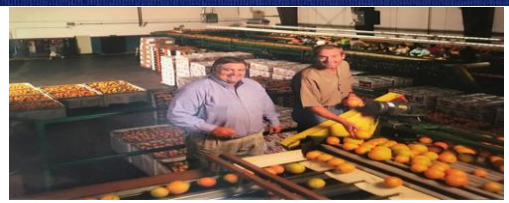
Porterville Citrus

INCORPORATED

EMPLOYEE OWNED SINCE 2010







CO2 Reduction and Energy Efficiency at Porterville Citrus

Por ars.
Wi - in
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wit ing
exc



Reductions in CO2 emissions using MPTS

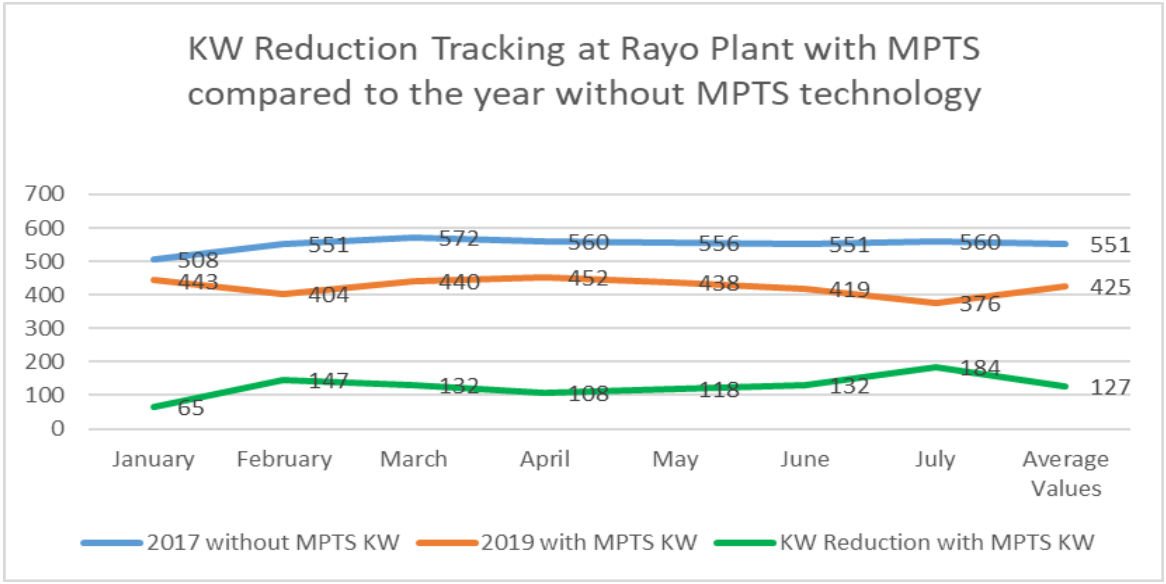
Energy Efficiency using MPTS

Reduction of 100 KW on PG&E Utility Bills after MPTS was installed

Plant	2016 KW	2017 KW	2018 KW	2019 KW
	Without/before MPTS	Without/before MPTS	Values With/after MPTS	Values With/After MPTS
January	528	508	548	443
February	548	551	544	404
March	572	572	540	440
April	604	560	560	452
May	580	556	528	438
June	572	551	516	419
July	528	560	432	376
Average per Month	562	551	524	425
With MPTS-Power Quality Improvement		AVERAGE Monthly	**KW Reduction =**	99

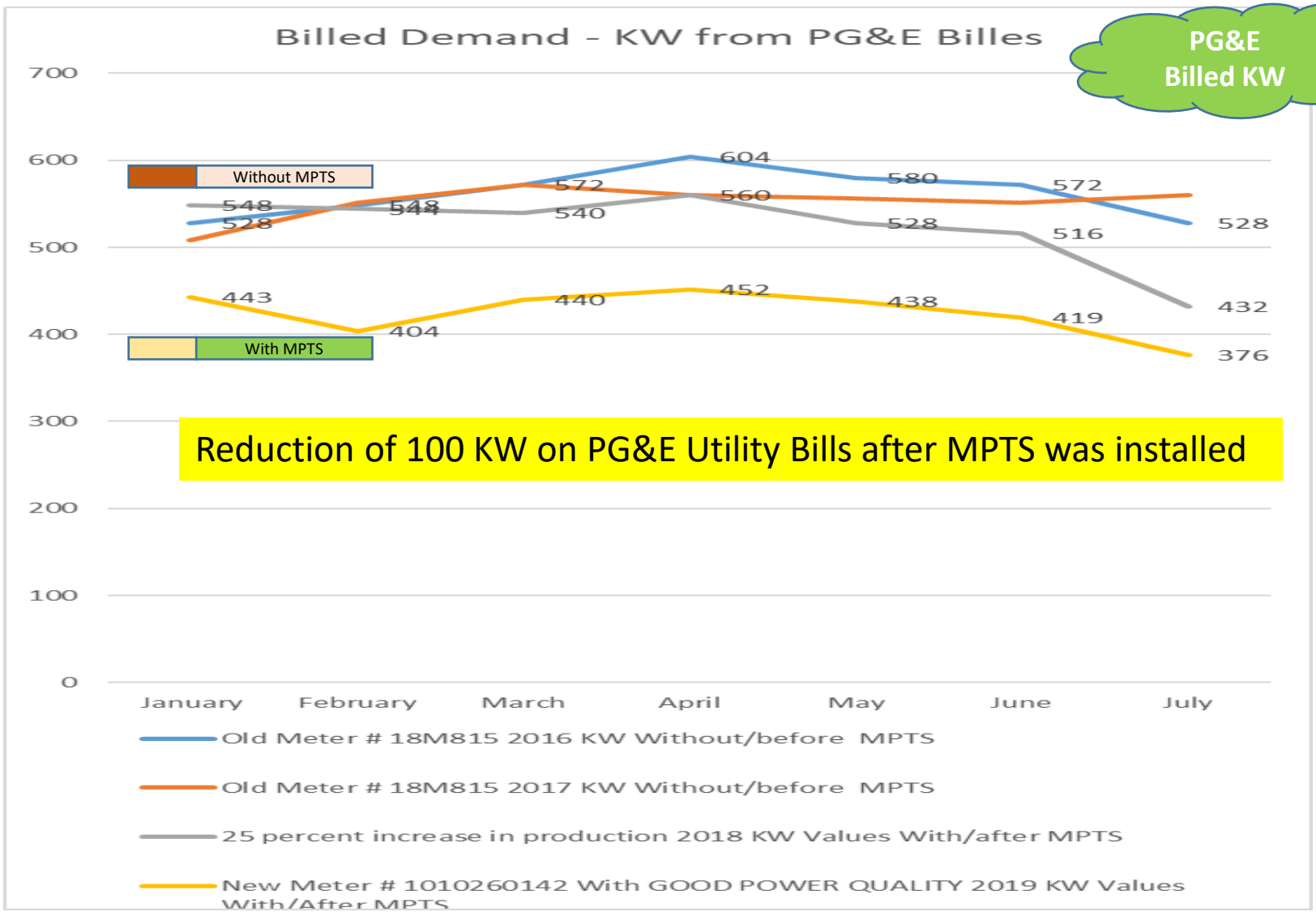
Reduction in Power Generation and Carbon Emission

PG&E Verification Data
Interval Data
&
Billed Data



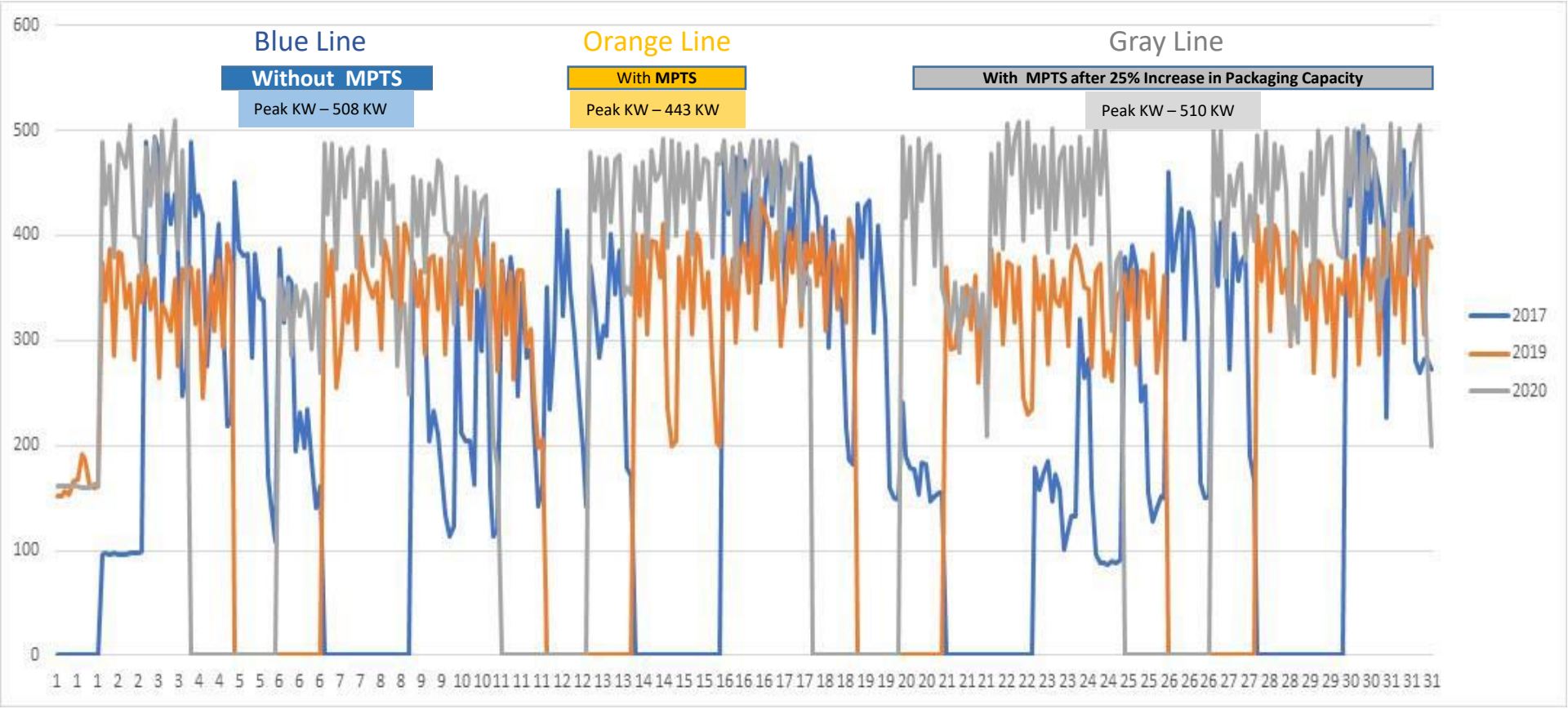
Rayo Plant	Benchmark without MPTS	Data with MPTD compare to	Reduction	Percent Reduction
Peak Demand Verification	Interval data Peak KW	Interval data Peak KW	KW Savings Compared to	in KW
by Peter F	2017	2019	2017	2017 Vs. 2019
PG&E Verification	KW	KW	KW	KW Savings
January	508	443	65	13%

