

DEMAND

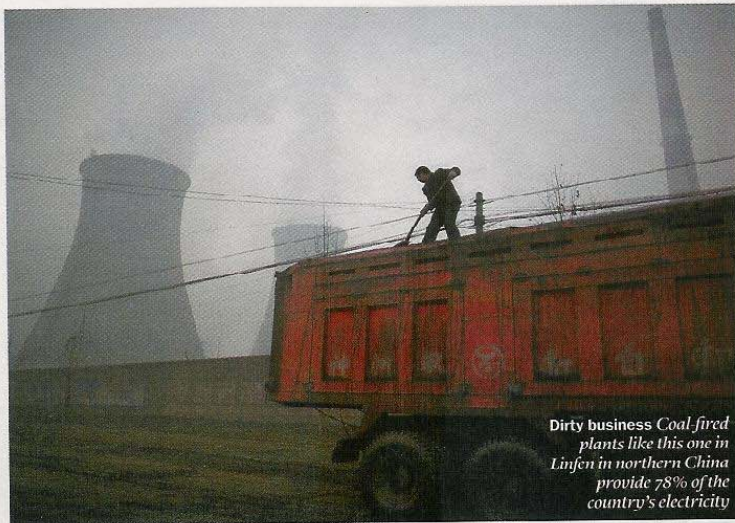
Smoke and Mirrors. China is losing the race to cut pollution and meet its soaring power needs with green technologies

BY BILL POWELL/SHANGHAI

NO COUNTRY EXCEPT THE U.S. IS CRAWLING with more venture capitalists looking to fund green-energy deals these days than China. The rush has not yet reached dotcom-boom proportions, but VCs and entrepreneurs see big opportunities in helping the country cope with its horrendous pollution problems through alternative-energy development. Deals are getting done. China is applying green principles to the construction of entirely new cities such as Dongtan, an area outside of Shanghai the size of Manhattan, which will use recycled water only and generate electricity using biomass. Last year, 3.4 gigawatts (GW) of wind energy were added to China's electrical grid, making the country the fastest-growing market for wind power in the world. And by 2020, China will quadruple its nuclear capacity from 10 GW to 40, again the fastest rate of growth globally.

But to anyone laboring under the impression that China is well on its way to a carbon-neutral future, reality can be sobering. Despite progress on the alternative-energy front, demand for power is expanding at such an extraordinary rate that it can only be satisfied by the combustion of vast additional quantities of coal, oil and natural gas. For example, between 2008 and 2030, the incremental increase in China's consumption of oil alone is expected to equal India's total annual oil consumption today, according to the International Energy Agency. "The government is being very aggressive in its pursuit of hydro, nuclear and renewables," says Jone-Lin Wang, a senior director at Cambridge Energy Research Associates (CERA), a U.S. energy consultancy. "But overall you're not really moving the dial that much over the next 10 to 20 years. These things take time."

Time is not on China's side. The government has announced plans to add an astonishing 1,300 GW to its electrical generation capacity by 2020. (The U.S. is currently



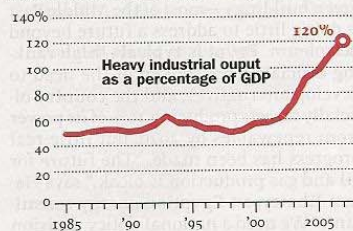
Dirty business Coal-fired plants like this one in Linfen in northern China provide 78% of the country's electricity

capable of generating 1,000 GW.) The goal is for 25-30% of this to come from clean and renewable technologies. But even if these ambitious targets are achieved, some 70% of China's electricity will still come from coal-fired plants in 2020. That's down from about 78% today.

One reason China is so power-hungry: beginning in 2002, the country began dramatically expanding its heavy industries such as steel and aluminum production and auto manufacturing—capital-intensive businesses that are huge energy hogs. Five years ago, the ratio of heavy industry output to GDP in China was 55%; that rose to a staggering 120% last year. Today, light and heavy industry accounts for nearly three-quarters of the country's energy use. As a result, China is not a particularly efficient consumer of power, lagging well behind Japan, the U.S. and other developed countries in the amount of economic output it generates for every gigawatt consumed. Hoping to become 20% more energy-efficient over

A HEAVY BURDEN

The expansion of power-hungry industries will strain China's electrical grid for years to come



Source: USB Investment Research

the next 12 years, Beijing in 2006 ordered heavy industries and local officials to develop more judicious consumption strategies. The government also increased pressure on provincial governments to enact strict building codes to make new office buildings and shopping centers less wasteful.

Laudable moves, but there's another reason why China is becoming as addicted to hydrocarbons as the U.S.: the middle-class dream is coming true for tens of millions of mainlanders, who are buying their first cars, computers, clothes dryers and other electrical appliances. Some estimate that China last year surpassed the U.S. as the largest producer of the greenhouse gases that cause global warming, yet the impact of the country's growing consumerism has barely started to spread across the world's energy and environmental landscape. To put matters into perspective, consider China's massive Three Gorges Dam, a \$29 billion project that displaced millions of peasants in return for a big jolt of clean, affordable hydropower. According to a forecast by policymakers at Beijing's Sustainable Energy Program, electricity demand from air-conditioners purchased by Chinese in 2008 alone will exceed the total capacity of Three Gorges Dam.

Air-conditioners? What if 300 million Chinese decide to buy SUVs? "The Chinese are sort of like the Americans," says CERA's Wang. "They like big cars and houses." That's an observation likely to darken the outlook of even the sunniest of solar-power advocates, and knock the wind right out of the sails of wind-power fans. No matter how much China invests in green technologies, it looks like it won't be enough.