TransPower Company
Saving Energy and Our Environment

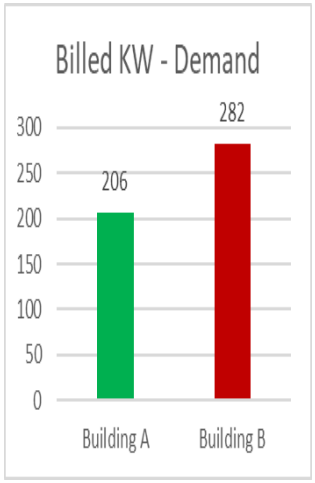
Case Study

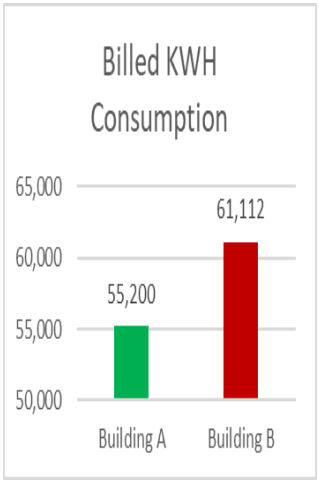
MPTS Technology

DCSD – AA, K-8 Schools

Client
Cunningham Architects, the designer of two similar K-8 schools in Douglas County School District in Colorado, performed a real world electrical demand test by choosing to include MPTS technology in one school building and not the other building. The K-8 schools are both 94,705 square foot designs, are located 2 miles apart, and have the same utility company. Both schools have approximately 950 students.

Upon completion (August 2017) and occupation of both schools, a one year electrical demand comparison study was done. Following are the results of the study:







TWO Similar School Buildings, One with MPTS Technology and One without the MPTS
MPTS Technology for Reduced Operating Costs with Clean and Stable Power for their operations.

Similar Buildings – 100,000 SFT

Building A – AA3 With MPTS – Good Power Quality

Mains Electrical Panel

Loads
7 - RTUs
7 - VFDs
Controls
Fans

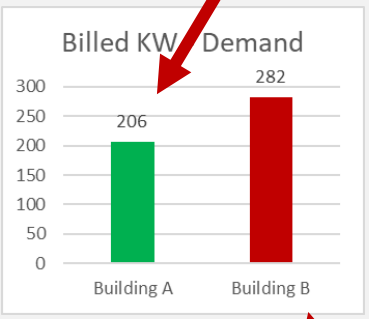
Loads
Lighting
Receptacles
Elevators
Servers
Other loads

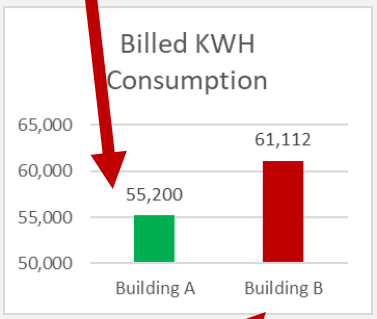
Building A

Voltage = 480V
Peak Demand = 206 KW
Consumption = 55,200 KWH
Power Factor > 90 percent

MPTS

MPTS is a low impedance point
Protecting all loads in the electrical network





Buildings with similar
- Use
- Loads
- Hours of operations

Mains Electrical Panel

Loads
7 - RTUs
7 - VFDs
Controls
Fans

Loads
Lighting
Receptacles
Elevators
Servers
Other loads

Building B – AA2 Without MPTS Poor Power Quality

Building B

Voltage = 480V
Peak Demand = 282 KW
Consumption = 62,112 KWH
Power Factor < 90 percent

TransPower Company
Saving Energy and Our Environment

Case Study

MPTS Technology

Power Quality Improvement Solution:
MPTS - 21st Century power quality improvement Technology



MPTS, maximum power transfer solutions, are next generation power quality products that **decrease the Electrical Demand, Total Electrical Power requirement or Generation (KVA) and the Carbon Foot Print without** replacing/retrofitting inefficient electrical and mechanical equipment by cleaning and recycling wasted electrical power in the electrical network – a renewable energy solution inside the building!

