STATE OF CALIFORNIA

EDMUND G. BROWN JR., Governor

PUBLIC UTILITIES COMMISSION 505 VAN NESS AVENUE SAN FRANCISCO, CA 94102-3298

October 12, 2012

Michael Palusso Manager, T&S ISO/FERC Compliance RPPM/TDBU Southern California Edison 3 Innovation Way, PIV 3, 3<sup>rd</sup> Floor Pomona, California 91768

SUBJECT: Audit of Southern California Edison's Electric Transmission Maintenance

Dear Mr. Palusso:

On behalf of the Electric Safety and Reliability Branch of the California Public Utilities Commission, Ben Brinkman of my staff conducted an audit of Southern California Edison's (SCE's) Orange, Metro East, Metro West and North Coast transmission grids from July 30, 2012 to August 7, 2012. The audit included a review of SCE's records and field inspections of SCE's facilities.

During the audit, my staff identified violations of one or more General Orders. A copy of the audit summary itemizing the violations is enclosed. Please advise me no later than November 16, 2012 by electronic or hard copy, of all corrective measures taken by SCE to remedy and prevent such violations.

If you have any questions, you can contact Ben Brinkman at (213) 576-7063 or benjamin.brinkman@cpuc.ca.gov.

Sincerely,

Raffy Stepanian, P.E. Program Manager Electric Safety and Reliability Branch Consumer Protection and Safety Division

Enclosure: Audit Summary

CC: Raymond Fugere, Program and Project Supervisor, CPUC



TA2012-002

## **Audit Summary**

Company: SCE Orange, Metro East, Metro West, Orange County, and North Coast Transmission Grids Electric Transmission Infrastructure Provider Date: July 30 to August 7, 2012

## **Violations**

## GO 165, Section IV, Transmission Facilities, states:

Each utility shall prepare and follow procedures for conducting inspections and maintenance activities for transmission lines.

SCE's procedures, "Transmission Department Inspection and Maintenance Practices", section 5.1.4 "Priority Rating" states, in part, that Priority 2 maintenance discrepancies should be remedied "*within one* (1) up to three (3) years."

Section 2.0, Purpose, states, in part,

Deviations to maintenance intervals of up to twenty-five (25) percent are expected and are not considered as a change to these Practices. Prior to going beyond the established maintenance intervals, impending deviations shall be evaluated with due consideration to Good Utility Practices.

Therefore, according to the above SCE Practices, Priority 2 repairs should be completed or re-evaluated within 3 years (36 months). With an allowed 25 percent deviation, repairs should be completed or re-evaluated within 45 months.

SCE found damage on the Barre-Lewis Circuit, Tower M2T3 on June 9, 2008, and generated notification 40000423. SCE classified this damage as Priority 2. Per SCE practices, the work should have been completed or re-evaluated by June 9, 2011, or by March 9, 2012 after including the allowable 25 percent deviation. SCE failed to complete the work or re-evaluate the due date for the repair until July 12, 2012.

SCE found damage on the Goodrich-Laguna Bell Circuit, Tower M32T3 on February 27, 2008, and generated notification 401468246. SCE classified this damage as Priority 2. Per SCE practices, the work should have been completed or re-evaluated by February 27, 2011, or by November 27, 2011 after including the allowable 25 percent deviation. SCE failed to complete the work or re-evaluate the due date for the repair until March 6, 2012.

1.	Structure ID / Location:	Mesa-Anita-Eaton Circuit, Pole #E4531887E
	Previous SCE Visit Details:	October 15, 2011
	Date of CPUC Inspection:	August 6, 2012
	<b>Explanation of Viola</b>	tion(s):
	Electrical sup construction j which they ar	sign, Construction and Maintenance, states in part: oply and communication systems shall be of suitable design and for their intended use, regard being given to the conditions under re to be supported, and shall be maintained in a condition which will rnishing of safe, proper and adequate service.
	The pole contains two bent pole steps. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.	

