



TETRA TECH EC, INC.

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February 1, 2010

California Energy Commission
Docket No. 09-AFC-8
1516 9th St.
Sacramento, CA 95814

Genesis Solar Energy Project - Docket Number 09-AFC-8

Docket Clerk:

Included with this letter is one hard copy and five electronic copies of the ***Revised Air Quality Responses to the CEC Data Requests per the Workshop on January 6, 2010 for the Genesis Solar Energy Project.***

The additional CDs have been provided for use by CEC air quality staff as needed. The CDs contain additional reference materials that are not part of this response, but may be helpful to staff when reading the responses.

Sincerely,

A handwritten signature in black ink, appearing to read 'Tricia Bernhardt'.

Tricia Bernhardt
Project Manager/Tetra Tech EC

cc: Mike Monasmith /CEC Project Manager



Genesis Solar Energy Project

Revised Air Quality Responses to CEC Data Requests per the Workshop (teleconference) of January 6, 2010

These responses are presented in their entirety with the accompanying original data request, initial applicant response, CEC staff response, and revised applicant response.

1. Please describe the types of activities that emit combustion and fugitive dust emissions on the site currently and the quantities of those emissions that occur from those activities.

Response:

As stated in the Application for Certification (AFC) in the Air Quality Section, the proposed site is presently vacant with no emitting activities or sources of emissions other than naturally occurring emissions, i.e., wind-blown dust.

Staff's Response:

Adequate (I would however like to confirm that there is no recreational off-road use at the site).

Applicant Revised Response: OHV use is limited to established routes with the passage of the Northern and Eastern Colorado (NECO) Desert Plan Amendment to the California Desert Conservation Area (CDCA) Plan in 2002.

4. Please defend the MRI level 2 fugitive dust emissions calculation approach and provide information that clearly shows that this emission estimation method does not significantly underestimate or overestimate emissions in comparison with a more detailed activity by activity based fugitive dust emission calculation approach.

Response:

- (1) We are not aware of any guidance provided by the South Coast AQMD that indicates that the MRI Study is not appropriate for use. The SCAQMD CEQA Handbook is undergoing revisions, but to date we have not seen any proposed or revised text which changes the existing handbook sections, methods, or procedures regarding fugitive dust emissions estimations from construction projects (see comments below on obsolete sections). Notwithstanding the foregoing, although the SCAQMD may no longer use the method or approach, this does not mean that it is invalid or barred from use by others in producing construction emissions estimates. The proposed project is in Riverside County (Mohave Desert AQMD), so the application of the method is not subject to any policy decisions

made within and for the SCAQMD. We do note that all of the Fugitive Emissions Mitigations tables currently available from the SCAQMD rely upon the WRAP Fugitive Dust Handbook dated 9-7-06 (which we believe is the most recent version of this document), and that the WRAP Handbook (Chapter 3-Construction and Demolition) specifically relies upon the MRI study procedures and conclusions used in our analysis, i.e., (1) Improvement of Specific Emissions Factors-BACM #1, MRI, 3/96, (2) Estimating Particulate Matter Emissions from Construction Operations, USEPA, MRI, 9/99, and (3) MRI Report of 2005 which updates the PM_{2.5}/PM₁₀ ratios developed for WRAP. Additionally, we note that the current version of Urbemis (Ver 9.2.4), as well as earlier versions also rely solely upon the MRI BACM (3/96) report for calculating fugitive dust emissions. Urbemis is used, not only statewide in California, but in other states as well, and in numerous CEQA guidelines published by both planning and air quality jurisdictions within California, Urbemis is either required or strongly recommended for computing/estimating project construction fugitive dust emissions and other construction related emissions estimates.

Furthermore, we note the following:

- a. A search of the SCAQMD website shows a total of 12 guidance documents available, none of which address any new guidance on fugitive dust emissions calculations.
- b. The SCAQMD prepared the CEQA Air Quality Handbook in April 1993, and made minor revisions in November 1993. Copies of this handbook can be obtained by contacting AQMD's Subscription Services. The SCAQMD states:

“While the Handbook is under revision, it is recommended that the lead agency follow the calculation methodologies in Chapter 9 and the Appendix to Chapter 9 in the Handbook. Other methodologies can be used as long as documentation is provided regarding the source and applicability to the project.”

Obsolete sections of the current Handbook are as follows:

“Lead agencies should also be aware that the on-road mobile source emission factors in Table A9-5-J1 through A9-5-L are obsolete. The most current on-road mobile source emission factors can be found at the California Air Resources Board (CARB) website.

The SCAQMD also recommends that the lead agency avoid using the screening tables in the Handbook’s Chapter 6 for the following reasons:

1. The tables were derived using an obsolete version of CARB's mobile source emission factors inventory (EMFAC7E) instead of the currently approved version (EMFAC2007), and,

2. The trip generation characteristics of the land uses identified in the Chapter 6 screening tables were based on the fifth edition of the ITE Trip Generation Manual. The most current version of this manual is the sixth edition.”

No mention is made of the fugitive dust estimation methods in the handbook as being obsolete.

- c. CEC staff indicates above that the MRI BACM method is no longer supported by SCAQMD, but yet the exact language from the SCAQMD website (see below, obtained on 11-18-09) clearly recommends the use of Urbemis, which is based upon the MRI BACM methodology, as noted in our earlier comments.

“The screening tables should no longer be used under any circumstances because they are based on obsolete mobile source emission factors and trip generation data. The reader should use the methodologies in the Appendix to Chapter 9 of the CEQA Air Quality Handbook or use a land use model, such as Urbemis. Other air quality analysis methodologies not in the CEQA Air Quality Handbook are acceptable as long as they are well documented, including source(s), assumptions, equations used, calculations, etc.”

Therefore the method approach used by the Applicant to estimate fugitive dust emissions from construction activities is considered to be both sound and widely accepted.

