CHAPTER FOUR
TRANSMISSION FACILITIES

4.0 TRANSMISSION FACILITIES

This section describes the transmission facilities proposed to interconnect the proposed power plant with the Southern California Edison (SCE) substation located directly adjacent to the proposed plant.

4.1 INTERCONNECTION TO TRANSMISSION GRID

Generation from the San Gabriel Generating Station (SGGS) will be delivered to SCE's Rancho Vista substation by a single circuit 525-kilovolt (kV) transmission line from the switchyard. A conceptual diagram showing the proposed interconnection is shown on Figure 4.1-1. This diagram shows the 525-kV circuit that runs directly from the switchyard dead-end structure to the SCE substation. As noted, the circuit is within the project site.

Reliant has filed an application for interconnection of the plant with the California Independent System Operator (CAISO).

4.2 INTERCONNECTION CONFIGURATION

4.2.1 Structures

The switchyard will use a variety of steel structures to support the disconnect switches, strain bus, and outgoing transmission line. The disconnect switches will be center-break, single-pole switches mounted horizontally on a two-leg support structure. The height of the live parts of the disconnect switches will be 35 feet above grade. There will also be three single-phase bus support structures (per transformer) at the same height that will support the conductor from the disconnect switch to the overhead strain bus tap.

On the SGGS site, the 525-kV strain bus will be supported by four approximately 65-foot-high A-frames, with 25 feet of phase-to-phase clearances, and one approximately 110-foot-high frame with 27-foot clearances, as shown in Figure 4.2-1, for a total of five of these structures. The transmission line will exit the project site to the south from the western end of the strain bus and interconnect to the SCE substation traveling over the IEUA property terminating on a 120-foot, 5-inch-high pole.

4.2.2 Conductors

The selection of conductor for the 525-kV line into the substation will be a bundle of two 2156 ACSR. This conductor is expected to carry the full current output of the power plant and is proposed for connecting the generator collector bus and switchyard.

The 525-kV deadend insulator assemblies will have polymer insulator strings. In addition, the assemblies will include hardware pieces including shackles, yoke plates, conductor termination clamps, and corona rings.

4.2.3 Foundations

Foundations for the switchyard structures will consist of single concrete piers reinforced as necessary to withstand design loads. These will be formed by auguring a hole of appropriate diameter and depth, placing a cage of reinforcing steel in the augured hole, and filling the hole with high-strength concrete to the appropriate elevation.

4.3 ELECTROMAGNETIC FIELD/RADIO-TELEVISION INTERFERENCE

The electrical transmission interconnection and other electrical devices that will be constructed as part of the proposed project emit electromagnetic fields (EMF) when in operation. These fields are typically measured near ground level where they are encountered by people. In addition, operation of electrical transmission lines can cause interference with radio and TV signal reception.

EMF fields, to the extent they occur, could impact receptors on the properties adjacent to the proposed project site. In addition, radio and TV interference could occur at nearby residences.

As shown on Figure 2.3-1 in Chapter 2, Facility Description and Location, the plant site will be enclosed by a security fence. Site access will be limited to station workers, incidental construction and maintenance personnel, other company personnel, regulatory inspectors, and approved guests. Since access will not be available to the general public, general public exposure to EMF is not expected to occur from the SGGS facility or switchyard itself.

The nearest TV or radio receptor is located approximately 0.4 mile northeast from the proposed project site. Radio and television interference would therefore be negligible due to the distance between the proposed site and nearest receptor. The transmission circuit line loading is presented in Table 4.3-1.

4.4 CONSTRUCTION

Construction of the interconnection line between the SCE Rancho Vista substation and the SGGS will be undertaken by SGPG. Construction will be scheduled for completion after the Rancho Vista substation, which is currently under construction, has been completed.

Construction of the interconnection will be entirely on the SGGS site and the Rancho Vista substation and will not disturb any offsite areas.

