

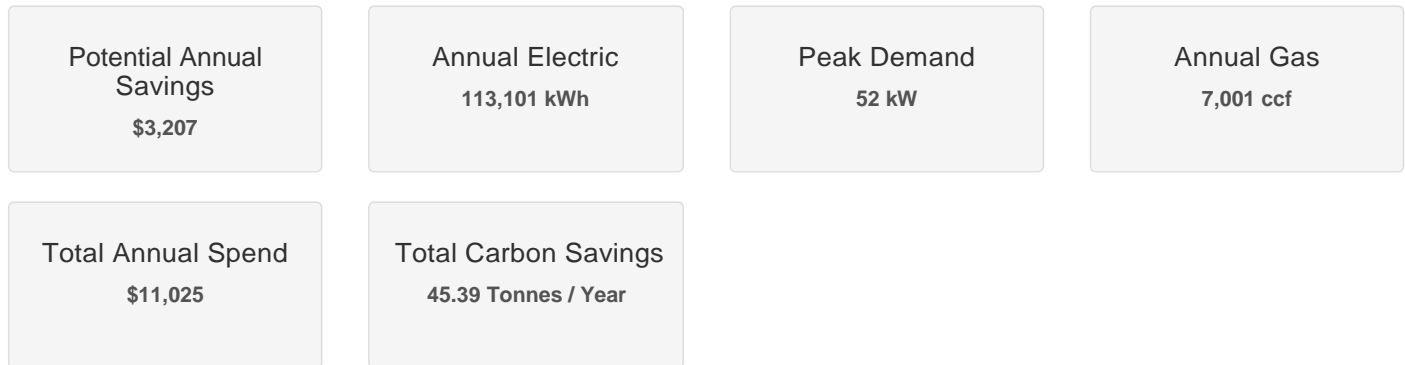


RADNOR TOWNSHIP
131 S WAYNE AVE SULPIZIO GYM, WAYNE, PA 19087
Report for: 11-26-2018
Outreach Representative: **Babatunde Asere**
Outreach Phone Number:
Email: basere@cleanmarkets.com
Rate Schedule: GHC, UM2
Facility Type: **Government Office**

Building Assessment Report

We analyzed your energy usage and determined that your building has a potential savings of **\$3,207** per year. To learn more about how to achieve these savings contact your Outreach Representative. Your Outreach Representative's role is to guide you through the incentive application process.