2.	Structure ID / Location:	La Fresa-Redondo Circuits No. 1 and No. 2, Tower M3T9
	Previous SCE Visit Details:	November 16, 2011
	Date of CPUC Inspection:	August 1, 2012
	Explanation of Viola	tion(s):
	Broken Steel on Tow	er
	GO 95, Rule 31.1, De	sign, Construction and Maintenance, states in part:
	Electrical supply and communication systems shall be of suitable design and construction for their intended use, regard being given to the conditions under which they are to be supported, and shall be maintained in a condition which will enable the furnishing of safe, proper and adequate service.	
	The tower contains a broken steel cross member. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.	

3.	Structure ID / Location:	Barre-Lewis Transmission Circuit, Tower M1T6
	Previous SCE Visit Details:	March 27, 2012
	Date of CPUC Inspection:	August 2, 2012
	<b>Explanation of Viola</b>	tion(s):
	Bent Steel on Tower	
	GO 95, Rule 31.1, De	sign, Construction and Maintenance, states in part:
	Electrical supply and communication systems shall be of suitable design and construction for their intended use, regard being given to the conditions under which they are to be supported, and shall be maintained in a condition which will enable the furnishing of safe, proper and adequate service.	
	The tower contains bent steel cross members. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.	

4.	Structure ID / Location:	Barre-Lewis Transmission Circuit, Tower M1T8
	Previous SCE Visit Details:	March 27, 2012
	Date of CPUC Inspection:	August 2, 2012
	Explanation of Viola	tion(s):
	<b>Bent Steel on Tower</b>	
	GO 95, Rule 31.1, Design, Construction and Maintenance, states in part:	
	Electrical supply and communication systems shall be of suitable design and construction for their intended use, regard being given to the conditions under which they are to be supported, and shall be maintained in a condition which will enable the furnishing of safe, proper and adequate service.	
	The tower contains bent steel cross members. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.	

5.	Structure ID / Location:	Barre-Lewis Transmission Circuit, Towers M2T7
	Previous SCE Visit Details:	March 27, 2012
	Date of CPUC Inspection:	August 2, 2012
	Explanation of Viola	tion(s):
	<b>Bent Steel on Tower</b>	
	GO 95, Rule 31.1, Design, Construction and Maintenance, states in part:	
	Electrical supply and communication systems shall be of suitable design and construction for their intended use, regard being given to the conditions under which they are to be supported, and shall be maintained in a condition which will enable the furnishing of safe, proper and adequate service.	
	The tower contains bent steel cross members. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.	

6.	Structure ID / Location:	Saugus-Newhall #1 and #2 Circuit, Tower M0T2
	Previous SCE Visit Details:	June 21, 2011
	Date of CPUC Inspection:	July 30, 2012
	<b>Explanation of Viola</b>	tion(s):
	<b>Improper Tower Ma</b>	rking
	GO 95, Rule 61.6, Marking, states in part,	
	climbing sam dangers of fai	all be equipped with signs designed to warn the public of the danger of e. Additionally, such signs shall include a graphic depiction of the lling or electrocution associated with climbing the towers. Such signs ed and arranged so that they may be read from the four corners of the
	The warning sign on the electrocution	he tower does not include a graphic depiction of the dangers of falling and

7.	Structure ID / Location:	La Fresa-Redondo Circuits No. 1 and No. 2, Tower M3T9
	Previous SCE Visit Details:	November 16, 2011
	Date of CPUC Inspection:	August 1, 2012
	Explanation of Viol	ation(s):
	Electrical su construction which they c	wer esign, Construction and Maintenance, states in part: upply and communication systems shall be of suitable design and a for their intended use, regard being given to the conditions under ure to be supported, and shall be maintained in a condition which will urnishing of safe, proper and adequate service.
	The tower contains a broken steel cross member. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.	

8.	Structure ID / Location:	La Fresa-Redondo-Rolling Hills-Topaz Circuit, Poles #N680125E
	Previous SCE Visit Details:	March 3, 2012
	Date of CPUC Inspection:	August 1, 2012
	Explanation of Viol	ation(s):
	Missing High Voltage Signs GO 95, Rule 51.6A, High Voltage Marking, states in part:	
	Poles which support line conductors of more than 750 volts shall be marked with high voltage signs.	
	The pole is missing the high voltage sign. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.	

