



The Auto Project on Energy and Climate Change
汽车能源与气候变化—中国项目

MONTHLY NEWS BRIEFING

<http://www.autoproject.org.cn>

AUTO/ENERGY/POLLUTION

Volume V, Issue 8, August, 2008

*The APECC monthly newsletter is prepared by the
Innovation Center for Energy and Transportation (iCET)*



TABLE OF CONTENTS

GENERAL ENERGY ISSUES	4
Thrust on energy efficiency as country advances	4
Agency addresses energy concerns	4
Low carbon, high hopes	6
Energy intensity falls, call to do more	7
Energy-saving rules	8
Get rid of coal dirt	9
Nation world leader in renewable energy, says eco-group	9
AUTOMOBILE AND TRANSPORTATION.....	10
Tax on big cars raised to save fuel	10
Passenger car sector growth slows	10
Volkswagen: Taking root in China is not just a slogan.....	11
Plug-in pedals	13
Clean electric buses debut to serve 2008 Beijing Olympics	15
VW provides Games eco-friendly vehicles	15
Beijingers ride new cycling trend	17
OIL AND GAS	18
Nation to get key oil bases by year end	18
New agreement targets 20yr energy needs.....	19
Nation to be second in Bosch's headcount.....	20
CNPC to expand gas distribution business.....	20
CNPC listed best performing SOE in 2007	21
CNOOC's Huizhou oil refinery to be expanded	21
Sinopec Shanghai Petrochemical suffers loss in H1	22
CLIMATE CHANGE AND AIR POLLUTION	23
Authorities intensify environment cleanup push.....	23
Clean-air measures to remain after Games	24

Using the market to cut pollution.....24
Green axe hangs over local officials25
China getting serious on clearing up rural pollution26
China's environment watchdog expands27
Coal's future is safe, but climate's not so certain28

Disclaimer:

The opinions and statements expressed in the articles are those of authors from cited sources, thus do not represent the opinions of APECC.

iCET Beijing Office:

Ms. Fang Fang
Beijing Office General Manager
Phone: 86-10-65857324 ext. 212
e-mail: fangfang@icet.org.cn

Room 1904, e-Tower Building
No.C12 Guanghua Rd.
Chaoyang District 100020, Beijing

iCET USA Office:

Dr. Feng An
President and Executive director
Phone: 626-844-7439
e-mail: fengan@icet.org.cn

www.icet.org.cn
www.autoproject.org.cn

General Energy Issues

Thrust on energy efficiency as country advances

August 15 (China Daily) -- China, in some ways, had not officially put itself on the path of industrialization until early 1980s. And it's hardly surprising that China's total energy demand has been and will keep rising to meet the increasing demand stemming from modernization.

Energy efficiency has long been regarded as a way to reduce production costs as China moves forward to becoming a market economy despite the fact that before 2006, the notion was not as high on the government agenda as it is today.

Figures show that China's energy consumption density per unit of GDP has been falling. In 1980-90, the annual pace was 3.6 percent and that in 1991-2005, 3.1 percent.

However, China made great strides from 1991 to 1995, when the energy density was cut by 5.8 percent annually.

Partly based on these impressive achievements, China's top legislative body National People's Congress has approved a goal of cutting energy consumption in 2006-10 by 20 percent.

In 2006 and 2007, China has reached a little more than 5 percent of that goal. To achieve the overall goal, the country will have to cut energy density by a minimum average of 5 percent a year from 2008 to 2010.

More technical improvement and awareness will be sought as the Chinese leadership has taken energy efficiency not only as an economic but also as a political mission.

The government has also linked energy-saving performance to the career path of officials and leaders of State-owned enterprises to curb energy consumption.

At the same time, the government has been gradually deregulating the oil prices after allowing coal prices to be set by the market several years ago. China has reached a stage when its economic and industrial structure is being upgraded and as the market economy

matures, the service industries have more opportunities to prosper.

So far, the rapid economic growth in China has been achieved through heavy input of financial resources and energy. Apart from the relatively low efficiency of energy consumption, another important reason behind the huge energy consumption is the high proportion of manufacturing industry in the country's economy.

The service industry does not involve heavy energy consumption but human resources. Therefore their boom would diminish the overall demand for resources in the economy and facilitate energy saving and emission reduction.

However, this would require long-term, sustained efforts. Latest research shows China's energy consumption is likely to reach 3.1 billion tons of standard coal equivalent by 2010, 100 million tons more than the earlier ceiling.

The numbers are "the most likely scenario" for China's energy consumption, as were revealed by a recent report of the State Council Development Research Center.

Premier Wen Jiabao has stressed energy wastage is still a serious problem in government departments and institutions, State-owned enterprises, large public projects and individual households. Wen is right: energy saving is the common responsibility of the entire society.

Agency addresses energy concerns

August 20 (China Daily) -- On the day that the world watched the opening of the Beijing Olympics, Zhang Guobao, head of the National Energy Administration, was at his organization's debut ceremony outlining his mission to ensure China's energy security.

"I have mounting tasks on my shoulders," he said. "They are like snowflakes bombarding me these days."

The administration must address and find solutions to the country's electricity coal shortages, develop substitute energy sources such as nuclear and wind power and improve international cooperation in oil, gas and atomic

energy while improving production capabilities and energy equipment.

Zhang is aware that it is no mean task.

"There is a heavy workload waiting for the administration to coordinate and tackle," he said.

His agency is under the National Development and Reform Commission. Zhang is also vice-minister of the commission.

"To ensure enough coal and electricity supply in the peak season is my priority," he said.

Surging coal prices, insufficient coal supply and state-capped electricity tariffs have led to lower operation hours of thermal plants, Zhang said.

In the first half of the year, coal-fired plants' average operating time dropped by about 50 hours compared with a year ago, following a 133-hour cut last year compared with 2006.

According to the State Electricity Regulatory Commission, coal reserves in the country's big power plants amounted to 43.81 million tons, merely enough to support 11 days of normal operations

Zhang's administration not only targeted this summer's supply shortage but it also aimed to ensure a more stable supply by promoting more mergers and acquisitions in the country's coal industry in an effort to keep energy supply in line with the government's goal of macroeconomic development.

According to official figures, the country's coal reserves are equal to more than 1 trillion tons. An estimated 320 billion tons of this can be extracted immediately.

Huang Shengchu, president of China Coal Information Institute, said in an earlier interview that the reserves "can satisfy our demand for at least 100 more years".

However, the rate of China's economic development suggests that the country will fail to realize its target energy consumption limit of 3 billion tons of coal equivalent by 2010.

The latest research from the State Council Development Research Center shows China's energy consumption is likely to reach 3.1 billion

tons of standard coal equivalent by 2010, 100 million tons more than the earlier limit set.

By 2020, when China is expected to realize its goal of becoming a well-off society, the country's energy consumption will reach 4.3 billion tons of standard coal equivalent.

The government has taken various measures in recent years to curb the growth of energy consumption.

Last year, the country consumed 2.65 billion tons of standard coal equivalent, up 7.8 percent from the year before. The growth rate was 1.81 percentage points slower than in 2006.

Lu Yongxiang, president of the Chinese Academy of Sciences, said that by 2050, China should become a global leader in energy efficiency while advocating clean energy development. To reduce the environmental impact and save resources, he said China should decrease the use of fossil fuels and accelerate the restructuring of its energy consumption mix during the rapid industrialization and urbanization.

In his own roadmap, Lu said nuclear energy may consist of 25 to 30 percent of China's total energy consumption by 2050, with renewable energy such as hydropower likely to account for 20 to 25 percent of China's energy consumption by that time.

The government has already started to make an energy policy shift. The most important development is to readjust its nuclear power targets and encourage alternative power exploration.

Meanwhile, the country has sped up its strategic oil reserve program since 2004. By 2010, the plan is to have 12 million tons of strategic oil reserves equivalent to 30 days of imported oil, the National Development and Reform Commission said earlier.

Oil price

On Monday, Zhang Guobao said Chinese domestic fuel prices will move in line with international markets, repeating an official line but stopping short of commenting on Beijing's next oil price move.

"China is in a transition from regulated pricing mechanism toward market pricing. Even after the June 19 price hike, our refined fuel prices are lagging behind global markets," Zhang said. "The overall trend for our energy price reform will be market oriented."

Low carbon, high hopes

August 11 (China Daily) -- China needs to pump an additional \$398 billion, or \$33 billion per year, into low-carbon investment to make its alternative energy account for 16 percent of the total energy consumption mix by 2020.