Rayo Plant	KW from Utility Bills	KW from Utility bills	KW Reduction	Percent Reduction
Data from Utility Bills	2017 without MPTS	2019 with MPTS	KW Reduction with MPTS	KW Savings with MPTS
Demand Data Verification	KW	KW	KW	KW Percentage Reduction with MPTS
January	508	443	65	13%
February	551	404	147	27%
March	572	440	132	23%
April	560	452	108	19%
May	556	438	118	21%
June	551	419	132	24%
July	560	376	184	33%
Average Values	551	425	127	23%



Reduction in Power Generation and Carbon Emission

PG&E Verification of MPTS Performance – 15 Minute Interval Data



2017 vs 2019 vs 2020 January data, averaging per hour across 15 minute increments and only looking at weekdays

- Benchmark Data – Interval Data Without MPTS
- Compare with Benchmark Data – Interval Data With MPTS
- Compare with Benchmark Data – Interval Data With MPTS after additional Lemon packaging line was commissioned

MPTS Actual Performance Data

Billing period - January 7 to February 6th 2018

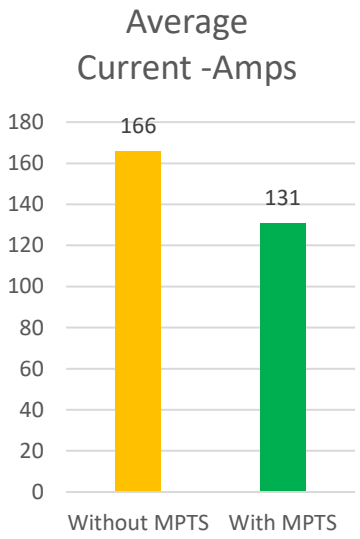
Recorded Data on 800 Amp Panel – MPTS ID 162

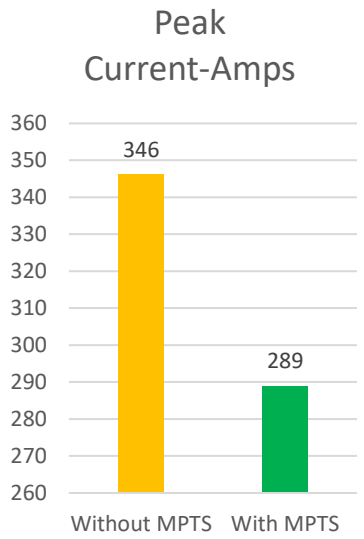
Average Current	
Without MPTS	165.7
With MPTS	130.9
% Reduction	21%

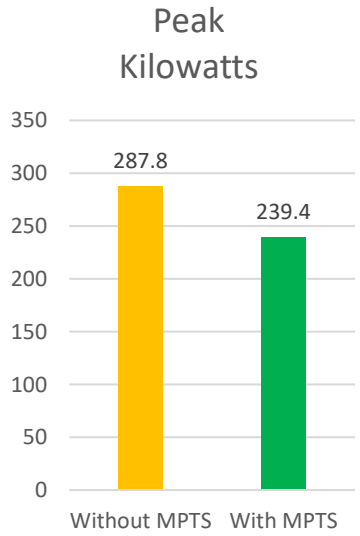
Peak Current	
Without MPTS	346
With MPTS	289
% Reduction	16%

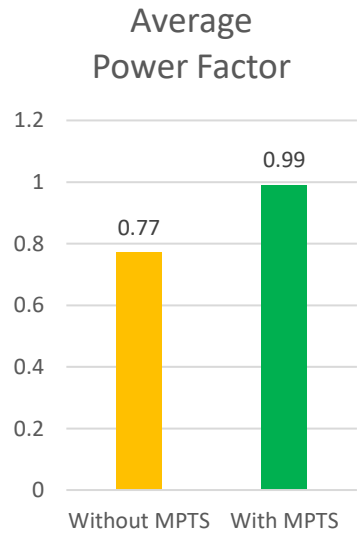
Peak KW	
Without MPTS	287.8
With MPTS	239.4
% Reduction	17%

