSA. However, measures of visual sensitivity are based on assumptions that, in our assessment, lack sufficient factual basis. As illustrated in Table 1, the value assigned to either metric could have profound effects on the outcome of the significance determinations made in the PSA.

Table 1.0 Significance determination criteria proposed by the CEC (DRAFT Appendix VR-1).

Overall Visual Sensitivity	**Overall Visual Change**				
	High	**Moderate To High**	**Moderate**	**Low to Moderate**	**Low**
High	Significant[1]	Significant	Significant	Less Than Significant	Less Than Significant
Moderate to High	Significant	Significant	Potentially Significant	Less Than Significant	Less Than Significant
Moderate	Significant	Potentially Significant	Less Than Significant	Less Than Significant	Less Than Significant
Low to Moderate	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant	Insignificant
Low	Less Than Significant	Less Than Significant	Less Than Significant	Insignificant	Insignificant

[1]The proposed project's buildings, structures, and equipment would substantially degrade the existing visual character or quality of the site and its surroundings for the purposes of CEQA and the State CEQA Guidelines. Architectural design and landscape element treatments cannot mitigate the aesthetic/visual impacts of the proposed project. An alternative project design may be necessary to avoid a substantially significant adverse visual impact.

Source: California Energy Commission, Environmental Protection Office

Measures of Visual Sensitivity

According to the CEC's method, the evaluation of Visual Sensitivity involves an assessment of the existing physical environment from a KOP using the factors of: visual quality, viewer concern, visibility, number of viewers, and duration of view to estimate the overall visual sensitivity. These individual factors of Viewer Sensitivity are described below.

Scenic Quality

The CEC Method states that generally, visually significant man-made alterations of the landscape or structures in the natural landscape have a negative influence on visual quality. The extent to which

man-made structures and alterations either have a negative impact on the visual quality of the natural landscape or inspired awe depends on how visible they are in the landscape.

We disagree. There are many instances where man-made structures can (and do) harmonize with natural elements of the visual environment. We submit that this assumption has the effect of priming the analyst to view any additional man-made structure as a negative addition to that visual environment. This position instigates bias at the most basic level of analysis by asking the analyst to view man made development as a detriment to scenic quality.

Viewer Concern

Viewer concern is defined as a public viewer's anticipated awareness and appreciation of the existing public view; and interest in preserving that existing view. The PSA describes various types of views and the assumed level of concern each would reasonably receive. This classification is based on assumptions made when completing the Tranquillon Ridge Oil and Gas Development Project Final Environmental Impact Report (2008), and not on empirical data on the subject. Therefore, we submit this assumption does not accurately represent actual levels of viewer concern within the Project area.

Visibility

Visibility is defined by the CEC as an assessment of how easily seen or noticed a proposed project would be from a KOP. Visibility is determined by considering any and all obstructions that may be in the sightline, and depends on the angle or direction of view, and the extent of existing built and natural visual screening (e.g., buildings, structures, topography, trees). Visibility is rated from low to high; however no criteria or threshold is provided. Further, no discussion of how to incorporate viewer exposure into measurements of viewer duration is provided.

For example: The CEC's Method employed in this analysis does not provide a definition for what constitutes measures of high, moderate, or low visibility. To this end, the lack of definition for what constitutes this level of impact is therefore left to the analyst's interpretation and is therefore inherently subjective. For example, the discussion of Viewer Sensitivity for KOPs within the "I-10 Corridor" states that, "the community [of Mesa Verde] contains between 200 and 300 homes, including a substantial number with open views toward the project site to the south." According to Table 1 of the PSA, the "Visibility" of the Project from KOP 3 and 3b was determined Moderate. We note that the PSA fails to explain how "open views" equate to Moderate visibility. In this respect, we contend that the weight or consequence this factor disproportionately influences the determination of Viewer Sensitivity and level of impact significance.

Number of Viewers

Number of viewers is defined by the CEC as the estimated number of the total viewers in a viewer group (residential viewers, recreational viewers, etc.) who may be exposed to the proposed project from the KOP. An estimated number count may include the number of residences, the Annual Average Daily Traffic (AADT) on a surface street or highway, or the number of individuals participating in a recreational activity. Although it is clear how this metric informs the number of people who would see the project, it provides no standard "weighting" by which to understand the relationship of the number of viewers to visual sensitivity, particularly when the individual activity each viewer is engaged in could be substantially different.