This is a newly published investment calculation from the UK-based environmental organization Climate Change Group. It says stronger environmental policies from the Chinese government are creating an increased demand for low-carbon investment.

As a coal-dependent country, renewable energy consists of 7.5 percent of China's current power mix.

In the report titled "China's Clean Revolution," Climate Change Group says China's current trajectory will ensure it remains a strategic global hub for low-carbon investment, innovation and growth over coming decades.

China invested over \$12 billion in renewable energy in 2007, second only to Germany. The nation needs to invest another \$398 billion to reach its 2020 renewable energy goals, an average of \$33 billion a year, the report says.

The organization has hailed China as the world's leading renewable energy producer, overtaking more developed economies in spurring new economic growth and creating new jobs while leading the development of critical low-carbon technologies.

The kudos came after the newly established National Energy Bureau announced that China will invest more in nuclear power and alternative energy to satisfy the country's ever-increasing demand.

The national bureau's other mission will be developing renewable energy, which is targeted to account for 10 percent of China's energy mix

by 2010 when the total energy consumption is projected to reach 3 billion tons of standard coal equivalent.

China will also tap hydropower, which is predicted to reach 190 million kW by 2010, up from 117 million kW in 2005. And wind farms are expected to generate 10 million kW by 2010, going up from 1.31 million kW in 2005.

Solar power and bio-fuels will also play a bigger role. Solar power is predicted to generate 300,000 kW by 2010, up from 70,000 kW in 2005. And by 2010, it is hoped bio-fuels will produce 55 million kW, up from 2 million kW in 2005.

Steve Howard, CEO of the Climate Group which has its base in Britain, and offices in the United States, Australia, China and India, says: "The reality is that China's government is beginning to unleash a low carbon dragon which will power its future growth, development and energy security objectives."

China's transition to a low carbon economy is well underway, led by supportive government policies which are not only driving innovation in low carbon technologies but also diverting billions of dollars of investment into efficient and renewable energy.

The report says, the low carbon economy is just as attractive to developing nations like China, as it is to richer countries such as Britain, Japan and Germany.

Over the next 12 months, China is also set to become the world's leading exporter of wind turbines and expected to compete aggressively in other low carbon markets including solar water heaters, energy efficient home appliances and rechargeable batteries.

Despite its coal-dependent economy, says the report, the Chinese government and businesses have embarked on a clean revolution that has already made it a world leader in the manufacturing of solar photovoltaic technology (Solar PV).

China's combination of cost advantages, a clear policy framework, a dynamic and entrepreneurial business environment and abundant abatement opportunities, is proving that developing nations have as much, if not more, to gain from investment in low carbon solutions to create

green-collar jobs, social benefits and economic growth, it says.

Changhua Wu, China director of the Climate Group, says: "Far from ignoring climate change, Chinese leaders have already committed to improving energy efficiency and scaling up the growth of low carbon industries. China is beginning to pull its weight on climate change and the targets and policies in place are in line with those being taken by 'leading' countries like the UK and Germany."

Investment in renewable energy in China is almost level with world leader Germany as a percentage of GDP (gross domestic product), says the report. The country is also the world's top manufacturer of solar cells and will be the leading exporter of wind turbines by 2009.

China, which leads the world in production of solar photovoltaic technology, has doubled its output of solar panels in each of the last four years, according to the report.

Suntech Power Holdings Co, based in Jiangsu, is the world's third- biggest supplier of solar cells. China's six largest solar-cell makers had a market value of over \$14 billion at the beginning of this year.

Lu Yongxiang, vice-chairman of the Standing Committee of the 11th National People's Congress says China should become a global leader in energy efficiency by 2050 when nuclear power and renewable energy is likely to account for at least half of the country's energy mix.

Lu urges policymakers to come up with strengthened efforts to draw up such a long-term "strategic roadmap" for China's energy industry while focusing on clean energy development.

"We should have a clear strategic roadmap," Lu says. "It is not only for 2020, but also for 2030 and 2050."

"By 2050, China should become a global leader in energy efficiency while advocating cleaner energy development," says Lu, who is also president of the Chinese Academy of Sciences.

In his own roadmap, Lu says nuclear energy may consist of 25 to 30 percent of China's total energy consumption by 2050, with renewable energy such as hydropower likely to account for

20 to 25 percent of China's energy consumption by that time.

"By then, our fossil energy dependence can be reduced to 50 percent and I personally believe this goal should be reachable," he says

Energy intensity falls, call to do more

August 9 (China Daily) -- China's energy consumption per unit of GDP decreased by 2.88 percent year-on-year during the first half of this year, the government announced on Friday without giving immediate comment on the performance.

But the central government's recent repeated circulars and urgency placed on energy saving prior to the announcement have signaled that it is not satisfied with the progress, saying "tremendous efforts are needed" to meet the country's 2006-2010 conservation target.

The figure was 0.1 percentage point more than the same period last year, according to a bulletin jointly released by the National Bureau of Statistics, the National Development and Reform Commission (NDRC) and the National Energy Administration.

China has pledged to reduce energy consumption per unit of GDP by 20 percent by 2010 from the 2005 level, which represents an annual decrease of 4 percent on average.

The government did not reveal how much China's energy intensity index during the first half of this year decreased from the 2005 level. Compared with the 2005 benchmark, it reduced by 3.66 percent in 2007 and 1.23 percent in 2006, which failed to meet the annual target.

Despite that China has accelerated its paces in energy conservation, the NDRC's Vice-Minister Xie Zhenhua said there was still a long way to go as the country had just completed a quarter of its five-year goal during the past two years.

"We still need tremendous efforts to achieve the 20 percent goal," said Xie, who is in charge of coordination of the energy efficiency work.

During the first half of this year, energy consumption per unit of output in industrial

enterprises with annual sales exceeding 5 million yuan (\$728,651) ratcheted down 5.76 percent year-on-year.

The year-on-year drop was 6.74 percent for the coal sector, 4.05 percent for the iron and steel sector, 3.7 percent for the non-ferrous metal sector, and 9.98 percent for the building material industry.

The Ministry of Industry and Information Technology said China's high energy-consuming industries experienced a growth slowdown in the first half of this year. The six biggest energy-guzzling sectors - electricity power, non-ferrous metal, chemicals, iron and steel, building materials and petroleum - recorded a growth of 14.5 percent in output value, 5.6 percentage points lower than the growth rate for the same period of last year.

Last month, the central government said in a bulletin that seven out of 30 provinces, autonomous regions and municipalities in China failed to reach 2007's energy conservation targets.

And the governmental organizations at all levels were urged by the central government in a recent circular to enhance their energy-saving management, cultivate energy-saving product markets and disseminate energy-saving knowledge among the public.

Energy-saving rules

August 13 (China Daily) -- The regulations adopted by the State Council at the weekend on energy-saving in civilian buildings and public institutions are a further step in pressing ahead with the country's general strategy of sustainable development.

With the construction area of civilian buildings increasing by 1.8 to 2 billion sq m annually on the average and energy consumption in this area accounting for 27.5 percent of the total energy used nationwide, the potential for energy-saving in this sector can make a great difference to China's overall energy strategy.

The country adopted energy-saving standards for civilian housing in the 1980s and they have

been revised several times in order to save more energy.

A house designed and constructed exactly in line with the standards can save at least twice as much energy as its counterpart that is built otherwise.

In 2004, only 20 percent of the new houses had reached the required standards for energy-saving and the percentage reached 71 last year.

What makes the situation worse is the low efficiency of the heating system for civilian housing and the energy used for heating makes up about 50 percent or more of the total energy consumed by residential housing or office buildings. But on the average only about 45 to 70 percent heating provided by the central heating system is effective in warming up a house. That means the rest 55 to 30 percent heating is wasted because of the deficiency in house construction and the heating system.

The waste of energy is even more serious for public buildings, whose consumption of electricity is usually four times as much as that of residential housing.

The regulations that are to take effect on October 1 have specifications for the responsibility of designers, real estate developers, housing quality supervisors and even leaders of public institutions for saving energy in both residential and office buildings.

Lack of policy incentives has long been a handicap in prompting real estate developers to use energy-saving technology and materials in building houses. These regulations contain stipulations that governments at all levels must encourage the use of energy-saving technology and facilities such as solar energy or bio-energy by offering policy incentives such as an exemption of taxes.

The regulations also stipulate that energy-saving by public institutions will be audited by relevant auditors to make sure that leaders of public institutions have actually taken measures to reduce the energy they use.

