The China Sustainable Energy Program
中 国 可 持 续 能 源 项 目

Issue 14 May 2004

Message from the Director

Welcome to this long-delayed update of the China Sustainable Energy Program (CSEP), a grants initiative that aims to help the Chinese help themselves by furthering energy efficiency and renewable energy development. The David and Lucile Packard Foundation and the William and Flora Hewlett Foundation provide $7 million in annual funds for the program, which is managed by the Energy Foundation.

The pace of change in China is staggering, yet is matched in enthusiasm by the central and local governments to put regulations and incentives into place to pull the most efficient energy technologies into China's market. In this issue, note progress on encouraging demand-side energy efficiency as a solution to China's ongoing, severe electricity shortages. Most significantly, note the extraordinary progress on vehicle fuel economy standards; although not yet finalized by the central government, the standards are significantly more stringent than those of the U.S. If the U.S. were to adopt China's fuel economy standards, U.S. consumers would save over $32 billion by 2020; ninety percent of the SUVs plying America's roads will not be allowed in China beginning in 2008 due to their inefficient engine technologies.

Stay tuned for more updates . . .

Doug Ogden

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China Hungry for Electricity This Summer

April, 9, 2004
China Daily

BEIJING -- China will be more hungry for electricity this summer than in previous years, according to the State Grid Corporation of China.

The country used a total of 480 billion kwh of electricity in the first quarter of this year, a year-on-year rise of 16.4 percent.

All provincial power grids have set the ceiling of power use and sometimes shut off the supply, except northeast China's Jilin, Liaoning and Heilongjiang provinces, northwest China's Xinjiang Uygur Autonomous Region and south China's Hainan Province, according to the company.

This year the power demand across the country will exceed the supply by 30 million kw and the leading power consumers, east China's Zhejiang, Jiangsu and Anhui provinces and Chinese economic hub Shanghai, will run short of 17 million kw of electricity this year, the State Grid said.

The power shortage results from the rapid economic growth, said Ouyang Changyu, an expert from the State Grid.

The power use in heavy industries such as steel and metallurgy has grown fast in the first three months, he said.

The thin supply of coal and long lingering drought since last autumn also weakened the power generation, he added.

Ouyang suggested that power plants and grids closely work together to cope with such situation and avoid accidents while the facilities are overloaded.

The government should balance the supply and demand among different regions and curb the energy-hungry industries to take full advantage of present power supply, he said.

It should also encourage the public to save power, he added.

China, as Summer Nears, Braces for Power Shortages

April,7,2004
New York Times
Chris Buckley

China's galloping economic growth will continue to be dogged by widespread electricity shortages this year, a Chinese energy official has said.

The deputy chairman of the State Electricity Regulatory Commission, Song Mi, told a meeting of electricity industry officials that the country faced a shortfall of 20 million kilowatts this year -- twice last year's shortfall, the official Xinhua News Agency reported late Tuesday.

''This year the imbalance between demand and supply will remain sizable,'' Mr. Song said. He warned that electricity shortages would be most acute in eastern and southern China, where double-digit economic growth has pushed industrial and domestic demand to new heights.

The projected shortfall is roughly equivalent to the low end of that experienced by California during its energy crisis in 2000.

Businesses in the coastal provinces powering China's economic boom, especially Jiangsu and Zhejiang, are experiencing rotating electricity shutdowns, and are bracing for worse disruptions as summer nears, when a growing number of air-conditioners will put added strain on demand.

''Our factory is doing O.K. now, but things will get worse as the weather heats up,'' said Chen Pintang, general manager of the Shixing Electronic Components Factory in Hangzhou, capital of Zhejiang in eastern China.

"We've been told that electricity will still be very tight this year, and that's going to damage business,'' he said in a telephone interview.

His factory already shuts production every Friday and Sunday, Mr. Chen said, and production at other times is interrupted by unpredictable dips in power.

Business owners in Zhejiang warned that growth would be slowed by electricity shortages, and several suggested that the damage to the province's economic growth might be several times the official estimate of 0.6 percent off annual growth.

Last year Zhejiang's economy grew 14 percent while electricity consumption grew 23 percent.