Energy Usage

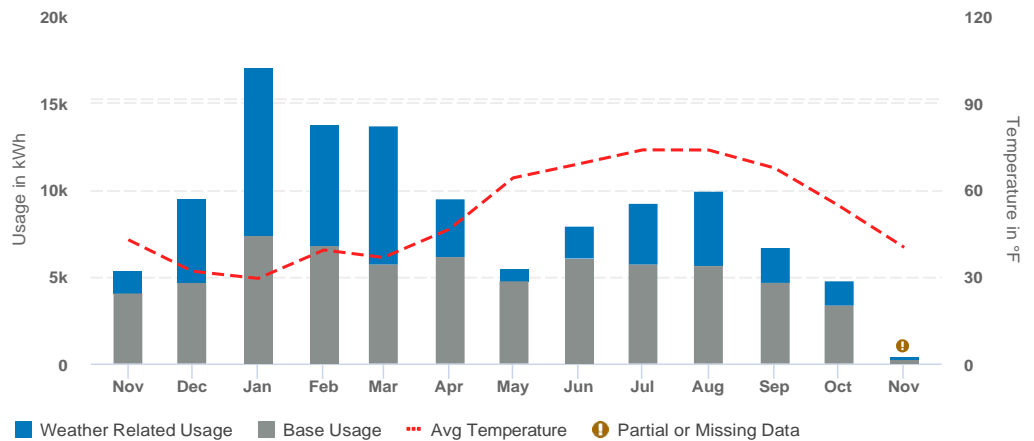


Your Potential Energy Savings

Recommendation	Type	Energy Savings	% Savings	Annual Savings
Adjust temperature setbacks in building management system	Gas	70 ccf	1%	\$433
	Electricity	4,641 kWh	4%	
Use energy efficient air conditioners	Electricity	4,217 kWh	4%	\$388
Modify schedules during unoccupied hours	Gas	1,722 ccf	24%	\$377
	Electricity	2,489 kWh	2%	
Consider retrocommissioning (recode controls)	Gas	745 ccf	10%	\$363
	Electricity	3,250 kWh	3%	
Install efficient exterior lighting	Electricity	3,163 kWh	3%	\$291
Install a Variable Speed Drives (VSDs)	Electricity	2,946 kWh	3%	\$271
Install reflective window film	Electricity	2,663 kWh	2%	\$245
Modify night schedules	Electricity	1,467 kWh	1%	\$212
	Gas	896 ccf	12%	
Use roof and cavity insulation.	Electricity	1,239 kWh	1%	\$207
	Gas	1,082 ccf	15%	
Modify weekend/holiday schedules	Gas	826 ccf	11%	\$165
	Electricity	1,022 kWh	1%	
Install Demand Controlled Ventilation	Electricity	1,239 kWh	1%	\$120
	Gas	70 ccf	1%	
Install sensors on exterior lighting	Electricity	793 kWh	1%	\$73
Install a high efficiency condensing boiler	Gas	477 ccf	7%	\$41
Install vending machines with motion sensors	Electricity	228 kWh		\$21

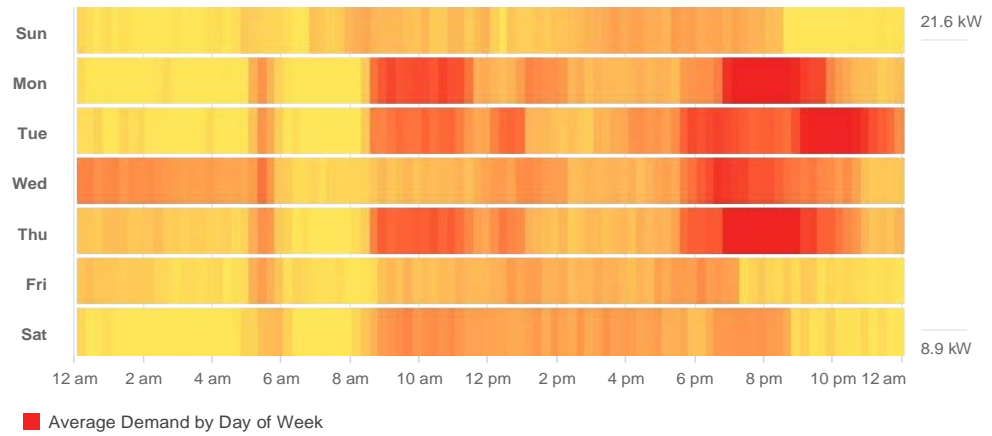
Weather Impact - Electricity

We've done some analysis showing how weather changes impact your energy usage to help you decide if you want to make changes to your equipment or set points.



Operating Schedule

Your energy use compared with your operational hours. Startup/shutdown time may present opportunities for operational savings.

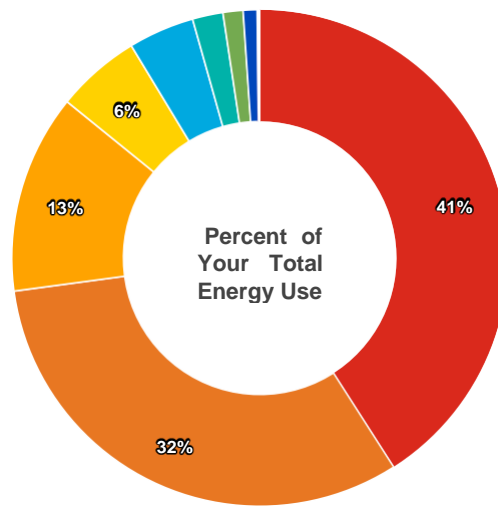


Note: We were unable to detect your daily schedule. Go to the Facility Profile tab to enter your schedule.

