

Southern California Edison
WODUP A.13-10-020

DATA REQUEST SET A.13-10-020 WODUP ED-SCE-01

To: ENERGY DIVISION
Prepared by: Daryl Bradford
Title: MPO PM
Dated: 02/21/2014

Question PD-08:

Project Description

PD-8 In Response to Completeness Item #9a, SCE stated that it is not proposing to use helicopters to erect towers. Will helicopters be used for conductor or tower removal?

Response to Question PD-08:

In addition to previously noted responses to Completeness Item Question No. 9.f, helicopters will be utilized for removal (i.e., deconstruction) of existing West of Devers towers and conductor.

General helicopter usage for deconstruction will include:

- Helicopters will be utilized to remove transmission hardware, poles, tower structural assemblies, conductor and ground wire. In addition, helicopters will be utilized to stage materials and personnel required to support deconstruction. It is anticipated that the majority of deconstruction will be performed with ground based equipment (i.e., cranes and hauling vehicles).
- Project-related helicopter activities for the deconstruction of the existing transmission lines and towers (including poles) will include the removal of equipment and materials from structure sites to laydown areas (previously established disturbance areas) for removal by locally staged hauling vehicles.
- Helicopter models assumed to be used for deconstruction would include the Bell 500 (MD 500) and Kaman Kmax (or equivalent light and medium duty helicopters).
- Project-related helicopter activities during deconstruction of the transmission lines could occur across the entire Project area.
- Helicopters may land in any approved disturbance area, including tower sites, pull sites, and access or spur roads.

Attached are updated Table 3.2-H and Table 3.2-J from the PEA; the highlighted cells indicate where helicopter and associated equipment were added for removal activities.

TABLE 3.X
CONSTRUCTION EQUIPMENT AND WORKFORCE ESTIMATES BY ACTIVITY
West of Devers 220kV Work Excluding Segment 5

Work Activity				Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Estimated Production Per Day
Survey -- (1)				4	31		38.5 Miles
3/4-Ton Pick-up Truck, 4x4	200	Gas	2		31	8	1.3 Miles/Day
Marshalling Yard -- (2)				4			
1-Ton Crew Cab, 4x4	300	Diesel	1			4	
R/T Crane (M)	300	Diesel	1			5	
R/T Forklift	200	Diesel	1		Duration of Project for Each Yard	5	
Water Truck	300	Diesel	1			10	
Jet A Fuel Truck			1			4	
Truck, Semi, Tractor	350	Diesel	1			6	
R/W Clearing -- (3)				5	124		38.5 Miles
1-Ton Crew Cab, 4x4	300	Diesel	1		124	10	
Motor Grader	350	Diesel	1		124	7	
Water Truck	350	Diesel	2		124	7	
Backhoe/Front Loader	350	Diesel	1		124	7	0.4 Miles/Day
Track Type Dozer	350	Diesel	1		124	9	
Lowboy Truck/Trailer	500	Diesel	1		124	5	
Roads & Landing Work -- (4)				10	122		152.5 Miles & 464 Pads
1-Ton Crew Cab, 4x4	300	Diesel	4		122	5	
Motor Grader	350	Diesel	2		122	5	
Water Truck	350	Diesel	4		122	10	
Backhoe/Front Loader	350	Diesel	2		122	7	1.3 Miles/Day & 5 Structure Pads/Day
Drum Type Compactor	250	Diesel	2		122	5	
Track Type Dozer	350	Diesel	2		122	7	
Excavator	300	Diesel	2		61	7	
Lowboy Truck/Trailer	500	Diesel	2		61	4	
Guard Structure Installation -- (5)				12	56		663 Structures
3/4-Ton Pick-up Truck, 4x4	300	Diesel	4		56	8	