TWO Similar School Buildings
One with MPTS Technology and One without the MPTS



Mains Electrical Panel

M1 Sub Panel For RTUs

Loads

7 - RTUs

7 - VFDs

Controls



MPTS is a low impedance point Protecting all loads in the electrical network

Loads

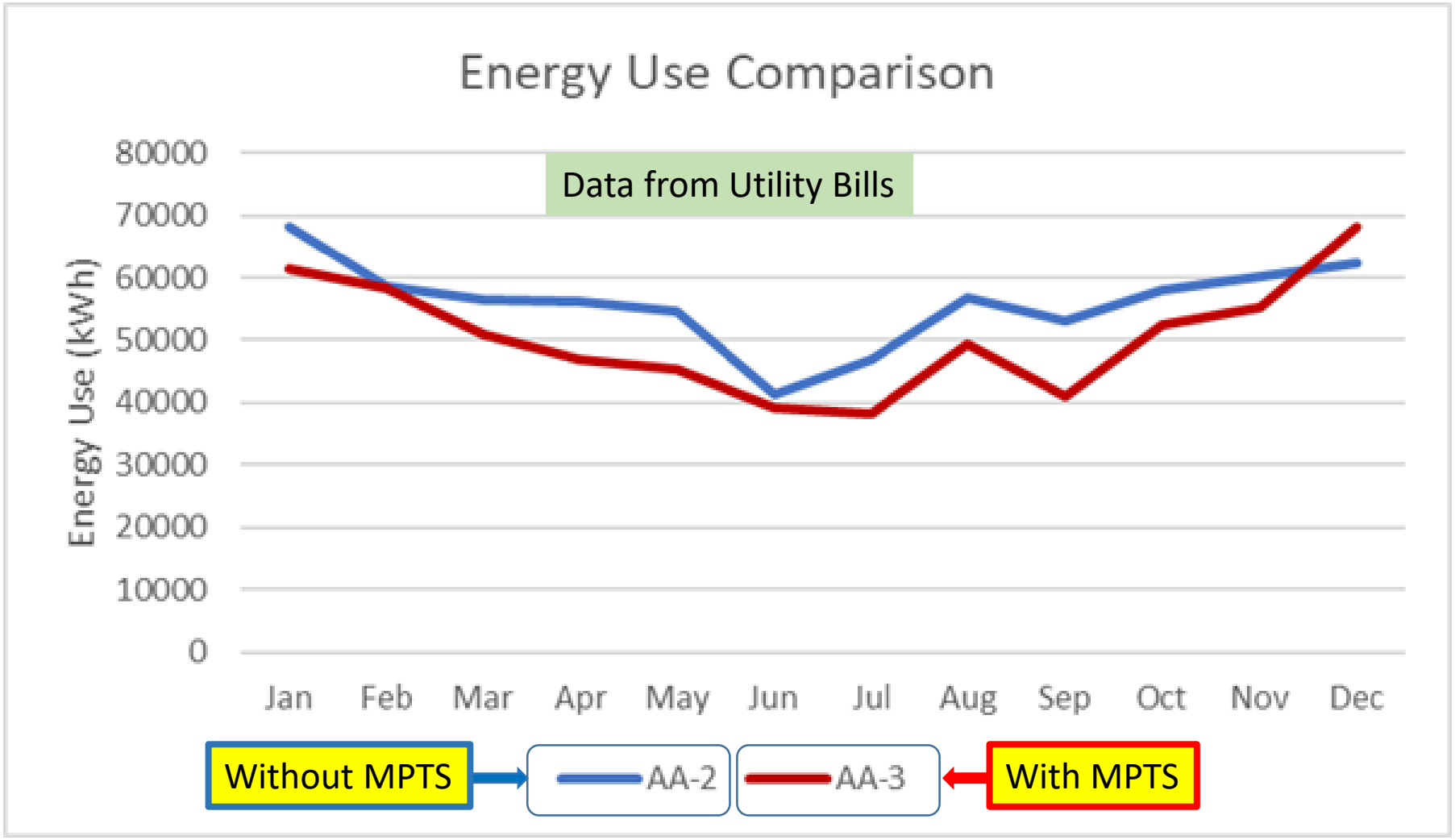
Lighting

Receptacles

Elevators

Servers