For example, according to Table 1 of the PSA, KOPs within the Palo Verde Valley area were assigned "Moderately Low" rating for Number of Viewers. Presumably this is due to the low number of people in the Project vicinity, however Page 4.13-19, 4th Paragraph, states, "residential numbers are considered relatively high. Traffic levels are moderately low (ADT, 2000). While visitor numbers at Jack E. Marlow Park are not known, they were estimated to be in a moderately high range (over 100/day) due to a high concentration of adjacent residents, and a variety of recreational facilities." It is unclear how the PSA arrived at its final determination that the number of viewers was considered Moderately Low or why this finding is given equal weighting to other measures of Viewer Exposure and therefore Overall Visual Sensitivity. We contend this serves to inflate the overall determinations of significance.

Duration of View

Duration of view is the estimated length of time a viewer would have to view the Project from each KOP. The importance of the duration of view varies depending on the type of activity in which the viewer is engaged or focused.

The CEC Method rates a view of a project longer than 2 minutes as HIGH; conversely, a view of a project for less than 10 seconds would be LOW. We contend that, without context –(i.e., the total duration of a visual experience in coordination with consideration of the nature of that experience (i.e. are there competing views?)), that using this metric serves to inflate the actual range of duration of view a viewer may experience at any given time. For example, according to Table 1 of the PSA, viewer duration from Cibola National Wildlife Refuge was determined "High" as seen from KOP 5 and 5b. Within the discussion of Viewer Exposure, the PSA does not describe how this level was determined. Why was Viewer Duration determined "High"?

Using the CEC's Method, any viewer experiencing a view of the Project for more than two minutes is considered to have a "High" duration of view. We submit that this does not provide an accurate measurement of impact because it does not provide context. It begs the question, "two minutes out of what?" An hour? Five hours? Five days? Five years? In this sense we recognize the intent of the Method is to provide a framework for analysis, but we contend greater effort should be placed on describing the context of each view, rather than conforming to individual impact levels intended to apply to any project located in any environment.

Overall Viewer Exposure

Overall viewer exposure involves totaling the assigned ratings for the factors of visibility, number of viewers, and duration of view. We contend that the process of "totaling" categorical data adds yet another layer of assumption and bias to the CEC's Method. The PSA does not explicate what criteria are used to determine overall viewer exposure so it is not clear if certain factors are given greater weight than others.

Conclusion

In the context of the above arguments, we recognize that both the Staff PSA and the AFC are based on many assumptions[1]. These assumptions allow the analyst to make educated and informed significance and impact determinations. However, assumptions remain conventional expectations based on educated assessment of existing conditions. We argue that not all assumptions the PSA makes for Visual Sensitivity are equal, the impact of which carries the risk that certain factors of assumed conditions are factually under or overstated. Therefore, these under or overstated assumptions influence determination of significance and are factually inaccurate.

Because the findings and conclusions for Viewer Sensitivity and Visual Change (in the AFC and PSA) are based on numerous assumptions made throughout the course of each analysis, we offer the following contextual and comparative analysis to further explore and elucidate the extent to which the Project may impact the existing visual environment. In this manner we seek to investigate the extent to which viewers presently interact, and likely will continue to interact, with the visual environment of the Palo Verde Valley and greater geographic region the Project would be located. This analysis is provided to lend context to arguments presented above.

2. CEQA Thresholds of Significance:

As shown, the visual impact significance criteria in the CEC's Method provide an insufficient metric to gauge comparative levels of impact significance. With this in mind, we explore the context of several of the impact statements made in the PSA.

Visual Character and Visual Quality

The PSA identifies Bradshaw Trail, views within the Mule Mountain LTVA, and Palo Verde Mountain Wilderness Area as Scenic Vistas that have the potential to experience significant visual impacts as a result of the Project. The following discussion presents a circumstantial analysis of these features that is intended to provide greater perspective.