- (2) The MRI Level 2 analysis procedure was used to “estimate” fugitive particulate emissions from general construction activities. Per the WRAP Handbook, general construction activities include land clearing, drilling, blasting, ground excavation, cut and fill operations, as well as demolition and debris removal, site preparation (earth moving) activities, and other general construction activities. The Level 2 procedure expands upon the Level 1 analysis by further refining the emissions factor for general construction activities and adding an emissions factor and calculation procedure for cut and fill operations. These are exactly the types of construction activities proposed at the Genesis Solar Project site. The emissions factors presented in the WRAP Handbook (Table 3-2) for the Level 2 analysis procedure are: 0.011 tons PM10/acre-month for general construction (for each month of construction activity), and 0.059 tons PM10/1000 yd3 for cut and fill operations (onsite). Per the original BACM (MRI, 1996), the 0.011 tons/acre-month factor was based on an activity level of 168 hours per month. We note that the MRI report indicates that the South Coast AQMD uses a general Level 1 construction factor (worst-case) of 0.42 tons/acre-month, which is based upon detailed information developed in that air basin, and that CARB states this factor should be reduced to 0.11 tons PM10/acre-month for other areas of the state where the detailed data is not available. Per WRAP, the PM2.5/PM10 ratio for fugitive construction dust is 0.1, which results in the Level 2 factor of 0.011 tons PM10/acre-month. Therefore, the MRI Level 2 factors were used in the fugitive dust emissions estimates. The 0.011 ton PM10/acre-month value

was linearly scaled up to a value of 0.0144 tons/PM10/acre-month to more accurately represent an emissions factor for the proposed project work period.

- (3) Neither the project proponent or anyone else to our knowledge, is able to conclusively show that any chosen method for the computation of fugitive dust emissions from construction activities significantly under or over-estimates such emissions. The method chosen is both technically justified and approved for use via a number of references as noted above.

Staff's Response:

Inadequate: I really don't agree with this approach that uses a methodology where the reference cannot be found nor is appropriate given the high level of information known about the construction and SCAQMD's latest calculation methods available on their website (CEQA LST page) use AP-42 activity specific calculations. One of my concerns is that two project using this approach (Mojave and Genesis) have very different overall PM emission estimates even though the projects are both 250 MW projects, and Mojave has the much higher estimate even though Genesis should require more work to prepare the site and much more traffic based emissions. A comparison of the construction emissions for Mojave and Genesis is provided below.

Applicants Revised Response: (1) The methodology references are easily obtainable on-line. The attached CD contains all the reference documents noted in the applicant's first response plus several other reference documents. (2) In addition, please note that the following states or agencies use the procedure for preparation of emissions inventories and project related emissions estimates:

- California – statewide emissions inventories per Area Source Methodology listing, section 7-7.
- Use of the URBEMIS model by most of California's planning agencies for EIR emissions calculations for construction.
- Alaska, Hawaii, Washington, Oregon, California, Arizona, New Mexico, Colorado, Utah, Wyoming, Montana, North Dakota, South Dakota, and Idaho.
- USDA, and USDOJ.

Based on the above original response and the revised data (including the reference documents supplied on the CD), we believe the methodology is well established, widely used, well documented, and appropriate for use.

In the revised emissions calculations, the applicant has replaced the MRI cut and fill methodology with the following: (a) soil handling emissions from cut and fill activities have been estimated using the AP-42, Section 13.2.4, equation #1 with site specific data on wind

speed, soil moisture, number of soil drops, etc. This procedure was used in the Palen Solar Power Plant (PSPP) project (Appendix E-2. Volume II, AFC, August 2009). In the PSPP calculations, a soil moisture of 15% was used, and no further reductions due to watering were used. In our revised calculation, the site soil moisture value per the geotechnical report was averaged at 3%, and since watering is being used, a reduction of 60% (per the SCAQMD mitigation tables) was applied.

In addition, we question the comparison of emissions for the projects noted above as a valid concern. Although the projects are of similar technology and size, each developer and their associated construction contractors have differing ideas as to how construction should be implemented and scheduled, as can be seen by comparing the construction periods for both projects, i.e., Genesis is 36-37 months, while Mojave Solar is 26-27 months.

5. Please identify the increase or decrease in non-stabilized disturbed land within the project site during operation and estimate the corresponding increase in wind erosion fugitive dust emissions at the site.

Response:

The existing site is vacant desert land and is therefore subject to non-anthropogenic wind-blown dust generation. The proposed facility will result in a majority of the site being graded and compacted, with portions of the site surface being paved or graveled, or stabilized through the use of soil stabilizer treatments. This will essentially decrease the surface area available to wind-blown dust generation. The existing undeveloped site is approximately 1800 acres. Subsequent to construction, approximately 60 acres will be paved or graveled (power blocks, access roads, transmission substation, evaporation ponds, etc). Approximately 30 acres of roadways in the solar fields will be stabilized via compaction and soil treatments. In addition, the mirror access ways will be compacted and treated with soil stabilizers. This will result in a significant decrease in acres of non-stabilized land, which will result in an overall decrease in anthropogenic wind-blown dust fugitive emissions.

Staff's Response:

Inadequate: Staff would like to note that there is a desert glaze that develops over time that keeps non-anthropomorphic dust emissions down, and construction will impact that thin glaze layer. So, staff does not agree with this response.

Applicants Revised Response: Based on the CEC staff comments that a CoC requiring site soil stabilization subsequent to construction, there is no need for a further response by the applicant. The applicant will stabilize the site soils subsequent to construction using stabilizers approved for the area.

7. Please identify if the applicant is willing to stipulate to graveling the onsite unpaved roads during construction before they are sealed to reduce the silt loading, or provide

surface soils sieve data that shows that the 5.3 percent silt content assumption is representative of the site.

Response:

Soil silt content data has been revised per the site geotechnical report (see response #6). We are unable to make the connection between staff's comment to stipulate to graveling construction roads "before they are sealed", to how this relates to on-site unpaved road use during the construction phase. The use of, and emissions from, any unpaved roads onsite during construction is covered in the site fugitive dust emissions estimate as discussed in response #4.

Staff's Response:

Inadequate: What staff was getting at here is that we believe that fugitive dust emissions should be controlled to the extent feasible, so early paving/sealing of roads during construction is expected/will be recommended in CoCs.

Revised Applicants Response: The applicant is agreeable to implementing a CoC which would require early sealing, graveling, or paving of construction roads during the construction phase. In addition, the applicant's construction plans for the access road, etc., are anticipated to take place during the first 3-4 months of construction (per the original and revised construction data).

9. Please revise the operations fugitive dust emission calculations based on the site specific surface silt content estimate and to reflect the Energy Commission staff recommended operations mitigation measure of stabilizing the onsite unpaved roads using durable non-toxic soil binders.

Response:

See response #6. Table K.1-7 has been revised to reflect the soil silt content per the site-specific geotechnical report. Use of watering, speed control, and soil stabilizers is assumed for the solar field access roads and mirror access pathways.

Staff's Response:

Inadequate: I don't think the assumptions relate well to what we are going to require (i.e. control efficiency assumed is too low); clearly they didn't understand that we are going to recommend requiring soil binders during construction and operation.

