

Opto 22 Carbon Footprint Reduction

In an effort to promote a corporate policy of sustainability, Opto 22 has implemented its own technologies to address its overall energy consumption and reduce its carbon footprint.

Opto 22, in efforts to reduce its energy usage in the most cost-effective way, recently deployed its own products throughout its facilities to acquire relevant data and more closely monitor and manage its energy consumption.

The company's new energy management initiatives included:

- Resurfacing the roof of the manufacturing and office facilities with more energy-efficient reflective material.
- Locating and replacing malfunctioning HVAC devices, components and equipment, including broken fan belts, failed fan coils and air handlers, and burned-out motors and servos.
- Comprehensive monitoring and control of all air conditioner units, air handlers, and other HVAC, lighting, water and power-related equipment by Opto 22 SNAP PAC systems.
- Raising curtains and blinds throughout the office in order to utilize more natural light.
- A corporate policy that all employees turn off their computers before they leave for the day.

Opto 22 engineers also redesigned the control programming for environmental systems to optimize power consumption in the following ways:

- **Lighting**—Dividing the Opto facilities into several different zones, monitoring the times of day the lights turned on and off in each of these zones, identifying those times when employees were present in each zone and reassessing how much light these employees actually required. The control system was reprogrammed to turn lights on and off automatically throughout the day on an “as needed” basis.
- **HVAC**—Provisioning the HVAC control system to intake and utilize more of the naturally cool early morning air, thereby decreasing the load on the chillers.

Engineers also strategically placed temperature probes in areas throughout the Opto 22 facilities to aggregate and correlate the temperature readings, and incorporate them into PID algorithms that the control system uses to calculate and send commands to the HVAC systems in order to maintain a comfortable indoor climate.

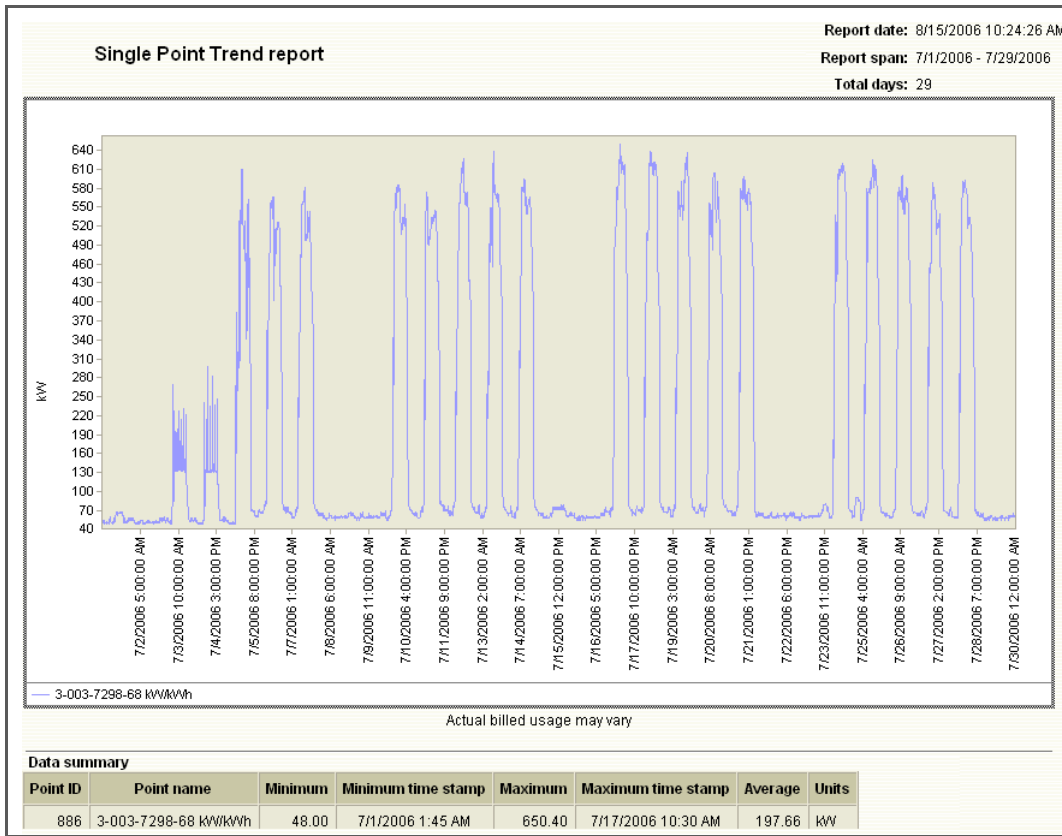
- **Water**—Reprogramming the sprinklers' control system to turn on later in the day, thus minimizing evaporation and the need to water more frequently.
- **Overall Power**—Utilizing the control systems' remote monitoring capabilities to track electrical equipment's overall power draw, using the data to identify peak usage times, and then making adjustments to lower power company's “peak pricing” charges.

Results

The result of the completed project saw Opto 22's daily kilowatt hours (KWH) for the first four weeks of July 2006 (excluding weekends) measure between 575 and 650 KWH. For the same period in 2005, these figures ranged between 660 and 871 KWH. The overall average for the entire month of July was 197.66, down from 278.30 in 2005. Weekday readings dropped even lower—ranging between 525 and 588 KWH—and the overall monthly average was 192.13. Subsequent months saw even greater reductions.

All of this translated to a 29% reduction in Opto 22's carbon footprint (see images on the following pages).

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Opto 22's July 2006 energy consumption (top) compared with measurements from exactly one year earlier (bottom) show average daily kilowatt hours (KWh) dropping from 278.30 to 197.66, a 29% overall reduction.

