



**PROJECTED LIFETIME SAVINGS** (15 YEARS)  
AT A GLANCE

<b>Natural Gas</b>	138,416 therms \$145,337
<b>Electricity</b>	5,189,646 kWh \$648,706

SC ENERGY  
SUCCESS

# SWANSEA HIGH SCHOOL

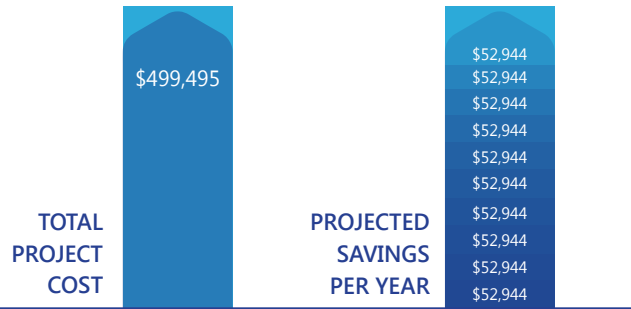
Swansea High School was the highest energy consumer in Lexington School District 4. This was the result of an oversized boiler and chiller for the current load, an overworked air handler, and equipment which was at, or very near to the end of, its useful life.

**The district desperately needed to find a solution to its growing utility bills.**

“ ConserFund worked particularly well for the district, because repayment isn’t required until one year after the project is completed, allowing time for our savings to accrue and be used to finance such a capital intensive project. ”



**Dave Toole**  
Director of Operations  
Lexington School District 4



In 2013 the district received a ConserFund Loan through the South Carolina Energy Office (Energy Office) to fund their large scale HVAC project. The \$499,495 loan was estimated to pay itself back in 9.4 years with savings from the upgraded and optimized equipment.

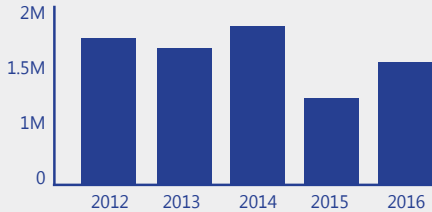
## BOILER & CHILLER

In addition to installing a high-efficiency condensing boiler, the district installed a magnetic bearing chiller, increasing efficiency by reducing the friction between component parts. The chilled and hot water motors were also replaced with more appropriately sized premium-efficiency motors with variable frequency drives (VFD). VFDs allow tighter control of motor speed to prevent unnecessary power use during part load conditions.

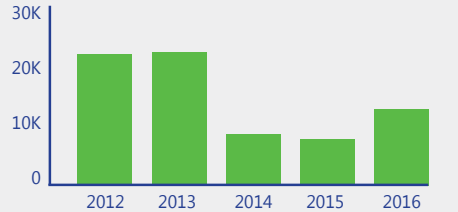
## CONTROL STRATEGY

The district implemented a new control strategy to reduce unnecessary re-heat and simultaneous heating and cooling of air. This strategy utilizes a range of techniques such as employing the newly installed VFDs to lower fan speed for dehumidification, supply air and chilled water temperature reset, and duct static pressure reset to better match part load conditions.

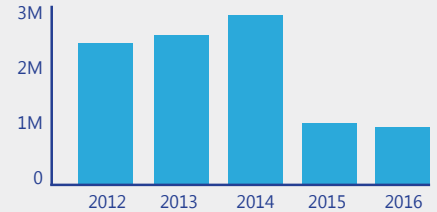
Electricity Consumption (kWh)



Natural Gas Consumption (therms)



Water Consumption (gal)



## AIR HANDLERS

On the chilled water loop, two air handler units were upgraded to use variable frequency drives (VFDs) and demand controlled ventilation with economizers to utilize outdoor air for conditioning instead of running unnecessary equipment, while one roof top unit was completely replaced.

