

LIFE

Prize fight
Award for critics sparks outrage

> ARTS & ENTERTAINMENT C9

Pen friends
Digital teaching aid speaks volumes for language students

> FAMILY C10

A healthy revolution
The vending machines that offer change

> FITNESS & WELL-BEING C8

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CONTACT US: life@scmp.com

LIGHTS ARE ON, BUT NOBODY'S HOME

Hong Kong's energy audit scheme isn't doing enough to encourage building owners and companies to boost their green credentials, writes Elaine Yau



By swapping fluorescent lights in staircases and common areas for a more energy efficient model, annual carbon emission from City One in Sha Tin would be cut by 850 tonnes. The measure – proposed by a consultancy that conducted a carbon audit of the estate in 2010 – would cost HK\$400,000. Would you have agreed if you were a resident?

Although half the cost would be subsidised by the government many tenants objected to the expense, says Sam Chan Yau-wing, communications manager of Paramatta Estate Management, which runs City One. After many reminders that costs would be recouped in 3½ years through reduced power bills (the lights use 40 per cent less electricity), tenants agreed.

As a member of the C40 Large Cities Climate Change Leadership Group, Hong Kong might be expected to set an example in reducing its carbon footprint. But progress has been in fits and starts.

In 2009, the government set aside HK\$450 million for a scheme to improve building efficiency, HK\$150 million of which would support carbon audits and the rest energy-saving projects for three years. It followed with the Buildings Energy Efficiency Ordinance, which came into effect last year, requiring all commercial buildings to conduct an energy audit every 10 years.

The initial focus on energy audits makes sense. After all, 60 per cent of carbon emissions are due to electricity generation and Hong Kong's 40,000 plus buildings account for 90 per cent of total power consumption.

But while the audit subsidy scheme and new law has brought more work for

environmental consultancies, they say too few building owners or companies follow through with measures to improve energy efficiency.

"It's like a patient going for a check-up and failing to take the medicine afterwards," says Albert Lai Kwong-tak, chief executive of consultancy Carbon Care Asia. **"One reason is the lack of financial incentives to carry out green measures following the audit."**

Vincent Kwong chi-yuen, services development manager for Swiss testing company SGS, says building owners face major difficulties adopting changes recommended in audit reports. For example, it's tough for an office building to stop running its air-conditioning system for two weeks to make changes to the machinery.

And owners of buildings of 30 years or older usually don't want to pay for improvements as they may move out or sell the property in a few years.

Although the subsidy scheme has raised awareness about energy and carbon audits, Lai says the government should offer financial incentives to encourage follow-up measures. **"The government is currently focusing on measurement [of energy usage and patterns]. Collecting energy usage data and auditing is the first step. What follows are measures like changing air-conditioning systems and switching to double-glazed windows. Such measures should be promoted through tax rebates."**

Environmental engineers and green groups also point to a lack of transparency about energy usage data and the lack of benchmarking as other obstacles to reducing buildings' carbon footprints.

Hong Kong Green Building Council chairman Conrad Wong Tin-cheung says because the government

does not provide any data for comparison, companies can only judge their progress against past performance. A company might pat itself on the back for cutting carbon emissions from 100 tonnes to 98 tonnes a year when it may have been the city's worst performer, he says.

Hong Kong needs to set an overall target for carbon reduction, says Wong. That's why the Green Building Council launched its HK3030 campaign which aims to cut power consumption in buildings by 30 per cent from the 2005 level. It hopes to achieve this by 2030.

While smart systems can reduce energy use, they don't do much to change people's habits

KENNY WONG, HK PRODUCTIVITY COUNCIL

Later this year the council will launch a website where a company can post data such as energy usage, size of the building and nature of business after conducting an audit. Best performers in each category will receive green certification.

Still, Wong says, **"the government should make it compulsory for such information to be made public in future. From overseas experience, once transparency is achieved, electricity consumption will drop greatly"**.

Lack of transparency has certainly been an obstacle to improved building efficiency, says Koo Wai-muk, a senior campaigner for Greenpeace.

When the group attempted a carbon audit of 25 big residential estates in West Kowloon two years ago, only six were willing to reveal the electricity usage in their common facilities. **"The law [mandating energy**

audits] should be extended to residential buildings," Koo says.

"All [commercial] buildings have to do their first audit within four years of the [buildings efficiency] legislation's implementation, which means lots of data will be gathered on energy usage in the sector. Buildings should post energy audit results in conspicuous places for public viewing."

An Environmental Protection Department spokesman says 6,400 buildings in the city have benefited from its building efficiency support scheme and it has achieved its aim of raising owners' awareness of the issue.

For its part, the Green Building Council will focus its efforts on energy audits, although the ultimate goal is to conduct comprehensive carbon audits, says Conrad Wong. This is a more complex process that requires working out things like the use of coal gas vis-a-vis electricity and its contribution to the carbon footprint.

