



# ENERGY PERFORMANCE BENCHMARK REPORT



## Example School Building 000 Example Road City, NJ 07042

### Building Information:

Floor Area (sq. ft):	123,576
Year Built:	1968
Number of Employees:	91
Number of PCs:	540
Weekly Operating Hours:	50
Months Used:	12

Prepared by:



TRC Energy Services,  
NJCEP C&I Program Manager

### Annual Energy Usage:

Data Analysis Period:	September 2018 – August 2019
Electricity:	1,164,511 kWh
Electricity Peak Demand:	388.8 kW
Natural Gas:	98,796 therms
Total Energy Cost:	\$242,380

Report Generated:  
October 2019

*Please note this report is based upon applicant supplied utility and building information only, interpreted at a high level and prepared to disseminate valuable information on how energy is used, potential for energy saving, and guidance on applying for relevant NJCEP incentives. Any information not provided by the applicant will not be represented in this report. To receive recognition for EPA scores above a 75 (where applicable) a site visit conducted by a licensed professional engineer would be required. This is not an engineering report or an investment grade audit.*

# Energy Consumption & Cost

Analysis Period: September 2018 – August 2019

Energy Benchmarks	Example School Building	Average Building
EPA Portfolio Manager Score	24	50
Site Energy Intensity <sup>1</sup> (kBtu/sf)	112.3	88.8
Source Energy Intensity <sup>2</sup> (kBtu/sf)	174.4	137.8
Energy Cost	\$242,380	\$192,027
Total GHG Emissions (Metric Tons CO <sub>2</sub> e)	929	735

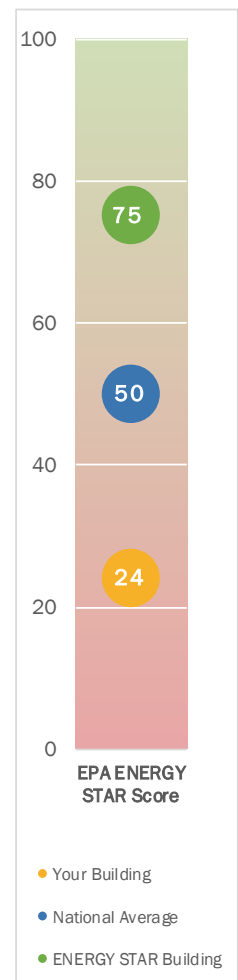
## U.S. EPA Portfolio Manager Account:

Your building was benchmarked using the U.S. Environmental Protection Agency's (EPA's), Portfolio Manager tool. The impact of factors outside of your control, such as location, occupancy and operating hours, are removed. Some building types will be provided with a 1-100 ranking of a building's energy performance relative to the national building market.

**24** Your building received an EPA benchmark score of 24. Using the U.S. EPA's building type guidelines, this score is below average when compared to similar schools in the United States.

Understanding and tracking energy consumption is one of the first steps in an energy reduction plan. Portfolio Manager is an energy management tool that allows you to track and assess energy and water consumption across your entire portfolio of buildings in a secure online environment. We encourage you to use Portfolio Manager to track your energy and water consumption month to month. An account has been set up for Example School Building. The login information is as follows:

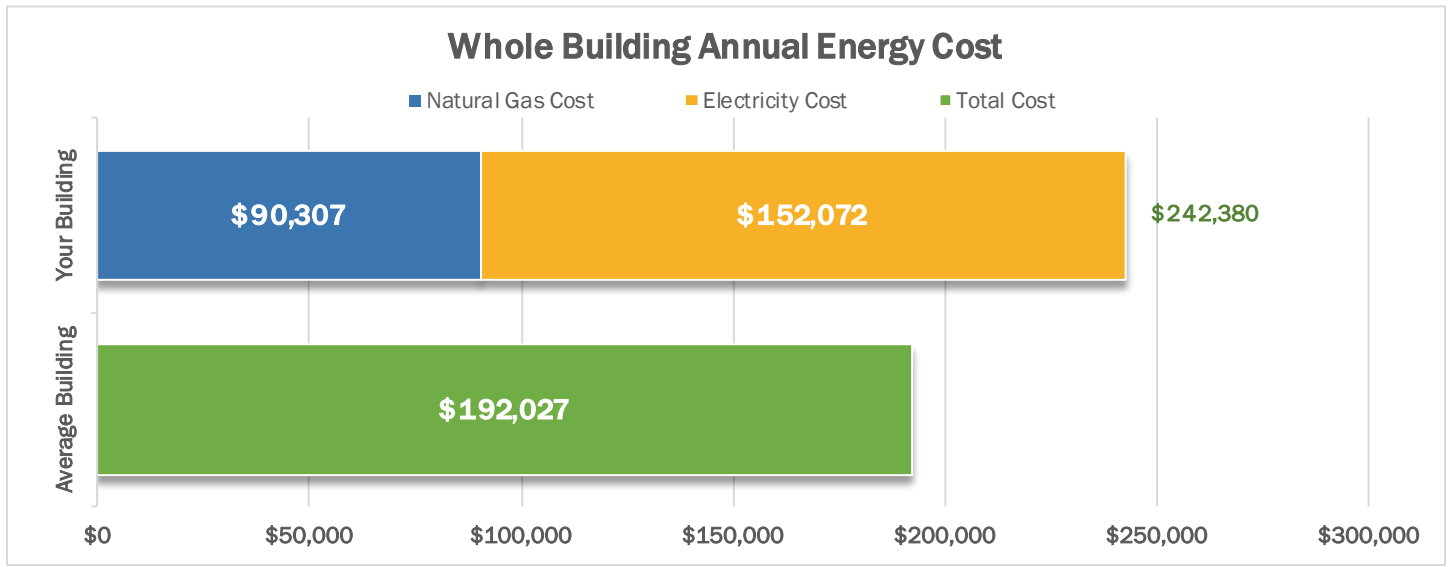
Website: <https://www.energystar.gov/istar/pmpam/>  
User Name: ExampleSchoolBuilding  
Password: ExamplePassword



<sup>1</sup> **Site Energy Intensity** is a measure of a building's annual energy utilization per square foot. Site energy intensity score is a good measure of a building's energy use, and is utilized regularly for comparison of energy performance for similar building types.

<sup>2</sup> **Source Energy Intensity** is a measure of the building's energy usage in addition to the transmission, delivery and production losses.

# Energy Consumption & Cost



## Energy Cost:

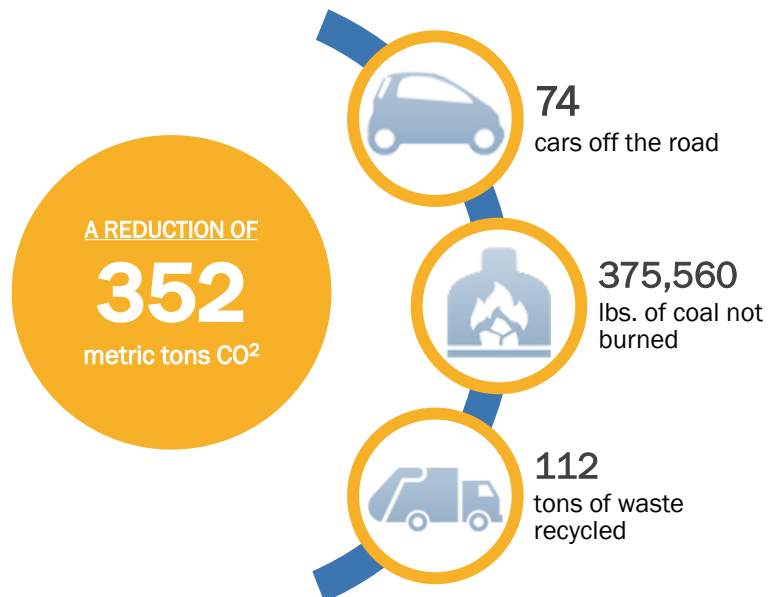
The annual energy cost for Example School Building is \$242,380 (\$90,307 natural gas + \$152,072 electricity). Example School Building spends \$1.96 per square foot to power the building. The estimated average annual energy cost for a building of similar square feet, type, and usage is \$192,027. Therefore, your building's energy costs are higher than average when compared to similar school buildings nationwide.

