Comment Set E3
Southern California Edison Company

Devers–Palo Verde No. 2 Transmission Line Project

From: Thomas.Burhenn@SCE.com [mailto:Thomas.Burhenn@SCE.com]
Sent: Thursday, August 10, 2006 4:39 PM
Subject: comments on Noise issues

Dear Ms. Blanchard and Ms.Lee:

Please include the comments and information on noise-related issues (including appendices and attachments) discussed in SCE"s Supplemental testimony filed several weeks ago, as part of SCE's formal comment on the DPV2 DEIS/DEIR. E3-1

Tom

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Southern California Edison Company

Application No.:	A.05-04-015
Exhibit No.:	Late-filed Exhibit No. 38
Witnesses:	Jerry Amalfitano
	Darell Holmes
	Terry Ohanian
	Jack Sahl
	Fred Salzmann
	Gilbert Tam

SOUTHERN CALIFORNIA
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(U 338-E)

DPV2 – Phase II Late-Filed Exhibit

Before the
Public Utilities Commission of the State of California

Rosemead, California
August 1, 2006

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Southern California Edison Company

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E)
DPV2 - PHASE II LATE-FILED EXHIBIT

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SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E)
DPV2 - PHASE II LATE-FILED EXHIBIT

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I.

INTRODUCTION

Pursuant to the request of Administrative Law Judge ("ALJ") TerKeurst in Phase II hearings on the Devers-Palo Verde No. 2 Transmission Line Project ("DPV2"), Southern California Edison Company ("SCE") submits this late-filed exhibit on the following items:

- Benefit-To-Cost Ratios for DPV2 and Alternates
- Alligator Rock Alternate Cost Estimate
- CAISO Approval of Devers-Valley Alternate
- Corona Noise
- Electric and Magnetic Field ("EMF") Issues
- The Desert Southwest Transmission Project ("DSWTP")

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II.

BENEFIT-TO-COST RATIOS FOR DPV2 PROJECT AND ALTERNATES -- UPDATE

In its April 11, 2005 application for a Certificate of Public Convenience and Necessity ("CPCN"), SCE estimated costs for DPV2 construction at $591 million in 2005 dollars. This estimate included pension, benefits, and administrative and general overhead, but did not include Allowance for Funds Used During Construction ("AFUDC").

In SCE's Phase II Direct Testimony (Table II-1, Ex. 31, p. 3, shown below), SCE presented updated and more refined estimates to give the Commission an understanding of the basis for our "preliminary" estimates. These updated estimates itemized the major costs of 500 kV and 220 kV transmission lines, substation modifications, series compensation, land and easement acquisitions, facilities acquisitions and telecommunications. The estimates, shown below, will be further refined after final engineering and design of the complete project.

Table II-1 from Ex. 31
Summary Of Proposed And Alternate Routes
(Includes P&B, A&G, and AFUDC)

Proposed Devers Harquahala and West of Devers	$624.412 million
Alternate 1 Harquahala West Alternative	$609.823 million
Alternate 2 Palo Verde Alternative	$600.777 million
Alternate 3 Harquahala Junction Alternative and Devers-Valley No. 2	$565.013 million
Alternate 4 Devers-Valley No. 2 Alternative	$589.299 million

At the July 10, 2006 Evidentiary Hearings, ALJ TerKeurst requested that SCE also provide updated benefit-to-cost ratios for each alternate shown in Table II-1.

The benefit-to-cost ratios associated with the proposed route and the alternates are shown in Table II-2, below:

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Table II-2
Summary Of Cost Effectiveness
Of Proposed And Alternate Routes

	Benefits (million)	Costs (million)	Benefit/Cost Ratio
Proposed	$1,104.673	$645.607	1.71
Alternate 1	$1,104.673	$657.552	1.68
Alternate 2	$1,104.673	$634.558	1.74
Alternate 3	$1,104.673	$594.213	1.86
Alternate 4	$1,104.673	$625.139	1.77

The costs shown in Table II-1 are the sum of real (2005 dollars) capital costs (with AFUDC, P&B and A&G). The costs shown in Table II-2 are the 2005 present value of revenue requirements (to be consistent with the benefit-to-cost ratios presented in Phase I and in SCE's April 11, 2005 CPCN application).

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III.

ALLIGATOR ROCK ALTERNATE COST ESTIMATE

At the July 10, 2006 Evidentiary Hearings, ALJ TerKeurst requested an estimate of the costs of the I-10 route alternative for Alligator Rock ("Alligator Rock Alternate").[1] SCE estimates that the Alligator Rock Alternative would add an additional $8.952 million to the cost of DPV2.

[1] ALJ TerKeurst, Tr. 6/494.

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IV.

CAISO APPROVAL OF DEVERS-VALLEY ALTERNATE

At the July 10, 2006 Evidentiary Hearings, ALJ TerKeurst requested that SCE "check into" whether CAISO will be modifying its economic analysis of DPV2 using the Devers-Valley route alternative.

SCE's current understanding is that CAISO will not be modifying its economic analysis. The DPV2 alternate does not change the economic benefits. The path rating will still be 1200 MW. The Proposed Project (with the West of Devers 230 kV Upgrades) was a 1200 MW project. SCE performed technical studies that demonstrate the technical viability of the same 1200 MW rating using the Devers-Valley alternative. SCE submitted these studies the Western Electricity Coordinating Council ("WECC") and WECC approved them. Although the CAISO will review the power flow studies, there is no need to "re-evaluate" the economic analysis because the rating will still be 1200 MW. The cost for this alternative is approximately $35 million lower than the originally Proposed Project.

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Southern California Edison Company

V.

CORONA NOISE

At the July 10, 2006 Evidentiary Hearings, ALJ TerKeurst requested SCE to provide supporting studies regarding Corona Noise.

Some background may be helpful. In the July 10, 2006 evidentiary hearings, SCE referred to studies that show corona noise could be between 47 decibel ("db") and 61 db.[2] Although SCE could not obtain the study that derived the 47 db number, SCE attaches the study by Sargent & Lundey ("S&L") which shows various methods of analysis produces noise levels that vary from 46 to 64 db. S&L used the Electric Power Research Institute Red Book, Transmission Line Reference Book audible noise approach to determine that a 61 db level would be exceeded no more than 5 percent of the time. This is called the "L5" level. SCE provided this L5 value of 61 db to staff Commission via data requests.

S&L reviewed other recent utility projects in Riverside County and determined that these Riverside County applications applied the Community Noise Equivalent Level ("CNEL") process to the L50 noise levels, and not the L5 noise level. At L50 noise levels, the volume of sound would be exceeded 50 percent of the time. The L50 noise level for DPV2 is 54.7 db.

Applying the CNEL process to the DPV2 project's L50 noise level of 54.7 db results in a CNEL noise level of 61.4 db. This is below the 65 db threshold referenced by the Draft Environmental Impact Report ("DEIR") as being used in the Riverside County Noise Ordinances.[3] Attachment C contains an updated report from S&L, describing their analysis of the applicability of the CNEL "formula" to the DPV2 project.

Again, the 61 db figure that SCE provided to the Energy Division in data requests was the L5 level. Using the L50 level for the DPV2 project results in a CNEL value of 61.4 db, well below Riverside County's referenced CNEL value of 65 dba.

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[2] SCE, Amalfitano, Ex. 34.
[3] DEIR, p. D.8-13. For example, Riverside County so discourages uses such as schools, hospitals, and libraries in areas in excess of 65 CNEL.

Comment Set E3, cont.
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Finally, the ALJ requested information as to whether corona noise varies from one side of the right-of-way or another.[4] SCE believes that Corona Noise will vary depending on the actual contamination of the conductors. If the dirt contamination and rain is uniform across DPV1 and DPV2, the noise variation across the right-of-way should be symmetrical. More likely, however, there will not be symmetry in any noise distribution due to the variation in actual contamination distribution or cleanliness of the conductors.

E3-1 cont.

[4] Tr. 6/486.

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VI.

