MANCHESTER INDUSTRIES

Where Every Customer Matters®

September 14, 2010

***S**ustainable **M**anufacturing **A**merican **R**egional **T**ours*

Our vision is to become a "greener" supplier
for our customers and our community.

Richmond, VA (HQ)
Wilkes Barre, PA
Hagerstown, IN
Mendon, MI
Dallas,TX

ABOUT MANCHESTER

- Founded in 1978 as a recycled paperboard mill, purchased first sheeter in 1981. We now employ 230 employees.
- Currently the largest U.S. converter.
- Five locations to ship coast to coast.
- Over 500,000 sq. ft. of manufacturing and warehouse space, 15 precision sheeters, 2 slitter rewinders, and 3 carton packing lines.
- Manchester has the capacity to produce over 150,000 tons of finished product within our facilities annually.

PERFORMANCE COMPARISON

T5 Fluorescent vs. Metal Halide

	400 W METAL HALIDE	6-LAMP T5 FLUORESCENT
SERVICE LIFE	20,000 hours	35,000 hours @ 12hours / start
LAMP WATTS	400QW	324W
SYSTEM WATTS	458W	351W
INITIAL LIGHT OUTPUT	36,000 LUMENS	30,000 LUMENS
MEAN LUMENS	24,000 LUMENS @ 40% OF LAMP LIFE	28,500 LUMENS @40% OF LAMP LIFE
LUMEN MAINTENANCE	65%	95%
COLOR RENDERING	65 CRI	82-85 CRI
START TIME	4 MINUTES	<1.5 SECONDS
RE-STRIKE TIME	10 MINUTES	<1.5 SECONDS

Retrofitting your 400W metal halide system to a 6-lamp T5 fluorescent system will provide significant increased lamp life and lumen maintenance, reducing your maintenance cost.

Metal Halide End of Life

- T5 Fluorescent systems offer another performance advantage over metal halide related to end of life.
- Metal halide lamps can experience a violent end of life condition called *non-passive failure.*
- In a non-passive failure, the arc tube ruptures, breaking the outer bulb expelling fragments of extremely hot glass.
- To avoid a violent end of life, the following is recommended:
  - Turn off lamps once a week for 15 minutes.
  - Conduct group re-lamping at or before rated end of life.

State Electric Supply Co.

How? Mechanical Ballast ‘vs’ Electronic Ballast

- Brighter Lighting
- Lumens level – steady through life
- Less heat or no heat
- Less fire danger from burning out ‘vs’ MH
- Instant start up ‘vs’ MH. Work well with ceiling mounted, passive infrared motion sensors

T5 FIXTURES

- T5 fixtures are available from numerous manufacturers including Lithonia & Atlas.
- Configurations include from 1-6 lamp units and mounting heights from 8’-50’.
- Available with varying focus (e.g.narrow) that allows you to tailor the light distribution to your specific needs.
- Ratings up to 55°C or 131°F ambient temperature depending on manufacturer and model.

More Savings Opportunities

- Many companies have retrofitted the lamps in their office space to energy efficient 32W T8 fluorescent lamps.
  - Philips Lighting now offers the Energy Advantage 25W T8
  - That's an energy savings of 22% just by replacing your lamps!
- Further savings can be achieved by incorporating lighting controls, such as occupancy sensors from WattStopper/Legrand.
- Occupancy sensors can be tailored to the usage patterns for each space and can present significant savings.
- Energy efficient lighting and lighting controls are a key part of LEED certification and incentives offered through EPAct.

The Energy Policy Act of 2005 – Has been extended through 2013.

Deduction for Energy Efficient Commercial Building

a. Interior Lighting

b. Heating, Cooling Ventilation

c. Hot Water Systems, or building envelope

- Section 179D(a) Allows a deduction to a taxpayer for part or all the cost of energy efficient commercial building property that the taxpayer places in service after December 31, 2005 and before January 1, 2014.

RULES

- Achieve a reduction in lighting power density of at least 25% (50% in case of a warehouse) of the minimum requirements in Table 9:3.1.1 or Table 9:3.1.2 Watts/Sq. Ft. ‘ vs’ Lumens. 2.2watts/Ft^2 is standard.
- Have controls and circuiting that comply fully with the standard 90.1-2001 – Zone Lighting.
- Include provision for bi-level switching.
- Meet the minimum requirements for calculated lighting level as set forth in the IESNA lighting handbook, Ninth Edition, 2000.

