

**FAC 8131 ELECTRICAL POWER SUBSTATION**

FY24 SUC: \$21.88 / KV  
Source: Calculated using R.S. Means CostWorks 2023 Qtr 4 component prices

FAC 8131 ELECTRICAL POWER SUBSTATION

Release 2023 Qtr 4  
Zip Code Prefix 222  
Type MR

UM KV  
Design Life 45  
Average Size 4673.0

SUC \$21.88

Adjusted Occurrences are the occurrences remaining after subtracting Repair/Replacement Overlaps. Overlap reduction removes a repair when it occurs the same year as a replacement.

Description	Frequency	Qty Unit	Total In-House	Total Incl OP	Design Life/Frequency	Occurrences in Design Life	Adjusted Occurrences	Life Cost	Adjusted Cost
Repair switchboard meter	10	12.00 Ea.	\$14,623.45	\$17,209.49	4.5000	4	4	\$68,837.95	\$68,837.95
Maintenance and repair of general wiring lightning protection system	1	11.00 M.L.F.	\$1,204.50	\$1,483.75	45.0000	45	45	\$66,768.93	\$66,768.93
Replace lighting fixture exit light	20	14.00 Ea.	\$2,464.91	\$2,989.10	2.2500	2	2	\$5,978.20	\$5,978.20
Repair 500 kva transformer, primary, liquid filled	10	8.00 Ea.	\$20,880.49	\$24,042.94	4.5000	4	4	\$96,171.75	\$96,171.75
Replace transformer 500 KVA, liquid filled	30	8.00 Ea.	\$534,616.00	\$612,390.17	1.5000	1	1	\$612,390.17	\$612,390.17
Maintenance and inspection primary transformer, dry	0.5	8.00 Ea.	\$338.75	\$424.41	90.0000	90	90	\$38,196.82	\$38,196.82
Replace transformer 500 KVA, dry	30	8.00 Ea.	\$351,087.53	\$404,373.58	1.5000	1	1	\$404,373.58	\$404,373.58
Repair switchgear 1200 A mainframe	5	12.00 Ea.	\$21,642.63	\$25,389.03	9.0000	9	7	\$228,501.24	\$177,723.18
Maintenance and inspection switchgear, mainframe	1	12.00 Ea.	\$819.08	\$1,026.18	45.0000	45	45	\$46,178.24	\$46,178.24
Replace switchgear 1200 A mainframe	20	12.00 Ea.	\$51,011.13	\$61,527.58	2.2500	2	2	\$123,055.17	\$123,055.17
Replace fuse	25	16.00 Ea.	\$7,310.32	\$8,394.70	1.8000	1	1	\$8,394.70	\$8,394.70
Repair switchgear, - (5% of total C.B.), indoor, less than 600 V	10	8.00 Ea.	\$6,227.72	\$7,199.47	4.5000	4	4	\$28,797.87	\$28,797.87
Maintenance and inspection switchgear, indoor, less than 600 V	3	8.00 Ea.	\$338.75	\$424.41	15.0000	15	15	\$6,366.14	\$6,366.14
Replace switchgear, 225 A	30	8.00 Ea.	\$16,356.62	\$19,972.36	1.5000	1	1	\$19,972.36	\$19,972.36
Replace TV cable outlet	20	24.00 Ea.	\$1,786.69	\$2,224.52	2.2500	2	2	\$4,449.04	\$4,449.04
Replace lamp exit light	5	14.00 Ea.	\$228.85	\$272.14	9.0000	9	9	\$2,449.27	\$2,449.27
Maintenance and inspection patch panel	0.5	4.00 Ea.	\$364.03	\$456.08	90.0000	90	90	\$41,047.33	\$41,047.33
Replace patch panel	15	1.00 Ea.	\$886.40	\$1,066.81	3.0000	3	3	\$3,200.42	\$3,200.42
Minor chain link fence repairs, per 10 LF	1	1.00 Ea.	\$28.55	\$35.16	45.0000	45	45	\$1,582.02	\$1,582.02
Replace bent 1-5/8" top rail, per 20 LF	2	1.00 Ea.	\$116.39	\$137.68	22.5000	22	22	\$3,029.05	\$3,029.05
Replace broken barbed wire arm	2	1.00 Ea.	\$63.94	\$79.36	22.5000	22	22	\$1,745.85	\$1,745.85
Replace 6' x 18' cantilever slide gate	5	2.00 Opng.	\$10,190.75	\$11,623.67	9.0000	9	9	\$104,613.00	\$104,613.00
Replace 2" line post	5	18.00 Ea.	\$11,590.16	\$13,718.78	9.0000	9	9	\$123,468.99	\$123,468.99
Replace 3" corner post	10	4.00 Ea.	\$3,783.86	\$4,459.42	4.5000	4	4	\$17,837.68	\$17,837.68
Repair cable splice overhead service	12	7.20 M.L.F.	\$3,998.46	\$4,991.19	3.7500	3	3	\$14,973.58	\$14,973.58
Cable inspection overhead service, splice	5	7.20 M.L.F.	\$335.65	\$420.53	9.0000	9	9	\$3,784.73	\$3,784.73
Replace switchboard meter	20	12.00 Ea.	\$49,857.02	\$56,905.73	2.2500	2	2	\$113,811.46	\$113,811.46
Replace lightning protection general wiring system	25	1.00 M.L.F.	\$12,548.36	\$14,875.43	1.8000	1	1	\$14,875.43	\$14,875.43
Maintenance and inspection UPS battery	0.17	2.00 Ea.	\$136.51	\$171.03	264.7059	264	264	\$45,152.06	\$45,152.06
Maintenance and repair rectifier, up to 600 V	2	8.00 Ea.	\$5,367.44	\$6,416.24	22.5000	22	20	\$141,157.32	\$128,324.83
Maintenance and inspection rectifier, up to 600 V	0.33	8.00 Ea.	\$1,092.10	\$1,368.24	136.3636	136	136	\$186,081.21	\$186,081.21

