

Sample Energy and Water Assessment



Holland Board of Public Works

Introduction

Purpose

The primary goal of this energy assessment is to address energy waste reduction and beneficial electrification potential. Making your business more efficient can be costly. The Holland Board of Public Works offers generous rebates to assist with energy waste reduction and beneficial electrification initiatives. Please see our Commercial and Industrial rebates [website](#) for a full list of available rebates.

Assessment Team:

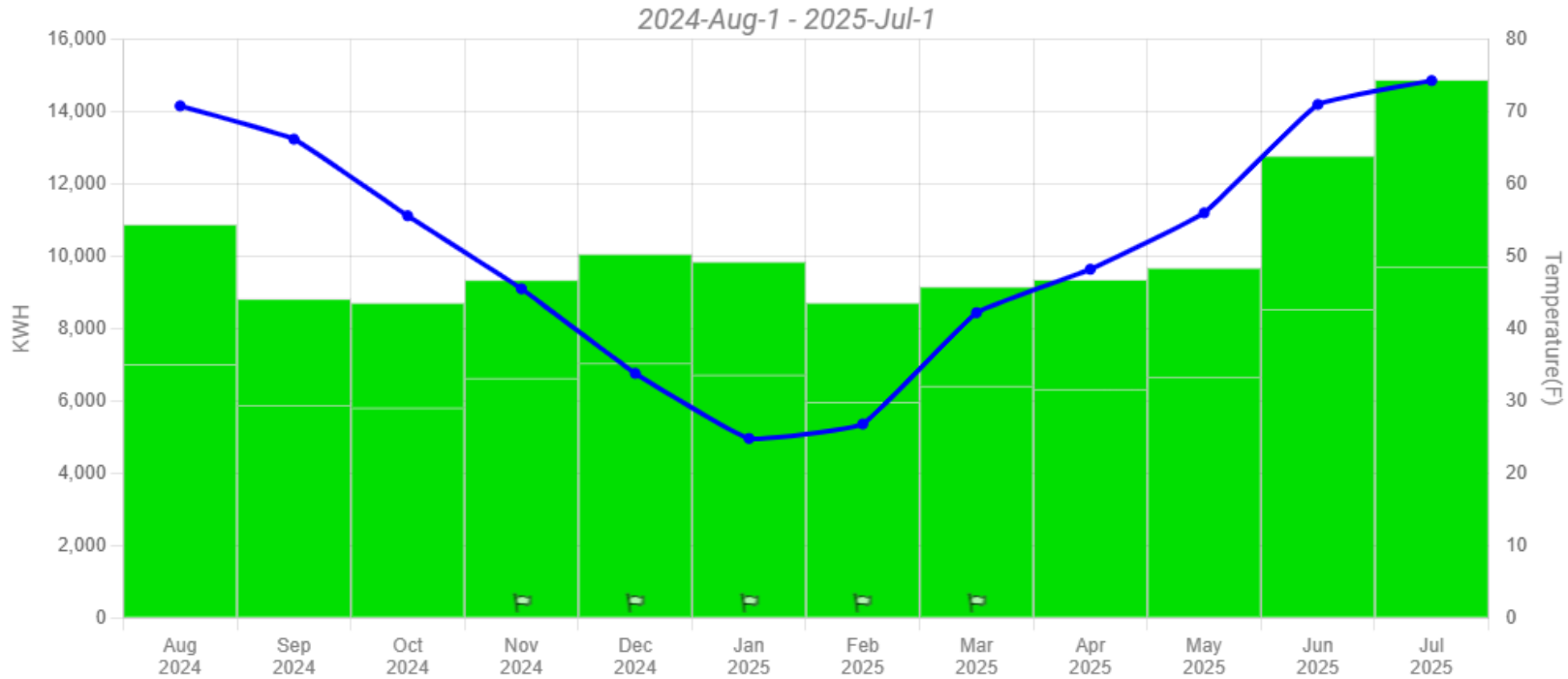
Harle Battjes: hbattjes@hollandbpw.com

Barry Rutherford, CEM:
brutherford@hollandbpw.com

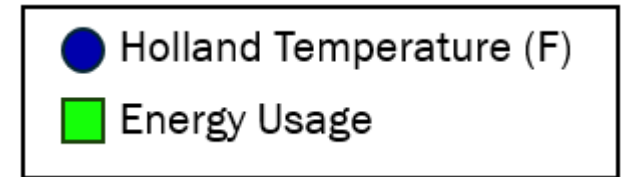
Your Stated Goals:

- Save on energy bill
- Upgrade light fixtures
- Explore available rebates

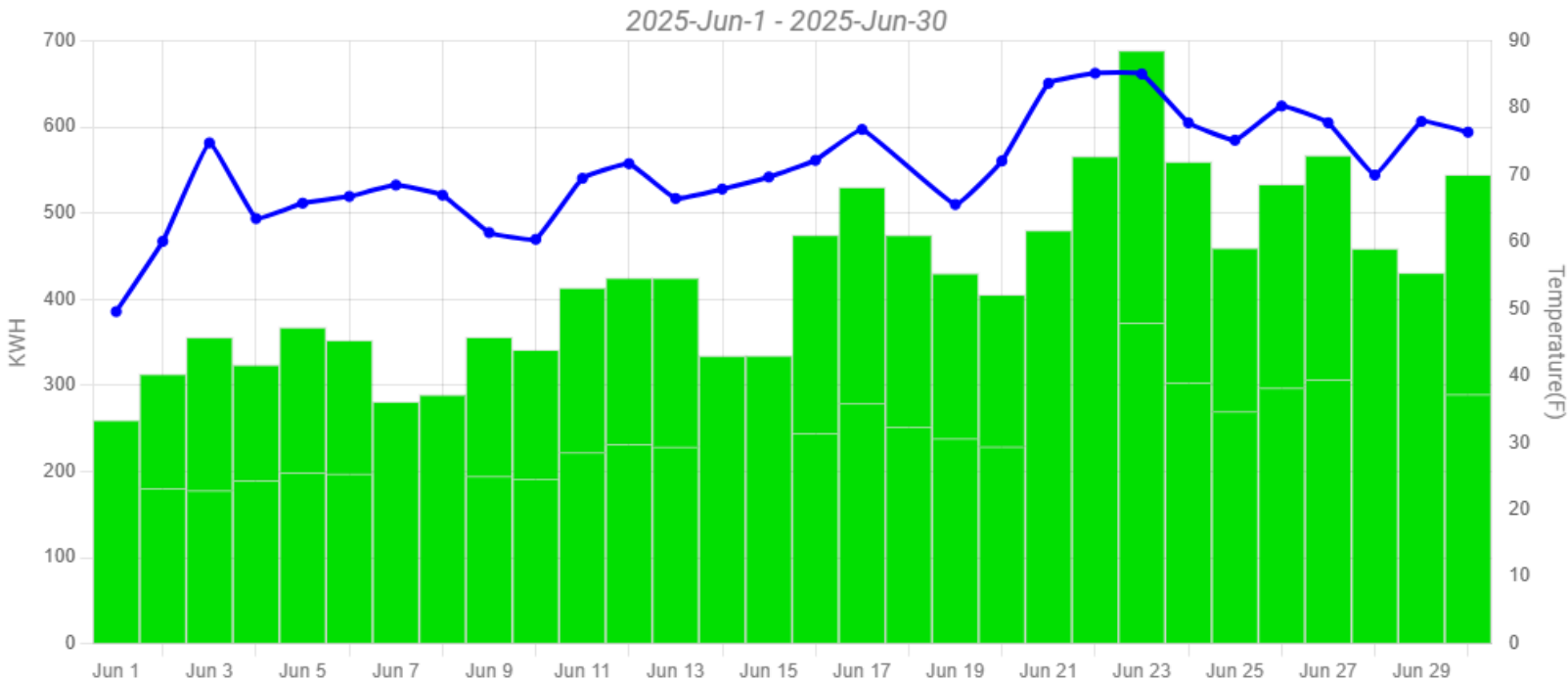
Your Energy Usage: 1 Year Sample



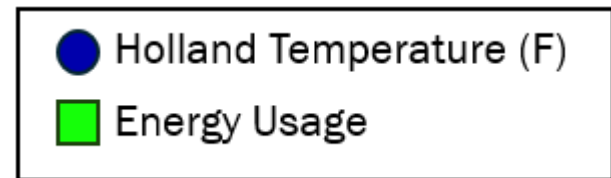
This 1-year usage sample shows increased use of energy (kWh) during hotter months. These peaks are likely linked to air conditioning usage.