"At this stage, to simplify things, we only want to deal with energy usage which is a part of carbon auditing," he says. **"Once the public understands what [auditing] is all about, we might expand the scope."**

At Chinese University's recently opened Lee Woo Sing College hostel, staff noted a marked change in behaviour among students after smart meters displaying power consumption were installed in each of the 300 rooms.

For business student Andy Fong Man-chung, it's all about money. **"Each room gets 105 kilowatt hours of free electricity each month. In the first two months after moving in, I had to pay HK\$50 per month as I exceeded the amount. I never cared about energy use at home as I didn't pay the bill."**

Now, Fong says he checks the meter every day to try to stay within the limit. **"I also discovered**

60%

of Hong Kong's carbon emissions come from electricity generation

that running the air-con at full blast puts a big dent in my balance. So now I keep [the thermostat] at 23 to 25 degrees Celsius in summer. As our hostel sits on a windy hill, I open the window more and try not to use the fan.

With the university's 22 buildings accounting for 60 per cent of its power consumption, administrators plan to complete audits and devise power-saving plans within three years. It may come as a surprise that the Hong Kong Productivity Council began introducing energy audits a decade ago and has conducted reviews for about 500 small and mid-sized firms. Kenny Wong Siu-wai, its principal

environmental management consultant, says audits are useful for nudging employees to change their routines, citing an audit he conducted for a Chinese restaurant chain. **"Based on the audit results, [the chain] devised measures for staff to implement. Savings in the energy bill were distributed among the workers, and this provided a great incentive to change their way of doing things,"** he says.

"Most people do not know much about audits. But in recent years, business leaders and decision makers have become aware of the issue. Clients such as universities and banks embrace audits, which can track energy consumption patterns and point to energy savings in a comprehensive way."

Wharf operator Modern Terminals is among the converts. The firm commissioned an energy audit of its 10 buildings and machinery at Kwai Chung and Tsing Yi, and invested HK\$170 million to switch from diesel-powered gantry cranes to electric ones.

"It might seem a huge cost but we can reduce direct carbon emissions [from burning fuel] to zero and indirect carbon emissions from electricity use can be cut by 60 per cent," says Modern Terminals procurement manager Leslie Lau Ming-ngai. **"And we have calculated that the cost can be covered by fuel savings within a few years."**

Wong says an energy audit covers detailed data, from the number of exit signs a firm has to its operating hours. An audit at a medium-sized shopping mall would take about a month and cost HK\$100,000.

"But short-term measures like installing timers in water coolers to turn them off outside office hours do not cost much. The electricity savings attained in a year will more than cover the installation."

At HKPC's own premises, short-term measures such as installing socket timers were adopted. The annual power bill fell by HK\$162,000. As the timers cost HK\$25,400 to install, the payback period was only two months.

Still, Wong believes fundamental changes have to start with people. **"While smart systems can reduce energy use, they don't do much to change people's habits. That's why I spend a lot of time persuading my colleagues they can be efficient energy users. When I walk past a vacant room with the lights and air-con on, I retrace my steps and switch them all off,"** he says. **"I must set an example myself."** elaine.yau@scmp.com

Andy Fong (left) checks his power consumption at Lee Woo Sing College hostel; Leslie Lau (above) from Modern Terminals. Photos: Nora Tam

90%

of Hong Kong's total power consumption comes from its 40,000 plus buildings

How green is your footprint?

The Construction Industry Council is set to launch a system for rating the carbon footprint of construction materials.

Thomas Ng Shiu-tong, a University of Hong Kong engineering professor involved in devising the scheme, says it will be the first of its kind. **"So far there haven't been any agreed methods**

for evaluating the carbon footprint of construction materials," he says.

The scheme rates six types of construction material – cement, aluminium, glass, ceramic tiles, rebar and structural steel – on a five-grade system.

The system takes a cradle-to-site approach to calculating the carbon footprint of the materials, Ng says.

"Greenhouse gas emissions produced from the extraction of raw materials, manufacturing and transportation of the

construction materials to Hong Kong are all included.

"The carbon footprint left by different construction materials varies a lot. The same type of material manufactured on the mainland and in Italy leave different carbon trails due to the difference in techniques adopted by manufacturers and transportation involved in exporting them to Hong Kong. The labels can help the industry know which materials are more environmentally friendly."

A life-cycle approach to monitoring carbon emissions

from buildings should be a future trend, Ng says.

"The Hong Kong Housing Authority is a pioneer. For some new public housing projects, including the one in Kai Tak, they set the life cycle of the buildings at 100 years. From the procurement of materials, building of the residential estates, operation of the buildings up to the demolition of the estates and the subsequent transportation of waste materials to landfills – the whole carbon cycle is calculated." elaine.yau@scmp.com



Illustration: Henry Wong