Objective 7.5 (page 27): CalEnergy opposes the IID being listed as an "informed party" for monitoring geothermal activities. The IID is a public entity which provides electricity and water, not a consultant (or an expert) in determining monitoring or mitigation requirements for geothermal operations. It is CalEnergy's understanding that the IID has no technical in-house expertise on geothermal energy or geophysical monitoring programs. CalEnergy asks that the IID be removed from this objective. Comment 22-26

Objective 7.6 (page 27): CalEnergy notes that that there is no forced unitization laws in the State of California covering private land. On Federal and State mineral interest lands, the BLM and the State can force unitization given certain criteria. As such multiple projects with different ownerships can exist in any single field on private land at a time. CalEnergy requests further clarification of this Objective or asks that the Objective be removed. Comment 22-27

Objective 7.7 (page 27): CalEnergy opposes the word "major" in this Objective. The word is ambiguous and undefined. CalEnergy asks that the word "major" be removed. Comment 22-28

Objective 7.11 (page 27): CalEnergy objects to the inclusion of requiring operating procedures that would prevent "detrimental" impacts to geothermal reservoirs. The word "detrimental" is not defined and subject to interpretation. CalEnergy asks that this Objective be removed. Comment 22-29

Appendix B – Geothermal Resource Development Regulation

Section C – Other Local Agencies

Paragraph 2 – Imperial Irrigation District (IID)

Subparagraph entitled "Environmental" (page 45)

Paragraph 1: CalEnergy opposes the IID having an "active role in the permitting review, particularly in the monitoring and mitigation of detrimental subsidence impacts from renewable energy development". CalEnergy complies with all currently required subsidence reporting requirements and believes such requirements are more than adequate. The IID is a public entity which provides electricity and water and has no expertise in geothermal energy and development or in monitoring and mitigating subsidence. CalEnergy asks that this paragraph be removed. Comment 22-30

Paragraph 4: CalEnergy questions the inclusion of the "Final Salton Sea Revenue Potential Study (December 10, 2013 by EES Consulting)" in the Element. The study was prepared without comment from any geothermal energy operator in Imperial County and contains projections that are unsupportable. Comment 22-31

3. Environmental Health Services Division, County Health Department/Local Enforcement Agency (LEA)

D. Federal Agencies

3. Federal Energy Regulatory Commission (FERC)

Paragraph 1 (page 48): CalEnergy will actively oppose any change to the one mile designation between separate geothermal facilities. CalEnergy has spent approximately $10 million obtaining a CEC license that specifically speaks to the 50MW one mile designation. And contrary to the information contained in this paragraph, degradation of the geothermal resource is a major consideration of waving the one mile designation.

Comment 22-32

Appendix C-Geothermal Resource Development Strategies

A .Geothermal Resource Exploration and Production

1. Initial Exploration Phase

Paragraph 4 (page 50): CalEnergy objects to the sentence "These are spaced two to five miles apart." Gradient holes can be spaced much closer or much farther apart depending on the type of exploration being completed (regional or site specific), the type of reservoir being explored, topography of the land being explored, etc. CalEnergy asks that this sentence be deleted.

Comment 22-33

Paragraph 6 (page 51): CalEnergy objects to the statement that a "sump is necessary..." CalEnergy has used sumpless drilling successfully for several years. CalEnergy request that the word "necessary" be removed from this sentence.

Comment 22-34

2. Drilling Phase

Paragraph 4 (page 51): CalEnergy objects to the noted estimated well drilling days of 12 to 50 days. Drilling can take over100 days per well. The time duration to drill at well depends on the depth drilled, the engineering required for each well, the formation being drilled through, problems encountered during drilling, the type of well drilled, the field in which the well is drilled, etc. CaEnergy's standard "new" large sized production or injection wells are budgeted for 75 days. CalEnergy asks that the number of drilling days be corrected or this statement be deleted.

Comment 22-35

Paragraph 6 (page 52): CalEnergy objects to the statement about completion depth diameter. The statement seems to not have relevance to the document. The size of the well completion completely depends on the starting size of the well bore, the age of the well, the type of well and the geothermal field in which the well is drilled. For CalEnergy, a new modern style production well has a 12-1/4 inch open hole completion. Specifically, the size of the hole drilled below the final casing is 12-1/4 inches. For a new injection well, the completion size is a 9-7/8 inch open hole. Older wells may be smaller or larger upon completion, depending on the size of the last casing set. Over time, a well can be "under-reamed" which is enlarging the open hole section to remove well bore damage. In other geothermal fields the hole size may be

Comment 22-36

larger or smaller than that used at the Salton Sea. CalEnergy request the statement "Eight inches is a typical completion depth diameter" be removed. Comment 22-36 (continued)

Paragraph 7 (page 52): CalEnergy notes that the horizontal reach of a directionally drilled well is largely dependent on the depth of the well and the type of formation being drilled through. Technically speaking, in drilling a well to 8,000 feet, one might regularly reach 2,500 feet off-set. A well with a 5,000 foot off-set at 8,000 feet would be difficult if not impossible to maintain. CalEnergy asks for a correction or deletion of this paragraph. Comment 22-37