Your Energy Usage: 1 Month Sample



This 1-month usage sample shows increased use of energy (kWh) on hotter days. On most days, there is higher energy use during non-peak hours, but there are spikes of on-peak usage due to higher outside temperature. These peaks are likely linked to air conditioning usage.



Lighting

Medium Priority/Low Cost

Lighting is one of the easiest ways to improve efficiency in your facility. LED lighting is the most energy efficient lighting. Non-LED lighting typically lets off wasted energy through heat.

See slide 8 for a list of lighting recommendations.

HBPW rebates will cover a significant amount of the cost. Contact us before you buy to get pre-approval for rebates.

Trade allies are included on this slide for your convenience. Our trade allies are familiar with our process and will often do the paperwork for you.

You are not obligated to work with our trade allies. Please work with the professionals that fit your needs best.

Lighting Trade Allies

National LED Solutions

Ron Schaddelee: ron@nlsleds.com

OEO Energy Solutions

Greg Amick: greg.amick@oeo.com

LED Tube Types

LED tubes are designed to be a direct replacement of fluorescent bulbs (T5,T8,T12). However, there are different types of LED Tubes. This information is provided to help you make an informed bulb purchase.

Type	Power Supply	Compatibility of New LED Tubes with Existing Fluorescent Ballast
Fluorescent Bulb (T5,T8,T12)	External ballast	-----
LED Tube TYPE A	Internal driver	Works with SOME existing fluorescent ballasts (check compatibility before purchase).
LED Tube TYPE B	Internal driver	Existing fluorescent ballast must be removed.
LED Tube Hybrid A/B	Internal driver	Works with or without existing fluorescent ballast. This is a popular option. Can be installed with ballast. When the ballast fails, rewire the LED tube and remove the failed ballast.

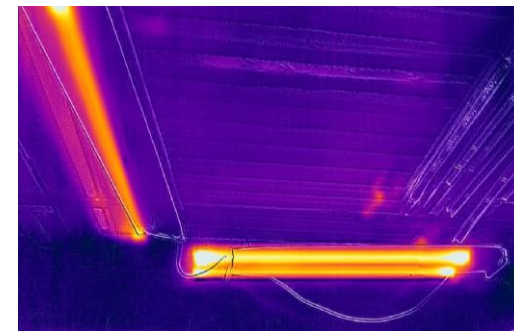


Make sure your tubes are listed by the Design Lights Consortium (DLC). This is required for rebates from Holland BPW. Look for the label before your purchase.

Lighting (cont.)

Recommendations:

- Replace remaining T8 and T12 fluorescent fixtures with LED fixtures
 - Available rebate: \$0.20/kWh Reduced
- Replace and repair EXIT signs with LED versions
 - Available rebate: \$35 per sign
- Contact a lighting professional to have your lighting layout assessed
 - No rebate specifically, however upgrading to all LEDs as a result of the assessment will unlock rebates



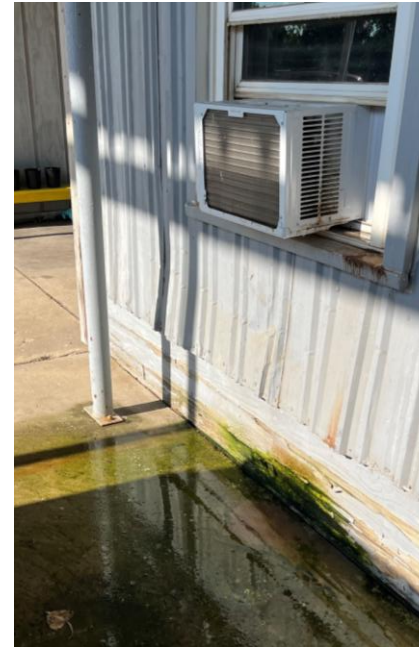
See waste heat produced by non-LED lighting