Revised Applicants Response: The operational control efficiency for unpaved road use during the operational phase of the project was estimated to be 82%. At the present time the applicant does not believe that this control efficiency is "too low". Comments by Mr. Walters during the teleconference workshop indicated that he may have looked at the wrong value in developing this response. Nonetheless, the applicant has revised the operations control value for fugitive dust on unpaved roads to account for the increased control efficiency of soil stabilizers, water,

and speed control, i.e., a control level of 90%. This value was used to revise the onsite fugitive dust emission values for unpaved road use.

The fugitive dust control efficiency applied during the construction period is 78%. The applicant tried to balance the use of watering, and speed controls during construction to arrive at a reasonable control value (considering the desert location, etc). If the construction roads are sealed, graveled, or paved (depending on the road location and use) early in the construction phase (as noted in earlier comments), then a higher control value may apply, but the applicant is unable to determine what this value may be at the present time (although we suspect the control value may be as high as 85-90%).

10. Please provide the electronic versions of the emission spreadsheets with the embedded calculations.

Response:

The data spreadsheets are supplied in PDF format on a CD. The calculations within each spreadsheet can be easily followed and are readily confirmable.

Staff's Response:

Inadequate: Not responsive, we asked for the spreadsheets with the embedded calculations, we can accept a locked version as long as we can see the calculations/cell references and add blocks of cells.

Applicants Revised Response: The applicant has supplied "locked" versions of the applicable spreadsheets. These electronic files are supplied with this response.

12. Please provide the original equipment estimates provided by the applicant to the applicant's air quality consultant.

Response:

The original and recently updated equipment list and usage estimates provided by the Applicant to the consultant staff are delineated in revised Tables K.5-6 and K.5-7 (attached).

Staff's Response:

Inadequate: Need to confirm that the applicant agrees that the construction equipment assumption in the AQ calcs are what they provided to the AQ consultant. We can do this in the workshop.

Applicants Revised Response: Tables K.5-6 and K.5-7 were supplied by the applicant, i.e., they were not developed by the air consultant. Air consultant staff used the values in the tables, as supplied by the applicant, as the basis for the construction equipment exhaust emissions estimates, mileages, delivery rates, etc.

14. Please describe how the trip distance assumptions for construction were determined for each vehicle type/use. Please note that staff believes the trip lengths for the delivery vehicles and construction employee vehicles/buses to be underestimated as it seems unlikely that Blythe would be the origination point for major equipment items (SCAs, structural steel, etc.), and unlikely that Blythe has the population base to staff the hundreds of construction employees necessary to complete construction on this remote project site.

Response:

Table K.5-6 (original and updated versions) clearly indicates the types of vehicles, numbers of vehicles, and estimated mileages for vehicles proposed for construction support activities. Vehicle mileages are based on either: (1) a one-way trip length of 30 miles from the Blythe urban area (which includes the Blythe rail yard site), or (2) the Applicant's best estimate of mileage rates per vehicle category and anticipated use during construction. For equipment mileages based on one way distances from Blythe to the site, the following assumptions apply:

- The delivery and site support vehicles will not be owned by the project Applicant, nor will they be dedicated to the construction project.
- The project Applicant has no control over the use of these vehicles in back-haul mode.
- The 30-mile one-way distance is conservative, since a majority of the Blythe urban area, as well as the Blythe rail yard, are less than 30 miles from the project site.

Additional General Comment: The Applicant is satisfied that the Blythe regional area can supply all the required construction materials, and that there is a sufficient labor force in the area to accommodate facility construction. See the Socioeconomic Section 5.8 of the AFC for further discussion of labor issues, etc.

Staff's Response:

Inadequate: I have a hard time believing that this project and Blythe Solar, both noted to be staffed primarily from Blythe, along with other major solar construction projects (Rice and Palen for example) can all be staffed from a city of less than 20,000 (just doesn't pass the redface test). This has also got to be an issue for other sections in the document, so whatever is assumed in the Socio section should be assumed for AQ personnel trips. Also, We always use round trip distances. Given the repetition for most of the delivery types (solar components, etc) the trucks will just be going back and forth. This means we will need to recalculate emissions since we assume that the applicant won't.

Also, please note that the AFC notes that the Blythe Rail yard is not in operation and that it is noted that items are likely to be dropped off in Vidal or Parker Arizona (See AFC 5.11.1.6).

Applicants Revised Response: (1) Since busing will not be used, as noted in the original response, a revised worker travel round trip distance of 150 miles has been used to revise the worker travel emissions estimates. The applicant believes that his value grossly overestimates the

commute distance for construction workers. (2) Construction delivery distances have been revised as follows: (a) applicant assumes a delivery rate of 28 site deliveries per day, with a total of 44 large equipment deliveries (over the project construction period) coming from the railyard siding at Vidal, Ca. (BNSF), and the remaining deliveries coming from Blythe (60 mile roundtrip) or Phoenix (150 miles one way only), (c) the roundtrip distance to the Vidal railyard siding is approximately 140 miles (70 miles one-way, site to I-10 to Route 95). These revised mileage distances have been used to re-estimate construction worker and construction delivery rate emissions (see Table K.5-5). (Total VMT for the large equipment deliveries = 6600).

15. For each of the construction materials delivery/waste removal truck trip types, please provide the following information:

- a. The types and quantities of construction materials delivered to the site and wastes hauled from the site,
- b. The types of delivery trucks that will be used to deliver these materials,
- c. The number of delivery trucks on a daily basis for each of these materials, and
- d. The number of miles traveled roundtrip daily for each vehicle for each of these materials.

Response:

- a. The types and quantities of construction materials delivered to the site and wastes hauled from the site,

Response: The Applicant is uncertain as to how this request affects the construction phase or resultant emissions. Nonetheless, materials commonly delivered during construction would be generally as follows: (1) concrete for foundations, structure erection, and solar field supports, (2) building materials for structure construction, power block and solar field system components, (3) road paving or gravelling materials, etc. Any wastes hauled from the site during construction activities are discussed in detail in the Hazardous Materials and/or Waste Management sections of the AFC.

- b. The types of delivery trucks that will be used to deliver these materials,

Response: Tables K.5-5 and K.5-6 (original and updated versions) clearly indicate the types of vehicles to be used to support construction, including site deliveries.

- c. The number of delivery trucks on a daily basis for each of these materials, and,

Response: Table K.5-6 (original and updated versions) clearly delineates the estimated numbers of vehicles on site for any given month/day during the construction period for deliveries, etc. Mileages are also delineated on this table. Mileages are not broken out by material as such a breakout has no bearing on miles traveled or emissions.

