



Empire **EMS**

Annual Report

FISCAL YEAR
2020-2021

Empire EMS Annual Report

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FISCAL YEAR
2020-2021
Oct. 2020-Sep. 2021

EXECUTIVE SUMMARY

our company mission

At Empire, we are dedicated to being a cutting-edge print supplier. We create custom products that enrich our customers' brand and identity by providing a friendly, knowledgeable customer experience every time.

our company vision

Empire is customer focused. We listen to both our internal and external customers and look to improve based upon their input. Through relentless pursuit of customer satisfaction, we work to grow our customer base and make our company strong. We develop our people by investing in education and training to empower them to make improvements to the products, services, processes and themselves. We concentrate on implementing sustainable production methods that are environmentally safe to protect our planet for future generations.

our core values

Respect • Integrity • Responsibility
Continual Improvement • Knowledge • Excellence

Our ENVIRONMENTAL Vision

focus

Empire's focus is providing our customers with products and services that produce sustainable results and business practices. Through our relentless pursuit of customer satisfaction, we will grow Empire's customer base and strengthen our company. We will strive to improve our process by listening to our customers, collaborating with our business partners and developing our people through education and training. Our employees will be empowered to continually make improvements to the process, their work environment and themselves. We will develop production methods that implement sustainable environmental, health and safety (EHS) practices into all aspects of our operations.

commit

We commit to being compliant with all applicable EHS and labor regulations (federal and state). We will continue to implement programs and procedures in accordance with these requirements.

pledge

We pledge to look for new opportunities and innovations that will help enhance and improve our sustainability program beyond regulatory compliance. We will strive to incorporate activities and procedures that will reduce our impact on the environment as well as improving the quality of health and wellness of the employees. We will measure our progress through regular audits and annual reviews.

strive

Empire will strive to implement procedures to target prevention of activities, services or products that may cause harm to human health, safety, or the environment. These procedures will be designed to affect Empire and/or the surrounding community.

communicate

We will communicate our sustainability commitment to our employees, vendors, customers and community through educational training and marketing. We will encourage their input on meeting our goals and improving our procedures.





significant environmental aspects and impacts

expanding our roll-to-roll capabilities

It is a critical time for manufacturing companies. There is a shortage of people in the labor force and supply chain issues. We solve these issues through innovation and automation solutions, and following our lean concept to eliminate or reduce waste.

Conveyance is our most significant waste. Our next phase is to automate systems that move the material from one process to

another using environmentally-friendly LED curing technology. I am proud to say the changes we made this year have increased our use of LED to over 90%. *-John Freismuth*

Paper, Film & Foil Converter (PFFC), recently detailed how we expanded our printing capabilities with the revolutionary Roll-to-Roll Screen Press, exemplifying our commitment to environmental sustainability and employee safety with our signature UV LED ink curing technology.

“With this innovation, Empire combines the outdoor durability advantages of screen printing with the efficiencies of a roll press. The industry standard for screen printing is sheet-fed equipment and most roll labels are printed on offset or flexo equipment, which cannot produce products that stand up to outdoor and challenging indoor conditions.”

“The Roll-to-Roll Screen Press also exemplifies Empire’s commitment to environmental sustainability and employee safety. Empire is the first company to develop and implement UV LED ink curing technology for screen printing in its small-format Kammann K61 Eco Press, which has a max image size of 14x13.50 inches.”

“The new Roll-to-Roll press brings this innovation to large format printing, with a max image area of 36-inches x 18-inches. LED curing has no emissions and is up to 600 percent more energy-efficient than UV Mercury bulbs. The Roll-to-Roll press is also designed with waste reduction measures as a one-of-a-kind web press that allows for starting and stopping with no web loss.”

Click here to read the entire article:
<https://www.pffc-online.com>

THE ART OF PRINTING

Empire is a family owned, award-winning business that prides itself on environmentally friendly print methods. We’re a full service company in OEM and POP markets, producing overlays, vinyl decals, crystal-line domes, and many more products.

ENVIRONMENTAL PERFORMANCE



GREEN TIER

environmental performance



ENVIRONMENTAL PERFORMANCE

SCREEN MAKING: Improving Efficiency and Safety in Our Production

The screen making department has gone through many changes in 2021. It has been challenging to meet the needs of our internal customers, so we explored different ways to improve. One of the ways we are improving in screen making is through automation.

Screen makers handle screens up to 30 times, requiring an employee to retrieve them from the press, wipe off the ink, clean it, wash it, and prepare it for new emulsion. Then it would go through imaging, developing, washing out, drying, taping, blocking out, and inspection to have the screen ready to return to the press. This

Screen makers would handle screens up to 30 times

involved lifting and moving frames multiple times, with some as large as 60" x 79", as well as coming in direct contact with chemicals. Automation helps reduce the number of touches per screen and makes the processes more efficient and consistent.

Early in 2021, Empire purchased a Dane 250 to wash the ink and emulsion off screens automatically. Now, we simply remove the tape from the screen, stage it in a 10-screen feed magazine, and the Dane automatically washes the ink out, removes the emulsion, and then gives a final rinse before releasing it into a clean screen magazine. The frames can then be inspected, hazed, and degreased for coating. This is a much safer and cleaner process for our employees.

We also introduced a CST laser exposure unit. The original process required physically loading and unloading the exposure unit, doing the same with the developer, and again moving it to the dryer. This is a considerable amount of screen handling and lifting.

In preparation for this equipment, we added a 10-screen feed magazine, automatic developer, and a drying magazine. This automated process allows us to load the exposure magazine, and the rest is automated. Screens go directly to the inspection area from there. This removed eight handling steps per screen by implementing this new process. With a full magazine, this eliminates 80 handling steps within the process.

Our goals are to continue automating and improving the screen making area, making it a safer and more efficient process.

SCREEN PRINTING: 12x14 Press Retrofit

This is the last 12x14 press that Empire has retrofitted to eliminate the high cost of producing parts using traditional UV Lines, as well as moving towards environmental sustainability.

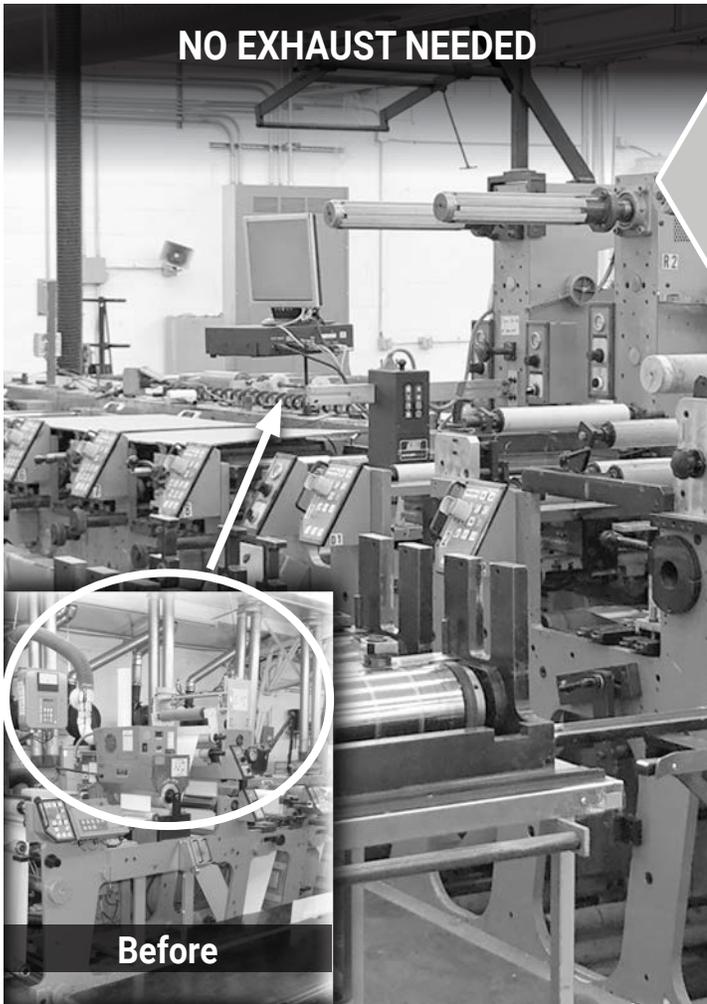
The “12x14” is a three-color press that was changed to three LED curing ovens that have 14-inch lights at each station. These ovens are single station units with a 16-watt per inch curing area. With the traditional UV Mercury bulbs, there would have been 300-watt double station UV Units at an 18” cure area.