Bradshaw Trail: See discussion of impacts to Bradshaw Trail under Scenic Resources.

Mule Mountain LTVA: The Mule Mountain Long Term Visitor Area (LTVA) is located roughly 4 miles west of the Project. As seen in the photos below, the western slope of Mule Mountains are a prominent form within this visual landscape. Table 1 below presents a sample of easterly views from within the Mule Mountain LTVA. This collection of views demonstrates that vegetation, from certain unpredictable locations, can have the effect of screening the Mule Mountains and therefore potential views toward the Project. As such, it makes sense to also surmise that viewers within the LTVA would not experience one static view toward the Project, but instead would (for the most part) be interacting with the nuances of the landscape in their immediate foreground. While distant and panoramic views would make up part of a typical users experience, it would be difficult to determine if the Project in fact would dominate the viewers collective experience within the LTVA.

[1] An assumption is defined as: a fact or statement (as a proposition, axiom, postulate, or notion) taken for granted, (http://www.merriam-webster.com/dictionary/assumption, accessed October 6, 2012).

In addition to the consideration of collective experience, we also recognize that views from the LTVA already show a landscape that is culturally modified. Structures such as transmission lines, fences, the Chuckwalla/Ironwood State Prison, and Wiley's Well Road are visible from certain areas within the LTVA. Additionally, I-10 is located approximately 10-miles north of the LTVA.

Each of these factors should be an important consideration in the visual impact assessment.

Palo Verde Mountain Wilderness: **Page 4.13-11, 3rd Paragraph, 3rd Sentence**: The PSA states, "While not the sole criterion for designation of wilderness areas, preservation of scenic values is a key concern underlying the Wilderness Act (P.L. 88-577(16 U.S.C. 1131-1136))."

We agree with this statement insofar as views toward, and not from, a designated Wilderness Area are intended to be preserved by the Wilderness Act. To say that development surrounding a Wilderness Area is subject to the developmental restrictions of the Wilderness Act would overstep the regulatory authority of this Act. In this regard, we concur with Staff's statement that viewers (such as hikers and other recreationists) from the Palo Verde Mountain Wilderness are assumed to be highly sensitivity to adverse visual changes within the boundaries of the Wilderness Area. We also submit that greater effort should be made to contextualize the scenic quality of views, and the percent of acreage the Palo Verde Mountain Wilderness Area represents within the greater Basin and Range Physiographic Province.

Scenic Quality of Views from the Palo Verde Mountain Wilderness: Similar to the Mule Mountain LTVA, hikers utilizing the Palo Verde Mountain Wilderness would experience different views at different elevations and points within the Palo Verde Mountain Wilderness. From elevated positions that offer unobstructed views of the Palo Verde Valley, hikers currently look out over a culturally modified and mosaic landscape that has been altered from its natural state. This degree of cultural modification and anthropogenic influence stems from decades of agricultural use, the presence of roads, irrigation canals, numerous power lines, and the construction of residences within Palo Verde, Ripley and Blythe. Furthermore, it is likely that open and panoramic views of the Palo Verde Valley from within the Palo Verde Mountain Wilderness comprise a relatively small proportion of the total available views a typical hiker would experience while in the Wilderness Area.

URS field reconnaissance at Clapp Spring (within the Palo Verde Wilderness Area) suggests that the majority of views from this trail would be obstructed by topographic changes in the land. Meaning, most views within the Wilderness Area would be of intersecting ridgelines, rock outcrops, scrubby vegetation, and other natural features in the fore to midground area of a particular view; and as such would block distant views of the Palo Verde Valley and Palo Verde Mesa. In this respect, we contend it is difficult to unequivocally assume that the Project would represent a significant visual impact to the Palo Verde Mountain Wilderness. Rather, we submit that while the Palo Verde Mountain Wilderness may have highly sensitive viewers, the value of the Wilderness as it was intended under the Congressional designation (see purpose and definition of Wilderness Areas as created by Congress below) remains unaltered despite the addition of the Project.

Purpose of Wilderness Areas:
…"For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas", and these shall

be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness; and no Federal lands shall be designated as "wilderness areas" except as provided for in this Act or by a subsequent Act," (Public Law 88-577 (16 U.S. C. 1131-1136), Section 2(a)).

