

Clean ENERGY

US power team lights path away from fossil fuels

Not since 1973 has world energy use increased by as much, in percentage terms, as it did in 2010.

The Economist reported this fact in June 2011, drawn from BP's annual *Statistical Review of World Energy*, which baldly stated that 2010's energy consumption had risen 5.6 per cent on the previous year.

Global energy consumption is expected to double by 2030 and yet, according to the International Energy Agency, 80 per cent of the world's current generation capacity comes from burning fossil fuels: oil provides 35 per cent of all primary energy, coal accounts for 25 per cent and natural gas chips in with

20 per cent. The US – which for now retains its title as the world's largest energy consumer over a fast-encroaching China – broadly mirrors this spread.

Scientists and economists alike warn that continued reliance on finite resources for another two decades would be devastating for both the global environment and business. Even with massive growth, renewable energies are in no position to knock fossil fuels off their perch any time soon. However, as Halcrow's Tom Stringfellow explains, a market for viable alternatives to carbon-intensive power is essential if the world is to avoid future energy and environmental crises.

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"The energy market is approaching a watershed," he said. "The sooner we act, the more of a chance we'll have to turn things around. Technology development is moving swiftly, and options that were experimental just a few years ago are now being delivered on a commercial scale.

"Halcrow has the expertise to inform the decisions that will shape our global energy mix in the decades to come. Here in the US, we're working on a number of hugely innovative projects that will surely have a bearing on our future direction."

Halcrow's involvement in the US market, which spans more than three decades, provides some fitting examples of the rate of uptake. The current Americas power and energy team includes veterans of the Department of Energy's then-cutting-edge technology programmes of the early 1980s, including Solar One, the pilot solar-thermal project in California's Mojave Desert.

Halcrow also had a hand in the first large demonstrations of fluidised bed combustion and biomass gasification in the US, as well as pioneering approaches to landfill gas extraction. Demonstrating the viability of new and emerging technologies, these seminal projects paved the way for the larger scale, commercial operations that are now commonplace and emphasised the need for ongoing development.

THE NEXT BIG THING?

With yesterday's radical innovations swiftly becoming today's mainstream practices, one of Halcrow's current commissions could herald a new direction for energy-from-waste generation. In Ohio, the team is providing owner's engineer services on a £12.2 million (\$20 million) project to convert the scrap-tyre mountains that blight the landscape into energy and other saleable by products. At present, 70 per cent of the 300 million tyres discarded in the US every year are dumped in landfills, with only 30 per cent salvaged or recycled. Using microwave technology, old tyres will be converted into syngas to generate electricity, useful activated carbon and diesel oil for use in the transportation industry, with clear environmental benefits.

As well as blazing a new technology trail, Halcrow is working with municipal electricity providers to develop sustainable energy programmes and improve energy efficiency in homes and businesses.

As fossil fuel deposits dwindle and emissions caps tighten, governments and investors around the world are looking to renewable sources to improve sustainability, in both environmental and supply terms.

Renewables are tipped to grow from a 4 per cent share of the energy mix in 2008 to almost 40 per cent by 2035, with the largest increase coming in wind and biomass energy. With multi-million dollar projects being rubber stamped across the US and beyond, Halcrow's power and energy business is poised for big things. 