TAX DEDUCTION

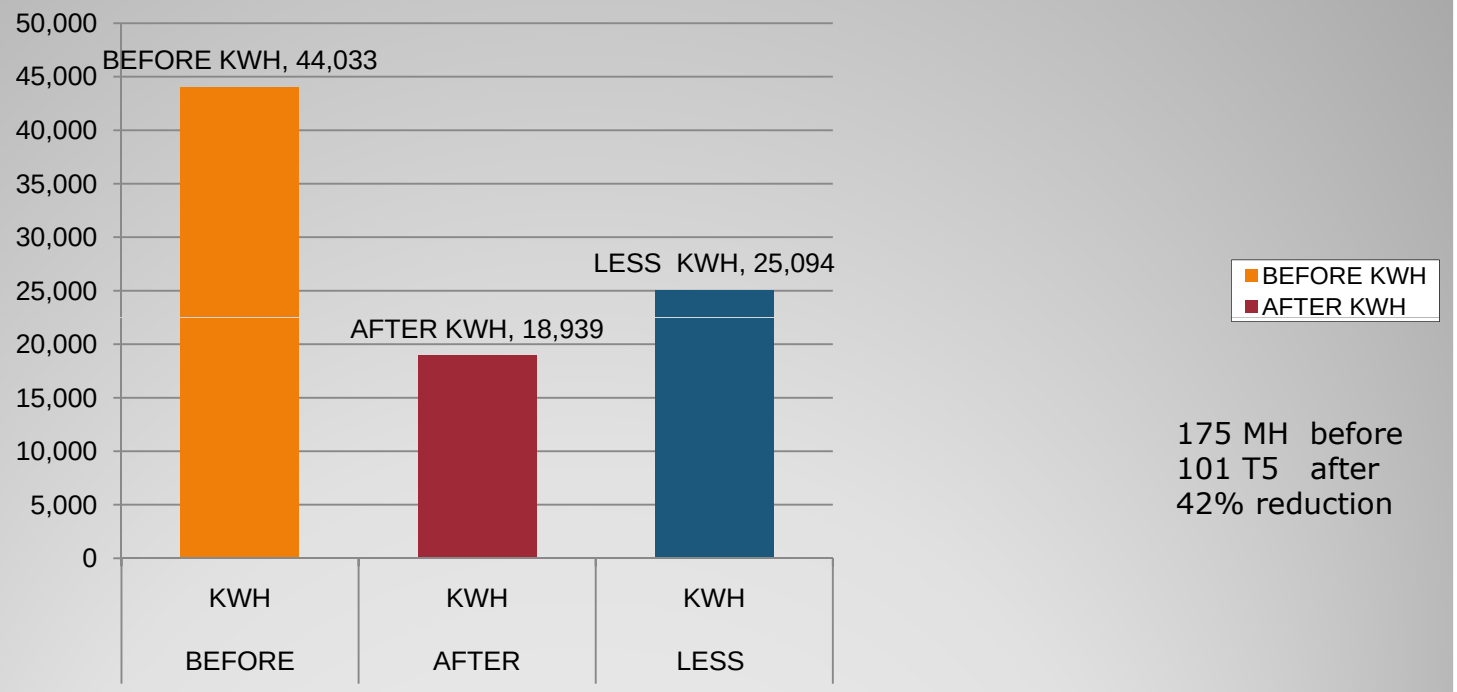
For this you can receive up to
$0.60/Sq. Ft. tax deduction.
Example: 100,000 x .60 =$60,000
Tax deduction maximum or the cost if lower.

Exp. 1(1) 6 tube T5 – Fluorescent Light uses 1.3 amps x 277 volts = 360 watts of power.

'vs'

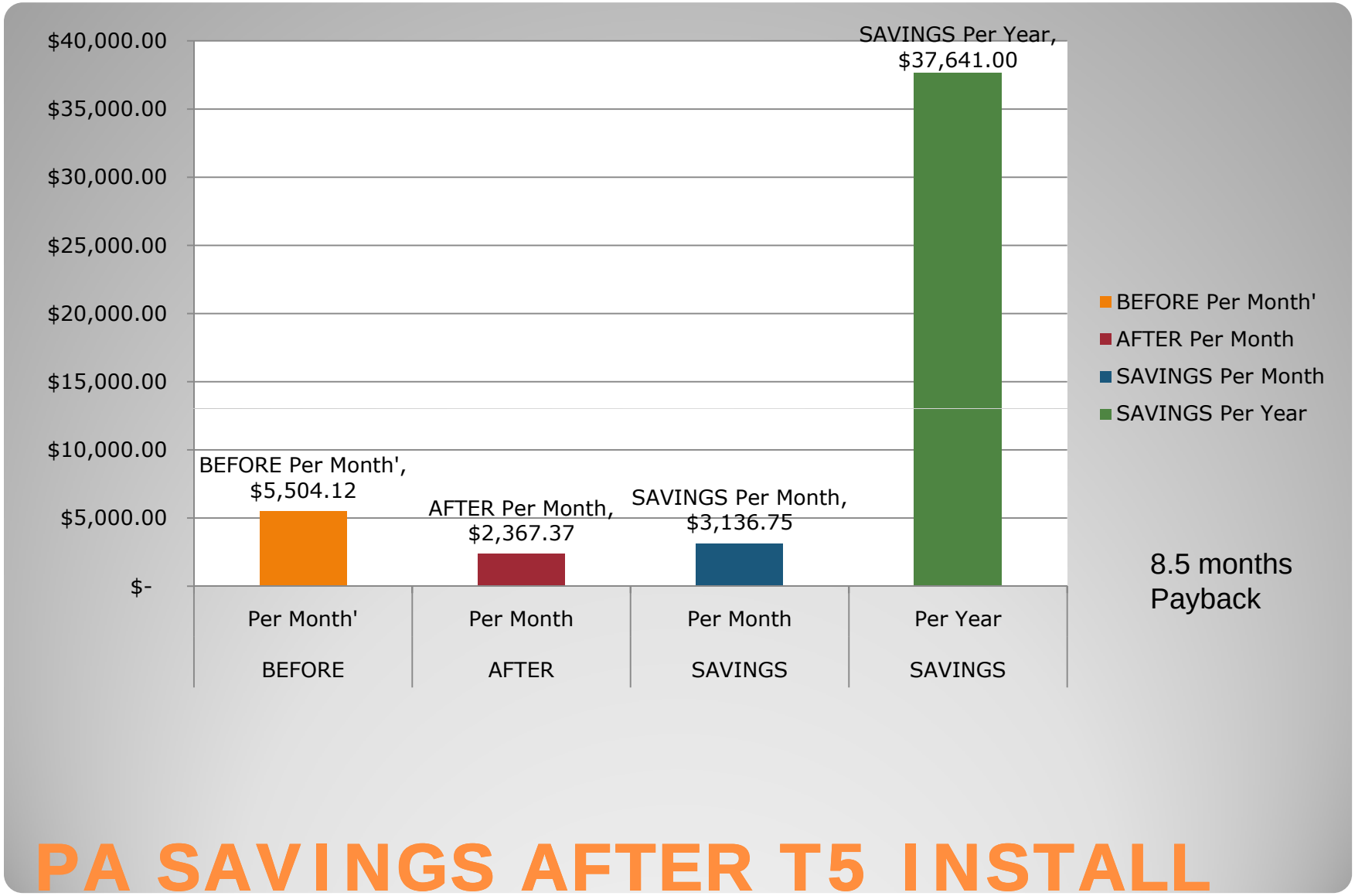
400 watt Metal Halide uses 1.75 amps x 277 volts = 485 watts of power.