4.5 SYSTEM IMPACT STUDY

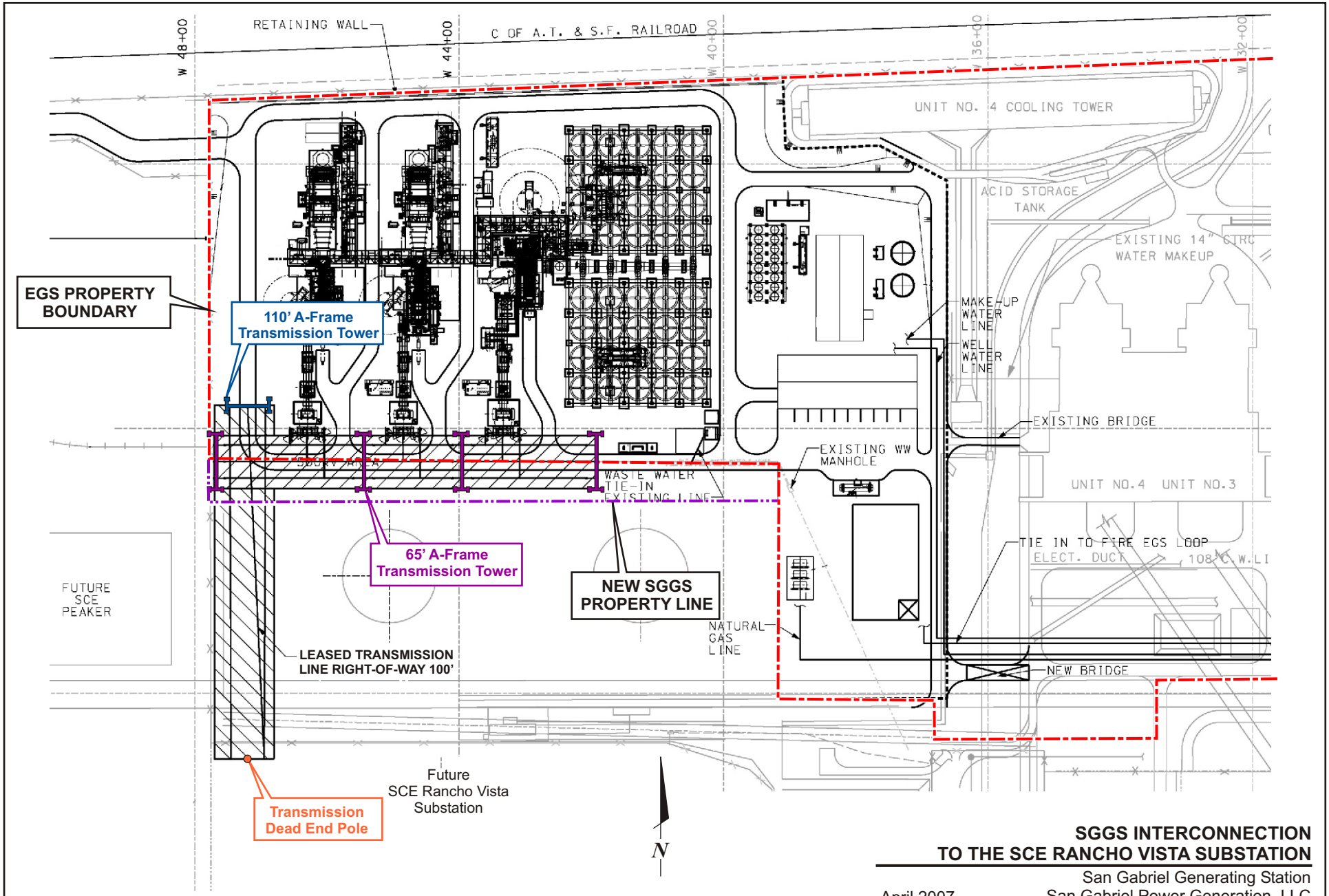
The CAISO will conduct a System Impact Study to assess the downstream impacts of interconnecting the proposed project to the electric transmission system.

San Gabriel Power Generation, LLC (SGPG) does not expect any downstream impacts (beyond the Rancho Vista Substation) from the addition of the SGGS on the CAISO controlled grid. In 2005, the CAISO Board approved the addition of the Rancho Vista 500/230 kV Substation Project. A copy of the memorandum to the Board requesting its approval is included in Appendix I. As noted in the Executive Summary of that memorandum, the Rancho Vista Substation Project is needed to meet load growth in the area. This need is accelerated by the potential retirement of existing generation in the area. SCE is in the process of designing and constructing these significant transmission network upgrades in the vicinity of the SGGS, which are part of the 500/230 kV Rancho Vista Substation Project. Since the identified need for the Substation Project is to provide additional load serving capability in this area, the installation of additional generation at this substation fits directly with the need. A page from the 2006 CAISO Transmission Plan showing the approved status of the Rancho Vista Substation is also included in Appendix I. With the completion of the Substation Project in June 2009, the transmission system will be well situated for the new SGGS.

On January 23, 2007, SGPG and the CAISO entered into an agreement to initiate the System Impact Study, which is expected to be completed in June 2007. Copies of the agreement and proof of payment are provided in Appendix I.

