

The cover features a vibrant cityscape under a bright sun with lens flare effects. A prominent yellow skyscraper with a curved top and a blue dome is the central focus. Other buildings in various shades of blue and grey surround it. The sky is a clear, bright blue. The overall scene is a mix of modern architecture and industrial elements, with some smoke or steam rising from the base of the buildings.

fm
FACILITY MANAGEMENT

VOLUME 14 NUMBER 5 OCTOBER | NOVEMBER 2006

\$12.50 inc GST
Print Post Approved
PP255003/03402

Buildings, energy and greenhouse:
WHICH WAY FROM HERE?



CHINA'S BREATH OF FRESH AIR

AN INDIVIDUAL WHO EPITOMISES CHINA'S DRAMATIC COMMERCIAL TRANSFORMATION, WHILE ALSO BEING A LEADING ENVIRONMENTAL CAMPAIGNER AND MANUFACTURER OF REVOLUTIONARY NON-ELECTRIC AIR CONDITIONING CHILLER TECHNOLOGY, RECENTLY VISITED AUSTRALIA.

Zhang Yue, a former college teacher, is emerging as a major force behind the environmental movement in the United Nations, as well as being the manufacturer of the world's most energy efficient, non-electric air conditioning systems.

Zhang Yue was in Australia to study the development of greener buildings in the local market and to launch the latest generation of non-electric air conditioning chiller technology, using clean, renewable energies and non-polluting refrigerants.



In the early 1990s, his company, Broad Air Conditioning, pioneered the development of the non-electric absorption chiller in China, which now operates in over 10,000 buildings in that country and in many others throughout the US, Europe, and South East Asia. He is listed as number 43 in *Forbes Magazine's* 2004 survey of China's 200 richest business people and is among the top five private company taxpayers.

Broad, which Zang Yue established in 1988, has its headquarters on the outskirts of Changsha, capital of China's inland Hunan province. An amazing, scaled-down replica of Buckingham Palace – flying the red flag of the People's Republic of China rather than the British Royal Standard

ZHANG YUE IS PROUDEST OF THE FACT THAT HIS COMPANY'S INNOVATIVE TECHNOLOGY HAS PREVENTED MORE THAN 10 MILLION TONNES OF CO2 ENTERING THE ATMOSPHERE AND CUT INVESTMENT IN NEW COAL-POWERED POWER STATIONS BY OVER US\$12.5 BILLION.

– stands in close proximity to the giant hangars where the cooling systems are built. A short distance from the building where a computer monitors the performance of cooling systems around the globe, Zhang Yue's helicopter and Lear jet are parked.

By anyone's standards, all this is an impressive achievement, particularly so given that in China entrepreneurs like Zhang Yue barely existed a decade ago. However, Zhang Yue is prouder of the fact that his company's innovative technology has prevented more than 10 million tonnes of CO2 entering the atmosphere and cut investment in new coal-powered power stations by over US\$12.5 billion.

"In Australia, the vast majority of our commercial and domestic air conditioning systems are driven by electricity and the significance of Zhang Hue's visit is that he is intro-

ducing to Australia the latest and most efficient generation of a non-electric technology that holds the potential of generating zero greenhouse gas emissions," says Peter Szentl, managing director of Energy Conservation Systems, the Australian energy management company that will distribute the new systems.

Zhang Yue is one of the key drivers behind the Sustainable Building and Construction Initiative, launched in January 2006 and developed as part of the United Nations Environmental Program (UNEP), which focuses on global environmental protection and sustainable development. Remarkably, in December 2003, UNEP held its Global Environmental Forum at Broad's Changsha headquarters.

Broad is responsible for a raft of world firsts in the field of absorption chiller technology, including the first – and still



The team at Energy Conservation Systems, which will distribute Zhang Yue's latest HVAC systems in Australia



SIGNIFICANTLY, THE UNITS CAN ALSO BE POWERED BY NATURAL GAS, BIOGAS, TOWN GAS, DIESEL, STEAM, HOT WATER AND WASTE FROM GENERATORS AND INDUSTRIAL WASTE STREAMS.

the only – exhaust-driven chiller and a system that converts solar energy into building cooling. Significantly, the units can also be powered by natural gas, biogas, town gas, diesel, steam, hot water and waste heat from generators and industrial waste streams.

While in Melbourne, Zhang Yue visited the headquarters of Energy Conservation Systems at 40 Albert Road South Melbourne – the world leading office refurbishment project that is the first to be awarded a six star Green Star – Office Design Certified Rating. The energy saving measures applied in the building, which Zhang Yue immediately hailed as being not only practical but extraordinarily cost-effective, came as something of a revelation.

“The building we saw today – as well as some other buildings in Australian cities – has great potential in China. We met designers and consultants who all have very strong ideas about how energy savings can be achieved by building green. This is important, as environmentally friendly concepts need a precondition – they should create more value for customers. After the initial investment, operating costs, maintenance costs and labour costs need to represent significant savings over traditional systems. There needs to be early payback,” he says. “That is why our systems are very popular in the US and India – they offer an early payback.”

Indeed, despite what many might have assumed to be the Herculean task of penetrating major markets outside of



Peter Szentel (left) with Zhang Yue.

THE RISE AND RISE OF ZHANG YUE

“Only by breaking away from the dependence upon fossil fuels and fully adopting renewable and recyclable energy can humankind maintain this living space we call earth.” Zhang Yue, 2004

Zhang Yue began his career in 1980 as a college teacher and librarian and established Broad Air Conditioning at Changsha in southern China in 1988, selling the first non-electric chiller in 1992.

In 2004 he was awarded the China-Europe Sustainability Award for his leadership in the rapidly growing Chinese business sector and received the National Order of Merit from the French Government for his promotion of environmental sustainability.

THE TECHNOLOGY

The air conditioning chiller units, all developed in-house, range in size from 16KW to a massive 24MW of cleaner, non-electric power. The company makes only non-electric chillers.

- It manufactured the world's first exhaust-fired and solar powered chillers.
- It makes the world's largest gas-fired chillers, including the 10MW/2500 tonne unit installed at Austin Energy in Texas.
- Broad's chillers are at the forefront in US Government testing for energy efficiency solutions. A gas-fired chiller system has been installed at the US Department of Energy's integration test laboratory at the University of Maryland.
- It has the world's largest non-electric chiller production lines and testing platform.

China with a revolutionary new chiller technology, Zhang Yue encountered relatively little resistance.

“Technically, our systems are cutting edge and far ahead of traditional systems, and so it was not particularly difficult. In the broader market, however, there is a lack of talented people with the right experience, and as such we still have enormous scope to grow. After all, even the initial investment is not that big – it's not overly costly. We offer a packaged system that is designed to be money saving, which means more profits for our customers. Energy costs are now a global issue – every country is facing the same thing. If something can save on energy consumption there is no reason why it should not be popular everywhere.”

Be this as it may, Zhang Yue readily concedes that in his native China the concept of environmental sustainability is not as developed as in some other markets.

“In many countries people are actually prepared to pay more for green energy and a greener environment. You can see this in the use of greener cars that use less fuel and produce less emissions, but in China people seldom have these kinds of ideas. At the moment, China is not very focused on social responsibility.”

Of necessity, however, this is beginning to change, and as the charge towards creating a greener built environment accelerates in the People's Republic, there is no doubt that Zhang Yue will be one of those at its vanguard. **FM**