4. Typical Power Plant Production Phase

Paragraph 4 (page 54): The statement "A flashed-steam power plant in Imperial County can be designed to be water self-sufficient" is technically inaccurate and misleading. While it is true that CalEnergy's flash plants reuse condensate to supply much of the water needs within our plants, supplemental water is still required. CalEnergy asks that this statement be removed. Comment 22-38

Paragraph 6: (page 54): CalEnergy suggests sentence one (1) be reworded as follows: "Geothermal liquids are generally injected back into the reservoir from which it came to give mass support. The fluids are injected far enough from production wells so as not to cause breakthrough in the reservoir field. " Comment 22-39

Paragraph 6 (cont.): CalEnergy notes that fresh water aquifers **can** be adequately protected from contamination by hot saline brine and thus this is not a "concern". Fresh water aquifers are protected by engineered well design. Those well designs and well programs are approved by either the BLM or by the DOGGR. The well designs call for multiple strings of metal casing cemented in place to protect groundwater. In addition, the injection wells have to be inspected every 2 years to prove that the casing is still keeping the ground water safe. Furthermore, before the startup of any new geothermal project, the operator must submit an "injection plan" for approval to either the BLM or the DOGGR. This plan outlines what zones will be used for injection and how the reservoir and groundwater will be protected. CalEnergy requests that the reference to fresh water aquifers be removed as a "concern" or that the information above be substituted, showing the types of protection that are currently in place and approved. Comment 22-40

B. Geothermal Technologies – Flash and Binary Systems

2. Binary process

Paragraph 5 (page 56): CalEnergy requests this paragraph be deleted. It is misleading. The main and only advantage of a binary system is that is uses a technology that allows electrical power generation from lower temperature liquids. It is not as efficient nor is it more cost effective than a flash system. It should also be noted that CalEnergy (and everyone else) abates for non-condensable gasses. CalEnergy asks that this paragraph be eliminated. Comment 22-41

E. Mineral and Gas Extraction

Paragraph 2 (page 59): Stating that Salton Sea brine is high in minerals is a misleading statement. High compared to what (ocean water, drinking water, Colorado River water, etc.)? It would be more correct to say that some portions of the Imperial Valley are underlain, at depth, by hypersaline brines (water that is greater than 3 times as salty as seawater). CalEnergy asks that this statement be corrected or eliminated. Comment 22-42

The statement "Studies of brine in the Salton Sea area have shown substantial differences in the trace element compositions even from relatively close-spaced wells" is technically incorrect and misleading. This overarching statement ignores the fact that water at depth in the basin is stratified in most areas. Thus there can be "differences in salinity" from wells on the same location solely due to depth differences of wells and not due to differences in salinity at the same horizontal depth. Also the Salton Sea is a fractured reservoir and the wells are generally directionally drilled. Thus wells on the same or close locations can have somewhat different brine chemistry due to tapping into different depth zones and not due to heterogeneity in the reservoir at the same depth. This statement is technically incorrect and misleading and CalEnergy asks that it be removed. Comment 22-43

The statement "The total dissolved solids and mineral concentrations in the brine can also change with the well flow rate" is inaccurate and largely false. See comments above. CalEnergy asks that it be removed. Comment 22-44

Paragraph 7 (page 60) CalEnergy asks that the reference to our zinc extraction plant be reworded as follows to more accurately reflect the facts: "CalEnergy owned and operated a zinc extraction plant at their existing geothermal plants before closing due to production and market declines." Comment 22-45

Appendix D – Benefits of Renewable Energy and Transmission Development

Bullet point 1 (page 68): CalEnergy requests that it be noted that solar projects are exempt from paying property taxes and that projects on federal lands (BLM) are taxed and permitted differently than those on private lands. Comment 22-46

A. Fiscal benefit of expanded property tax revenues

Paragraph 11 (page 71): CalEnergy notes that EnergySource spent $400 million building their 50MW power plant in 2012 (or $8,000 per kW). Comment 22-47

Stakeholder Comments

Draft Programmatic Environmental Impact Report, Imperial County Renewable Energy and Transmission Element Update

Submitted by	Company	Date Submitted
Alexander Schriener Jr. Director Geothermal Resource (760) 348-4044 alexander.schriener@calenergy.com Randy Keller Director of Development and Transmission (760) 348-4005 randy.keller@calenergy.com Diane Cason Vice President of Real Estate Assets and Community Relations (760) 348-4095 diane.cason@calenergy.com Anetha Lue Director, IPP Environmental Services (760) 348-4275 Anetha.Lue@calenergy.com	CalEnergy Operating Corp. 7030 Gentry Road Calipatria, CA 92233	February 23, 2015

CalEnergy Operating Corporation (CalEnergy) comments on the Draft Programmatic Environmental Impact Report, Imperial County Renewable Energy and Transmission Element Update (EIR) prepared by Imperial County Planning and Development Services Department.

CalEnergy owns and operates ten existing geothermal electricity generating plants in the vicinity of the southern shore of the Salton Sea and provides 342 megawatts (MWs) of reliable low cost renewable power. CalEnergy also holds an active permit with the California Energy Commission for a 159 MW development of generating facilities which will help California meet its Renewable Portfolio Standards (RPS) goal of 33% by 2020.

Comment 22-48

Comments and objections on the Draft Programmatic Environmental Impact Report, Imperial County Renewable Energy and Transmission Element Update

Comment 22-48 (continued)

CalEnergy has specific comments and objections on the EIR. These will be addressed below according to each specific section.