Electricity costs make up 63% of your building's total annual energy cost. Natural gas costs make up 37% of your building's total annual energy cost.

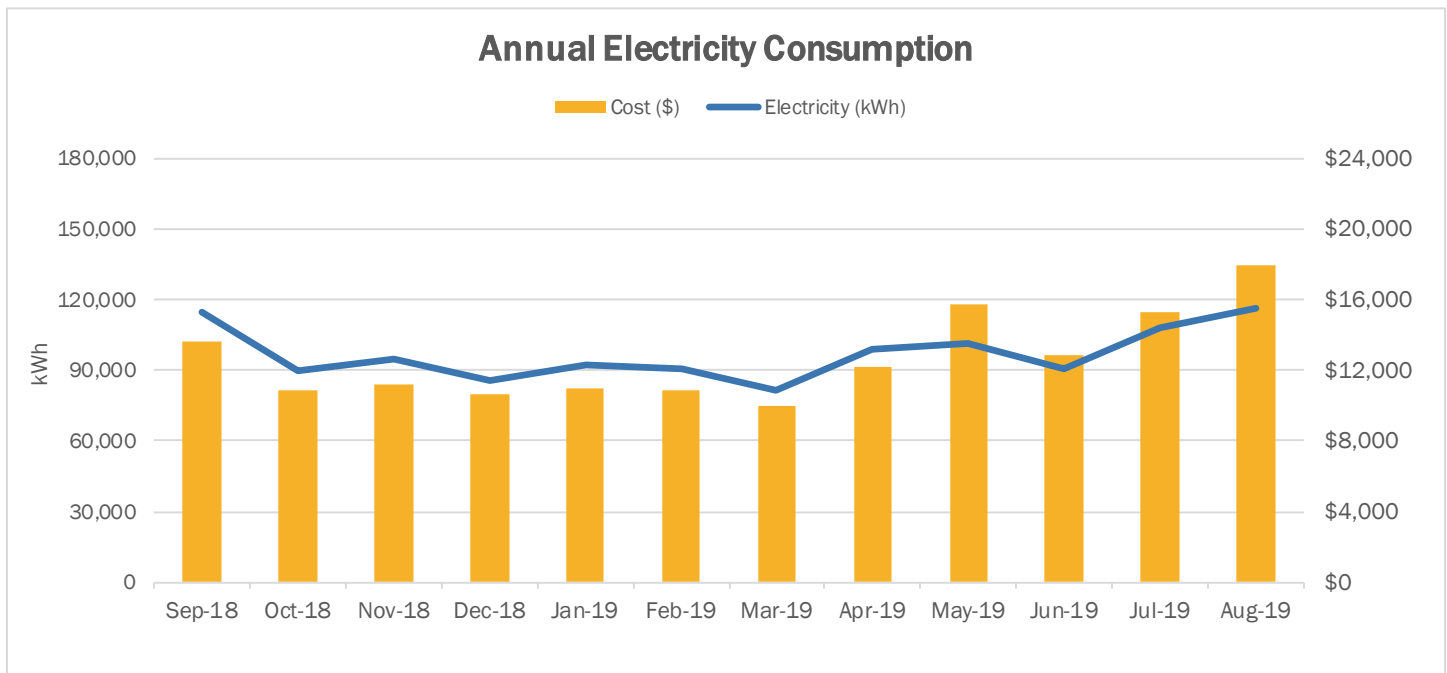
## Carbon Emissions:

The energy consumption for Example School Building is equivalent to carbon emissions of 929 metric tons of CO<sub>2</sub>, compared to the national average of 735 metric tons of CO<sub>2</sub> for a similar building type. Your building's GHG emissions are higher than average.