ELECTRIC AND MAGNETIC FIELD ("EMF") ISSUES

At the July 10, 2006 Evidentiary Hearings, ALJ TerKeurst requested that SCE work with the Energy Division to develop information regarding the feasibility and cost of mitigating the magnetic fields associated with the 500 kV configuration, including the Devers-Valley route alternative, in particular, and any residences that may be on the Palo Verde-Devers segment of the line as well, with that mitigation consisting of increasing the tower heights such that the magnetic field would be reduced on the right-of-way next to the DPV2 line by 15 percent,[5] and specifically:

1. How much taller do the proposed 500 kV towers need to be in order to reduce magnetic field levels by 15 percent for residences within 200 feet of the edge (closer to the proposed transmission line) of the 500 kV right-of-way ("ROW")?[6]
2. What is the estimated cost for using taller structures, which will give at least 15 percent magnetic field reductions at the one edge of the row for those residences?[7]

SCE provides the requested information as Attachment I.

In summary, SCE recommends the CPUC keep the tower (and conductor) heights as proposed by SCE and recommended by the Draft EIR/EIS; that is the proposed tower type and height match the adjacent "existing" Devers-Palo Verde or Devers-Valley 500 kV transmission lines, where feasible. To reduce magnetic field levels by 15 percent or more at the edge of the ROW, SCE would need to raise about thirty-three towers by 20 feet or more. The estimated incremental cost to perform this work is approximately $1.4 million, (including P&B, A&G, and AFUDC). However, raising the towers an additional 20 feet over the height of the existing towers would create visual and biological impacts, and would conflict with many of the BLM Applicant Proposed and CPUC recommended mitigation measures, as discussed in Attachment I.

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5 Tr. 6/478.
6 Tr. 6/476.
7 Tr. 6/477.

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VII.

THE DESERT SOUTHWEST TRANSMISSION PROJECT

At the July 10, 2006 Evidentiary Hearings, ALJ TerKeurst requested additional information on the status of the Proposed Desert Southwest Transmission Project ("DSWTP") at the U.S. Department of the Interior, Bureau of Land Management [CA-660-1430-ER-CACA-44491]. The DSWTP includes an 118-mile 500 kV transmission line from an area near Blythe, California to SCE's Devers Substation, located several miles north of Palm Springs, California. SCE understands that a Record of Decision in that proceeding is expected in August 2006. DSWTP's preferred route in that proceeding is adjacent to the proposed DPV2 line; however, there is also a variation to the preferred route (that variation being SCE's preferred DPV2 line route between the Blythe area and Devers), in the event SCE and DSWTP can reach agreement on a joint project arrangement. If SCE and DSWTP are not able to reach agreement on a joint project arrangement, DSWTP would likely pursue construction of its stand-alone transmission line adjacent to the DPV2 project between the Blythe area and Devers Substation, or other interconnection alternatives that may be available to DSWTP. It is important to note, however, that regardless of whether a joint DSWTP arrangement is agreed to between the parties, total cost for SCE will not increase.[8]

The purpose of a joint project arrangement would be to integrate what would otherwise be two separate, stand-alone, 500 kV transmission line projects. A Joint DSWTP Project arrangement would not increase the costs of the DPV2 project. The transmission capacity allocated to DPV2 under the Joint DSWTP Project arrangement would remain at 1200 MW. A Joint DSWTP Project would not basically change the DPV2 line route, with the exception of a new substation but would need to be constructed to accommodate the interconnection.

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[8] Cabbell, Tr. 6/937 ("There wouldn't be any effect on the DPV2 project costs related to Desert Southwest project. The Desert Southwest project would pay any incremental charges or additional costs that would be associated with the project.").

Comment Set E3, cont.
Southern California Edison Company

ATTACHMENT A

EMF INFORMATION PROVIDED IN RESPONSE TO JULY 10, 2006 ALJ REQUEST

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Comment Set E3, cont.
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ATTACHMENT A

EMF INFORMATION PROVIDED IN RESPONSE TO

JULY 10, 2006 ALJ REQUEST

On July 10, 2006, the Assigned Administrative Judge ("ALJ") directed Southern California Edison Company ("SCE") to provide the following additional magnetic field reduction information regarding SCE's Application 05-04-015, Devers-Palo Verde No. 2 Transmission Line Project ("DPV2").

1. How much taller do the proposed 500 kV towers need to be in order to reduce magnetic field levels by 15 percent or more for residences within 200 feet of the edge (closer to the proposed transmission line) of 500 kV right-of-way ("ROW")?
2. What is the estimated cost for using taller structures which will give at least 15% magnetic field reductions at one edge of the ROW for those residences?

As required by CPUC's EMF Policy, the review of increasing tower and conductor heights triggers consideration of environmental, safety, and aesthetic impacts. SCE evaluated potential adverse impacts from bird collisions, increased safety risks from helicopter operations, and the visual impacts of taller towers/conductors not matched with the existing structures.

A. Increased Tower/Conductor Heights As a Low-Cost EMF Option

The California Public Utilities Commission's ("CPUC") Energy Division identified sixty residences within 200 feet of the existing 500 kV rights-of-way where the proposed 500 kV transmission lines would be located (see Attachment B). Five residences are located along the Devers–Harquahala 500 kV segment, while remaining fifty-five residences are located along the Devers–Valley 500 kV segment.

Using taller towers reduces the magnetic field at the edge of the ROW[9]. Figure 1 and Table 1 below illustrates the magnetic field level changes expected by increasing tower heights for the proposed 500 kV transmission lines. Figure 1 and Figure 2 show that the magnetic field level changes beyond 50 feet from

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[9] It is the edge which is closer to the proposed 500 kV transmission line.

Comment Set E3, cont.
Southern California Edison Company

the edge of the ROW for using taller towers are insignificant. In summary, there will be no decrease in magnetic field levels for those residences which are located more than 50 feet from the edge of the ROW.

In order to reduce magnetic field levels by 15% or more at the edge of ROW, SCE would need to raise about thirty-three towers (including six dead-end towers) by 20 feet or more. The estimated incremental cost to perform this work is approximately $1,400,000. SCE basis this estimate upon a set of assumptions that includes the cost of additional labor, materials, P&B, A&G, AFUDC, and a 15 percent contingency needed for raising a typical 150 feet tower to a 170 feet tower. However, since tower designs have height limitations, if any proposed tower height is already taller than about 170 feet, the additional 20 foot height increase may require a different tower design, and the estimated cost will be significantly greater, mainly due to the additional structural strength needed for heavier and taller towers.

Comment Set E3, cont.
Southern California Edison Company

Figure 1
Magnetic Field Level Changes By Increasing Proposed Tower Height By 10 Feet Increment

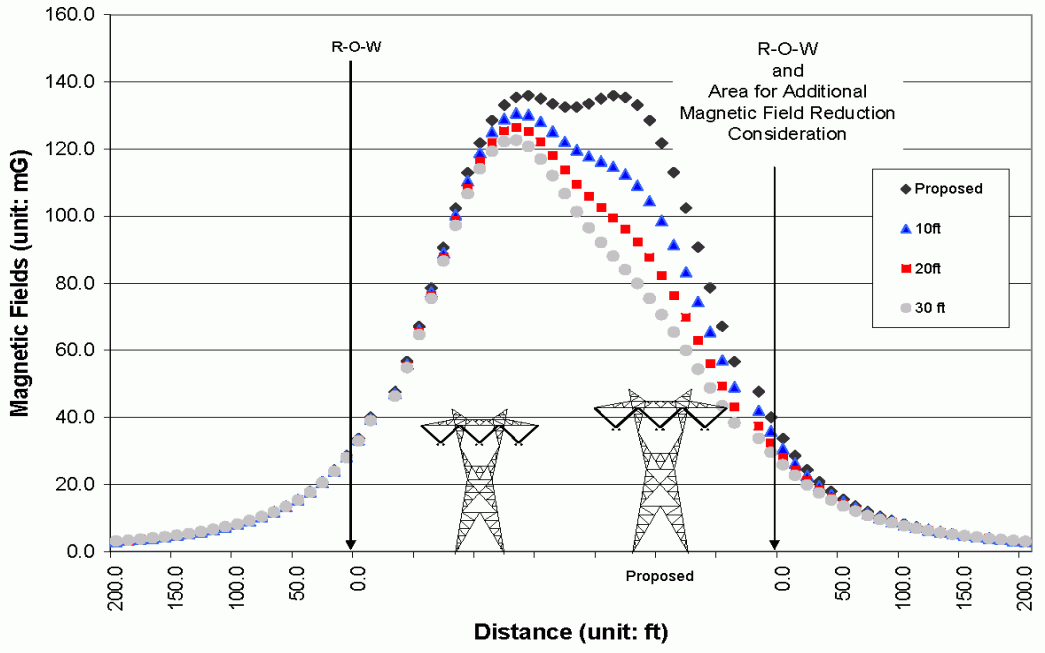

Table 1
Magnetic Field Level Changes By Increasing Proposed Tower Height By 10 Feet Increment

	Distance from the edge of ROW				
Tower Height	**0 ft**	**50 ft**	**100 ft**	**150 ft**	**200 ft**
Proposed	33.7 mG	15.5 mG	8.2 mG	4.8 mG	3.1 mG
15% Reduction Target (at the edge of ROW)	28.7 mG				
Proposed + 10 feet	30.7 mG	14.8 mG	8.0 mG	4.8 mG	3.0 mG
Proposed + 20 feet	**28.1 mG**	14.1 mG	7.8 mG	4.7 mG	3.0 mG
Proposed + 30 feet	25.9 mG	13.6 mG	7.6 mG	4.7 mG	3.0 mG

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B. Do Taller Tower/Conductors Have Other Impacts?