''Of course it's hurting us,'' said Mo Haolin, who owns the Pengcheng metal factory in Hangzhou. ''There are a lot of orders we can't make, so it's impossible to expand, and it's getting hard to keep customers. They can't stand the uncertainty.''

His factory closes three days a week for lack of electricity, he said in a phone interview.

Last year electricity shortages affected about two-thirds of China, and seven

provinces had serious shortages, Chinese energy officials said.

While generation capacity has grown rapidly in the last two years, it has not been enough to keep up with demand.

China has 385 million kilowatts of generating capacity, and another 130 million kilowatts of power plant construction has been approved by the government, Zhang Guobao, a deputy chairman of the State Development and Reform Commission, which oversees China's energy policy, said recently.
This year some generating capacity may remain idle for lack of coal, energy officials have warned.

China's coal production grew 22 percent in the first two months, but bottlenecks on congested railway lines and price disputes forced power plants to curtail generation, tThe Economic Daily of China reported recently.

Currently, about 80 percent of China's electricity is generated by coal-fired plants, with most of the rest from hydroelectric plants.

In an effort to ease electricity shortages, the government has announced plans to restrict approvals for electricity-hungry industries like aluminum smelting, and electricity authorities have developed plans to ration distribution.

But serious electricity shortages are likely to continue until 2006, when generating capacity is expected to catch up with demand, Mr. Zhang said.

Some businesses are, however, findings ways to wring profit from this disruption.

Until early this year, the Sanda Electronics Company in Taizhou, Zhejiang,specialized in making components for motorcycles. But it shifted to making diesel electricity generators for use in the home. Zhejiang electricity officials estimated that factories and families there have bought enough generators to produce two million kilowatts of electricity,and some local governments there have offered factories subsidies to pay for the increasingly expensive diesel oil that fuels most generators.

''Business has been very busy,'' a sales manager at Sanda, Zhang Qin, said. ''There's a lot of uncertainty about power supplies, so people are preparing for the summer.''

But the Sanda factory is not exempt -- it, too, has been hit by power cuts,and for two or three days a week relies on industrial-size diesel generators for power, Mr. Zhang said.

CHINAdaily

Shanghai Targets Green Power Plan

March 23, 2004
China Daily

SHANGHAI -- The country's largest city is expected to formally introduce a Green Electricity Scheme this year, mainly targeting large non-household consumers, officials say.

Under the plan that focuses on wind and solar power, the local government will encourage businesses to buy green electricity - energy produced from renewable resources such as wind and solar power - at a slightly higher price, according to an energy policy forum held on Sunday.

Details, such as the pricing, have yet to be finalized, but companies who voluntarily purchase such power will be granted honour certificates by local government and a list of the enterprises will be announced in major local media to enhance their reputations.

Worldwide, green electricity has been developed in the Netherlands, the United States, Australia and Germany.

The Shanghai Economic Commission authorized the Shanghai Energy Conservation Supervision Centre to design the green electricity scheme in co-operation with Shanghai Municipal Electric Power Company last September.

"Shanghai is expected to become a positive example for other economically-developed coastal cities in China," Douglas Ogden, executive vice-president of the US-based Energy Foundation, told local media earlier at the forum.

According to local government, a 3,400-kilowatt windmill and a 10-kilowatt solar power generator have been established along the coastal area in Fengxian District in the city's southern suburbs.

In addition, construction of larger wind-power facilities in the city's Chongming Island and Nanhui District are being designed to have a capacity of more than 20,000 kilowatts. So far, they represent the largest windmills on the Chinese mainland, and are expected to be completed later this year,according to the company.

The windmills, with a total investment of 200 million yuan (US$24 million), are a co-operative project between the State Power Corporation and the World Bank on promoting the country's exploration of abundant wind power along the country's coast, said Hu Chengyu, an official with Shanghai Power,a subsidiary company under the State Power Corporation and the main developer.

Hu points out that the city's green electricity "will be only a very small part of the city's total electricity supply" and it will do little to help ease the current power pinch in Shanghai.