If you improved your building's energy usage to meet that of an ENERGY STAR certified building, the energy savings would reduce carbon emissions by 352 metric tons of CO<sub>2</sub>. This reduction would be equivalent to:



# Energy Consumption & Cost



## Electricity Usage:

Electricity usage per square foot for Example School Building is 9.4 kWh. This amount of electricity is high compared to similar building types in New Jersey.

## Electricity Cost:

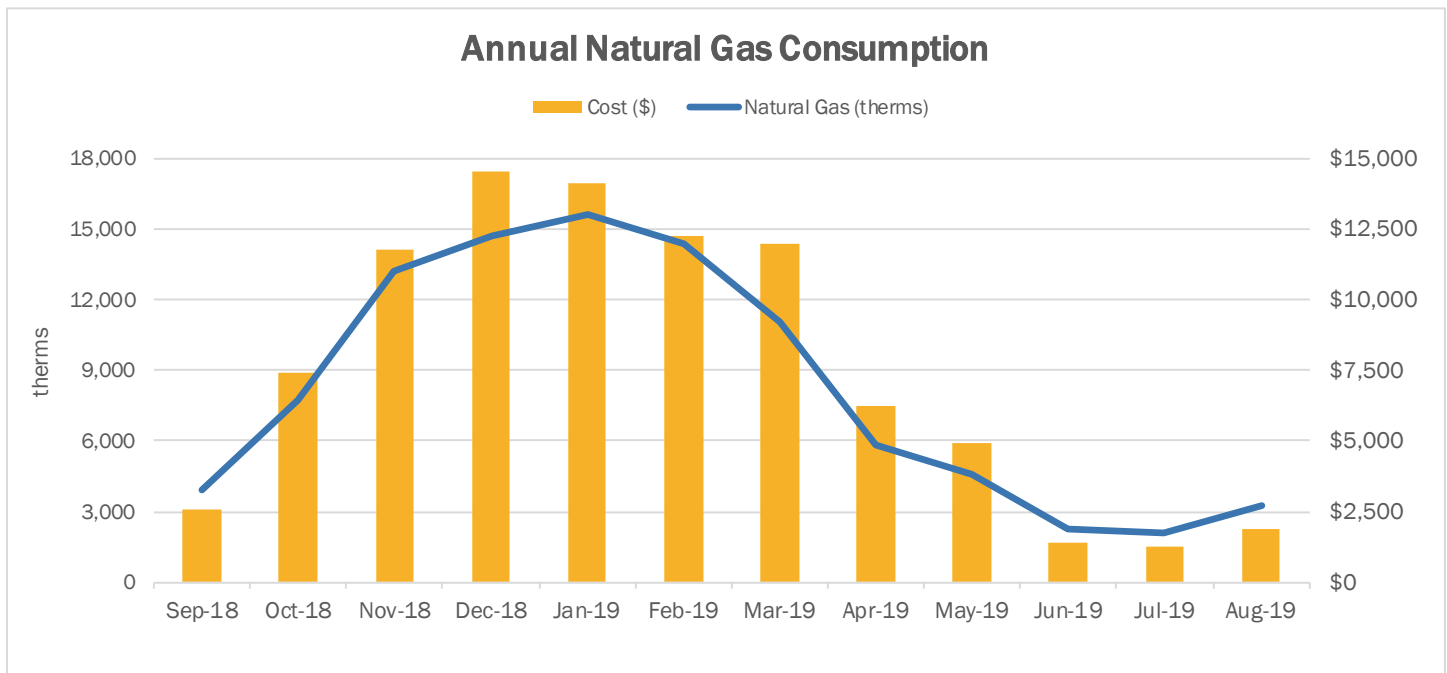
The property's electricity rate is lower than the state average of \$0.17/kWh. Therefore, it likely would not be beneficial to contact your electric provider or a third-party provider to discuss rate options. Your lower than average rate may be due in part by the large volume purchased.