Prior to the LED curing, the exhaust for the ozone on the UV Mercury units would have been over 5,000 cfm (cubic feet per minute). This would take out a large amount of cool air in the summer and hot air in the winter, which adds up to a significant amount of energy just going up through the stacks. The LED curing has no air or exhaust needed, eliminating that energy cost completely.



12x14 3-COLOR PRESS POWER CONSUMPTION COMPARISON (Based on 5,000 work hours/year)

Description	Traditional UV Mercury Press	Retrofit UV LED Press
Average Amps	56 Amps	4.1 Amps
Voltage	480 Volts (3 Phase)	208 Volts (3 Phase)
Kilowatts/Hour	46.6 kW/h	1.48 kW/h
Kilowatt Hours/Year	232,780 kWh	7,377 kWh*
Price per Kilowatt	\$.0733	\$.0733
Total cost to run per year	\$17,063.00	\$540.73
CFM Exhaust for press	5,000 CFM (38 kW/h)	0 CFM
Cost of CFM Exhaust	\$13,927.00	\$0.00
Cost of Bulbs per year	\$3,240 (18 @ \$180 ea.)	\$0.00
TOTAL COST/YR TO RUN	\$34,250.00	\$540.73



SCREEN PRINTING: Aquaflex Retrofit

Empire has retrofitted their flexographic press to eliminate the high cost of producing parts using traditional UV Lines, as well as moving towards environmental sustainability and employee safety.

Empire's Flexo press is a complete in-line manufacturing system. It can print up to eight colors, front and/or back printing, lamination, custom die cutting, perforating, slitting and sheeting - all performed in one continuous operation on a roll. The image is printed on the substrate, then pulled through a series of print stations. Each station prints a single color and uses one LED bulb for curing.

Prior to the LED conversion, the exhaust for the ozone on the UV Mercury units would have been 4,000 cfm (cubic feet per minute). The LED curing has no air or exhaust needed, eliminating that energy cost completely. Total kWh per year is also reduced by 85.75%.

FLEXO AQUAFLEX CONSUMPTION COMPARISON (Based on 4,000 work hours/year)

Description	Traditional UV Mercury Press	Retrofit UV LED Press
Run/Idle Time	2000/2000	2000/2000
KW/Hr	62.3 kW/h	13.3 kW/h
KW/Year	200600 kWh	36600 kWh
Price per Kilowatt	\$.073	\$.073
Total cost to run per year	\$14,644	\$2,672
CFM Exhaust for press	4,000 CFM (30.4 kW/h)	0 CFM
Cost of CFM Exhaust	\$8,906	\$0.00
Cost of Bulbs per year	\$960 (8 @ \$120 ea.)	\$0.00
TOTAL COST/YR TO RUN	\$37,470.00	\$2,672.00

ELECTRONIC BILLING:

The Accounting department was printing, stuffing and mailing roughly 2,600 invoices a month. Now approximately 99.6% of Empire invoices are being billed electronically through email. This has greatly reduced paper usage within that department as well as improving the process.

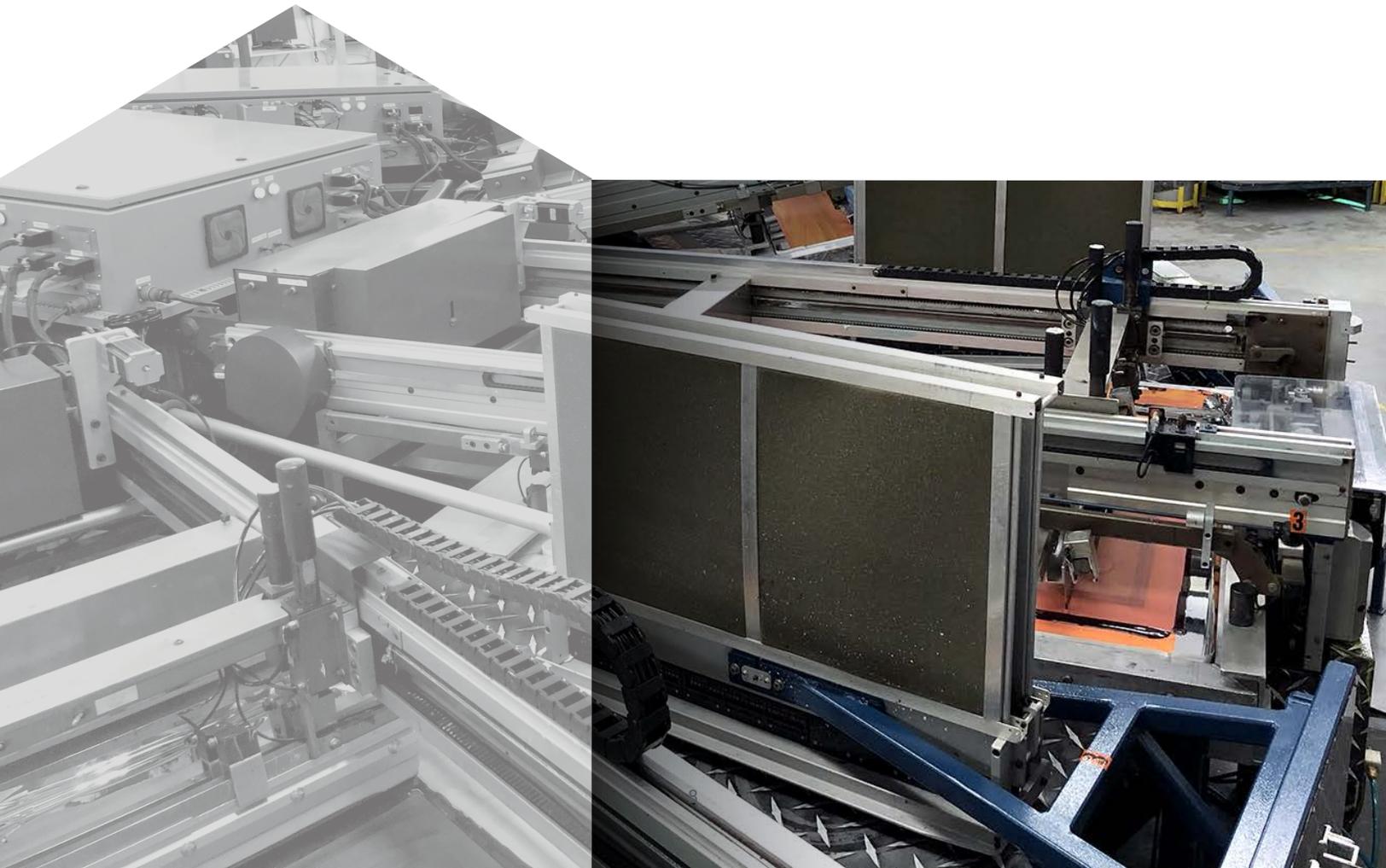
GREEN TIER PARTICIPATION:

We've made sustainability a part of our business initiative for the last eight years.

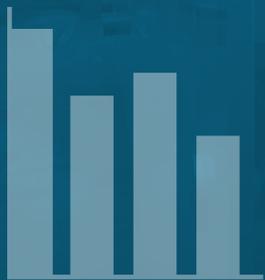
As a member of the Wisconsin Green Tier program since 2013, we commit to our sustainability policy and have established our own environmental management system, which is audited internally and externally.

The guidelines put forth by the Green Tier program hold us accountable and provides validation for our efforts. Our most outstanding achievement is developing and implementing the world's first UV LED ink curing technology for screen printing. To promote this environmentally-friendly means of printing, we as a company shared our technology. Green Tier provides a third-party platform so we can spread our message and build awareness.

Today, 90% of our manufacturing uses UV LED technology and earned us over 20 different awards, stemming from our drive to sustainability. We take great pride in our work, incorporating the Green Tier logo into our brand and leading other manufacturers in the state of Wisconsin.