HVAC

Since this is a larger project, we recommend upgrading only when a furnace reaches the end of its useful life (20 years). All furnaces at your facility are standard efficiency (80-85%). See below for equipment recommendations and associated rebates:

- Our **top recommendation** is a heat pump system. A heat pump is an efficient heating and cooling electric system, removing the need for window unit air conditioners. Consider heat pumps when upgrading:
 - Heat Pump Rebate: \$1,000/Ton
- Other AC systems that we recommend, and rebate include:
 - <5.4 Tons AC with a minimum SEER rating of 14.
 - Rebate: \$100 per Ton X Quantity



AC Settings

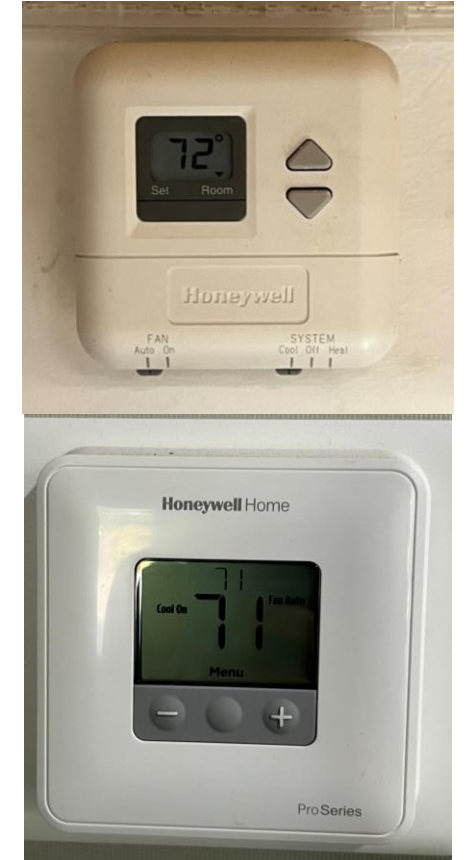
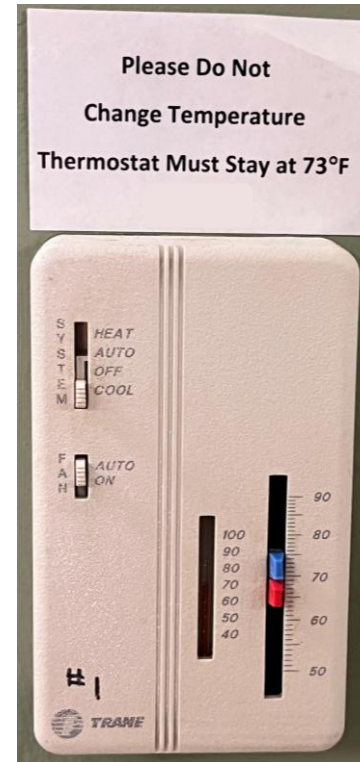
Some thermostats in your building are not programmable, which effects overall efficiency. Many areas are unoccupied but kept cool. For these areas, use a programmable thermostat to either turn off air conditioning or increase the zone setpoint when not in use.

Recommendations:

- Upgrade to all programmable thermostats and program accordingly.
 - BPW Rebate: \$75/Smart Thermostat
 - SEMCO Rebate: Contact Mark (Slide 19)

See table for recommended setpoints:

	Occupied	Unoccupied
Winter/Heating	70-72°F	62-68°F
Summer/Cooling	74-76°F	78-80°F



These thermostats are non-programmable and should be replaced.

Water Heating

Electric water heaters are expensive to run. When it is time to replace them, we recommend a heat pump water heater. Improving the efficiency of water heating can save you money and energy all year, not just in the cooling season.

