

FAC 8131 ELECTRICAL POWER SUBSTATION

FY22 SUC: \$18.96 / KV

Source: Calculated using R.S. Means CostWorks 2021 Qtr 3 component prices

FAC 8131 ELECTRICAL POWER SUBSTATION

Release 2021 Qtr 3
Zip Code Prefix 222
Type MR

UM KV
Design Life 45
Average Size 4176.0

SUC \$18.96

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
Maintenance and inspection motor starter, up to 600 V	0.5	16.00 Ea.	\$863.69	\$1,082.08	90.0000	90	90	\$97,387.32	\$97,387.32
Replace starter motor starter, up to 600 V	18	16.00 Ea.	\$12,884.97	\$15,329.19	2.5000	2	2	\$30,658.38	\$30,658.38
Maintenance and repair secondary transformer, dry	10	8.00 Ea.	\$1,859.52	\$2,226.13	4.5000	4	4	\$8,904.52	\$8,904.52
Maintenance and inspection secondary transformer, dry	0.5	8.00 Ea.	\$645.23	\$808.38	90.0000	90	90	\$72,754.05	\$72,754.05
Replace TV cable outlet	20	24.00 Ea.	\$1,709.25	\$2,126.09	2.2500	2	2	\$4,252.18	\$4,252.18
Maintenance and repair of general wiring lightning protection system	1	22.00 M.L.F.	\$2,127.92	\$2,636.18	45.0000	45	45	\$118,628.25	\$118,628.25
Replace lightning protection general wiring system	25	1.00 M.L.F.	\$11,009.12	\$13,095.99	1.8000	1	1	\$13,095.99	\$13,095.99
Maintenance and repair lightning ground rod	1	22.00 Ea.	\$1,933.56	\$2,415.32	45.0000	45	44	\$108,689.29	\$106,273.97
Replace lightning ground rod	25	12.00 Ea.	\$2,713.08	\$3,363.49	1.8000	1	1	\$3,363.49	\$3,363.49
Replace lamp emergency lighting fixture	2	4.00 Ea.	\$218.76	\$263.50	22.5000	22	22	\$5,797.06	\$5,797.06
Replace emergency lighting fixture	20	4.00 Ea.	\$2,409.47	\$2,839.05	2.2500	2	2	\$5,678.09	\$5,678.09
Maintenance and repair exit light	20	4.00 Ea.	\$148.81	\$184.01	2.2500	2	2	\$368.03	\$368.03
Replace lamp exit light	5	14.00 Ea.	\$235.85	\$279.49	9.0000	9	9	\$2,515.40	\$2,515.40
Replace lighting fixture exit light	20	14.00 Ea.	\$2,674.49	\$3,216.65	2.2500	2	2	\$6,433.30	\$6,433.30
Replace voice/data outlet	20	4.00 Ea.	\$103.65	\$126.21	2.2500	2	2	\$252.42	\$252.42
Replace patch panel	15	1.00 Ea.	\$823.53	\$992.53	3.0000	3	3	\$2,977.58	\$2,977.58
Minor chain link fence repairs, per 10 LF	1	1.00 Ea.	\$26.98	\$33.18	45.0000	45	45	\$1,493.24	\$1,493.24
Replace bent 1-5/8" top rail, per 20 LF	2	1.00 Ea.	\$109.06	\$128.99	22.5000	22	22	\$2,837.85	\$2,837.85
Replace broken barbed wire arm	2	1.00 Ea.	\$60.59	\$75.09	22.5000	22	22	\$1,652.03	\$1,652.03
Replace 6' x 18' cantilever slide gate	5	2.00 Opng.	\$9,413.44	\$10,737.34	9.0000	9	9	\$96,636.04	\$96,636.04
Replace 2" line post	20	18.00 Ea.	\$12,683.61	\$14,855.83	2.2500	2	2	\$29,711.66	\$29,711.66
Replace 3" corner post	10	4.00 Ea.	\$4,227.17	\$4,927.17	4.5000	4	4	\$19,708.68	\$19,708.68
Repair cable splice overhead service	12	7.20 M.L.F.	\$3,820.63	\$4,765.54	3.7500	3	3	\$14,296.63	\$14,296.63
Cable inspection overhead service, splice	5	7.20 M.L.F.	\$318.88	\$399.51	9.0000	9	9	\$3,595.62	\$3,595.62
Replace service cable overhead service, splice	30	7.20 M.L.F.	\$17,302.66	\$21,019.95	1.5000	1	1	\$21,019.95	\$21,019.95
Repair 500 kva transformer, primary, liquid filled	10	8.00 Ea.	\$22,525.83	\$25,896.42	4.5000	4	4	\$103,585.67	\$103,585.67
Replace transformer 500 KVA, liquid filled	30	8.00 Ea.	\$218,599.44	\$253,001.42	1.5000	1	1	\$253,001.42	\$253,001.42
Maintenance and inspection primary transformer, dry	0.5	8.00 Ea.	\$325.15	\$407.37	90.0000	90	90	\$36,663.46	\$36,663.46
Replace transformer 500 KVA, dry	30	8.00 Ea.	\$345,286.10	\$397,474.74	1.5000	1	1	\$397,474.74	\$397,474.74
Repair switchgear 1200 A mainframe	5	12.00 Ea.	\$22,854.46	\$26,730.90	9.0000	9	7	\$240,578.07	\$187,116.27
Maintenance and inspection switchgear, mainframe	1	12.00 Ea.	\$777.32	\$973.87	45.0000	45	45	\$43,824.29	\$43,824.29