1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	2	56	8	
Compressor Trailer	120	Diesel	2	56	7	
Auger Truck	500	Diesel	2	56	5	12 Structures/Day
Extendable Flat Bed Pole Truck	350	Diesel	2	56	8	
R/T Crane (M)	500	Diesel	2	56	8	
Water Truck	350	Diesel	1	56	8	
Extendable Flat Bed Pole Truck	350	Diesel	2	56	8	
Remove Existing Conductor & OHGW -- (6)				56	468	772 Conductor Miles
1-Ton Crew Cab, 4x4	300	Diesel	16	468	10	
Man-lift / Bucket Truck	350	Diesel	12	468	10	
Sleeving Truck	300	Diesel	4	468	5	
R/T Crane (M)	300	Diesel	4	468	5	
Flat Bed Trailer	N/A	N/A	12	422	3	
Truck, Semi, Tractor	350	Diesel	4	422	3	1.7 Miles/Day
Hughes 500 E Helicopter		Jet A	2	468	5	
Fuel, Helicopter Support Truck	300	Diesel	2	468	5	
Bull Wheel Puller	500	Diesel	4	317	5	
Water Truck	350	Diesel	4	317	6	
Hydraulic Rewind Puller	300	Diesel	4	317	5	
Remove Existing Lattice Steel Towers -- (7)				32	171	426 Towers
1-Ton Crew Cab, 4x4	300	Diesel	8	171	8	
R/T Crane (M)	215	Diesel	8	171	5	
Compressor Trailer	120	Diesel	8	171	10	
Kaman K-MAX		Jet A	1	171	4	2.5 Towers/Day
Hughes 500 E Helicopter		Jet A	2	171	4	
Fuel, Helicopter Support Truck	300	Diesel	2	171	4	
Flat Bed Truck/Trailer	350	Diesel	4	171	8	
Water Truck	350	Diesel	4	171	6	
Remove Existing Foundations -- (8)				16	173	431
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	4	173	10	
Dump Truck	350	Diesel	4	173	10	2.5 Towers/Day
Backhoe/Front Loader	350	Diesel	4	173	10	

Water Truck	350	Diesel	4	173	10	
Remove Existing Tubular Steel Poles -- (9)				24	2	5 TSP
3/4-Ton Pick-up Truck, 4x4	300	Diesel	8	2	8	
R/T Crane (M)	300	Diesel	4	2	5	3.8 Steel Poles/Day
Compressor Trailer	120	Diesel	4	2	10	
Water Truck	350	Diesel	4	2	10	
Install LST Foundations -- (10)				28	142	452 LST's
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	8	142	5	
R/T Crane (M)	300	Diesel	4	142	7	
Backhoe/Front Loader	200	Diesel	4	142	10	
Auger Truck	500	Diesel	4	142	10	
10-cu. yd. Dump Truck	350	Diesel	8	142	10	3.2 LSTs/Day
Kaman K-MAX		Jet A	1	142	7	
4000 gallon Water Truck	350	Diesel	4	142	10	
10-cu. yd. Concrete Mixer Truck	425	Diesel	12	142	7	
LST Steel Haul -- (11)				8	181	452 LST's
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	4	181	10	
Truck/Trailer	400	Diesel	4	181	10	
Bell 212		Jet A	2	105	7	2.5 LSTs/Day
4000 gallon Water Truck	350	Diesel	4	181	10	
R/T Forklift	200	Diesel	2	181	6	
LST Steel Assembly -- (12)				40	339	452 LST's
3/4-Ton Pick-up Truck, 4x4	300	Diesel	4	339	5	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	6	339	5	
R/T Forklift	125	Diesel	4	339	7	1.4 LSTs/Day
R/T Crane (L)	300	Diesel	4	339	10	
Kaman K-MAX		Jet A	1	339	7	
Compressor Trailer	120	Diesel	4	339	6	
LST Erection -- (13)				48	236	452 LST's
3/4-Ton Pick-up Truck, 4x4	300	Diesel	8	236	8	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	8	236	8	2 LSTs/Day
4000 gallon Water Truck	350	Diesel	4	236	10	