Description	Frequency	Qty Unit	Total In-House	Total Incl OP	Design Life/Frequency	Occurrences in Design Life	Adjusted Occurrences	Life Cost	Adjusted Cost	
Maintenance and repair lightning ground rod	1	22.00 Ea.	\$2,030.23	\$2,537.07	45.0000	45	44	\$114,168.35	\$111,631.27	
Replace lightning ground rod	25	12.00 Ea.	\$2,947.26	\$3,644.06	1.8000	1	1	\$3,644.06	\$3,644.06	
Maintenance and repair transfer switch	5	6.00 Ea.	\$2,141.54	\$2,592.59	9.0000	9	9	\$23,333.31	\$23,333.31	
Maintenance and inspection transfer switch	0.5	6.00 Ea.	\$254.07	\$318.31	90.0000	90	90	\$28,647.61	\$28,647.61	
Replace transfer switch	18	6.00 Ea.	\$149,684.60	\$171,515.33	2.5000	2	2	\$343,030.67	\$343,030.67	
Replace lamp emergency lighting fixture	2	4.00 Ea.	\$217.97	\$263.42	22.5000	22	22	\$5,795.24	\$5,795.24	
Replace rectifier, up to 600 V	20	8.00 Ea.	\$9,530.81	\$10,997.15	2.2500	2	2	\$21,994.31	\$21,994.31	
Replace emergency lighting fixture	20	4.00 Ea.	\$2,299.22	\$2,719.49	2.2500	2	2	\$5,438.99	\$5,438.99	
Replace motor generator UPS battery	15	2.00 Ea.	\$2,132.43	\$2,528.94	3.0000	3	3	\$7,586.81	\$7,586.81	
Maintenance and repair secondary transformer, dry	10	8.00 Ea.	\$2,032.82	\$2,429.00	4.5000	4	4	\$9,716.01	\$9,716.01	
Maintenance and repair exit light	20	4.00 Ea.	\$153.96	\$190.68	2.2500	2	2	\$381.36	\$381.36	
Replace voice/data outlet	20	4.00 Ea.	\$106.38	\$129.77	2.2500	2	2	\$259.55	\$259.55	
Maintenance and inspection secondary transformer, dry	0.5	8.00 Ea.	\$682.56	\$855.15	90.0000	90	90	\$76,963.74	\$76,963.74	
Replace 400W H.P.S. ballast, pole-mounted fixture	10	12.00 Ea.	\$6,685.04	\$7,887.88	4.5000	4	4	\$31,551.54	\$31,551.54	
Replace 400W H.P.S. pole-mounted fixture w/ lamp and ballast	20	12.00 Ea.	\$20,541.65	\$24,263.49	2.2500	2	2	\$48,526.98	\$48,526.98	
Replace service cable overhead service, splice	30	7.20 M.L.F.	\$18,779.00	\$22,759.57	1.5000	1	1	\$22,759.57	\$22,759.57	
Replace 400W H.P.S. lamp, pole-mounted fixture	10	12.00 Ea.	\$1,611.92	\$1,909.11	4.5000	4	4	\$7,636.42	\$7,636.42	
			\$1,353,128.55	\$1,563,610.19				MR Subtotal	\$3,262,528.45	
									MR Per Year	\$72,500.63
									PM Total	\$29,732.58
									Subtotal	\$102,233.21
									Total Per Unit	\$21.88