But the green electricity programme may further help improve the public awareness of sustainable development and environmental protection, said Hu.

Zhangjiakou Promotes Wind Power Industry

April 29, 2004
China Daily

Zhangjiakou in North China's Hebei Province is aiming to make the most of its giant neighbour Beijing's desire to host a "Green Olympics" in 2008 by developing its wind power industry.

Just hundred of kilometres northwest of Beijing, the city is aiming to build up its wind power sector with the investment of billions of yuan, lifting power generation capacity in the next 10 years from the current 10 megawatts to 5,000 megawatts, said Zhangjiakou Mayor Gao Jinhao in an interview with China Daily.

And he revealed that the city's long-term plan is to build itself into one of North China's important electricity supply bases by lifting the sector's generating capacity to 10,000 megawatts.

This would be an important part of the central government's overall plan to increase the nation's wind power capacity from the current 350 megawatts to 35,000 megawatts.

Although China is one of the world's windiest countries, the development of the wind power sector has been hindered due to the huge investment and high production costs involved.

In order to make the sector more competitive, China has halved the value-added tax levied on wind-generated electricity.

The average price of electricity generated by wind power will decrease by an average of 0.05-0.06 yuan (0.6-0.7 US cents) per kilowatthour from the current 0.6-0.9 yuan (0.7-1.0 US cents) per kilowatthour. The price for newly built wind power plants is expected to drop to below 0.5 yuan per kilowatt.

Gao believes the government's incentives will play a major part in the city's development of wind power.

More importantly, the 2008 Beijing Olympics will bring unprecedented opportunities to Zhangjiakou's wind power sector, said Gao.

The Beijing municipal government wants to improve the capital's environment by planting forests in neighbouring areas, controlling automobile emissions and using more clean energy.

"Zhangjiakou is rich in wind power resources. To develop Zhangjiakou as an energy base in North China is a crucial project to integrate the economy of Beijing, Tianjin and Hebei," said Gao.

Gao hopes the project can help the city's economy take off.

Zhangjiakou's economic development has been lagging far behind that of the coastal areas because the area has served as a military base for three decades. It did not open up to investment until the mid-1990s.

As part of this development drive, Zhangjiakou will also construct logistics centres, industrial bases and high-tech industrial zones on Golden Island, nearby the city, Gao said.

The city also plans to develop itself into a national ski resort. It invited more than US$1 billion to build four ski resorts since last year.

Gao also called on the central government to offer incentive policies to support the development of the city.

China Set to Act on Fuel Economy; Tougher Standards Than in U.S

November 18,2003
New York Times
Keith Bradsher

GUANGZHOU -- The Chinese government is preparing to impose minimum fuel economy standards on new cars for the first time, and the rules will be significantly more stringent than those in the United States, according to Chinese experts involved in drafting them.

The new standards are intended both to save energy and to force automakers to introduce the latest hybrid engines and other technology in China, in hopes of easing the nation's swiftly rising dependence on oil imports from volatile countries in the Middle East.

They are the latest and most ambitious in a series of steps to regulate China's rapidly growing auto industry, after moves earlier this year to require that air bags be provided for both front-seat occupants in most new vehicles and that new family vehicles sold in major cities meet air pollution standards nearly as strict as those in Western Europe and the United States.

Some popular vehicles now built in China by Western automakers, including the Chevrolet Blazer, do not measure up to the standards the government has drafted, and may have to be modified to get better gas mileage before the first phase of the new rules becomes effective in July 2005.

The Chinese initiative comes at a time when Congress is close to completing work on a major energy bill that would make no significant changes in America's fuel economy rules for

vehicles. The Chinese standards, in general, call for new cars, vans and sport utility vehicles to get as much as two miles a gallon of fuel more in 2005 than the average required in the United States, and about five miles more in 2008.

This country's economy is booming, and a growing upper class in big cities like this one is rapidly buying all the accouterments of a prosperous Western life, including cars. As China burns more fossil fuels, both in factories and in a rapidly growing fleet of motor vehicles, its contribution to global warming is also rising faster than any other country's.
But Zhang Jianwei, the vice president and top technical official of the Chinese agency that writes vehicle standards, said in a telephone interview on Monday that energy security was the paramount concern in drafting the new automotive fuel economy rules, and that global warming had received little attention.

