

## LOS BANOS TO GATES 500kV TRANSMISSION LINE (PATH 15)

WESTERN AREA POWER ADMINISTRATION  
PHOENIX, ARIZONA  
MR. GARY BATES, CONTRACTING OFFICER'S REPRESENTATIVE

PROJECT COST: APPROX. \$88,000,000  
COMPLETION DATE: NOVEMBER, 2004  
PHONE: (602) 352-2694



### PROJECT DESCRIPTION

Path 15 is located in the southern portion of Pacific Gas & Electric Company's service area and in the middle of the California Independent System Operator's control area. The path is rated at 3,900 MW and consists of two 500kV transmission lines and four 230kV transmission lines. Through a series of system studies performed previously, it was determined that capacity through this major north-south transmission corridor was insufficient to carry the necessary electricity.

Path 15 is California's primary corridor for moving electricity from power plants in Southern California to consumers in the San Francisco Bay area. The current bottleneck exists because three major power lines narrow to only two through this area of the Central Valley. For Silicon Valley, where the technology industry uses large amounts of electricity but imports 80 percent of its power from other places, boosting the reliability and capacity of the path is of major importance. In order to alleviate California's most notorious Electricity bottleneck, the Path 15 Project was approved. ***This largest upgrade to California's electricity grid in nearly a decade was awarded to the ECI/Maslonka EPC Team.*** Completion of this project will result in an increase of the non-simultaneous south-north path rating to 5,400 MW from its existing 3,900 MW rating.

As an EPC project, the schedule has been compressed to less than 18 months to complete all design, procurement and construction of over 84 miles of 500 kV transmission line. Completion of this highly politicized project was met in November of 2004, design and construction being more than six weeks ahead of schedule; a feat that simply could not be accomplished under a standard design-bid-build contract. Since this project is the first of its kind, it is garnering a lot of local and nationwide publicity and is being carefully watched by other utilities.

The scope of services for which ECI is responsible includes structural analysis of existing Western lattice structure types, design review and approval of all tubular steel pole structures, and design of new 2-1/2' incremental leg extensions for the existing lattice tower designs. In addition, ECI is



◆ Engineering With Distinction ◆

Project Experience Resume

"Engineering with Distinction"



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responsible for the geotechnical sub-consulting and design of all steel-reinforced caisson foundations associated with both the steel monopoles and the lattice towers. Foundations for the tangent monopole structures ranged from 8 to 9 feet in diameter and reached depths of up to 36 feet. Foundations for the deadend monopole structures ranged from 9 to 12 feet in diameter and were as deep as 48 feet in some cases.



Additional services ECI was responsible for included survey and staking of all structures including leg extensions and structure offsets, field verification of the profile survey, staking of all access roads and right-of-way boundaries and review/recommendation for all access road culverts. Included as part of our overall services was complete review and revision to all PLS-CADD™ files, provision of construction drawings and specifications and preparation of all as-built documentation and drawings. ECI also provided all engineering project management and on-site construction management services.

### KEY FACTS & HIGHLIGHTS

- ◆ FIRST OF ITS KIND PUBLIC-PRIVATE FINANCED EHV PROJECT FOR D.O.E.
- ◆ 84 MILES OF 500 KV EHV LINE
- ◆ COMPRESSED DESIGN & CONSTRUCTION SCHEDULE OF 14 MONTHS
- ◆ 98 MONOPOLE STEEL STRUCTURES OF UP TO 218 FEET IN HEIGHT
- ◆ 245 LATTICE STEEL TOWERS
- ◆ 3-BUNDLE 1590 KCM CONDUCTOR
- ◆ DESIGN OF UP TO 12'-0" Ø X 48'-0" PIERS
- ◆ HELICOPTER SETTING OF TOWERS



### TEAM / RESPONSIBILITIES

- ◆ DAVID ANDERSON – PROJECT MANAGER
- ◆ ED PEACE – PROJECT ENGINEER
- ◆ GARY BOWLES – QA/QC
- ◆ MING JIANG – CIVIL ENGINEER
- ◆ JIM CLOUD – LANDS & R/W
- ◆ TOM HARVEY – SURVEY MGMT/EXEC. SPONSOR
- ◆ GARY HUBBS – SURVEY LEAD
- ◆ BOB BRYN – SURVEY ASSISTANT
- ◆ TIFFANY RANSOM – DESIGNER