FAC 8131 ELECTRICAL POWER SUBSTATION

SUC \$21.88

Release 2023 Qtr 4

UM KV

Zip Code Prefix 222

Design Life 45

Type PM

Average Size 4673.0

Description	Qty	Labor Hours	Bare Mat	Bare Labor	Bare Equip	Bare Total	Total In-House	Total Incl OP
Cathodic protection system, annualized	1.00	1.46	\$26.08	\$83.23	\$0.00	\$109.31	\$136.89	\$165.77
Controls, central system, electro/pneumatic, annualized	12.00	23.05	\$2,028.05	\$1,454.50	\$0.00	\$3,482.54	\$4,121.70	\$4,862.25
Switchboard, with air circuit breaker, annualized	12.00	159.82	\$191.81	\$11,134.80	\$0.00	\$11,326.61	\$14,686.23	\$18,055.45
Circuit breaker, high voltage air, annualized	16.00	7.52	\$221.27	\$519.62	\$0.00	\$740.89	\$918.91	\$1,107.98
Transformer, oil pad mounted, annually	8.00	8.66	\$6.75	\$602.10	\$0.00	\$608.86	\$790.16	\$971.81
Motor control center, over 400 A, annualized	16.00	6.22	\$352.02	\$428.90	\$0.00	\$780.91	\$944.78	\$1,126.25
Power stablizer, annualized	8.00	5.00	\$73.28	\$317.55	\$0.00	\$390.82	\$493.42	\$599.67
Light, emergency, hardwired system, annualized	14.00	3.50	\$125.72	\$220.84	\$0.00	\$346.56	\$425.38	\$510.49
Manual slide gate, annualized	2.00	3.03	\$20.67	\$158.01	\$0.00	\$178.68	\$228.15	\$278.66
Switch, interrupt, high voltage, fused air, annualized	12.00	4.37	\$165.95	\$303.11	\$0.00	\$469.06	\$576.59	\$692.42
Circuit breaker, high voltage oil, annualized	12.00	10.26	\$178.88	\$711.39	\$0.00	\$890.27	\$1,121.58	\$1,361.83
						\$19,324.53	\$24,443.79	\$29,732.58



# FAC 8131 ELECTRICAL POWER SUBSTATION

## Modeled Component List

### CostWorks Release 2023 Qtr 4

#### D50 Electrical

Exit Light	14.0 Ea.
Primary Transformer, Dry	8.0 Ea.
Switchgear, Mainframe	12.0 Ea.
Switchgear, Indoor, Less Than 600 V	8.0 Ea.
TV Cable Outlet	24.0 Ea.
Lightning Protection System	1.0 M.L.F.
UPS Battery, maintenance & inspection	2.0 Ea.
Lightning Ground Rod	12.0 Ea.
Transfer Switch	6.0 Ea.
Rectifier, Up To 600 V	8.0 Ea.
Emergency Lighting Fixture	4.0 Ea.
UPS Battery, replace motor	2.0 Ea.

#### G40 Site Electrical Utilities

Pole-Mounted Fixture & Ballast 400W H.P.S.	12.0 Ea.
Pole-Mounted Lamp 400W H.P.S.	12.0 Ea.
Cathodic Protection, annualized	1.0 Each

#### G20 Site Improvements

Gate, Manual slide, annualized	2.0 Each
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Sustainment by Year  
CostWorks Release 2023 Qtr 4

