



## Green vs. **GREEN!**

It seems that every storage product on the market is suddenly the “greenest” thing ever invented. Massive arrays with hundreds of spinning disks are claiming to be the answer to spiraling data center energy costs and lack of power grid capacity.

Let's do a little fact-checking and see what being green really means. Disk-to-disk backup requires lots of drives. Disk drives themselves keep getting larger, but most arrays are difficult to update, so expansion to meet data growth almost always means adding more arrays, hardly the answer to reducing electrical power consumption.

The overwhelming majority of disk arrays sold today spin all the disks all the time, even when no data is being read or written. As you can imagine, the electrical meter spins in lockstep with the spindles. Adding more primary disk arrays to keep up with data growth means that secondary disk for backup expands at the same rate. If the disaster recovery site is also disk-based, it too grows, adding more spinning disk and more electrical cost for power and cooling.

Tape libraries like our XLS Enterprise Library System, on the other hand, use about as much power as the light bulb next to your favorite reading chair when not moving tapes. Think about it: tapes in slots hold about 1 terabyte each and require no power whatsoever. A tape drive waiting for the next backup job to start or the next restore request uses less power than the light bulb in a child's nightlight.

Here is a comparison of the power consumption of some secondary disk systems to an XLS library with four LTO tape drives and over 700 Terabytes of data operating at a typical duty cycle, compared to disk arrays holding roughly the same capacity:

Model	Operating Watts	BTU	Kilowatt Hours/Day	Annual Power Cost*
XLS-820500	300	1024	14	\$433
EMC DL6100 (615TB)	43,900	149,875	2,107	\$63,299
Sepaton S2100-ES2 (690TB)	42,600	145,436	2,045	\$61,425
Nexsan SATABeast (672TB)	8,800	30,043	422	\$12,689

\*\$.0823 per kilowatt hour: Energy Information Administration data

This clearly highlights one of the key reasons why tape libraries will continue to be the overwhelming favorite for storing archive and disaster recovery data, and is still a fundamental part of most backup systems. Not only is the cost-per-gigabyte of the initial purchase and future expansion substantially lower, but the annual operating costs are also dramatically less.

Operating dollar savings aren't the only benefit that lower power consumption delivers. Limits on how much power is available in a given area and constantly escalating costs for that power are inescapable realities that must be factored into all IT purchase decisions. Many data centers are discovering that they can't draw more power than they already consume because the electrical grid in their area is already at maximum capacity.

The XLS Enterprise Library Systems are expressly designed to address both of these issues.

Visit [www.Qualstar.com/XLS](http://www.Qualstar.com/XLS) or call 805-583-7744 for more information.