Average Power Factor	
Without MPTS	0.77
With MPTS	0.99
% Improvement	22%







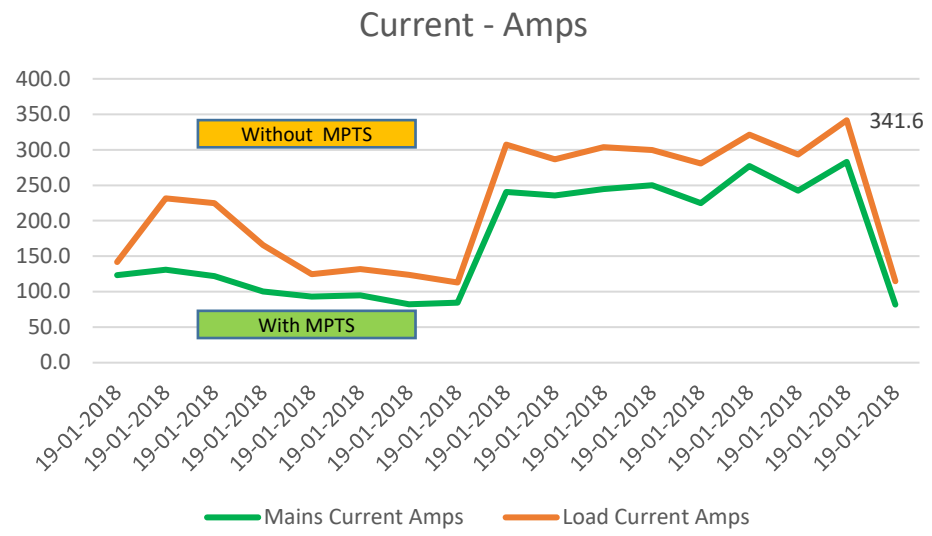


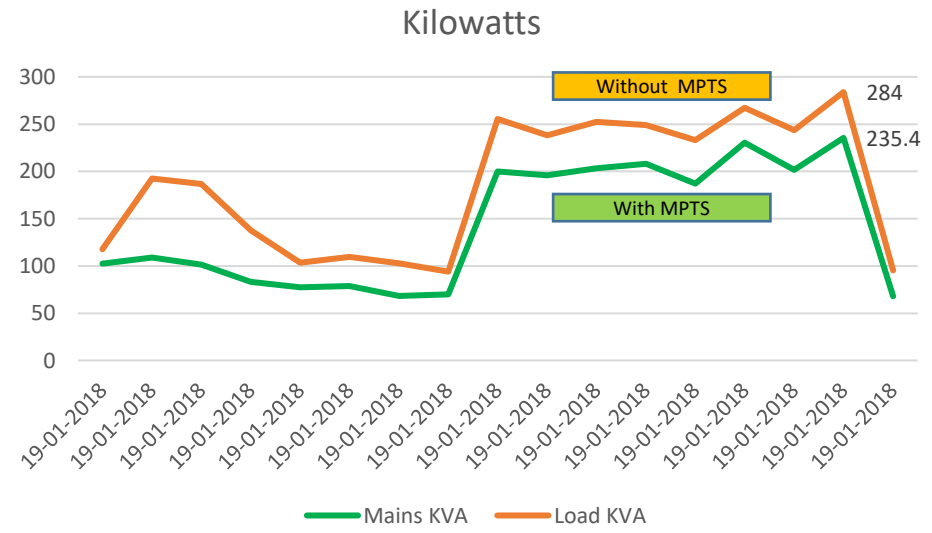
With MPTS

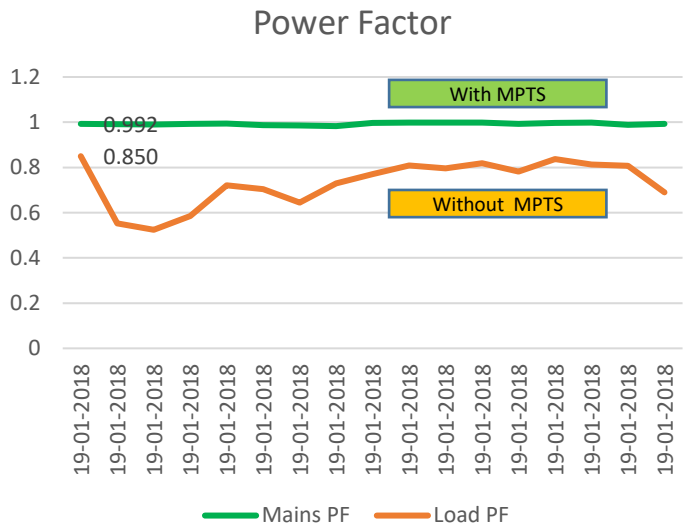
Recorded Data on 800 Amp Panel

MPTS ID 162

Jan 19th 2018







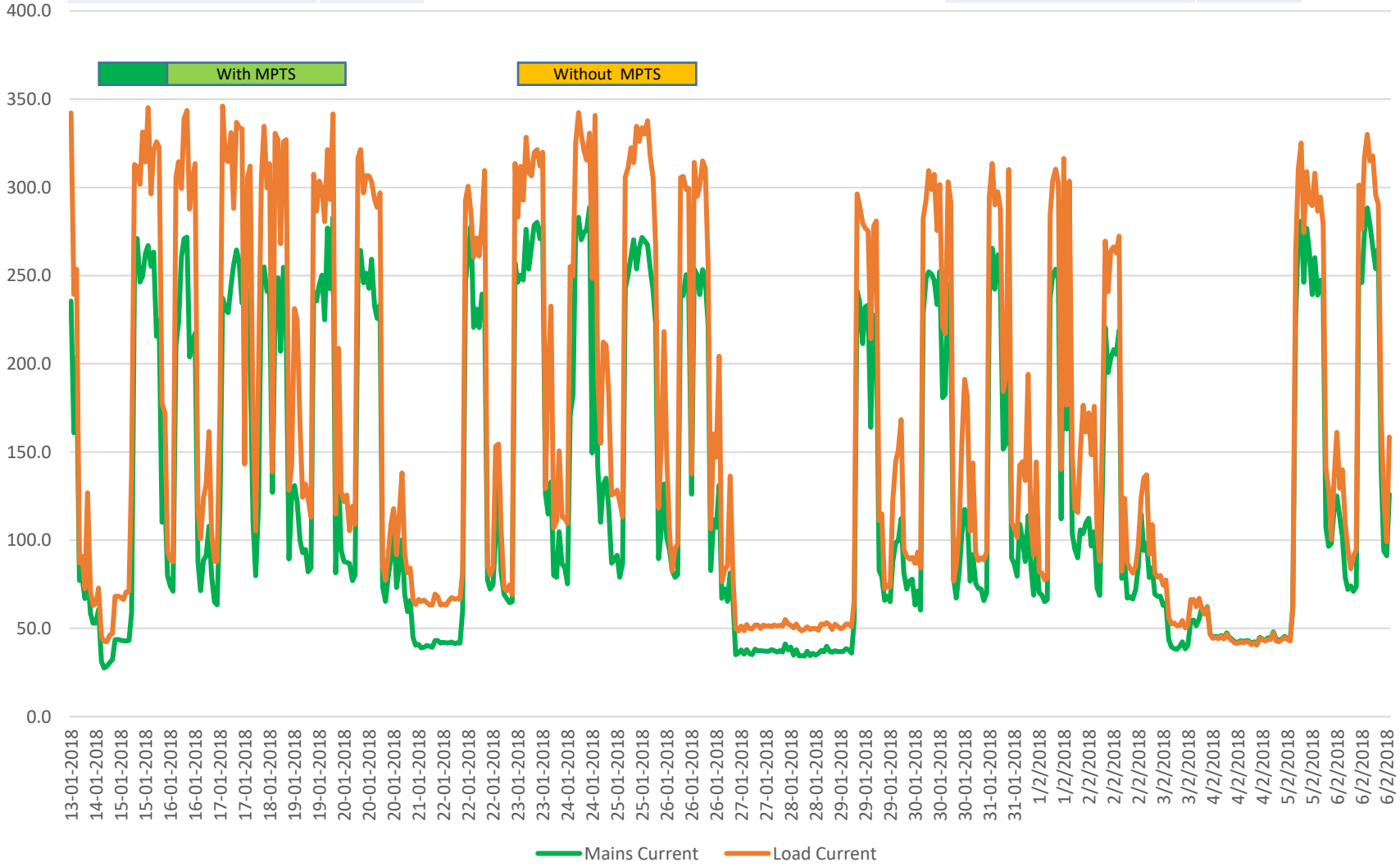
MPTS Performance Data

Billing period - January 7 to February 6th 2018

Recorded Data on 800 Amp Panel – MPTS ID 162