R/T Crane (M)	215	Diesel	4	236	7	
R/T Crane (L)	350	Diesel	4	236	7	
Install Tubular Steel Pole Foundations -- (14)				24	4	10 TSP's
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	12	4	5	
R/T Crane (M)	300	Diesel	4	4	7	
Backhoe/Front Loader	200	Diesel	4	4	10	
Auger Truck	500	Diesel	4	4	10	2.5 TSPs/Day
4000 gallon Water Truck	350	Diesel	4	4	10	
10-cu. yd. Dump Truck	350	Diesel	8	4	10	
10-cu. yd. Concrete Mixer Truck	425	Diesel	12	4	6	
Steel Pole Haul -- (15)				8	1	10 TSP's
3/4-Ton Pick-up Truck, 4x4	300	Diesel	4	1	8	
4000 gallon Water Truck	350	Diesel	4	1	10	10 Steel Poles/Day
R/T Crane (L)	350	Diesel	2	1	10	
40' Flat Bed Truck/ Trailer	350	Diesel	4	1	8	
Steel Pole Assembly -- (16)				24	2	10 TSP's
3/4-Ton Pick-up Truck, 4x4	300	Diesel	8	2	8	
4000 gallon Water Truck	350	Diesel	4	2	10	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	8	2	6	5 Steel Poles/Day
Compressor Trailer	120	Diesel	4	2	6	
R/T Crane (L)	350	Diesel	4	2	6	
Steel Pole Erection -- (17)				24	2	10 TSP's
3/4-Ton Pick-up Truck, 4x4	300	Diesel	8	2	5	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	8	2	5	
4000 gallon Water Truck	350	Diesel	4	2	10	5 Steel Poles/Day
Compressor Trailer	120	Diesel	4	2	5	
R/T Crane (L)	350	Diesel	4	2	6	
H-Frame Installation -- (18)				12	5	1 Structures
3/4-Ton Pick-up Truck, 4x4	300	Diesel	4	5	8	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	2	5	8	
Compressor Trailer	120	Diesel	2	5	7	

Auger Truck	500	Diesel	2	5	5	
Extendable Flat Bed Pole Truck	350	Diesel	2	5	8	
R/T Crane (M)	500	Diesel	2	5	8	
Water Truck	350	Diesel	1	5	8	
Extendable Flat Bed Pole Truck	350	Diesel	2	5	8	
Install Conductor -- (19)				220	95	144 Circuit Miles
3/4-Ton Pick-up Truck, 4x4	300	Diesel	4	95	10	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	8	95	10	
Wire Truck/Trailer	350	Diesel	4	65	10	
R/T Crane (M)	215	Diesel	4	95	10	
Dump Truck	350	Diesel	2	95	10	
Bucket Truck	350	Diesel	4	95	10	
22-Ton Manitex	350	Diesel	4	95	10	
Splicing Rig	350	Diesel	2	25	5	
Splicing Lab	300	Diesel	2	25	5	1.6 Miles/Day
Sock Line Puller	300	Diesel	2	25	6	
Bull Wheel Puller	350	Diesel	2	50	10	
Backhoe/Front Loader	125	Diesel	2	50	8	
D8 Cat	350	Diesel	1	50	8	
Hughes 500 E Helicopter		Jet A	2	50	7	
Fuel, Helicopter Support Truck	300	Diesel	2	50	7	
Sag Cat w/ 2 winches	350	Diesel	1	25	10	
Static Truck/Tensioner	350	Diesel	2	50	10	
Guard Structure Removal -- (20)				12	39	663 Structures
3/4-Ton Pick-up Truck, 4x4	300	Diesel	4	39	7	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	4	39	7	
Compressor Trailer	120	Diesel	4	39	7	
Extendable Flat Bed Pole Truck	350	Diesel	4	39	6	17.2 Structures/Day
Water Truck	300	Diesel	2	39	10	
R/T Crane (M)	500	Diesel	2	39	8	
80ft. Hydraulic Man-lift / Bucket Truck	350	Diesel	2	39	4	
Restoration -- (21)				14	16	38.5 Miles

1-Ton Crew Cab, 4x4	300	Diesel	4	16	2	2.5 Miles/Day	
Motor Grader	350	Diesel	2	16	6		
Water Truck	350	Diesel	2	16	8		
Backhoe/Front Loader	350	Diesel	2	16	6		
Drum Type Compactor	250	Diesel	2	16	6		
Track Type Dozer	350	Diesel	2	16	6		
Lowboy Truck/Trailer	300	Diesel	2	16	3		
Retaining walls -- (22)				100	53 Walls		
1-Ton Crew Cab, 4x4	300	Diesel	4	254	10		48 days/wall
Motor Grader	250	Diesel	2	254	10		
Water Truck	350	Diesel	2	254	10		
Backhoe/Front Loader	125	Diesel	2	254	10		
Drum Type Compactor	250	Diesel	2	254	10		
Track Type Dozer	350	Diesel	2	254	10		
Concrete Mixer	350	Diesel	2	254	10		
Excavator	250	Diesel	2	254	10		
Dump Truck	350	Diesel	2	254	10		
Lowboy Truck/Trailer	300	Diesel	2	254	10		