485 watts	125 watts
-360 watts	485 watts = 25.8% Reduction
125 watts	

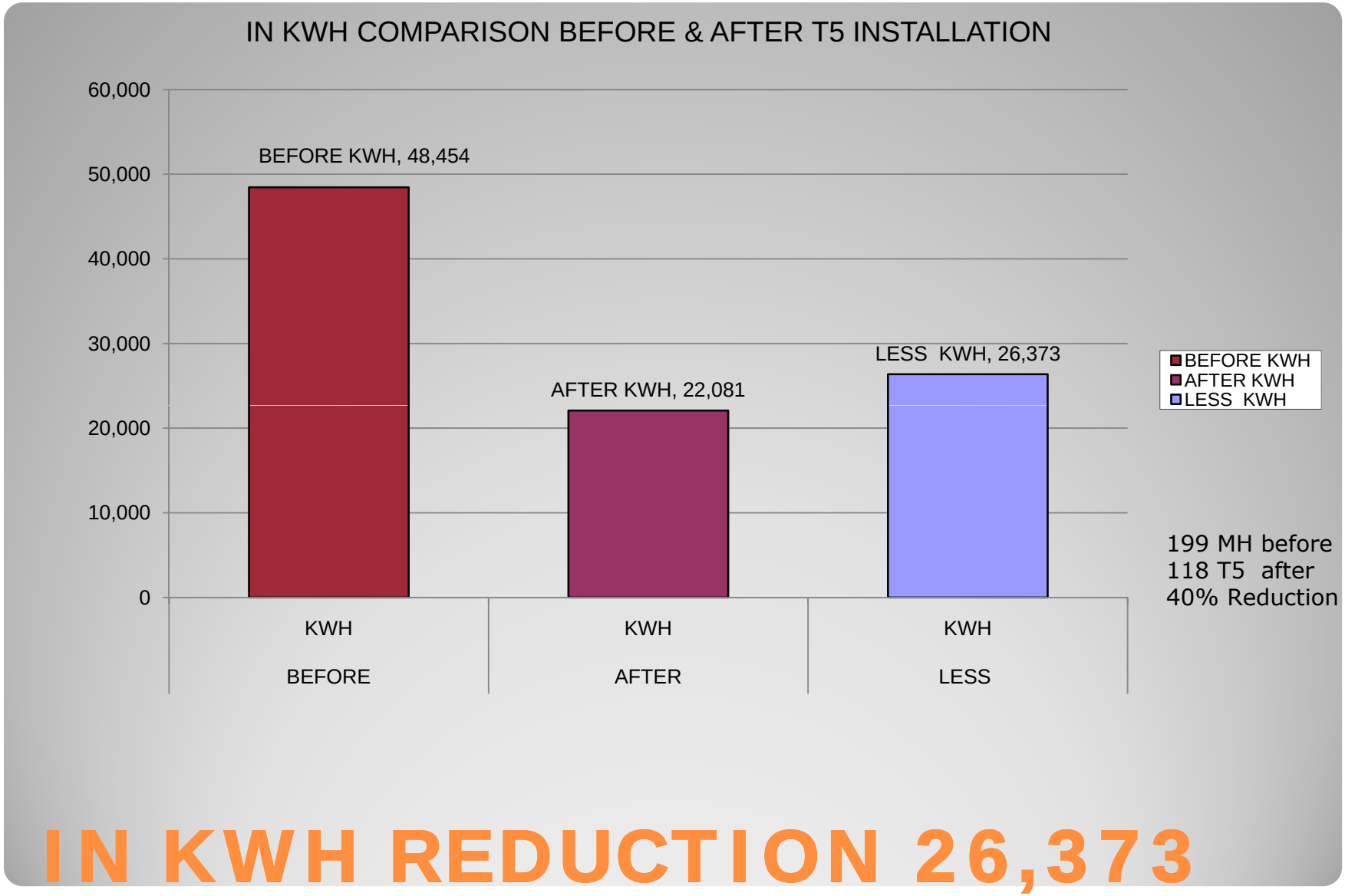


