

## Sustainable technology in the retail environment

It should hardly come as a surprise to anyone that the retail industry is currently facing some of its most serious challenges in decades. If this document were to paint a rosy picture of the future where we could all sit back, safe and sure in the fact that energy costs would be low, the environment was in absolutely no danger, and there was absolutely no evidence within the consumer community to favour those retailers who adopted green practices, it would be wasting your time – and, of course, wasting valuable natural resources.

Instead, the aim is to provide you with some information that can be put to good use in establishing highly cost-effective sustainable technology solutions within the retail environment.

### Sustainable technology

Retail-specific aside, the move towards sustainable technology has been underway for many years. If we look at the data centre, for example, trends such as server consolidation, lowpower CPUs and others are now standard practice.

IT departments are able to report dramatic reductions in power consumption, administration overheads, square footage, and thereby assist their companies in lowering operational costs and improving their corporate standing within the community.

It goes – almost – without saying that such initiatives are utilised by marketing departments and PR specialists to contribute to the growth in customer base. And it's being done very successfully by many companies and right across the board.

In the retail industry, and this is the intended focus of this document, there are enormous opportunities available to reduce its carbon footprint and operating costs by means of implementing sustainable technologies, such as long-life and low power consumption POS terminals, double-sided printing receipt printers, and even advanced LED lighting systems that can have nearly one-third the operating costs compared to other systems.

### We're in it together

As a leading vendor of POS solutions in the retail and hospitality industries, TOSHIBA TEC understands that the responsibility for the adoption of sustainable technology belongs just as much to the vendor community as it does to you, the users.

It's for that reason that we continually research and develop new sustainable technologies for the retail environment, that contribute to global sustainability while simultaneously supporting the business needs of our customers.

By openly discussing in this document some of the key issues relating to sustainable technology in retail, it is our hope that members of the retail community will give greater consideration to those technologies and the broad benefits they deliver.

Masamichi Kusunoki  
Managing Director  
TOSHIBA TEC Europe Retail Information Systems

### Our Five Commitments

#### Corporate Philosophy of the TOSHIBA TEC Group

"Monozukuri": creating our products with pride and passion.  
Keeping our customers in mind all the time and everywhere.

1. We aim to provide timely products and services with reliable quality and functions as well as high userfriendliness, creating value with our customer in mind through our superior proprietary technology and in collaboration with the world's best partners.
2. We want to foster an open and healthy corporate culture in which a strong professional team may tirelessly seek new challenges, by respecting the individuality of each employee, striving to promote each one's abilities, and implementing a fair and appropriate system of evaluation and rewards.
3. We seek to contribute toward the development of a global society as a good corporate citizen, lawabiding and ethical, by fulfilling our responsibilities toward each country and community in which we operate and respecting local culture and history.
4. We put concern for the environment as a priority in all our business activities so as to protect people's safety and health as well as the world's natural resources.
5. We endeavor to maximize our corporate value, and on the basis of sound and transparent management, we strive to achieve appropriate profits and reserves, constantly seek to implement management innovation and energetically invest in research and development, among others, in order to meet the expectations of our shareholders.

# Appreciating the entire asset lifecycle in sustainable technology

The issue of sustainable technology is far from new, and has been widely embraced within the business world. But the reality is that as organisations move to adopt a sustainable technology platform, there is often a failure to consider one of the most critical factors – an asset's entire lifecycle.

At a fairly simplistic level, the lifecycle (cradle-to-grave) of an asset encompasses three distinct stages – manufacturing, operational life and disposal.

Where many sustainable technology purchasing decisions seem to go wrong is that the focus is on the operational life – more specifically, the power consumption – rather than encompassing all three stages.

Certainly, while the use of low power consumption technology is a definite step in the right direction towards sustainability and cost savings, without considering the other lifecycle stages, it can actually be a false economy.

While estimates tend to vary, it's generally recognised that the lifecycle energy use of a computer is dominated by production, with estimates ranging as high as a staggering 81 per cent.

Consider then that with the typical PC having an expected operational life in business of three years, the energy required to manufacture the replacement asset is nothing short of unacceptable in a business environment where sustainability is a key goal.