4.1 AESTHETICS

4.1.4 Impacts and Mitigation

AESTH-1: Have a substantial adverse effect on a scenic vista or scenic highway or substantially damage scenic resources, including, but limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

Operation

Mitigation Measures

AESTH-1a (page 4.1-12)
CalEnergy requests the words "of record" be inserted in line 8 as follows: "... consulting the local public to identify important visual resources of record in the area;"

Comment 22-49

AESTH-1d (page 4.1-13)
CalEnergy requests this item be rewritten as follows:
"Project developers would be required if jurisdictional to hold preconstruction meetings, if applicable, with affected agencies and designated specialists to coordinate the mitigation strategy for all resources of record. This includes a review of final design and construction documents with regard to visual impacts and mitigation."

Comment 22-50

AESTH-1e (page 4.1-13)
CalEnergy requests the words "if jurisdictional" be inserted in line 1 as follows:
"Project developers would be required if jurisdictional to monitor compliance..."

Comment 22-51

AESTH-1f (page 4.1-14)
CalEnergy request the words "as per conditions of the jurisdictional Authorization to Construct license" be added to line 2 as follows:
"Immediate reclamation of the site, either on federal, State, or private land, would be required for renewable energy facilities after construction as per the conditions of the jurisdictional Authorization to Construct license."

Comment 22-52

AESTH1-g (page 4.1-14)
CalEnergy objects to bullet point three (3). Air cooled systems are not as efficient as water cooling and are thus not economically prudent and they are an unproven technology for hot arid climates. Drilling rig and well-test facility lighting are a safety issue. Minimizing lighting will

Comment 22-53

lead to accidents. CalEnergy's pipelines are constructed to protect the integrity of the pipe, to safely handle the geothermal brine, and to protect CalEnergy personnel and the public. Screening pipelines in counterproductive to these measures. CalEnergy requests that this bullet point be removed.

Comment 22-53 (continued)

AESTH-3: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area

Construction and Operation

Mitigation Measures

AESTH-3 (page 4.1-17)
CalEnergy requests the words "as per conditions of the jurisdictional Authorization to Construct license" be added to line 2 as follows:
"Future renewable energy facilities would be required to consider siting and design features that would minimize glint and glare and take appropriate actions as per conditions of the jurisdictional Authorization to Construct license."

Comment 22-54

4.2 AGRICULTURAL RESOURCES

4.2.4 Impacts and Mitigation

AG-1 Convert Important Farmland to Nonagricultural Use

Construction and Operation

CalEnergy objects to the inclusion of geothermal energy in the following sentence (page 4.2.6): "Future solar and geothermal renewable energy facilities would likely convert all important farmland within the project areas to nonagricultural uses, while impacts associated with future wind facilities would be limited to the footprints of turbines, poles, and associated infrastructure." Geothermal fields have a very small footprint; the power generation plant typically occupies only 10-15% of our resource field. This pales in comparison with a solar facility which uses 100% of its resource field for power generation. In addition, CalEnergy questions the statement that "future wind facilities would be limited to the footprints of turbines, poles and associated infrastructure." Turbines within large scale wind facilities break up the land making farming difficult if not impossible. CalEnergy asks that geothermal energy be removed from this section.

Comment 22-55

The statement (page 4.2-7) that "Geothermal facility footprints on the other hand are limited to the power plant and injection wells, which do not require as large an amount of land area" is incorrect. The correct statement would be: "Geothermal facility footprints are limited to the power plant, production wells, injection wells, pipelines and access roads. The use of multiple

Comment 22-56

well drilling pads and directional drilling limits the number of well pads and associated pipelines and roads." CalEnergy requests that this statement be amended.

Comment 22-56 (continued)

Mitigation Measures

CalEnergy objects to the inclusion of geothermal energy production in Imperial County's agricultural mitigation strategies (first paragraph page 4.2.-7). As stated above, geothermal fields have a very small footprint and the geothermal industry has a long and extensive history of co-existing with the farming community. The inclusion of geothermal energy production in these mitigation strategies would create an additional financial burden on geothermal development, an industry which, unlike solar and wind, supports the local economy with the annual payment of **sizable** property taxes and which provides for a **great number of career jobs.** CalEnergy requests that geothermal energy production be removed from this section.

Comment 22-57

AG-1a: Payment of Agricultural and Other Benefit Fees.

- For Prime Farmland
  - Options 1-4 (pages 4.2-8 and 4.2-8-9)

  CalEnergy objects to the inclusion of geothermal energy production in Imperial County's agricultural mitigation strategies. As stated above, geothermal fields have a very small footprint and the geothermal industry has a long and extensive history of co-existing with the farming community. The inclusion of geothermal energy production in these mitigation strategies would create an additional financial burden on geothermal development, an industry which, unlike solar and wind, supports the local economy with the annual payment of **sizable** property taxes and which provides for a **great number of career jobs**. CalEnergy requests that geothermal energy production be removed from this section.