Hopefully, their implementation will further promote the awareness among the general public about energy-saving, which will also push real estate developers to build energy-saving houses.

Get rid of coal dirt

August 23 (China Daily) -- It is not easy for an energy-rich province to feel the pinch of energy crisis, but it is of much significance for such a place to exercise frugality and cultivate such awareness.

North China's Shanxi, the country's largest coal producer, is such a place.

The provincial government announced on Wednesday the designation of every first Friday in June and September as the days for people all over the province to feel the pain of energy crisis. On both days, all government buildings lower than five stories will switch off their elevators, part of the elevators in higher government office buildings will also be suspended and all government employees including ranking officials must take public transport or cycle to work.

In addition, temperatures in government offices regulated by air-conditioners will be restricted to reasonable degrees and public vehicles used by public institutions and governments will be used only four days a week.

These moves adopted first by governments will help initiate an energy-saving campaign all over the province to let every citizen realize the importance of saving every lump of coal or every drop of oil.

The province, as the country's largest coal producer, has been visualized by outsiders as a place with everything as black as coal - its people's face covered with coal dust and its road crusted with a thick layer of accumulated coal powder. It was rumored that a handful of black dirt scraped from the road can be fuel for cooking.

When such a perception was taken years ago as the sign of the province's pride by many locals, from the higher authorities to the general public, the lack of attention to efficient use of coal and scientific exploration of this form of energy is of major consequences today.

High intensity and low efficiency in energy consumption and fragile environmental capacity because of over-mining or unscientific mining of

coal characterize the energy situation in the province, according to a high-ranking local official.

Pollution is the most direct consequence. The world's most polluted cities are in this province. And pollution has become a big hurdle to cross for the prosperity of tourism, despite the province having many sites of historical interest.

Over-mining or unscientific mining has also destroyed the ecological balance in many places, and some have been damaged to such a degree as to make them unsuitable for residents to stay.

The energy-saving campaign, as a further step in its previous efforts to mend its environment and clear up its polluted air, is expected to further drive home among the general public the awareness that raising energy consumption efficiency by every one in the province is the only way out for the energy-producing province to change its image as a polluting and polluted locality.

Nation world leader in renewable energy, says eco-group

August 4 (China Daily) -- China is the world's leading producer of energy from renewable sources and is on the way to overtaking developed countries in creating clean technologies, says a Climate Group report.

The report, published on Friday, says China's "clean revolution", shows that supportive government policies investing billions of dollars in energy efficiency and renewable energy are driving huge levels of innovation in China.

Despite its coal-dependent economy, China has become a world leader in the manufacture of solar photovoltaic (PV) technology - its six biggest solar companies have a combined value of more than \$15 billion, the Climate Group says. Last year, China produced about 820 megawatts of solar PV, second only to Japan.

The Climate Group is an independent, non-profit organization dedicated to advancing business and government leadership on climate change. It is based in the UK, the USA, Australia, China and India, and operates internationally.

China already leads the world in terms of installed renewable capacity at 152 gigawatts. Next year, it will become the world's leading exporter of wind turbines too. Plus, it is highly competitive in solar water heaters, energy efficient home appliances and rechargeable batteries.

"For too long, many governments, businesses and individuals have been wary of committing to action on climate change because they perceive that China (one of the largest emitters) is doing little to address the issue," said Steve Howard, chief executive of the Climate Group.

"But the reality is that China's government is beginning to unleash a low-carbon dragon which will power its future growth, development and energy security objectives."

The report says that investment in renewable energy in China, about \$12 billion last year, is almost level with world leader Germany as a percentage of GDP.

The Climate Group highlights China's fuel efficiency standards for cars, too, which are 40 percent higher than those in the US.

Biofuel production is also on the rise: by using marginal land that is half the size of the UK, China is the already the world's third largest producer of ethanol.

Automobile and Transportation

Tax on big cars raised to save fuel

August 14 (China Daily) -- Taxes will be raised on big cars and reduced on smaller ones from Sept 1 to save energy and reduce pollution.

Owners of cars with engines above 4-liter capacity will have to pay 40 percent tax, double the existing rate, the Ministry of Finance said yesterday. The tax for vehicles with engines between 3 and 4 liters will be up from 15 to 25 percent.

And the tax on cars with engines below 1-liter capacity will be reduced from 3 to 1 percent.

China is one of the biggest and fastest growing auto markets, with vehicles accounting for the lion's share of its gasoline.

The proportion of imported oil to total consumption in the country has risen to about 50 percent, prompting it to adopt policies to improve energy efficiency, analysts said.

The country has pledged to lower energy consumption per unit of GDP by 20 percent and cut emission of major pollutants by 10 percent during the 11th Five-Year Plan (2006-10).

Last year, however, it could not meet its annual target of 4 percent reduction, falling short by 0.34 percentage points.

Cars with engines between 3 and 4 liters sold the most last year. The increase in their sales was phenomenal: six-fold to 12,100 units, the China Association of Automobile Manufacturers has said.

In contrast, the sale of cars with engines below 1 liter fell 31 percent to 251,700 units.

In another vital step to reduce the use of energy, the government increased gasoline and diesel prices in late June.

The move was aimed at preventing the country's oil producers and refiners from suffering huge losses, too, because of rising global prices.

The tax move is a good first step for the country toward an energy efficient and environmentally friendly economy, Zhong Shi, a Beijing-based industrial analyst, said.

"It's good to see that the government has started using taxation policies as a tool to achieve its energy efficiency goals."

The tax increase, however, is not likely to stop the rich from buying big cars because such people are not very sensitive to price changes, he said.

Passenger car sector growth slows

August 15 (China Daily) -- China's passenger car market is slowing faster than expected, as a result of a fuel price hike, the slowing economy

and the rising vehicle purchase tax. It reported the slowest annual growth rate in two years in July.

The sector has maintained a high level of growth of between 20 and 30 percent annually since 2005 and consequently China has been seen as the most important market for global auto conglomerates.

However, statistics from China Association of Automobile Manufacturers (CAAM) revealed that last month, sales of sedans, multipurpose vehicles and sport utility vehicles in China climbed 6.79 percent from a year earlier, the smallest monthly gain and the first single-digit rise in two years.

With 488,200 domestically produced passenger cars sold nationwide in July, down 17.02 percent month-on-month, China's booming auto market is suffering the fifth consecutive month of decline this year.

"More obviously, the sales growth in the sedan segment has cooled from more than 20 percent in the first quarter, 10 percent in the second quarter to the current 1.6 percent," said Zhao Xuegui, an analyst from Guosen Securities.

"It steadily slowed in the first half, but may see a vertical dive after July," Zhao said.

"There are too many adverse factors this year to dampen auto sales," said Hui Yumei, an automobile analyst from Sinotrust, a leading domestic auto research firm.

"New government tax measures and higher fuel prices were blamed for the unusual slowdown, as well as consumers delaying their purchase because of the expectation of a price cut after the Anti-Monopoly Law implemented this month and their flagging enthusiasm in an uncertain stock market," said Hui.

In late June, Beijing raised fuel prices by nearly 20 percent to cut oil use and curb pollution. It was the first rise in seven months, but not the last this year.

"The growth may ease further in the first half of next year to 2010, particularly if China's economy slows and if oil prices continue surging," said Gao Heng, an independent auto analyst based in Beijing.

The slump is far beyond analysts' expectation.

"Our forecast from the beginning of the year was about 15 percent growth, or about 6.2 million passenger vehicles. We just revised our forecast down to about 5.95 million units," said John Bonnell, director of JD Power Asia-Pacific Forecasting.

According to CAAM, passenger vehicles sales in the first half stood at 3.6 million units, 17.07 percent up from the same period last year.

Inventories of unsold new vehicles in China rose about 50 percent to a four-year high at the end of June, as sales growth slowed unexpectedly while automakers boosted output.

The backlog reached 170,000 vehicles as of the end of June, the highest since the previous peak of 200,000 at the end of June 2004, according to China Securities Journal, which cited Cheng Xiaodong, chief auto analyst with the price monitoring center at the National Development and Reform Commission, as saying.

Volkswagen: Taking root in China is not just a slogan

August 17 (China Daily) -- With roots in China for almost 25 years, Volkswagen has successfully fulfilled its corporate social responsibility together with its Chinese partners to contribute to the sustainable development of the nation.

One outstanding achievement of Volkswagen Group China's performance in 2007 is this noteworthy figure - the local content of Volkswagen products in China has already reached 83 percent.