E3-2

As required by CPUC's EMF Policy, the review of increasing tower and conductor heights triggers consideration of environmental, safety, and aesthetic impacts. We evaluated potential adverse impacts bird collisions, increased safety risks from helicopter operations, and the visual impacts of taller towers/conductors not matched with the existing structures.

Figure 2 below provides an illustration of SCE's proposed design for the Devers-Harquahala and Devers–Valley 500 kV transmission line corridors. The "proposed" tower type and height will match the adjacent "existing" Devers-Palo Verde or Devers-Valley (DV) 500 kV transmission lines, to the extent feasible. Table 1 above illustrates the visual characteristics of using a taller tower for the "proposed" 500 kV transmission lines.

Figure 3 is the model for evaluating magnetic field reductions by using taller towers, as the ALJ directed. The "existing" tower height will remain unchanged.

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Southern California Edison Company

E3-2 cont.

Figure 2
SCE's Proposed Design

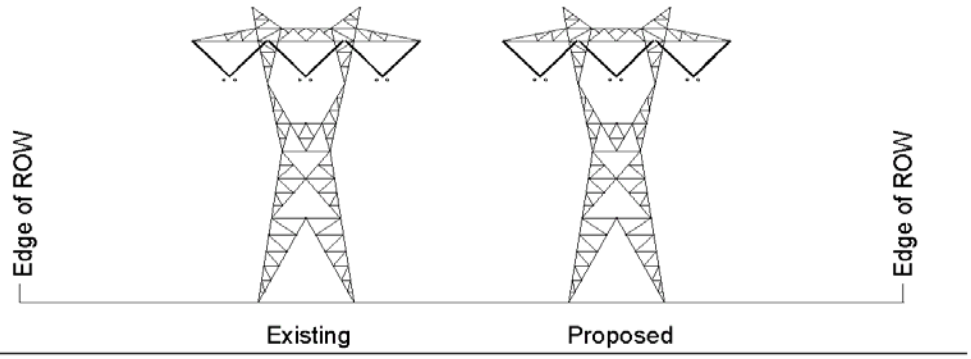
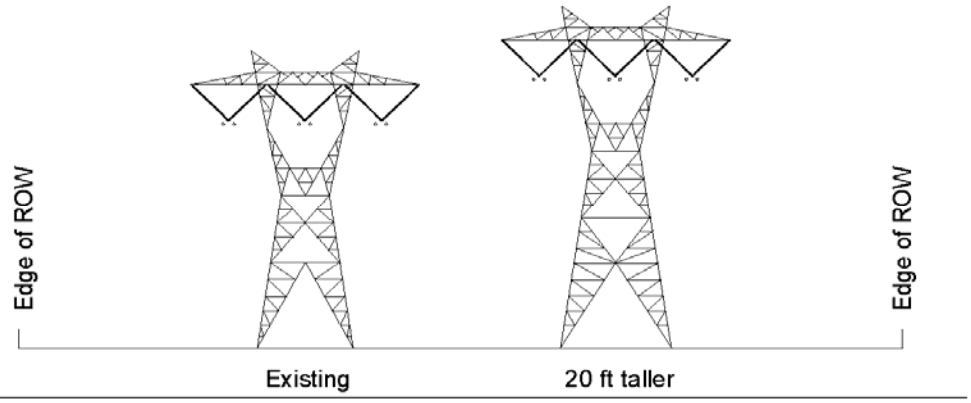


Figure 3
Environmental and Visual Characteristic of Using Taller Towers for the Proposed 500 kV Transmission Line



1. Impacts to Visual Resources

Constructing new towers that would exceed the heights of the existing 500kV towers, located within parallel and adjacent rights-of-way by 20 feet or more, will increase visual impacts. The

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Southern California Edison Company

differential height of the towers and conductors would result in higher levels of visual contrast to viewers from residential areas and travel ways within the affected areas. The construction of these taller structures also conflicts with the recommended mitigation measures in the Draft EIR/EIS (CPUC and Bureau of Land Management, v.1, Part 1. May 2006), on page D. 3-64 of the EIR/EIS, which states:

E3-2 cont.

> **"V-3a Reduce visual contrast of towers and conductors.** The following design measures shall be applied to all new structures and conductors in order to reduce the degree of visual contrast caused by the new facilities:
>
> - **All new and replacement structures are to as closely as possible match the design of the existing structures with which they will be seen.** (Emphasis added.)
> - All new and replacement structures are to be paired as closely as possible with the existing structure(s) in the corridor in order to avoid or reduce the number of off-setting (from existing structures) tower placements.
> - All new and replacement structures are **to match the heights of the existing DPV1** (emphasis added) structures to the extent possible as dictated by variation in terrain.
> - **All new and reconductored spans are to match existing conductor spans as closely as possible in order to avoid or reduce the occurrence of unnecessary visual complexity associated with asynchronous conductor spans** (emphasis added), particularly at sensitive crossings such as Salome Highway, I-10, U.S. 95, Colorado River, SR 78, Dillon Road, SR 62, Whitewater Canyon Road, and San Timoteo Canyon Road.
> - All new conductors are to be non-specular in design in order to reduce conductor visibility and visual contrast,
> - To the extent feasible, no new access roads are to be constructed downhill from existing or proposed towers to reduce the potential for structure skylining."[10] (Emphasis added.)

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[10] Draft EIR/EIS at p. D.3-64.

Comment Set E3, cont.
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As stated in the above text (third bullet), all new structures are to match the heights of the existing DPV1 structures. In addition, references to visual impacts that would result to residential areas in southern Banning and Beaumont are described on page D.3-223 of the Draft EIR/EIS:

> "The overall visual change would be moderate-to-high and in the context of the existing landscape's overall moderate-to-high visual sensitivity, the resulting visual impact would be significant (Class I). This conclusion is substantially influenced by the high sensitivity of the adjacent residences and the relatively close proximity of the structures to those residences. Mitigation Measure V-40 is recommended to lessen the visual impact along this portion of the route though the impact would not be reduced to a level that would be less than significant. This viewpoint analysis is considered representative of project views from residential areas along the north side of the San Jacinto Mountains."

The applicable mitigation measure is stated on page D.3-208 at (c), as follows:

> ***"V-40a Reduce visual contrast of towers and conductors***. The following design measures are to be applied to all new structures and conductors in order to reduce the degree of visual contrast caused by the new facilities: **(a)** all new structures are to as closely as possible match the design of the existing structures with which they will be seen; **(b)** all new structures are to be paired as closely as possible with the existing structure(s) in the corridor in order to avoid or reduce the number of off-setting (from existing structures) tower placements; **(c) all new structures are to match the heights of the existing D-V1 structures to the extent possible as dictated by variation in terrain; (d)** all new spans are to match existing conductor spans as closely as possible in order to avoid or reduce the occurrence of unnecessary visual complexity associated with asynchronous conductor spans, particularly at sensitive crossings such as SR 62, I-10, SR 111, SR 243, SR 79, Gilman Springs Road, Ramona Expressway, Menifee Road, and SR 74; **(e)** all new conductors are to be non-specular in design in order to reduce conductor visibility and visual contrast, and **(f)** no new access roads are to be constructed downhill from existing or proposed towers to reduce the potential for skylining. SCE shall provide to the CPUC, BLM, and Forest Service a Project Design Plan demonstrating implementation of this measure at least 90 days prior to the start of construction, and shall not commence construction until the Project Design Plan has been approved by the CPUC, BLM, and Forest Service." (Emphasis added.)