Fee Amounts (page 4.2-9 and page 4.2.10)

CalEnergy objects to the inclusion of geothermal energy production in Imperial County's agricultural, sales tax, emergency services, and socioeconomic mitigation fees. As stated above, geothermal fields have a very small footprint and the geothermal industry has a long and extensive history of co-existing with the farming community. The inclusion of geothermal energy production in these mitigation fees would create an additional financial burden on geothermal development, an industry which, unlike solar and wind, supports the local economy with the annual payment of **sizable** property taxes and which provides for a **great number of career jobs**. CalEnergy requests that geothermal energy production be removed from this section.

Significance After Mitigation (page 4.2-11)

It should be noted that there may be alternative industrial uses beyond the life of a geothermal power facility and CalEnergy has land covenants in place in some areas of our operations which

Comment 22-58

will not permit the land to be returned to its original use. CalEnergy requests the inclusion of this information in this section.

Comment 22-58 (continued)

AG3: Pest Management Plan (page 4.2-12)

The report suggests a Pest Management Plan to prevent damage to adjacent crops and water delivery or drainage system, or livestock. Geothermal facilities have operated in Imperial County for several decades and have been shown to have none of the theoretical impacts to adjacent farms or lands. As the facilities produce inert wastes and use inert materials as input, they have no effect on insect, weed, vertebrates and pathogens. Therefore, any such unwanted species would impact these facilities from off-site sources. Nevertheless, the environmental impact report can suggest that the facilities develop plans to respond to and avoid the promotion of unwanted species that may be in the area. The following change is suggested:

Comment 22-59

AG3: Pest Management Plan. A Pest Management Plan to monitor unwanted species e.g. insects, weeds, vertebrates, and pathogens that could be injurious to the surrounding farmland must be in place for the duration of the project (until reclamation is complete and approved by the Planning and Development Services Department and the Agricultural Commissioner). Should the population of unwanted species threaten to damage the area; the facilities will implement controls that are consistent with its potential impact on the species.

4.2.5 Cumulative Impacts

CalEnergy objects to the inclusion of geothermal energy in Imperial County's agricultural, sales tax, emergency services, and socioeconomic mitigation fees. As stated above, geothermal fields have a very small footprint and the geothermal industry has a long and extensive history of co-existing with the farming community. The inclusion of geothermal energy production in these mitigation fees would create an additional financial burden on geothermal development, an industry which, unlike solar and wind, supports the local economy with the annual payment of **sizable** property taxes and which provides for a **great number of career jobs**. CalEnergy requests geothermal energy be removed from this section.

Comment 22-60

4.3 AIR QUALITY

4.3.4 Impacts and Mitigation

Operation

Paragraph 2 (page 4.3-10):

Comment 22-61

CalEnergy objects to the statement "Nonetheless, future operation of renewable energy facilities in the proposed overlay zones would have the potential to violate established ICAPCD standards and result in a significant impact."

CalEnergy suggests that this paragraph be revised to state that the potential for non-compliance exists if facilities are not designed and operated as permitted (as permits would not be issued for design or operational plans that would cause a violation of air standards). The following change is thus suggested: Nonetheless, future operation of renewable energy facilities in the proposed overlay zones would have the potential to violate established ICAPCD standards and result in a significant impact, if the facilities are not designed or operated to conform to the regulations."

Comment 22-61 (continued)

Mitigation Measures

AQ-1a (page 4.3-10):

This section discusses actions to mitigate the impact of fugitive dust. It attempts to reflect Section 800 of regulations of the Imperial County Air Pollution District, however, unlike Section 800 of the air rules it does not distinguish clearly between the mitigation measures that apply to paved versus unpaved roads, and the measures that are applicable to and appropriate for public versus private roadways. CalEnergy requests the following clarifications:
Bullet point two (2) page 4.3-11:

- All onsite and offsite unpaved road segments with 50 or more average vehicle trips per day, shall be effectively stabilized so as to limit visible emissions to no greater than 20-percent opacity for dust emissions by the use of restricting vehicle access, paving, chemical stabilizers, dust suppressants, and/or watering.

Bullet point four (4) on page 4.3-11:

- The transport of bulk materials on public roads shall be completely covered, unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks shall be cleaned and/or washed at the delivery site after removal of bulk material, prior to using the trucks to haul material on public roadways.

Bullet point five (5) on page 4.3-11:

- All track-out or carry-out on paved public roads, which include bulk materials that adhere to the exterior surfaces of motor vehicles and/or equipment (including tires) that may then fall onto pavement, shall be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.

Comment 22-62

Bullet point six (6) on page 4.3-11:

- Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line except where such material or activity is exempted from stabilization by the rules of the Imperial County Air Pollution Control District.

Comment 22-62 (continued)

4.6 GEOLOGY AND SOILS

Seismicity (page 4.6-5)

It should be noted that faults "active" in the past 100 years, by state code, have to have measured surface breakage. Those faults, while present in Imperial County, are **very limited**. Mainly the Imperial Fault, the Elsinore Fault, and the San Jacinto Faults (west side) and a few along the Elmore Ranch Fault Zone (found after the 1987 Superstition Mountain sequence). The San Andreas Fault stops at Bombay Beach. The motion of that fault is taken up by several other faults, namely the Brawley seismic zone, the Imperial Fault and the Cerro Prieto Fault. CalEnergy requests that this paragraph be made more technically accurate.

Comment 22-63

Surface Rupture (page 4.6-5)

CalEnergy requests that the word "frequently" be substituted for the words "almost always" in the sentence "Surface rupture almost always follows preexisting fault traces, which are zones of weakness."