The establishment of Volkswagen's engine factory in Dalian and the founding of the Volkswagen Group China Central Laboratory are two important factors contributing to increasing localization of Volkswagen's products in China.

Most innovative engine

"Volkswagen introduced for the first time its most advanced engine technology into China at the same pace as Volkswagen worldwide. This innovation was possible with the establishment of Volkswagen's engine plant in Dalian, which became operational last year. It also marks local production of Volkswagen's world leading engine in China," said Professor Dr. Jochem Heizmann, member of the Board of Management of Volkswagen AG in charge of group production. "All these efforts strongly indicate that Volkswagen is paying high attention to Chinese customers."

"If there would also be a competition like the Olympic Games in engine technologies, the Volkswagen engine plant in Dalian would be the gold medal winner", said Dr. Heizmann, adding that "Volkswagen's TSI - turbo stratified injection - engine combines turbo-charging and direct fuel injection technologies, achieving both high power performance and low fuel consumption."

Along with local production of the TSI engine, Volkswagen Group China has also implemented its powertrain strategy to reduce fuel consumption and emission by more than 20 percent until 2010 for its whole fleet of models produced at Shanghai Volkswagen and FAW-Volkswagen ."

The Dalian engine plant is ranked among the most advanced in Volkswagen worldwide because it employs the most advanced production technologies.

Locally manufactured Volkswagen Magotan and Skoda Octavia models are both equipped with the 1.8 L TSI and 2.0 L TSI engines produced by the engine factory in Dalian.

Quality insurance

In June 2005 Volkswagen Group China's Central Laboratory was established in Beijing.

It is Volkswagen's third overseas product certification agency apart from its headquarters in Wolfsburg and enjoys the same certification authority as its counterparts.

The laboratory was established to increase local content of Volkswagen's spare parts, reducing costs and setting the stage for the introduction of new Volkswagen models in the coming years.

Quality is the most important value for Volkswagen and the lifeline that has ensured Volkswagen's leading position in the world auto industry for nearly 100 years.

Before 2005 all Volkswagen vehicle parts were tested in Germany. Certifying a single spare part usually takes more than 20 weeks, however, with the new laboratory in place, the average timeframe has been reduced to six to eight weeks.

Because of the laboratory, spare parts manufacturers no longer have to spend extra time preparing translations for the laboratory in Germany.

The improved efficiency and accelerated pace of testing have made cost control efforts more effective.

Thanks to the support of Volkswagen, some domestic vehicle parts manufacturers now run preliminary tests on their products by purchasing domestic equipment or using available machines. This is an approach that involves very low investment or even no extra investment at all. It also helps lay down the basic conditions for indigenous designs and development of vehicle parts.

By building the laboratory, Volkswagen introduced its requirements and standards for quality, technologies and spare parts to China - a decision of epoch-making significance to quicken the pace of Volkswagen's localized production and procurement in China.

Introduction of the standards and the whole system can help Chinese spare parts partners better integrate into Volkswagen's global auto quality system and ensure the consistent excellence of Volkswagen vehicles.

More than 100 types of conventional tests can now be conducted by the central laboratory including metal and non-metal parts in the entire product line of Volkswagen brands made in China, ranging from interior and exterior decorations to engine parts.

'Odor test team'

Actually, car testing also requires the cultivation of strong senses. Perhaps the most classic example is Audi's "nose team". All cabin and the

ventilation parts must pass the examination of the "nose team".

The first step is odor detection. The examiners smell the odor inside the car and give their evaluations on a scale from 1 to 6. Volkswagen has set very high standards for the odor test. Even for engine parts, the requirement is that the odor level must not exceed 3.5, which means that the odor is noticeable but not harmful to human beings.

The second step is the "fogging test" followed by a formaldehyde test and organic compounds test. The engineers of the Volkswagen Central Laboratory's "odor test team" receive their training from Audi's "nose team". Volkswagen is also the first car company to build an air testing cabin in China.

Volkswagen is one of the biggest contributors to China's auto industry and also one of the most closely attached to the Chinese consumers, while China is Volkswagen's biggest auto market in the world beside the German market.

Taking roots in China is Volkswagen's promise and commitment to China's auto industry. The establishment of the Volkswagen Group China Central Laboratory in China is a living narrative to the commitment and endeavors of Volkswagen. For Volkswagen, taking roots in China is much more than just a slogan: it is reality.

Plug-in pedals

August 25 (China Daily) -- My electric bike is no batmobile, but it makes me feel like a superhero.

The motor is so quiet it's easy to forget it's there when I'm pedaling through the streets of Paris - only I move much faster than a regular bike rider and I don't sweat. When I ride uphill, it feels like someone is giving me a push.

The silver Chinese import that I bought for euro300 (\$470) might not look as flashy as Christian Bale's wheels in 'The Dark Knight', but it is much cheaper to run and kinder to the environment, too.

All of which helps explain why electric bikes are one of the hottest buys in Paris this summer and

are filling the streets of Amsterdam, Beijing and beyond.

"It's become a new means of transport," says Olivier Birault, owner of the Paris store Velectris.

"In France we lost the culture of the bike after the war when it was seen as old-fashioned or for poor people," he says. "Now it's coming back and with the latest increase in gasoline prices we are seeing enormous interest."

Demand, says Sophie Nenner, who opened the Paris bike store Velo Electro in 2005, is particularly high when the sun is shining. When it rains, I don't feel much like Batman on my bike.

Riding a power-assisted bicycle is just like a regular bike. On some models the motor kicks in automatically when you start pedaling, in others you control the power with a throttle or electronic control.

More than 10,000 electric bikes were sold in France last year, up from 6,000 in 2006, according to the Conseil National des Professions du Cycle, an association of bike professionals.

And the trend is hitting all of Europe. Sales of power-assisted bikes in Germany this year are expected to double the 60,000 sold in 2007, according to Hannes Neupert, manager of ExtraEnergy, a nonprofit organization promoting light electric vehicles headquartered in Tanna, Germany.

In the Netherlands, sales of electric-powered bikes increased from 45,000 in 2006 to 89,000 last year, according to BOVAG, a motorized vehicles industry association, which expects a total of 121,000 to be sold this year.

The figures in the Netherlands compare to 10,000 units sold in vastly larger United States in 2007, up from 6,000 in 2006, according to estimates compiled for the National Bicycle Dealers Association by market research group Gluskin-Townley Group. However, other sources say sales figures are hard to come by and the total US sales could be well over 100,000.

Researcher Jay Townley says few Americans would consider commuting to work on a bicycle due to a lack of cycle routes, but in bike-friendly cities such as Washington, D.C., two-wheeled transport is increasing, particularly with

increasing gasoline prices. In Europe, squeezed by giddily high gas prices and boxed in by traffic jams, city motorists are looking for an alternative to their cars for short journeys that doesn't involve navigating overcrowded transport systems, Nenner says

And technology which has developed lighter batteries capable of running for 40 to 80 km (25-50 miles) compared with only 20 or 30 km (12.4-18.6 miles) a few years ago means electric bikes are increasingly competing with scooters and motorbikes.

Electric bikes cost almost nothing to run or maintain and for the daredevil rider offer additional benefits: no helmet, no registration, and no license.

Jean-Paul Massot, a 30-year-old teacher who commutes eight kilometers (five miles) to work each day in Paris, says he's willing to pay up to 1,500 euros for an electric bike, an amount which could get him a gasoline-powered scooter.

"But I don't want to pay for gasoline," he says. "And scooters are polluting and noisy."

The electricity needed to run an average power-assisted bike costs just one euro per 1,000 km (620 miles), according to Antoine Lecuirot, founder of French electric bike specialist To Diffusion.

When the store first opened in 2003 few people here had heard of electric bikes and turnover was mainly electric scooters. But in 2004, Lecuirot says the tide changed and now 80 percent of his revenue is from bikes, whose sales increased 70 percent in the year to March.

"When we first opened it was mainly elderly folks, or people with reduced mobility who came through the door," he says. "Now, our customers keep getting younger: parents are even buying them for their children to get to school."

The booming market is attracting entrepreneurs such as Aldo de Boni, a manager for a multinational company in Italy who wants to set up a sideline in electric bikes.

His initial plan was to invest in a fleet of 25 Italian-made electric bikes to rent to holiday-makers in Morocco. But the bikes, he says, have ignited a "passion" and he now intends to open a store in Nancy, northern France, as well.

"We have to move quickly because we are not the only ones to have this idea," he says. "It's a market which is completely exploding."

The popularity is partly due to imports from China, where manufacturers are making very affordable models.