175 MH before
101 T5 after
42% reduction

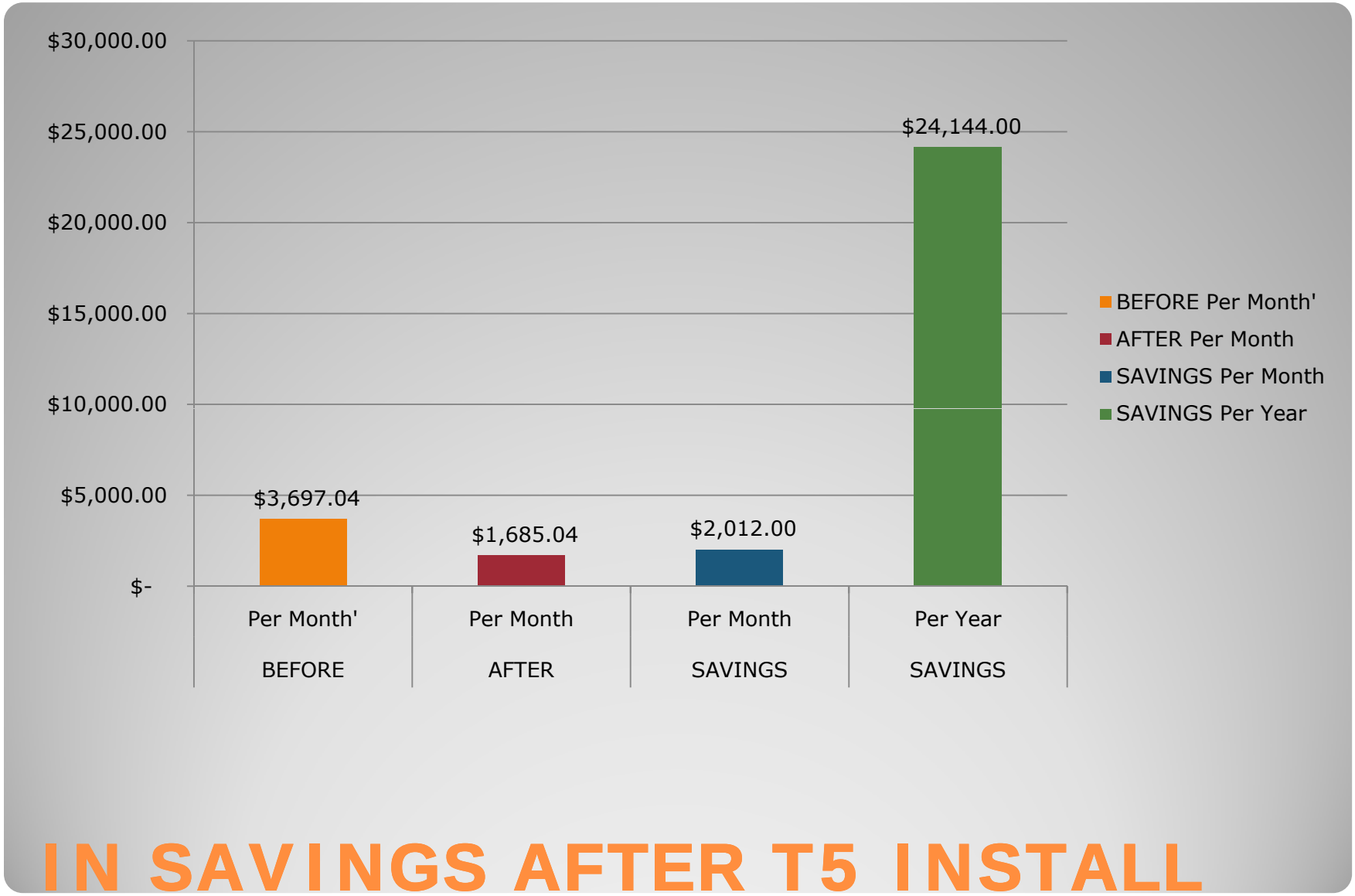
PA KWH Reduction of 25,094