PROGRESS ON GOALS/OBJECTIVES



Objective 1

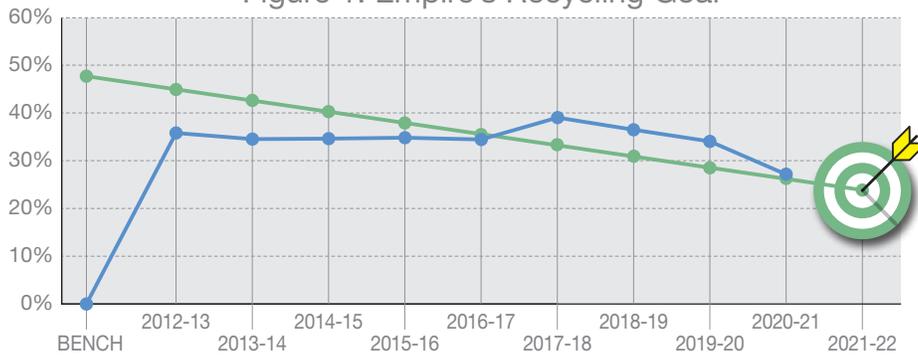
Reduce our annual landfill waste to 23.85% by 2022.

Empire Screen identified 2012 as the baseline year for setting a waste reduction goal. In 2012, 47.69% of waste generated was sent to the landfill. By 2022, Empire Screen will reduce the waste sent to the landfill by 50%, with an annual reduction of 2.39%, resulting in no more than 23.85% of all the waste generated being sent to the landfill.

PROGRESS OF ACTION ITEMS:

- Reduce waste from Graphium and Flexo roll machines
 - » After looking at this objective more closely and examining the manufacturing process for cutting on the Graphium, it was determined that a majority of our thicker material roll stock substrates were being cut on the Preco rather than using the inline cutting unit on the press. When this change was made, the waste material was not wound back up on the roll. Instead, it was loose; therefore, it could be sent to the compactor for energy, rather than being thrown in the landfill compactor as a roll. The end result allows us to throw approximately 20% of the waste in the bin for energy. Essentially the Preco became the chopper that we were looking into purchasing.
 - » Thinner materials are printed on the Flexo; therefore, most of the Flexo work is cut in line, and the waste material is wound back onto the roll. At this time, that roll waste is shipped to the landfill.
- Begin to utilize the 2-color roll-to-roll screen press in production, which will have a minimal waste.
 - » The roll-to-roll was put into production in April 2021.
 - » Minimal waste for setup is 7 feet on the leading edge and 7 ft. on the back end of the printing roll. During the printing, if the press is stopped at any point, there is no material waste. This is a 95% decrease in material setup usage compared to traditional roll-to-roll presses (see Objective #2 for more information).

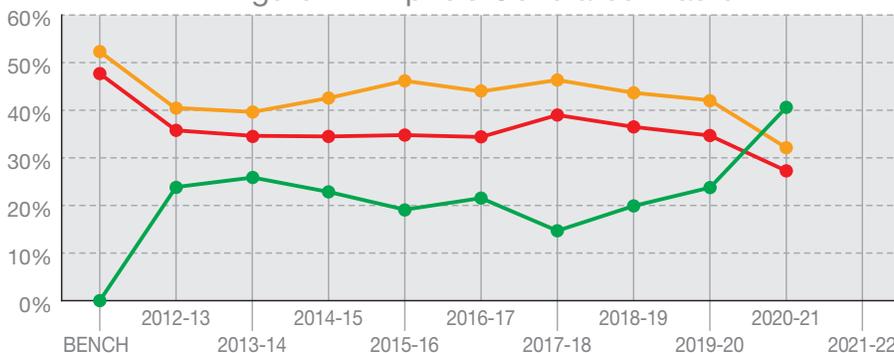
Figure 1: Empire's Recycling Goal



Landfill Waste		
YEAR	TARGET	ACTUAL
2011-12	47.69%	Benchmark
2012-13	45.30%	35.77%
2013-14	42.91%	34.49%
2014-15	40.52%	34.59%
2015-16	38.13%	34.78%
2016-17	35.74%	34.41%
2017-18	33.35%	38.99%
2018-19	30.96%	36.44%
2019-20	28.57%	34.16%
2020-21	26.18%	27.27%
2021-22	23.85%	

● = Target
● = Actual

Figure 2: Empire's Generated Waste



FISCAL YEAR	Landfill %	Energy %	Recycle %	Total Waste (tons)
2011-12	47.69%	52.31%	0.00%	369.64
2012-13	35.77%	40.44%	23.79%	370.96
2013-14	34.49%	39.63%	25.87%	351.24
2014-15	34.59%	42.56%	22.85%	372.28
2015-16	34.78%	46.17%	19.05%	347.28
2016-17	34.41%	44.05%	21.54%	408.66
2017-18	38.99%	46.34%	14.68%	409.64
2018-19	36.44%	43.66%	19.90%	408.57
2019-20	34.16%	42.09%	23.75%	426.11
2020-21	27.27%	32.13%	40.59%	561.33

● = Landfill Waste
● = Recycled Material
● = Waste to Energy

*Numbers for 2019-20 were incorrect and needed to be slightly adjusted from last report

Objective 2

Implement sustainable print methods using UV LED technology.

Empire Screen will continue with design and creation of UV LED Roll-to-Roll screen print presses. These presses have no comparative in the industry and no baseline. This will be established as we enter these presses into job production.

Objective #2A:

Two-Color UV LED Roll-to-Roll screen print prototype will be entered into full production.

The two-color prototype will begin printing production jobs. This will help to set a baseline for material and energy usage.

PROGRESS OF ACTION ITEMS:

1. Add a second table to make it a two-color press
 - » *A second table was added on December 2020.*
2. Begin printing production jobs by December 2020.
 - » *This was completed in April 2021.*
3. Hire a 1st shift operator by February 2021.
 - » *Operator was hired in March 2021.*
4. Set a baseline for material and energy usage.
 - » **Material Usage:**
Material usage is determined by the number of colors, quantity, and press. Instead of determining actual usage comparison, we compared material usages for setup before anything prints.
The Roll to Roll uses 14 ft. of material for setup. Our other roll presses use between 125-150 ft. That is a 95% decrease in material setup usage. Another benefit is that normal roll presses incur additional waste if they stop and start in the middle of the run. The Roll to Roll has zero waste if stopped during the run.
 - » **Energy Usage:**
The baseline usage of the Roll-to-Roll is listed below, as well as a comparison to Empire's other roll-to-roll presses:*
The Roll-to-Roll (screen print) press produces a rate of..... 2.2 kWh
Kammann (screen print) press produces a rate of..... 12.0 kWh
Aquaflex (Flexo) press produces a rate of..... 13.3 kWh

**Roll-to-Roll baseline was based on a 14" sheet, 12.5" cycle at a 25" repeat.*

Objective #2B:

Build a Two-Color UV LED Roll-to-Roll screen print press

To be completed in June 2021.

Objective #2C:

Build a Four-Color UV LED Roll-to-Roll screen print press

This will be a two-year project, to be completed by December 2022.

PROGRESS:

Objectives 2B and 2C were not completed. Production needs, increased capacity needs, and labor shortages affected these two items. The direction has also changed. Management determined that building these presses takes too long to get them into production. With growing sales and a need to add capacity in a quicker time period, Empire has decided to purchase additional carousel screen print presses and convert them to UV LED technology. This will be added to next year's objectives.

Objective 3

Implement sustainable equipment in the manufacturing process.

Research different reclaiming attachments to be used with the Dane automatic screen washing unit.

This is a continuation of last year's objective to achieve a system that can clean the water enough to be re-used on screens and reduce our water/tons usage by 25-50%. This will be completed by September 2021.

The unit was put in with the intention to recycle two-thirds of the water during the reclaiming process, but due to settle debris, the system would clog after a number of runs, making the unit unusable. Therefore, these actions were set to find alternative options to continue our initial goal.