- d. The number of miles traveled roundtrip daily for each vehicle for each of these materials.

Response:

See response to data request #14. In addition, the project Applicant does not believe that they are responsible for tabulating mileage and estimating emissions for support or delivery vehicles in the entirety of Riverside County (MDAQMD portion). The Applicant will purchase construction materials and supplies from the Blythe urban/regional area. How those supplies arrive at the businesses from which they are purchased is not the responsibility of, or controlled by, the Applicant. Nor do the emissions from transport of wholesale or retail supplies to the various local or regional suppliers have anything to do with the project emissions.

Staff's Response:

Inadequate: This isn't responsive. My issue is that the tables do not include enough explanation of the derivation of the numbers of trips and this response does not address that deficiency. What is the basis for the number of trips for mirror components, for HTF piping, for structural steel, concrete, etc and where exactly are those trips located in the table....right now the flat bed truck values seem really low and the cement (I'm sure that they mean concrete not cement) trucks seem unrealistically high...by a lot not a little. As far as I'm concerned based on the vehicle type descriptions the data in the tables is clearly incorrect.

Applicants Revised Response: The applicant has reviewed Tables K.5-6 and K.5-7. These tables have been revised, and the applicant provides additional information on delivery vehicle type, materials delivered, mileages, etc., in the following comments. It should be noted that detailed material take offs have not been completed for the project at this time; therefore, the applicant's best estimates have been used to develop material delivery estimates

- Concrete deliveries – the project estimates the total concrete (not cement) deliveries required will be on the order of 8500 over the project construction period. These deliveries will originate in Blythe, with a total roundtrip distance of 60 miles each.
- Solar field piping deliveries – the project estimates the need for approximately 400 deliveries to support solar field piping build out of the over the construction period. It has been anticipated that these deliveries will originate in Phoenix AZ, with a total one way distance of 150 miles. Round trip distance has not been used since most trucks will pick up a back-haul load and continue west or pick up a load and return to the origination city.
- Solar field mirror deliveries – to support the build out of the solar field for both units the project expects approximately 1000 mirror deliveries over the construction period. These deliveries will originate in Phoenix AZ, with a total one way distance of 150 miles each.
- Solar field structure material deliveries – to support the build out of the solar field for both units the project expect approximately 1500 steel and other material deliveries over

the construction period. These deliveries will originate in Phoenix AZ, with a total one way distance of 150 miles each.

- Power Block Piping – to support stream systems and other process water systems the project expects approximately 140 deliveries over the construction period for the project. These deliveries will originate in Phoenix AZ, with a total one way distance of 150 miles each.
- Steel – the project expects approximately 200 deliveries of steel for pipe racks, foundations, and pipe supports. These deliveries will originate in Phoenix AZ, with a total one way distance of 150 miles each.
- Cable and Wiring – the project expects approximately 200 deliveries over the project construction period. These deliveries will originate in Phoenix AZ, with a total one way distance of 150 miles each.
- Linears – to build out the transmission line, gas line, and access road the project expects approximately 2800 deliveries over the construction period for the project. These deliveries will originate in Blythe and Phoenix AZ.
- Miscellaneous – the project expects approximately 6300 miscellaneous equipment, material, and supply deliveries over the construction period for the project. These deliveries will originate in Blythe and Phoenix AZ.
- Paving – the project expects approximately 1800 asphalt deliveries over the construction period for the project. These deliveries could originate in Yuma, AZ, with a total roundtrip distance of 200 miles.
- Large equipment delivery data is delineated in item #14 above.
- The mileages for the above delivery types, plus the mileage for all other miscellaneous construction related deliveries have been used in the revised emissions calculations for construction deliveries on Table K.5-5. Total expected deliveries are estimated to be 22,880, with a total delivery VMT over the construction period of 2,475,924.

19. Please provide rationale why the locations for the volume and area source emission inputs do not change from short-term to annual modeling, or please provide annual construction modeling that matches the extent of annual construction activities.

Response:

The table which follows (Table 1) presents the revised construction impact modeling results which matches the extent of the annual construction activities along with the revised emission estimates.

Staff's Response:

Issues: At least in one place is inconsistent with the spreadsheets (worker travel CO2 tons is inconsistent). As noted under 10, we need the spreadsheets in Excel to properly review and obtain maximum annual emissions.

Applicants Revised Response: The worker travel CO2 emissions value presented in the noted table is simply a transcription error. This table has been revised based upon earlier comments and is presented below in its entirety.

Table 2 Construction Related Emissions Summary

Parameter	Units	NOx	CO	VOC	SOX	PM10	PM2.5	CO2 ²
On Site Fugitive Dust-Main Site	Lbs/day	-	-	-	-	48.5	10.2	n/a
	Tons/Period	-	-	-	-	18.6	3.9	-
Off Site Fugitive Dust-Gas Line	Lbs/day	-	-	-	-	1.15	0.24	n/a
	Tons/Period	-	-	-	-	0.06	0.01	-
Off Site Fugitive Dust-Access Road	Lbs/day	-	-	-	-	0.92	0.2	n/a
	Tons/Period	-	-	-	-	0.031	0.01	-
Off Site Fugitive Dust-T-Line	Lbs/day	-	-	-	-	1.15	0.24	n/a
	Tons/Period	-	-	-	-	0.07	0.02	-
On Site Equipment Exhaust-Main Site	Lbs/day	269.5	133.2	43.0	0.29	15.34	15.2	n/a
	Tons/Period	109.7	54.2	17.5	0.12	6.24	6.19	26158
Off Site Equipment Exhaust-Gas Line	Lbs/day	105.7	60.9	17.9	0.12	6.48	6.42	n/a
	Tons/Period	5.8	3.3	1.0	0.007	0.36	0.35	1678
Off Site Equipment Exhaust-Access Road	Lbs/day	76.6	38.2	11.3	0.08	5.16	5.11	n/a
	Tons/Period	2.5	1.3	0.4	0.003	0.17	0.17	613
Off Site Equipment Exhaust-T-Line	Lbs/day	68.8	36.1	10.9	0.08	4.05	4.02	n/a
	Tons/Period	4.5	2.4	0.7	0.005	0.27	0.27	1287
Other Offsite Construction Emissions	Averages							
Paved Road Dust	Lbs/day	-	-	-	-	10.2	1.7	n/a
	Tons/Period	-	-	-	-	3.82	0.65	-
Track-out Dust	Lbs/day	-	-	-	-	4.22	0.71	n/a
	Tons/Period	-	-	-	-	1.58	0.27	-
Unpaved Road Dust	Lbs/day	-	-	-	-	197.06	19.61	n/a
	Tons/Period	-	-	-	-	6.5	0.65	-
Delivery/Hauling Exhaust (includes site support vehicles)	Lbs/day	74.97	26.4	5.72	0.094	3.41	3.41	n/a
	Tons/Period	30.5	10.74	2.33	0.037	1.39	1.39	3825