E3-2 cont.

2. Impacts to Biological Resources

Construction of towers that would be 20 feet or taller than the existing towers in adjacent rights-of-way would require that the conductors be installed at different heights, creating additional

E3-3

Comment Set E3, cont.
Southern California Edison Company

E3-3 cont.

obstacles for birds in flight within the extensions of the vertical planes perpendicular to the ground. The potential for collisions of birds with the power lines is increased. Moreover, constructing towers that are more than 20 feet taller than the existing towers would conflict with CPUC recommended mitigation measures. Specifically, mitigation measure B-15a on page D.2-173 of the Draft EIR/EIS states that SCE shall use collision-reducing techniques for installing transmission lines and not place towers and lines significantly above existing lines:

> **"B-15a Utilize collision-reducing techniques in installation of transmission lines.** SCE shall install the transmission line utilizing APLIC standards for collision-reducing techniques as outlined in 'Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 (APLIC, 1996).'
>
> - ***Placement of towers and lines will not be located significantly above existing transmission line towers and lines, topographic features, or tree lines to the maximum extent practicable.*** *(Emphasis added.)*
>
> - *Overhead lines that occur significantly above the above-mentioned features and that are located in highly utilized avian flight paths will be marked utilizing aerial marker spheres, swinging plates, spiral vibration dampers, bird flight diverters, avifauna spirals, or other diversion device as to be visible to birds and reduce avian collisions with lines."*

As stated in the first bullet in the above text, SCE recommends that the proposed towers and lines not be located significantly above existing towers or lines.

C. Safety Impacts From Helicopter Operations

We evaluated the potential impacts of having two transmissions lines in the same corridor with different profiles. All risks associated with this on helicopter operations can be effectively mitigated.

D. Summary

Appropriately, EMF exposures are not addressed in CEQA (or NEPA) which address any environmental impacts associated with the proposed project. Therefore, addressing applicable environmental impacts under CEQA (or NEPA) is SCE's top priority over the precautionary based no-cost and low-cost CPUC's EMF Policy. The precautionary based no-cost and low-cost CPUC's EMF policy, however, can take a priority over some other traditional engineering practices.

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The CPUC's EMF Policy is based upon a precautionary approach (or "prudent avoidance") for addressing public concerns over EMF.[11] In Decision No. 06-01-042 the Commission stated that state and federal public health regulatory agencies have not established a link between EMF and health effects[12] and determined that setting numeric exposure limits is not appropriate in setting utility guidelines for improving EMF.[13] The CPUC also re-affirmed that the existing no-cost and low-cost precautionary-based EMF policy should be continued.

Knowing the importance of priority and process among many different requirements and considerations, SCE's priorities for designing DPV2 and DV2 Transmission are in the following order:

- First, designing electric power systems that comply with all applicable federal, state, and local regulations, safety codes, and SCE standards (including CEQA or NEPA requirements)
- Second, implementing appropriate no-cost and low-cost magnetic field reduction measures
- Third, implementing applicable traditional engineering practices (or any other good engineering practices)

In summary, SCE recommends the CPUC keep the tower (and conductor) heights as proposed by SCE and recommended by the Draft EIR/EIS; that is the proposed tower type and height match the adjacent "existing" Devers-Palo Verde or Devers-Valley 500 kV transmission lines, where feasible.

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11 Decision No. 06-01-042, p. 1, fn. 1.

12 Decision No. 06-01-042, Conclusion of Law No. 5, mimeo., p. 19 ("As discussed in the rulemaking, a direct link between exposure to EMF and human health effects has yet to be proven despite numerous studies including a study ordered by this Commission and conducted by DHS.")

13 Decision No. 06-01-042, mimeo., p. 15 ("Furthermore, we do not request that utilities include non-routine mitigation measures, or other mitigation measures that are based on numeric values of EMF exposure, in revised design guidelines or apply mitigation measures to reconfigurations or relocations of less than 2,000 feet, the distance under which exemptions apply under GO 131-D. Non-routine mitigation measures should only be considered under unique circumstances.")

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Southern California Edison Company

ATTACHMENT B

RESIDENCES WITHIN 200 FEET OF EDGE OF 500 KV ROW

Comment Set E3, cont.
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ATTACHMENT B

RESIDENCES WITHIN 200 FEET OF EDGE OF 500 KV ROW

Please note that the identification of numbers of residences is somewhat approximate because of the difficulty in identifying were "200 feet from edge of ROW" is in the field.

Residences Located within 200 ft. of edge of ROW Devers-Harquahala Transmission Line Segment			
DPV MP	**Location within 200 ft. of edge of ROW for DPV2 (new line)**	**Residences on New Side of Line**	**Nearest Tower #**
E226	South of Dillon Road	1	2009
E215	Southwest of Desert Moon Drive	1	2128
E215	Southeast of Desert Moon Drive	1	2129
E108	South of Blythe- West of Arrowhead Blvd	1	2738
E108	South of Blythe- West of SH-78	1	2735
	TOTAL	**5**	

Residences Located within 200 ft. of Edge of ROW Devers-Valley Corridor			
DV MP	**Location within 200 ft. edge of ROW for New D-V#2**	**Residences on New Side of Line**	**Nearest Tower #**
0.7 to 0.8	Smoketree Rd., west of Diablo Rd.	3	DV-4
1.1	Smoketree Rd., west of Diablo Rd.	2	DV-6
12.2	Cabazon- Riza Ave.	1	DV-50
12.4 to 12.6	Cabazon- Riza Ave.	6	DV-51
12.6 to 12.8	Cabazon- Riza Ave.	4	DV-52
12.8 to 12.9	Cabazon- Plum St./ Eucalyptus St.	8	DV-52
14.6 to 14.7	Cabazon- Esperanza Ave, west of Peach St.	2	DV-59
18.5	Porter St.	3	DV-72
22.1 to 22.2	Sunset Ave.	3	DV-83
22.4	Death Valley Rd.	3	DV-84
35.1 to 35.3	Juniper Flats- Truffaut Dr./ Juniper Flats Rd.	4	DV-126
39.2 to 39.3	Romoland- Mountain Ave.	2	DV-141
40.0 to 40.1	Romoland- Mapes Rd.	3	DV-145
40.2 to 40.3	Romoland- Patelli Way	4	DV-145/ DV-146
40.5 to 40.7	Romoland- Winner Circle Dr.	5	DV-147

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Southern California Edison Company

Residences Located within 200 ft. of Edge of ROW Devers-Valley Corridor			
DV MP	**Location within 200 ft. edge of ROW for New D-V#2**	**Residences on New Side of Line**	**Nearest Tower #**
40.7 to 40.8	Romoland- Watson Rd.	2	DV-148
	TOTAL	**55**	
Note: (1) There are nearly 100 residences on the side of the line where existing Devers-Valley No. 1 line is. (2) the "nearest tower #" numbering is as shown on Figure Ap.1-8a through AP.1-8G in Draft EIR/EIS Appendix 1.			

5 B-3

Comment Set E3, cont.
Southern California Edison Company

ATTACHMENT C

SARGENT & LUNDY REPORT ON CORONA NOISE

E3-1 cont.

1290385 C-1

Comment Set E3, cont.
Southern California Edison Company

E3-1 cont.

ATTACHMENT C

SARGENT & LUNDY REPORT ON CORONA NOISE

Devers-Palo Verde No. 2 – Audible Noise Evaluation Summary

As part of Southern California Edison Company's ("SCE") filing with the California Public Utilities Commission ("CPUC"), values for corona noise were calculated for the Devers-Palo Verde No. 2 ("DPV2") transmission line.

Calculations were performed to determine audible noise levels to be expected at the transmission line right-of-way edge. The calculations represent the existing DPV1 and proposed DPV2 transmission lines in the developed right-of-way. The calculations were performed using the ACDCLine software package developed by the Electric Power Research Institute ("EPRI").

Two cases were developed to represent the existing DPV1 transmission line, and the addition of the DPV2 line. Input was provided by SCE including right-of-way width, conductor size and rating, structure height and spacing. This data was input to the ACDCLine program to create a line model. The software calculates audible noise using many different methods including EPRI-HVTRC, BPA, CRIEPI, EdF, ENEL, and IREQ. The EPRI-HVTRC method is used since it is a common reference in the U.S. and the results have been verified through testing at EPRI's High Voltage Transmission Research Center. This method calculates noise levels for five different conditions: L50 Fair, L5 Foul, L50 Foul, Leq, and Ldn.