Table 4.3-1
Transmission Circuit Line Loading

Transmission Lines on Same Tower	Phasing Sequence (Top to Bottom)	Line Amps
Reliant Etiwanda – SCE No. 1 500 kV	ABC (north to south)	3,244
Reliant Etiwanda – SCE A-Frame tower #38	ABC (west to east)	3,244
Reliant Etiwanda – SCE dead-end pole #39	BAC (top to bottom)	3,244



Source:
Sargent & Lundy, General Arrangement Property Development Plan,
Siemens 501F 2x2x1 Combined Cycle
Drawing No. GA-06-2 (Rev. 3), 03-12-2007 (ga-06aa.dgn)

SGGS INTERCONNECTION TO THE SCE RANCHO VISTA SUBSTATION

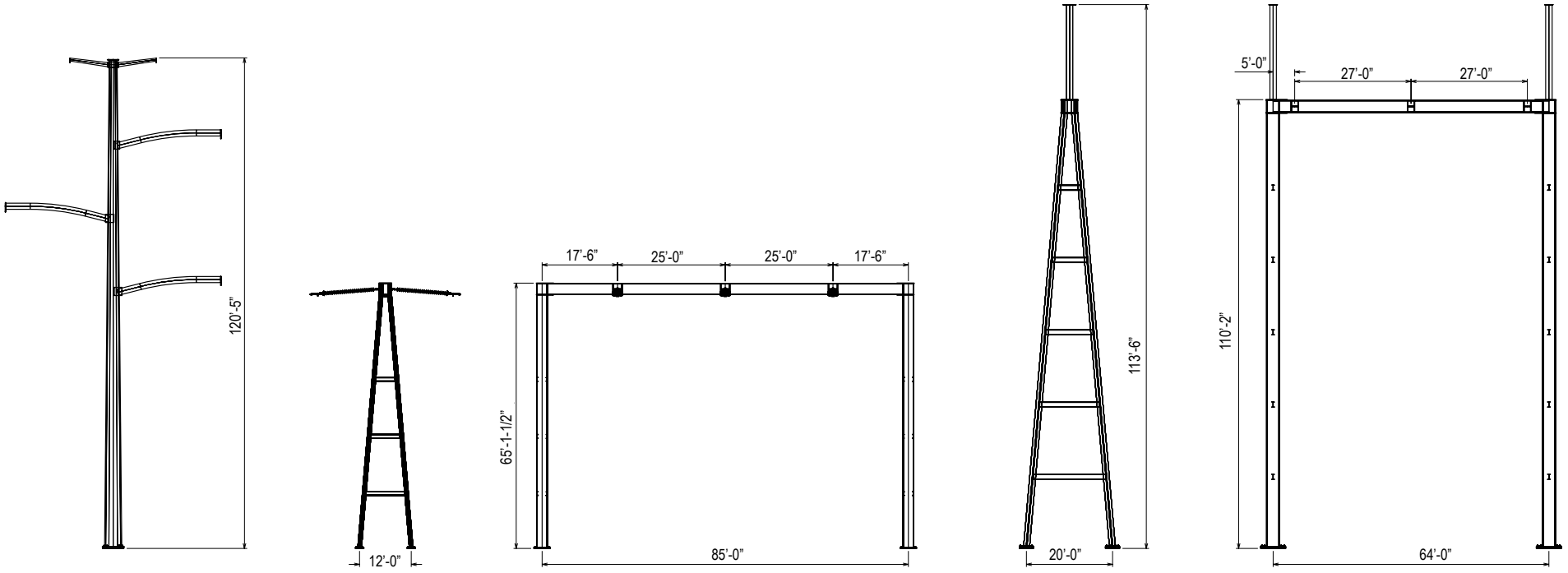
San Gabriel Generating Station
San Gabriel Power Generation, LLC
Rancho Cucamonga, California

April 2007
28067169

URS

FIGURE 4.1-1

4/09/07 vsa ..\Reliant Etiwanda\Graphics\4.0 Transmission\4.1-1_interconnect.cdr



DEAD END POLE

65'A-FRAME

110'A-FRAME

Source:
Sargent & Lundy, TO6_Transmission.dgn,
03-12-2007

TRANSMISSION LINE TOWERS

San Gabriel Generating Station
April 2007 — San Gabriel Power Generation, LLC
28067169 — Rancho Cucamonga, California

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FIGURE 4.2-1

3/26/07 vsa ..\Reliant Etiwanda\Graphics\4.0 transmission\4.2-1_towers.ai