PROGRESS OF ACTION ITEMS:

1. Research various types of units.
 - » *Various types of units were researched. Although some of these units would help with water reuse/reduction, the return on investment was too great. We are currently looking at two different units, but need to determine if they will be cost-effective and produce the desired results.*
2. Set up appointments with Reps to come to the facility and observe our process.
 - » *Appointments with Reps are still being set up to visit our in-house process.*
3. Establish the most effective unit that will re-use both the developing and reclaiming, and work within a three-month rotation.
 - » *Based on tests done with the existing unit, current water usage, and amount of production, a three-month water rotation will not be feasible; the current unit and ones researched would not be able to filter the water enough to make it usable for that amount of time.*

On top of the action items listed above, we monitored our water usage to see if cleaning 10 screens at once in the Dane unit would reduce water usage, compared to cleaning one screen at a time manually. When cleaning multiple screens at a time, the most "extreme" setting was needed to accommodate the variation in ink usage so there was no water reduction. The same amount was used every time (the Dane contains a 150-gallon tank).

Management is considering additional options that can be done in-house, which could provide some reduction in water usage. These options will be added as a future goal in next year's objectives.



Large Screen

Dane unit
can hold 10
screens

metrics

All metrics are based on Appendix 1



demographics

Baseline year.....	2013
Number of employees.....	260
Increase/Decrease % of sales from previous year.....	12.59%
% of local purchases.....	No data available
% of in-state purchases.....	No data available
% of Green Tier purchases.....	No data available



transportation

Prius hybrid automobiles, yr. 2011 (for sales/transportation)	2
Chevrolet Silverado trucks (for maintenance needs).....	1
John Deere 4310 Diesel tractor (for mowing/snow removal)	1
John Deere 425 Rider (for mowing).....	1
Vehicle maintenance expenses**.....	\$2,272

***Vehicles expense includes gas, oil, tires & misc. maintenance - not itemized*



water

Municipal Water	N/A
Well water	Not monitored
Water recycled/reused.....	No data available
Wastewater discharged*	456,265 gallons/year

**Screen Making Tanks - does not include septic*



energy

Total Electricity used	3,057,160 kWh/yr
Total Natural Gas used.....	6,411,100,000 BTU/yr
Propane (LP).....	No data available
Diesel (Emergency Generator).....	1,740 gallons/yr



air

Total Particulate Matter (PM).....	No data available
Volatile Organic Compounds (VOC)	18,627 lbs/yr
Ozone-depleting substances	100 lbs/yr
Greenhouse gas emissions.....	No data available

Air emissions are recorded annually



waste

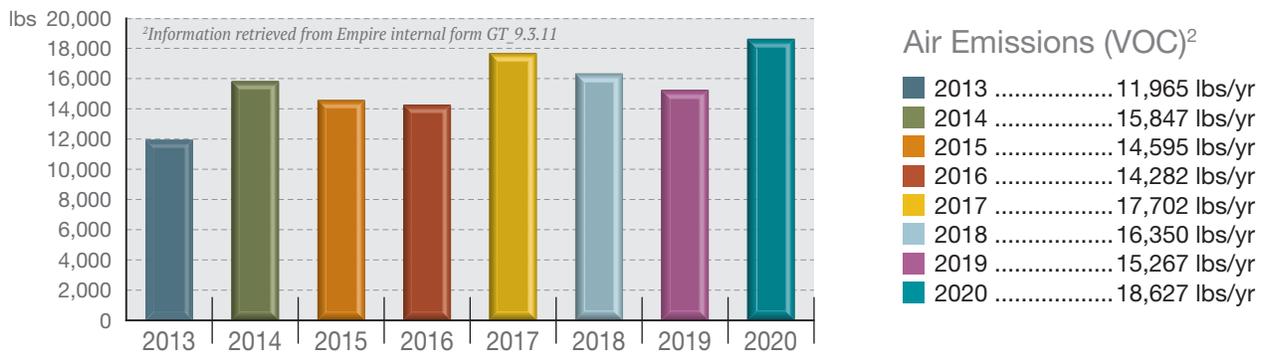
Solid waste generated.....	556.74 tons/yr
Waste recycled or reused.....	403.65 tons/yr
Universal waste generated	0 lbs/yr
Hazardous waste generated	3,211 lbs/yr
% of recycled/reused used in manufacturing	No data available



metrics | **demographics** | sales & purchases



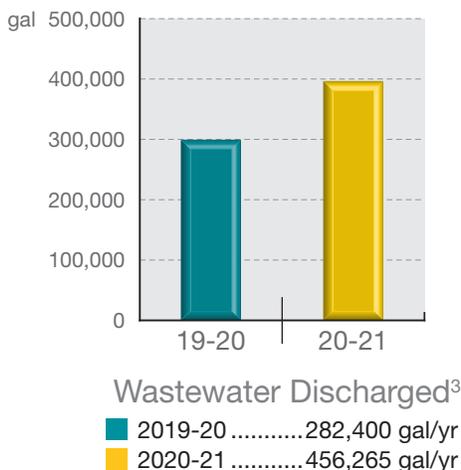
metrics | **air** | voc emissions



Ozone-Depleting Substances (no chart): Air conditioner has 100 lbs of R-22 refrigerant added annually.



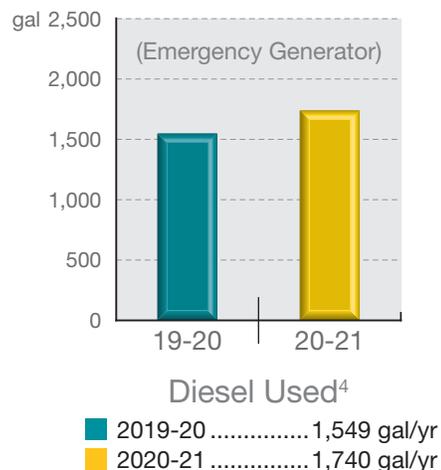
metrics | **water** | wastewater discharged



