

2.1 PURPOSE OF THE PROPOSED PROJECT

The proposed Antelope Transmission Project consists of three Segments. Segment 1 is addressed in a separate CPCN application and PEA filed with the CPUC on December 9, 2004. Segment 2 consists of the construction of 21.0 miles of 500 kV T/L facilities and 0.5 mile of 220 kV T/L facilities, between the existing SCE Antelope and Vincent substations. To minimize the number of transmission line crossovers, the new T/L route between the Antelope and Vincent substations would utilize a portion of the existing Midway-Vincent No. 3 500 kV line described as follows.

A proposed new segment of 500 kV T/L would be constructed from the Antelope Substation to its intersection at milepost (MP) 14.8 with the existing Midway-Vincent No. 3 500 kV T/L (refer to Figure 3-2 in Section 3.0). The portion of the Midway Vincent No. 3 line between MP 14.8 and the Vincent Substation would be cut into the proposed new segment of 500 kV T/L from Antelope to form the Antelope-Vincent 500 kV T/L. The Antelope-Vincent 500 kV T/L would be cutover to a new 0.5 mile 220 kV T/L at the Vincent Substation and would be routed to the 220 kV rack positions at the Vincent Substation. The Antelope-Vincent 500 kV T/L would be energized initially at 220 kV. From MP 14.8, a new segment of 500 kV T/L would be constructed to the east of the existing Midway-Vincent No. 3 500 kV T/L to replace the appropriated portion of the Midway-Vincent No. 3 T/L, reinstating its route to the Vincent Substation. At the Vincent Substation, the new Midway-Vincent No. 3 500 kV T/L would be cutover to restore its connection to the 500 kV rack positions.

Segment 3 consists of 25.6 miles of new 500 kV T/L, initially energized at 220 kV, from Antelope to a proposed substation near Cal Cement (Substation One). Segment 3 continues with 9.6 miles of new 220 kV T/L from Substation One to a proposed substation near Monolith (Substation Two). Segment 3 also includes construction of proposed Substation One, a 500/220/66 kV substation and proposed Substation Two, a 220/66 kV substation.

Segment 2 and Segment 3 of the project are part of SCE's Method of Service (MOS) to interconnect and integrate several potential independent energy producers' alternative energy projects to SCE's electrical system. The two segments would interconnect and integrate additional generation from several potential generators north of the Antelope Substation. Interconnection agreements for the potential generation have not been entered into as of September 2005. In addition, Segment 2 has the potential added benefit of improving overall system reliability by increasing capacity between SCE's Antelope and Vincent substations. Continued significant load growth in the Antelope Valley may require additional transmission capacity between Vincent and the Antelope substations within the 10-year planning horizon. Segment 2 may fulfill this potential need for additional transmission capacity.

SCE's obligation to interconnect and integrate new generation resources arises under Sections 210 and 212 of the Federal Power Act (16 U.S.C. §824 (i) and (k)) and Sections 3.2 and 5.7 of the California Independent System Operator's (CAISO) Tariff. Although certain Segment 2 and Segment 3 facilities would be operated initially at 220 kV, it is anticipated that the CAISO would approve interconnection using 500 kV design and construction standards to help accommodate up to 4,400 megawatts (MW) of potential new wind generation north of Antelope.

The purpose for making an application for these two segments at this time is premised upon Ordering Paragraph No. 8 of Decision 04-06-010 which required SCE to "file an application seeking a certificate authorizing construction of the first phase of Tehachapi transmission upgrades consistent with its 2002 conceptual study and the study group's recommendation within six months of the effective date of this order...". That order was premised on Finding of Fact No. 18 which found that the "magnitude and concentration" of renewable resources identified in the California Energy Commission's (CEC) Renewable Resources Report justified a "first phase of Tehachapi transmission upgrades" to facilitate achievement of goals required by Public Utilities Code Section 399.14. In addition, in Docket I. 00-11-001, an Assigned Commissioner Ruling required SCE to file two separate applications (one CPCN application for Segment 1 and one CPCN application for Segments 2 and 3). *See Assigned Commissioner Ruling Regarding Tehachapi CPCN Filing Requirement* (October 21, 2004).

2.2 NEED FOR THE PROPOSED PROJECT

Based on SCE's obligation to comply with Ordering Paragraph No. 8 of Decision 04-06-010, SCE has determined that construction of certain facilities consisting of new T/Ls, new substations, and expansion of existing facilities is required.

Power flow studies were performed with and without proposed Segment 2 and Segment 3, assuming Segment 1 was in operation. All existing, under construction, and previously committed generation resources are shown in Table 2-1. Load schedules are shown in Table 2-2. The studies determined that additional wind generation would result in thermal overload of the existing Antelope-Mesa 220 kV T/L. Loading on this line was found to be 330 MW without Segment 2 and Segment 3 and without additional new Tehachapi wind generation. After inclusion of the proposed CAISO Queue Project 2 (300 MW) located northwest of Antelope, loading on this line was found to increase to 370 MW. This loading exceeds the allowable line conductor thermal limits established by the Institute of Electrical and Electronics Engineers (IEEE) Line Conductor Rating Standards.