Average Current	Amps
Without MPTS	166
With MPTS	131
% reduction	21%

Peak Current	Amps
Without MPTS	346
With MPTS	289
% reduction	17%

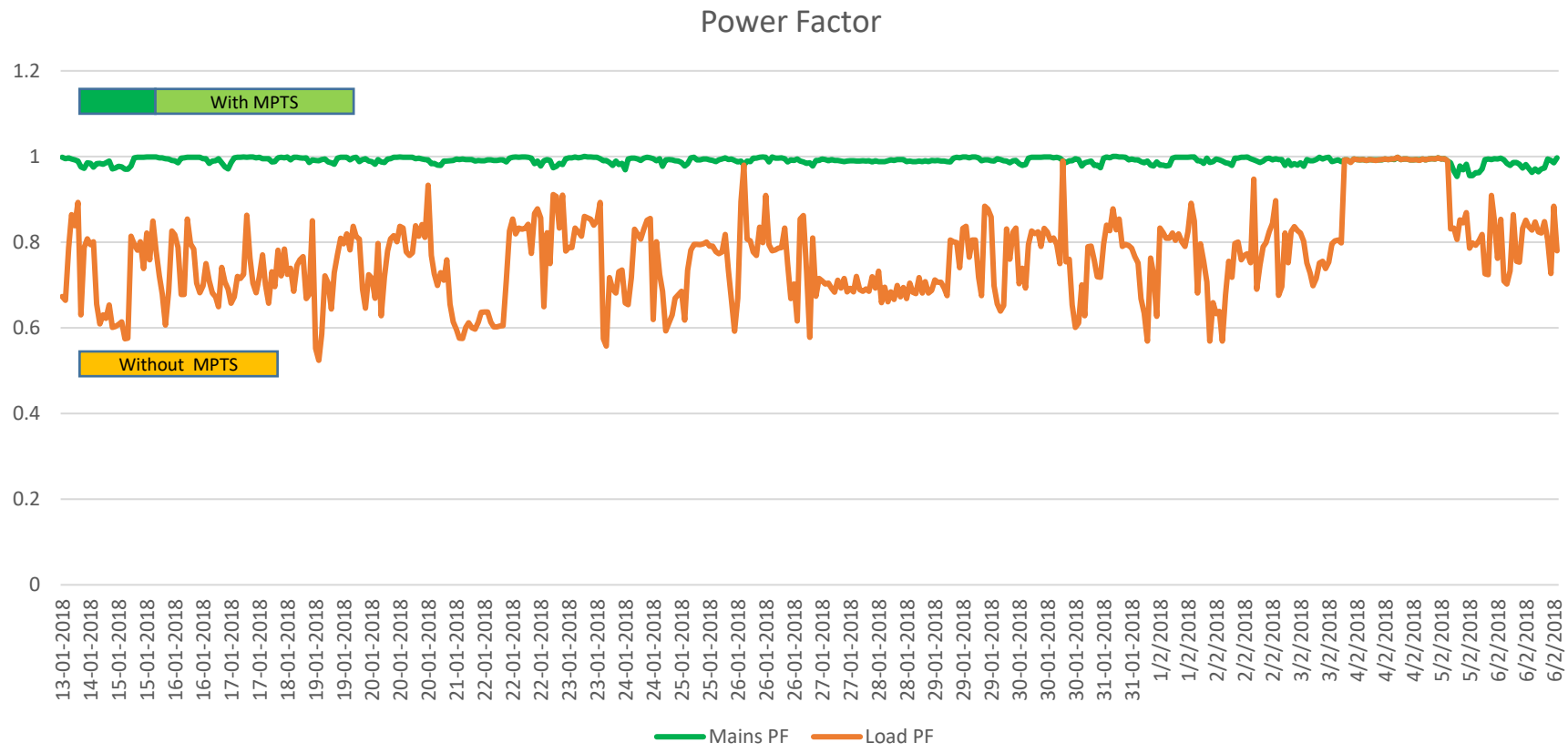


MPTS Performance Data

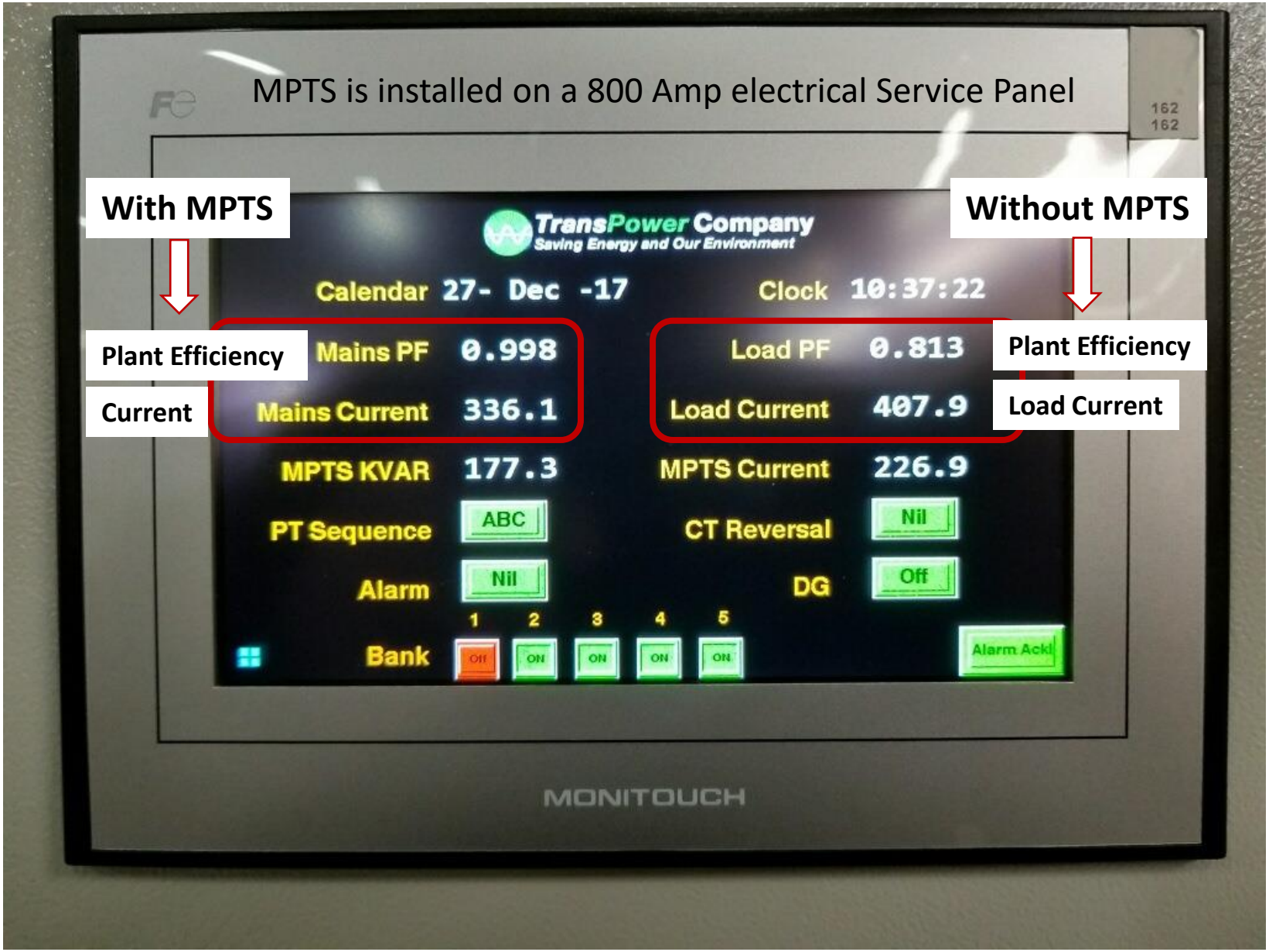
Billing period - January 7 to February 6th 2018

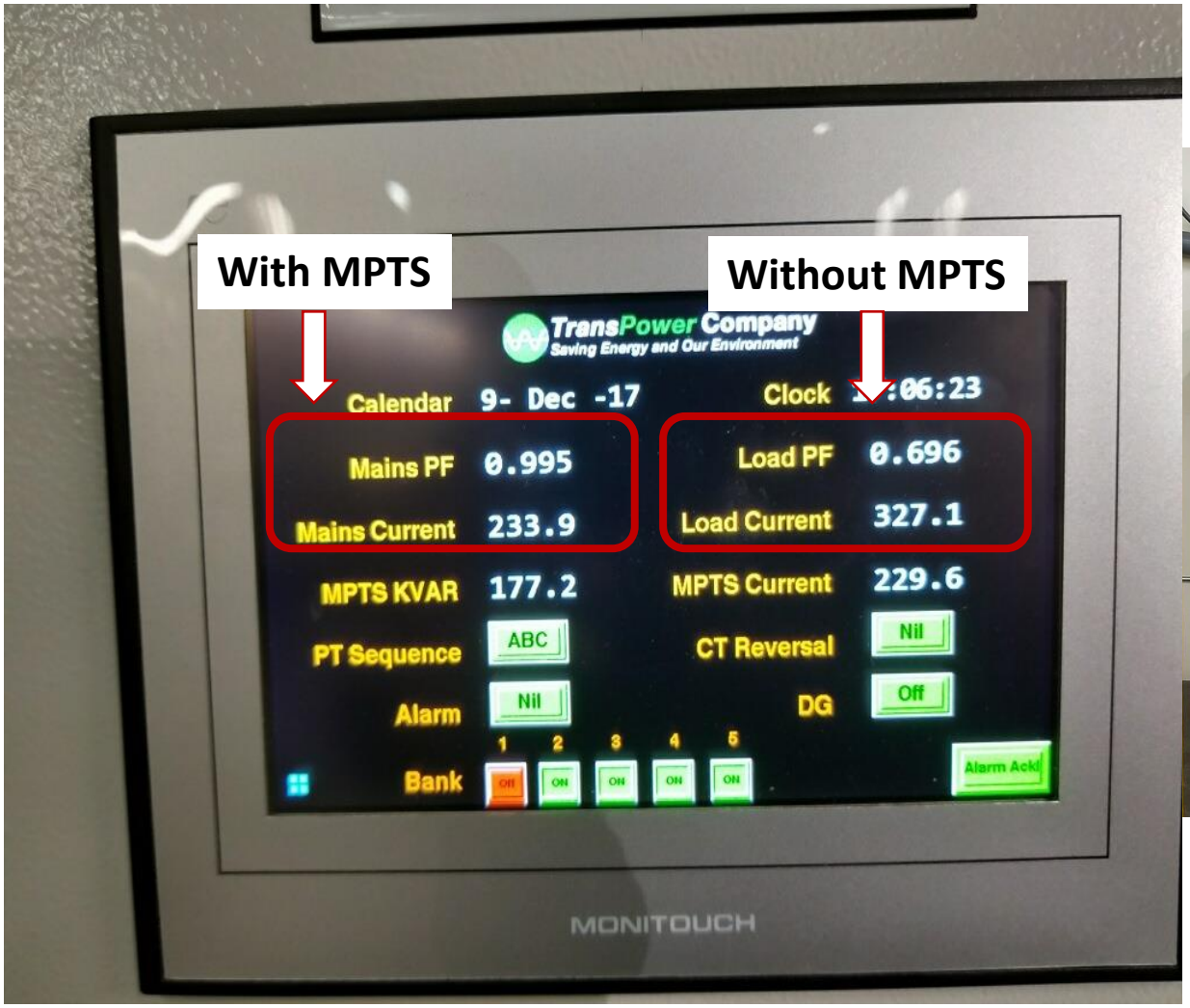
Average Power Factor	Ratio
Without MPTS	0.77
With MPTS	0.99
% points-Improvement	22%