## The PC versus dedicated POS terminal debate

This leads us into the two general choices retailers have in selecting POS hardware. A PC – and in the majority of cases they tend to be fairly inexpensive units that may not, well, be as reliable as one would expect of a purpose-built POS terminal in the often harsh retail environment.

The other choice is the dedicated POS terminal, equipment that has been designed and manufactured to withstand the dust, the liquid spills and the constant heavy use to which POS equipment is subjected.

So while it can be argued – quite rightly – that the energy expenditure required to produce a high-end dedicated POS terminal is not less than that for a PC, what should be noted is that POS systems are designed specifically to have an operational life – in the POS environment – years longer than a PC.

To put this in perspective, if a PC used intensively in a retail environment is replaced every four years and a POS system every seven, using PCs will increase manufacturing energy and fuel usage by 75 per cent versus that consumed to produce POS systems over the same time-frame. Given 81 per cent of the lifecycle consumption is in production, this means a 60 per cent increase in total lifecycle energy consumption and

correspondingly a 60 per cent increase in impact on the environment.

And if you think the PC is costing you less than a POS system, consider that the same 4/7 ratio in replacement cycle would mean the PC needs to be 57 per cent the price of a POS system to break-even. That is without taking into account the additional cost and disruption to business resulting from more frequent replacement and service; and as you will see below, there are also likely increases in power consumption.

## Striking the right balance: power, operating costs, environment

Responding to the requests of customers, Toshiba TEC and other suppliers have developed POS systems that incorporate lower power consumption, high performance CPUs. The benefit of these systems can be quite substantial when comparing with more highly specified POS systems and PCs.

The graph below (Figure 1) shows a comparison of power consumption between an Intel Core™ 2 Duo CPU-based POS system and one of the new energy efficient Toshiba POS systems (the ST-B20).

Power drawn by both systems was measured at loads typical in a POS operational environment. As can be seen, the Core™ 2 Duo POS system consumes approximately 50 per cent more power yet there is virtually no perceived difference between each system when running a typical POS application. This difference in power consumption rises to over 65 per cent during standby and idle times due to terminal inactivity or store closure.

Although energy costs are low in Australia, we have seen these rise by over 30 per cent in three States and Territories from 2007-2009. So to avoid unnecessary operational expense from power usage retailers should consider carefully their choice of POS system.

Furthermore, if we consider the environment and sustainability, then to compensate for the additional power consumed by the Core™ 2 Duo-based system it would be necessary to plant five trees per year and grow them for ten years in order to offset the CO<sub>2</sub> emissions.

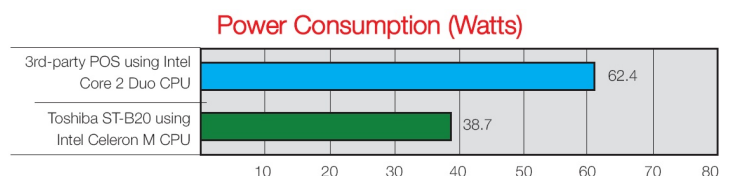


Figure 1: Average power consumption based on op operating POS application software.

## Double-sided receipt printing

If we are to hold true to sustainable technology in the retail environment, it is important that we include the POS receipt printer in the overall equation.

It is also important that in doing so, we bear in mind the chemicals, millions of trees, enormous amounts of energy and, for those receipt rolls pre-printed with third-party advertising, the inks that are used in that paper production.

For years the major desktop and workgroup printer vendors have been delivering double-sided (full-duplex) printing capabilities across their printer ranges. And their customers have been quick to recognise the savings – financial and environmental – by utilising that technology.

But the point-of-sale receipt? Well, aside from being used for third-party advertising, it seems those savings resulting from double-sided printing have been sorely neglected.

Fortunately that has changed, and there now exist POS receipt printers that can contribute significantly to the sustainable technology bottom line.



Most notable is the recently launched TOSHIBA TEC TRST-A15, a direct thermal, two-colour and double-sided printing receipt printer.