- #1 Survey = one 4-man crew
- #2 Marshalling Yards = four 1-man crews
- #3 Right-of-way Clearing = one 5-man crew
- #4 Roads & Landing Work = two 5-man crews
- #5 Guard Structure Installation = two 6-man crews
- #6 Remove Existing Conductor & OHGW = four 14-man crews
- #7 Remove Existing LSTs & LSH-Frames = four 8-man crews
- #8 Remove Existing Foundations = four 4-man crews
- #N/A Remove Existing Wood Poles = 0 0-man crews
- #9 Remove Existing TSP / LWS Poles = four 6-man crews
- #10 Install Foundations for LSTs = four 7-man crews
- #11 LST Steel Haul = two 4-man crews
- #12 LST Steel Assembly = four 10-man crews
- #13 LST Erection = four 12-man crews
- #14 Install Foundations for Tubular Steel Poles = four 6-man crews
- #15 Steel Pole Haul = two 4-man crews
- #16 Steel Pole Assembly = four 6-man crews
- #17 Steel Pole Erection = four 6-man crews
- #18 H-Frame Instalation = 1 8-man crew
- #19 Conductor & OHGW/OPGW Installation = four 55-man crews
- #20 Guard Structure Removal = two 6-man crews

#21 Restoration = two 7-man crews

#22 Retaining Walls = ten 10-man crews

TABLE 3.X

**CONSTRUCTION EQUIPMENT AND WORKFORCE ESTIMATES BY ACTIVITY
West of Devers 220kV Work Excluding Seg 5**

Work Activity				Activity Production			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Estimated Production Per Day
Survey -- (1)				4	31		38.5 Miles
3/4-Ton Pick-up Truck, 4x4	200	Gas	2		31	8	1.3 Miles/Day
Marshalling Yard -- (2)				4			
1-Ton Crew Cab, 4x4	300	Diesel	4			2	
R/T Crane (M)	300	Diesel	4			2	
10,000 lb Rough Terrain Fork Lift Truck, Semi, Tractor	200	Diesel	4		Duration of Project	5	
	350	Diesel	4			1	
R/W Clearing -- (3)				5		124	
1-Ton Crew Cab, 4x4	300	Diesel	1		124	8	
Road Grader	350	Diesel	1		124	6	
Water Truck	350	Diesel	2		124	8	0.4 Miles/Day
Backhoe/Front Loader	350	Diesel	1		124	6	
Track Type Dozer	350	Diesel	1		124	6	
Lowboy Truck/Trailer	500	Diesel	1		124	4	
Roads & Landing Work -- (4)				10	122		152.5 Miles & 464 Pads
1-Ton Crew Cab, 4x4	300	Diesel	4		122	2	
Road Grader	350	Diesel	2		122	4	
Water Truck	350	Diesel	4		122	8	
Backhoe/Front Loader	350	Diesel	2		122	6	1.3 Miles/Day & 5 Structure Pads/Day
Drum Type Compactor	250	Diesel	2		122	4	
Track Type Dozer	350	Diesel	2		122	6	

Excavator	300	Diesel	2	61	6	
Lowboy Truck/Traile r	500	Diesel	2	61	2	
Guard Structure Installation -- (5)				12	56	663 Structures
3/4-Ton Pick-up Truck, 4x4	300	Diesel	4	56	6	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	2	56	6	
Compressor Trailer	120	Diesel	2	56	6	
Auger Truck	500	Diesel	2	56	6	12 Structures/D ay
Extendable Flat Bed Pole Truck	350	Diesel	2	56	6	
R/T Crane (M) 80ft. Hydraulic Man- lift/Bucket Truck	500	Diesel	2	56	8	
	350	Diesel	2	56	4	
Remove Existing Conductor & OHGW -- (6)				56	468	772 Circuit Miles
1-Ton Crew Cab, 4x4	300	Diesel	16	468	8	
80ft. Hydraulic Man-lift / Bucket Truck	350	Diesel	12	468	8	
Sleeving Truck	300	Diesel	4	468	4	
R/T Crane (M) Flat Bed Trailer	300	Diesel	4	468	4	1.7 Miles/Day
Truck, Semi, Tractor	N/A	N/A	12	422	2	
Bull Wheel Puller	350	Diesel	4	422	1	
500	Diesel	4	317	4		
Hydraulic Rewind Puller	300	Diesel	4	317	4	
Remove Existing Lattice Steel Towers -- (7)				32	171	426 Towers
1-Ton Crew Cab, 4x4	300	Diesel	8	171	5	
R/T Crane (M)	300	Diesel	8	171	6	