Recorded Data on 800 Amp Panel – MPTS ID 162



MPTS is installed on a 800 Amp electrical Service Panel

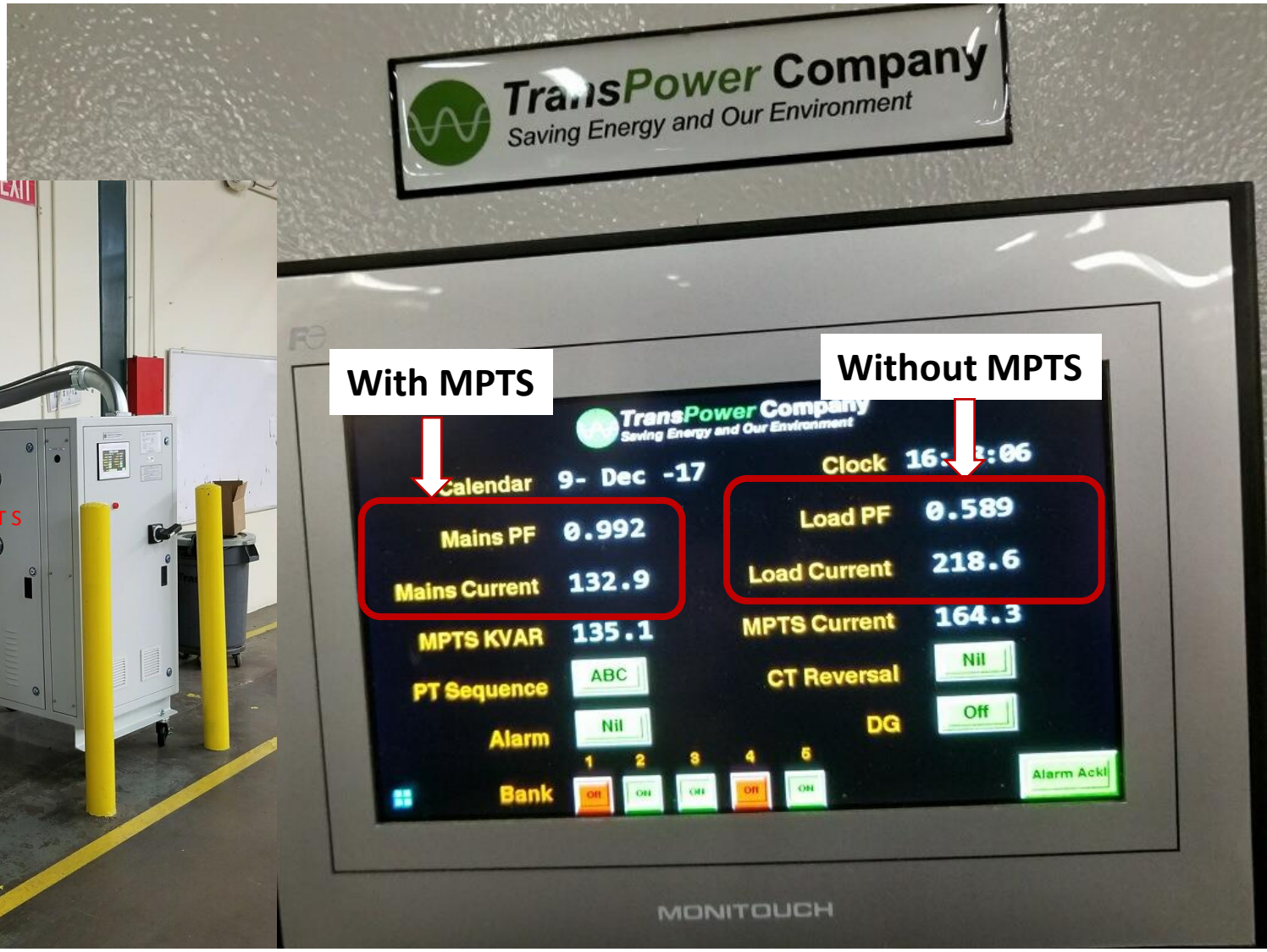



With MPTS
Without MPTS
TransPower Company
Saving Energy and Our Environment
Calendar 9- Dec -17
Clock 06:23
Mains PF 0.995
Mains Current 233.9
Load PF 0.696
Load Current 327.1
MPTS KVAR 177.2
MPTS Current 229.6
PT Sequence ABC
CT Reversal Nil
Alarm Nil
DG Off
Bank 1 2 3 4 5
Off ON ON ON ON
Alarm Ackl
MONITOUCH


MPTS

Real Time Dynamic Solution – energy efficiency and conservation at any load and PF





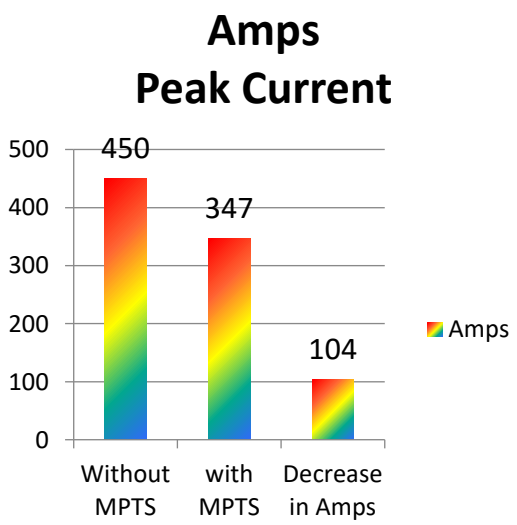
Real Time Dynamic Solution – energy efficiency and conservation at any load

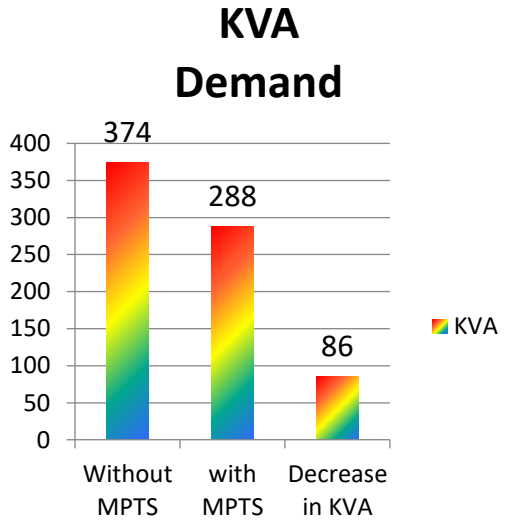


MPTS Performance Data

Total Amperes	Amps
Without MPTS	450
with MPTS	347
Decrease in Amps	104

KVA	KVA
Without MPTS	374
with MPTS	288
Decrease in KVA	86





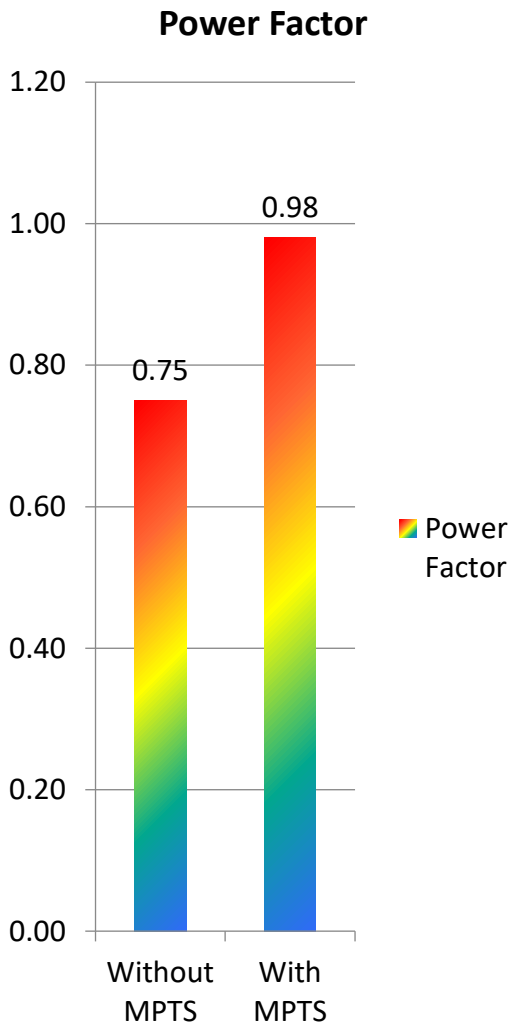
MPTS Performance Data

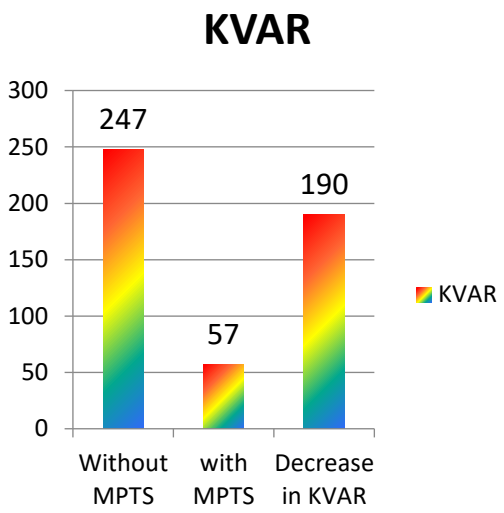
PF Improvement	Power Factor
Without MPTS	0.75
With MPTS	0.98

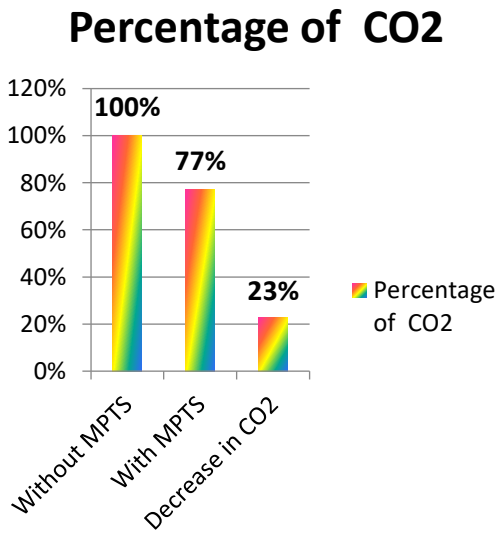
Total KVAR	KVAR
Without MPTS	247
with MPTS	57
Decrease in KVAR	190

Total CO^2	Lbs CO^2
Without MPTS	1,346,803
With MPTS	1,037,038
Decrease in CO2	309,765

Total CO^2	Percentage of CO^2
Without MPTS	100%
With MPTS	77%
Decrease in CO2	23%