End Uses - Electricity

End-Use Analysis shows a breakdown of the major contributing components of the Facilities consumption.

What Affects My Energy Usage?

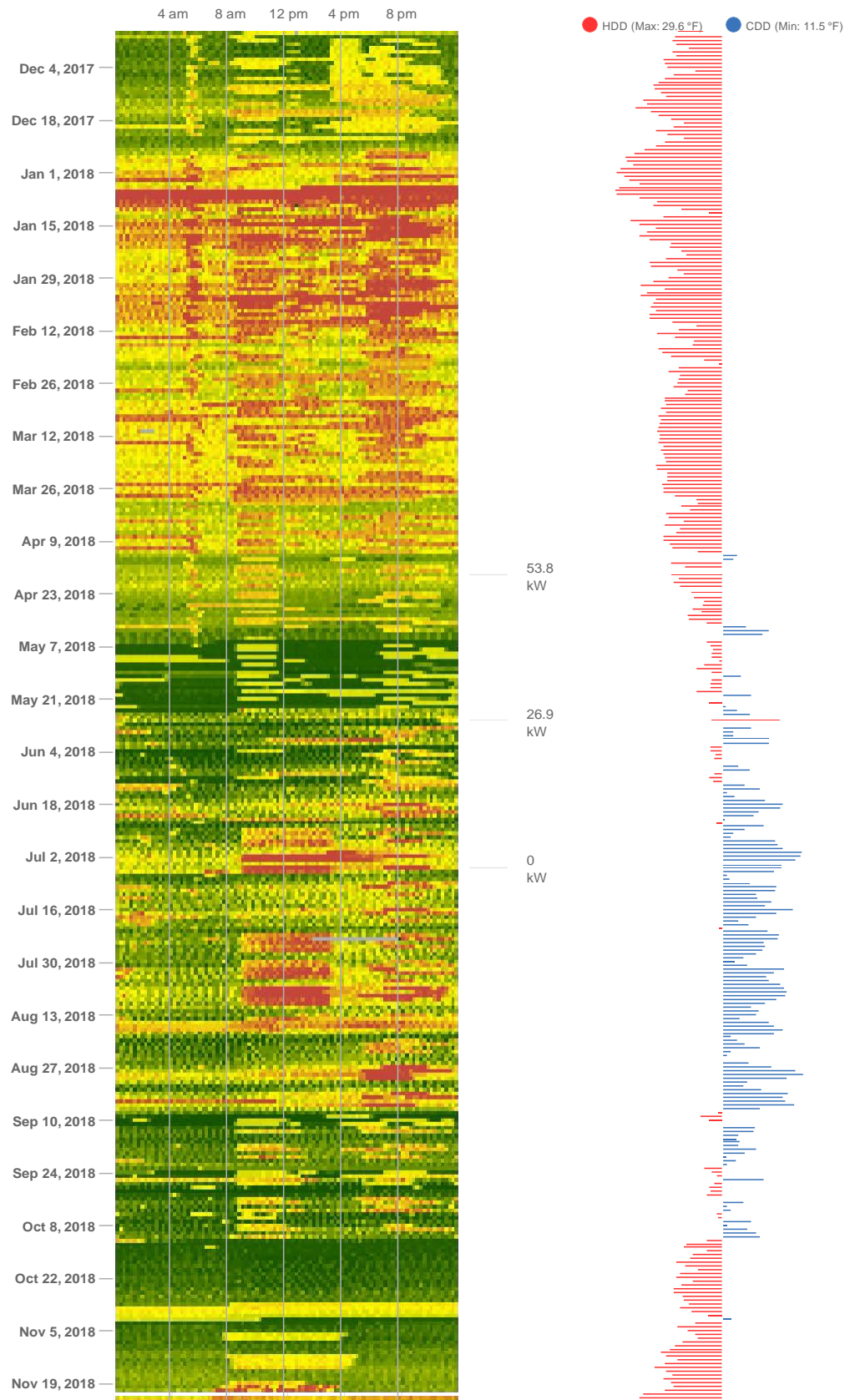


End Use	Usage (kWh)	You (kWh / sq ft)	Similar Sites (kWh / sq ft)	Efficient Sites (kWh / sq ft)
Lighting	46,157	2.57	2.07	0.6
Space Heating	36,726	2.04	0.02	0
Space Cooling	14,536	0.81	0.57	0.1
Computing	6,267	0.35	2.15	0.69
Other and Process Loads	4,830	0.27	1.66	0.53
Ventilation	2,319	0.13	2.05	0.84
Office Equipment	1,478	0.08	0.49	0.15
Refrigeration	1,044	0.06	0.42	0.13
Cooking	120	0.01	0.14	0.04
Water Heating	55	0	0.07	0.02

Based on the information you have provided, your Government Office is 17,992 sq ft in size and located in WAYNE, PA. Here is how its consumption compares to similar Facilities over the past 12 months. To update this information, please update your [Facility Profile](#)

Annual Demand Intensity - Electricity

See energy usage for each interval throughout the year to visualize your building's profile. Determine if the profile aligns with expectations or requires further investigation. Heating/cooling degree days (HDD/CDD) help correlate the pattern with temperature.



Adjust temperature setbacks in building management system

It is possible that during unoccupied periods of the day, temperature setback is not being employed to properly schedule the run time of air conditioning and/or heating equipment. This means that equipment runs unnecessarily and therefore wastes energy. Proper night setback scheduling should be implemented across all zones of the building. We recommend 55 F heating unoccupied setpoint, and 85 F cooling unoccupied setpoint.

Potential Savings
\$433 / Year

Carbon Savings
2.48 Tonnes / Year



Use energy efficient air conditioners

Energy efficient air conditioners use about 15% less electricity than standard models. They also typically include additional temperature and timer controls. Advanced temperature controls let you have a more precise control of room temperatures while timer controls mean you only cool the space when it's being used.

The energy rating of all air conditioners should be clearly displayed. Units with an A+ rating are the most efficient models.

Potential Savings
\$388 /Year

Carbon Savings
1.9 Tonnes / Year



Modify schedules during unoccupied hours