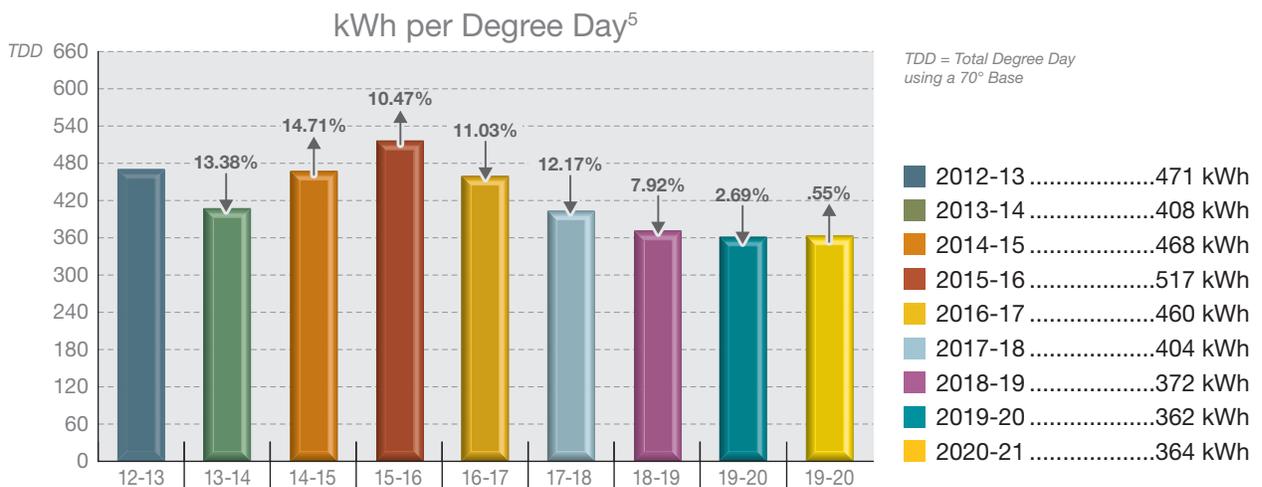
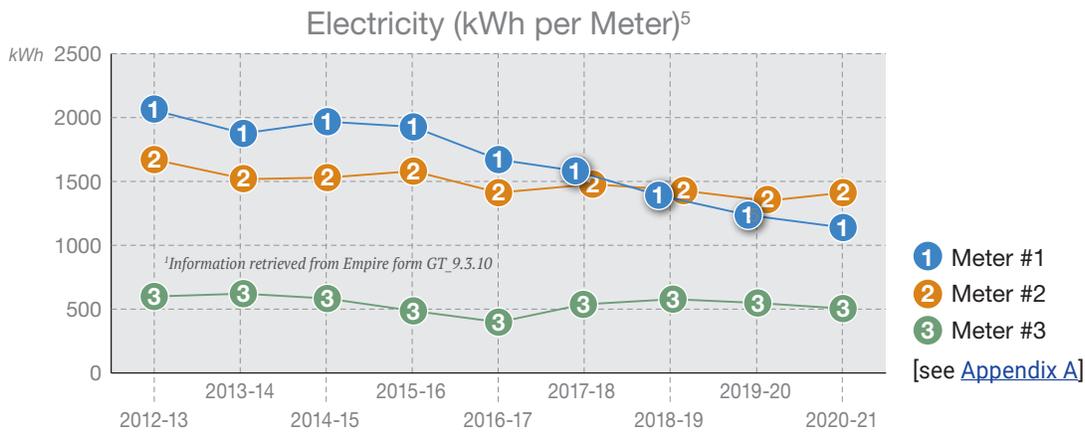
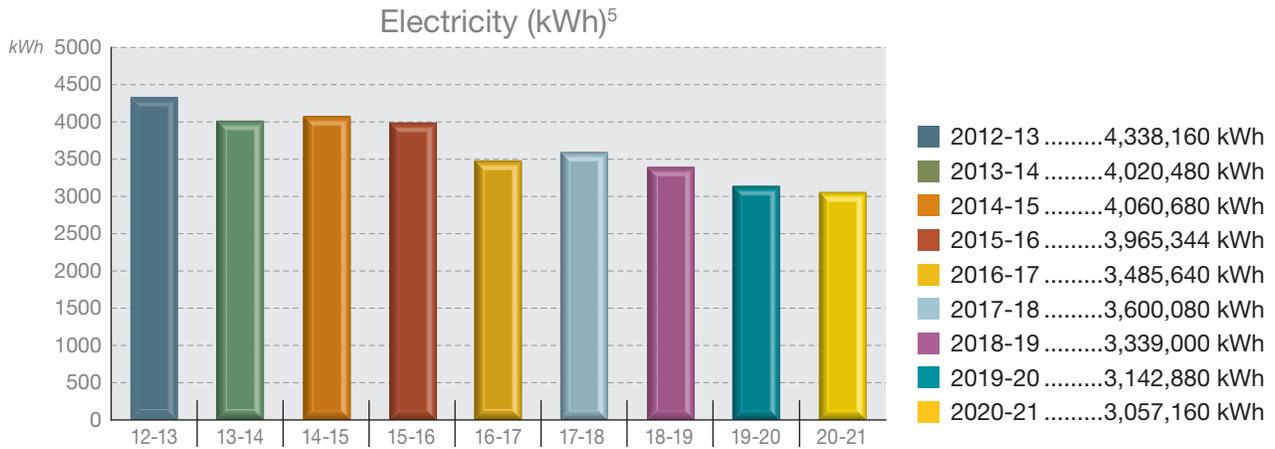
³Information retrieved from Empire internal form GT 9.3.8



metrics | **energy** | Diesel (emergency generator)



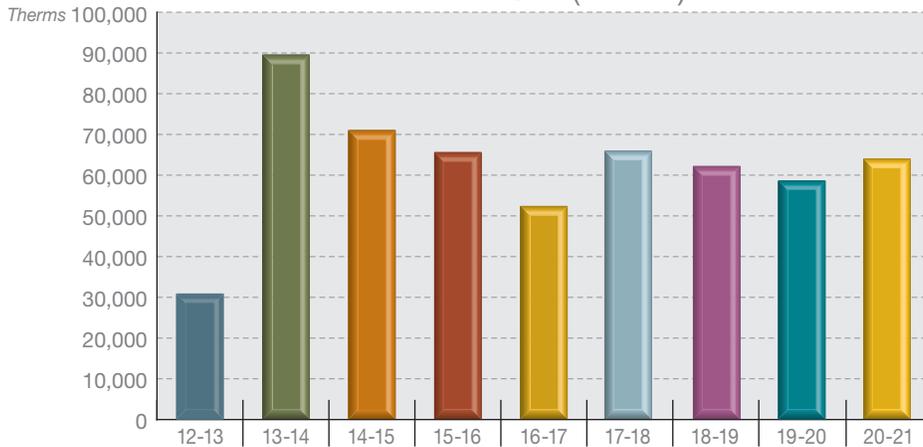
⁴Information retrieved from Empire internal form GT 9.3.9



Our annual reports document both the total kWh hours and therms for electricity/natural gas. In addition, we document the increase or decrease percentages based on the kWh per degree days, which takes into account the various temperature variations. We believe it is a more accurate account of what our equipment/facility is producing for energy.



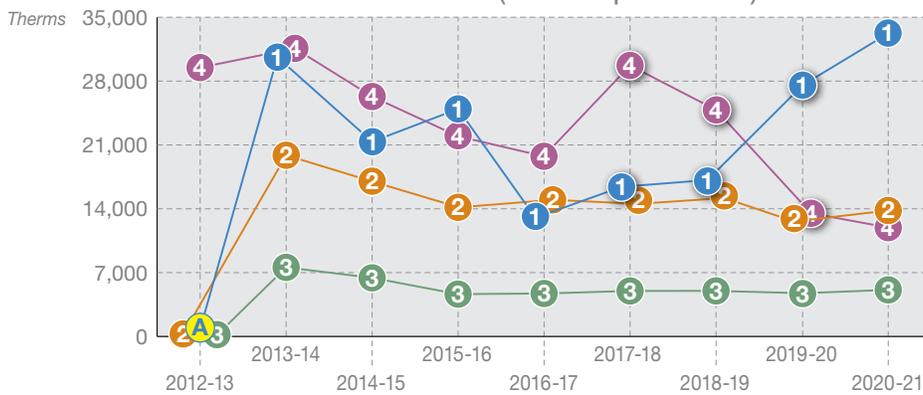
Natural Gas (therms)⁶



M1 = Meter 1
M2 = Meter 2
M3 = Meter 3
M4 = Meter 4

2012-13	30,988 Therms
2013-14	89,662 Therms*
2014-15	71,123 Therms
2015-16	65,705 Therms
2016-17	52,475 Therms
2017-18	66,049 Therms
2018-19	62,411 Therms
2019-20	58,739 Therms
2020-21	64,122 Therms

Natural Gas (therms per Meter)⁶

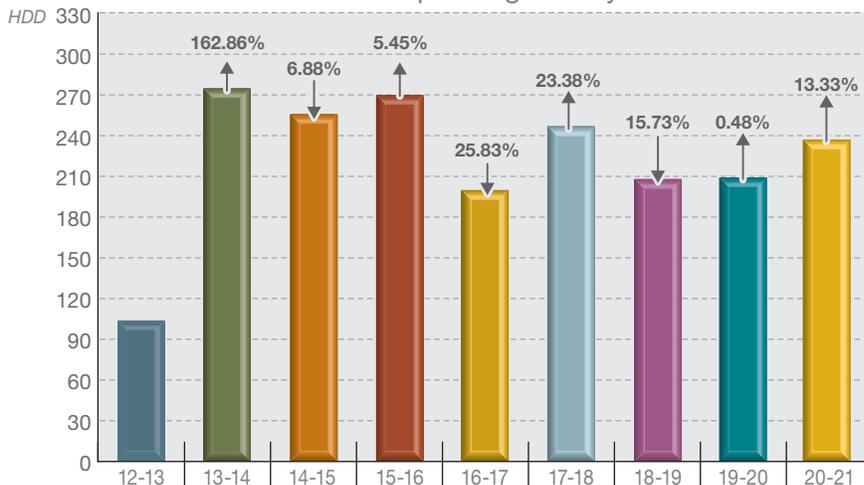


Meter A malfunctioned in 2012-13 fiscal year, but was not discovered until September 2014. The meter was replaced with Meter #1. The therms were then averaged between October 2014-March 2014.