It should be noted that you do not need "displacement" to have damage to structures. The shaking that is felt and the force of an earthquake is based on magnitude, depth and the distance from the epicenter. Displacement is not required. CalEnergy requests a revision of this section.

Comment 22-64

Subsidence (page 4.6-8)

The statement "Subsidence is usually the result of gas, oil or water extraction, hydro-compaction, or peat oxidation and not the result of a landslide or slope failure" is technically incorrect. Most subsidence in Imperial County is tectonic in nature due to the broadly and naturally subsiding basin. The basin has been subsiding for the past 35+ million years. This fact has been well documented. Local subsidence can be caused by the reasons mentioned. CalEnergy requests a revision of this statement.

CalEnergy requests that statements contained in this section related to subsidence from water extraction need to be qualified as to the specific extraction. There can be subsidence related to freshwater well pumping which has nothing to do with geothermal activities.

Comment 22-65

Response to Comment Letter #22: Cal Energy Operating Corporation

Comment 22-1: Thank you for your comments on the Imperial County General Plan *Renewable Energy and Transmission Element* Update, Implementation Ordinance, and Draft PEIR. We have provided responses to your specific comments on each of the documents below.

Comment 22-2: Thank you for providing your comments on the Imperial County Title 9, Division 17: Renewable Energy Resources Ordinance (Ordinance). We have provided responses to your specific comments on the Ordinance below.

Comment 22-3: Section I: Noise Limitation has been revised as follows:

> "The maximum permitted continuous sound level shall be CNEL ~~60~~65 decibels measured at the nearest human receptor site outside the parcel boundary, or one-half mile from the sound, whichever is greater, using the 'A' scale and measured with a sound level meter and associated octave band analyzer."

Comment 22-4: Section N: Dismantling Upon Cessation of Operation has been revised as follows:

> "When the operation of the permitted Project has ceased, all facilities on the site shall be secured until an alternative use is found for the facilities, or dismantled and removed~~,~~. ~~a~~All wells ~~capped or~~pulled and abandoned pursuant to the requirements of the California Division of Oil, and Geothermal Resources or BLM. The land involved shall be restored back to its original condition ~~and~~, or to the condition that is consistent with its zoning in place at the time of the facility closure, the closure conditions should be compatible with the surrounding uses of the area, or as requested by the landowner and as agreed to by the Director of Planning and Development Services."

Comment 22-5: Specific Standards Section G has been revised to clarify that distance of 100 feet from a public road is from the edge of right-of-way.

Comment 22-6: Drilling Standards Section B has been revised as follows:

> "Each operator shall limit drilling noise to a sound level equivalent to CNEL ~~60~~65 dB(A). The limited sound level may be exceeded by ten percent (10%) if the noise is intermittent and during daylight hours only. The noise levels shall be measured at the nearest human receptor site outside the parcel boundary, or one-half mile from the sound, whichever is greater."

Comment 22-7: Comment noted. No changes have been made to Drilling Standard Section E.

Comment 22-8: Drilling Standards Section J has been revised as follows:

> "All unattended well ~~sites~~heads shall be enclosed by a steel chain link type fence, six feet height. There shall be no opening below such fence greater than four inches. The gate shall be placed on a non-hazardous location and shall be locked at all times."

Comment 22-9: Comment noted. No changes have been made to Drilling Standard Section K.

Comment 22-10: Production Standards Section B has been revised as follows:

> "All major project off-site collection and injection pipelines shall, if possible, share existing dedicated rights-of-way. ~~All pipelines shall be painted and/or landscaped to blend with the environment.~~ Pipelines may be allowed above grade for maintenance, leak detection, and wildlife movement. For permanent pipelines proposed adjacent to public roads, project developers shall consult with the Department of Public Works and Imperial Irrigation District regarding the proposed location of the pipeline for consideration and coordination of the existing and future road needs of the area."

Comment 22-11: Thank you for providing your comments on the Imperial County General Plan *Renewable Energy and Transmission Element* Update (Element update). We have provided responses to your specific comments on the Element update below.

Comment 22-12: Paragraph 1 of the Geologic Conditions section has been revised as follows:

> "The Imperial Valley is part of a large, southeastern-trending basin known as the Salton Trough, which is a 3,100-square-mile structural depression that extends from the Transverse Range on the north to the Gulf of California on the south. The Peninsular Range forms the western border of the valley, and the Colorado River forms the eastern border. The formation of the Colorado River delta perpendicular to the Trough created a ~~closed~~subsiding basin to the north that contains the Salton Sea and Imperial Valley. The Salton Trough Basin is bound to the east by the Chocolate Mountains and associated ranges. The area east of those mountains and continuing over to the Colorado River, is technically part of the basin and Range geomorphic province and not the subsiding Salton Trough. The Salton Trough is an active spreading rift valley where sedimentation and natural tectonic subsidence are nearly in equilibrium. A thick clay-dominated strata extends downward from 1,000 to about 3,000 feet throughout the Trough."