Definition of Wilderness Areas:
"A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value," (Public Law 88-577 (16 U.S. C. 1131-1136), Section 2(c)).

Based on the definition of a Wilderness Area, and in consideration of its purpose and intent, we submit that the intent of the Palo Verde Wilderness Area would remains functionally intact with the addition of the Project. Most viewers who interact with this landscape will be traveling on trails, which for the most part are located in valley areas of the mountainous landscape. As such, the capacity for the Wilderness Area to offer visitors a remote, experience with this landscape will remain unaffected. And because panoramic and open views already present a landscape that is culturally modified, the case that the Project alone would detract from this Wilderness Area oversteps the purpose and intent of the Wilderness Act.

Palo Verde Mountain Wilderness Statistics: The Bureau of Land Management uses Physiographic Provinces as a basis for comparison of the scenic quality of a landscape. In this sense, a Physiographic Province enables an "apples to apples" comparison of similar landscapes. The Palo Verde Mountain Wilderness is located within the Basin and Range Physiographic Province. We have outlined several statistics for a comparative analysis of the Basin and Range Physiographic Region as it relates to the geographical extent of the Palo Verde Mountain Wilderness. Figures 1 and 2 below provide visual aid for this analysis.

Figure 1: Geographical Extent of Basin and Range Physiographic Region

Figure 2: Wilderness Areas Within 10 and 30 Miles of Project Power Towers.

Table 2

Basin and Range Physiographic Province Wilderness Areas		
Basin and Range Physiographic Province	222,244,560 acres	
Number of Wilderness Areas within Basin and Range Physiographic Province	390	
Total Acreage of Wilderness Areas within the Basin and Range Physiographic Province	17,169,920 or 7% of total area of Physiographic Province	
Wilderness Areas within 10 miles of Project power towers	Palo Verde Mountain Wilderness	
Acreage of Palo Verde Mountain Wilderness	30,562 acres	0.013% of the total land area of the Basin and Range

Table 2

Basin and Range Physiographic Province Wilderness Areas		
		Physiographic Province
		0.17% of the total land area of all Wilderness Areas within the Basin and Range Physiographic Province.
Wilderness Areas within 30 miles of the Project power towers	1. Palen/McCoy Wilderness 2. Rice Valley Wilderness 3. Big Maria Mountains Wilderness 4. Chuckwalla Mountains Wilderness 5. Little Chuckwalla Mountains Wilderness 6. Palo Verde Mountain Wilderness 7. Trigo Mountain Wilderness 8. Imperial Refuge Wilderness 9. Indian Pass Wilderness 10. Picacho Peak Wilderness	
Acreage of Wilderness Areas within 30 miles of the Project power towers	551,680 acres	0.24% of total land area in Basin and Range Physiographic Province
		3.1% of total land area of all Wilderness Areas in the Basin and Range Physiographic Province.
Source: www.wilderness.net, accessed October 6, 2012.		

Cibola National Wildlife Refuge: The CEC's method specifically states that: the measure of Visual Change, which the Visual Quality and Visual Character CEQA, Appendix G Threshold relies upon, determines the amount of visual change based on: CONTRAST, DOMINANCE, and VIEW DISRUPTION. "Generally, contrast and dominance contribute more to the degree of visual change than does view disruption." In this sense, the method does not accurately account of the day to day features that will occupy a viewer's view at any given time.

Staff measures of Visual Sensitivity at Cibola NWR are consistent with the applicant's analysis. However, we suggest the analysis give more consideration to blockages that occur throughout the refuge (i.e., flood berms, dense vegetation, etc.). While certain parts of the refuge, (i.e., the campsite the PSA

references) will have unobstructed views of the Project, the majority of views within the refuge will be screened. Additionally, it could also be argued that the majority of visitors who recreate within the refuge will be drawn to easterly views of the Saw Tooth Mountains in Arizona rather than westerly views toward the Mule Mountains. It could be argued that these mountains present a more interesting form which would serve to draw the viewers eye in a direction opposite the Project.