Description	Frequency	Qty Unit	Total In-House	Total Incl OP	Design Life/Frequency	Occurrences in Design Life	Adjusted Occurrences	Life Cost	Adjusted Cost
Replace switchgear 1200 A mainframe	20	12.00 Ea.	\$52,201.43	\$62,705.72	2.2500	2	2	\$125,411.44	\$125,411.44
Replace fuse	25	16.00 Ea.	\$6,610.63	\$7,595.17	1.8000	1	1	\$7,595.17	\$7,595.17
Repair switchgear, - (5% of total C.B.), indoor, less than 600 V	10	8.00 Ea.	\$4,312.44	\$5,017.09	4.5000	4	4	\$20,068.36	\$20,068.36
Maintenance and inspection switchgear, indoor, less than 600 V	3	8.00 Ea.	\$325.15	\$407.37	15.0000	15	15	\$6,110.58	\$6,110.58
Replace switchgear, 225 A	30	8.00 Ea.	\$47,580.17	\$55,383.44	1.5000	1	1	\$55,383.44	\$55,383.44
Repair switchboard meter	10	12.00 Ea.	\$18,826.75	\$21,962.20	4.5000	4	4	\$87,848.81	\$87,848.81
Replace switchboard meter	20	12.00 Ea.	\$72,469.99	\$82,590.18	2.2500	2	2	\$165,180.36	\$165,180.36
Maintenance and repair rectifier, up to 600 V	2	8.00 Ea.	\$5,494.37	\$6,545.44	22.5000	22	20	\$143,999.76	\$130,908.88
Maintenance and inspection rectifier, up to 600 V	0.33	8.00 Ea.	\$1,036.43	\$1,298.50	136.3636	136	136	\$176,595.66	\$176,595.66
Replace rectifier, up to 600 V	20	8.00 Ea.	\$10,162.20	\$11,706.57	2.2500	2	2	\$23,413.14	\$23,413.14
Maintenance and repair motor starter, up to 600 V	5	16.00 Ea.	\$4,474.22	\$5,401.57	9.0000	9	9	\$48,614.12	\$48,614.12
			\$924,186.02	\$1,073,024.86				MR Subtotal	\$2,539,087.52
								MR Per Year	\$56,424.17
								PM Total	\$22,733.17
								Subtotal	\$79,157.34
								Total Per Unit	\$18.96

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SUC \$18.96

Release 2021 Qtr 3

UM KV

Zip Code Prefix 222

Design Life 45

Type PM

Average Size 4176.0

Description	Qty	Labor Hours	Bare Mat	Bare Labor	Bare Equip	Bare Total	Total In-House	Total Incl OP
Controls, central system, electro/pneumatic, annualized	2.00	3.84	\$141.54	\$230.82	\$0.00	\$372.36	\$455.76	\$546.24
Switchboard, with air circuit breaker, annualized	12.00	159.82	\$205.99	\$10,505.04	\$0.00	\$10,711.03	\$13,883.15	\$17,065.56
Circuit breaker, high voltage air, annualized	16.00	7.52	\$242.49	\$497.28	\$0.00	\$739.77	\$913.20	\$1,098.76
Transformer, dry type 500 KVA and over, annualized	16.00	12.30	\$242.49	\$812.22	\$0.00	\$1,054.72	\$1,322.63	\$1,602.67
Motor control center, over 400 A, annualized	16.00	6.22	\$371.16	\$414.40	\$0.00	\$785.56	\$947.00	\$1,126.99
Power stablizer, annualized	8.00	5.00	\$74.23	\$294.22	\$0.00	\$368.46	\$464.15	\$563.55
Light, emergency, hardwired system, annualized	14.00	3.50	\$108.25	\$206.68	\$0.00	\$314.94	\$387.77	\$466.01
Manual slide gate, annualized	2.00	3.03	\$22.49	\$147.05	\$0.00	\$169.54	\$215.91	\$263.39
						\$14,516.38	\$18,589.56	\$22,733.17

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Modeled Component List

CostWorks Release 2021 Qtr 3

D50 Electrical

Motor Starter, Up To 600 V	16.0 Ea.
TV Cable Outlet	24.0 Ea.
Lightning Protection System	1.0 M.L.F.
Lightning Ground Rod	12.0 Ea.
Emergency Lighting Fixture	4.0 Ea.
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.
Rectifier, Up To 600 V	8.0 Ea.

G20 Site Improvements

Gate, Manual slide, annualized	2.0 Each
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Sustainment by Year
CostWorks Release 2021 Qtr 3