"China has become an important importer of oil so it has to have regulations to save energy," said Mr. Zhang, who is also deputy secretary of the 39-member interagency committee that approved the rules at a meeting this month.

China was a net oil exporter until a decade ago, but its output has not kept up with soaring demand. It now depends on imports of oil for one-third of its needs, mainly from Saudi Arabia and Angola. Before the war, Iraq was also an important supplier. By comparison, the United States now imports about 55 percent of the oil it uses.

The International Energy Agency predicts that by 2030, the volume of China's oil imports will equal American imports now. Chinese strategists have expressed growing worry about depending on a lifeline of oil tankers stretching across the Indian Ocean, through the Strait of Malacca, a waterway plagued by piracy, and across the South China Sea, protected mainly by the United States Navy. Various Chinese government agencies still have three months to review the legal language in the fuel economy rules, giving automakers some time to lobby against them; as yet, there has been no mention of the approval of the new rules in the government-controlled Chinese media.

But Mr. Zhang said that the rules in draft form were the product of a very strong consensus among government agencies and that "the technical content won't be changed."

Two executives at Volkswagen, the largest foreign automaker in China, said that representatives of their company and of domestic Chinese automakers attended what they described as the final interagency meeting to approve the rules. Under pressure from the government, these auto industry representatives agreed to the new rules despite misgivings, the executives said. "They had no choice but to agree," one of the Volkswagen executives added.

The executive said that Volkswagen's vehicles would meet the first phase of the standards in 2005, while declining to comment on compliance with the second, more rigorous phase, which is to take effect in July 2008.

The new standards are based on a vehicle's weight — lighter vehicles must go the farthest on a gallon — and on the type of transmission, with manual-shift cars required to go farther than those with less efficient automatic transmissions.

In a major departure from American practice, all new sport utility vehicles and minivans in China would be required to meet the same standards as automatic-shift cars of the same weight. In the United States, standards for sport utilities and minivans are much lower than for cars.

The Chinese rules do not cover pickups or commercial trucks. According to General Motors market research, there is little demand for pickup trucks in China except from businesses, because the affluent urban consumer who can afford a new vehicle regards pickup trucks as unsophisticated and too reminiscent of the horse-drawn carts still used in some rural areas.

Typically, heavy vehicles are much harder on fuel than light ones, but the new Chinese standards permit the heavy vehicles to get only slightly worse gas mileage. As a result, they provide an incentive for manufacturers to offer smaller, lighter vehicles, which will be easier to design.

The new standards would require all small cars sold in China to achieve slightly better gas mileage than the average new small car sold in the United States now gets, according to calculations by An Feng, a transportation consultant who advised the government on the rules.

But officials in Beijing would require much better minimum gas mileage for minivans and, especially, S.U.V.'s than the average vehicle of either type now gets in the United States.

American regulations call for each automaker to produce a fleet of passenger cars with an average fuel economy of 27.5 miles a gallon under a combination of city and highway driving with no traffic; window-sticker values for gas mileage, which include the effects of traffic, are about 15 percent lower. Light trucks, including vans, S.U.V.'s and pickups, are allowed an average of 20.7 miles a gallon without traffic.

But the Bush administration has raised the comparable American standard to 22.2 miles a gallon for the 2007 model year and is now completing a review of whether to raise limits further for 2008. The administration is also considering adopting different standards for different weight classes of light trucks.

Over all, average fuel economy in the United States has been eroding since the late 1980's as automakers shifted production from cars to light trucks. It fell in the 2002 model year to the lowest level since 1980. Automakers in Europe have accepted European Union demands to increase fuel economy under different rules that could prove at least as stringent as China's minimums.

The Chinese standards would require the greatest increases for full-size S.U.V.'s like the Ford Expedition, which would have to go as much as 29 percent farther on a gallon of fuel in 2008 than they do now in the United States, Mr. An calculated. Sport utility sales in China have more than doubled so far this year, but are still a much smaller part of the overall market than they are in the United States.

