DRIVING EFFICIENCIES, IMPROVING OUTCOMES AND MINIMIZING ENVIRONMENTAL EFFECTS

CHALLENGE

- Reduce energy use for data center operations, the company's single largest user of energy
- Provide clients with quality service while increasing optimization and efficiencies
- Deliver cost, energy and environmental benefits

SOLUTION

- Implement a series of energy-saving initiatives at Retortvej Data Center
- Implement accreditation to ISO 14001 and ISO 50001 Management Systems for the Environment and Energy across strategic data centers and accreditation to the EU Code of Conduct for Data Centers in Europe
- Formalize changes in behavior and standards for staff

RESULTS

- Reduced absolute energy consumption and carbon emissions at strategic data centers, helping lower operational costs
- Reduced power lost to cooling and ancillary activities; shared good practices
- Provided energy-use data at a server level for client reporting

The explosion in the amount of data used in the workplace has led to an equally significant increase in the number of servers needed to manage that information.

But the expansion of data centers raises concerns about the environmental effects, including increased electricity consumption, water usage, refrigerant and fire suppressant gasses, the generation of electronic and cabling waste, and server technology.

In inefficient systems, more than 35% of energy consumption can go to something other than powering the IT servers. Knowing this, CSC has put measures in place to create efficiencies and meet environmental standards.

CSC's Global Delivery Network works to deliver against the ever-changing dynamics of business demand while identifying and implementing new synergies that lead to greater data center efficiencies.

CSC'S APPROACH

CSC's Data Center Management Strategy promotes flexible use of resources to reduce the number of redundant servers while ensuring client needs are met. A robust monthly global management review is carried out to implement best practices in energy and airflow management and to report on power-usage effectiveness (PUE).

CSC's approach is supported through the ISO 50001 Energy Management Standard. Our environmental commitment includes the target of 100% of our strategic data centers achieving ISO 50001 certification by 2018.

"Being greener is about managing our environmental impact," says Peter Marshall, global business lead of CSC Data Centers and Client Site Services. "We have looked at this from all aspects of the operation of our data center facilities to the sustainable strategies at our supply chain partners. We believe that having environmentally sound and economically effective policies is essential, and our accreditations to ISO 14001, ISO 50001 and the EU Code of Conduct testify to our commitment and future intent."

CSC implements standard measures and activities across our portfolio of data centers. These include hot-aisle/cold-aisle rack arrangement; floor cooling with cold-aisle containment, and in-rack cooling via rear-door heat exchangers for high-rack loads.

Data centers have a raised floor, and rooms have overhead services for power and data with ducted hot-air return. In-room air conditioning units have variable speed/cooling delivery, and server cabinets have a blanking panel.

Measures are taken to economize technology for chilled water and cooling delivery. Also, room temperatures and humidity bands align with industry best practice guidelines.

CSC's Data Center Facility Efficiency Strategy

- Enable innovative, energy-efficient computer room design
- Improve efficiencies in uninterruptible power supply (UPS), chillers and cooling units
- Meet standards such as those supported by Green Grid and Climate Savers; the U.S. Environmental Protection Agency (EPA)/Department of Energy (DoE) ENERGY STAR program; and the Uptime Institute Global Green 100

CSC's IT Infrastructure Efficiency Strategy

- Centralize, consolidate and virtualize with Corporate Green IT Program
- Improve/implement IT platform efficiencies with EPEAT program participation
- Reduce IT footprint requirements through server and storage optimization
- Reduce support infrastructure, labor and equipment

CSC'S UK DATA CENTERS NAMED "PARTICIPANT OF THE YEAR, 2014"

The European Code of Conduct for Data Centers is a voluntary initiative aimed to encourage cost-effective adoption of energy-efficient practices in data center facilities. In 2014, CSC was named Participant of the Year for our energy efficiency investments. Simon Douthwaite, CSC head of data centers, EMEA, said: "It is fantastic to be recognized by the European Union for our achievements when you consider the extensive list of more than 330 corporate organizations and competitors that are subscribers to the program."

Global CSC Headquarters

1775 Tysons Boulevard
Tysons, VA 22102
United States

SUCCESS IN DENMARK

One example of success in action comes from Retortvej, a data center and office property operated by CSC in the Valby district of Copenhagen. Since 1996, the location has provided services primarily to large public sector clients in Denmark.

In 2008, CSC launched an energy management and energy savings project at the data center operations with the goal of reducing data center energy and carbon footprints by 15% and aspiring to reach 20%.

Key initiatives were tested and implemented in phases over the following years. Activities included the use of free-cooling outside air to 12°C and then to 14°C, and raising the acceptable cooling temperature of the computer room to 25°C. The relative humidity level was lowered, and unnecessary holes in the raised floor were plugged.

Cold-aisle containment cubes were implemented for existing rack installations, and a hot/cold-aisle plan was established for new installations in the machine room. Downflow unit fans were replaced with new variable-speed fans.

Industry standards for energy measurements and monitoring were put in place, including intelligent power distribution units (PDUs) on racks. Capacity demands were reviewed with the goal of reducing unused capacity, and the management of idle systems and server power shutdown was tweaked. Energy-efficient lighting systems were installed, as well as motion-activated light sensors with time clocks that reduced lighting from 60 to 30 minutes.

In addition to these changes, CSC created awareness among key staff members regarding the new policies and formalized procedures for energy savings.

The journey that these sites have been on since 2008 has been driven by the management and operations people onsite, with energy efficiency seen as a primary goal of successful data center management. Led by the data center manager, team members fully understand that small changes and incremental improvements can be made to continually benefit the site's environmental performance.

The team has celebrated some big achievements, including:

- Annual savings of 16,400 metric tons of CO_2
- PUE (a measure of how energy being consumed by the data center actually powers equipment instead of being lost to inefficiency or cooling) improved by more than 20%
- Implementation of ISO 14001 and ISO 50001

WHAT'S AHEAD?

With a goal of reducing energy consumption by 20% and carbon by 18% by FY 2018 from a base date of 2012, CSC is working hard to implement efficiencies and achievements across the board such as those seen at the Copenhagen Data Center. Because the single largest users of energy in the company are the global strategic data centers, this work can reap significant benefits.

"CSC's achievements are notable. With green initiatives now part of our best practices and our policy of continued improvements through investment and synergies, CSC will continue to lead, innovate and deliver [on] our data center environmental goals and targets," Marshall says.