Worker Travel-Exhaust	Lbs/day	71.8	716.5	59.5	0.65	5.82	5.81	n/a
	Tons/Period	29.2	291.6	24.2	0.3	2.4	2.4	23976
Notes: 1. Daily maximum emissions for equipment exhaust can be found on Table K.5-5. Daily average emissions are presented here as they represent site activity and emissions levels over the course of the project. 2. CO2e emissions are calculated and totaled on Table K.5-5. Total CO2e emissions are ~ 52,974 metric tons for the construction period.								

Based upon the applicant's best estimate, the maximum daily onsite emissions will occur as follows:

1. Fugitive dust emissions will be the greatest during months 1-6 when the main site is being graded, leveled, and cut and fill activities are occurring.
2. Exhaust emissions will most likely peak during the site preparation phase, but may show another peak during the main facility erection phase as well.

Table 3 Estimated Maximum Daily Onsite Emissions (lbs/day)

Month	Category	NOx	CO	VOC	SOx	PM10	PM2.5
1-6	Fugitive Dust	-	-	-	-	45.8	10.2
1-6	Exhaust	445.8	220.3	71.2	0.5	25.4	25.1
Est. Max Daily Totals, lbs		445.8	220.3	71.2	0.5	70.2	34.3

All construction emissions (on and offsite, including fugitive dust and vehicle based emissions) in terms of tons per year are compared to the applicable MDAQMD conformity threshold levels in the table below. For purposes of federal conformity, we note that the project region is classified as “unclassified/attainment” for all pollutants, and as such a federal conformity analysis would not be required for construction or operations emissions at this time.

Table 4 Construction Emissions Totals Comparison to Conformity Thresholds

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
Construction Emissions, tpy*	59.1	117.9	15.0	0.153	41.49	16.3	17181
Conformity Threshold, tpy ¹	100	na	50/100	na	70	na	na
Conformity Analysis Required	No	No	No	No	No	No	na
1 The site is located in the portion of San Bernardino County that lies within the “moderate” ozone NA area. As such, the applicable conformity threshold for NOx for NA areas in or outside of an ozone transport area is 100 tpy. The site is located in the portion of San Bernardino County that lies within the “moderate” ozone NA area. As such the applicable conformity threshold for VOC for NA areas <u>outside</u> of an ozone transport area is 100 tpy, and for areas <u>inside</u> an ozone transport area the VOC threshold is 50 tpy. The site region is attainment for CO, SOx, and NO2, therefore no conformity thresholds apply.							

*37 months = 3.083 years

22. Please describe the SCA washing requirements including:

- How the SCAs are washed, both for normal and mechanical washes;
- Time of day for washing;
- How long it takes each SCA row, or other specified length of SCA, to be washed;
- The amount of SCAs that can be washed per hour or shift for each mirror washing tanker truck crew;
- The size of each wash crew; and
- The assumed frequency for SCA washing and the basis for this frequency.

Response:

- a. How the SCAs are washed, both for normal and mechanical washes;

Response:

At present, the Applicant believes the trucks used for the SCA cleaning (normal wash) activities will be integrated vehicles, i.e., the truck frame will incorporate the water storage tank and cleaning assemblies, etc. A typical wash truck configuration is presented in the picture below. For normal washes, the opposing mirror set is rotated to a facing position, allowing the wash truck to wash two rows of mirrors at once.



For mechanical washes, a small tractor pulling a water wagon and wash equipment will be used. Mechanical washes concentrate on specific areas of mirrors which required additional cleaning above and beyond a normal wash cycle.



b. Time of day for washing;

Response:

SCA washing will occur during non-power production hours. It is presently anticipated that washing will occur during the night-time hours (most likely between the hours of 8:00 pm and 6:00 am).

- c. How long it takes each SCA row, or other specified length of SCA, to be washed;

Response:

The Applicant estimates that the SCA wash trucks/tractors will proceed through the dual mirror row wash configuration (see picture above) at a rate of approximately 2 mph (which may vary). This wash rate (truck or tractor speed) will result in approximately 16 lineal miles of mirrors being washed in a typical 8-10 hour period depending on travel speed.

- d. The amount of SCAs that can be washed per hour or shift for each mirror washing tanker truck crew;

Response:

See response above.

- e. The size of each wash crew; and

Response:

A wash crew will consist of 1 to 2 persons per SCA wash vehicle, with multiple vehicles operating as needed.

- f. The assumed frequency for SCA washing and the basis for this frequency.

Response:

Determining the wash frequency will be a site by site process, and will involve the collection of data on SCA reflectivity, decrease in reflectivity due to materials deposited on the SCA surfaces, restoration of reflectivity due to cleaning, wind patterns and wind speeds in the area, seasonal weather patterns, etc. It is estimated that the mechanical wash effort will begin in May, one month prior to the peak generation period and continue through the month following it. This will bring the general mirror cleanliness up as much as possible prior to the peak months, and washing during the following month will increase the reflectivity values as the plant enters the winter period. Normal wash truck activity will continue throughout the course of the year depending upon operator availability. Once the site becomes operational, the Applicant will be better prepared to define and implement the SCA cleaning cycle. Notwithstanding the above, the Applicant has estimated that the worst case wash cycle would be approximately every 2 weeks during the peak power production season.

Staff's Response:

Issues: I have a few follow-up questions...a) how many annual washing circuits around the site were assumed to determine the VMT, b) how many miles of trough are there at the site and did the VMT include daily trips to and from the washing area and the maintenance center and also trips to get water (where response notes 16 miles per day but table K1-7 uses 25 miles/day, so is 25 miles inclusive of the extra travel beyond simple linear cleaning amount); c) the mechanical wash is shown using a tractor but no tractor (off-road vehicle) is shown in the equipment list, so is this missing or is it assumed to be an on-road vehicle that is part of the 25 miles/day of mirror washing; and d) response C seems incorrect as only one row is washed versus two rows for the water wash, so shouldn't the water wash daily linear miles of washed mirrors be twice that of the mechanical wash?