Scenic Resources:

Staff notes the Project would adjoin the easternmost portions of the Bradshaw Trail. Staff also notes the entire Bradshaw Trail is considered a "scenic vista." We contend that emphasis should be placed on the comparatively small proportion of Bradshaw Trail that would be affected by the Project. In other words, according to Staff Figure 4 in the PSA, the Rio Mesa Viewshed Model suggests that the Project will be visible for approximately 12 miles of Bradshaw Trail. We submit that Bradshaw Trail is in fact a 65-mile long trail. If the Project is visible for only 12-miles, this represents 18%of the total length of Bradshaw Trail. For proportional purposes, if motorists were consistently traveling at a rate of 35 mph on Bradshaw Trail (from end to end), it would take them roughly two hours to travel the length of the trail. As such, the Project would be visible for 20 minutes of this total duration.

Additionally, it should be noted that the existing easterly views from the Bradshaw Trail as a motorist travels eastbound on Bradshaw Trail and begins to descend into the Palo Verde Valley from the Mule Mountains, existing views present a culturally modified landscape. As described in panoramic views from Clapp Spring, views from the elevated portions of Bradshaw Trail would look out over a culturally modified and anthropogenic ally influenced landscape. In this sense, the existing visual character would enable the Project to better harmonize than if the landscape were completely undeveloped. Meaning, because the landscape has already been altered, the addition of the Project would have a proportionally smaller degree of impact than if it were undeveloped.

Visual Character and Visual Quality

In each of the findings for viewer sensitivity, we suggest adding a caveat to the impact determination to recognize the relative limited amount of exposure (as a factor of population) the Project would receive when compared to other population centers within Riverside County, and as a factor of the combined population of Riverside and Imperial Counties. This factor speaks to the flaw in the analytical method which does not provide a threshold to measure at what level of exposure (as a measure of population) an impact finding becomes significant.

The following analysis provides additional context for each of the KOPs discussed in the PSA. Staff divides the landscape into four Landscape Units from which the visual sensitivity and visual change is analyzed. These areas include:

a. Palo Verde Valley KOPs
b. I-10 Corridor KOPs
c. BLM Lands
d. Cibola NWR
e. Mule Mountain ACEC

The analysis below provides comparative population references for the Palo Verde Valley and surrounding communities in relation to cities within the Coachella Valley Region of Riverside County, and the Inland Empire Region, of Riverside County).

Palo Verde Valley KOPs and Population:
It is important to view the context of the population that surrounds the Project within the Palo Verde Valley and greater Riverside and Imperial Counties. As such the information below is presented for context.