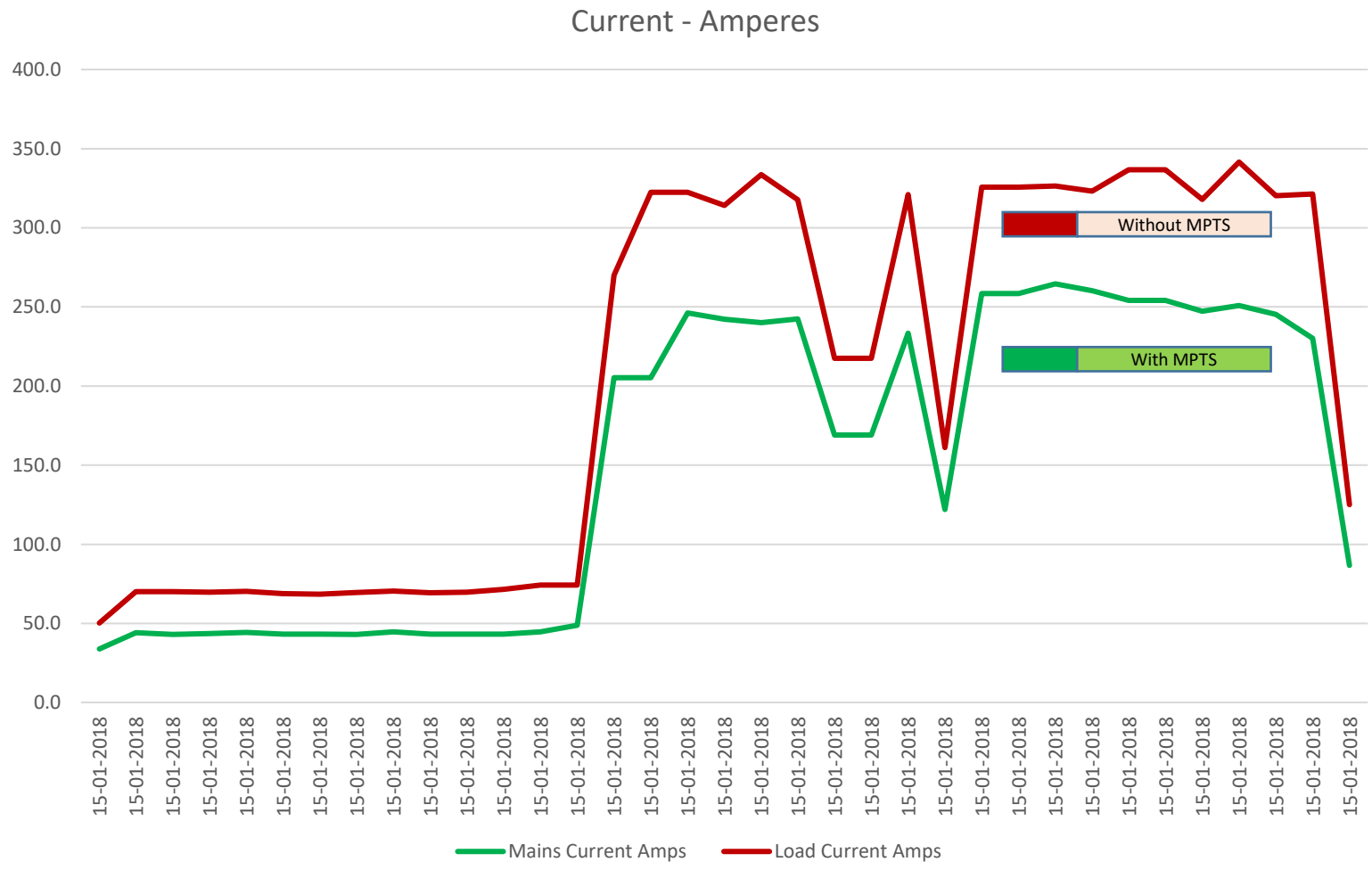






Interval Data

MPTS Performance Data



Performance Verification of the MPTS Device

Data Extracted from Logged Data

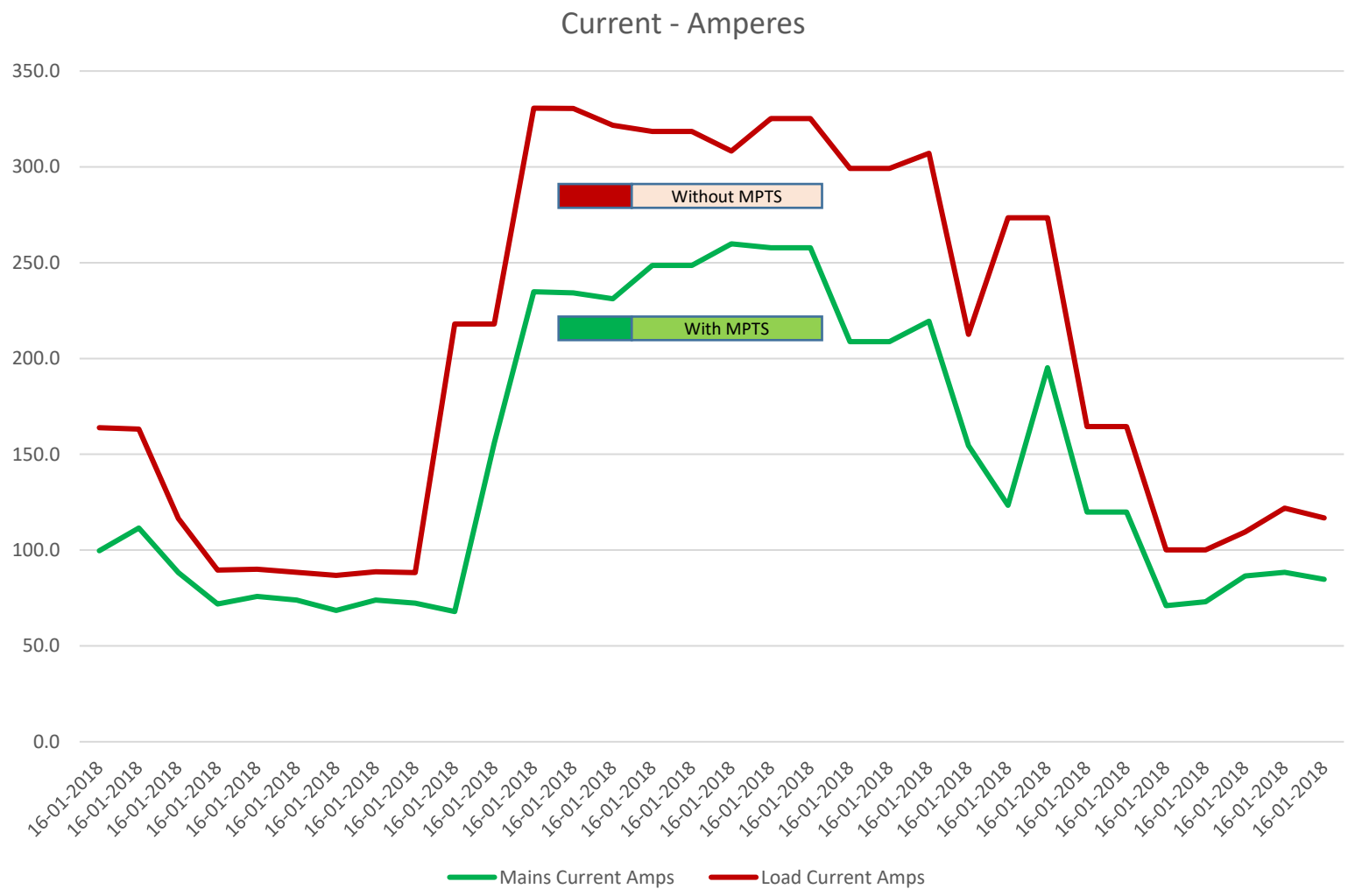
Interval Data

MPTS Performance Data

Date	Time	Current With MPTS	Current without MPTS	Demand KW with MPTS	Demand kVA With MPTS	Demand kVA Without MPTS	Reactive Power With MPTS	Reactive Power Without MPTS	PF with MPTS	PF Without MPTS
15-01-2018	0:00:24	33.9	50.3	27.0	28.2	41.8	2.2	32.0	0.957	0.675
15-01-2018	0:30:04	44.1	70.0	35.0	36.7	58.2	0.0	46.5	0.954	0.631
15-01-2018	1:00:21	43.1	70.0	34.1	35.8	58.2	0.0	47.2	0.953	0.615
15-01-2018	1:30:16	43.7	69.6	34.7	36.3	57.9	0.0	46.5	0.956	0.627
15-01-2018	2:00:27	44.3	70.2	35.2	36.8	58.4	0.0	46.6	0.957	0.630
15-01-2018	3:00:16	43.3	68.8	34.6	36.0	57.2	0.1	45.6	0.961	0.629
15-01-2018	3:30:06	43.3	68.6	34.5	36.0	57.0	0.0	45.4	0.958	0.632
15-01-2018	4:00:03	43.1	69.5	34.2	35.8	57.8	0.0	46.6	0.955	0.619
15-01-2018	4:30:19	44.6	70.5	35.6	37.1	58.6	0.1	46.5	0.960	0.633
15-01-2018	5:00:20	43.3	69.4	34.5	36.0	57.7	0.0	46.3	0.958	0.624
15-01-2018	5:30:19	43.3	69.8	34.5	36.0	58.0	0.0	46.7	0.958	0.621
15-01-2018	6:30:38	43.3	71.4	34.3	36.0	59.4	0.0	47.5	0.953	0.606
15-01-2018	7:00:11	44.7	74.2	35.6	37.2	61.7	0.0	47.4	0.957	0.603
15-01-2018	7:30:05	48.8	74.2	38.9	40.6	61.7	0.9	47.4	0.958	0.658
15-01-2018	8:00:23	205.2	270.0	168.4	170.6	224.5	7.3	148.3	0.987	0.760
15-01-2018	8:30:12	205.2	322.5	168.4	170.6	268.1	7.3	177.0	0.987	0.636
15-01-2018	9:00:20	246.2	322.5	202.1	204.7	268.1	6.4	177.0	0.987	0.764
15-01-2018	9:30:20	242.3	314.2	198.9	201.4	261.2	5.9	170.2	0.988	0.771
15-01-2018	10:00:23	240.1	333.7	197.1	199.6	277.4	7.2	196.2	0.987	0.720
15-01-2018	10:30:37	242.4	317.7	199.1	201.5	264.1	5.8	174.4	0.988	0.763
15-01-2018	11:00:29	169.1	217.5	138.5	140.6	180.8	7.6	116.2	0.985	0.778
15-01-2018	11:30:12	169.1	217.5	138.5	140.6	180.8	7.6	116.2	0.985	0.778
15-01-2018	12:00:17	233.4	320.9	191.4	194.0	266.8	7.4	187.1	0.987	0.727
15-01-2018	14:00:09	122.1	161.1	100.2	101.5	133.9	5.0	89.0	0.987	0.758
15-01-2018	14:30:24	258.4	325.6	211.8	214.8	270.7	5.8	169.3	0.986	0.793
15-01-2018	15:00:05	258.4	325.6	211.8	214.8	270.7	5.8	169.3	0.986	0.793
15-01-2018	15:30:13	264.6	326.5	216.8	220.0	271.4	5.0	164.1	0.985	0.811
15-01-2018	17:00:28	260.3	323.2	213.5	216.4	268.7	7.2	166.4	0.987	0.805
15-01-2018	17:30:25	254.2	336.7	208.2	211.3	279.9	8.1	188.1	0.985	0.755
15-01-2018	18:00:09	254.2	336.7	208.2	211.3	279.9	8.1	188.1	0.985	0.755
15-01-2018	19:30:09	247.3	317.9	201.7	205.6	264.3	9.8	171.4	0.981	0.778
15-01-2018	20:00:06	250.9	341.6	205.1	208.6	284.0	9.3	196.8	0.983	0.735
15-01-2018	20:30:10	245.3	320.3	200.4	203.9	266.3	9.2	175.3	0.983	0.766
15-01-2018	21:30:20	230.2	321.3	188.1	191.4	267.1	10.5	189.7	0.983	0.717
15-01-2018	23:00:15	86.7	125.1	70.0	72.1	104.0	2.6	76.5	0.971	0.693
Average Values		**151.2**	**204.7**	**123.5**	**125.7**	**170.2**	**4.3**	**115.6**	**0.974**	**0.704**
Max Values		**264.6**	**341.6**	**216.8**	**220.0**	**284.0**	**10.5**	**196.8**	**0.988**	**0.603**
		Reduction	**23%**							