PA SAVINGS AFTER T5 INSTALL



IN KWH REDUCTION 26,373



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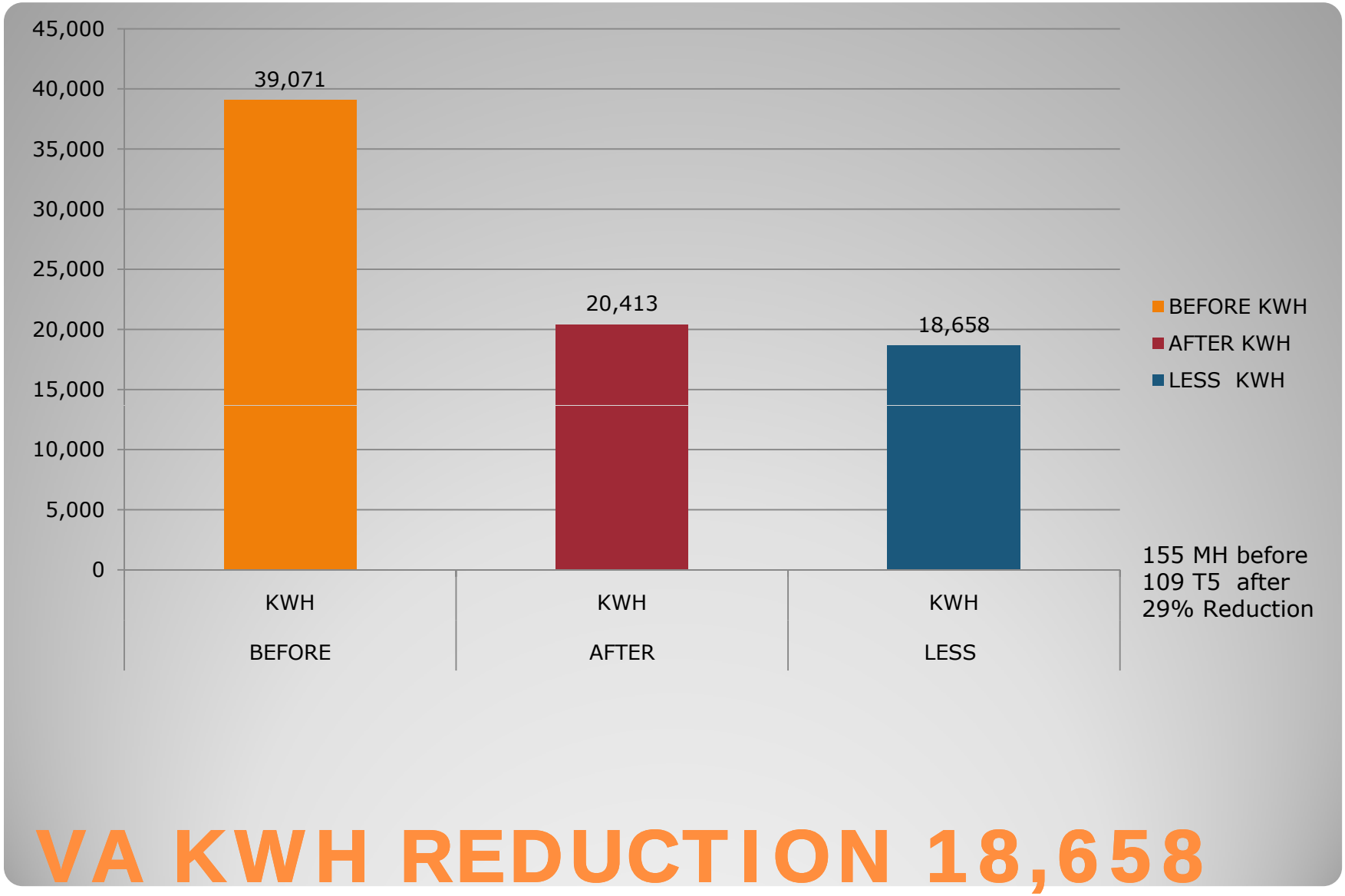
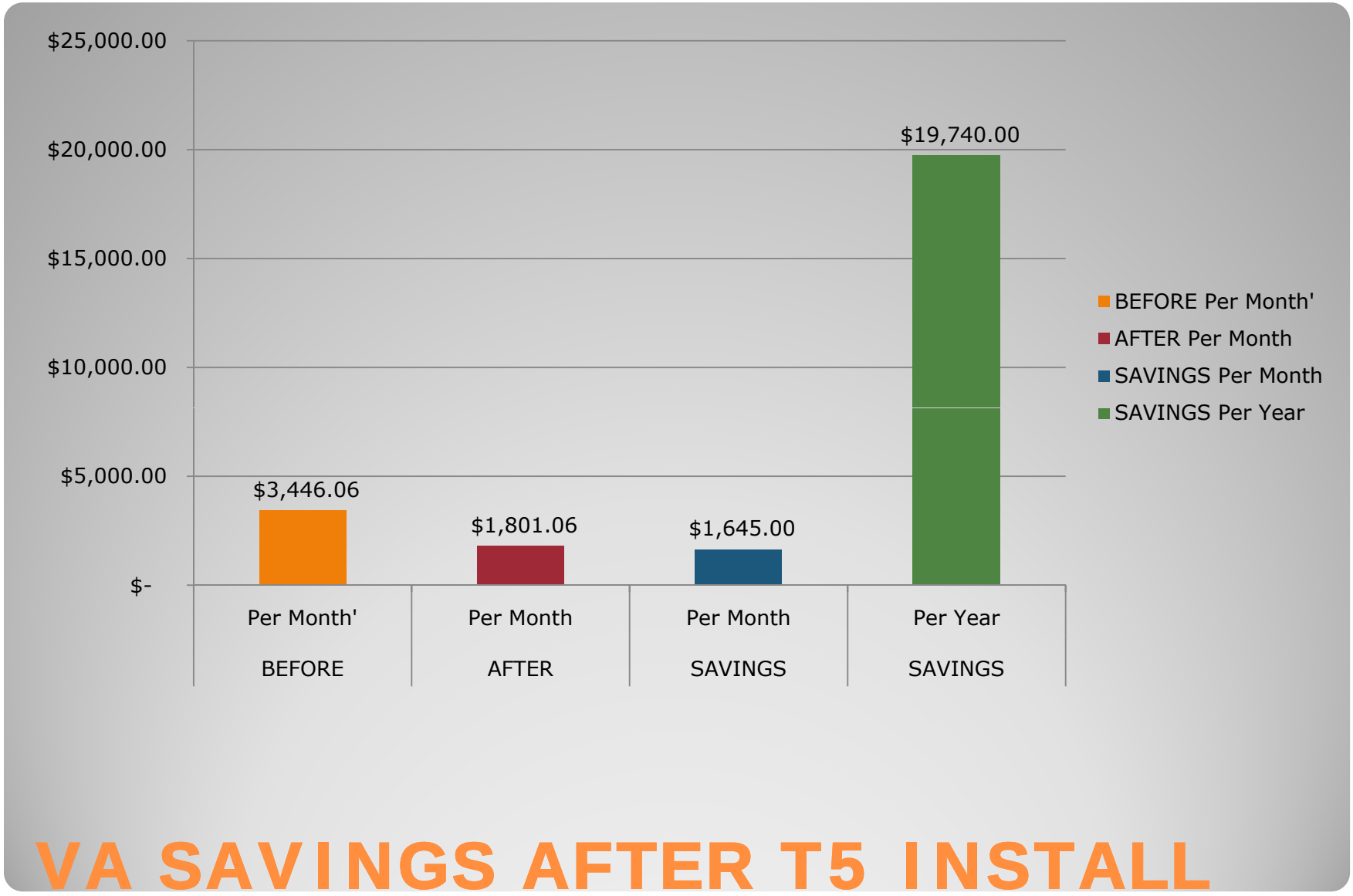
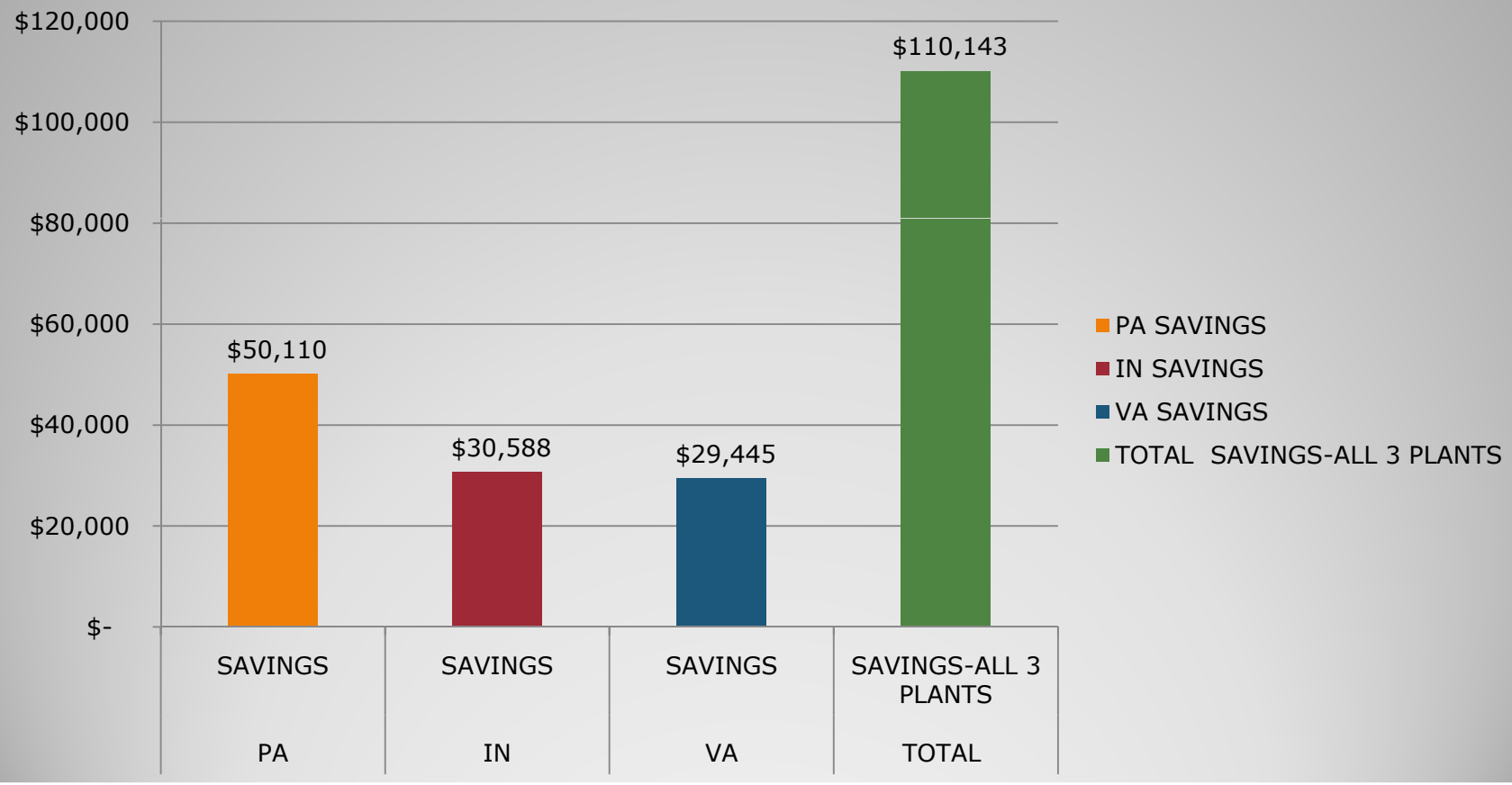