To describe the time-varying character of environmental noise, the statistical noise descriptors, L5 and L50, are commonly used. They are the noise levels equated or exceeded during 5 percent and 50 percent of a stated time period. L50 is the median sound level. This is the sound level exceeded 50 percent of the time during a measurement, and is the descriptor used by the City of Riverside to determine compliance with its regulations.

A single number descriptor called the Leq is also widely used. The Leq is the average noise level during a stated period of time. In determining the daily level of environmental noise, the difference in response of people to daytime and nighttime noises is taken into account. During the

1290385 C-2

Comment Set E3, cont.
Southern California Edison Company

nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes very noticeable. Further, most people sleep at night and are very sensitive to noise intrusion. To account for human sensitivity to nighttime noise levels, a descriptor, the Ldn(day/night average sound level), was developed. The Ldn divides the 24-hour day into the daytime of 7:00 a.m. to 10:00 p.m. and the nighttime of 10:00 p.m. to 7:00 a.m. The Ldn value averages the A-weighted sound level during a 24-hour day, obtained after addition of 10 decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m.

E3-1 cont.

Another weighted average noise measure is the Community Noise Equivalent Level ("CNEL"). CNEL is the average equivalent A-weighted sound level during a 24-hour day, obtained after addition of 5 decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m. The State Department of Aeronautics and the California Commission on Housing and Community Development have adopted the CNEL. Both the City and County of Riverside use the CNEL descriptor. The Riverside County maximum allowable CNEL value is 65 dBa. A value of 61.3 dBa (L5) has been used by SCE in its CPUC filing. The corresponding CNEL value is 67.7 dBa, which exceeds the County requirement.

A review of other projects filed throughout California with the California Energy Commission has identified that the L50 descriptor is used in Riverside County. For this project, the L50 noise value is 54.7 dBa. The corresponding CNEL value is 61.4 dBa, which is under the 65 dBa requirement.

Comment Set E3, cont.
Southern California Edison Company

REFERENCES:

County of Riverside, Transportation and Land Management Agency
www.tlma.co.riverside.ca.us/generalplan/gp.html

California Energy Commission Siting Case,
City of Riverside Public Utilities,
Riverside Energy Resource Center
Docket Number: 04-SPPE-1
Compliance Proceeding: 04-SPPE-1C

California Energy Commission Siting Case, AES,
Highgrove Power Plant Project
Docket Number: 06-AFC-2
Compliance Proceeding: 04-SPPE-1C

E3-1 cont.

Comment Set E3, cont.
Southern California Edison Company

E3-1 cont.

Results of AC/DCLINE program CORONA (EPRI/HVTRC 7-93) for:

AUDIBLE NOISE

Configuration file name: D:\TLW30\ACDCLINE\DATA\ACCASE1
Date: 6/ 9/2005 Time: 18:37

CASE1 500KV TOWER AUDIBLE NOISE CALCS.

BUNDLE INFORMATION

BNDL #	CIRC #	VOLTAGE (kV)	VOLTAGE ANGLE (DEG)	CURRENT LOAD (A)	CURRENT ANGLE (DEG)	# OF COND	BUNDLE COORDINATES X (feet)	Y (feet)	SAG (feet)	PH
1	1	525.0	0.	1000.	0.	2	32.0	120.0	76.0	A
2	1	525.0	240.	1000.	240.	2	.0	120.0	76.0	B
3	1	525.0	120.	1000.	120.	2	-32.0	120.0	76.0	C

MINIMUM GROUND CLEARANCE = 44.00 feet
POWER SYSTEM FREQUENCY = 60. Hz
SOIL RESISTIVITY = 25. ohm meter

SUBCONDUCTOR INFORMATION - REGULAR BUNDLES

BNDL #	CONDUCTOR NAME	DIAMETER (inch)	SPACING (inch)	DC RESIST (ohm/mile)	AC RESIST (ohm/mile)	AC REACT (ohm/mile)
1	BLUEBIRD	1.760	18.000	.0430	.0480	.3440
2	BLUEBIRD	1.760	18.000	.0430	.0480	.3440
3	BLUEBIRD	1.760	18.000	.0430	.0480	.3440

AUDIBLE NOISE
GENERATED ACOUSTIC POWER
(dB above 1W/m)

BNDL #	Type	Summer Fair	L5 RAIN	L50 RAIN
1	AC	-61.79	-45.06	-52.57
2	AC	-56.13	-41.47	-47.67
3	AC	-61.79	-45.06	-52.57

AUDIBLE NOISE

Microphone is 5.00 feet above ground
Altitude 800.0 feet

<---------- HVTRC CALCULATION METHOD ---------->

Comment Set E3, cont.
Southern California Edison Company

E3-1 cont.

LATERAL DISTANCE (feet)	(meters)	L50 FAIR (dB(A))	L5 RAIN (dB(A))	L50 RAIN (dB(A))	Leq(24) (dB(A))	Ldn (dB(A))
-100.0	-30.48	43.8	59.3	52.6	56.6	64.0
.0	.00	46.6	62.0	55.3	59.2	66.6
100.0	30.48	43.8	59.3	52.6	56.6	64.0

****
* *
* AUDIBLE NOISE *
* (other methods) *
* *
* Altitude 800.0 feet *
* *
****

		<------- BPA METHOD ------->				<- CRIEPI ->		EdF	ENEL	IREQ
LATERAL DISTANCE		FAIR WEATHER	L5 RAIN	L50 RAIN		AVERAGE FAIR	L5 RAIN	L5 RAIN	L5 RAIN	L5 RAIN
(feet)	(meters)	dB(A)	dB(A)	dB(A)	Ldn dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
-100.0	-30.48	27.8	56.3	52.8	.0	.0	.0	55.4	55.2	52.7
.0	.00	30.6	59.1	55.6	.0	.0	.0	57.7	57.6	55.4
100.0	30.48	27.8	56.3	52.8	.0	.0	.0	55.4	55.2	52.7

Audible noise prediction methods do not apply to all line geometries, voltages, or weather conditions. If a prediction method does not apply, the appropriate output data column will be zeros.

Comment Set E3, cont.
Southern California Edison Company

E3-1 cont.

```
*                AUDIBLE NOISE                *
*                                             *
*  Microphone is   5.00 feet above ground     *
*          Altitude     800.0 feet            *
*                                             *
***********************************************

          <========== HVTRC CALCULATION METHOD ==========>

    LATERAL          L50        L5        L50
   DISTANCE         FAIR       RAIN      RAIN      Leq(24)      Ldn
 (feet) (meters)   (dB(A))    (dB(A))   (dB(A))    (dB(A))    (dB(A))
------- --------  --------   --------  --------   ---------  --------
-165.0   -50.29      46.0       61.3      54.7       58.4       65.7
   .0      .00      49.1       64.3      57.7       61.2       68.6
 165.0    50.29      46.0       61.3      54.7       58.4       65.7
```

```
*********************************
*                               *
*        AUDIBLE NOISE          *
*       (other methods)         *
*                               *
*   Altitude     800.0 feet     *
*                               *
*********************************
```

LATERAL DISTANCE (feet)	(meters)	BPA METHOD FAIR WEATHER dB(A)	BPA METHOD L5 RAIN dB(A)	BPA METHOD L50 RAIN dB(A)	BPA METHOD Ldn dB(A)	CRIEPI AVERAGE FAIR dB(A)	CRIEPI L5 RAIN dB(A)	EdF L5 RAIN dB(A)	ENEL L5 RAIN dB(A)	IREQ L5 RAIN dB(A)
-165.0	-50.29	30.0	58.5	55.0	.0	.0	.0	57.5	57.4	54.7
.0	.00	32.9	61.4	57.9	.0	.0	.0	60.1	59.9	57.5
165.0	50.29	30.0	58.5	55.0	.0	.0	.0	57.5	57.4	54.7

Audible noise prediction methods do not apply to all line geometries, voltages, or weather conditions. If a prediction method does not apply, the appropriate output data column will be zeros.

Comment Set E3, cont.
Southern California Edison Company

E3-1 cont.

Results of AC/DCLINE program CORONA (EPRI/HVTRC 7-93) for:
AUDIBLE NOISE

Configuration file name: D:\TLW30\ACDCLINE\DATA\ACCASE2
Date: 6/ 9/2005 Time: 19: 5

CASE2 500KV TWO TOWER AUDIBLE NOISE CALCS.

