



# INDUSTRIAL

## 3M Company

### Cynthiana, Kentucky

#### Challenge:

3M Company is a global manufacturer of innovative products and services through six business segments that include consumer and office products. 3M opened its Cynthiana, KY facility in 1969 which now consists of 450,000 square feet. The Post-it® Note and Scotch® Packaging Tape manufacturing facility in Kentucky is one of the 56 top 3M facilities worldwide that participates in 3M's Energy Management Program and has achieved the highest level energy award from 3M - the Platinum award for energy savings three out of the last six years. Only seven plants have reached this level of attainment. The plant also achieved two Silver awards and a Bronze award.

3M has been facing the issue of rising utility costs that directly affect the profitability of the company. 3M investigated ways to reduce their overall energy consumption and needed a method to monitor energy consumption in real time.

#### Solution:

3M worked with Louisville, Kentucky based company Harshaw Trane and their Energy Services team to conduct an energy audit for the Cynthiana facility. Based on a detailed review and analysis, opportunities for 3M to reduce and monitor their overall energy cost were found. 3M submitted a grant proposal to the Kentucky Cabinet for Economic Development for implementation of energy reduction projects. In December 2011 3M was awarded an Industrial Facility Retrofit Showcase grant in the amount of \$86,689.

Energy reduction projects included air handler upgrades and energy use reduction as well as advanced energy monitoring. Three air handlers located in production areas were retrofitted with more efficient ductwork and controls to allow more economical operation.

The energy reduction project was completed with an estimated energy savings in the first year of \$235,000 and 46,142 MMBTUs.

**Greenhouse Equivalency:**  
*8,800 Metric Tons of CO<sub>2</sub>*

**Emissions Equivalent to:**  
*Passenger cars not driven: 1,307*

*Barrels of oil not burned: 15,505*

*Rail cars of coal saved: 36.3*

*Household electric use: 609*

*Acres of forest preserved: 66*

# INDUSTRIAL

## 3M Company

### Cynthiana, Kentucky

This modification allows the air handlers to use cool outdoor air to offset internal heat gain rather than requiring mechanical cooling during the appropriate ambient temperatures. A humidity sensor was incorporated to minimize excessive moisture in the space.

The air handler for the office area served two zones with differing requirements – the general office area only requires 12 hour a day usage, five days a week while the security office requires 24/7 operation. To drive efficiency, a separate, high efficiency, dual zone mini-split system was installed to serve the security office. The schedule for the air handler was modified to only provide minimal heating and cooling during unoccupied hours for the general office area.

As part of an ongoing energy strategy, Harshaw Trane identified the need for an advanced metering network. The network is a combination of Trane Tracer XT and EnergyLogix which unified existing systems with utility meters. Each monitoring point was connected to an electronic, web-based energy dashboard where the data is displayed on a monitor in a central location. This display provides 3M operations and maintenance staff the real-time data needed to make decisions that can have a positive impact in the overall operational efficiency of the facility. In addition, the real-time monitoring of this program provides a resource for identification of additional energy conservation measures over time. All measured data is archived and available for 3M to review to best determine how changes can be implemented within the facility to minimize energy consumption and to ensure savings are sustained over time.

## Results

The Kentucky Cabinet for Economic Development approved the grant for 3M's project in December 2011. The energy reduction project was completed on April 1, 2012 with an estimated energy savings in the first year of \$235,000 and 46,142 MMBTUs. 3M is able to use the data provided by the meters and the information provided by Trane Tracer XT and EnergyLogix to educate and engage employees on energy usage and savings.



Utility meters are connected to an electronic, web-based energy dashboard, like this one, where the data is displayed on a monitor in a central location.



Three air handlers located in production areas were retrofitted with more efficient ductwork using outside air and controls to allow more economical operation.



Post-it® Note and Scotch® Packaging Tape are some of the 3M products manufactured in the Cynthiana plant.