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Energy Efficiency for PC Networks

"Reducing energy waste in our PCs - now, that's an idea that really computes."

BC Hydro is one of the largest electrical utilities in North America, generating over 40,000 giga-watt hours of energy annually and serving over 1.5 million customers in British Columbia.

As a leader in researching and implementing energy efficiency programs, BC Hydro is developing case studies that document the effectiveness of Verdiem's unique conservation technologies in the environments of BC Hydro customers. Find out more about BC Hydro at www.bchydro.com.

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Abbotsford School District:
Computer Power Management Demonstration Project

The Story

"Reducing energy waste in our PCs – now, that's an idea that really computes."

- Edwin Hood, Energy Coordinator,
Abbotsford School District 34

"Our demonstration project shows that installing computer power management software delivers significant electricity savings, reducing our operating costs. That means that we have more money to spend where it really counts – on education and maintenance upgrades."

- Dale Churchill, Director of Facilities,
Abbotsford School District 34

The Situation

Abbotsford School District 34 serves 19,500 students in 49 schools. As with other school districts throughout the province, electricity costs represent a high percentage of Abbotsford's overall energy costs, and the district has been very proactive in exploring and implementing measures to achieve energy savings.

Abbotsford has a working inventory of 6,000 computers, and these are a significant user of electricity. One of the problems involved in operating a large computer bank is the difficulty in getting users to turn the machines off at the end of the day. Leaving computers on results in a substantial waste of electricity and higher-than-necessary operating costs. In one typical secondary school, for example, 100 to 150 of the school's 250 computers are left on 24 hours a day. Abbotsford has made a strong attempt to change behaviour by working with school staff, but change has been slow.

Indeed, the problem of computer energy waste is a wide spread one in society. An estimated 40 per cent to 50 per cent of the one million computers in the B.C. workplace, along with their monitors, are left on overnight, with no power-saving features activated.1 Even in computers that do have power-saving features, many control only the monitor, leaving the computer running, or users may de-activate the features. Network technicians are often reluctant to install energy conservation software that would automatically shut off computers. Reasons include the fear of problems with computer lock-ups and freezing, degradation of network performance, damage to hardware and security issues.

As a result of all these factors, about *170 gigawatt-hours of electricity are wasted each year* in B.C. because workplace computers are left on at night and during inactive periods. This translates into approximately *$10 million in annual electricity costs*.1

Dale Churchill, Abbotsford School District's Director of Facilities, and Edwin Hood, Energy Coordinator, were aware of the computer energy waste problem and were seeking a practical solution.

The Solution

Edwin learned about a new energy management software tool called Surveyor Network Energy Manager, developed by Verdiem Corporation (formerly EZConserve). Surveyor allows for centralized power management of both monitors and computer units. It is designed to measure, monitor and manage computers individually and on networks. The development of Surveyor was partially funded by the Northwest Energy Efficiency Alliance in the U.S. The software has been shown to

significantly reduce electricity usage, and it has been approved as a conservation measure by the Bonneville Power Administration and other utilities.

A case study to test Surveyor in one of Abbotsford School District's secondary schools was put in place. As a Power Smart Partner, Abbotsford approached BC Hydro to see if Hydro was interested in participating in the pilot project through its Power Smart Partner Demonstration program. This program was developed by Hydro to encourage the development and market adoption of new energy-efficient technologies. Because Surveyor was a new energy technology with promising energy-saving potential, Hydro was interested, and together, Hydro, Verdiem Corporation and Abbotsford School District agreed to carry out a pilot project to test the software. Robert Batemen Secondary School was chosen as the test site. Of the school's 250 computers, 19 were to be tested.

The objectives of the demonstration project were to:

✓ Demonstrate and confirm the electricity savings achieved by installing energy conservation software in a network environment, and

✓ Ensure the compatibility of the product with the district's computers in a network infrastructure.

The scope of the project included:

✓ Collecting baseline energy measurements from the 19 test computers and forecasting obtainable savings;

✓ Programming shut-down times for the test computers using Surveyor;

✓ Measuring actual electricity savings from each computer and for the system as a whole; and

✓ Ensuring compatibility with Abbotsford's existing infra structure.

Projected electricity savings were estimated to be 253 kilowatt-hours (kWh) per computer per year, for cost savings of $15.23 per computer per year. Once Surveyor was installed, the 19 test computers were monitored for a one-week period in April 2003.

The Benefits

Electricity savings

Analysis of the data showed that the software was effective, reducing computer electricity use by 30 per cent. Actual electricity savings were 254 kWh per computer per year, or virtually the same as the estimate. (Compared to other power-

saving applications that shut down only the monitor, this represents incremental savings of 54 kWh per unit.)

Abbotsford School District was so pleased with the results of the demonstration project that it has purchased licences to use Surveyor with 2,000 more computers district-wide. This will save the district an additional 508,000 kWh a year, equivalent to $30,480 in annual cost savings.

Inventory management

Like other school districts in which computer use has grown rapidly, Abbotsford did not know the exact number or make of the computers within the district. Surveyor assists in building and managing the inventory of computers, which is a significant benefit for the IT department.

Control of computers

Surveyor allows district staff to control the shutdown of computers and monitor adherence, eliminating the need to continually remind users to shut off their machines. Edwin indicated that the district considered other software applications but rejected them because they would allow users to override the power-saving settings, thus defeating the energy savings potential. Surveyor ensures that computers are shut off and that the electricity savings are achieved.

Compatibility with the existing network

The pilot showed that Surveyor could successfully be implemented in a network environment without interfering with other applications.

Ease of use and technical support

School district staff found the software very easy to install and the support from Verdiem Corporation excellent.

Contact Us

Find out how Power Smart can energize your bottom line. Call us today at 604 453-6400 in the Lower Mainland or 1 866 453-6400 elsewhere in B.C.

1 From "Power Smart LAN Computers - Four Options Reviewed," David Rogers, BC Hydro. Based on figures from BC Statistics and Statistics Canada.