VA KWH REDUCTION 18,658



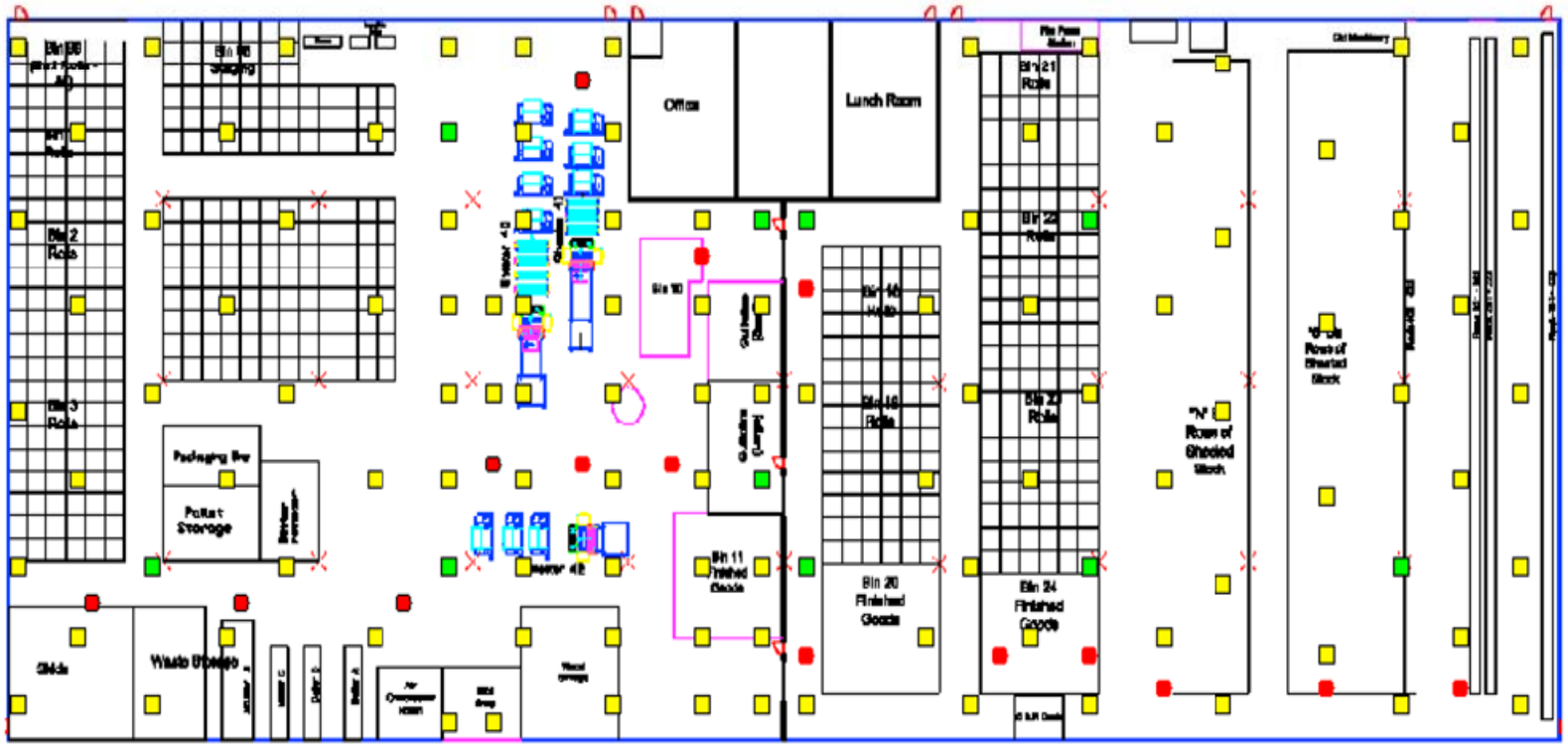
VA SAVINGS AFTER T5 INSTALL

1ST YEARS ENERGY PLUS TAX SAVINGS



			Richmond, VA 77,300 Ft.²		
Office		10,000 Ft² 18 Lights .648 Watts / Ft² 35 Lumens Manufacturing	12,500 Ft² 16 Lights .461 Watts / Ft² 23 Lumens Warehouse	22,500 Ft ² 32 Lights .512 Watts/ Ft² 25 Lumens Warehouse.	
		8,500 Ft² 17 Lights .720 Watts / Ft² 39 Lumens	10,625 Ft² 12 Lights .406 Watts / Ft² 14 Lumens	8,500 Ft² 12 Lights .508 Watts / Ft² 18 Lumens	