Applicants Revised Response: As stated in the original response, the worst case washing cycle is every 2 weeks (14 days), for a worst case total of 26 wash cycles per year. The wash cycle of every 2 weeks only applies during the peak power production period as noted in the original response, but this rate was extended and assumed to apply to the entire operating year for purposes of estimating maximum VMT values. Based on the data presented in the BLM Plan of Development (POD, CACA 48880, June 2009), the facility will consist of approximately 1760 SCA's, each with a total length of 492 ft., and a total area of 8795 sq.ft. The total length of the SCA's is 164 miles. The normal wash cycle, as indicated in the original response, washes 2 sets of mirrors simultaneously, therefore, each wash cycle consists of an approximate 82 mile circuit. The applicant has estimated a wash truck mileage of 25 VMT/day, 9125 VMT/year, or 350 VMT over a 14 day (2 week) wash cycle. The 350 VMT allotted per wash cycle includes the mileage for wash runs (~91 miles), backups and turnarounds (~91 miles), water re-loads (~80 miles), as well as the mileage for the small tractor used for spot mirror mechanical washes (~88 miles). Response (c) only applies to the wash trucks, i.e., the inclusion in the response "trucks/tractors" is a typographical inclusion error.

24. Please identify if the applicant would be willing to stipulate to a condition of certification that would require a review of available alternative low-emission vehicle technologies, including electric and hydrogen fueled vehicles, and use of those technologies to replace the proposed diesel and gasoline fueled vehicles used for operations maintenance if lower emission alternative technology vehicles are both available and not cost prohibitive.

Response:

The Applicant has no objection to a condition of certification that would require a "review of available alternative low-emission vehicle technologies, including electric and hydrogen fueled vehicles". Presently the Applicant believes there are no such vehicles which could be used to replace a majority of the proposed onsite on and off-road vehicles.

Staff's Response: Adequate

Applicants Revised Response: As noted by CEC staff during the teleconference workshop, this review normally takes place during the construction period in order to include emerging technologies. The applicant agrees with this clarification.

25. Please estimate the whole roundtrip travel including any onsite unpaved road travel and corresponding criteria pollutant and GHG emissions for all offsite operational vehicle trips, including heavy duty delivery and waste haul trucks, light service and delivery trucks, and employee personal vehicles.

Response:

Table K.1-7 and the Support table which accompanies it, provides detailed estimates of onsite vehicle use, annual mileage rates, and a breakdown of onsite travel on paved versus unpaved roads.

Per the Traffic and Transportation section of the AFC (Section 5.11), the Applicant estimates that the offsite facility vehicle travel during the operations phase will be derived from delivery vehicles, with an average of 46 deliveries per month, or 1.53 deliveries per day. These deliveries and hauls will be made by vehicles and service providers not under the control of the facility. Therefore, the Applicant cannot estimate the mileages solely applicable to our site. It is estimated and assumed that deliveries to the site will be part of a normal or day specific delivery route that is controlled by the service provider, and as such the Applicant has no way of breaking out any mileage values that would be specifically allocated to the project site. In addition, we note that these emissions are not included in an applicability analysis for imposition of NSR or PSD, nor are they included in the stationary source emissions tabulation for purposes of determining offset requirements per the MDAQMD rules, etc. The emissions from operations deliveries are presented in Table K.5-5 (Truck Delivery and Site Support page, see response #26).

Staff's Response:

Inadequate: As noted for 14. We always use round trip distance assumptions. This means we will need to recalculate emissions since we assume that the applicant won't.

Applicants Revised Response: The mileages presented in Table K.1-7 for onsite road travel are the total miles expected per year, i.e., the roundtrip distance assumption does not apply. The roundtrip distance for offsite delivery travel has been revised from a value of 20 miles to a value to 55 miles (distance from the site to Blythe).

26. Please provide rationale for the round trip distances selected for each trip type.

Response:

Round trip distances and emissions for this category of vehicle (response #25) use are based on the following assumptions:

- Forty-six (46) deliveries per average operations month
- Roundtrip distance of 55 miles assuming use of the plant access road for all delivery ingress and egress. The Applicant, as stated above, cannot estimate any further mileage distances due to the following: (1) the Applicant does not own or control the delivery vehicle, (2) the Applicant does not control the daily delivery vehicle route either before or after it leaves the facility, (3) the Applicant has no control over the vehicle back-haul schedule, and (4) the delivery vehicles will not be owned by or dedicated to the site. Therefore, the 55-mile trip distance is the most reasonable and defensible value at the present time.
- Annual mileage from these deliveries will be 30,483 VMT. Fifty percent or 15,241 VMT will be allocated to gasoline vehicles, and 50% or 15,241 VMT will be allocated to diesel vehicles. The emissions from operations deliveries are presented in Table K.5-5 (Truck Delivery and Site Support page).

Employee commute emissions and assumptions are provided on the Support table to Table K.1-7. Employee commute related emissions are as follows:

Table 5 Employee Commute Emissions Summary

Pollutant	Lbs/day	Tons/yr
NOx	1.82	0.33
CO	18.15	3.31
VOC	1.51	0.28
SOx	0.02	0.003
PM10	0.15	0.027
PM2.5	0.15	0.027
CO2e	1492.3	272.3

Staff's Response:

Inadequate: As noted for 14. We always use round trip distance assumptions. This means we will need to recalculate emissions since we assume that the applicant won't.

Applicants Revised Response: As stated in Revised Response #25, the operations offsite delivery roundtrip distance has been increased from 20 to 55 miles (roundtrip distance to Blythe). Emissions have been revised accordingly. The employee travel distance is presently a roundtrip distance, i.e., 52 miles, the average roundtrip distance for employees coming from either Blythe or Desert Center.

35. Please confirm that there will be no gasoline storage at the site and that vehicles will have to drive to the nearest gasoline station, which is about 20 miles round trip from the site, to refuel, or provide information for any proposed onsite gasoline storage including throughput information and permitting requirements.

Response:

The Applicant is considering the installation and use of an onsite gasoline tank and an onsite diesel fuel tank. Presently, the size and throughput of the tanks is not known, and the anticipated configuration (above or below ground) is also not known. The anticipated tank size is 1000 to 2000 gallons capacity each, with Phase I vapor recovery installed on the gasoline tank. As soon as these data are finalized, the Applicant will provide the data and the emissions calculations to the CEC staff and the MDAQMD staff. If a gasoline tank is proposed, the appropriate permit application forms will be filed with the MDAQMD.