## HUMIDITY & MOTION SENSORS

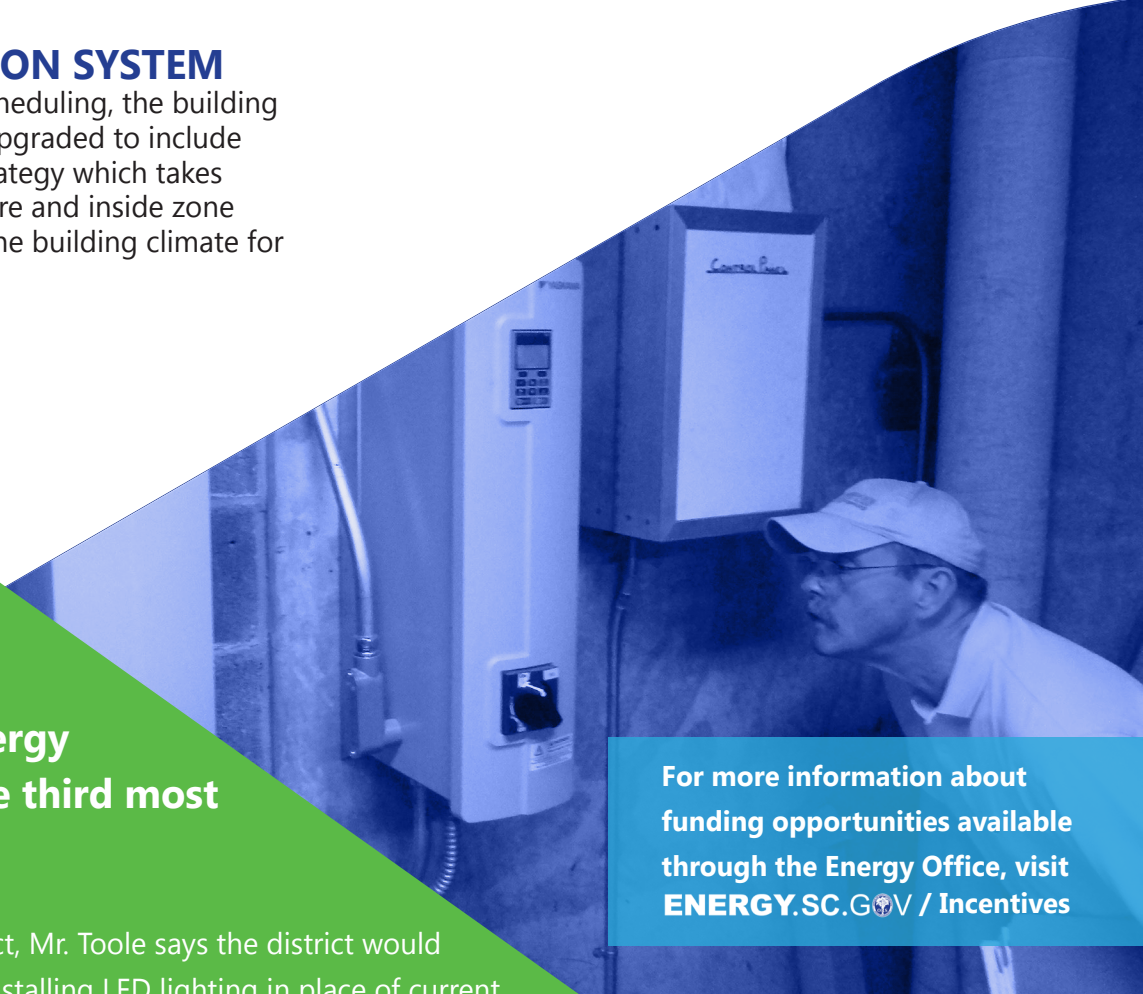
Multiple humidity and motion sensors were deployed. Humidity sensors allow for humidity control during unoccupied hours, minimizing outdoor air inflow during shutdown times, and motion sensors act as "vacancy sensors" to shut down HVAC units when no one is present.

## BUILDING AUTOMATION SYSTEM

To allow for more aggressive scheduling, the building automation system (BAS) was upgraded to include optimum start, a scheduling strategy which takes into account outside temperature and inside zone temperatures when preparing the building climate for the occupant.

The project resulted in significant energy, maintenance, and water savings, bringing the district's highest energy consuming school to the third most energy efficient.

Following the success of this project, Mr. Toole says the district would like to investigate the benefits of installing LED lighting in place of current, less efficient lighting across the entire district.



For more information about funding opportunities available through the Energy Office, visit [ENERGY.SC.GOV / Incentives](http://ENERGY.SC.GOV/Incentives)