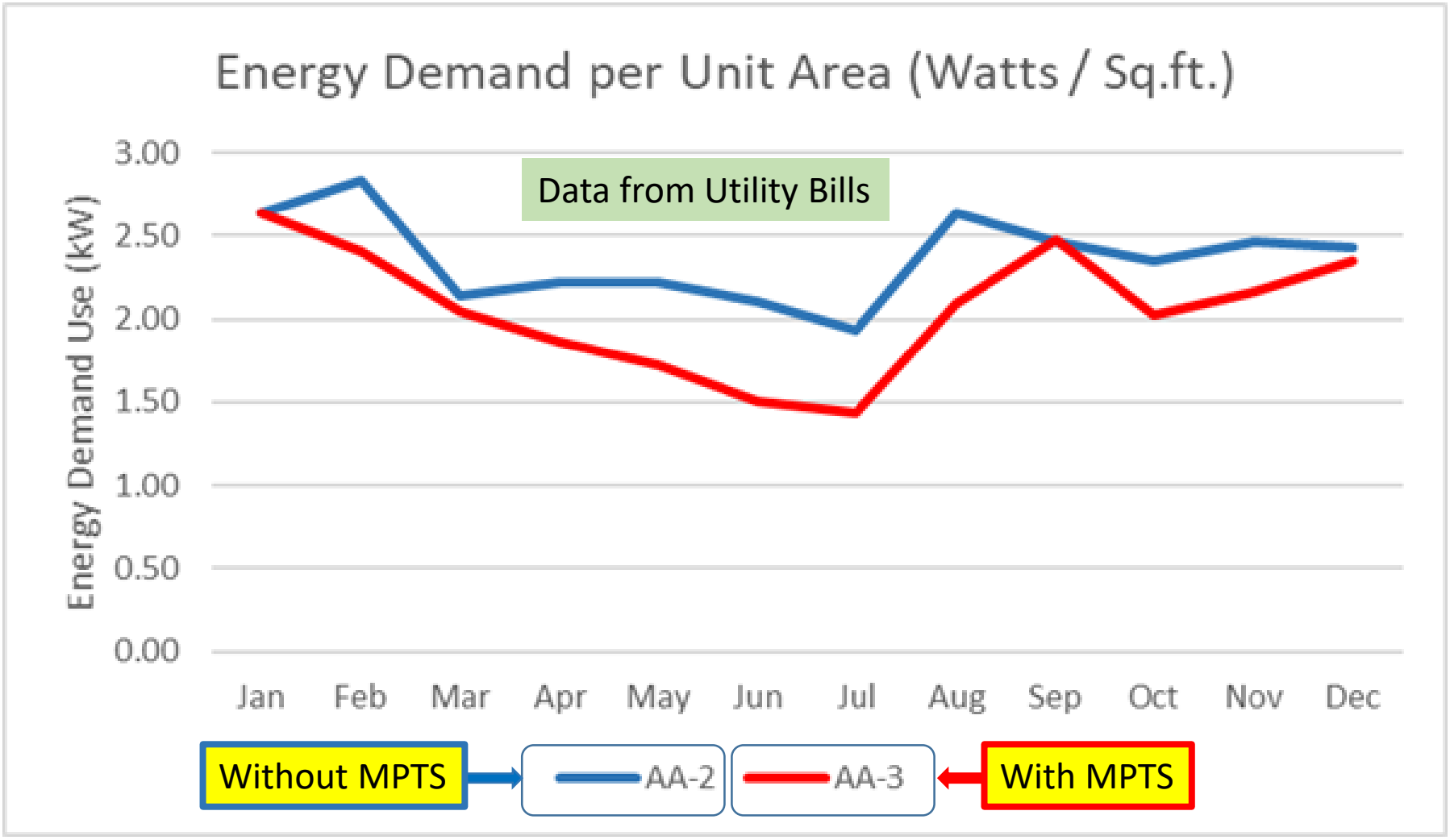
Other loads



Electrical Use Comparison – 12 months

AA2 – 672,768 kWh

AA3 – 606,670 kWh (10% reduction)



Electrical Demand Comparison – 12 months

AA2 – 2,653 kW

AA3 – 2,342 kW (12% reduction)

Architects: Cunningham Group – Paul Hutton

AA2 and AA3 (2017) Similar School buildings

Completed: August 2017

Area: 94,705 s.f.