Compressor Trailer	120	Diesel	8	171	8	2.5 Towers/Day
Flat Bed Truck/Traile r	350	Diesel	4	171	8	
10,000 lb Rough Terrain Forklift	200	Diesel	4	171	4	
Remove Existing Foundations -- (8)				16	173	431 Towers
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	4	173	8	
10-cu. yd. Dump Truck	350	Diesel	4	173	8	2.5 Towers/Day
Backhoe/Fr ont Loader	350	Diesel	4	173	8	
Compressor Trailer	120	Diesel	4	173	8	
Remove Existing Wood Poles -- (N/A)				0	#DIV/0!	0 Poles
1-Ton Crew Cab, 4x4	300	Diesel	0	#DIV/0!	5	
10,000 lb. Rough Terrain Forklift	200	Diesel	0	#DIV/0!	4	0 Poles/Day
R/T Crane (M)	300	Diesel	0	#DIV/0!	6	
Compressor Trailer	120	Diesel	0	#DIV/0!	6	
Flat Bed Truck/ Trailer	350	Diesel	0	#DIV/0!	8	
Remove Existing Light Weight Steel Poles -- (9)				24	2	5 LWS Poles
3/4-Ton Pick-up Truck, 4x4	300	Diesel	8	2	5	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	8	2	5	3.8 Steel Poles/Day
Compressor Trailer	120	Diesel	4	2	5	
R/T Crane (L)	350	Diesel	4	2	6	
Install LST Foundations -- (10)				28	142	453 LST's
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	8	142	2	
R/T Crane (M)	300	Diesel	4	142	5	
Backhoe/Fr ont Loader	200	Diesel	4	142	8	

Auger Truck	500	Diesel	4	142	8	3.2
10-cu. yd. Dump Truck						LSTs/Day
4000 gallon Water Truck	350	Diesel	8	142	8	
10-cu. yd. Concrete Mixer Truck	350	Diesel	4	142	8	
	425	Diesel	12		5	
LST Steel Haul -- (11)				8	181	452 LST's
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	4	181	2	
Flat Bed Truck/Traile r	350	Diesel	2	181	8	2.5 LSTs/Day
10,000 lb Rough Terrain Fork Lift	200	Diesel	2	181	6	
LST Steel Assembly -- (12)				40	339	452 LST's
3/4-Ton Pick-up Truck, 4x4	300	Diesel	4	339	4	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	6	339	4	1.4 LSTs/Day
R/T Crane (M)	300	Diesel	4	339	8	
Compressor Trailer	120	Diesel	4	339	6	
LST Erection -- (13)				48	236	452 LST's
3/4-Ton Pick-up Truck, 4x4	300	Diesel	8	236	5	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	8	236	5	2 LSTs/Day
Compressor Trailer	120	Diesel	4	236	6	
R/T Crane (L)	350	Diesel	4	236	6	
Install Tubular Steel Pole Foundations -- (14)				24	4	10 TSP's
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	12	4	2	
R/T Crane (M)	300	Diesel	4	4	5	
Backhoe/Fr ont Loader	200	Diesel	4	4	8	

Auger Truck	500	Diesel	4	3	8	2.5 TSPs/Day
4000 gallon Water Truck	350	Diesel	4	4	8	
10-cu. yd. Dump Truck	350	Diesel	8	4	8	
10-cu. yd. Concrete Mixer Truck	425	Diesel	12	3	5	
Steel Pole Haul -- (15)				8	1	10 TSP's
3/4-Ton Pick-up Truck, 4x4	300	Diesel	4	1	5	10 Steel Poles/Day
R/T Crane (L)	350	Diesel	2	1	6	
40' Flat Bed Truck/ Trailer	350	Diesel	4	1	8	
Steel Pole Assembly -- (16)				24	2	10 TSP's
3/4-Ton Pick-up Truck, 4x4	300	Diesel	8	2	5	5 Steel Poles/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	8	2	5	
Compressor Trailer	120	Diesel	4	2	5	
R/T Crane (L)	350	Diesel	4	2	6	
Steel Pole Erection -- (17)				24	2	10 TSP's
3/4-Ton Pick-up Truck, 4x4	300	Diesel	8	2	5	5 Steel Poles/Day
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	8	2	5	
Compressor Trailer	120	Diesel	4	2	5	
R/T Crane (L)	350	Diesel	4	2	6	
Install Conductor -- (18)				220	95	144 Circuit Miles
3/4-Ton Pick-up Truck, 4x4	300	Diesel	4	95	8	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	8	95	8	
Wire Truck/Traile r	350	Diesel	4	65	2	