It is apparent that equipment in the building remains operational during unoccupied periods. The schedule should be modified to properly mimic the operating profile of the building.

Potential Savings
\$377 /Year

Carbon Savings
10.53 Tonnes / Year



Consider retrocommissioning (recode controls)

Retrocommissioning is the process of investigating and adjusting performance of existing building equipment to ensure that required performance is achieved. Buildings require maintenance and tuning to prevent performance degrading over time. Retrocommissioning can be applied to virtually every building type and vintage.

The following items are some examples of issues fixed or tuned-up during a retrocommissioning effort:

- Calibrating lighting controls
- Air and water system flow rates
- Temperature setpoints for heating and cooling
- Fan and pump speeds and pressures
- Review of building occupancy schedules

Potential Savings
\$363 /Year

Carbon Savings
5.53 Tonnes / Year



Install efficient exterior lighting

Many buildings currently use older high-pressure sodium (HPS) or metal halide (MH) lamps for exterior lighting. LED or induction fixtures typically use half the energy of these older lights or even less. In many cases, the color and quality of light can also be improved by LEDs which have a much longer life than HPS or MH lamps. Updating exterior lighting can have huge benefits, especially if the business has large exterior walking, driving, and/or parking areas.

Potential Savings
\$291 /Year

Carbon Savings
1.43 Tonnes / Year



Install a Variable Speed Drives (VSDs)

Most motors are fixed speed devices. But for uses like pumping and ventilation, you can benefit from variable output if the system is not in constant use. VSD systems are more efficient than constant speed systems, because they can vary the speed of the motor based on the level of heating or cooling a building demands. With many applications power is proportional to the cube of the motor speed – so drop the motor speed by 20% and your power consumption falls by almost 50%.

Potential Savings
\$271 /Year

Carbon Savings
1.33 Tonnes / Year



Install reflective window film

Windows provide great natural light but can make rooms hot. Installing reflective window film will keep people more comfortable and air conditioning usage down while still allowing in natural light.

