

CASE STUDY:

AGILENT TECHNOLOGIES

Fort Collins

A global corporation headquartered in Palo Alto, California, Agilent delivers products and services to a wide range of customers in



Agilent Technologies

communications, electronics, life sciences, and chemical analysis. Agilent's 1 million square-foot Fort Collins facility is home to 900 employees, and manufactures semiconductor chips for optical navigation, image capture, and cell phones, and also designs ASIC (Application Specific Integrated Circuit) chips for external customers.

Agilent has adopted corporate policies aimed at ensuring that the company acts in environmentally-sensitive ways in its business operations, and has committed to reducing its baseline consumption of energy resources by 5% annually through October 2004. The Fort Collins facility has implemented energy efficiency, pollution reduction, and solid waste reduction programs, and when the City of Fort Collins initiated the ClimateWise program in April 2000, Agilent became an active partner.

The following energy-efficiency projects have been undertaken in recent years:

Dehumidification control. Much of Agilent's manufacturing takes place in clean rooms, environments that have large make-up air requirements and which must be maintained at 40% humidity year-round. A glycol chiller, set at a 42 degrees Fahrenheit dew point, is used to extract the moisture necessary to meet this humidity requirement. Analysis of the local weather patterns, however, revealed that the area's dew point is typically below 42 degrees between November and April. Thus the clean room chiller does not need to operate during these months. This new practice and the installation of a new \$4,000 dew point sensor have resulted in annual energy savings of \$20,000.

Chilled water supply temperature. An investigation of the facility's chiller plant revealed that the chiller was operating at about 4 degrees cooler than its optimum efficiency point. While initially thinking that this additional cooling was necessary to meet manufacturing requirements, further analysis determined that this was not the case. Thus, the chiller set point was changed from 43 to 47 degrees. This simple no-cost change of a routine operating procedure is now generating annual energy savings of \$18,000.

Temperature set back. A similar no-cost evaluation of a standard operating procedure revealed that, through software reprogramming, the HVAC units in interior office spaces could be set back at night to a higher level than the other spaces in the facility which require constant cooling. This simple action reduces air pumping requirements in addition to reducing the cooling load, resulting in \$2,000 in annual energy cost savings.

Exhaust optimization. Workbench hoods in Agilent's clean room were retrofitted with an energy saving feature to enable employee control of the exhaust function. Rather than running at full speed all of the time, when workers close the exhaust hood sash, exhaust is automatically reduced by 75% while maintaining the required face

velocities on each bench. Twenty hood retrofits were completed at a cost of \$1,000 per retrofit, resulting in a total annual energy cost savings of \$40,000.

Air Compressor optimization. The Fort Collins site has three plant air compressors, two of which were operating at full capacity in one building, and a third that was underutilized in a second building. To even out the load across the three systems and maximize their efficiency, the compressor systems were connected across the buildings. This has not only saved the wasted energy, but has also reduced wear and tear on the air compressors. Annual energy savings of 250,000 kilowatt-hours and cost savings of more than \$20,000 per year have been achieved.

In total, these efforts have reduced Agilent's energy bills by about \$100,000 per year, or 3 percent of the site's electricity costs prior to the retrofits. Agilent continues to look for ways to improve the energy efficiency of its Fort Collins facility. In addition to the ClimateWise program, it participates in the Platte River Power Authority's Ka\$h for Kilowatts™ program, is ISO 14001 registered, and its pollution prevention team won the Colorado Pollution Prevention Champion Award for 2003.