BUNDLE INFORMATION

BNDL #	CIRC #	VOLTAGE VOLTAGE (kV)	VOLTAGE ANGLE (DEG)	CURRENT LOAD (A)	CURRENT ANGLE (DEG)	# OF COND	BUNDLE COORDINATES X (feet)	Y (feet)	SAG (feet)	PH
1	1	525.0	0.	1000.	0.	2	97.0	120.0	76.0	A
2	1	525.0	240.	1000.	240.	2	65.0	120.0	76.0	B
3	1	525.0	120.	1000.	120.	2	33.0	120.0	76.0	C
4	1	525.0	0.	1000.	0.	2	-33.0	120.0	76.0	A
5	1	525.0	240.	1000.	240.	2	-65.0	120.0	76.0	B
6	1	525.0	120.	1000.	120.	2	-97.0	120.0	76.0	C

MINIMUM GROUND CLEARANCE = 44.00 feet
POWER SYSTEM FREQUENCY = 60. Hz
SOIL RESISTIVITY = 25. ohm meter

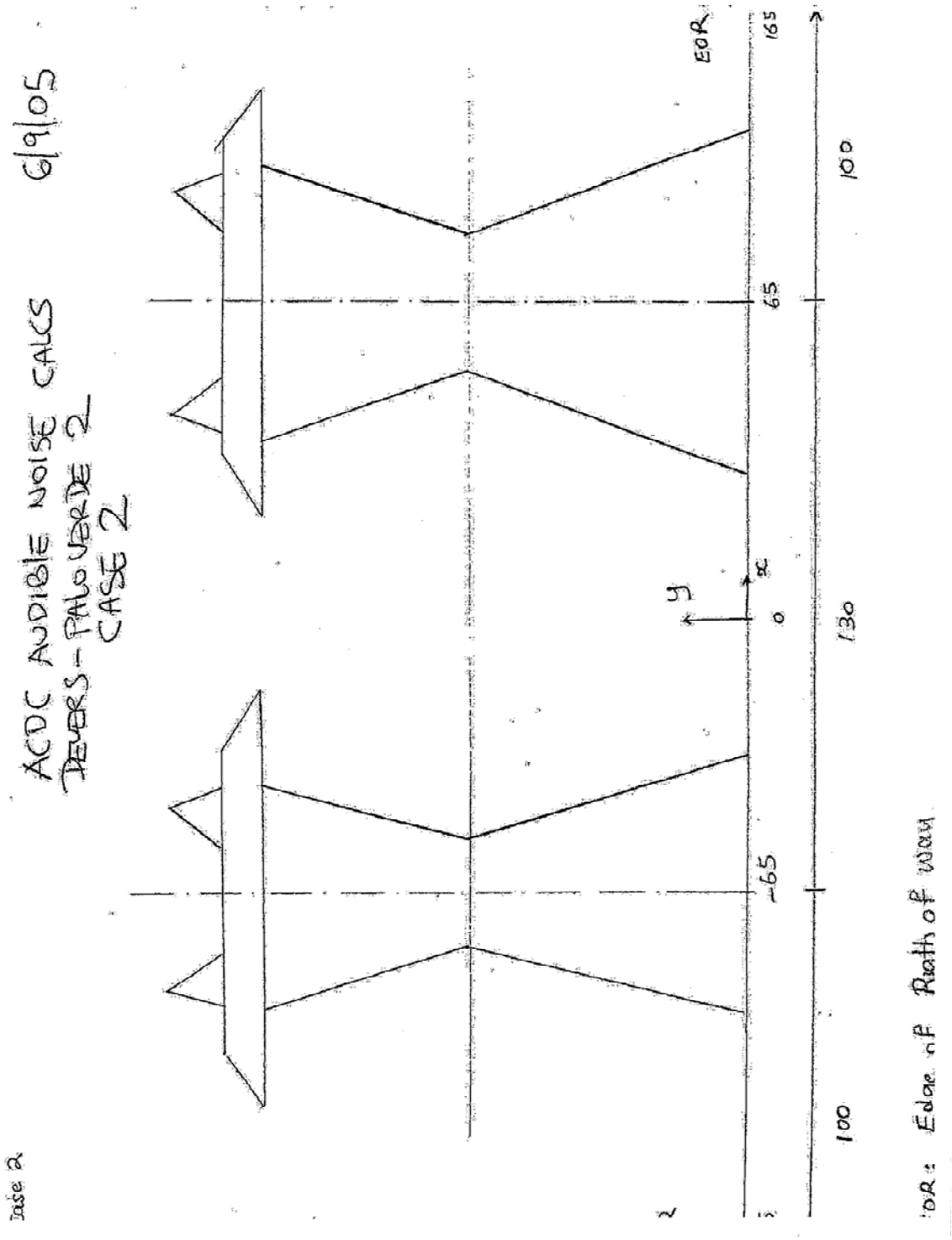
SUBCONDUCTOR INFORMATION - REGULAR BUNDLES

BNDL #	CONDUCTOR NAME	DIAMETER (inch)	SPACING (inch)	DC RESIST (ohm/mile)	AC RESIST (ohm/mile)	AC REACT (ohm/mile)
1	BLUEBIRD	1.760	18.000	.0430	.0480	.3440
2	BLUEBIRD	1.760	18.000	.0430	.0480	.3440
3	BLUEBIRD	1.760	18.000	.0430	.0480	.3440
4	BLUEBIRD	1.760	18.000	.0430	.0480	.3440
5	BLUEBIRD	1.760	18.000	.0430	.0480	.3440
6	BLUEBIRD	1.760	18.000	.0430	.0480	.3440

AUDIBLE NOISE GENERATED ACOUSTIC POWER (dB above 1W/m)

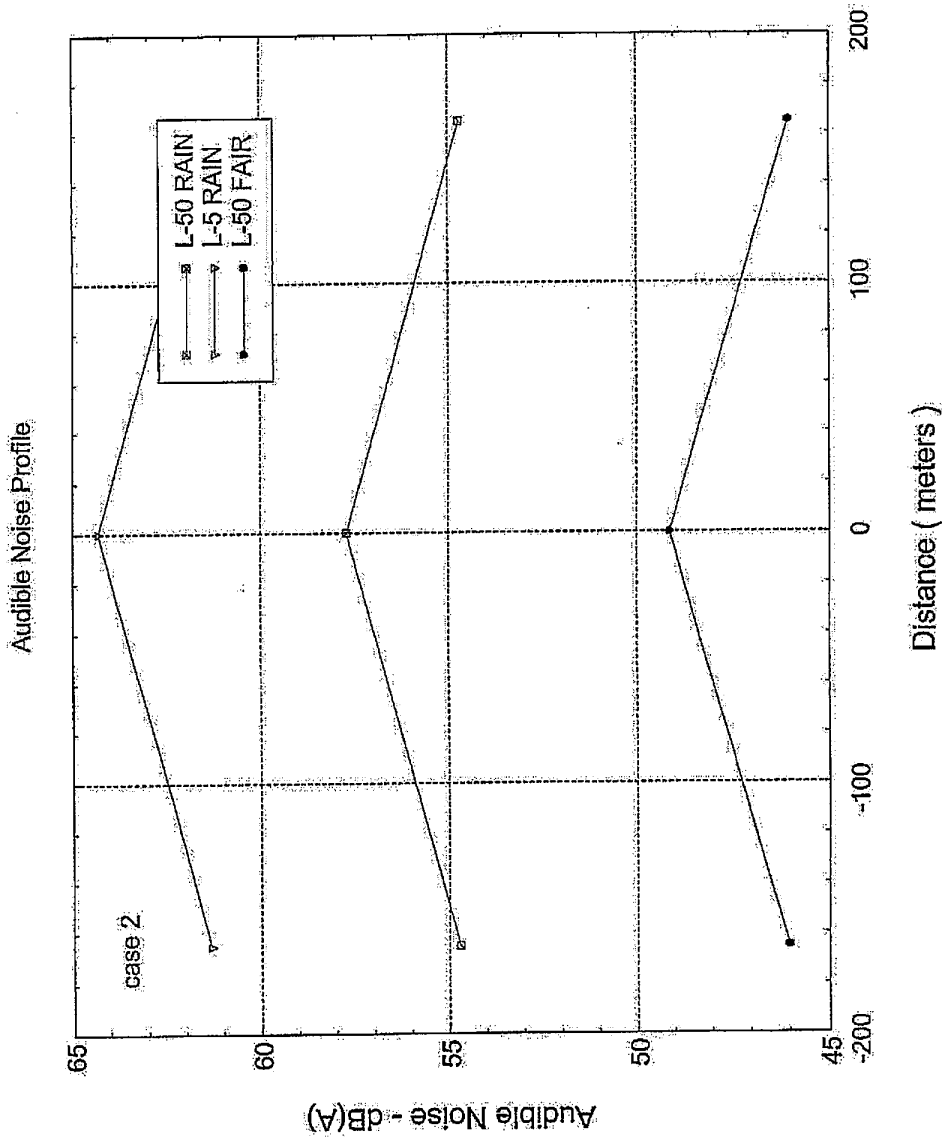
BNDL #	Type	Summer Fair	L5 RAIN	L50 RAIN
1	AC	-62.63	-45.59	-53.29
2	AC	-55.82	-41.27	-47.40
3	AC	-58.77	-43.14	-49.95
4	AC	-58.77	-43.14	-49.95
5	AC	-55.82	-41.27	-47.40
6	AC	-62.63	-45.59	-53.29