Watts per Square Foot Lumens



Yellow - T5

Green – T5 – Battery

Red – Sensors

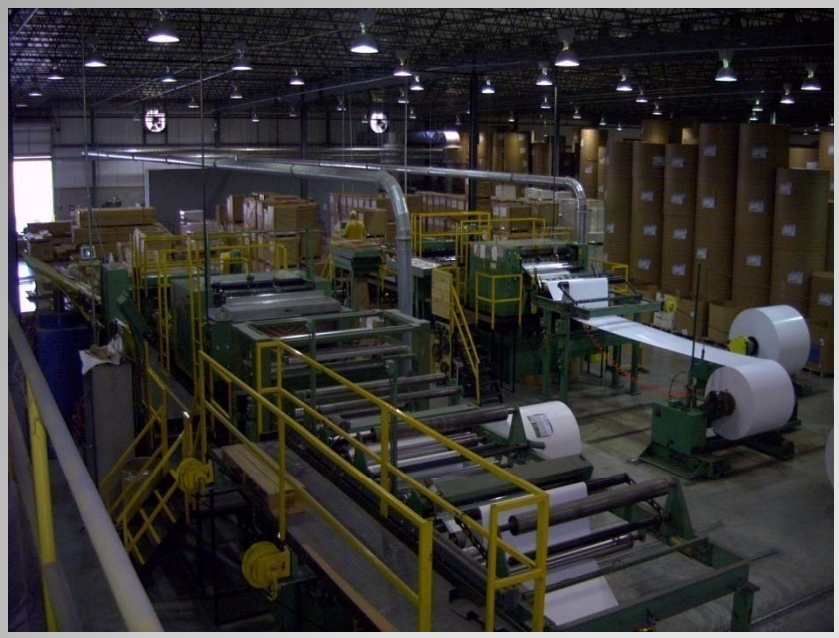
104 of the 400 WATT METAL HALLIDE

Hagerstown facility before T5 installation.

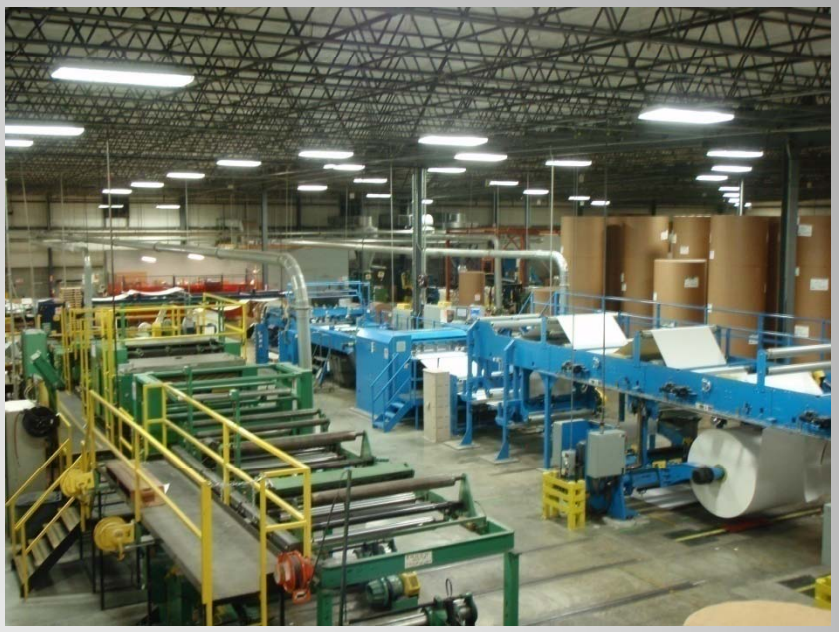
70 of the 6-Tube T5 Fluorescent New

Hagerstown facility after T5 installation.

104 of 400 Watt Halides



70 of 6-Tube T5



Indiana-using the same camera.

THANK YOU !