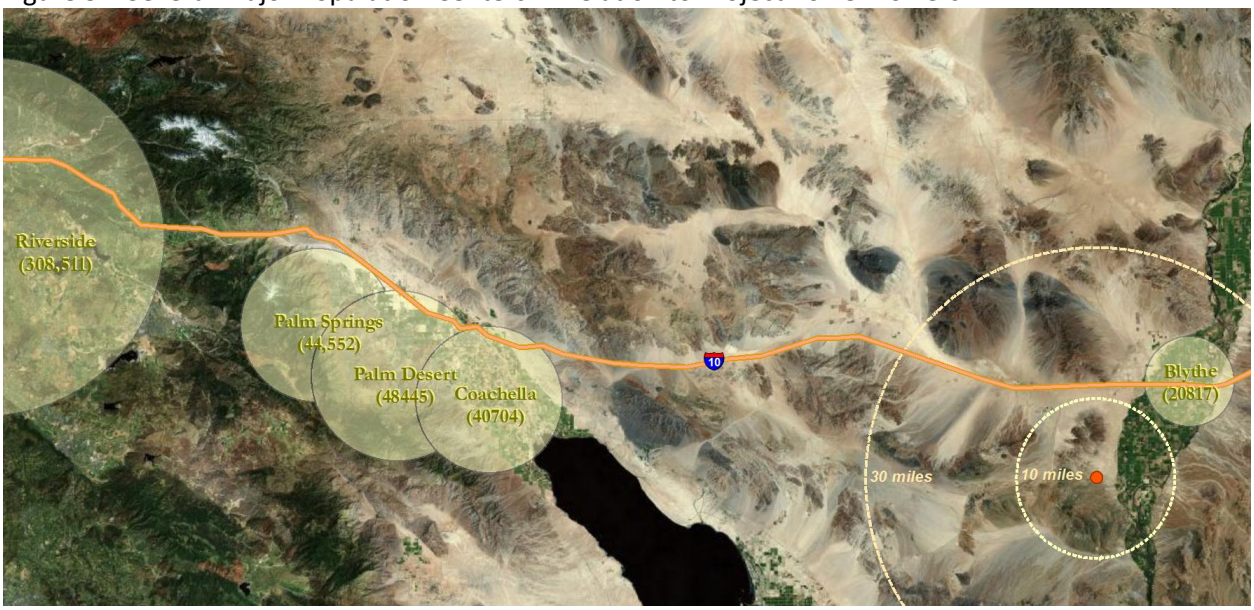
Table 3

Population	Distance to Project Power Towers
328	8 miles
21,217	20 miles
Source: US Census, 2010. URS, 2012.	

Table 4

Municipal or County Population Center	Population Total (US Census, 2010)	Represented as Percent of Pop (328 people) within 8 miles of the Project	Represented as a Percent of the Population (21,217) within 20 miles of the Project
Blythe	20,817	1.57%	101.9%
Coachella	40,704	0.80%	52.12%
Palm Desert	48,445	0.67%	43.79%
Palm Springs	44,552	0.73%	47.62%
Riverside	308,511	0.10%	6.8%
Riverside County	2,189,641	0.014%	0.96%
Imperial County	174,528	0.18%	12.15%
Riverside and Imperial Combined:	2,364,169	0.013%	0.89%
Source: US Census, 2010. URS, 2012.			

Figure 3 – Several Major Population Centers in Relation to Project Power Towers



The PSA identifies sensitive viewers within the Palo Verde Valley as residents in around Palo Verde and Ripley and motorists on SR-78.

Interstate-10:
The PSA identifies sensitive viewers from I-10 as residents of Mesa Verde, Blyth Airport, and travelers on I-10. The analysis of Visual Sensitivity and Visual Change describes the level of visual resource change from residences of Mesa Verde interchangeably with views from motorists on I-10. We contend the PSA should better separate the analysis as it serves to confuse the overall significance determination.

Page 4.13-12, 5th Paragraph, Third Sentence: "Average daily traffic numbers in this segment of I-10 are high: 22,500 (westbound) and 23,800 (eastbound). Westbound motorists would be exposed to views of the solar towers from the state line and beyond, approximately 15 miles. This represents a view duration of roughly 15 minutes at 50 miles per hour, a relatively long period of exposure for motorists."

The statement that the view from I-10 would represent a long period of exposure for motorists appears to be somewhat subjective. The Traffic and Transportation section of the PSA states, **Page 4.11-6, 4rd Paragraph, Second Sentence:** "In the project area, I-10 has two lanes in each direction and a speed limit of 70 miles per hour. Trucks comprise approximately 39 percent of the traffic in the project area."

If the total ADT heading eastbound on I-10 is 39% truck traffic, this means that approximately 9,282 of those viewers will be from non-truck traffic. We contend this is a proportionally small percentage exposure when the true nature of the primary user is explored.

If the total ADT heading westbound on I-10 is 39% truck traffic, this means that approximately 8,775 of these viewers will be non-truck traffic. We contend this is a proportionally small percentage of the total exposure.

Additionally, it is unclear how the PSA determines how the length of time exposed to the Project can be considered a "long period of exposure." What metric is used to determine whether this length is long, moderate, or short-term. We submit that I-10 travels roughly 1,200 miles through the Basin and Range Physiographic Province. If the Project were visible for 30 miles along I-10, this would represent 2.5% of the total area of I-10 within that Province. Using measures of exposure from the PSA, if the Project were visible for 15 miles, this would represent 1.2% of the total are of I-10 located within the Basin and Range Physiographic Province.

BLM Lands (Palo Verde Mesa, Mule Mountains)
See discussion of Sensitive Resources above.

Cibola NWR/Colorado River
See discussion under Sensitive Resources above.