Interval Data

MPTS Performance Data



Performance Verification of the MPTS Device

Data Extracted from Logged Data

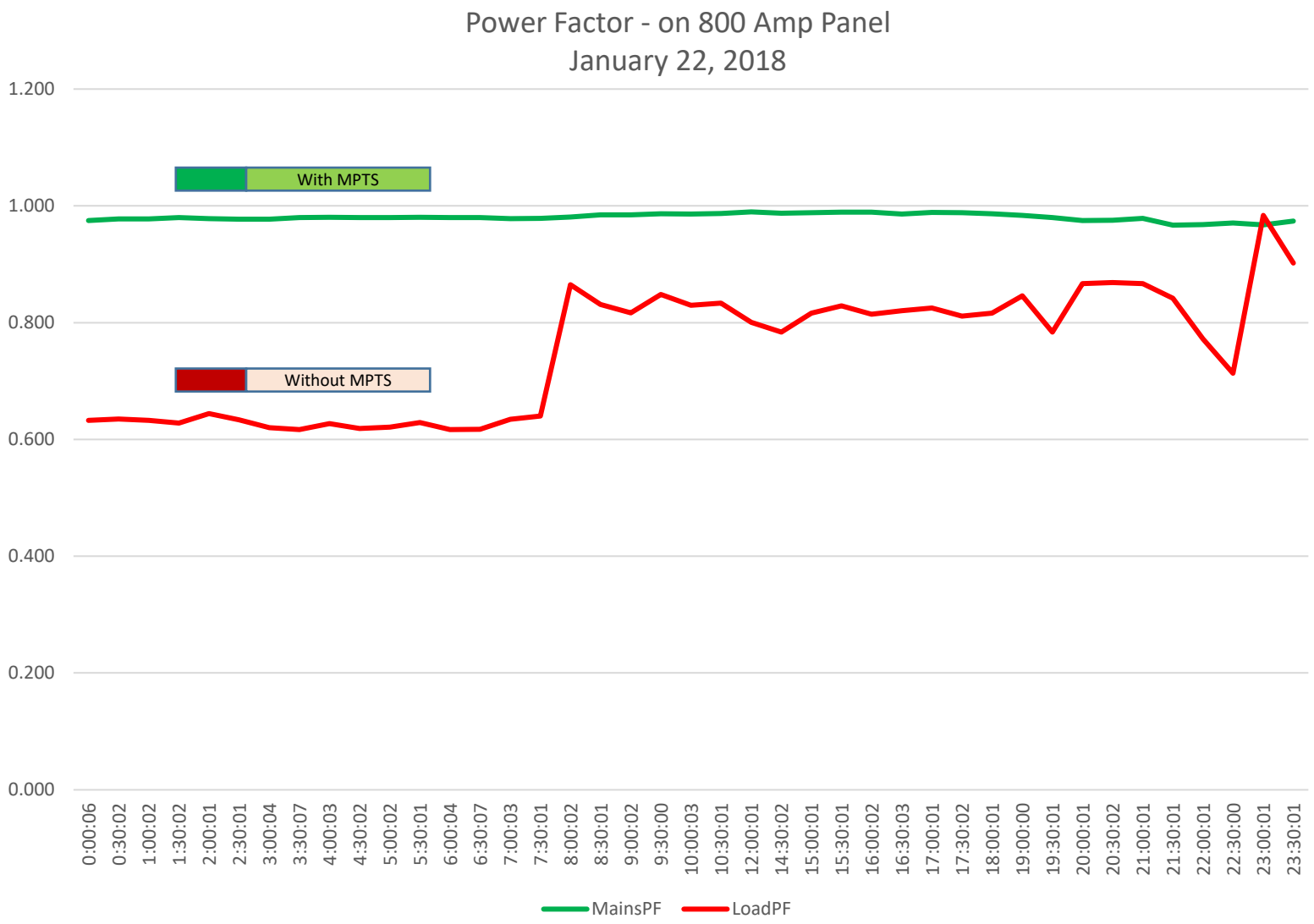
Interval Data

MPTS Performance Data

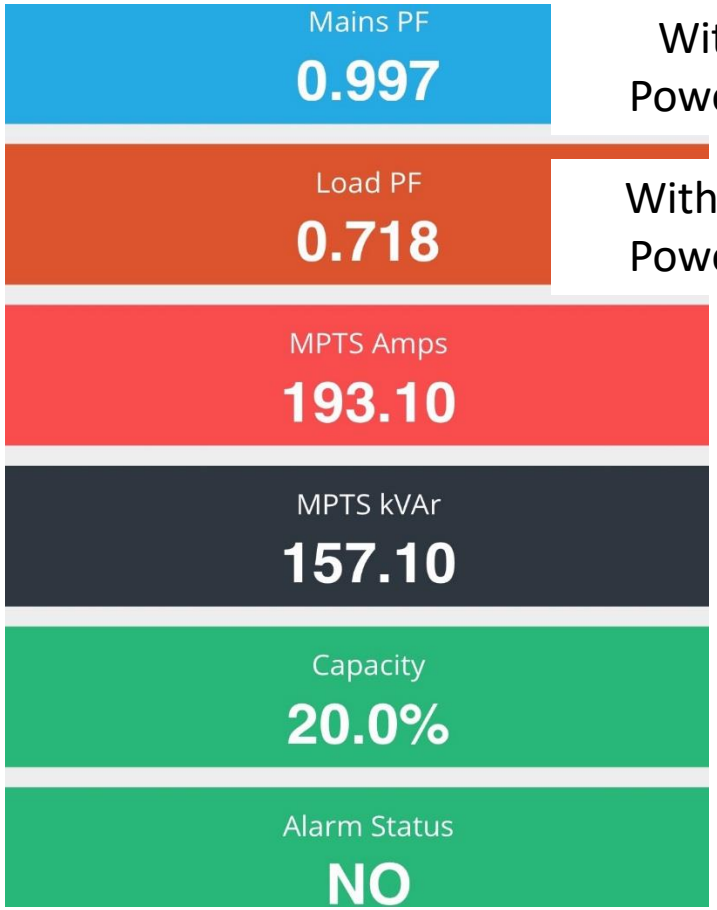
Date	Time	Current With MPTS	Current without MPTS	Demand KW with MPTS	Demand kVA With MPTS	Demand kVA Without MPTS	Reactive Power With MPTS	Reactive Power Without MPTS	PF with MPTS	PF Without MPTS
16-01-2018	0:00:07	99.6	163.8	80.8	82.8	136.2	5.6	100	0.976	0.608
16-01-2018	1:30:22	111.5	163.2	90.3	92.7	135.7	4.3	100.8	0.974	0.683
16-01-2018	3:30:03	88.3	116.4	71.5	73.4	96.8	5	64.8	0.974	0.758
16-01-2018	4:00:07	71.9	89.5	58.2	59.8	74.4	2.7	45.7	0.973	0.804
16-01-2018	4:30:11	75.8	90.0	61.5	63.0	74.8	2.7	41.9	0.976	0.842
16-01-2018	5:00:04	74.0	88.4	60.0	61.5	73.5	2.8	41.7	0.976	0.837
16-01-2018	5:30:09	68.6	86.8	55.6	57.0	72.2	3	45.5	0.975	0.789
16-01-2018	6:00:23	74.0	88.6	60.1	61.5	73.7	3.1	42.2	0.977	0.834
16-01-2018	6:30:14	72.3	88.3	58.7	60.1	73.4	3.2	43.6	0.977	0.819
16-01-2018	7:30:08	68.0	218.1	54.6	56.5	181.3	5.4	128.9	0.966	0.705
16-01-2018	8:00:32	155.9	218.1	127.2	129.6	181.3	9.2	128.9	0.981	0.715
16-01-2018	9:00:03	234.9	330.7	192.9	195.3	274.9	7.7	196.7	0.988	0.710
16-01-2018	9:30:07	234.3	330.5	192.1	194.8	274.8	7.2	197.4	0.986	0.709
16-01-2018	10:00:08	231.2	321.8	189.6	192.2	267.5	6.7	189.8	0.986	0.719
16-01-2018	10:30:14	248.6	318.5	203.7	206.7	264.8	7.3	169.1	0.985	0.781
16-01-2018	11:00:08	248.6	318.5	203.7	206.7	264.8	7.3	169.1	0.985	0.781
16-01-2018	12:00:05	259.8	308.3	212.8	216.0	256.3	6.2	143.1	0.985	0.843
16-01-2018	12:30:52	257.8	325.3	210.8	214.3	270.4	4.3	170.7	0.984	0.793
16-01-2018	13:00:08	257.8	325.3	210.8	214.3	270.4	4.3	170.7	0.984	0.793
16-01-2018	14:30:35	208.8	299.3	171.4	173.6	248.8	5	181	0.987	0.698
16-01-2018	15:00:20	208.8	299.3	171.4	173.6	248.8	5	181	0.987	0.698
16-01-2018	15:30:46	219.5	307.1	180.2	182.5	255.3	5.9	181.8	0.987	0.715
16-01-2018	16:30:32	154.6	212.7	126.6	128.5	176.8	4.8	123.9	0.985	0.727
16-01-2018	17:00:26	123.3	273.4	101.0	102.5	227.3	3.3	161.2	0.985	0.710
16-01-2018	17:30:30	195.2	273.4	159.9	162.3	227.3	6.6	161.2	0.985	0.714
16-01-2018	18:00:22	119.8	164.4	97.8	99.6	136.7	5.8	95.1	0.982	0.729
16-01-2018	18:30:52	119.8	164.4	97.8	99.6	136.7	5.8	95.1	0.982	0.729
16-01-2018	20:00:36	71.0	100.1	57.6	59.0	83.2	1.4	58	0.976	0.709
16-01-2018	20:30:10	73.0	100.1	59.2	60.7	83.2	1.4	58	0.975	0.730
16-01-2018	22:00:01	86.5	109.5	69.7	71.9	91.0	4.9	57.9	0.969	0.790
16-01-2018	22:30:03	88.4	121.8	71.7	73.5	101.3	3.4	71.1	0.976	0.726
16-01-2018	23:30:00	84.8	116.8	68.6	70.5	97.1	4	67.8	0.973	0.726
Average Values		**146.4**	**204.1**	**119.6**	**121.8**	**169.7**	**4.9**	**115.1**	**0.980**	**0.748**
Max Values		**259.8**	**330.7**	**212.8**	**216.0**	**274.9**	**9.2**	**197.4**	**0.988**	**0.608**
		Reduction	**21%**							