9.	Structure ID / Location:	La Fresa-Redondo-Rolling Hills-Topaz Circuit, Poles # S680126E
	Previous SCE Visit Details:	March 3, 2012
	Date of CPUC Inspection:	August 1, 2012
	Explanation of Violation(s):	
	Missing High Voltage Signs GO 95, Rule 51.6A, High Voltage Marking, states in part:	
	Poles which support line conductors of more than 750 volts shall be marked with high voltage signs.	
	The pole is missing the high voltage sign. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.	

10.	Structure ID / Location:	La Fresa-Redondo-Rolling Hills-Topaz Circuit, Poles # N680121E
	Previous SCE Visit Details:	March 3, 2012
	Date of CPUC Inspection:	August 1, 2012
	Explanation of Violation(s):	
	Missing High Voltage Signs	
	GO 95, Rule 51.6A, High Voltage Marking, states in part:	
	Poles which support line conductors of more than 750 volts shall be marked with high voltage signs.	
	The poles is missing the high voltage sign. As of the time of the audit, SCE had not noted the	
	discrepancy in its inspection or maintenance records.	

11.	Structure ID / Location:	La Fresa-Redondo-Rolling Hills-Topaz Circuit, Poles # S680122E
	Previous SCE Visit Details:	March 3, 2012
	Date of CPUC Inspection:	August 1, 2012
	Explanation of Violation(s):	
	Missing High Volta	
	GO 95, Rule 51.6A, High Voltage Marking, states in part:	
	Poles which support line conductors of more than 750 volts shall be marked with high voltage signs.	
	The pole is missing the high voltage sign. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records	

12.	Structure ID / Location:	Mesa-Anita-Eaton and Anita-Amador Circuits, Pole #1736757E
	Previous SCE Visit Details:	October 15, 2011
	Date of CPUC Inspection:	August 6, 2012
	Explanation of Viol	ation(s):
	Missing Visibility St	trips
	GO 95, Rule 31.1, D	esign, Construction and Maintenance, states in part:
	Electrical supply and communication systems shall be of suitable design and construction for their intended use, regard being given to the conditions under which they are to be supported, and shall be maintained in a condition which will enable the furnishing of safe, proper and adequate service.	
	The pole is missing visibility strips. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.	

13.	Structure ID / Location:	Mesa-Anita-Eaton and Anita-Amador Circuits, Pole #1736762E
	Previous SCE Visit Details:	October 15, 2011
	Date of CPUC Inspection:	August 6, 2012
	Explanation of Viol	ation(s):
	Missing Visibility Strips	
	GO 95, Rule 31.1, Design, Construction and Maintenance, states in part:	
	Electrical supply and communication systems shall be of suitable design and construction for their intended use, regard being given to the conditions under which they are to be supported, and shall be maintained in a condition which will enable the furnishing of safe, proper and adequate service.	
	The pole is missing visibility strips. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.	

14.	Structure ID / Location:	Mesa-Anita-Eaton and Anita-Amador Circuits, Pole #1736764E	
	Previous SCE Visit Details:	October 15, 2011	
	Date of CPUC Inspection:	August 6, 2012	
	Explanation of Violation(s):		
	Missing Visibility Strips		
	GO 95, Rule 31.1, Design, Construction and Maintenance, states in part:		
	Electrical supply and communication systems shall be of suitable design and construction for their intended use, regard being given to the conditions under which they are to be supported, and shall be maintained in a condition which will enable the furnishing of safe, proper and adequate service.		
	The pole is missing visibility strips. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.		

15.	Structure ID / Location:	Mesa-Anita-Eaton and Anita-Amador Circuits, Pole #1736771E
	Previous SCE Visit Details:	October 15, 2011
	Date of CPUC Inspection:	August 6, 2012
	Explanation of Viol	ation(s):
Missing Visibility Strips		trips
	GO 95, Rule 31.1, Design, Construction and Maintenance, states in part:	
	Electrical supply and communication systems shall be of suitable design and construction for their intended use, regard being given to the conditions under which they are to be supported, and shall be maintained in a condition which will enable the furnishing of safe, proper and adequate service.	
	The pole is missing visibility strips. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.	