With the introduction of double-sided receipt printers, there are significant contributions to the sustainable technology bottom line, such as:

- Up to 45 percent less paper consumption with corresponding environmental benefits.
- Reduction in packaging material, and distribution and transport requirements.
- Elimination of ink usage required for printing third-party dockets on reverse side.

Add to those the extra benefits of:

- Reduced paper investment by 5-25 per cent.
- Fewer roll changes during peak times.
- Front-end time savings.

Then, even if we discount those benefits and concentrate instead on the business marketing issues, you need to ask yourself the question: "Why should I be handing out advertising for other retailers every time my point of sale staff hand over a receipt to one of my customers?"

Even if you didn't use the reverse side for minimising receipt paper print length, why shouldn't you use it to advertise your company and your products...and reap the benefits?

Essentially, control your own advertising message.

It's at least food for thought.

## A definitive and positive environmental impact

Based on a 50 per cent conversion of a \$1 billion global POS market, a 45 per cent reduction in printed receipts would save:

- 1,500,000 trees
- 112,000,000 kWh of electricity
- 52,995,765 litres of diesel fuel
- 192,776,757 kg of CO<sub>2</sub>
- 169,901 cubic metres of landfill space
- 8,327,905,925 litres of water

*The recently launched double-sided printing TOSHIBA TEC TRST-A15 POS printer.*





## Retirement of the technology asset

**R**egardless of how long the asset's operational life is, one of the major sustainability issues remains - retirement. What to do with the asset once it has reached its use-by date.

In many cases, organisations donate their technology to charities, schools and other worthwhile causes. Some, on the other hand, relegate them to other areas within the business to be used as training devices, for example.

But at some stage, the asset reaches the point where it is no longer of any use to anyone. What then? This is something that must be taken into account during the procurement process. All important questions, such as:

- What is the financial cost of disposal?
- What is the environmental impact resulting from that disposal?

need to be asked... and answered.

And, once again, it relates directly to the manufacturing stage of the lifecycle and poses yet more questions:

- If the asset is destined for landfill, what harmful chemicals such as mercury and lead, have been used in the asset's manufacture and will therefore add further to the toxic leachates problem?

- Does the vendor have in place an acceptable reclamation and recycling program?

As you can see, there are many issues relating to sustainable technology that need to be addressed before a purchase decision is made.

But don't think for a second that the onus is solely on you to arrive at the answers to those questions.

As vendors, it is our responsibility to answer the questions. It is our responsibility to ensure that when customers seek sustainable technology solutions, we can deliver them.



## Casting more light on sustainable technology in retail

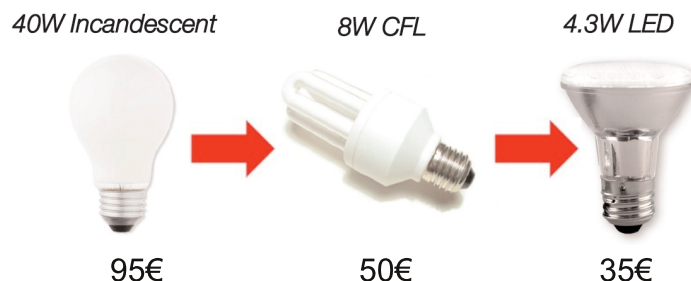
**T**he simple light bulb. The common fluorescent tube. Well at least they ensure your customers can see where they're going and what's on special. Definite benefits, but what are you, your customers and the environment paying for it?

Lighting is technology, and sustainable lighting technology is becoming increasingly important. Consider the financial overheads your business is incurring because of nonsustainable lighting technology.

Then, consider the massive difference in total cost over 40,000 hours for the three commonly used lighting systems shown here.

Toshiba TEC has invested significant resources in developing mercury-free LED lighting solutions specifically

for the retail environment, providing Australian retailers with yet more opportunity to reduce operating overheads (80 per cent energy savings and up to 600 per cent lamp life) while committing to a practice of sustainable technology.



For more information on TOSHIBA TEC POS Solutions and sustainable technologies, please call +32 2 410 21 00 or visit [www.toshibatec-eu.com](http://www.toshibatec-eu.com)

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