Staff's Response: Incomplete: We need the applicant to complete their consideration of fuel tanks and submittal of appropriate follow-up materials/permit application ASAP.

Applicants Revised Response: The applicant is proposing to install, operate, and maintain two (2) fuel storage tanks, i.e., one (1) gasoline tank with a rated capacity of 2000 gallons, and (1) diesel storage tank with a rated capacity of 2000 gallons. The gasoline tank will be equipped with Phase I vapor recovery (balance system). The annual throughputs for each fuel are as follows: gasoline ~10768 gals/yr, and diesel fuel ~6391 gals/yr. Total VOC emissions (for both tanks) are on the order of 0.391 lbs/day, and 0.072 tpy. Emissions estimates for each tank are attached. A supplementary air district application for the gasoline tank will be submitted to the MDAQMD (no permits are required for the diesel storage tank).

Other Miscellaneous Comments:

Staff briefly commented on the HTF system VOC BACT, i.e., proposed use of the carbon absorption system. The comments did not imply that the proposed controls or control levels were not BACT, and the applicant agrees. We note the following comments with respect to the implementation of BACT per the MDAQMD NSR rules.

MDAQMD RULE 1303 Requirements state the following:

(A) Best Available Control Technology is required on:

- (1) Any new Permit Unit which emits, or has the Potential to Emit, 25 pounds per day or more of any Nonattainment Air Pollutant shall be equipped with BACT,
- (2) Any Modified Permit Unit which emits, or has the Potential to Emit, 25 pounds per day or more of any Nonattainment Air Pollutant shall be equipped with BACT,
- (3) Any new or Modified Facility which emits, or has the Potential to Emit, 25 tons per year or more of any Nonattainment Air Pollutant shall be equipped with BACT for each new Permit Unit.

(4) For purposes of determining applicability of this Section, Potential to Emit is defined by District Rule 1301(UU) and SERs shall not be utilized to reduce such Potential to Emit.

Applicant's observations:

Sections (A)(1) and (2) apply to the proposed HTF ullage system and the facility in general. In addition, the non-attainment pollutants affected by these provisions for the site are as follows:

- For ozone – NO_x, VOC, and the organic fraction of PM₁₀
- For PM₁₀ – the nitrate and sulfate fractions of NO_x and SO_x, the direct portion of PM₁₀, and the organic fraction of PM₁₀ from VOCs.

A review of the device/process specific emissions sheets presented at the conclusion of these responses indicates the following:

- No nonattainment pollutant is emitted in excess of 25 tons per year from the facility per Section (A)(3), therefore BACT is not required for each new permit unit at the facility.
- HTF solar field components will emit VOC at a rate of 3.35 lbs/hr and 37.76 lbs/day. BACT for these field components is based upon the component design, maintaining the components (seals, valves, flanges, etc) in a leak free condition, etc.
- The HTF ullage system is anticipated to have VOC emissions on the order of 0.34 lbs/hr and 2.95 lbs/day. BACT is not triggered for this system/process.

Based on the above, BACT is not triggered for the HTF ullage system under the MDAQMD NSR rules, therefore the applicant believes that the presently designed system of VOC controls for the ullage system is sufficient for purposes of controlling VOC emissions to the maximum extent possible considering the design of the project.

The applicant is supplying the following summary tables for CEC staff use.

Operational Emissions Summary Tables

HTF Auxiliary Heaters (2 units)

	NO _x	CO	VOC	SO _x	PM ₁₀	PM _{2.5}	CO _{2e}
Lbs/hr	0.661	1.13	0.176	0.016	0.299	0.299	-
Lbs/day	9.25	15.8	2.46	0.224	4.19	4.19	-
Tons/Yr	0.165	0.282	0.044	0.004	0.075	0.075	3520

Cooling Towers (2 units)

	NO _x	CO	VOC	SO _x	PM ₁₀	PM _{2.5}	CO _{2e}
Lbs/hr	-	-	-	-	2.36	2.36	-

Lbs/day	-	-	-	-	35.47	35.47	-
Tons/Yr	-	-	-	-	3.78	3.78	-

HTF Venting/Control System (2 Systems)

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
Lbs/hr	-	-	0.337	-	-	-	-
Lbs/day	-	-	2.95	-	-	-	-
Tons/Yr	-	-	0.54	-	-	-	-

HTF Component Fugitives (2 Solar Fields)

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
Lbs/hr	-	-	3.35	-	-	-	-
Lbs/day	-	-	37.76	-	-	-	-
Tons/Yr	-	-	6.89	-	-	-	-

HTF Waste Load-out Fugitives

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
Lbs/hr	-	-	0.0013	-	-	-	-
Lbs/day	-	-	0.0013	-	-	-	-
Tons/Yr	-	-	0.0000078	-	-	-	-

Emergency Fire Pump Systems (2 units)

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
Lbs/hr	3.73	0.62	0.08	0.01	0.08	0.08	-
Lbs/day	3.73	0.62	0.08	0.01	0.08	0.08	-
Tons/Yr	0.1	0.02	0.002	0.0002	0.002	0.002	17.5

(1) These engines do not run in the same hour or on the same day for purposes of readiness testing.

Emergency Electrical Generators (2 units)

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
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Lbs/hr	29.12	0.77	0.59	0.03	0.11	0.11	-
Lbs/day	29.12	0.77	0.59	0.03	0.11	0.11	-
Tons/Yr	0.76	0.02	0.02	0.001	0.003	0.003	83.9

(1) These engines do not run in the same hour or on the same day for purposes of readiness testing.

Diesel Storage Tank (1 unit)

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
Lbs/hr	-	-	0.0004	-	-	-	-
Lbs/day	-	-	0.0107	-	-	-	-
Tons/Yr	-	-	0.0019	-	-	-	-

Gasoline Storage Tank (1 unit)

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
Lbs/hr	-	-	0.016	-	-	-	-
Lbs/day	-	-	0.38	-	-	-	-
Tons/Yr	-	-	0.07	-	-	-	-

Onsite Operations Vehicles

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
Lbs/hr	0.0034	0.0023	0.0005	0.000019	0.00024	0.00024	-
Lbs/day	0.081	0.054	0.012	0.00045	0.0057	0.0057	-
Tons/Yr	0.354	0.239	0.054	0.002	0.025	0.025	194.1

(1) Daily values are the annual values converted to lbs and divided by 365.

(2) Hourly values are the daily values divided by 24.

