

Success Story

Why Nova Scotia Schools are switching to Casio lamp-free projectors



Longer useful life, great performance and 35% lower cost of ownership among the reasons

Wouldn't it be great if there was a central resource that would check out the latest technology for you, recommend the best fit for your needs and negotiate a great price?

Such is the case in Nova Scotia, Canada, where the provincial Department of Education maintains staff consultants who work closely with representatives from each school district to research and negotiate technology purchases.

Just over a year ago, they recommended that local schools begin buying Casio projectors equipped with an LED/laser hybrid light source rather than mercury-based projection lamps. The schools responded by switching almost 50% of the projectors they purchased last year to lamp-free models, a percentage that's expected to rise to about 60% in 2011/2012.

"We certainly see the benefits of a machine that has the same lumens, the same technology and can be integrated into our classrooms in the same way as other projectors, but doesn't require lamp changes or filter cleaning and reduces the environmental impact of its use," explains Wayne Hamilton, who chairs the technology committee and does much of the equipment research for the Nova Scotia Department of Education in Halifax.

Financial advantages

The biggest advantage of lamp-free projectors comes down to dollars and cents. According to Hamilton, under this year's contract, Nova Scotia schools will pay about 40% more for a Casio LED/laser hybrid than for a comparable lamp-based projector, but, over a projector's lifespan, he expects the total cost including replacement lamps, technician time and repair service to be at least 35 - 40% less. "We're hoping to save 50% over six to seven years," Hamilton adds, "but 35% is a conservative estimate.

"Typically what we find is, if it's a ceiling mounted projector we will replace the bulb once or twice, and if it's a portable unit, probably three times over its lifetime. With the cost of a replacement lamp more than 30% of the capital cost of a projector, if you buy three replacements, you've spent as much on lamps as you did for the original unit."



Casio Signature Series

One reason Nova Scotia schools, like most school systems, do not buy more replacement lamps is that, as projectors age, the purchase of a lamp versus the purchase of a new projector becomes a poor investment. "When it's time for the second replacement, it may be cheaper just to throw out the unit rather than buy a lamp and repair any related damage." Although Hamilton says he'd like to get six to seven years out of each new projector, most often it's hard to justify more than four years, since the projector's value depreciates as maintenance and repair costs rise.

It's important to note, he says, that when a lamp fails a significant number fail completely causing damage to the lamp assembly and sometimes other parts. "So you also must consider the cost of the technician's time to determine if it is just a lamp, and then, if there is any other damage, the time to take the unit down, return it to a depot for service, and then to remount the projector when it comes back." Hamilton says it generally takes at least 30 minutes for a staff technician to replace a projection lamp and roughly 90 minutes if the projector needs to be packed up and shipped out for service and reinstalled. If the projector is under warranty, the school must normally add the cost of shipping it one way to the service provider. If it's outside the warranty period or the warranty excludes damage caused by the failed lamp, then the school must cover the cost of the repair as well.

"We also need to consider the loss of access for teachers and students to a projection system that they've come to depend upon or, alternatively, the cost in lost time to locate, borrow and set up a portable projector that may not be in constant use by another teacher."





Tim St. Louis, Vice President, Sales & Marketing for Calgary, Alberta-based Sharp's Audio Visual, adds that "One reason we originally brought the Casio projectors to the department's attention is the extremely low failure rate we've seen from their products. Looking back over the last year, I don't believe we've had a single failure of any of their LED/laser hybrids."

Environmental impact and digital infrastructures

An important consideration for the Nova Scotia schools is the environmental impact of using projectors with lamps as compared to lamp-free LED technology. "Any time we build or completely renovate a school, we are required to secure LEED certification," Hamilton explains. "This year we've been mandated to move to gold certification, which is the highest standard under LEED."

All projection lamps contain mercury, and if not disposed of properly, they can release this toxic substance into the environment. When they fail, they could in extreme circumstances release minute amounts of mercury vapor into classrooms. So any potential health concern for students and staff is taken seriously. For these reasons, LEED encourages applicants to find alternatives to mercury-based products whenever possible, and they award points to projects that reduce the use of mercury. "Achieving gold certification is challenging," Hamilton says, "and every component is essential." He says the lamp-free projectors assist in any project built under LEED guidelines.

Nova Scotia schools have also moved to a digital wiring standard for any new or renovated classrooms, based on Cat6 cable and Extron transmitters and receivers. This new standard can handle high definition video and audio in its native formats, allowing for easier future replacements as terminations move to HDMI and beyond.

St. Louis explains that the Casio hybrid projectors fit nicely into this standard as well, since they include digital HDMI audio/video inputs, as well as the VGA/component connectors needed for older classrooms. "They have everything we need,"

Hamilton adds: "HDMI, VGA, PC audio, even composite and s-video inputs." The projectors also include the ability to accept WiFi transmissions, USB, RS-232 and (in the newest models) RJ-45 ethernet connectors, although these additional features are not normally used in P-12 level schools in Nova Scotia currently.

A nice bonus, according to St. Louis, is the fact that all of the Casio units include a zoom lens with a wider range than most other multimedia projectors. "That means, when technicians replace an older projector, they normally do not need to move the mount, move AC power or replace audio and video cables, any of which can add significantly to the cost of installation."

Specifics of the purchase

For 2010/2011, the Department of Education negotiated the purchase of Casio XJ-A130 and XJ-A140 Slim projectors, Casio's original LED/laser hybrid offerings and they have moved, this year, mainly to the new XJ-M140 Signature model.

An important reason the department looked at Casio hybrids, has been the projectors' brightness. All LED-based projectors use red, green and blue light sources directed into a DLP chip to produce color images. The physics of the technology is such that it's been very difficult or impossible to produce a green LED bright enough to support an RGB image of more than 1000 ANSI lumens. Casio engineers realized they could use a blue laser, reflected off a green phosphor, in conjunction with red and blue LEDs, to produce a much brighter light source.

The Casio XJ-A130 projector Nova Scotia purchased last year produced 2000 ANSI lumens and the XJ-A140 2500 lumens. These were designed mainly for portable applications, although the majority have been, in fact, ceiling mounted. The XJ-M140 Signature projector Casio introduced this year has a larger form factor, offers more features and connection options and produces 2500 ANSI lumens. Casio also offers two Pro Line hybrid models producing 3500 lumens and two short throw hybrids designed for use with interactive white boards. "This new generation of hybrids has been very well received," St. Louis explains. "Not only are they brighter, but the color reproduction is very strong. They are an extremely good fit for a classroom environment."

"Like anyone else, we try to be proactive and do things when it makes good sense," Hamilton adds. "We're consistently testing new technology and we adopt it when there is a good fit for our educational requirements. If these new hybrid laser & LED projectors did not give us the clarity or the brightness, or if the kids in the back of the room could not see as well as with lamp based projectors, we would never have gone with them. But if you can contribute to a healthier environment, achieve all of your curricular goals, get better performance and save money, why wouldn't you?"