

# Technology Company

Office Building



## About Technology Company

Founded in 1966, the company develops and supplies a range of airborne, land, and naval systems products for defense, homeland security and commercial aviation applications worldwide. Sustainability is one of their seven core values, led by a steering team of senior executives. Since 2014, the company has reduced energy consumption by 10% per employee per 10,800 ft<sup>2</sup>.

The facility is a five-story, 120,000 ft<sup>2</sup> office building. The HVAC system has twelve air handling units (AHU), all of which are located on the roof. The airflow in these AHUs ranges from 13,000 – 15,000 CFM while operating from 7 a.m. to 7 p.m. Sunday through Thursday and 7 a.m. to 1 p.m. on Friday. The AHUs use chilled water supplied from the central plant at the industrial park.

## The Challenge

The company was using high volumes of outside air to ventilate their building and dilute indoor contaminants like carbon dioxide (CO<sub>2</sub>), formaldehyde and volatile organic compounds (VOCs). High energy consumption was required to cool the indoor air, particularly in this climate zone, with hot, humid summers. To make matters worse, electricity tariffs more than double during the summer months.



Figure 1: The office building has five floors and is 120,000 ft<sup>2</sup>.

## Solution

With sustainability being a basic value underlying their business philosophy, the company turned to enVerid for help. enVerid used the Indoor Air Quality Procedure within the ASHRAE 62.1 standard, which allows for reduced outside airflow when indoor air scrubbing is implemented with the HLR technology. The enVerid project team assessed the HVAC mechanical environment, provided a detailed installation plan and obtained the necessary permits. The company began the project with a pilot unit in July 2012, and based on its success, deployed six additional units in early 2014 without disruption in HVAC service.

The installation, testing, energy saving data collection and analysis were monitored and audited by a leading independent HVAC consultant. IAQ monitoring was performed per EPA standard and analyzed by an independent lab.

**Customer:** Technology Company

**Climate Zone:** 2A

**Deployed:** July 2012

**Industry:** Technology (defense)

**Employees:** 12,134

**Annual Revenue:** \$3.1 billion

**Challenges:** High HVAC energy consumption impacting utility costs, which can more than double during peak demand days.

**Solution:** 7 enVerid HLR modules installed on roof of 120,000 ft<sup>2</sup> facility to scrub indoor air of contaminants and reduce the amount of outside air ventilation required, thereby reducing energy consumption.

### Results:

- >50% HVAC electricity cost savings
- 29% average reduction in total HVAC energy consumption
- Significant peak cooling load reduction, enabling future HVAC equipment savings
- Contaminants of concern (CO<sub>2</sub>, formaldehyde and VOCs) were successfully maintained below their established threshold values.

## 50% Less HVAC Electricity Costs

Energy consumption was reduced by 39,574 cooling tons in 2014; 52,457 cooling tons in 2015; and 43,478 cooling tons in 2016. This represents a 29% average energy savings and a 50% reduction in electricity cost in a region where electricity rates double during the peak summer months.

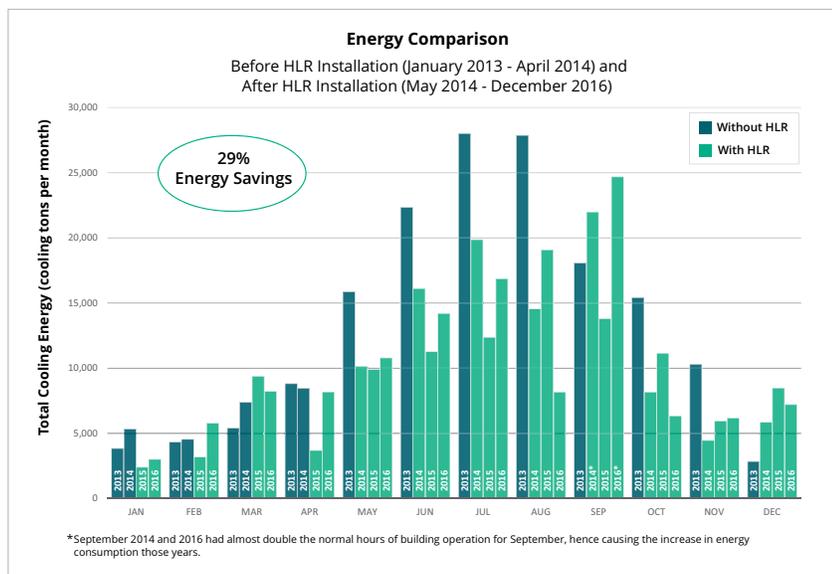


Figure 2: The blue bars show energy consumption without HLR technology. The green bars demonstrate energy consumption with HLR technology.

## Maintained Excellent Indoor Air Quality

CO<sub>2</sub> levels have been kept well below target levels associated with excellent indoor air quality (see figure 3), well below the 1,100 ppm target.

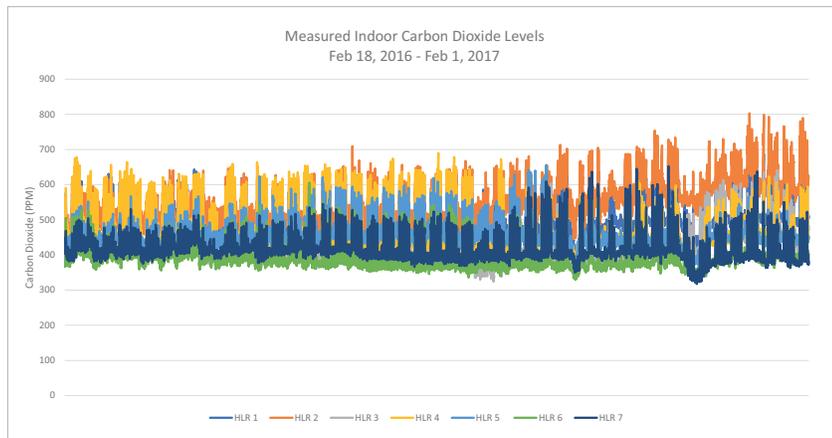


Figure 3. HLR technology has maintained CO<sub>2</sub> below 850 ppm.



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enVerid Systems, Inc. is committed to improving energy efficiency and indoor air quality in buildings worldwide through its innovative HVAC Load Reduction® (HLR®) solutions. Awarded the prestigious 2016 R&D 100 Award, enVerid is the only solution that helps commercial, education and government buildings remove carbon dioxide (CO<sub>2</sub>), aldehydes, volatile organic compounds (VOCs) and particulate matter (PM<sub>2.5</sub>) from indoor air, reducing the outside air intake required for ventilation. enVerid’s HLR technology is ASHRAE-compliant and has been recognized by the U.S. Department of Energy, the U.S. General Services Administration’s Green Proving Ground Program, and the U.S. Green Building Council. For more information, please visit [www.enverid.com](http://www.enverid.com).



*We have taken significant steps to advance our approach to sustainability, which includes deployment of enVerid’s HLR technology. Our first deployment was in July 2012. The results were so remarkable that we expanded our coverage in May 2014 to include six additional HLR modules. Since inception, we have seen a 29% decrease in energy consumption.*

**HVAC Manager**  
Technology Company



*At our headquarters, where we employ more than 2,000 people, we have installed an innovative system that uses 50% less electricity than standard air conditioners by treating air contaminants rather than replacing air in the building. Following a successful pilot, we plan to use this system in other locations where possible.*

**Technology Company**  
**Sustainability Report, 2014**