In many cases you can apply the coating or film yourself and some are specifically designed to be self-installed but it may be worth consulting a contractor.

Potential Savings
\$245 /Year

Carbon Savings
1.2 Tonnes / Year



Modify night schedules

It is apparent that equipment in the building remains operational throughout the night. Nights are likely unoccupied and the schedule should be modified to properly mimic the operating profile of the building.

Potential Savings
\$212 /Year

Carbon Savings
5.55 Tonnes / Year



Use roof and cavity insulation.

Poor roof insulation will cause drafts and make your heating and cooling systems work harder to keep you comfortable. Install roof insulation to keep warm air in during the winter and warm air out in the summer.

Most buildings have enough air leaks through cracks, gaps and openings to cause the same issues as leaving a large window open. Many air leaks and drafts are easy to find because they are easy to feel — like those around windows and doors.

Holes hidden in lofts are harder to find and can cause a bigger problem. Look for gaps in trouble hotspots including:

- Loft hatches
- Wiring holes
- Holes for plumbing and pipes
- Dropped soffits
- Recessed lights

You can use a can of spray foam insulation to fix problem areas. Once the loft is sealed make sure it is properly insulated. Loose fill insulation is a soft material that is blown in to cover the floor or other spaces. Rolls of batt insulation can also be laid onto the floor or used to cover wall space.

Potential Savings
\$207 /Year

Carbon Savings
6.47 Tonnes / Year



Modify weekend/holiday schedules

It is apparent that equipment in the building is starting up and remaining operational throughout the weekend. Weekends are likely unoccupied and the schedule should be modified to properly mimic the operating profile of the building.

Potential Savings
\$165 /Year

Carbon Savings
4.97 Tonnes / Year



Install Demand Controlled Ventilation

Demand control ventilation (DCV) is an advanced control strategy that measures real-time CO2 concentration in a space to determine the appropriate amount of outdoor air to bring into the space. Some ventilation air must be provided at all time that occupants are present, but supplying more air than is needed for the current number of people unnecessarily increases the heating and cooling loads on the equipment. By controlling the outside air damper position to meet a CO2 concentration setpoint, the AHU provides the minimum allowable quantity of outdoor air to the space. During periods of reduced occupancy, the AHUs can recirculate more air that is at a comfortable temperature for occupants without supplying inadequate ventilation.

Potential Savings
\$120 /Year

Carbon Savings
0.94 Tonnes / Year



Install sensors on exterior lighting

Use sensors on outdoor lighting to control your lighting. The sensors will automatically turn on your exterior lights when it gets dark and off when it is light.

This is much more efficient then running at all hours or those on timers which need constant adjusting as days get longer or shorter.

Many new outdoor lighting systems come with these sensors built-in. It is also possible to add them to older exterior light fixtures.

Potential Savings
\$73 /Year

Carbon Savings
0.36 Tonnes / Year



Install a high efficiency condensing boiler

High-efficiency condensing boilers are 90% efficient, while costs to run older boilers can be over a third higher.

High-efficiency boilers allow the waste gasses to reach a lower temperature and transfer more heat to the hot water system.

Potential Savings
\$41 / Year

Carbon Savings
2.6 Tonnes / Year



Install vending machines with motion sensors

Vending machines keep their lights and refrigeration on even when no one is using them. Install motion sensors to shut off lights and cycle compressors less frequently when no one is around, and power up the machine when someone approaches.

A typical vending machine uses 7 to 14 kWh of electricity per day so they can significantly impact your building's energy use - especially if you have multiple vending machines. [According to ComEd workpaper, a beverage vendimizer uses 9.6 kWh/day and a snack vendimizer uses 2.04 kWh/day]

Installing vending machine occupancy sensors can save 30% [46% energy savings according to ComEd workpaper] of the energy required to keep it cool. The exact amount of savings depends on how often the machine is used. Remember that controllers should not be used in machines that vend milk, sandwiches, or other foods that can spoil.

Potential Savings
\$21 / Year

Carbon Savings
0.1 Tonnes / Year

Please verify program eligibility for specific measures by contacting your Outreach Representative.