Comment 22-13: Paragraph 2 of the Geologic Conditions section has been revised as follows:

> "The California Division of Mines and Geology recognizes the Salton Trough as an area underlain at shallow depths by thermal water of sufficient temperature for direct heat application. Separate geothermal anomalies are distributed throughout the Trough that have hotter fluids suitable for generation. ~~The percentage of dissolved salts in the hot water is extremely high, which has resulted in the corrosion of equipment from use of this brine~~Hypersaline brines are not found everywhere at depths under the Salton Trough. The hypersaline brines are only found in the northern central 1/3 of the basin where ancient salt and evaporate deposits were located. The southern 1/3 of the basin extending to Mexico and the northern 1/3 extending into the Coachella Valley are not underlain by hypersaline brines. Large-scale development of the geothermal resources has depended on the ability to engineer cost-effective technology which overcomes technical problems and makes geothermal development economically feasible."

Comment 22-14: Comment noted. The East Brawley KGRA has been not been added to the Renewable Energy Overlay Zone Map.

Comment 22-15: Comment noted. No changes have been made to paragraph 1 of the Renewable Energy Generation Section.

Comment 22-16: Objective 1.3 has been revised as follows:

"Require the use of directional geothermal drilling and 'islands' when technically advisable in irrigated agricultural soils and sensitive or unique biological areas."

Comment 22-17: Comment noted. No changes have been made to Objective 1.5.

Comment 22-18: Comment noted. No changes have been made to Objective 3.1.

Comment 22-19: Comment noted. No changes have been made to Objective 3.4.

Comment 22-20: Comment noted. No changes have been made to Objective 4.1.

Comment 22-21: Comment noted. No changes have been made to Objective 4.3.

Comment 22-22: Objective 7.1 has been revised as follows:

"Require that all renewable energy facilities, where deemed appropriate, include design features that would prevent subsidence and other surface conditions from impacting existing land uses."

Comment 22-23: Comment noted. No changes have been made to Objective 7.2.

Comment 22-24: Comment noted. No changes have been made to Objective 7.3.

Comment 22-25: Comment noted. No changes have been made to Objective 7.4.

Comment 22-26: Comment noted. No changes have been made to Objective 7.5.

Comment 22-27: Objective 7.6 has been revised as follows:

> "Where geothermal fields have been divided into units or developers have established a cooperative agreement for reservoir management, specific production and injection requirements of individually permitted projects may be modified in accordance with ~~CDOGGR~~both Federal and state requirements."

Comment 22-28: Comment noted. No changes have been made to Objective 7.7.

Comment 22-29: Comment noted. No changes have been made to Objective 7.11.

Comment 22-30: Comment noted. No changes have been made to the environmental subparagraph regarding IID.

Comment 22-31: The paragraph discussing the Final Salton Sea Revenue Potential Study has been deleted.

Comment 22-32: The sentence describing the potential change to the one-mile restriction has been deleted.

Comment 22-33: The sentence "These are spaced two to five miles apart" has been deleted.

Comment 22-34: The sentence cited in this comment has been revised as follows:

> "A reserve pit called a 'sump' ~~is necessary~~may be used for waste fluids and drill cuttings with the size of the sump depending on the expected depth of the well."

Comment 22-35: The sentence cited in this comment has been revised as follows:

> "~~An estimated 12 to 50~~Up to 100 days or more may be required to drill each well, depending on workloads, scheduling, depth of well, and any problems encountered."

Comment 22-36: Paragraph 6 of the Drilling Phase section has been revised as follows:

> "During the drilling process, steel casing is cemented into the hole. ~~The casing diameter decreases with depth.~~Eight inches is a typical completion depth diameter."

Comment 22-37: The last sentence of paragraph 7 of the Drilling Phase section has been revised as follows:

> "A well 8,000 ft. deep might be 'off set' as much as ~~5,000~~2,500 ft."

Comment 22-38: The first sentence of Paragraph 4 of the Typical Power Plant Production Phase section has been deleted.

Comment 22-39: The first sentence of Paragraph 6 of the Typical Power Plant Production Phase section has been replaced with the following:

> "Geothermal liquids are generally injected back into the reservoir from which it came to give mass support. The fluids are injected far enough from production wells so as not to cause breakthrough in the reservoir field."

Comment 22-40: The remainder of Paragraph 6 of the Typical Power Plant Production Phase section has been replaced with the following:

> "Fresh water aquifers are protected by engineer well design. Those well designs and well programs are approved by either BLM or by the DOGGR. The well designs call for multiple strings of metal casing cemented in place to protect groundwater. In addition, the injection wells have to be inspected every two years to prove that the casing is still keeping the ground water safe. Furthermore, before the startup of any new geothermal project, the operator must submit an 'injection plan' for approval to either the BLM or the DOGGR. This plan outlines what zones will be used for injection and how the reservoir and groundwater will be protected."

Comment 22-41: Paragraph 5 of the Binary Process section has been revised as follows:

> "The principal difference ~~or advantage~~ of the binary system is that it allows utilization of moderate temperature resources, and there is in general no release of noncondensible

gases, such as H2S to affect air quality.~~From an air quality perspective, binary would be the preferred technology.~~"

Comment 22-42: Paragraph 2 of Section E: Mineral and Gas Extraction has been revised as follows:

"Some portions of the Imperial Valley are underlain, at depth, by hypersaline brines (water that is greater than three times as salty as sea water). In certain KGRA's, particularly the Salton Sea, the brine is very high in minerals such as sodium, arsenic, antimony, mercury, selenium, potassium, iron, tin, manganese, chlorine, boron, bromine, potash, and zinc, among others. Precious metals--silver, gold and platinum--are present in trace concentrations.~~Studies of brine in the Salton Sea area have shown substantial differences in the trace element compositions even from relatively close-space wells.The total dissolved solids and mineral concentrations in the brine can also change with the well flow rate.~~"

Comment 22-43: The sentence "Studies of brine in the Salton Sea area have shown substantial differences in the trace element compositions even from relatively close-space wells" has been deleted.