Alberto Antonelli, whose family have been running the Molari bike shop in the seaside Italian resort of Cattolica since 1902, says he stopped selling European brands because his customers balked at the price tag.

Most of Molari's clientele are elderly people looking for a way of getting to the beach. "The Chinese bikes are less than half the price of Italian ones, and clearly that makes a difference to a lot of people," he says.

China has more than 1,400 electric bicycle manufacturers, producing around 5.5 million units a year, according to the China Bicycle Association.

Less than half of those are intended for domestic use. According to Economic Reference, a newspaper published by the official Xinhua News Agency, China exported 3 million electric bicycles in 2006 worth a total of 40 billion yuan.

Imported electric bikes don't come much cheaper than mine, which my partner assembled and then upgraded by fitting three-speed gears and a new basket. Its performance is starting to fade after nine months of daily use, particularly the battery, which is made from lead and has a limited life span.

If I run out of juice, the heavy battery weighs down the bike and makes it difficult to ride uphill, particularly now that I am used to pedal assistance.

But it still incites curiosity wherever I take it. At least twice a week I get stopped by passers-by everyone from grandpas to motorists. "How does it work?" "Do you need to pedal?" "Are they very expensive?"

At the top end of the market, where electric bikes can cost upward of 3,000 euros, some models look like something Batman would ride if he were into bikes.

Up-market models also offer a much greater degree of autonomy _ the latest versions will go

for 100 km (62 miles) without recharging. They are lighter as little as 20 kg (44 pounds) and offer funky features such as controls that can change the level of assistance and regenerative braking systems, in which applying the brakes helps recharge.

Store owner Birault says bikes are only the start of an electric revolution.

"People are waiting now for the electric car," he said.

Clean electric buses debut to serve 2008 Beijing Olympics

August 4 (China Daily) -- With the Olympics less than a week away, the United Nations Development Program (UNDP), the Beijing Olympic Committee and the Beijing Environmental Protection Bureau launched a new program to help achieve China's goal of a "Green Olympics."

Through the financial support of the Global Environment Facility (GEF), UNDP is providing four electric buses for use during the Olympic Games. The clean energy buses will be used as the official transportation for Olympic athletes between the Olympic Village and the Olympic sports arenas, and are part of an overall fleet of 50 electric buses that will be used by the Beijing Government.

"Apart from helping to achieve low-carbon approaches to Olympic venue operation, we seek to use the Olympics as a platform for raising awareness of the general public on the options for sustainable public transport in China. UNDP is pleased to be leading this initiative together with our partner UN agencies in China," said Subinay Nandy, director of UNDP China.

The transport sector, which relies almost entirely on oil, is projected to account for a large part of China's new demand for oil during the next 20 years, and the source of much of China's future emissions. According to official statistics, it is predicted that by 2010 the percentage of emissions from large cities will make up 64 percent of all emissions in China. Therefore, the application of low-carbon approaches to urban transport stands as a key challenge for both

domestic energy security and global climate change.

These electric buses are the first in Beijing to use an advanced lithium ion electric battery, which enjoy a higher energy density, comparatively smaller cubage and a longer life span for repetitive use. Each bus can carry 80 people per trip and reach 80 kilometers per hour. With batteries fully charged, it can run 130 kilometers without recharging.

During the Games, a 5,000-square-meter station northwest of the Xionghuandao temporary bus terminal will offer 24-hour parking, transfer, maintenance and battery charging services for the electric buses. Following the two weeks of the Olympic Games in August, the four clean energy buses will be utilized within the general public transport system of Beijing for years to come.

"The issue of climate change has hit a tipping point over the past years, receiving wide attention in the world's media and rising to the top of the political and economic agenda in China itself," said Nandy.

Through raising awareness and discussing policies under the program, UNDP expects that "the demonstration of clean energy buses in Beijing can lead to the further development and deployment by the local government and its partners of low-carbon vehicle technologies," said Nandy.

UNDP and the entire UN system in China aims to help China achieve a "Green, Scientific and Humanistic Olympic Games" while also achieving the UN's goal of combating global climate change through low-emission public transport options. Through the support of GEF and other funding sources, UNDP has provided more than US \$3 billion globally during the past decade in the areas of environmental protection, climate change and sustainable energy.

VW provides Games eco-friendly vehicles

August 11 (China Daily) --- To help achieve a green Olympics, the Games' official automobile sponsor Volkswagen is providing energy efficient and environmentally friendly vehicles.

In addition to the 5,000 vehicles the German automaker has provided for the Beijing Olympic organizing committee (BOCOG) for athletes and VIPs, Volkswagen Group (China) is also providing an Olympic "Green Fleet".

The fleet includes 30 vehicles, "representing Volkswagen's world-leading technology on energy conservation and emission control," says Pan Qing, director of Volkswagen Group (China) Olympic marketing.

More importantly, "the technologies in this fleet are suitable and feasible for the current China market, especially to help it commit to an environmentally friendly society", says Pan.

He also says that Volkswagen also chose eco-friendly cars which "are possible to be introduced in the China market within two to three years" to make up the fleet, although Volkswagen had the capability to produce hybrid cars years ago.

"During (1996) Atlanta Olympics, the official automotive supplier provided a green car with energy-saving, low-emission technology. However, it was a concept car still in the R&D stage and not ready for the market for 20 years," Pan says.

"(The Beijing Volkswagen fleet) is in line with Volkswagen's conception of providing the public with fuel economy cars at a low price, not using high-cost technology like hybrid or hydrogen-powered," adds Christian Koch, executive vice-president of Production and Logistics and member of the Board of Management of Volkswagen Group (China).

"Like our company's name (People's car in English), we are the auto provider for the masses."

The fleet also includes the Sagitar 1.4 TSI, Magotan BlueMotion, Magotan 2.0 TDI (turbo-charged direct injection), Tiguan 2.0 TDI and Touran EcoFuel, which provides shuttle service for the media to and from the Main Press Center.

Supported by Volkswagen's advanced powertrain technology, the green fleet is equipped with world-leading engines, gearboxes, clean fuel and other hi-tech solutions for a powerful drive, low fuel consumption and low emissions.

They are all able to meet the rigid Euro V emission standard.

According to the company, the TDI combines turbo charging and direct fuel injection, achieving both high power and lower fuel consumption.

Volkswagen's DSG transmission employs a twin-clutch technology that integrates two sets of gears to control shifting, making for a faster gear change that helps save fuel.

The combined TDI and gearbox technologies can save more than 20 percent in fuel while at the same time making driving more fun, the company says.

In Europe, diesel-powered autos now account for more than 50 percent of passenger car registrations. In Paris, almost all taxis are equipped with diesel engines, which have lower fuel consumption but greater power than gasoline powered vehicles.

Three models in Volkswagen's Green Fleet are powered with diesel engines.

"We will be pleased to have the diesel engine produced in China at any time once the market needs it. We will continue to push to make the diesel popular in China," says Koch.

Alternative fuels are another option for green auto technology, says Volkswagen.

"The Touran EcoFuel shows Volkswagen's commitment in this direction," says Pan.

Fueled with compressed natural gas (CNG), the Touran EcoFuel car can reach up to 180 km per hour while using 5.8 liters of CNG per 100 km. It drives 310 km on one tank of fuel. The CNG is stored in four tanks underneath the car body, and the company says the system is as safe as gasoline or diesel designs.

"As the automotive partner of the 29th Olympic Games, Volkswagen has always been trying to merge the concept of Green Olympics and Hi-Tech Olympics advocated by the Beijing Olympic Games with its own goal of energy conservation, safety and environmental protection," says Koch.

"Volkswagen has made unremitting efforts to introduce the most advanced technologies and

the most environmentally friendly products to China. This is also a proof that Volkswagen's world-leading powertrain technology and clean fuel technology have been a success in China," says Koch.

The powertrain strategy calls for all the Volkswagen autos produced in China by 2010 to have the fuel consumption and emissions to be reduced by 20 percent.

To reach that goal, by 2010 all Volkswagen models will be equipped with the latest multi-point injection or turbo supercharged injection engines.

A new powertrain technology, including turbo charging and advanced transmissions, will be used in all local models made at FAW Volkswagen and Shanghai Volkswagen.

As the first step of this strategy, the 1.8 TSI engine, rolled off the production line at the Volkswagen FAW engine plant in Dalian at the same time the technology was being introduced in Europe.

The joint venture between Volkswagen and China First Auto Works announced its inauguration last March to contribute to the powertrain strategy with engines using the latest turbo fuel stratified injection technology.