Because the American standards are fleet averages while the Chinese standards are minimums for each vehicle, the effect of the Chinese rules could be considerably more stringent. A manufacturer can sell vehicles in the United States that are far below average in fuel efficiency if it has others in its product line that offset it by being above average. But under the Chinese rules, the fuel-inefficient models — especially new ones introduced after the standards take effect — would be subject to fines no matter how well their siblings do, Mr. Zhang said, and the maker would not be allowed to expand production of the gas-guzzling models. In Garrison Keillor's phrase, China plans to require that every vehicle be above average.

Mr. An said that at the final meetings on the new rules, the only outspoken objections had come from a representative of the Beijing Automotive Industry Holding Company, which makes Jeeps in a joint venture with DaimlerChrysler.

According to people who have seen the new standards, many Jeep models sold in China do not now comply with them; neither do the Chevrolet Blazer sport utilities built by a General Motors joint venture in Shenyang. Some of Volkswagen's car models also fall slightly short, these people said. By contrast, Honda's cars, built at a sprawling factory complex here in Guangzhou, the commercial hub of southern China, would comply easily because they use advanced engine technology, these people said.

Trevor Hale, a DaimlerChrysler spokesman, declined to comment in detail. "DaimlerChrysler complies with local regulations where it does business," Mr. Hale said in an e-mail response to an inquiry. "It continues working to improve fuel economy in the vehicles it develops, builds and sells around the world."

Bernd Leissner, the president of Volkswagen Asia Pacific, said that his company's cars would comply because "it's just a question of how to adapt the engine — it's something that could be done quickly."

The fastest way to improve fuel efficiency is to switch from gasoline to diesel engines, as Volkswagen is starting to do in China. The latest diesel engines are much cleaner than those of a decade ago, but are still more polluting than gasoline engines of similar power.

A spokeswoman for General Motors, which is beginning to introduce Cadillac luxury cars in China, said she did not have enough information about the newly drafted rules to comment on them, but that her company's vehicles were comparable in fuel economy to those of rival manufacturers in the same market segments. Executives of G.M. were preparing for an event in Beijing on Tuesday and Wednesday when the company plans to showcase examples of its work on gasoline-saving fuel-cell and hybrid engines for cars.

In the United States, G.M. has argued that tighter fuel economy rules are unnecessary because technological improvements will someday improve efficiency anyway. G.M. and other automakers have also contended in the United States that higher gasoline taxes would represent a better policy than higher gas mileage standards, because it would give drivers an economic incentive to choose more efficient vehicles and to drive fewer miles.

China is still considering its policy on fuel taxes, but has not acted so far, because higher fuel taxes would impose higher costs on many sections of society, Mr. Zhang said.

Another company that could run into trouble over the Chinese mileage standards is Toyota, which on Nov. 6 began selling a locally produced version of its full-size Land Cruiser sport utility vehicle in China. A spokesman said on Monday that Toyota had not yet heard about the new Chinese fuel economy regulations, which have been prepared with a level of secrecy typical of many Chinese regulatory actions.

Japan is also phasing in new fuel efficiency standards based on vehicle weight that allow heavier vehicles only slightly worse gas mileage than lighter ones. American automakers have complained that the Japanese rules discriminate against them because Japanese automakers tend to produce slightly lighter cars anyway.