- 1 Meter #1
- 2 Meter #2
- 3 Meter #3
- 4 Meter #4

[see [Appendix A](#)]

kWh per Degree Day⁶



HDD = Heating Degree Day using a 70° Base

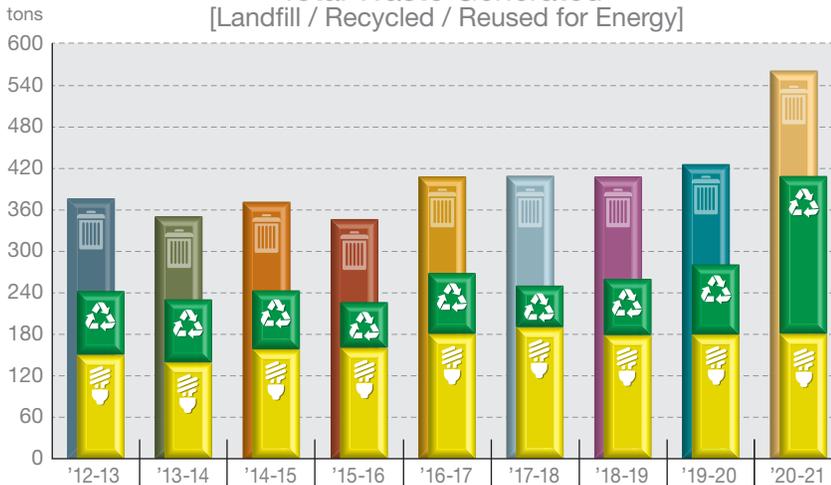
These were incorrectly listed as "therms" in previous reports. It should be kWh (per degree day)

2012-13	105 kWh
2013-14	276 kWh
2014-15	257 kWh
2015-16	271 kWh
2016-17	201 kWh
2017-18	248 kWh
2018-19	209 kWh
2019-20	210 kWh
2020-21	238 kWh

Our annual reports document both the total kWh hours and therms for electricity/natural gas. In addition, we document the increase or decrease percentages based on the kWh per degree days, which takes into account the various temperature variations. We believe it is a more accurate account of what our equipment/facility is producing for energy.



Total Waste Generated⁷
[Landfill / Recycled / Reused for Energy]



Year	Total Tons	% Diverted from Landfill
2012-13	370.96 tons	64.23%
2013-14	351.21 tons	65.51%
2014-15	372.28 tons	65.41%
2015-16	347.28 tons	65.22%
2016-17	408.66 tons	65.59%
2017-18	409.64 tons	61.02%
2018-19	408.57 tons	63.56%
2019-20	*426.11 tons	*65.84%
2020-21	561.33 tons	72.72%

Sent for Energy

2012-13	150.03 tons
2013-14	139.21 tons
2014-15	158.45 tons
2015-16	160.35 tons
2016-17	180.02 tons
2017-18	189.82 tons
2018-19	178.38 tons
2019-20	*179.34 tons
2020-21	180.38 tons

**2019-20 numbers were slightly adjusted (shown in red)*

Recycled/Reused

2012-13	88.24 tons
2013-14	90.84 tons
2014-15	85.06 tons
2015-16	66.16 tons
2016-17	88.03 tons
2017-18	60.12 tons
2018-19	81.29 tons
2019-20	101.20 tons
2020-21	227.86 tons

Hazardous Waste⁸



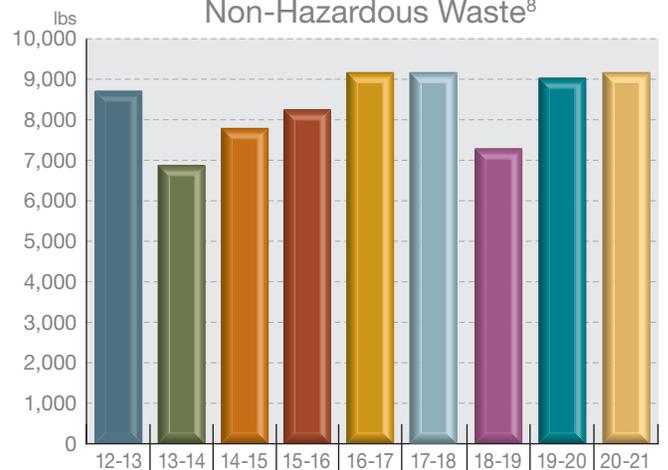
Hazardous Waste:
Still Bottoms (waste solvents) - the sludge from the rags to clean the screens)

2012-13	3,211 lbs
2013-14	3,670 lbs
2014-15	3,165 lbs
2015-16	3,211 lbs
2016-17	2,890 lbs
2017-18	3,211 lbs
2018-19	4,587 lbs
2019-20	4,587 lbs
2021-22	3,211 lbs

lbs are based on 458.7 lb drum

Non-Hazardous & Hazardous Waste: Some numbers have been adjusted due to additional, more precise documentation provided.

Non-Hazardous Waste⁸



Non-Hazardous Waste:
Vinyl*, UV and Screened Adhesive Water-Based Inks.
**Vinyl is hazardous, but it is sent with UV for disposal (to be incinerated with the barrel)*

2012-13	8,715 lbs
2013-14	6,881 lbs
2014-15	7,798 lbs
2015-16	8,257 lbs
2016-17	9,174 lbs
2017-18	9,174 lbs
2018-19	7,293 lbs
2019-20	9,036 lbs
2020-21	9,174 lbs

lbs are based on 458.7 lb drum

Procedure used for all graphs on this page: Waste_Recycling_Data_Documentation_Procedure.pdf

⁷Information retrieved from Empire internal forms GT_9.3.1, GT_9.3.2, GT_9.3.3, & GT_9.3.4

⁸Information retrieved from Empire internal form GT_9.3.5

ADDITIONAL ACCOMPLISHMENTS

awards

2021 sustainable business recognition award

Empire was one of 15 companies to receive the 2021 Sustainable Business Recognition Award from PRINTING United Alliance on Earth Day, April 2021.

“PRINTING United Alliance is the most comprehensive member-based printing and graphic arts association in the United States, comprised of the vast communities which it represents. The Alliance serves industry professionals across market segments with preeminent education, training, workshops, events, research, government and legislative representation, safety, and environmental sustainability guidance, as well as resources from the leading media company in the industry.” – NAPCO Media.



green master professional

The **Wisconsin Sustainable Business Council** named Empire Screen Printing as a Green Professional within its Green Masters Program in August 2021. Recognizing sustainable actions by businesses from across the state of Wisconsin, the Green Masters program works to identify businesses that have taken at least one action within each of the nine pillars of sustainability. Participants in the program receive recognition for their sustainability accomplishments and develop ideas for future sustainability actions.



wide format impressions innovators of 2021 recognition

Empire was one of four companies to be recognized by **Wide Format Impressions** Innovators of 2021:

“Among the innovative projects Freismuth has been most passionate about is moving the company’s UV curing to LED. While this type of curing technology is common in UV curable inkjet, it is thornier in screen printing, where ink opacity is high and ink laydown can be thick. At first, Freismuth was drawn to UV curables as a way to improve safety in the facility (by removing solvents), but also found significant reductions in electricity use. Since switching to UV-LED, the company has also gained access to certain substrates that could not be used under the hot mercury-vapor lights of traditional UV curing. While this broader move was spearheaded in safety and environmental performance, says Freismuth, the benefits can be measured on the bottom line.”

You can read the entire article at <https://www.wideformatimpressions.com/article/the-innovators-of-2021/>

STAKEHOLDER RELATIONSHIPS



raising awareness

When you drop any new idea in the pond of the world, you get a ripple effect. You have to be aware that you will be creating a cascade of change. -Joel A. Barker



stakeholder relationships



raising awareness

partners in printing

In 2010, a small group of employees organized the first national sales meeting at Empire Screen Printing in Onalaska, WI. What started out as an opportunity to bring our national sales reps together to network ideas through print education, turned into a multifaceted mission:

To provide education on printing, to promote the industry and its suppliers, to provide unique networking opportunities, to illustrate how to

be good stewards of the environment, and to leave a legacy for future generations. As the show grew, so did Empire. As the show surpassed on-site capacity, the **Partners in Printing Expo** was formed. With the expanding size, Empire joined a partnership with **PRINTING United Alliance** and relocated the event to the La Crosse Center, in downtown La Crosse, Wisconsin.

After having to postpone by a year due to COVID-19, the 6th Partners in Printing Expo took place on July 20th - 22nd in La Crosse, Wisconsin.