Recommendations:

- The water heaters in your facility seem too big. If all they are being used for is washing hands and dishes, you may want to down-size.
- Some of the water heater pipes are insulated, some are not. Hot water heaters can leak heat and waste money through the piping.
 - We recommend insulating your water heater pipes to improve energy efficiency.
 - Visit the U.S. Department Energy's webpage on [DIY Water Heater Pipe Insulation](#).



Uninsulated water heater pipes



Insulated water heater pipes

Compressed Air

High Priority/Low Cost

It is important to keep up on air compressor leaks and repairs to reduce energy waste and keep your facility running efficiently.

Recommendation:

Complete an air compressor leak repair and system audit.

- Rebate: \$20/HP (25 HP minimum)

Our available rebates can make these audits free or low cost when you work with a local trade ally!

Local Trade Allies:

- TMI Compressed Air
 - Contact: Jon Spoelhof
 - jspoelhof@tmicompressors.com
 - Leak repairs and audits
- West Michigan Compressed Air
 - Contact: Mitchell Meines
 - mitchm@wmiair.com
 - Leak repair and audits
 - 40 HP Min
- Lakeshore Energy Solutions
 - Contact: Tyler Dykstra
 - tyler@lakeshorees.co
 - Leaks
 - 20 HP Min

Compressed Air (continued)

During our walkthrough, we noticed inefficient blow-off air guns. The air gun pictured was audibly leaking. An easy way to save on energy costs is to upgrade your air tools to ones with engineered air nozzles.

Recommendation:

Upgrade current air compressor nozzles to engineered nozzles.

- Rebate: \$100/Nozzle
 - This rebate is likely to cover the cost of both a new nozzle and a new air gun. Installing a new air gun may be the better option instead of retrofitting a new nozzle to an old air gun.

Engineered Nozzles are safer and more efficient:

- Engineered nozzles reduce the risk of injury by meeting OSHA's dead end pressure standards.
- Quieter, which protects workers from hearing damage.
- Optimized airflow design minimizes air consumption leading to greater efficiency.



Cooling Towers

Medium Priority/High Cost

The water pumps on your cooling towers are single speed motors causing the tower to run at a constant speed which is inefficient.

Variable Frequency Drives (VFDs) control the speed of an electric motor by varying the frequency and voltage of its power supply to match needed output. Essentially, VFDs allow machines to work smarter, not harder.

Recommendation:

- Install Variable Frequency Drives on cooling towers
 - Rebate \$150/HP

Example of 10 HP motor running 24/7			
Percent Speed	Hz	Annual kWh	Annual Cost
100%	60	50,827	\$ 4,066.20
90%	54	37,053	\$ 2,964.26
80%	48	26,024	\$ 2,081.89
70%	42	17,434	\$ 1,394.71

Summary: Reducing motor speed from 60Hz to 54 Hz is a 10% reduction in speed but 27% reduction in cost. The reduction in GPM is quite often insignificant.

[DOE info on VFDs](#)



Operations

Medium Priority/Low Cost

How you run your facility matters. Being strategic on how you turn on/off, idle and automate your machines can impact overall efficiency. The below recommendations are aimed at supporting operational efficiency.

Recommendations:

- Establish end-of-shift shut down procedures
- Turn off equipment that is not being used (station fans and the stations themselves)
- Use a Programmable Logic Controller (PLC) to turn off idling equipment
 - Example: If a station is in idle mode for more than 15 minutes, a PLC will shut it off.
 - Rebate: Custom \$0.12 per kWh saved



Door Seals

While at your facility, we observed faulty seals on multiple doors. Replacing/repairing door seals could result in greater efficiencies and comfort throughout the building.

Recommendation:

- Contact Mark from SEMCO for rebate information (slide 19)



Walk-in Coolers

The condenser for the walk-in cooler is inside the warehouse. The condenser's job is to remove heat from the freezer. The heat waste is being discharged into the warehouse.

While in your warehouse, we measured the temperature of the floor at 101 ° F!