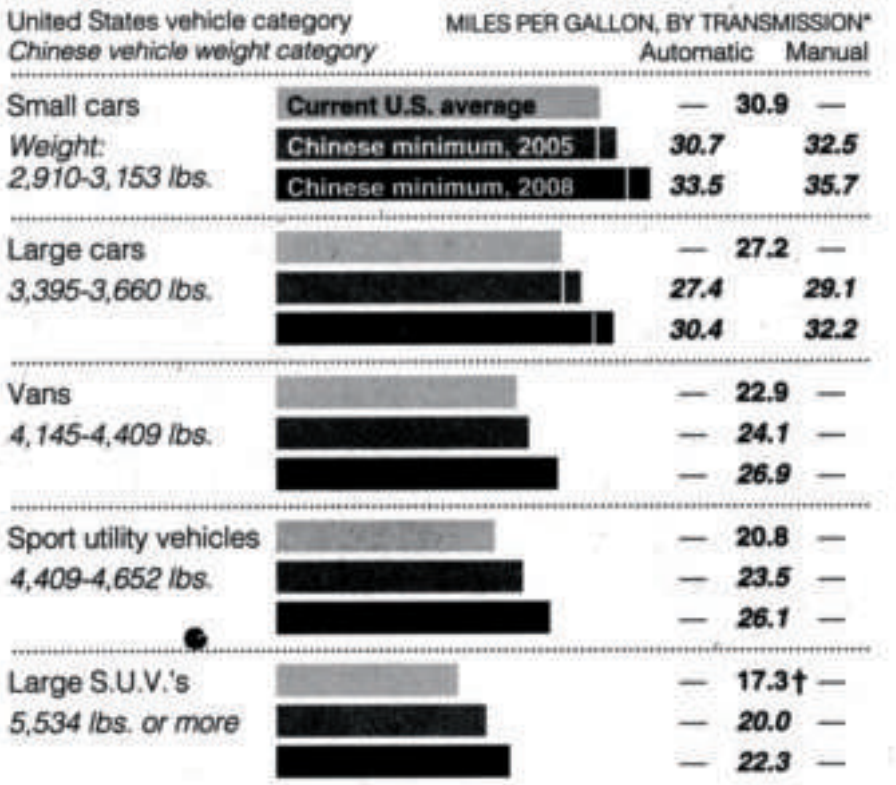
China has more than 100 automakers, as Detroit did a century ago, but the bulk of its output comes from a small number of joint ventures with multinational companies. Total production has more than doubled in the last three years, to about 3.8 million cars and light trucks in 2002, nearly as many as Germany. The United States builds about 12 million a year, Japan about 10 million.

The cars that Chinese automakers produce on their own tend to be very small and lightweight, but the engines are built on older technology, and may not have an easy time complying with the new fuel economy standards.

The government has been encouraging the industry to consolidate, and the new rules may hasten that process by forcing investment in engine designs that small companies may not be able to afford on their own.

Raising the Bar

The Chinese government plans to impose standards that would require most family vehicles to have better minimum gasoline mileage than the average mileage for comparable vehicles in the United States. Here are the planned Chinese fuel economy standards for the weight categories that correspond to the average weights of certain sizes of American vehicles.



*In China, manual transmissions for cars will have higher fuel economy requirements; the requirements for vans and S.U.V.'s are the same for manual and automatic transmissions.

†Based on a Ford Expedition

Source: An Feng, a transportation consultant

Shanghai Energy Efficiency and Sustainable Energy Workshop

March 21, 2004

Shanghai's Vice Mayor Dang Dengjie, as well as chairmen of Shanghai's major commissions (the Development and Reform Commission, Economic Commission, Construction Commission, and Science & Technology Commission) attended a workshop on "Energy Efficiency and Renewable Energy," which focused on policy development projects underway in Shanghai. The Shanghai Economic Commission and Shanghai Energy Conservation Supervision Center, with assistance from The Energy Foundation, sponsored the event. Project updates focused on building codes, demand-side management, bus rapid transit, advanced vehicle technology (hybrid-electric vehicle) development, distributed cogeneration policy, and Shanghai's long-term energy strategy.

International Demand-side Management (DSM) Workshop

March 23-24, 2004
Beijing

The blistering pace of China's electricity sector expansion was the theme of an international demand-side management workshop in late March, sponsored by the National Development and Reform Commission (NDRC). International presenters, including Susan Kennedy, commissioner with the California Public Utilities Commission, the National Resources Defense Council, Regulatory Assistance Program, and Pacific Gas and Electricity Company, emphasized that demand-side energy efficiency is the cheapest and fastest solution to burgeoning electricity demand. Ms Kennedy also visited the State Electricity Regulatory Commission (SERC) and introduced California's experiences in coping with its recent energy crisis through promoting energy efficiency. As a result of these events, Vice Premier Huang Ju called for further strengthening of DSM to cope with ongoing electricity supply shortages.