16.	Structure ID / Location:	Mesa-Anita-Eaton and Anita-Amador Circuits, Pole #2101970E	
	Previous SCE Visit Details:	October 15, 2011	
	Date of CPUC Inspection:	August 6, 2012	
	Explanation of Violation(s):		
	Missing Visibility Strips		
	GO 95, Rule 31.1, Design, Construction and Maintenance, states in part:		
	Electrical supply and communication systems shall be of suitable design and construction for their intended use, regard being given to the conditions under which they are to be supported, and shall be maintained in a condition which will enable the furnishing of safe, proper and adequate service.		
	The pole is missing visibility strips. As of the time of the audit, SCE had not noted the discrepancy.		

17.	Structure ID / Location:	Mesa-Anita-Eaton and Anita-Amador Circuits, Pole #2101960E	
	Previous SCE Visit Details:	October 15, 2011	
	Date of CPUC Inspection:	August 6, 2012	
	Explanation of Violation(s):		
	Missing Visibility Strips		
	GO 95, Rule 31.1, Design, Construction and Maintenance, states in part:		
	Electrical supply and communication systems shall be of suitable design and construction for their intended use, regard being given to the conditions under which they are to be supported, and shall be maintained in a condition which will enable the furnishing of safe, proper and adequate service.		
	The pole is missing visibility strips. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.		

18.	Structure ID / Location:	Mesa-Rio Hondo Circuit, Tower M62T6A
	Previous SCE Visit Details:	March 15, 2012
	Date of CPUC Inspection:	August 7, 2012
	Explanation of Viol	ation(s):
	Improper Tower M	arking
	<ul> <li>GO 95, Rule 61.6, Marking, states in part,</li> <li><i>"All towers shall be equipped with signs designed to warn the public of the danger of climbing same. Additionally, such signs shall include a graphic depiction of the dangers of falling or electrocution associated with climbing the towers. Such signs shall be placed and arranged so that they may be read from the four corners of the tower."</i></li> <li>The warning sign on the tower does not include a graphic depiction of the dangers of falling and electrocution.</li> </ul>	

19.	Structure ID / Location:	Mesa-Rio Hondo Circuit, Tower M61T3	
	Previous SCE Visit Details:	March 15, 2012	
	Date of CPUC Inspection:	August 7, 2012	
	Explanation of Viol	ation(s):	
	Improper Tower M	arking	
	GO 95, Rule 61.6, Marking, states in part,		
	"All towers shall be equipped with signs designed to warn the public of the danger of climbing same. Additionally, such signs shall include a graphic depiction of the dangers of falling or electrocution associated with climbing the towers. Such signs shall be placed and arranged so that they may be read from the four corners of the tower."		
	The warning sign on the tower is covered with graffiti. As of the time of the audit, SCE had not noted the discrepancy in its inspection or maintenance records.		

20.	Structure ID /	Mesa-Rio Hondo Circuit, Right of Way from Tower M59T2 to Tower
	Location:	M65T1
	Previous SCE Visit Details:	March 15, 2012
	Date of CPUC Inspection:	August 7, 2012
	Explanation of Viol	ation(s):
	Improper Guarding	g and Marking of Towers
	GO 95, Rule 61.6-A,	states, in part,
	When a fence or wall is used as a barrier around a tower (Rule 61.6-B), it shall be equipped with signs designed to warn the public of the danger of unauthorized entry Warning signs shall be installed at every gate and at intervals of not more than 100 along each fence or wall that is used as a barrier. When warning signs are installed barrier fencing or walls, no signs are required to be installed on the tower or structu	
	GO 95, Rule 61.6-B,	Guarding, states,
	<ul> <li>Where a tower of a design which can be easily climbed supports supply conductors and is located in urban districts, or in rural areas adjacent to schools, dwellings, permanent or seasonal camps, or in orchards, or near roads or trails which are frequently traveled, a suitable barrier shall be installed on or around such towers, or other provisions shall be made to prevent easy climbing.</li> <li>When a fence or wall is used as a suitable barrier around a tower the construction shall be designed, installed and maintained in such manner as to reasonably deny access over, under or through the fencing or wall to all but authorized persons.</li> </ul>	
	known as ch material, ex from ground inches of ba (2) Walls or equivalent b a minimum seven feet w	shall be of a fabric, such as galvanized steel, woven mesh or links (commonly nain-link or cyclone fencing) or other suitable metallic or nonmetallic tending from ground level to a minimum height of eight feet, or extending d level to a minimum height of seven feet with an extension of not less than 12 whee wire (three or more strands), razor wire or similar deterrent. to other types of construction shall be of a material which will present an parrier to climbing or other unauthorized entry, extending from ground level to height of eight feet, or extending from ground level to a minimum height of with an extension of not less than 12 inches of barbed wire (three or more zor wire or similar deterrent.
	Gates shall specified in	be of a design and maintained in a manner compatible with the barriers this rule.
		radial distance of six feet shall be maintained between any portion of the ll and the tower.

