

3.6.5 Construction Workforce and Equipment

Construction of the new substation and upgrade of existing transmission lines and distribution lines is anticipated to commence in the fall of 2016. The target date for commercial operation of the Project is December 2017.

The construction of the substation and upgrades to the transmission and distribution lines would be performed concurrently and would take approximately six to 12 months, with construction personnel working during daylight hours at an estimated 10-hours per day, five days a week (but no more than 12 hour work days) between the hours of 7 a.m. and 7 p.m. Monday through Friday. Work is not anticipated on Saturday unless necessary to stay on schedule. Work would only be performed between 8 a.m. and 5 p.m. on Saturday. Approximately 43 workers would be required for construction (refer to Tables 3-3 through 3-7 for the estimated number of personnel and equipment).

It is estimated that the workforce would consist of approximately 10 percent supervisory, 60 percent skilled labor, and 30 percent unskilled labor. It is anticipated that about 50 percent of this work force would be hired locally. Those who are not locals normally take temporary housing in nearby communities and commute to and from the job site on a daily basis.

TABLE 3-3 DEMOLITION OF EXISTING STRUCTURES - ESTIMATED PERSONNEL AND EQUIPMENT

ACTIVITY	NUMBER OF PERSONNEL	EQUIPMENT QUANTITY	TYPE OF EQUIPMENT	ESTIMATED CONSTRUCTION SCHEDULE	ESTIMATED USAGE HR/DAY
Demolition of Existing Structures	4	1	Pickup truck	Weeks one to two	4
		1	Excavator (with thumb)		7
		1	Track loader		6
		2	Dump trucks		4
Total Workforce	4*				

*Maximum total personnel required considering all tasks; actual personnel onsite at any one time will be less.

TABLE 3-4 SUBSTATION CONSTRUCTION - ESTIMATED PERSONNEL AND EQUIPMENT

ACTIVITY	NUMBER OF PERSONNEL	EQUIPMENT QUANTITY	TYPE OF EQUIPMENT	ESTIMATED CONSTRUCTION SCHEDULE	ESTIMATED USAGE HR/DAY
Construction Management	1	1	Pickup truck	ongoing	1
Survey	3	1	Pickup truck	Week one	1
Site Preparation/Grading	5	1	Backhoe	Weeks one through six	5
		1	Bulldozer		4
		2	Dump trucks		4
		1	Water truck		2
		1	Pickup truck		1
Material Haul	3	1	Tractor/trailer	ongoing	2
		2	Yard and field cranes or line trucks		2
		1	Fork lift		1
Access Road Construction	2 to 3	1	Bulldozer (D-8 Cat)	Weeks one through six	4
		1	Motor grader		4
		1	Pickup truck		1
		1	Water truck (for construction)		2
Concrete Placement and Formwork	5	1	Pickup truck	Months two to three	1
		1	Concrete truck		3
		1	Flatbed truck		2
Steel Installation	5	1	Pickup truck	Months six through eight	1
		1	Crane		2
		1	Bucket truck		4
		1	Forklift		3
Equipment Installation	4	1	Pickup truck	Months six through ten	1
		1	Forklift		2
		1	Crane		2
		1	Manlift		2
Bus Work	4	1	Pickup truck	Months six through ten	1
		1	Manlift		5
		1	Welder		2
		1	Crane		0
Testing and Energization	2	1	Pickup truck	Months ten through eleven	1
Fencing	4			Months two to three	
Marshalling Yard	2				
Right-of-Way Restoration and Cleanup	4	1	Bulldozer wide track	Months nine through twelve	2
		1	Dump truck		3
		1	Pickup truck		2
Total workforce:	42-43*				

*Maximum total personnel required considering all tasks; actual personnel onsite at any one time will be less.