Energy Efficiency Agreement Monitoring and Evaluation Meeting

March 31, 2004
Beijing

Shandong Province is leading China's efforts to introduce European-style "energy efficiency agreements," wherein the province's two largest state-owned steel companies, interested in cutting costs to increase their competitiveness, have agreed to cut energy use. Lynn Price of LBNL and Dutch expert Kornelis Blok continued their efforts to provide training to government officials in Beijing and Shandong. Attendees included representatives from NDRC, Shandong Economic and Trade Commission, Qingdao Municipal Economic and Trade Commission, as well as experts from both Beijing and Shandong. The energy efficiency agreements will help the two steel enterprises cut 275,000 tons of carbon over the next three years.

Low-Carbon Development Paths Program

• Momentum from the November 2003 Senior Policy Advisory Council meetings in Beijing continues to shape central government policy. In a recent televised conference, the State Council (cabinet), in order to realize the elevated priority of energy efficiency in national development planning, called on central, provincial, and local government agencies to meet new energy efficiency targets over the next three years (2004-06).

Transportation Program

• Fuel economy standards, which have passed through the "industry review and comment" phase and are now undergoing WTO review, are nearing final issuance by the central government. Enforcement by all vehicle manufacturers is scheduled to begin this month. Over 150 editorials in support of fuel economy to address oil security have appeared in China's main national newspapers.

• Bus Rapid Transit systems outreach, in a single year, has resulted in commitments from Beijing, Shanghai, Kunming, Xi'an, Chongqing, Chengdu, Changzhou, Hangzhou, Xiamen, Fuzhou, Suzhou, Yangzhou, and Jinan to develop over 1,000 kilometers of BRT corridors and roughly $5 billion in local transportation funding. Nearly 150 people in these cities are working full time to develop BRT corridor plans.

• The Ministry of Science and Technology's $100 million R&D program for advanced vehicle technologies, developed by grantees four years ago, has leveraged substantial private investment; about 100 research institutes and 1,000 staff are now working full time to develop advanced hybrid-electric and fuel cell vehicle technologies.

Buildings Program

• China's Certification Accreditation Administration approved a mandatory appliance information label. The label will help inform consumers of the energy costs of major appliances. Refrigerator manufacturers will be the first to apply the label later this year.

• Vice Premier Zeng Peiyan issued support for energy efficient building codes in Central and South China. The Ministry of Construction is in process of developing implementation measures for both commercial and residential buildings.

• Shanghai adopted strong commercial building code implementation and enforcement requirements. Code inspectors will (1) deny construction permits to buildings failing to comply with the new energy code, (2) monitor all phases of commercial construction, and (3) deny occupancy and sale should a building fail to meet code requirements. Grantees intend to make Shanghai's a national model for replication.

Electric Utilities Program

• China is facing severe electricity shortages in 20 provinces. Grantees have been working to put in place the cheapest and fastest solution, energy efficiency. For example, Shanghai is considering a one fen (0.12 of one cent U.S) wwires charge, that if fully implemented,will raise approximately U.S. $ 90 million to fund a demand-side management (DSM) program, aimed at addressing anticipated power shortages this summer.

• Grantees submitted DSM policy recommendations to the State Council. Vice Premier Huang Ju praised the report and called for strengthening DSM to promote energy efficiency and address electricity supply shortages. The National Development and Reform Commission (NDRC) and the State Electricity Regulatory Commission (SERC) will issue a government provision on DSM later this month.

Renewable Energy Program

• Building on two 100-megawatt wind energy concession projects in Guangdong and Jiangsu, the National Development and Reform Commission ordered 20 more 100-megawatt wind farms, an investment of over $2 billion. Site assessments are being launched, due for

completion in two years.

• China bought 50 megawatts of wind turbines from Spain for installation in both Gansu Province and in the mandatory market share pilot in Fujian Province.

• Zhejiang annouced a 50-megawatt ($50 million) wind farm tapping a newly announced province-wide public benefits fund, supported by a 1 fen wires charge (0.00125 U.S. cents/kilowatt-hour).