



# Verizon Data Centers



## NATIONAL DATA CENTER EFFICIENCY SERVICES

ENGIE Services U.S. (ENGIE) worked with Verizon to identify and implement efficiency measures at multiple national sites. Over a two-year period, ENGIE identified and installed data center and electric room air flow efficiency measures as well as high-efficiency lighting systems at select Verizon facilities nationwide.

## THE PARTNERSHIP

In Verizon's Billerica, Massachusetts facility, ENGIE made several efficiency improvements to their 100,000 sq. ft. data center. ENGIE's expert data center engineers teamed up with Verizon to identify and implement passive air flow measures such as blanking panels and open top cold aisle containment to prevent cold supply air from mixing with hot air exhausted from servers. Thermostatically controlled fan trays were installed to help pull cold air from the raised floor plenum, reducing the need for high static pressure. A central control system with temperature sensors was installed to monitor the cold aisle, turning on backup units in the event of a thermal emergency. These air flow balancing measures allowed Verizon to shut off 37 of the 65 computer room air conditioning (CRAC) units operating.

## ENERGY EFFICIENCY MEASURES

### Mechanical

At four Verizon sites nationwide, ENGIE made improvements to electrical room air flow. At each site, three of the four existing 120-ton rooftop units were running continuously, and the majority of the cold air was going directly back into the return of the units. ENGIE installed ductwork with diffusers to bring the cold supply air as close as possible to the UPS.

### Program Summary

#### Mechanical

- Utility Incentive: \$190,407
- Annual Electricity Savings: 3,875,473 kWh
- Simple Payback: 1.2 Years

#### Lighting

- Utility Incentive: \$146,642
- Annual Electricity Savings: 4,187,490 kWh
- Simple Payback: 1.8 Years

### Energy Efficiency Measures

- Lighting
- Controls
- HVAC

VFDs and fully adjustable economizer motors were installed to vary the fan speed and take advantage of free cooling at much higher outside air temperatures. This resulted in running only two units at each site and utilizing 100% free cooling below 50 degrees Fahrenheit.

### Lighting

At eight Verizon sites nationwide, ENGIE designed and installed high-efficiency lighting systems. ENGIE upgraded the existing 4-foot T-8 industrial fixtures to 25-watt lamps with high efficiency T-8 ballasts. Occupancy sensors were installed in less-traveled areas such as offices and rest rooms. The four existing lighting quadrants in the main data center space were divided into 12 mini-zones and integrated into the central control system, allowing for more efficient and granular control.

## 3 DIMENSIONS OF IMPACT

ENGIE is committed to building three dimensions of impact in every customer's future:



### Supporting People

- Training and education of personnel increased understanding and control over the mission critical systems.



### Saving Money

- ENGIE's team of utility partner specialists qualified the project for significant utility incentives, allowing Verizon Billerica to see a payback period of under one year.



### Protecting the Environment

- The combined comprehensive efficiency measures reduced Verizon's energy use by 6.3 million kWh annually, which is equivalent to removing 1,000 cars from the road.

