Response to Question No. SCE-1:

SCE encloses a copy of the preliminary Facilities Study for the interconnection of the Lake Elsinore Advanced Pumped Storage Project that was provided to Nevada Hydro Company on December 1, 2006. SCE requests that the Commission maintain the confidentiality of the Study and submits it under the provisions of P. U. Code Section 583 and General Order 66c. The Facilities Study is preliminary because although SCE has received comments from Nevada Hydro Company, comments have not been received from the CAISO and a Facilities Study review meeting has not been held.
Question No. SCE-2:

In its study of the "Sun Path Project" dated July 28, 2006, CAISO found that in order to increase the South of SONGS path rating, SCE’s Barre-Ellis 230 kV line would need to be upgraded for the loss of SCE’s Del Amo-Ellis 230 kV line. According to that report, this line is a limiting factor for the South of SONGS path. Parties in the CPUC proceeding for SDG&E’s Sunrise Powerlink project believe that increasing the South of SONGS import limit to the SDG&E territory may be one partial alternative to Sunrise Powerlink. According to the CPUC proceeding for the SONGS Steam Generator Replacement Project, upgrading Barre-Ellis would apparently require increasing the weight bearing capability of the tower system with "interset-towers" (Ex. SCE-5, Witness: P. Arons, A.04-02-026, pp. 15 and 25, February 2004). Parties have also identified looping SCE’s existing 220 kV system into Talega as a possible way to increase the South of SONGS import limit to SDG&E.

1.) Please describe the physical changes to the SCE transmission system that would need to occur in order to upgrade the Barre-Ellis 230 kV line for the loss of the Del Amo-Ellis 230 kV line. This description should include the following information:
   a. Text describing the route of the line, tower design, substation changes, and construction timetable.
   b. Information on any additional towers, current and ultimate corridor design, and construction activities.
   c. Maps and GIS files for the transmission line route, including data on right-of-way width, tower locations, substations, etc.

2.) Please describe how the capacity of the Barre-Ellis 230 kV line could be increased above its 1195 MVA normal rating (described in the CAISO Sun Path Project study) by using high-temperature low-sag or composite material conductors.

3.) Please describe the physical changes to the transmission system that would need to occur in order to loop the Viejo-SONGS 220 kV line into the Talega Substation to create a Viejo-Talega line and a Talega-SONGS line. This description should include the following information:
   a. Text describing the location of the line, tower changes, substation changes, and construction timetable.
b. Information on any additional towers, current and ultimate corridor design, and construction activities.

c. Maps and GIS files for the transmission line route, including data on right-of-way width, tower locations, substations, etc.

Response to Question No. 2:

1a.) The Barre – Ellis 230 kV transmission line has a total length of 13 miles, all of which lie within the County of Orange. The line has a general direction of north to south. The line currently uses a variety of towers to support the existing parallel 1033 ACSR conductor. To upgrade the line, SCE would utilize parallel 1590 ACSR conductor as it is the next higher rated conductor type SCE uses. Substation changes and construction timetables have not been developed, since SCE has no current plans to upgrade the Barre-Ellis 230 kV transmission line. Therefore, no engineering analysis has been performed, from which substation changes and construction timetables would be identified and prepared.

1b.) To upgrade this line using the parallel 1590 ACSR conductor, interset towers would be required. However, there is no information available on the number of additional towers required, the current and ultimate corridor design and the construction activities for this upgrade, since SCE has no current plans to upgrade the line and as described in the response to question 1a, engineering analysis has not been performed.

1c.) A map of the line corridor is included showing existing streets and highways. The right of way width for the line corridor is ranges between 120’ - 150’ throughout the corridor.

2.) SCE would like to address a discrepancy in the question. The existing Barre-Ellis 230 kV transmission line has a normal rating of 988 MVA. The question refers to this line having a 1195 MVA rating.

The high-temperature low-sag or composite conductors referred to in the question usually increase the normal rating of the line in question by approximately 15%. To evaluate the use of newer conductor technology, an extensive engineering study would be required for the line in question, due to the different structures used throughout the line.
These studies usually involve vendor participation due to the customized nature of each line. Therefore, the normal, N-1 and N-2 ratings for nonstandard conductor types are not set quantities. The ratings are determined from the transmission line's sag-tension requirements and conductor types are proposed by the vendor.

SCE does not utilize these technologies on our lines for multiple reasons. With the use of ACSS conductor, there are less desired attributes such as higher cost and increased electrical losses. The increased losses through the line occur because it operates at a higher temperature. With composite technologies the conductor lacks durability, is not very flexible and has very limited applications.

3a.) The existing SONGS – Viejo 230 kV transmission line has a total length of 22 miles, which lie within the County of Orange and the County of San Diego. The line has a general direction of north to south. The line currently uses a variety of towers to support the existing bundled 1590 ACSR conductor. Substation changes and construction timetables have not been developed since SCE has no plans currently to loop the SONGS - Viejo 230 kV transmission line into SDG&E’s Talega Substation. Therefore, no engineering analysis has been performed from which substation changes and construction timetables are identified and prepared.

3b.) To modify this line as described in the question, more towers would be required to loop-in the SONGS – Viejo 230 kV line into SDG&E’s Talega Substation. However, SCE has not engineered this alternative; therefore no specific information is available on the number of additional towers, current and ultimate corridor design and construction activities.

3c.) A map of the line corridor is included showing existing streets and highways. The right of way width for the line corridor is 200’ throughout the corridor.