TABLE 3-5 TRANsMISSION/distribution LINE CONSTRUCTION - ESTIMATED PERSONNEL AND EQUIPMENT

ACTIVITY	NUMBER OF PERSONNEL	EQUIPMENT QUANTITY	TYPE OF EQUIPMENT	ESTIMATED CONSTRUCTION SCHEDULE	ESTIMATED USAGE HR/DAY
Construction Management	1	1	Pickup truck	Ongoing	1
Survey	3	1	Pickup truck	Ongoing	4
Access Road Construction	2	1	Bulldozer (D-8 Cat)	Potentially intermittently throughout project work	4
		1	Motor grader		6
		1	Pickup truck		3
		1	Water truck		3
Auger Holes, Direct Embed Poles	5	1	Hole digger	Intermittently throughout project work	5
		1	Water truck		2
		1	Pickup truck		2
		1	Line truck		5
		1	Pump		1
Material Haul	3	1	Tractor trailer	Intermittently throughout project work	4
		2	Yard and field cranes or line truck		6
		1	Forklift		3
Structure Assembly and Installation	5	1	Pickup truck	Intermittently throughout project work	2
		1	Line truck		6
		1	2-ton truck		6
		1	Bucket truck		6
Structure Erection	5	1	2-ton truck	Intermittently throughout project work	6
		1	Pickup truck		2
		1	Bucket truck		6
		1	Line truck		6
Wire Installation (includes old wire removal)	8	1	Wire reel trailer	Intermittently throughout project work	4
		1	Diesel tractor		6
		1	Crane		0
		1	Line truck		6
		3	Pickup trucks		2
		2	Bucket trucks		6
		2	3-drum pullers		4
		1	Single-drum puller		4
		1	Double bull-wheel tensioner		4
1	Static wire reel trailer	4			
Right-of-Way Restoration and Cleanup	4	1	Bulldozer wide track	Close of project work	4
		1	Dump truck		6
		1	Pickup truck		2
Total workforce:	31*				

*Maximum total personnel required considering all tasks; actual personnel onsite at any one time will be less.

TABLE 3-6 DEMOLITION OF MT. SHASTA SUBSTATION - ESTIMATED PERSONNEL AND EQUIPMENT

ACTIVITY	NUMBER OF PERSONNEL	EQUIPMENT QUANTITY	TYPE OF EQUIPMENT	ESTIMATED CONSTRUCTION SCHEDULE	ESTIMATED USAGE HR/DAY
Equipment Removal	4	1	Crane	Month twelve or close of project	2
		1	Forklift		4
		1	Pickup truck		2
		1	Bucket truck		6
Foundation Removal	4	1	Backhoe (concrete breaker)	Month twelve or close of project	6
		1	Backhoe		6
		2	Dump trucks		5
		1	Pickup truck		2
Grading	4	1	Pickup truck	Month twelve or close of project	2
		1	Bulldozer		5
		1	Backhoe		5
		2	Dump trucks		3
Total Workforce	12				

*Maximum total personnel required considering all tasks; actual personnel onsite at any one time will be less.

TABLE 3-7 EQUIPMENT EXPECTED TO BE USED DURING PROJECT CONSTRUCTION

TYPE OF EQUIPMENT	USE
2-ton truck	Transport personnel, tools, and materials
3-drum pullers	Pull and tension of the conductor
Backhoe	Move/compact soils
Backhoe (concrete breaker)	Move/break up large rocks and concrete foundations
Bucket truck	Lift and transport workers
Bulldozer	Move/compact soils
Bulldozer (D-8 Cat)	Move/compact soils
Bulldozer wide track	Move/compact soils
Concrete truck	Transport concrete to substation construction site
Crane	Install pole structures, lift & transport heavy construction items
Diesel tractor	Pull pole trailer for multi-pole loads
Double bull-wheel tensioner	Pull and tension of the conductor
Dump truck	Haul material
Excavator	Move/compact soils
Flatbed truck	Transport personnel, tools, and materials
Forklift	Lift and transport heavy construction items
Line truck	Haul conductor, poles, equipment, materials, and people, and install poles/conductor
Manlift	Lift and transport workers
Single-drum puller	Install conductor
Static wire reel trailer	Transport reels of conductor
Track loader	Move soils
Water truck	Dust control
Welder	Installation of substation components
Wire reel trailer	Transport reels of conductor