

# BRP MARINE PROPULSION DIVISION



COMBINED FIVE MONTH SAVINGS : \$ 145,716

## EXISTING CONDITION

This facility tests, develops and manufactures its own motors at this facility. Testing involves running motors in 600,000 gal of water and capturing the exhaust stream for oxidation.

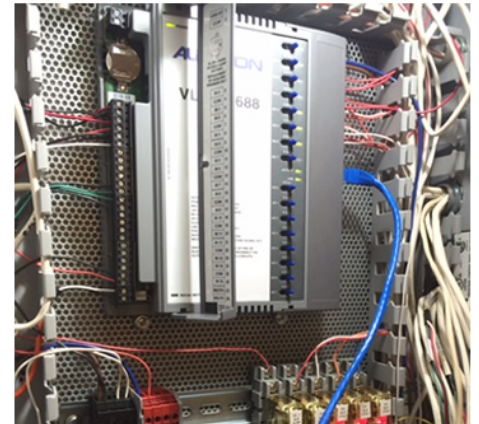
The challenge was to capture the heat off the oxidizer system and replace existing MUA units around the plant while maintaining plant comfort and manufacturing temperature tolerance.

## HEAT CAPTURED OFF REGENERATIVE OXIDIZER TO HEAT PLANT & REPLACE MUA UNITS

All the heat from this oxidizer was vented to atmosphere and wasted. A heavy steel heat exchanger was designed to capture the approximately 22,000 scfm flow with minimum static drop. Two fans drive the system with the 40hp fan designed to maintain discharge air temps by varying outside air flow rates. The second fan was designed to balance flow and not affect the oxidizer blower

## EXHAUST MODULATION CONTROL IN PLANT

Three areas of the plant were changed to save energy and take advantage of the new system. Two process areas had VFD's added to match demand with the fans. This eliminated one MUA system entirely. The third system on a wash line using 100% inside air to blow off parts. A control package was integrated to blend inside and outside air to maintain temperatures. This cut inside air 75% by average during the heating season.



## RTU ROOFTOPS REPROGRAMMED TO TAKE ADVANTAGE

The 12 RTU's already had VFD's and a new BAS system that was programmed to modulate the heating cycle. The new waste heat recovery has eliminated the two main MUA systems entirely. Total consumption of the twelve RTU's that were conditioning over 400,000 sqft, is now only costing \$300 per month to operate. Its primary function is now just mixing air.



## THERMS PER MONTH

DATE	2014	2015-16	SAVINGS
12/1/15	55,035	34,718	\$ 12,190
1/1/16	63,505	35,158	\$ 17,008
2/1/16	81,578	62,643	\$ 11,361
3/3/16	78,196	51,064	\$ 16,729
4/2/16	74,106	41,615	\$ 19,494

FIVE MONTH SAVINGS: \$ 76,333

Note: Savings based on an averaged 5 year cost of \$.60 per therm.

## MUA CONTROL INTEGRATION TO BAS WAS ADDED TO TAKE ADVANTAGE OF NEW SYSTEM

The existing MUA system that was new was not monitored and no visibility. Adding the unit the the BAS showed that the unit was not modulating and was running during un-occupied times at maximum capacity. The integration immediately spotted the problems that were corrected and the MUA now modulates to maintain pressure and only runs as needed. The new system was enough to turn the unit off. Economizing of the RTU's also turns off the need for MUA on the main 40hp unit.

### CO-INCIDENT KWH SAVINGS

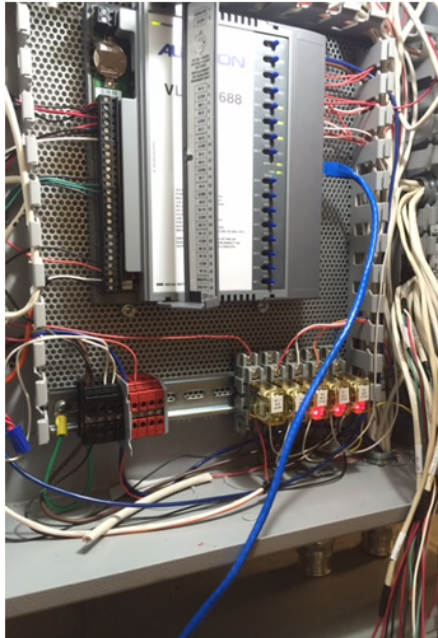
DATE	2014	2015-16	SAVINGS / MONTH
12/1/15	936,930	877,800	\$ 5,950
1/1/16	930,810	783,780	\$ 14,796
2/1/16	1,061,910	933,060	\$ 12,966
3/2/16	1,016,370	950,460	\$ 6,652

**FOUR MONTH SAVINGS: \$40,364**  
 Note: Cost of power averaged at \$0.10 per kwh

**PAYBACK AFTER GRANTS:  
18 MONTHS**

**ROI:  
75%**

**WE ENERGY GRANT:  
\$145,000**



### TOWER ENERGY CAN CHANGE YOUR ENERGY BILL

Using new and innovative technologies, Tower Energy can reduce your gas, electric and water bills. Looking for practical and less expensive alternatives using existing equipment is always a viable option. In addition, making employees aware of simple fixes will add operational efficiency at little or no cost.

### OUR MISSION:

To provide energy efficient solutions for any type of commercial, industrial, or retail facility. We provide a free energy assessment followed by a comprehensive proposal for energy reduction alternatives for that facility. In addition, we write and secure any eligible grant or rebate offered by the local utility and provide the customer with an ROI and payback on every job.

### TOWER ENERGY LIGHTING:

- Over 700 Lighting projects to date
- Over \$3,000,000 in grants awarded
- Over \$8,000,000 in energy savings
- Specialists in LED Lighting
- Turnkey solution for both interior and exterior lighting

### TOWER ENERGY MECHANICAL:

- We are licensed Mechanical contractors with over 30 years of experience
- Turnkey solutions for all your Mechanical needs
- Free energy assessment for all HVAC systems
- All proposals are presented with ROI's and payback period

### TOWER ENERGY CONTROLS



### TOWER ENERGY ELECTRICAL:

- Licensed electrical contractor with over 30 years of experience
- Work with all type of lighting installations especially LED
- Low voltage specialists
- Experienced Building Automation System (BAS) integrators