Beijingers ride new cycling trend

August 5 (China Daily) -- Taking inspiration from the "green" Olympics, which begin on Friday, a growing number of Beijing residents are opting for two wheels over four.

Many are dusting off their old bikes, while others, especially fashionable yuppies, are thronging to department stores and bike shops to snap up flash new models. In addition, a large number are renting before buying, to make sure the bikes are right for them.

Once the predominant mode of transportation in the country's cities, the bike is making a comeback, and vendors have reported a sales surge over the past several months.

The Emmelle specialty shop in Caishikou has extended its opening hours to 9 pm from 6 pm

because slews of customers are going bike shopping after they clock out at work. The store's sales have increased several times in the past several months.

"We are selling an average of 20 bikes every weekday," Beijing branch director Pan Gongcun said. "We can sell twice as many on weekends."

Many shoppers drive to Pan's store in their cars. Most are well-off, aged in their 30s and 40s, and prefer high-end bikes with frames made of exotic composites coated in thick layers of lacquered paint. Such models typically go for about 5,000 yuan (\$730) before extras, such as headlights and reflectors.

Younger cyclists are opting for mountain bikes with at least 10 gears. This demographic is also fussier about the design and color scheme, and most seem to have a penchant for crimson red and bright yellow, Pan said.

Estimates put the number of bicycles zipping around the capital at the end of 2007 at about 8 million - a figure most believe has grown to more than 10 million by now, including hybrids powered by rechargeable batteries.

An ordinary bike costs about 300 yuan in China and such models abound at neighborhood supermarkets.

At the Carrefour outlet in Zhongguancun, also known as China's "silicon village", Lao Pan and his small sales team are busy leading customers through row upon row of shiny new bikes. Summer is usually the peak sales season, but the showroom is particularly busy this year.

"We sell 40 to 50 (bicycles) on a normal day," Pan said. On weekends, "we usually move more than a 100 of different types (of bicycles)".

Pan explains the technologically savvy "wiz-kid" types often prefer collapsible bikes that can be folded up and carried around. These models weigh an average of 10 kg and cost about 500 yuan.

Foreigners often prefer electric bicycles. "We have foreign customers buying four or five electric bikes in a single purchase," Pan said.

Many recent converts to the cycling world prefer renting to buying. Xin Xiaolin, an IT professional

in Beijing, said that rather than driving to work as he used to, he now cycles to the subway station.

But rather than buying his own bike, he rents one from a Beijing Bicycle Rental Services outlet by the nearest subway station to where he lives.

"I don't want the hassle of owning a bike," he said.

Founded in 2005, Bicycle Rental now has about 70 outlets in Beijing proffering a fleet of 7,000 bikes. It runs a shop near every major subway station, bus stop and famous tourist site. Customers can return the bike at any one of the company's outlets irrespective of from where it was rented.

Rentals cost 10 yuan an hour, in addition to a 400-yuan deposit returned to the client when they return the bike. However, discounts are available for longer rentals, and according to the firm's founder and chairman Wang Yong, a bike can be rented for an entire year for 100 yuan, which works out to 27 fen per day.

In anticipation of the influx of foreign visitors expected to descend on the city for the Games, the company is running a bilingual hotline for customers who don't speak Chinese.

Oil and gas

Nation to get key oil bases by year end

August 19 (China Daily) -- China will complete the construction of its first four strategic oil reserves by the end of this year, a senior government official said yesterday.

"The progress has been smooth and all the four bases will be completed by the year end," Zhang Guobao, administrator of the National Energy Administration (NEA), said after a press conference in Beijing. "Their total capacity will amount to 16.4 million cu m."

Zhang made the comments at his first public appearance since the NEA's inauguration on August 8.

The administration came into being as part of the reshuffle of government agencies in March.

Zhang now also holds the position of vice-minister of the National Development and Reform Commission (NDRC), the nation's top economic planner.

China started to build its strategic oil reserves in 2004, in order to fend off the risk of oil shortages and reduce the impact of oil price fluctuations. The government plans to build strategic oil reserves in three phases over 15 years, involving an estimated investment of 100 billion yuan (\$14.61 billion).

The first four reserves, located in Dalian, Qingdao, Ningbo and Zhoushan, are expected to maintain strategic oil reserves equivalent to 30 days of imports in 2010.

The reserve in Ningbo, a coastal city in Zhejiang province, was put into operation in late 2006. It is the largest of the first four reserves, with a total storage capacity of 5.2 million cu m.

The central government is now reportedly selecting locations for the second batch of strategic oil reserves.

Cities including Tangshan and Guangzhou are understood to be vying for the projects, but Zhang declined to comment on this.

The newly established energy administration oversees the nation's oil reserves and monitors the domestic and overseas energy markets. It is also responsible for mapping out China's energy development strategy and formulating rules and regulations for the energy sector.

Renewable energy

Zhang also said yesterday that the installed capacity of wind power in the nation is expected to exceed 10 million kW by the end of this year, compared with 4.03 million kW in 2007.

The drastic increase came as the government has been promoting the use of renewable energy in the face of rising oil prices.

In recent years, the government has rolled out a host of fiscal and tax incentives to boost the development of the alternative energy sector, including a 50-percent cut in value-added tax for wind power plants.

Last year, renewable energy such as wind power, biomass and hydropower accounted for

8.5 percent of the nation's total energy use. That figure is set to increase to 10 percent in 2010 and 15 percent in 2020.

The newly established energy administration will set up more renewable energy projects to further spur the development of the sector, according to Zhang.

New agreement targets 20yr energy needs

August 29 (HK Edition) -- Hong Kong and mainland authorities signed a memorandum of understanding (MOU) yesterday that guarantees a supply of nuclear-generated electricity and natural gas to the SAR for the next 20 years.

The MOU also practically rules out the need for a natural-gas terminal in Hong Kong, a decision that a government source said might save local residents about HK\$1 billion a year in electricity costs, given the 9.99 percent permitted rate of return for power companies under the recent control agreements.

Chief Executive Donald Tsang signed the MOU with Zhang Guobao, administrator of the National Energy Administration.

Tsang said the Central People's Government will continue to support energy cooperation between Hong Kong and the mainland for the foreseeable future.

According to the MOU, China Guangdong Nuclear Power Holding will renew its electricity-supply agreement to Hong Kong for 20 more years, at a quantity not less than the current level.

And China National Offshore Oil Corporation (CNOOC) will renew its natural-gas supply agreement with Hong Kong for 20 years.

Hong Kong and the mainland have also agreed to conduct a feasibility study on supplying natural gas to Hong Kong via the Second West-East Natural Gas Pipeline.

The central government and Hong Kong will jointly build a natural gas terminal in Shenzhen instead of on Tai A Chau in the SAR, which had been suggested earlier as a means to supply natural gas to Hong Kong.

Describing the MOU as a "breakthrough progress" in supplying natural gas to Hong Kong, Tsang noted: "The stable supply of natural gas from the mainland will greatly reduce the need for Hong Kong to build a natural-gas terminal within the territory".

He added that the result will ease the spending of power companies, resulting in fewer electricity tax hikes.

Secretary for the Environment Edward Yau said Hong Kong could benefit from more natural gas supplied from the mainland in the future.

"More natural gas can improve Hong Kong's air quality and help in the development of clean energy in the long term," he said.

He said that currently, in Hong Kong, power is generated mostly from coal (60 percent), while natural gas (20 percent) and nuclear power (20 percent) account for a significantly smaller portion.

He said the government wants to increase the amount of power generated from natural gas to around 50 percent.

The government source who said taxpayers could save about HK\$1 billion by not building a natural-gas terminal in Tai A Chau also said the new agreement will benefit Hong Kong Electric and Towngas. Still, he wouldn't comment on whether the companies will reduce their charges.

The MOU ensures that CNOOC will supply at least 2 billion cubic meters of natural gas to CLP Power each year, the source said.

When the Second West-East Natural Gas Pipeline goes through Shenzhen in 2011-12, the source said, 1 billion cubic meters of natural gas could be supplied to Hong Kong.

He added that the SAR government doesn't have to pay to build the natural-gas terminal in Shenzhen.

CLP Power welcomed the agreement.

"We see the central government's support as a significant and critical new development in ensuring Hong Kong's long-term energy supply, and we welcome this as a constructive (government) initiative," said Andrew Brandler, chief executive officer of the CLP Group.