Dump Truck (Trash)	350	Diesel	2	95	2	1.6 Miles/Day
Bucket Truck	350	Diesel	4	95	8	
22-Ton Manitex	350	Diesel	4	95	8	
Splicing Rig	350	Diesel	2	25	2	
Splicing Lab	300	Diesel	2	25	2	
3 Drum Straw line Puller	300	Diesel	2	50	6	
Static Truck/ Tensioner	350	Diesel	2	50	6	
Guard Structure Removal -- (19)				12	39	663 Structures
3/4-Ton Pick-up Truck, 4x4	300	Diesel	4	39	6	
1-Ton Crew Cab Flat Bed, 4x4	300	Diesel	4	39	6	
Compressor Trailer	120	Diesel	4	39	6	17.2 Structures/D ay
Extendable Flat Bed Pole Truck	350	Diesel	4	39	6	
R/T Crane (M) 80ft. Hydraulic Man-lift / Bucket Truck	500	Diesel	2	39	8	
	350	Diesel	2	39	4	
Restoration -- (20)				14	16	38.5 Miles
1-Ton Crew Cab, 4x4	300	Diesel	4	16	2	
Road Grader	350	Diesel	2	16	6	
Water Truck	350	Diesel	2	16	8	
Backhoe/Fr ont Loader	350	Diesel	2	16	6	2.5 Miles/Day
Drum Type Compactor	250	Diesel	2	16	6	
Track Type Dozer	350	Diesel	2	16	6	
Lowboy Truck/Traile r	300	Diesel	2	16	3	

#NAME?

CONSTRUCTION EQUIPMENT AND WORKFORCE ESTIMATES BY ACTIVITY

Construct single 220kV T/L Shoo-Fly

WORK ACTIVITY				ACTIVITY PRODUCTION			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Total Production
Survey (1)				16	26		20 Miles
1-Ton Truck, 4x4	300	Gas	8		26	10	
R/W Clearing (3)				15	14		20 Miles
1-Ton Truck, 4x4	300	Gas	3		14	10	
Backhoe/Front Loader	350	Diesel	3		14	7	
Track Type Dozer	350	Diesel	3		14	7	
Road Grader	350	Diesel	3		14	7	
Water Truck	300	Diesel	6		14	9	
Lowboy Truck/Trailer	500	Diesel	3		14	5	
Roads & Landing Work (4)				24	60		300 Pads
1-Ton Truck, 4x4	300	Gas	8		60	5	
Backhoe/Front Loader	350	Diesel	4		60	7	
Track Type Dozer	350	Diesel	4		60	7	
Motor Grader	350	Diesel	4		60	5	
Water Truck	300	Diesel	8		60	10	
Drum Type Compactor	250	Diesel	4		60	5	
Excavator	300	Diesel	4		36	7	
Lowboy Truck/Trailer	500	Diesel	4		36	4	
Shoo-fly Direct Buried Steel/Wood Poles (DBSP) Haul (5)				8	120		300 DBSP Poles
3/4-Ton Truck, 4x4	275	Gas	2		120	10	
Water Truck	300	Diesel	1		120	10	
Boom/Crane Truck	350	Diesel	2		120	8	
Flat Bed Pole Truck	400	Diesel	2		120	10	
Shoo-fly Direct Buried Steel/Wood Pole Assembly (6)				18	150		300 DBSP Poles
3/4-Ton Truck, 4x4	275	Gas	2		150	6	
Compressor Trailer	120	Diesel	1		150	6	
1-Ton Truck, 4x4	300	Diesel	2		150	10	
4,000g Water Truck	350	Diesel	1		150	10	
Boom/Crane Truck	350	Diesel	1		150	8	
Install Shoo-fly Direct Buried Steel/Wood Pole (7)				18	100		300 DBSP Poles
1-Ton Truck, 4x4	300	Diesel	2		100	6	
Manlift/Bucket Truck	350	Diesel	2		100	10	
Boom/Crane Truck	350	Diesel	2		100	7	
Auger Truck	210	Diesel	2		70	8	
Water Truck	300	Diesel	2		100	10	
Backhoe/Front Loader	125	Diesel	2		100	10	