Floors: 3

Students: 950

HVAC: gas fired rooftop with displacement ventilation

Lighting: LED with dimming





AA2 and AA3 Similar buildings



AA2 and AA3 Similar buildings

	KW Comparison			kWh Comparison		
BillCycle	School1 (NoMPTS) TotalPower Cost kW/Cycle	School2 (WithMPTS) TotalPower Cost kW/Cycle	DIFF	School1 (NoMPTS) kWh Usage $/Day	School2 (WithMPTS) kWh Usage $/Day	DIFF
1	257.28	195.84	61.44	1907.61	1680.00	227.61
2	253.44	224.64	28.80	1894.40	1728.00	166.40
3	199.68	153.60	46.08	1489.45	1420.80	68.65
4	168.96	138.24	30.72	1248.00	1251.10	-3.10
5	215.04	168.96	46.08	1734.19	1424.52	309.68
6	199.68	167.04	32.64	1716.00	1470.00	246.00
7	253.44	205.44	48.00	1959.72	1774.34	185.38
8	230.40	222.72	7.68	2029.71	2310.86	-281.14
9	226.56	222.72	3.84	2081.03	2195.20	-114.17
10	211.20	205.44	5.76	1870.45	2070.00	-199.55
11	203.52	222.72	-19.20	1843.20	1932.80	-89.60
12	218.88	213.12	5.76	1885.09	1506.91	378.18
13	245.76	195.84	49.92	1933.71	1505.28	428.43
14	245.76	197.76	48.00	1833.29	1451.29	382.00
15	180.48	136.32	44.16	1464.00	1324.14	139.86
16	195.84	142.08	53.76	1430.07	1224.00	206.07
17	207.36	163.20	44.16	1758.97	1467.87	291.10
18	207.36	176.64	30.72	1808.52	1511.23	297.29
	217.81	186.24	31.57	1771.52	1624.91	146.62

kW Demand @ School 2 (WithMPTS) is less than School 1	kWh Daily Usage @ School 2 (WithMPTS) is less than School 1
14.496%	**8.276%**

Two Identical School Buildings – both are new construction built two years apart and are located within 2 miles of each other

Meter # 95440334 – there is no MPTS see Utility Audit below

Meter # 95536029 – There is MPTS – See Utility Audit Below

HOME ENERGY AUDIT

Recommended Energy Conservation Measures

5496 North U.S. Highway 85
Sedalia, CO 80135
303-688-3100
www.irea.coop

95440334

Usage History

Date	Days	Register Code	Metered Amount	Avg Daily KWH	Rate	Charge	KWH Charge per day
9/30/2019	31	KW	257.28		14	$3601.92	
9/30/2019	31	KWH	59136	1907.61	0.0644	$3813.68	$123.02
8/30/2019	30	KWH	56832	1894.4	0.0644	$3665.1	$122.17
8/30/2019	30	KW	253.44		14	$3548.16	
7/31/2019	33	KWH	49152	1489.45	0.0644	$3169.81	$96.05
7/31/2019	33	KW	199.68		14	$2795.52	
6/28/2019	28	KW	168.96		14	$2365.44	
6/28/2019	28	KWH	34944	1248	0.0644	$2253.54	$80.48
5/31/2019	31	KWH	53760	1734.19	0.0644	$3466.98	$111.84
5/31/2019	31	KW	215.04		14	$3010.56	
4/30/2019	32	KWH	54912	1716	0.0644	$3541.27	$110.66
4/30/2019	32	KW	199.68		14	$2795.52	
3/29/2019	29	KWH	56832	1959.72	0.0644	$3665.1	$126.38
3/29/2019	29	KW	253.44		14	$3548.16	
2/28/2019	28	KWH	56832	2029.71	0.0644	$3665.1	$130.9
2/28/2019	28	KW	230.4		14	$3225.6	
1/31/2019	31	KWH	64512	2081.03	0.0644	$4160.38	$134.21
1/31/2019	31	KW	226.56		14	$3171.84	
12/31/2018	31	KW	211.2		14	$2956.8	
12/31/2018	31	KWH	57984	1870.45	0.0644	$3739.39	$120.63
11/30/2018	30	KWH	55296	1843.2	0.0644	$3566.04	$118.87
11/30/2018	30	KW	203.52		14	$2849.28	
10/31/2018	33	KW	218.88		14	$3064.32	
10/31/2018	33	KWH	62208	1885.09	0.0644	$4011.79	$121.57
9/28/2018	28	KW	245.76		14	$3440.64	
9/28/2018	28	KWH	54144	1933.71	0.0644	$3491.75	$124.71
8/31/2018	31	KWH	56832	1833.29	0.0644	$3665.1	$118.23
8/31/2018	31	KW	245.76		14	$3440.64	
7/31/2018	32	KWH	46848	1464	0.0644	$3021.23	$94.41
7/31/2018	32	KW	180.48		14	$2526.72	
6/29/2018	29	KW	195.84		14	$2741.76	
6/29/2018	29	KWH	41472	1430.07	0.0644	$2674.53	$92.23
5/31/2018	31	KWH	54528	1758.97	0.0644	$3516.51	$113.44
5/31/2018	31	KW	207.36		14	$2903.04	
4/30/2018	31	KWH	56064	1808.52	0.0644	$3615.57	$116.63
4/30/2018	31	KW	207.36		14	$2903.04	
3/30/2018	30	KWH	56448	1881.6	0.0644	$3640.33	$121.34