“PIP2021” kicked off on Tuesday, July 20, with the *3M Cup*—a celebrity charity golf tournament that was held at Drugan’s Castle Mound in Holmen, Wisconsin. After the 18-hole scramble, lunch was served and an open auction was held. This event raised just over \$6,000, which was donated to a local non-profit. This year’s recipient was the Children’s Museum of La Crosse, Wisconsin.

Wednesday was the *Professional Learning* day. This day brought insightful perspectives on important business trends, such as increased personal branding, sales, game-changing innovations, and economic planning. This year’s lineup included Frank Winters, former Green Bay Packer and Super Bowl winner; Gene Marks, national columnist; and Tracy Spears, internationally recognized thought leader. In addition, we welcomed Tom Thibodeau, distinguished Professor of Servant Leadership, and Brian Parsley, Business Intelligence Strategist.



golf tournament



sessions



vendor fair

[partners in printing]

These speakers inspired, engaged, empowered, and motivated those in attendance while giving them ideas for discussion and helpful strategies to put into action.

Following the Professional Learning, Empire's President, John Freismuth, invited our sales reps, speakers, celebrities, suppliers, vendors, and customer service employees to his home for some Wisconsin Hospitality with his Backyard BBQ. This gives people a relaxed environment to network and get to know one another.

Thursday was the main event, the *vendor fair* portion of the expo. This included businesses and suppliers from throughout the printing industry and focused on evolving technologies, sustainability, and strengthening small businesses through partnerships. We had more than 80 vendors from around the globe participating in this event. The vendor fair was open to the public, bringing together business leaders, print professionals, competitors, students, and Empire employees to gather insightful information on all facets of print.

While the Expo was taking place in La Crosse, Empire was hosting company tours in Onalaska. People were able to register for a tour time upon registering for the event. Tours were hosted by a variety of supervisors and members of upper management. The tours focused on Empire's sustainable printing with UV LED technology, lean manufacturing, and our expanded capabilities and business offerings. This was also an opportunity for our outside reps to meet with John Freismuth, who shared the company's vision and direction for the future, as well as networking with their account managers.

The closing event was our *Tattoos & Tailgates* Concert Series. This show highlighted and shared the rich printing heritage in the Coulee Region while providing nationally recognized entertainment for the public. Held at the Oktoberfest Grounds in downtown La Crosse, the show consisted of the following musicians/bands: Juju Rossi, The Trailer Choir (Bigg Vinny and Butter), The Nashville Cartel (Jared Blake, Jared Weeks, and Bigg Vinny), Saliva, and Tyler Farr. The whole event was emceed by *NSYNC's Chris Kirkpatrick.



plant tour



raising awareness keeping customers and employees informed

Empire uses a variety of outlets to help keep our employees, customers and the public up-to-date and informed of new and exciting sustainable methods:

Empire's **website** is an integral tool for customers, vendors and suppliers to keep current with our sustainable printing methods, EMS reports, our sustainability policy and Green Tier status. Our **blog** page features recent publications about Empire, within the industry: <https://www.empirescreen.com>

Social media posts:

Empire utilizes **Facebook, Twitter, LinkedIn, and Instagram** to post daily messages promoting our brand, bringing awareness to our sustainability efforts, innovations, products, and services.

Empire's **T.E.A.M. Facebook** page is an extra resource for employees only. Here they will find information about what's going on at Empire, such as new equipment, department updates, employee events and reminders.

Newsletters are printed quarterly for employees and also included on Empire's website for anyone to view.

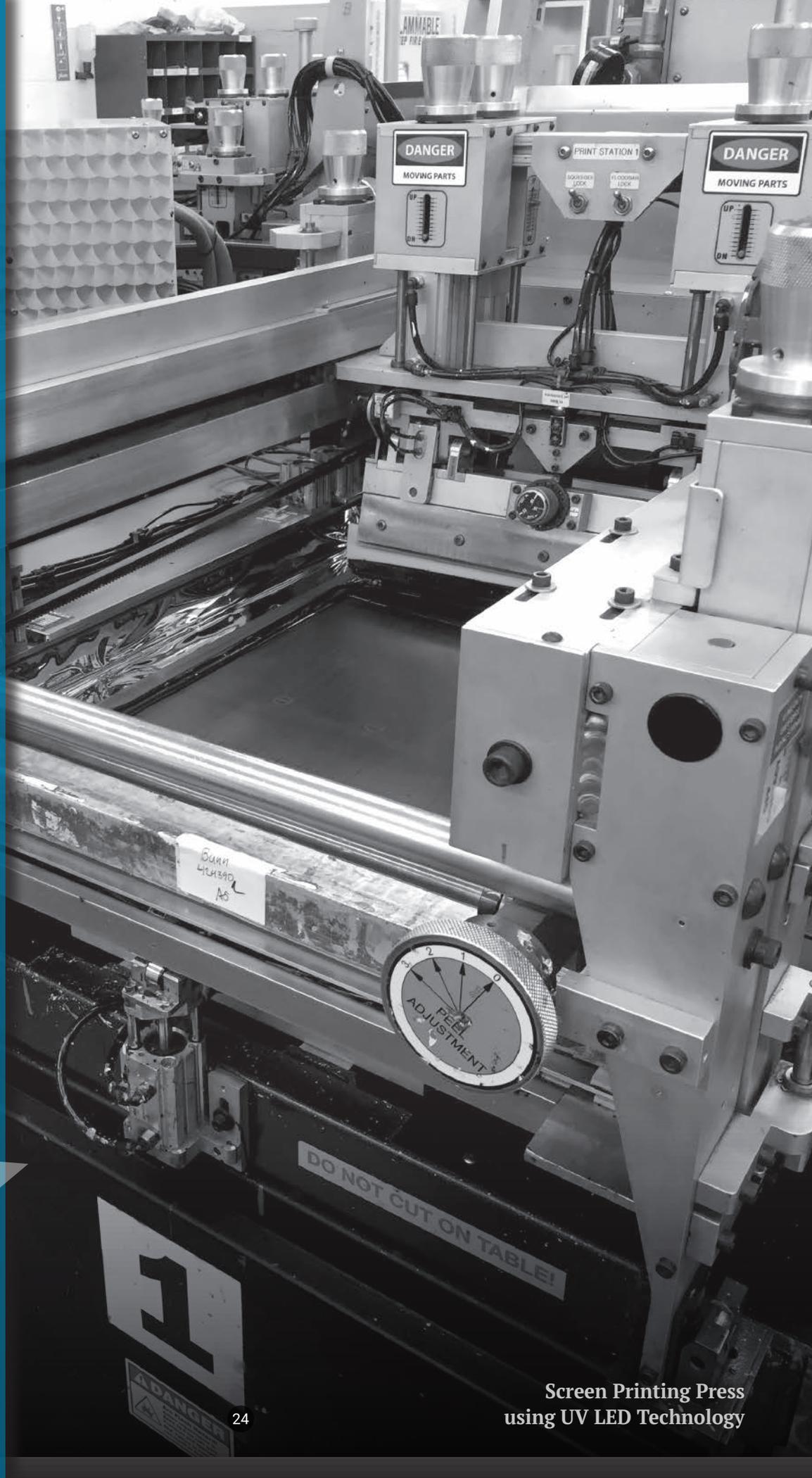
Sustainability boards at Empire are used to keep employees current with our policies and any updates on objectives and goals.

Our **hubspot** customer relationship management allows us to streamline our marketing communications with our customers and suppliers. We notify them of recent publications, our sustainability efforts, and any information that helps build our customer relations.

Visit Empire's Website



FUTURE GOALS



FISCAL YEAR
2021-2022
Oct. 2021-Sep. 2022

Screen Printing Press
using UV LED Technology

Future Goals

Objective #1 Reduce our annual landfill waste to 23.85% by 2022.

Empire Screen identified 2012 as the baseline year for setting a waste reduction goal. In 2012, 47.69% of waste generated was sent to the landfill. By 2022, Empire Screen will reduce the waste sent to the landfill by 50%, with an annual reduction of 2.39%, resulting in no more than 23.85% of all the waste generated being sent to the landfill.

Action Items for 2021-22:

- » Create a Preco cutting Procedure and Work Instruction for roll stock to be left unwound. Materials could then be placed in Recycle bin or sent to the Energy compactor. The percentage will be reflected in our overall decrease in landfill waste.
- » Improve internal communication regarding this objective, especially to new employees. This will be accomplished by posting more information and graphs on the green boards, including more articles in the newsletters, and publish quick reference points on our T.E.A.M. Facebook page.