CONSTRUCTION EQUIPMENT AND WORKFORCE ESTIMATES BY ACTIVITY

Construct single 220kV T/L Shoo-Fly

WORK ACTIVITY				ACTIVITY PRODUCTION			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Total Production
Extendable Flat Bed Pole Truck	400	Diesel	2		100	6	
Install Conductor/GW (8)				165	20		20 Miles
3/4-Ton Truck, 4x4	275	Gas	3		20	10	
1-Ton Truck, 4x4	300	Diesel	6		20	10	
Manlift/Bucket Truck	350	Diesel	3		20	10	
Boom/Crane Truck	350	Diesel	3		20	10	
R/T Crane (M)	215	Diesel	3		20	10	
Dump Truck	350	Diesel	2		20	10	
Wire Truck/Trailer	350	Diesel	3		5.4	10	
Sock Line Puller	300	Diesel	2		5.4	10	
Bull Wheel Puller	350	Diesel	2		10	10	
Static Truck/ Tensioner	350	Diesel	2		20	10	
Splicing Rig	350	Diesel	2		5.4	10	
Spacing Cart	10	Diesel	4		5.4	10	
Backhoe/Front Loader	125	Diesel	2		4	8	
D8 Cat	350	Diesel	1		4	8	
<i>Sag Cat w/ 2 winches</i>	350	<i>Diesel</i>	<i>1</i>		<i>4</i>	<i>10</i>	
Lowboy Truck/Trailer	450	Diesel	3		20	10	
Bell 500		Jet A	2		20	7	
Hughes 500 E		Jet A	2		4	7	
Fuel, Helicopter Support Truck	300	Diesel	2		4	7	
Remove Shoo-fly Conductor & GW (9)				28	20		20 Circuit Miles
1-Ton Truck, 4x4	300	Diesel	8		20	10	
Manlift/Bucket Truck	250	Diesel	6		20	10	
Sleeving Truck	300	Diesel	4		20	5	
Boom/Crane Truck	350	Diesel	4		20	5	
Bull Wheel Puller	500	Diesel	2		14	5	
Truck, Semi-Tractor	350	Diesel	2		10	2	
Hydraulic Rewind Puller	300	Diesel	2		14	5	
4,000g Water Truck	350	Diesel	2		20	10	
Hughes 500 E		Jet A	2		4	7	
Fuel, Helicopter Support Truck	300	Diesel	2		4	7	
Lowboy Truck/Trailer	450	Diesel	6		20	3	
Shoo-fly Pole Removal (10)				8	80		300 LWS Poles
1-Ton Truck, 4x4	300	Diesel	2		80	6	
Compressor Trailer	60	Diesel	2		80	6	
Water Truck	300	Diesel	2		80	10	

CONSTRUCTION EQUIPMENT AND WORKFORCE ESTIMATES BY ACTIVITY

Construct single 220kV T/L Shoo-Fly

WORK ACTIVITY				ACTIVITY PRODUCTION			
Primary Equipment Description	Estimated Horse-Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Total Production
Manlift/Bucket Truck	250	Diesel	2		80	10	
Boom/Crane Truck	350	Diesel	2		80	7	
Flat Bed Truck/ Trailer	400	Diesel	2		80	6	
Restoration (11)				21	8		20 Miles
1-Ton Truck, 4x4	300	Diesel	6		8	4	
Backhoe/Front Loader	125	Diesel	3		8	7	
Motor Grader	250	Diesel	3		8	7	
Water Truck	300	Diesel	3		8	10	
Drum Type Compactor	100	Diesel	3		8	7	
Lowboy Truck/Trailer	450	Diesel	3		8	3	

Crew Size Assumptions:

- #1 Survey = four 4-man crews
- #2 Construction and Materials Yards = one 4-man crew for each yard
- #3 Right-of-Way Clearing = three 5-man crews
- #4 Roads & Landing Work = four 6-man crews
- #5 Shoo-fly Pole Haul = two 4-man crews
- #6 Wood/LWS/Shoo-fly Pole Assembly = three 6-man crews
- #7 Install Wood/H-Frame/LWS/Shoo-fly Pole = three 6-man crews
- #8 Install/Transfer Conductor/GW = three 55-man crews
- #9 Remove Shoo-fly Conductor & GW = two 14-man crews
- #10 Shoo-fly Pole Removal = one 6-man crew
- #11 Restoration = three 7-man crews