HOME ENERGY AUDIT

Recommended Energy Conservation Measures

5496 North U.S. Highway 85
Sedalia, CO 80135
303-688-3100
www.irea.coop

95536029

Usage History

Date	Days	Register Code	Metered Amount	Avg Daily KWH	Rate	Charge	KWH Charge per day
10/7/2019	28	KW	195.84		17.25	$3378.24	
10/7/2019	28	KWH	47040	1680	0.0534	$2513.82	$89.78
9/9/2019	33	KW	224.64		17.25	$3875.04	
9/9/2019	33	KWH	57024	1728	0.0534	$3047.36	$92.34
8/7/2019	30	KW	153.6		17.25	$2649.6	
8/7/2019	30	KWH	42624	1420.8	0.0534	$2277.83	$75.93
7/8/2019	31	KW	138.24		17.25	$2384.64	
7/8/2019	31	KWH	38784	1251.1	0.0534	$2072.62	$66.86
6/7/2019	31	KW	168.96		17.25	$2914.56	
6/7/2019	31	KWH	44160	1424.52	0.0534	$2359.91	$76.13
5/7/2019	32	KW	167.04		17.25	$2881.44	
5/7/2019	32	KWH	47040	1470	0.0534	$2513.82	$78.56
4/5/2019	29	KW	205.44		17.25	$3543.84	
4/5/2019	29	KWH	51456	1774.34	0.0534	$2749.81	$94.82
3/7/2019	28	KW	222.72		17.25	$3841.92	
3/7/2019	28	KWH	64704	2310.86	0.0534	$3457.78	$123.49
2/7/2019	30	KWH	65856	2195.2	0.0534	$3519.34	$117.31
2/7/2019	30	KW	222.72		17.25	$3841.92	
1/8/2019	32	KW	205.44		17.25	$3543.84	
1/8/2019	32	KWH	66240	2070	0.0534	$3539.87	$110.62
12/7/2018	30	KW	222.72		17.25	$3841.92	
12/7/2018	30	KWH	57984	1932.8	0.0534	$3098.66	$103.29
11/7/2018	33	KW	213.12		17.25	$3676.32	
11/7/2018	33	KWH	49728	1506.91	0.0534	$2657.46	$80.53
10/5/2018	25	KW	195.84		17.25	$3378.24	
10/5/2018	25	KWH	37632	1505.28	0.0534	$2011.05	$80.44
9/10/2018	34	KW	197.76		17.25	$3411.36	
9/10/2018	34	KWH	49344	1451.29	0.0534	$2636.94	$77.56
8/7/2018	29	KW	136.32		17.25	$2351.52	
8/7/2018	29	KWH	38400	1324.14	0.0534	$2052.1	$70.76
7/9/2018	32	KWH	39168	1224	0.0534	$2093.14	$65.41
7/9/2018	32	KW	142.08		17.25	$2450.88	
6/7/2018	31	KW	163.2		17.25	$2815.2	
6/7/2018	31	KWH	45504	1467.87	0.0534	$2431.73	$78.44
5/7/2018	31	KWH	46848	1511.23	0.0534	$2503.56	$80.76
5/7/2018	31	KW	176.64		17.25	$3047.04	
4/6/2018	30	KW	193.92		17.25	$3345.12	