Interval Data

MPTS Performance Data

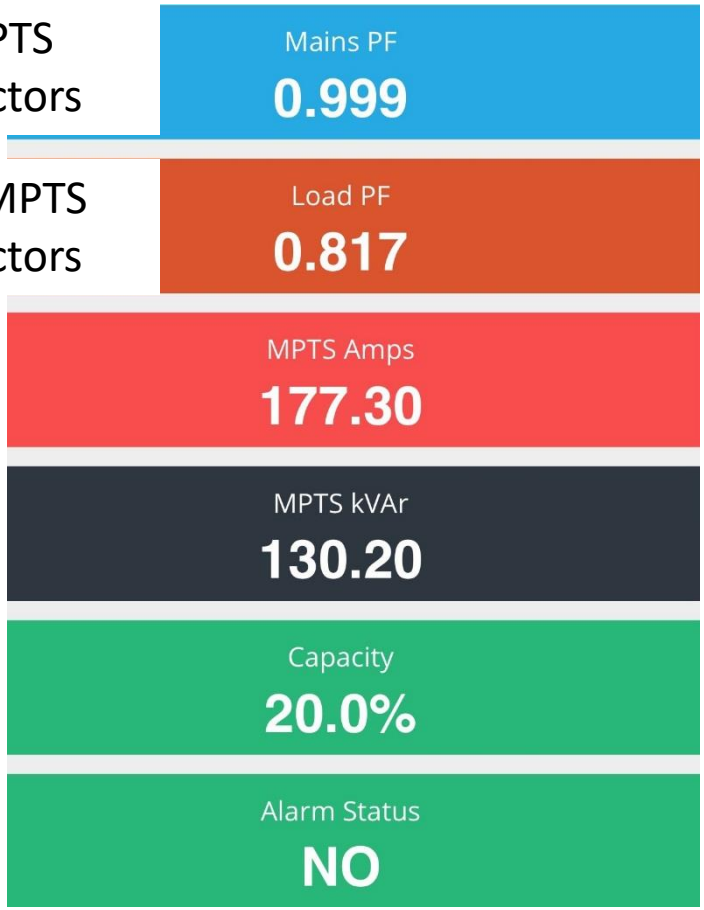


Real Time Data – Screen Shots



With MPTS Power Factors

Without MPTS Power Factors



Benefits from MPTS

MPTS Lowers Operating Costs

- **Decrease** Current and KVA significantly
  - Avoids Overload conditions and hot spots in panels and equipment
  - Decreases I^2R losses, KVAr, Harmonics
  - Releases electrical capacity, decreases the load on panels and transformers, creates capacity for additional loads
- **Maintains** stability of voltage for connected equipment
- **Protects** investment in expensive electrical and mechanical equipment
- **Reduce** service, repair, replacement, and maintenance costs
- **Reduce** total cost of operating mechanical and electrical equipment
- **Reduce** total electrical power demand and consumption
- **Reduce** C02 Emissions

Significant Reduction in CO2 Emissions

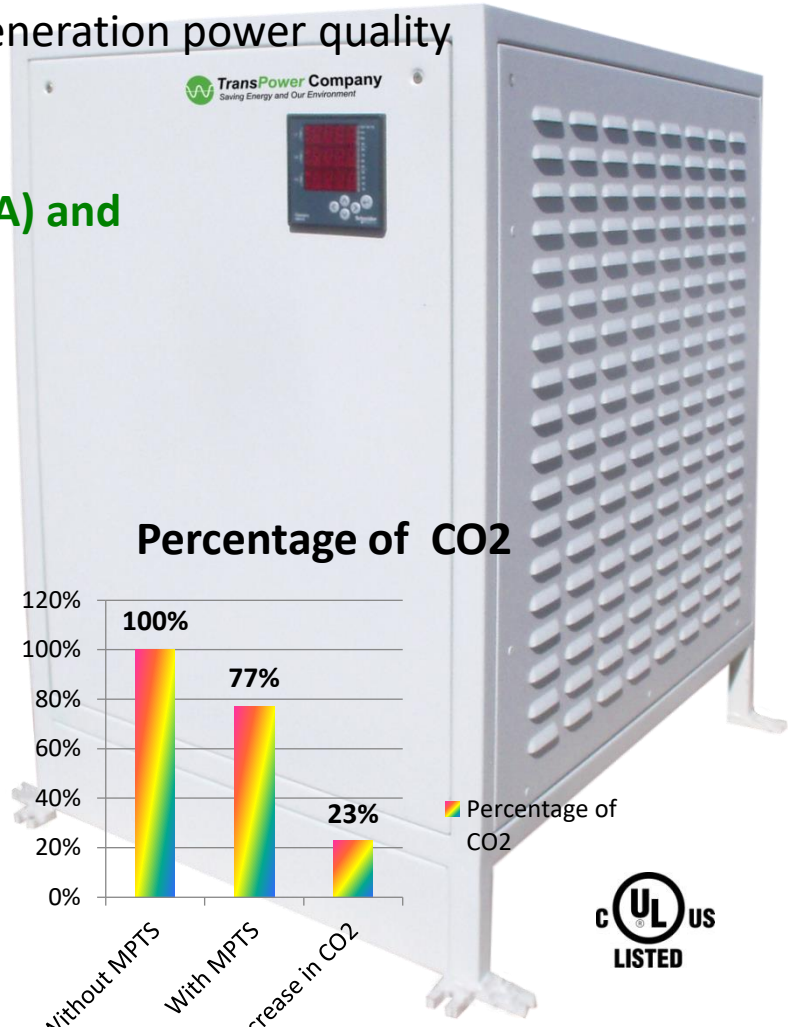
Significant dollars savings from the benefits of MPTS

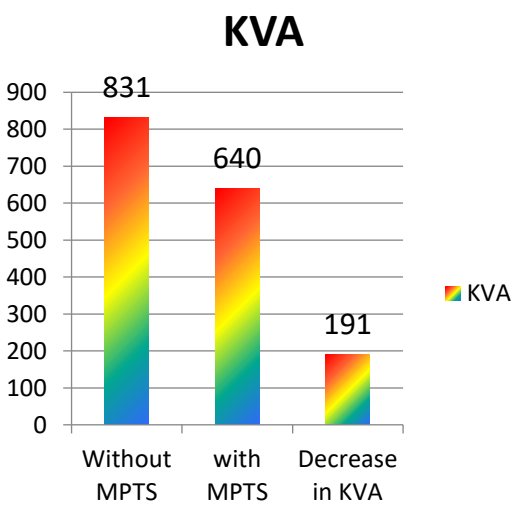
Reduction in Power Generation and Carbon Emission

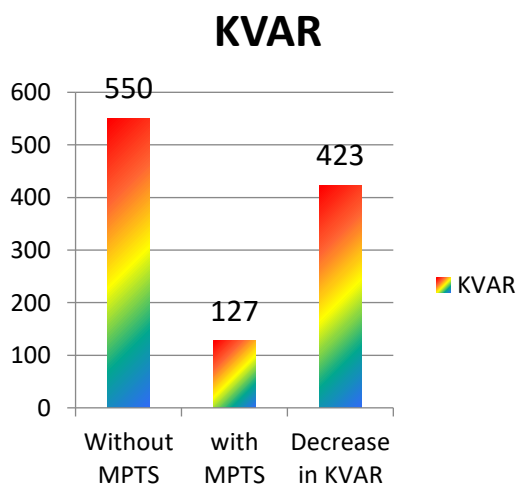
M P T S - Solutions

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







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