Electricity Use Description		Example School Building	Average School	Area of Concern Scale
USAGE	Annual Usage (kWh)	1,164,511	902,105	Medium
	Annual Usage per Sq. Ft. (kWh/ft <sup>2</sup> )	9.4	7.3	
COST	Annual Cost (\$)	\$152,072	\$153,842	Low
	Annual Cost per Sq. Ft. (\$/ft <sup>2</sup> )	\$1.23	\$1.24	
	Average Annual Cost (\$/kWh)	\$0.13	\$0.17	

## Summary & Recommendations:

The amount of electricity shown above is high for a school building of this size. However, the rate for that electricity is better than average. If not already in use, ENERGY STAR® products, LED and other lighting technologies could reduce the power demand needed and lower monthly electricity bills. Staff should be trained on how to conserve electricity by turning lights and other equipment off when not in use.

# Energy Consumption & Cost



## Gas Usage:

For Example School Building the annual natural gas usage per square foot is 0.8 therms. Your annual natural gas usage is high when compared to other facilities of this size in the same weather conditions. However, school buildings may use more or less energy for many reasons, including whether or not some areas are heated, variable equipment efficiency, and energy management practices.

## Gas Cost:

The property's natural gas rate is lower than the state average. Therefore, it likely would not be beneficial to contact your natural gas provider or a third-party provider to discuss rate options. The average annual natural gas rate for your property is \$0.91 per therm. The average rate in New Jersey is \$1.03 per therm.

Natural Gas Use Description		Example School Building	Average School	Area of Concern Scale
USAGE	Annual Usage (therms)	98,796	37,073	High
	Annual Usage per Sq. Ft. (therms/ft <sup>2</sup> )	0.8	0.3	
COST	Annual Cost (\$)	\$90,307	\$38,185	Low
	Annual Cost per Sq. Ft. (\$/ft <sup>2</sup> )	\$0.73	\$0.31	
	Average Annual Cost (\$/therm)	\$0.91	\$1.03	

## Summary & Recommendations:

The amount of natural gas consumed is higher than average. Staff should be trained on how to be energy savvy. If there is no HVAC automation, then staff should set thermostats to minimum levels in the winter. Keeping doors closed to unused areas and classrooms may reduce heat loss.

# Recommendations

Below are recommendations you may find useful in reducing the amount of energy used by this facility with little or no cost to Example School Building.



## Thermostats



Reducing set point temperatures for periods when the building will be unoccupied, such as nights and holidays will reduce energy consumption. Typically for each degree setback 1-3% energy savings are realized, 10 degrees is the recommended set-back for unoccupied periods.

## Lights



Educate staff to turn off lights when rooms are unoccupied. Turning things off seems simple, but remember that for every 1,000 kWh that you save by turning things off, you save more than \$100.00 on your utility bill. Provide reminders such as putting up posters or sending emails.

## Computers



The EPA offers free computer power management software which has saved some business owners as much as \$50 per computer per year, the software can be found at the ENERGY STAR website.

[https://www.energystar.gov/products/low\\_carbon\\_it\\_campaign/put\\_your\\_computers\\_sleep](https://www.energystar.gov/products/low_carbon_it_campaign/put_your_computers_sleep)

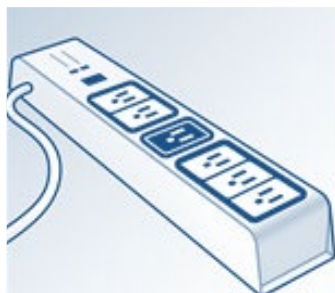


## HVAC Tune Up



Take steps to ensure that your HVAC system is properly tuned. A poorly tuned HVAC system can cause over-ventilation of the building. Routine maintenance prolongs equipment life and reduces the lifetime costs of the system associated with periodic failures.