Comment 22-44: The sentence "The total dissolved solids and mineral concentrations in the brine can also change with the well flow rate" has been deleted.

Comment 22-45: Paragraph 7 of Section E: Mineral and Gas Extraction has been revised as follows:

"Some of the minerals being extracted from geothermal brines are of strategic value to our national defense. Cal Energy ~~had~~owned and operated a zinc extract plant ~~near the Salton Sea~~at their existing geothermal plants before closing due to production and market declines. Manganese and tin are only two of these metals which may become difficult to import if world conditions control availability. Table C-1 lists the percentage of metals of strategic value to the United States which are imported from various countries and which could be extracted from geothermal brines. Table C-1 gives typical Imperial Valley brine chemistry."

Comment 22-46: The first bullet describing the benefits of renewable energy development in Imperial County has been revised as follows:

"Fiscal benefit of expanded property tax revenues (with the exception of solar plants and projects on Federal lands (BLM) that are taxed differently)…"

Comment 22-47: Paragraph 10 of Section A: Fiscal Benefit of Expanded Property Tax Revenues has been revised as follows:

"In 2012, ~~A~~a 50 megawatt geothermal plant and associated resource development is estimated to have a cost of construction ~~from $140 million to $165~~up to $400 million dollars. According to ~~a California Energy Commission study (2007)~~the above, the ~~initial~~ cost for a typical field and plant facility is approximately $~~3,400~~8,000 per installed kW in the United States, but can vary significantly based upon a series of factors with costs changing over time with economic conditions."

Comment 22-48: Thank you for providing your comments on the Imperial County General Plan *Renewable Energy and Transmission Element* Update Draft PEIR. We have provided responses to your specific comments on the Draft PEIR below.

Comment 22-49: The portion of Mitigation Measure AESTH-1a cited in this comment has been revised as follows:

> "consulting the local public to identify important visual resources of record in the area;"

Comment 22-50: Mitigation Measure AESTH-1d has been revised as follows:

> "~~Future renewable energy facilities~~Project developers would be required to hold preconstruction meetings, if applicable, with affected agencies and designated specialists to coordinate the mitigation strategy for all resources of record. This includes a review of final design and construction documents with regard to visual impacts and mitigation."

Comment 22-51: Comment noted. No changes have been made to Mitigation Measure AESTH-1e.

Comment 22-52: Comment noted. No changes have been made to Mitigation Measure AESTH-1f.

Comment 22-53: The third bullet of Mitigation Measure AESTH-1g has been deleted.

Comment 22-54: Comment noted. No changes have been made to Mitigation Measure AESTH-3.

Comment 22-55: The paragraph cited in this comment has been revised as follows:

> "Future solar ~~and geothermal~~ renewable energy facilities would likely convert all Important Farmland within the project areas to nonagricultural uses, while impacts associated with future wind facilities would be limited to the footprints of turbines, poles, and associated infrastructure. Impacts associated with future geothermal renewable energy facilities would be limited to the power plant, production wells, injection wells, pipelines, and access roads. Although the conversion of Important Farmland associated with future renewable energy facilities would be long-term, these impacts may not be permanent. Renewable energy facilities are typically in operation for approximately 30 years, and the potential exists for impacted sites to be restored to agricultural production after the facility has been decommissioned."

Comment 22-56: The sentence cited in this comment has been revised as follows:

> "Geothermal facility footprints on the other hand are limited to the power plant ~~and~~, production wells, injection wells, ~~which do not require as large an amount of land area~~ pipelines, and access roads. The use of multiple well drilling pads and directional drilling limits the number of well pads and associated pipelines and roads."

Comment 22-57: Comment noted. All future renewable energy facilities, including geothermal facilities, must be subject to mitigation if it would result in impacts agricultural resources. No change has been made.

Comment 22-58: Comment noted. No changes have been made to the Significance After Mitigation discussion for AG-1: Convert Important Farmland to Nonagricultural Use.

Comment 22-59: Mitigation Measure AG-3 has been revised as follows:

> "A Pest Management Plan to monitor for and control insects, weeds, vertebrates, and pathogens that could be injurious to the surrounding farmland must be in place for the duration of the project (until reclamation is complete and approved by the Planning and Development Services Department and the Agricultural Commissioner). Should the population of unwanted species threaten to damage the area, the project operator shall implement controls that are consistent with applicable pest management requirements."

Comment 22-60: Comment noted. All future renewable energy facilities, including geothermal facilities, must be subject to mitigation if it would result in impacts agricultural resources. No change has been made.

Comment 22-61: The sentence cited in this comment has been revised as follows:

> "Nonetheless, future operation of renewable energy facilities in the proposed overlay zones would have the potential to violate established ICAPCD standards and result in a significant impact, if the facilities are not designed or operated to conform to applicable regulations."