Comment Set E3, cont.
Southern California Edison Company



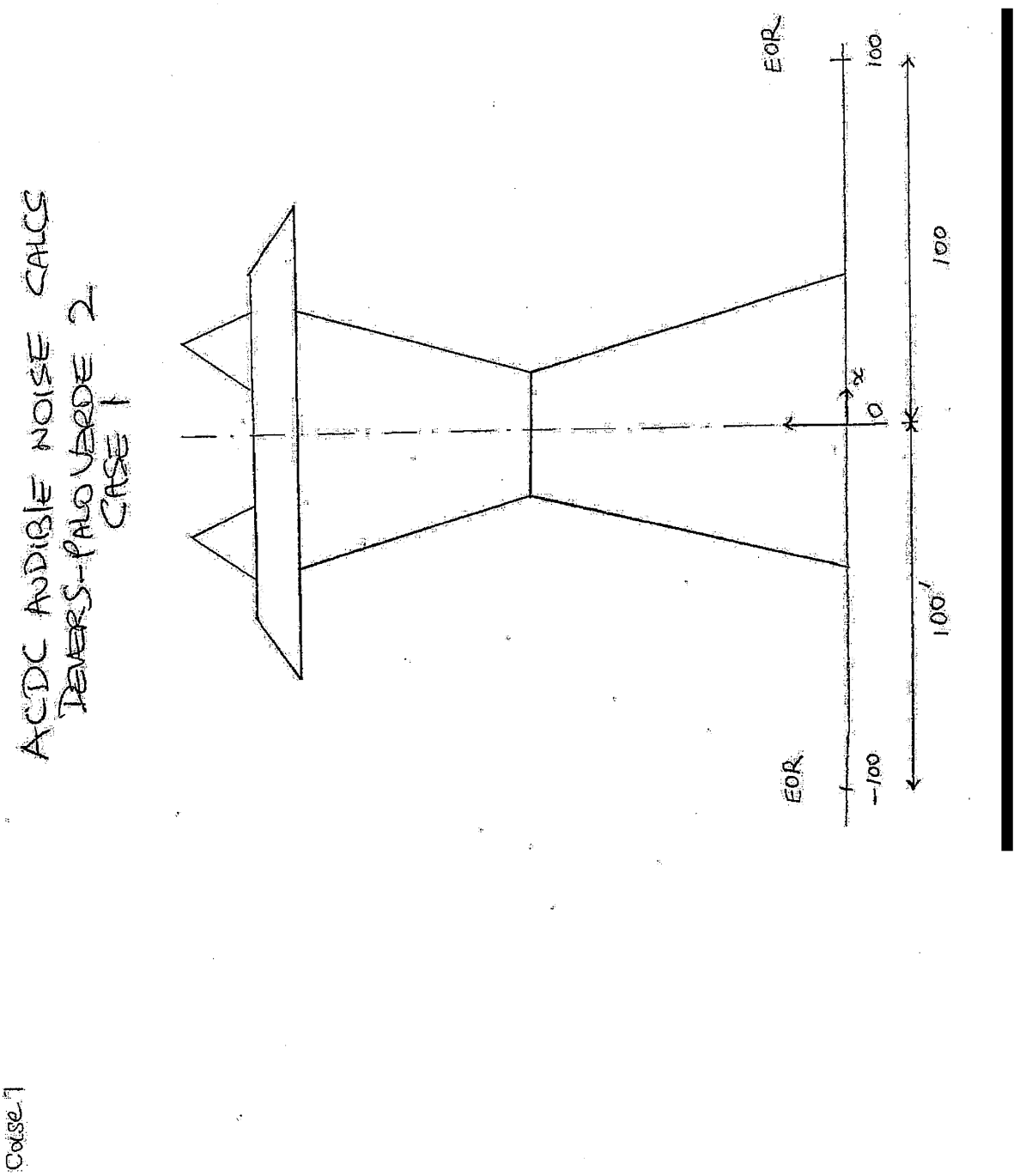
E3-1 cont.

Comment Set E3, cont.
Southern California Edison Company



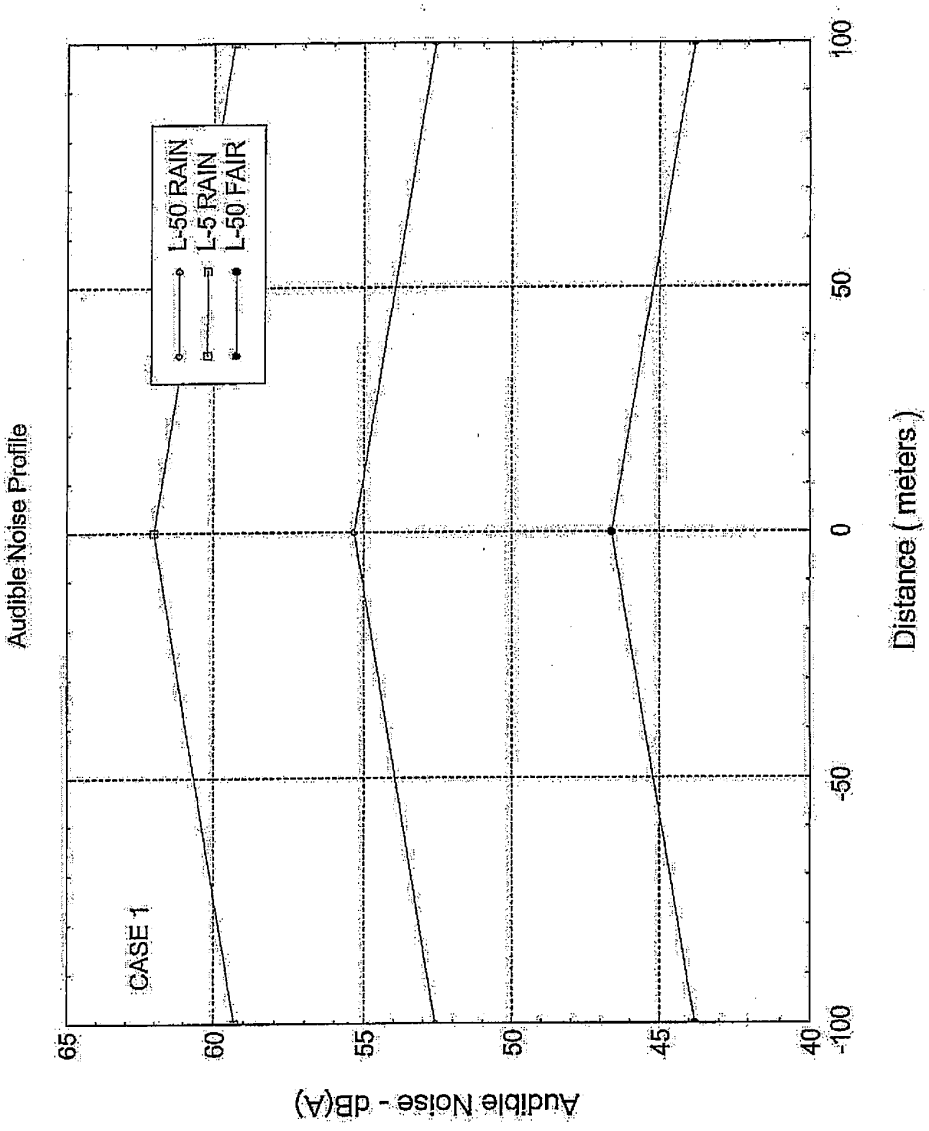
E3-1 cont.