Operations Fugitive Dust

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
Lbs/hr	-	-	-	-	3.56	0.754	-
Lbs/day	-	-	-	-	85.4	18.1	-
Tons/Yr	-	-	-	-	15.6	3.3	-

(1) Hourly values are daily values divided by 24.

Operations Delivery Vehicles

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
Lbs/hr							-
Lbs/day	2.12	1.31	0.21	0.0032	0.1	0.1	-
Tons/Yr	0.275	0.171	0.027	0.0004	0.0125	0.0125	42

(1) Hourly values are the daily values divided by 24.

Employee Vehicles

	NOx	CO	VOC	SOx	PM10	PM2.5	CO2e
Lbs/hr	0.076	0.756	0.063	0.00083	0.0063	0.0063	-
Lbs/day	1.82	18.15	1.51	0.02	0.15	0.15	-
Tons/Yr	0.33	3.31	0.28	0.003	0.027	0.027	272.3

(1) Hourly values are the daily values divided by 24.

Maximum Operational Emissions for Purposes of NSR Applicability and Offset Mitigation

	NOx	CO	VOC	SOx	PM10	PM2.5	CO _{2e}
Lbs/hr	15.22	16.73	4.18	0.031	2.71	2.71	-
Lbs/day	23.81	16.18	43.86	0.24	39.72	39.72	-
Tons/Yr	1.03	0.32	7.57	0.0052	3.86	3.86	~3621
MDAQMD Offset Thresholds Tons/yr	25	100	25	25	15	na	na
Offsets Required	No	No	No	No	No	No	na
AQMD Conformity Threshold, tpy ⁴	100	na	50/100	na	70	na	na
Conformity Analysis Required	No	No	No	No	No	No	na

Notes:

- 1. The IC engines (generators and fire pumps) will not be run during the same hour or the same day.
- 2. Fugitive dust from operations is not included per MDAQMD NSR rule.
- 3. Operations vehicle emissions are not included per the MDAQMD NSR rule.
- 4. The site is located in the portion of San Bernardino County that lies within the “moderate” ozone NA area. As such, the applicable conformity threshold for NOx for NA areas in or outside of an ozone transport area is 100 tpy.
The site is located in the portion of San Bernardino County that lies within the “moderate” ozone NA area. As such the applicable conformity threshold for VOC for NA areas outside of an ozone transport area is 100 tpy, and for areas inside an ozone transport area the VOC threshold is 50 tpy.
The site region is attainment for CO, SOx, and NO₂, therefore no conformity thresholds apply.

All operational emissions (including fugitive dust and vehicle based emissions) in terms of tons per year are compared to the applicable conformity threshold levels in the table below.

[illegible]

areas inside an ozone transport area the VOC threshold is 50 tpy.

The site region is attainment for CO, SO_x, and NO₂, therefore no conformity thresholds apply.



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

**APPLICATION FOR CERTIFICATION FOR THE
GENESIS SOLAR ENERGY PROJECT**

Docket No. 09-AFC-8

PROOF OF SERVICE
(Revised 1/26/10)

APPLICANT

Ryan O'Keefe, Vice President
Genesis Solar LLC
700 Universe Boulevard
Juno Beach, Florida 33408
Ryan.okeefe@nexteraenergy.com

Scott Busa/Project Director
Meg Russel/Project Manager
Duane McCloud/Lead Engineer
NextEra Energy
700 Universe Boulevard
Juno Beach, FL 33408
Scott.Busa@nexteraenergy.com
Meg.Russell@nexteraenergy.com
Duane.mccloud@nexteraenergy.com

Mike Pappalardo
Permitting Manager
3368 Videra Drive
Eugene, OR 97405
mike.pappalardo@nexteraenergy.com

Diane Fellman/Director
West Region
Regulatory Affairs
234 Van Ness Avenue
San Francisco, CA 94102
Diane.fellman@nexteraenergy.com

APPLICANT'S CONSULTANTS

Tricia Bernhardt/Project Manager
Tetra Tech, EC
143 Union Boulevard, Ste 1010
Lakewood, CO 80228
Tricia.bernhardt@tteci.com

Christo Nitoff, Project Engineer
Worley Parsons
2330 East Bidwell Street, Ste.150
Folsom, CA 95630
Christo.Nitoff@Worleyparsons.com

COUNSEL FOR APPLICANT

Scott Galati
Galati & Blek, LLP
455 Capitol Mall, Ste. 350
Sacramento, CA 95814
sgalati@gb-llp.com

INTERESTED AGENCIES

California-ISO
e-recipient@caiso.com

Allison Shaffer, Project Manager
Bureau of Land Management
Palm Springs South Coast
Field Office
1201 Bird Center Drive
Palm Springs, CA 92262
Allison_Shaffer@blm.gov

INTERVENORS

Tanya A. Gulesserian,
Loulana A. Miles, Marc D. Joseph
Adams Broadwell Joseph &
Cardoza
601 Gateway Boulevard,
Ste 1000
South San Francisco, CA 94080
tgulesserian@adamsbroadwell.com
lmiles@adamsbroadwell.com

Michael E. Boyd, President
Californians for Renewable
Energy, Inc. (CARE)
5439 Soquel Drive
Soquel, CA 95073-2659
michaelboyd@sbcglobal.net

Other

Alfredo Figueroa
424 North Carlton
Blythe, CA 92225
lacunadeaztlan@aol.com

ENERGY COMMISSION

*JAMES D. BOYD
Vice Chair and Presiding Member
jboyd@energy.state.ca.us

*Robert Weisenmiller
Commissioner and Associate
Member
rweisenm@energy.state.ca.us

Kenneth Celli
Hearing Officer
kcelli@energy.state.ca.us

Mike Monasmi
Siting Project Manager
mmonasmi@energy.state.ca.us

Caryn Holmes
Staff Counsel
cholmes@energy.state.ca.us

Robin Mayer
Staff Counsel
rmayer@energy.state.ca.us

Public Adviser's Office
publicadviser@energy.state.ca.us

DECLARATION OF SERVICE

I, Tricia Bernhardt, declare that on February 1, 2010, I served and filed ***Revised Air Quality Responses to the CEC Data Requests per the Workshop on January 6, 2010 for the Genesis Solar Energy Project*** dated February 1, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **[http://www.energy.ca.gov/sitingcases/genesis_solar].**

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

FOR SERVICE TO ALL OTHER PARTIES:

 x sent electronically to all email addresses on the Proof of Service list;

 x by personal delivery or by depositing in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

 x sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

 depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION

Attn: Docket No. 09-AFC-8
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

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

Original Signed By:



Tricia Bernhardt