The provisions of this rule shall not apply to towers or structures within fenced substation yards.

When a utility's designated personnel become aware of and verify that an unauthorized person has climbed a tower, that tower shall then be guarded as provided in rule 61.6B.

GO 95, Rule 61.1-D, "Urban Districts" states:

Areas with a population of more than 1,000 persons per square mile as determined by the United States Bureau of the census.

The Mesa-Rio Hondo Circuit, Towers M59T2 to M65T1 (inclusive) violate GO 95, Rule 61.6-B The towers lack individual barriers or other guarding compliant with the rule, and although primarily enclosed in protected ROWs, these ROWs lack compliant fencing or other barriers. The ROW fencing fails to meet the construction requirements of Rule 61.6-B. In many cases the fences measure less than the height required under Rule 61.6-B, or are constructed of non-compliant material. In other areas damage to the barriers renders them inadequate to block unauthorized entry.

Graffiti is visible approximately 15 feet above ground level on the Mesa-Rio Hondo Circuit, Tower M61T3, indicating this tower has likely been climbed in the past. Although SCE marked the towers individually with hazard warning signs, the existing ROW fencing, and most access gates, lack compliant warning signs every 100 feet, as required by GO95, Rule 61.6-A. The ROWs pass through urban districts, as defined by GO 95, Rule 61.1-D.

21.	Structure ID / Location:	Goodrich-Laguna Bell Circuit, Tower M27T2
	Previous SCE Visit Details:	February 23, 2012
	Date of CPUC Inspection:	July 31, 2012
	Explanation of Viol	ation(s):
	Improper Guarding	<u>s of Towers</u>
	GO 95, Rule 61.6B, Guarding, states,	
	Where a tower of a design which can be easily climbed supports supply conductors and is located in urban districts, or in rural areas adjacent to schools, dwellings, permanent or seasonal camps, or in orchards, or near roads or trails which are frequently traveled, a suitable barrier shall be installed on or around such towers, or other provisions shall be made to prevent easy climbing.	
	GO 95, Rule 61.1-D, "Urban Districts" states:	
	Areas with a population of more than 1,000 persons per square mile as determined by the United States Bureau of the census.	
	The Goodrich-Laguna Bell circuit, Towers M27T2 lacks guarding compliant with GO 95 Rule 61.6-B.	

22.	Structure ID / Location:	Goodrich-Laguna Bell Circuit, Tower M27T3
	Previous SCE Visit Details:	February 23, 2012
	Date of CPUC Inspection:	July 31, 2012
	Explanation of Viol	ation(s):
	Improper Guarding	<u>s of Towers</u>
	GO 95, Rule 61.6B, Guarding, states, Where a tower of a design which can be easily climbed supports supply conductors and is located in urban districts, or in rural areas adjacent to schools, dwellings, permanent or seasonal camps, or in orchards, or near roads or trails which are	
	frequently traveled, a suitable barrier shall be installed on or around such towers, or other provisions shall be made to prevent easy climbing.	
	GO 95, Rule 61.1-D, "Urban Districts" states:	
	Areas with a population of more than 1,000 persons per square mile as determined by the United States Bureau of the census.	
	The Goodrich-Laguna Bell circuit, Towers M27T3 lacks guarding compliant with GO 95 Rule 61.6-B.	