Comment 22-62: Bullet point two of Mitigation Measure AQ-1a has been revised as follows:

> "All on-site and off-site unpaved roads segments with 50 or more average vehicle trips per day, shall be effectively stabilized~~; and~~ so as to limit visible emissions shall be limited to no greater than 20-percent opacity for dust emissions by the use of restricting vehicle access, paving, chemical stabilizers, dust suppressants, and/or watering."

Bullet point four of Mitigation Measure AQ-1a has been revised as follows:

> "The transport of bulk materials on public roads shall be completely covered, unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks shall be cleaned and/or washed at the delivery site after removal of bulk material, prior to using the trucks to haul material on public roadways."

Bullet point five of Mitigation Measure AQ-1a has been revised as follows:

> "All track-out or carry-out on paved public roads, which includes bulk materials that adhere to the exterior surfaces of motor vehicles and/or equipment (including tires) that may then fall onto the pavement, shall be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area."

Bullet point six of Mitigation Measure AQ-1a has been revised as follows:

"Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line except where such material or activity is exempted from stabilization by the rules of ICAPCD."

Comment 22-63: The discussion of seismicity in Section 4.6.2 has been revised to state the following:

"Similar to most areas of southern California, Imperial County is seismically active. Numerous ~~active~~ faults traverse the Salton Trough and the County. In this region, plate motion is transferred northward from the transform fault spreading center system of the Gulf of California to the San Jacinto and San Andreas fault zones along the Imperial fault and Brawley seismic zone (Johnson 1979). Figure 4.6-3 shows the known active and potentially active faults and epicenters of earthquakes that occurred within the last 100 years in the County. ~~The most notable fault in the County is the San Andreas, extending northward from Mexico through the Imperial Valley and on into northern California. Other major, active faults are in the San Jacinto and Elsinore fault zones in the southwest and northwest portions of the County. These northwest trending fault zones are extensive and are a major factor in determining the configurations of the land. In addition to these major active fault zones, a number of minor inactive faults are located within the County. These include (but are not limited to) the Brawley, Wienent, Imperial, Laguna Salada, and Superstition Hills faults~~Under the Alquist-Priolo Act, the State California Geological Survey (CGS) has defined an 'active' fault as one that has had surface displacement during the past 11,000 years (Holocene time). Active faults, while present in Imperial County, are limited in extent and include mainly the Imperial Fault, the Elsinore Fault, the San Jacinto Fault (west side), and several unnamed faults along the Elmore Ranch Fault Zone (found after the 1987 Superstition Mountain sequence). The most seismically active areas in the region is the Brawley seismic zone (Johnson 1979). The Brawley seismic zone links the Imperial fault with the southern end of the San Andreas fault and possible represents a spreading zone between these two strike-slip faults (Weaver and Hill 1979). Seismicity along the Superstition Hills and Superstition Mountain, which may be a southern extension of the San Jacinto fault system, is diffuse. Diffuse seismicity also characterizes the Elsinore fault system (Sharp 1972)."

Comment 22-64: The discussion of surface faulting in Section 4.6.2 has been revised to state the following:

"Surface ~~Rupture~~Faulting

Surface ~~rupture~~ faulting occurs when movement along a fault results in an actual ~~cracking or breaking of the ground along a fault during an earthquake~~rupture and offset of the land surface, local warping and tilting of the ground near the fault trace, and less commonly, uplift or subsidence of adjoining areas; however, it is important to note that not all earthquakes result in surface ~~rupture~~faulting. Surface ~~rupture~~ faulting ~~almost always~~frequently follows preexisting fault traces, which are zones of weakness. ~~Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. Fault creep is the slow rupture of the earth's crust. Sudden displacements are more damaging to structures because they are accompanied by shaking~~Whether a slip along a fault during an earthquake reaches the ground surface depends on the size, depth, and

orientation of the earthquake rupture surface. Large shallow earthquakes in California are often accompanied by surface faulting or deformation. Generally surface faulting is associated with earthquakes having epicenters shallower than 15 km and magnitudes of 5.5 or greater."

Comment 22-65: The discussion of subsidence in Section 4.6.2 has been revised to state the following:

"Subsidence is ~~the gradual, local settling or sinking of the earth's surface with little or no horizontal motion. Subsidence is usually the result of gas, oil, or water extraction, hydro-compaction, or peat oxidation and not the result of a landslide or slope failure~~a lowering or settlement of the ground surface through collapse of subsurface void space. This condition can occur in areas where oil or groundwater has moved out of an area and has created a void space unable to sustain the materials above it or in areas where subsurface materials are dissolved, leaving little or no support for surface soils or features. Subsidence can be a dangerous condition for structures and facilities if not accounted for in project planning and design. Most subsidence in Imperial County is largely tectonic in nature due to the broadly and naturally subsiding basin. Subsidence due to well pumping and other sources of groundwater withdrawal can occur in unconsolidated to semiconsolidated sediments containing confined or semiconfined sand and gravel aquifers inter-bedded with clay sediments. The potential for subsidence is dependent on the depths of and amount of water likely to be extracted from the aquifer. On the valley floor where these conditions exist, the potential for subsidence is considered to be ~~moderate to~~ low, based on the current hydrological conditions."