Business Week

April 11, 2005

SECTION: International Business: CHINA; Pg. 50 Vol. 3928

LENGTH: 811 words

HEADLINE: WASTEFUL WAYS;
Colossally inefficient use of energy penalizes China twice: With high costs and the ravages of pollution

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BODY:

When Chinese Vice-Premier Zeng Peiyan swung by the Beijing headquarters of steelmaker Shougang Group on Mar. 24, it wasn't a courtesy call. He confirmed rumors China's State Council had ordered Shougang to wind down its Beijing iron-and-smelting operation by 2007 and transfer the facilities out of the city. Shougang plants, mainly fueled by coal, belch out 18,000 tons of dust and contaminants a year, and Beijing is determined to clean up in time for the 2008 Olympic Games.

Shougang's departure will do more than reduce pollution: It will take a 40-year-old mill out of circulation and force Shougang to build a far more efficient facility. The energy needs of a fast-growing economy of 1.3 billion people are huge, of course. But China is also a world-class waster. University of Alberta political economist Wenran Jiang calculates China spends three times the world average on energy -- and seven times what Japan spends -- to produce $1 of gross domestic product. It also is far more inefficient than nations like Brazil and Indonesia. ``China needs to shift from a high energy-consumption model of development to a green model," says Hu Angang, director of Tsinghua University's China studies center.

Chinese steelmakers on average use about twice as much energy as Japanese or Korean rivals per ton of output. Only 5% of the country's office and residential towers meet China's own minimal energy-conservation standards. China's waste has big implications for global oil prices: In 2004, China imported 2.4 million barrels per day. By 2030, the U.S. Energy Dept. estimates China will have to import 8.4 million bbl.

NO QUICK FIXES

President Hu Jintao's government has mapped out a plan that calls for hiking reliance on natural gas from 3% to 10% by 2020. Plants fired by gas burn fuel twice as efficiently as turbines fired by coal, which now accounts for two-thirds of China's fuel. The plan also calls for building 30 new nuclear reactors. John Watkins, president of East Asian operations for diesel engine maker Cummins Inc., says nearly every government official he meets stresses ``greater efficiency and cleaner air.'' Cummins imports and makes diesel engines for mainland buses that are 30% more efficient than gas engines. Royal Dutch/Shell Group is licensing technology to fertilizer plants that converts coal into synthetic gas, which burns more efficiently. General Electric Co. is making a killing selling gas turbines.

All this helps. But it will take years to make a difference. China has many wasteful steel, paper, chemical, and power plants relying on decades-old coal-fired turbines. Some steelmakers, such as Shanghai Baosteel Group Corp., boast modern facilities. But China is still dotted with the blast furnaces and smelters of many minor players. ``There are instances of steel plants set up just to meet local needs,'' notes Jonathan E. Sinton, a China energy expert at Lawrence Berkeley National Laboratory. ``These are terribly inefficient.'' Partly as a result, fuel consumption in China grew 1.5 times as fast as its economy in 2004. In most developed nations, the ratio is one-to-one or lower.

China's consumer boom is stoking the appetite for energy-guzzling air conditioners, refrigerators, and bigger houses. Since 2001, Chinese cities have enacted new building standards that aim for 50% less energy use per square foot. But enforcement is weak.

Then there is China's auto boom. By 2020, vehicles on its roads are expected to swell from 24 million now to 100 million. By then, transportation will account for 60% of China's energy use, up from 33% now. Fuel efficiency rules have been weak. Starting in July, though, auto makers will have three years to boost efficiency by 5%. Now, only 44% of cars and 4% of sport-utility vehicles meet the new standards, estimates Washington's World Resources Institute. Still, skeptics doubt China has the regulatory muscle to punish violators.

Meanwhile, China is paying an onerous price for its profligacy. The World Bank figures inefficient fuel use is costing China upwards of $120 billion in lost industrial output annually and health costs related to pollution. Not even fast-growing China can afford the long-term bills that will come due from the way it burns through energy.

Burn, Energy, Burn

China spends three times the world average on energy to produce $1 of GDP. Here are the key reasons:

RELIANCE ON COAL

About 70% of China's energy needs are met by burning dirty coal in power plants. Outdated technology means only about 40% of the coal used generates usable electricity.

DEARTH OF NATURAL GAS

China is only able to meet 3% of its energy needs with this clean and efficient fuel.

LACK OF REGULATORY MUSCLE

China imposed new building codes and tougher auto emission standards years ago. But the rules are widely ignored.

Data: International Energy Agency, BusinessWeek

GRAPHIC: photograph, Photograph: BEIJING GRIDLOCK China's energy appetite drives up world prices PHOTOGRAPH BY CHEN SHUYI/EYEPRESS

LOAD-DATE: April 7, 2005