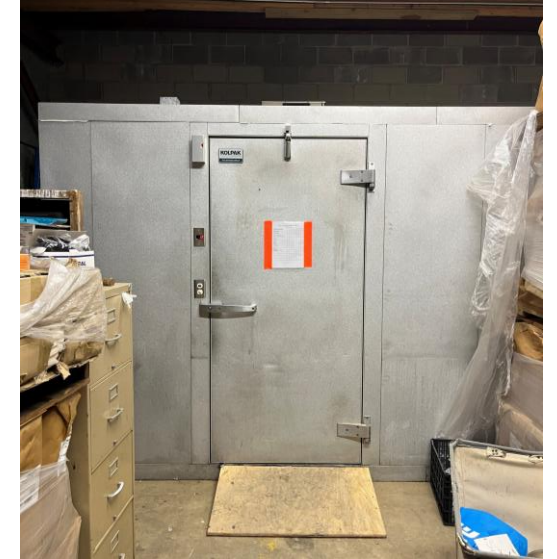
Recommendations:

- Move the condenser outside if possible
- Contact a BPW Trade Ally to evaluate the system and make further suggestions

Trade Ally

[Michigan Energy Business Solutions](#)

Mike Mostrom:
mikemostrom@miebs.com



Renewable Energy Rate

Renewable Energy Credits (RECs) can be purchased for **\$0.0048 per kWh**, which is less than half the cost you could purchase them from BPW in 2024.

See estimate to the right for what it would cost to have your facility be powered by 100% renewable energy.

BPW's energy portfolio includes 15% renewables without a need to purchase additional RECs. There is also an option to purchase 35% additional RECs making your facility 50% powered by renewables.

Based on this estimate, your facility could be powered by 100% renewable electricity for an average of only **\$39.59 additional per month!**

Renewable Energy Estimate

Read Date	kWh Used	Net Billed	Additional Monthly Cost for 100% RE (Purchasing 85%)
7/15/2025	10240	1035.58	\$41.78
6/15/2025	9200	922.87	\$37.54
5/15/2025	9400	955.09	\$38.35
4/15/2025	8600	876.43	\$35.09
3/15/2025	10080	917.11	\$41.13
2/15/2025	9480	910.27	\$38.68
1/15/2025	9640	965.91	\$39.33
12/15/2024	9400	915.32	\$38.35
11/15/2024	8320	916.11	\$33.95
10/15/2024	10040	1121.03	\$40.96
9/15/2024	11200	1129.61	\$45.70
8/15/2024	10840	1235.32	\$44.23
Average	9703	\$ 991.72	\$39.59

Contact Harle to learn more: hbattjes@hollandBPW.com

Or visit:

<https://hollandbpw.com/en/elective-renewable-energy>

SEMCO

BPW is your electric, water and broadband provider. SEMCO is your natural gas provider. Consider reaching out to our counterpart at SEMCO to learn about available natural gas rebates.

Mark Pruchniewski

Commercial Energy Advisor

Mark.Pruchniewski@clearesult.com



SEMCOENERGY

G A S C O M P A N Y

Why Water Conservation in Holland?

Our Water Treatment Plant (WTP) draws water from Lake Michigan, which is shared by multiple community sectors. Lawn sprinkling during the hot summer months can create high demand on our Water Treatment Plant. During the few days out of the year that are the hottest and driest, peak water usage can reach near our treatment capacity.

BPW's Water Treatment Plant must satisfy the maximum daily water demand at any time, every day of the year. **This could potentially lead to costly expansions, directly impacting your water bills.** Your efforts to reduce sprinkling and conserve water in the summer directly contribute to keeping our water rates some of the lowest in the state of Michigan.

The following recommendations are written with the intention of flattening our water use peaks caused by irrigation to save you money on your water bill long term.



By conserving water, you can help maintain stable water rates and protect our vital resources!

Water Conservation Rebates

Our goal is to work with our customers to delay or completely forego expanding our Water Treatment Plant. NEW this year is a water conservation rebate available to Holland BPW commercial and industrial customers.

Water Conservation Rebate
\$2,500 per acre of irrigated space (lawn grass) converted to native plants or other water wise landscaping



Contact Harle at hbattjes@hollandbpw.com with any questions.