## Power Plan



Cut idle time on equipment that isn't used daily. If you leave your equipment on when it is not performing useful work, it costs you money. Implement a startup/shutdown plan to make sure you are using only the equipment that you need, when you need it.

## Appliances



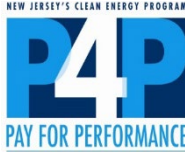





Activate the power saving features on office equipment such as copiers, printers and fax machines and ensure that they are turned off at the end of the day.



# Save Energy with *New Jersey's Clean Energy Program*

In addition to the low cost/no cost recommendations covered on the previous page, Example School Building may be eligible to participate in one or more of the equipment incentive programs offered by *New Jersey's Clean Energy Program*. These incentives help cover the cost of installing certain energy efficiency equipment. For further information visit, [www.njcleanenergy.com](http://www.njcleanenergy.com) or call 1-866-NJSMART.

						
	Local Government Energy Audit (LGEA)	NJ SmartStart Buildings	Pay for Performance	Direct Install Program	Combined Heat & Power (CHP) & Fuel Cells	Large Energy Users Program
<b>Key:</b> ★ Recommended ✓ Eligible ✗ Not Eligible						
<b>Example School Building Eligible?</b>	✓	★	✓	✗	✗	✗
<b>Eligible Building Types:</b>	All municipalities, school districts, counties and other local governments, state colleges and state universities, as well as non-profit agencies	Businesses, schools, municipalities, multifamily buildings, and other commercial and industrial facilities.	Existing commercial, industrial, and institutional buildings with an annual peak demand over 100 kW* <i>(*Hospitals, public colleges and universities, non-profits, affordable multifamily housing, and local governmental entities are exempt from demand requirement)</i>	Existing small to mid-sized commercial and industrial facilities with an annual peak electric demand that does not exceed 200 kW.	Existing commercial facilities installing CHP or fuel cell system	Eligible entities must have contributed a minimum of \$300,000 into <i>New Jersey's Clean Energy Program</i> fund in FY 2018
<b>Incentives:</b>	100% of audit cost (\$100,000 cap) See <a href="#">program website</a> for more details.	Incentives vary for equipment including: lighting and controls, HVAC, economizer controls, motors, furnaces, hot water heaters, and more. See <a href="#">program website</a> for more details.	Up to 50% of total project cost, or \$2 million, whichever is less. See <a href="#">program website</a> for more details.	Up to 70% of project cost for replacing lighting, HVAC and other equipment. See <a href="#">program website</a> for more details.	Varies depending on equipment type and size. Up to \$2 – 3 million, depending on technology. See <a href="#">program website</a> for more details.	Up to \$4 million, with exceptions. See <a href="#">program website</a> for more details.
<b>For Additional Information:</b>	1-866-NJSMART <a href="mailto:LGEA@njcleanenergy.com">LGEA@njcleanenergy.com</a>	1-866-NJSMART <a href="mailto:NJSSB@njcleanenergy.com">NJSSB@njcleanenergy.com</a>	1-866-NJSMART <a href="mailto:P4P@njcleanenergy.com">P4P@njcleanenergy.com</a>	1-866-NJSMART <a href="mailto:DirectInstall@njcleanenergy.com">DirectInstall@njcleanenergy.com</a>	1-866-NJSMART <a href="mailto:chp@njcleanenergy.com">chp@njcleanenergy.com</a>	1-866-NJSMART <a href="mailto:LEUP@NJCleanEnergy.com">LEUP@NJCleanEnergy.com</a>