Replacing the diminishing Yacheng gasfield with new supplies from the South China Sea will partly fill the company's gas shortage, but he said that imports of natural gas will still be needed to meet growing demand.

Nation to be second in Bosch's headcount

August 9 (China Daily) -- The world's leading auto parts maker Bosch said China would represent some 40 percent of its total workforce in the Asia-Pacific by the end of 2008, placing the region's workforce second only to Germany in terms of numbers.

"China is a main contributor to the increase of the Bosch business in Asia. We attach a special importance to the recruiting, training and retaining of skilled associates," said Uwe Raschke, who has just taken charge of Bosch's Asia-Pacific business.

Raschke is the successor to Rudolf Colm, who has taken up a new role within the Bosch board of management, steering the worldwide activities in the consumer goods and building technology business sectors.

The Stuttgart-based company announced that it would invest 1.9 billion euros in the Asia-Pacific region from 2008 to 2010.

By the end of 2007, Bosch had invested around 1 billion euros in China, and it will invest a further 850 million euros in the country between 2008 and 2010.

"We see great growth potential in Asia for all our business sectors especially as it relates to green technologies to conserve resources and protect the environment," said Rudolf Colm.

He said Bosch drive systems for the car are geared to lower consumption and emissions, both in the diesel and the gasoline engines. The company continues to develop automotive technologies that are safe, clean and economical with a special focus on innovation and localized solutions for Asian manufacturers, including low price vehicle applications.

CNPC to expand gas distribution business

August 9 (China Daily) -- China National Petroleum Corporation (CNPC), the country's largest oil producer and the leading company in natural gas production and transportation, plans to increase its portfolio in the urban gas distribution sector.

The company will use its dominance in the upstream business, which is gas production and supplies, to further develop its gas retail operation, CNPC said on its website.

CNPC started its urban gas distribution business in 2000. In 2004 the company set up its professional gas distribution subsidiary in Beijing.

In the past CNPC has invested 740 million yuan (\$107.84 million) in gas retail projects in 46 cities in 14 provinces. These projects have total gas supply capacities of 3 billion cu m.

Analysts said that CNPC's large-scale entrance would crowd out private gas retailers. At present some private companies such as XinAo Gas and Panva Gas have taken large slices of the urban gas distribution business.

They said CNPC's planned expansion in the area would bring crucial changes to the sector, which may create a new monopoly in the area.

CNPC now supplies around 75 percent of China's total natural gas consumption. Last year the company's natural gas sales were 45.3 billion cu m, an increase of 21.3 percent compared to a year earlier.

By the end of 2007 CNPC had 22,231 km of natural gas pipelines, accounting for 89 percent of China's lines.

The natural gas business has become CNPC's fastest-growing industry, CNPC President Zhou Jiping earlier said.

CNPC built China's first west-east natural gas pipeline. The project, ran from the Tarim Basin of Xinjiang Uygur Autonomous Region to Shanghai, and was put into commercial operation at the end of 2004.

With a targeted annual gas transmission capacity of 12 billion cu m, the project has changed Shanghai's energy structure.

CNPC listed best performing SOE in 2007

August 29 (Xinhua) -- China National Petroleum Corporation (CNPC) was ranked the best performing centrally-administered State-owned enterprise (SOE) in 2007, the state assets regulator said Thursday.

China Petroleum and Chemical Corporation (Sinopec), Asia's top oil refiner, and China Mobile, the nation's biggest mobile network operator, took the second and third places respectively, according to the list issued by the State-owned Assets Supervision and Management Commission (SASAC).

Both CNPC and Sinopec suffered net profit losses in the first half this year from government fuel price caps and windfall taxes. China Mobile on Wednesday reported a net profit of 54.8 billion yuan (\$8.02 billion), up 45 percent from the same period last year.

CNPC's net profit reached 134.46 billion yuan in 2007, while that of Sinopec topped 54.95 billion yuan.

SASAC conducts an annual assessment of centrally-administered SOEs and divides them into five ranks from A to E accordingly. Indices such as total assets, net assets to earning ratios and state-assets appreciation ratios are taken into account.

A total of 40 companies among 152 SOEs reporting to the central government last year entered the top A class.

CNOOC's Huizhou oil refinery to be expanded

August 29 (China Daily) -- China National Offshore Oil Corp (CNOOC), the country's third largest oil producer, plans to invest 45 billion yuan to expand its new Huizhou oil refinery project in the southern Guangdong province, which is expected to come onstream this October.

The company signed a frame contract for the project on Aug 26 in Shenzhen, under which it will be expected to boost the capacity of the refinery to 22 million tons per year from the present 12 million during the 12th Five-Year Plan period (2011-15), the local media reported Thursday.

CNOOC will also add a new ethylene production project to the Huizhou refinery, which has the capacity of 1 million tons per year.

A CNOOC source yesterday confirmed the expansion, and said that it signifies the company's ongoing efforts to develop its downstream businesses of oil refinery and petrochemical products manufacturing.

"The Huizhou project will further increase the energy supply in the Pearl River Delta, one of China's economic powerhouses. CNOOC has been focusing on the region to develop our downstream business," said the source who did not want to be named.

Construction on the Huizhou project, which is expected to start production in October, began in late 2005.

It is CNOOC's first large oil refinery project in the country, with a total investment of over 20 billion yuan.

Next to the Huizhou project is the \$4.2 billion CNOOC-Shell petrochemicals project. The core production facility of the 50-50 joint venture is the ethylene crack plant with annual capacity of 800,000 tons. The project started business operation in 2006.

Apart from these two giant projects, CNOOC is also planning for some downstream projects in the Yangtze River Delta and the Bohai Bay region, said the source from CNOOC.

The company has also quickened its pace in developing filling stations. Now CNOOC owns around 20 stations in Shanghai, three in Hangzhou and some 30 in Huizhou, the source said.

CNOOC's listed arm CNOOC Ltd said on Wednesday that its first-half net profit rose

sharply by 89.3 percent year-on-year amid high oil price and solid operational performance.

Net profit recorded 27.54 billion yuan, or 0.62 yuan per share, the company said in its interim report.

Sinopec Shanghai Petrochemical suffers loss in H1

August 28 (Agencies) -- Sinopec Shanghai Petrochemical Co Ltd said it booked a net loss of 372.77 million yuan (\$54.56 million) in the first half under Chinese accounting standards, against a profit of 1.76 billion yuan a year earlier, due to high crude oil prices and government caps on refined oil product prices.

Due to continued demand growth, limited output growth, depreciation of the dollar and speculative trading, the price of crude oil, the company's major raw material, has been above \$100 since February, peaking at about \$140.

In the first half, the average price of Brent crude was about \$111, up 73 percent year-on-year, the company said in its interim report filed with the Shanghai Stock Exchange.

The company processed 5.0665 million tons of crude oil in the six months, up 12.27 percent year-on-year, including 4.8933 million tons of imported oil and 173,200 tons of offshore oil.

Output of gasoline and diesel amounted to 417,300 tons and 1.89 million tons respectively, up 43.50 percent and 38.93 percent year-on-year, while the output of jet fuel was 336,900 tons, down 4.15 percent.

The company produced 480,900 tons of ethylene and 265,000 tons of propylene in the first half, up 0.92 percent and 6.85 percent respectively, while output of synthetic resins and plastics fell 3.99 percent to 536,100 tons.

Net sales from petroleum products, intermediate petrochemicals and resins and plastics increased by 43.88 percent, 44.30 percent and 5.51 percent year-on-year respectively after average selling prices for the three products rose 16.67 percent, 20.4 percent and 9.23 percent.

Operating revenue in the six months rose 22.41 percent year-on-year to 32.91 billion yuan, while operating costs were up 40.65 percent at 33.3 billion yuan.

The company's weighted average cost of crude oil was 5,068.88 yuan per ton in the first half, up 42.88 percent year-on-year, while the total cost of processing crude oil stood at 25.68 billion yuan, up 60.5 percent.

Capital expenditure in the first six months was 416 million yuan, the company said.

During the period, the company received a total of 1.6277 billion yuan in government subsidies as compensation for losses incurred due to the caps on domestic prices and measures taken to stabilize the supply of petroleum products.

The central government started to provide subsidies to its largest shareholder China Petroleum & Chemical Corp (Sinopec) for losses suffered from processing imported crude oil from April 1, as well as value-added tax refunds.

Compared with its parent company Sinopec, Sinopec Shanghai does not have upstream oil and gas operations, and as a result, it is more sensitive to rising crude oil prices.