Water Conservation

What you are doing well:

- Choosing to water less in shaded areas and areas with clay soil:
 - During our walkthrough you informed us that the area in top photo would easily become over watered. It is likely that this is a clay-based soil. Paired with the shade from trees, this area requires little water to maintain grass health.
 - You can easily test your soil with the "[Jar Test](#)" and adjust your watering schedule accordingly.
- Sprinkler settings/locations:
 - Pictured to the right is a 180-degree sprinkler head. This is ideal for areas adjacent to concrete.
- Active management
 - It was clear during our walkthrough that you aim to actively manage your irrigation as the seasons change.



Water Conservation

There are also improvements that could make your landscaping more water wise.

Recommendations:

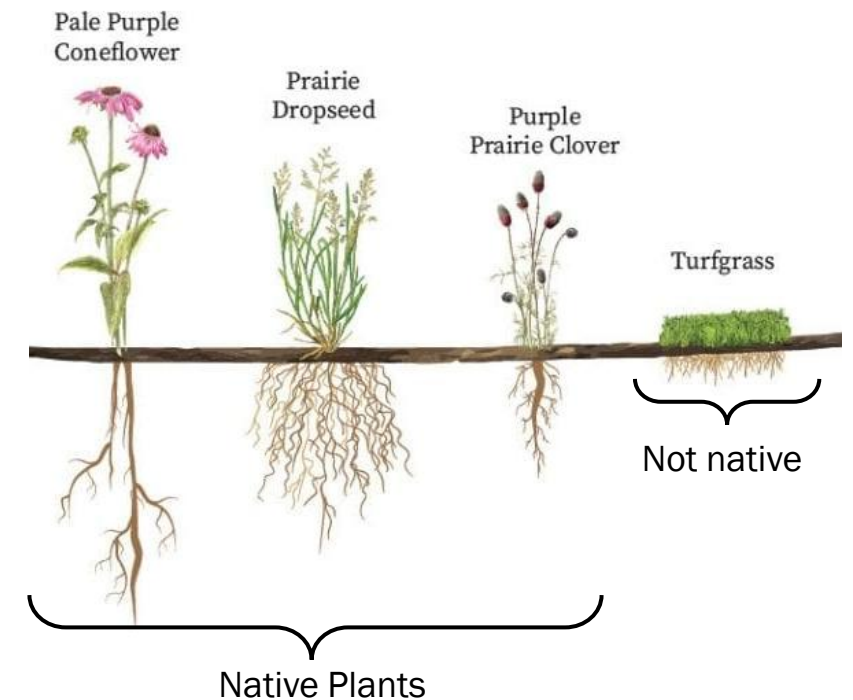
- Upgrade to a functional rain sensor. This will improve irrigation efficiency by turning off your sprinkling system when it is raining.
- Schedule your irrigation system to run between 4 - 8AM to reduce evaporation.
- Convert the circled area in the photo to a native plant rain garden. Native plants have many benefits, including:
 - Water conservation
 - Lower maintenance costs and time - no mowing!
 - Carbon absorption from the atmosphere
 - Drainage improvement



Why Not Traditional Grass?

Popular turf grasses used in landscaping are not native to Michigan. Non-native grass species have become a staple in the traditional green lawn. Here are some reasons why turf grass can be detrimental to the environment and your wallet:

- **High water demand:** Due to its short root system (see photo), turf grass needs frequent watering.
- **Chemical use:** Lawns often rely on fertilizers, pesticides, and herbicides that harm soil and water.
- **Maintenance burden:** Mowing, edging, and irrigation are time-consuming and physically demanding.
- **Costly upkeep:** Expenses include equipment, chemicals, and possibly professional services.
- **Low biodiversity:** Turf grass does not support native plants or wildlife.



Summary

Conclusion:

While the facility has started implementing some energy efficiency measures, there is also room for improvement in energy waste reduction efforts. Holland BPW will partner with your team in any way we can through audits, recommendations, and rebates.

We look forward to continuing to work with you!

Top Action Steps:

- Upgrade to LED lights
- Replace furnaces and water heaters when you are ready
- Replace thermostats with programmable versions
- Fix air leaks from faulty seals
- Conduct an air compressor leak study and repair