Objective #2 Implement sustainable print methods with equipment using UV LED technology.

Empire Screen will continue with the design/conversion of UV LED screen print presses.

a. Purchase a used, Six-Color UV Mercury screen print press and convert to UV LED curing press.

This press will be purchased in November 2021. Conversion to UV LED will be completed in June 2022. The press will first be used as an R&D Automation Press, and then be put into production by December 2022. It will use 0 CFM exhaust (versus 1,500 CFM for UV Mercury press) and have a 92.15% reduction in energy (kWh) compared to traditional printing methods.

b. Purchase a new Nine-Color press and add UV LED curing.

Empire will purchase a new, nine-color carousel screen press with no curing lights. We will retrofit it with our UV LED technology, to be completed and put into production by December 2022. It will use 0 CFM exhaust (versus 1,500 CFM for UV Mercury press) and have a 92.15% reduction in energy (kWh) compared to traditional printing methods.

Objective #3 Implement sustainable equipment used in manufacturing process.

Research different reclaiming attachments to be used with the automatic screen-washing unit (Dane).

This is a continuation of last year's objective to achieve a system that can clean the water enough to be re-used on screens. The objective has been changed to have a 2-5% reduction in water amount being picked up (monthly). This will be completed by September 2022.

Action Items for 2021-22:

- » Continue to research various types of units to determine cost-effective options.
- » Research a 2-tank setup, involving a settling and cleaning tank
- » Do research and development on utilizing settling tanks for water re-use. Part of the research will consider number of gallons per day needed, how clean the water is after removing sediment, and if any additional filtration or treatment of the water will be needed. These efforts are directly related to sending less water to be treated and to reduce the use of ground water.

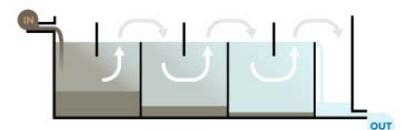


Diagram concept of settling tanks which will remove sediment from used water

Objective #4 Make improvements based on our 2019 external audit

Reevaluate and rate the aspects and impact resolutions based on the new scoring system, as well as updating all documentation. This is a continuing objective due to setbacks in 2020 with our Covid policies that were implemented, so the deadline for this extension will be extended to 2022 fiscal year.

Action Items for 2021-22:

- » Send online assessment form to the rest of the department supervisors, all shifts.
- » The Green Team will update the Impact/Aspect Master file based on information gathered from the assessment form.
- » The Impact/Aspect Report will be reviewed annually, adding new equipment and procedures to the document.

Appendix 1: Environmental Metrics

Respond with the units requested here. If you don't collect this information, please mark N/A.

Data will be used to calculate the cumulative environmental impacts of Green Tier participants on Wisconsin's natural resources and economy.

General Information	Quantity	What we are looking for:	Why we ask:
Baseline year	2013	The baseline year provided in your Green Tier application or the year used to track progress	Used to contextualize improvement against a baseline for each metric and goal
Employees	260	Number of employees at end of period	Collected to evaluate size and eligibility for Small Business Assistance programs
Sales or Production	12.59%	% change on previous reporting period (+/-%)	Used to understand scale and efficiencies in % change on normalized data
Local Purchases	No data available	% of purchases made within 100 miles	Used to assess Life-cycle decision making
In-State Purchases	No data available	% of purchases from other WI businesses	Used to show economic contributions to WI
Green Tier Purchases	0	% of purchases from other participants	Used to show Green Tier interactions

METRIC	Quantity	Units	Baseline Value	% change
WASTE <i>Baseline: 2012-13</i>	Include all waste generated at facilities covered by your EMS			
Solid Waste Generated	556.74	tons/year	369.64	+50.62%
Waste Recycled or Reused*	403.65	*units vary by waste type	193.35	+108.77%
Universal Waste Generated	0	pounds/year <i>B: 2020</i>	0	-
Hazardous Waste Generated	3,211	pounds/year	3,211	0%
Manufacturing with recycled/reused content	0	% of total materials	0	-
WATER <i>Baseline: 2019</i>	Include all water used at facilities covered by your EMS.			
Municipal water	N/A	Gallons/year	-	-
Well water	Not monitored	Gallons/year	-	-
Water recycled/reused	No data available	Gallons/year	-	-
Wastewater Discharged	456,265	Gallons/year <i>B: 2020</i>	282,400	+61.57%
ENERGY <i>Baseline: SEE BELOW</i>	Include all energy from traditional and renewable resources used at facilities covered by your EMS			
Electricity Provider	Riverland	We will calculate carbon emissions from energy inputs of the utility		
Electricity	3,057,160	kWh/year <i>[Riverland] B: 2013</i>	4,338,160	-29.53%
<i>[1 therm = 100,000 BTUs]</i> Natural Gas	6,411,100,000	Btu/year <i>[Xcel Energy] B: 2014</i>	8,966,200,000	-28.50%
Coal	N/A	Tons/year	-	-
Propane (LP)	no data available	Gallons/year <i>B: 2019</i>	0	-
Diesel (Emergency Generator)	1,740	Gallons/year <i>[Newman Oil] B: 2019</i>	1,549	12.33%
Fuel Oil (#5)	N/A	Gallons/year	-	-
Renewable Energy	N/A			
% of total energy				
RECS/Offsets (% of total renewable item)				
AIR	Include totals from your processes (provide fractions if available for PM 2.5 & 10)			
Total Particulate Matter (PM)	no available data	Lbs/year	-	-
Volatile Organic Compounds	18,627 lbs	Lbs/year	11,965 lbs	+ 55.68%
Ozone-depleting Substances	100 lbs	Lbs/year	100 lbs	0%
Greenhouse Gas Emissions	no available data	Lbs/year	-	-
TRANSPORTATION - FLEET	Include totals for vehicles you own or lease			
Hybrid Vehicles	2	# of vehicles	4	-50%
Gasoline Used	bill is itemized	Gallons/year	-	-
Diesel Used	bill is itemized	Gallons/year	-	-
Alternative Fuels Used	N/A			
Consumption (show units)				
TRANSPORTATION - OTHER	Information on other transportation modes			
Air Travel	N/A			
Commuter Solutions				



Appendix 2 EMS Audit Information

Internal Audit Summary: Tier 1 Participant

An internal audit was performed on 09/16/2021.

Seven minor nonconformances have been recorded. They primarily involve improving our EMS documentation and training records. MNC corrective actions will be implemented, documented and reviewed within the first half of the next fiscal year.

Management Engagement

At Empire, we follow the EOS Traction organizer. Each week, our upper management team holds a level 10 meeting. During these meetings, we go over the company scorecard, rock review, employee and/or customer headlines, issues list, and our IDS (identify, define, and solve).

Any audit-related findings are discussed and reviewed. Action items are outlined, and a person is identified to follow-up and make sure the items are implemented. Items that can be solved in a week go on the issues list. Items that may take longer would be identified and placed on someone’s 90-day rocks.

At the end of the year, this team holds longer management review meetings to discuss successes and items that were not completed and why. During the management review, we define the company’s vision and future goals in a five, three, and one-year format.

90-day rocks are defined and implemented at the management level that supports the company’s long-term goals and objectives. Our EMS system fits within this model, and our sustainability efforts are incorporated into our company visions and long-term goals and marketing and sales strategies.

Appendix A Meter Locations

Below is a list of general equipment/plant areas for each meter.

Electricity Meters (Riverland Energy)

Meter 1 LVS, SVS, Cell 2, Ink, Screen Making

Meter 2 Lower/Upper Levels, Digital, Customer Service, Art, Hard Tool/Preco, Machine Shop, Maintenance, Die Making, Roll-to-Roll, Kammann, Front Office

Meter 3 Graphium, Flexo, Doming

Natural Gas Meters (Xcel Energy)

Meter 1 LVS, SVS, Screen Making

Meter 2 Digital, Customer Service, Art, Machine Shop, Maintenance, Hard Tool/Preco, Lower Level

Meter 3 Upper Level, Front Office

Meter 4 Cell 2, Graphium, Flexo, Doming, Roll-to-Roll, Kammann, Ink