Comment Set E3, cont.
Southern California Edison Company



E3-1 cont.

Comment Set E3, cont.
Southern California Edison Company



E3-1 cont.

Comment Set E3, cont.
Southern California Edison Company

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Comment Set E3, cont.
Southern California Edison Company

A.05-04-015
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Comment Set E3, cont.
Southern California Edison Company

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Comment Set E3, cont.
Southern California Edison Company

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Southern California Edison Company

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Responses to Comment Set E3
Southern California Edison Company

E3-1 The Draft EIR/EIS for DPV2 shows that Riverside County considers noise sources in excess of 65 CNEL to be incompatible with residential uses [Policy N.1.3, DEIR/EIS p. D.8-13]. CNEL is a term defined by the California Governor's Office of Planning and Research and others as an industry-standard metric. Sources of noise that occur both day and night are "penalized" during evening and nighttime hours to account for the nighttime sensitivity of people [DEIR/EIS p. D.8-1].

Information provided by SCE in the August 1, 2006 late-filed exhibit gives more detail on the time-varying nature of corona noise levels after construction of the second 500 kV line. The information in the comment clarifies that 61.3 dBA is the "L5" level, the level that would be exceeded five percent of the time. This is new information because no metric was given earlier, and the 61 dBA value had been assumed to be the Leq in the Draft EIR/EIS. The Draft EIR/EIS incorrectly converted the L5 value to a CNEL metric to determine compliance with the local Riverside County policies. The August 1, 2006 late-filed exhibit includes an attachment (Attachment C, Sargent & Lundy Report on Corona Noise) showing the modeled L5 along with the Leq, the Ldn, and the L50, a level that would be exceeded 50 percent of the time. The comment then incorrectly converts the L50 level to CNEL. The comment asserts that the L50 should be used to determine compliance with the CNEL requirements, but the Ldn should be used here since it is a more-relevant metric being computed on a 24-hour term.

Using the methods of the Electric Power Research Institute-High Voltage Transmission Research Center (EPRI-HVTRC), the Ldn noise levels were calculated in the attachment to the comment. Without the Proposed Project, the EPRI-HVTRC report shows the baseline levels to be 64.0 dBA Ldn. For the Proposed Project, which would cause a corona noise maximum of 61.3 dBA L5, the EPRI-HVTRC report shows 54.7 dBA as the L50 and 65.7 dBA as the Ldn. The EIR/EIS has been revised to show these Ldn levels as project impacts. Because Ldn and CNEL are practically interchangeable terms here, this comment does not change the conclusion of the Draft EIR/EIS (Impact N-2) that levels along either the proposed Devers-Harquahala segment or the Devers-Valley No. 2 Alternative could exceed 65 CNEL. This means that the Class I impact identified in the Draft EIR/EIS remains in the Final EIR/EIS, but the extent of this impact is substantially reduced because it is less dramatically in excess of 65 CNEL. As such, the area of impact is reduced by an order of magnitude from 200 feet of the edge of ROW to occur only at those locations within about 25 feet of the ROW. The backyards and outdoor spaces of adjacent residential properties would experience this impact and few, if any, residential structures (not more than four along Devers-Harquahala and 25 along Devers-Valley No. 2).

The other subjects included in SCE's late-filed exhibit (regarding EMF and cost benefit analysis) are addressed in the CPUC's general proceeding and are not environmental issues.

E3-2 For the Devers-Harquahala transmission line there are four areas where the 500 kV transmission line would be within 50 feet of residences and the EMF Policy of increasing tower and conductor heights would apply (south of Dillon Road, southwest of Desert Moon Drive, southeast of Moonshadow Drive, and south of Blythe- West of SH-78). Although none of these areas were included as Key Viewpoints in the EIR/EIS; Mitigation Measure V-3a

(Reduce visual contrast of towers and conductors), which states that all new structures are to match the heights of the existing DPV1 structures to the extent possible as dictated by variations in terrain, would apply to all towers.

The Administrative Law Judge, however, can impose conditions (e.g., increasing tower and conductor heights) for other reasons, such as EMF, that would override all or parts of mitigation measures, such as Mitigation Measure V-3a. Implementation of the EMF Policy where residences are within 50 feet of the ROW would result in an approximately 20-foot difference in tower height between the proposed and existing structures. The height increase would also cause slightly asynchronous conductor spans in the immediate vicinity of the heightened structure(s). This effect would be less noticeable in areas of variable terrain and more noticeable where the terrain is flat. However, given the relatively small increase in the structure height (13 percent greater than the average 150-foot structure height), minimal variation in the spans, and limited occurrence (four locations) of the taller structures, the resulting incremental visual change would be adverse, but less than significant. Therefore, the 20-foot height increase for four towers would remain a less than significant (Class III) impact for visual resources in the areas where they would be located.

The table below depicts the areas where the Devers-Valley No. 2 Alternative would be within 50 feet of residences and would be affected by the EMF Policy, which could override Mitigation Measure V-40a (Reduce visual contrast of towers and conductors).

Residences Located within 50 ft. of Edge of ROW Devers-Valley Corridor			
DV MP	Location within 50 ft. edge of ROW for New D-V#2	Residences on New Side of Line	Nearest Existing D-V1 Tower #
0.7 to 0.8	Smoketree Rd., west of Diablo Rd.	2	M0-T4
1.1	Smoketree Rd., west of Diablo Rd.	1	M1-T2
12.2	Cabazon- Riza Ave.	1	M12-T2
12.4 to 12.7	Cabazon- Riza Ave. circa Elm Street	7	M12-T3/ M13-T1
18.5	Porter St.	2	M19-T1
22.4	Death Valley Rd.	1	M22-T3
35.1	Juniper Flats- Klein Way	1	M35-T2
39.2 to 39.3	Romoland- Mountain Ave.	2	M39-T3
40.0 to 40.1	Romoland- Mapes Rd. (one structure would actually be w/in the 330-foot ROW)	2	M40-T3
40.2 to 40.3	Romoland- Patelli Way	3	M40-T3
40.5 to 40.7	Romoland- Winner Circle Dr.	2	M41-T1
40.7 to 40.8	Romoland- Watson Rd.	2	M41-T2
	TOTAL	25	

As discussed above for the Proposed Project, a similar increase in structure height at selected locations to mitigate EMF impacts along the Devers-Valley Corridor would also result in increased visual impacts. The greater number of occurrences of increased tower height along the Devers-Valley Corridor would result in a more substantial visual impact for this alternative. However, these locations would experience significant (Class I) visual impacts without the height increases (see discussions of impacts V-40 through V-47 in Section D.3.9.1).

Therefore, implementation of the EMF Policy would not change the Visual Resources impact classifications along the Devers-Valley Alternative nor would it affect Mitigation Measures V-3a and V-40a, both of which include the phrase "to the extent possible." Additionally, tower design and span distances should not be substantially affected by increased tower heights at the selected locations.

E3-3 As discussed in Response E3-2, the Administrative Law Judge can impose conditions (e.g., increasing tower and conductor heights) for non-CEQA/NEPA reasons, such as EMF, that would override the whole or parts of mitigation measures. In addition the 20-foot difference in tower heights, when the towers are already an average of 150 feet tall, would not constitute a significant height difference in the areas proposed for this condition. This is especially true due to the differences in topography at the location where higher towers would be required. In addition, as discussed under Impact B-15 in Section D.2.6.2, avian collisions are more likely to occur near wetlands, valleys that are bisected by power lines, and within narrow passes where power lines run perpendicular to flight paths (e.g., the Colorado River and other waterways and the Harquahala Valley's agricultural lands). The 17 towers that would be affected by the EMF Policy are not located in such areas. Similarly, Mitigation Measure B-15 a provides language that that towers and lines will not be located significantly above the existing transmission lines towers to the maximum extent practicable. This measure does not limit or require that the lines remain consistent with the existing lines in all locations. With the implementation of Mitigation Measure B-15a and the use of visible diversion devices if necessary, impacts in the 17 affected areas would remain potentially significant (Class II), but would still be mitigated to less than significant levels.