

2.1 PURPOSE OF THE PROPOSED PROJECT

The proposed project consists of construction of the new 25.6-mile-long Antelope-Pardee 500 kV T/L between SCE's existing Antelope and Pardee substations. The line would be initially energized at 220 kV. The project would include equipping a 220 kV line position at the existing Pardee Substation and expanding the Antelope Substation: (i) initially 205 feet by 300 feet to allow for integration of 201 MW of wind generation and associated relocation of existing 66 kV distribution lines; and (ii) 31 acres for an upgrade from 220 kV to 500 kV to accommodate potential future alternative energy generation. The proposed Antelope-Pardee 500 kV T/L Project is also referred to as Segment 1.

This proposed project is a part of SCE's MOS to interconnect and integrate potential alternative energy projects to SCE's electrical system. The Antelope-Pardee 500 kV T/L, initially energized at 220 kV, would interconnect and integrate the generation from a proposed 201 MW wind project located 8.5 miles northwest of the Antelope Substation. SCE's obligation to interconnect and integrate the 201 MW facility 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 CAISO Tariff. Although the facilities would be operated initially at 220 kV, the CAISO approved interconnection using 500 kV design and construction standards would help accommodate up to 4400 MW of potential proposed wind generation north of Antelope and to avoid constructing, tearing down and replacing multiple 220 kV facilities with 500 kV facilities in the future.

The purpose for making application for the Antelope Transmission Project, Segments 1, 2, and 3 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 CEC's 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 interconnect and integrate into its electric system 201 MW from the generation project located northwest of the Antelope Substation, SCE has

determined that certain T/L and substation facilities are required to be constructed in and between the Antelope and Pardee Substations. The existing transmission path from Antelope, located in the Lancaster area, to Vincent is fully loaded at this time.

The primary objective of Segment 1, consisting of a new 500 kV T/L, operated initially at 220 kV, and equipping a 220 kV line position at the Pardee Substation and expanding the Antelope Substation, is to prevent overloading of the existing facilities. Segment 1 would increase the transfer capability south of the Antelope Substation and allow the 201 MW to be safely transferred to serve system load. The upgrades would also increase that transfer capability so as to accommodate more than the 201 MW in anticipation of additional generation north of Antelope.

Power flow studies were performed without and with the proposed Segment 1 project. All existing previously committed, and generation resources under construction are shown in Table 2-1. Load schedules are shown in Tables 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 310 MW without the proposed Segment 1 project and without the proposed 201 MW of wind generation (by third party). After inclusion of the proposed 201 MW wind generation project, loading on this line was found to increase to 351 MW and exceed the allowable line conductor thermal limits.

Segment 1, consisting of a new 500 kV T/L, operated initially at 220 kV, and equipment additions to a 220 kV line position at the Pardee Substation and expansion of the Antelope Substation, would prevent overloading of the existing facilities. With the addition of the proposed Segment 1 project, loading on the Antelope-Mesa 220 kV T/L would be reduced to 330 MW and would be within the allowable line conductor thermal limits. Therefore, Segment 1 would increase the transfer capability south of the Antelope Substation and allow the proposed 201 MW wind generation addition to be safely transferred to serve system load. The upgrades would also increase transfer capability so as to accommodate more than the 201 MW in anticipation of additional generation north of Antelope. Sensitivity power flow studies with the proposed Segment 1 project and inclusion of a total of 300 MW of proposed wind generation resulted in loadings up to 343 MW on the Antelope-Mesa 220 kV T/L, which is within the maximum allowable thermal limit.

SCE has considered and evaluated various alternatives to the proposed Segment 1 project, including the feasibility, environmental impact potential, and ability of the alternatives considered to meet the project objectives. Refer to Section 3.7 for more information.

TABLE 2-1
BIG CREEK CORRIDOR
LOCAL AREA GENERATION ASSUMPTIONS

Generation Unit	Type	Size (MW)
Big Creek	Hydro	1,000
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
Total		3,252

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
Rio Hondo	401	407	409	413	416	418	421

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
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 66kV	403	414	424	436	447	451	460
Vista 115kV	244	257	265	270	284	296	231
Walnut	376	380	389	394	400	403	408
Total	12,304	12,599	12,880	13,136	13,400	13,601	13,816