The addition of proposed Segment 2 (between Antelope and Vincent) consisting of new 500 kV and 220 kV T/L facilities, some operated initially at 220 kV, and new 220 kV line positions at the Antelope and Vincent substations, would prevent overloading of the

TABLE 2-1
BIG CREEK CORRIDOR
LOCAL AREA GENERATION ASSUMPTIONS

Generation Unit	Type	Size (MW)
Big Creek	Hydro	1000
Pastoria Energy Facility	Market (Under Construction)	750
Sagebrush Partnership	Existing QF	320
66-kV Antelope-Bailey Wind	Existing QF	310
Omar	Existing QF	300
Sycamore	Existing QF	300
CDWR	Hydro	76
Sagebrush	New Wind Project	65
Pandol	Existing Market	56
Ultragen	Existing QF	41
66-kV Antelope-Bailey	Small Hydro	34
CAISO Queue Project 1	New Wind Project	201
CAISO Queue Project 2	New Wind Project	300
Total		3753

Antelope-Mesa 220 kV T/L. With the addition of Segment 2, loading on this line would be reduced to 335 MW and would be within the allowable line conductor thermal limits. Therefore, Segment 2 would eliminate overloading of the Antelope-Mesa 220 kV T/L and increase the transfer capability south of the Antelope Substation. This would allow additional wind generation to be safely transferred from Antelope to serve system load. In addition, the proposed Segment 2 would improve overall system reliability and increase transmission capacity to serve increasing customer load demand in the Antelope Valley (Palmdale/Lancaster areas).

The addition of proposed Segment 3 (Antelope to new Substation One and Substation One to new Substation Two) consisting of a new 500 kV T/L, operated initially at 220 kV, a new 220 kV T/L, one new 500/220/66 kV substation, and one new 220/66 kV substation is consistent with SCE's 2003 Conceptual Study referenced in Ordering Paragraph No. 8 of Decision 04-06-010. At this time, the Ordering Paragraph constitutes the need for Segment 2 and Segment 3.

TABLE 2-2
SCE A-BANK SUBSTATION LOAD FORECAST (MW)
60 PERCENT OF 1-IN-10 YEAR HEAT ADJUSTED FORECAST

Substation	2004	2005	2006	2007	2008	2009	2010
Alamitos	91	91	92	93	94	95	95
Antelope-Bailey	355	361	368	374	380	385	390
Barre	396	401	404	440	454	458	461
Blythe	37	37	38	38	38	39	40
Camino	1	1	1	1	1	1	1
Center	284	288	298	300	303	304	306
Chevmain	31	31	31	31	31	31	31
Chino	389	404	416	427	439	447	457
Cima	1	1	1	1	1	1	1
Del Amo	275	285	291	267	271	273	278
Devers-Mirage	466	480	495	508	523	261	240
Eagle Mt.	3	3	3	3	3	3	3
Eagle Rock	110	112	113	113	115	115	115
Ellis	352	359	365	383	387	389	394
El Nido	202	206	210	214	217	218	220
Etiwanda	326	340	349	357	371	378	386
Ameron	34	34	34	34	34	34	34
Goleta	140	142	143	145	146	147	148
Gould	59	60	61	61	62	62	63
Hinson	273	275	243	245	247	246	247
Johanna	236	241	247	251	255	259	262
Kramer	183	185	187	189	191	197	200
La Cienega	235	239	244	246	250	251	253
La Fresa	388	392	397	400	404	405	407
Laguna Bell	329	331	338	346	346	350	353
Lewis	358	362	370	378	386	394	399
Lighthipe	322	327	367	368	374	377	381
Mesa	321	325	328	331	337	338	340
Mirage	0	0	0	0	0	282	286
Mira Loma	342	358	374	389	400	409	418
Moorpark	357	366	374	382	389	406	484
Oak Valley	0	0	0	0	0	0	104
Olinda	212	216	222	226	229	231	233
Padua	357	362	370	376	386	390	395
Rector	308	316	321	326	331	334	338

TABLE 2-2 (CONTINUED)
SCE A-BANK SUBSTATION LOAD FORECAST (MW)
60 PERCENT OF 1-IN-10 YEAR HEAT ADJUSTED FORECAST

Substation	2004	2005	2006	2007	2008	2009	2010
Rio Hondo	401	407	409	413	416	418	421
San Bernardino	296	301	308	316	318	323	330
Santa Clara	313	320	326	331	335	337	340
Santiago	574	385	398	415	426	437	449
Saugus	345	356	368	379	389	400	349
Springville	104	106	108	109	112	113	113
Valley	646	676	704	732	760	784	808
Vestal	105	107	110	113	116	118	121
Victor	309	315	323	328	335	339	344
Viejo	0	217	222	224	229	233	238
Villa Park	413	425	430	433	436	439	444
Vista 66 kV	403	414	424	436	447	451	460
Vista 115 kV	244	257	265	270	284	296	231
Walnut	376	380	389	394	400	403	408
Total	12304	12599	12880	13136	13400	13601	13816