"The National Development and Reform Commission raised the prices of refined oil products on June 20, but it still can not cover the company's refinery losses," it said.

The loss per share was 0.052 yuan, against earnings per share of 0.244 yuan a year earlier.

Under international accounting standards, the company booked operating revenue of 32.87 billion yuan, up from 26.82 billion a year earlier, with a net loss of 358.08 million, compared to a net profit of 1.79 billion a year earlier.

The company said downstream petrochemical prices declined in line with a recent dip in international crude oil prices, and it has yet to fully dispose of expensive crude oil in transit or in stock.

"It remains to be seen whether China's subsidy policy will change or continue," it said, adding that there is little reason to be optimistic about the operating environment, possibly leading to a bigger loss in the first nine months of the year.

Climate Change and Air Pollution

Authorities intensify environment cleanup push

August 22 (China Daily) -- As China carries out a sustainable development strategy that ties the economy with the environment, the country is putting more emphasis on market instruments and incentives to foster environmental protection and curb emissions.

Over the years, China has developed a relatively comprehensive environmental protection apparatus that largely employs conventional command-and-control policies.

However, the regulatory effort has been fraught with difficulties, particularly the lack of financial resources and independence of the regulatory agencies. Having encountered considerable difficulties with administrative regulation, China has been keen to experiment with other types of regulatory policies.

A shift in policymaking is highlighted in the 11th Five-Year Program (2006-2010) of Environmental Protection, which stresses "complete economic incentive policies in environmental protection" to help China reach its goal of improving environmental quality. China plans to cut its main air and water pollutants by 10 percent from 2006 to 2010.

Eco-economic incentive policies refer to those that create financial incentives for pollution reduction, but do not dictate decisions such as reduction targets or the technology to use.

In other words, eco-economic incentive policies encourage behavioral changes through market signals rather than through administrative directives on pollution levels or reduction methods. Such policies encourage firms to undertake pollution control efforts that are both in their self-interest and which, on aggregate, meet policy goals.

According to the five-year plan, China will introduce a series of eco-economic incentive policies, including pricing natural resources, levying environmental tax, piloting an emission trading system in certain places, giving preferences to renewable energy development and desulfurization in thermal power plants,

limiting polluting manufacturers' ability to raise money from banks and the market, and setting up ecological compensation mechanism in places vital for the ecosystem.

In Taihu Lake basin, which witnessed a poisonous algae outbreak because of heavy industrial emissions last year, the cap-and-trade business of water pollutants has started this year. Listed firms have to submit data about environmental protection. Polluted manufacturers are finding it hard to get loans from banks for dirty projects. They are also urged to buy the so-called green insurance to safeguard against any pollution-related accident.

Just a month ago, the country released its first nationwide ecological function zoning map, offering the basis of ecological compensation.

"Frankly, I don't expect the market instruments to produce a dramatic impact in the short term because any new policy will meet opposition from the local industry and governments," said Pan Yue, vice-minister of environmental protection.

"New policies are just the beginning of a shift in environmental management from administrative orders to market-based instrument. And the ministry will try to set up a long-term, effective system."

Administrative orders are often not cost-efficient. This is because holding all firms to the same pollution reduction target through government regulation can be very costly and hence counterproductive, said Pan.

For example, although technology standards, by stipulating the actual equipment or methods that must be adopted by firms to comply with regulations, are attractive from an administrative perspective, they tend to be the most capital-intensive - a serious drawback in a developing country.

Also, as the costs of reducing pollution vary greatly among firms, the appropriate technology for one firm may not be so for another. So one of the advantages that market instruments offer over administrative orders is cost efficiency.

Economic instruments allow pollution control to be realized at the lowest overall cost to society as firms that can reduce pollution most cheaply

have an incentive to increase such a reduction, Pan said.

Clean-air measures to remain after Games

August 26 (China Daily) -- Some temporary measures brought in to tackle pollution in Beijing during the Olympic Games are set to become permanent, in a bid to address continuing environmental challenges, despite the recent improvement in air quality, an official said Saturday.

The removal and treatment of heavy-polluting vehicles will be accelerated and plans to reduce construction site dust will be stepped up, Du Shaozhong, deputy director of the Beijing environmental protection bureau, told a news conference.

The city will also require heavily-polluting companies to address their pollution problems as a prerequisite to resuming operations after the Games, he said.

"If they can't resolve the pollution problems, they must stop or limit their production," he said.

But Wang Li, deputy director of the city's traffic administrative bureau, told the conference that as of yet there are no plans to continue with the odd-even license plate restriction once the Olympics has finished, despite its success in cutting pollution and calls for the continuation of the measure.

"The rule is closely related to everyone's daily life. We want to hear more public opinion on the whether, or how, to keep the rule," she said.

Bureau figures released Saturday showed that since the opening of the Games on Aug 8, the city's air quality has ranged from between excellent and fairly good on the pollution index, the cleanest for any summer period in the past 10 years.

The average daily air pollution index (API) so far this month was 56, far below 81 reported last year. Major air pollutants on average dropped 40 percent over the same period last year, with nitrogen oxide emissions directly related to

vehicles down by 61 percent, according to the bureau.

Foreign experts have also spoken highly of Beijing's improvement in air quality, such as Ivo Allegrini, head of the air pollution department at the Italian National Research Center, and a member of the Beijing environment protection bureau's 12-member expert panel on air quality assessment during the Games.

"The city's air quality was highly satisfactory during the Games in the past two weeks. Pollutant data were no higher than that in most developed Western urban cities," Allegrini said in an interview Saturday.

Beijing's efforts to tackle air pollution is one of the best examples of how to reduce pollution in a city for important events such as an Olympics, he said.

Another expert, Andreas Wahner, director of the Institutes for Chemistry of Germany, said: "Beijing's air quality control measures have received a remarkable improvement as major pollutant concentration has declined to reach WHO guidance."

However, Du was also realistic about the challenges in the future.

"Although the Olympic Games will end soon, the environmental challenges we face are by no means over."

He has also called for public involvement in pollution control. He said the city would draw experience from the Olympics to organize volunteers to get involved in the daily environment protection administration, and continue to reward those who report illegal pollution activities.

Using the market to cut pollution

August 22 (China Daily) -- As China carries out a sustainable development strategy that ties the economy with the environment, the country is putting more emphasis on market instruments and incentives to foster environmental protection and curb emissions.

Over the years, China has developed a relatively comprehensive environmental protection apparatus that largely employs conventional command-and-control policies.

However, the regulatory effort has been fraught with difficulties, particularly the lack of financial resources and independence of the regulatory agencies. Having encountered considerable difficulties with administrative regulation, China has been keen to experiment with other types of regulatory policies.

A shift in policymaking is highlighted in the 11th Five-Year Plan (2006-10) of Environmental Protection, which stresses "complete economic incentive policies in environmental protection" to help China reach its goal of improving environmental quality. China plans to cut its main air and water pollutants by 10 percent from 2006 to 2010.

Eco-economic incentive policies refer to those that create financial incentives for pollution reduction, but do not dictate decisions such as reduction targets or the technology to use.

In other words, eco-economic incentive policies encourage behavioral changes through market signals rather than through administrative directives on pollution levels or reduction methods. Such policies encourage firms to undertake pollution control efforts that are both in their self-interest and which, on aggregate, meet policy goals.

According to the five-year plan, China will introduce a series of eco-economic incentive policies, including pricing natural resources, levying environmental tax, piloting an emission trading system in certain places, giving preferences to renewable energy development and desulfurization in thermal power plants, limiting polluting manufacturers' ability to raise money from banks and the market, and setting up ecological compensation mechanism in places vital for the ecosystem.

In Taihu Lake basin, which witnessed a poisonous algae outbreak because of heavy industrial emissions last year, the cap-and-trade business of water pollutants has started this year. Listed firms have to submit data about environmental protection. Polluted manufacturers are finding it hard to get loans from banks for dirty projects. They are also

urged to buy the so-called green insurance to safeguard against any pollution-related accident.

Just a month ago, the country released its first nationwide ecological function zoning map, offering the basis of ecological compensation.

"Frankly, I don't expect the market instruments to produce a dramatic impact in the short term because any new policy will meet opposition from the local industry and governments," said Pan Yue, vice-minister of environmental protection.

"New policies are just the beginning of a shift in environmental management from administrative orders to market-based instrument. And the ministry will try to set up a long-term, effective system."

Administrative orders are often not cost-efficient. This is because holding all firms to the same pollution reduction target through government regulation can be very costly and hence counterproductive, said Pan.

For example, although technology standards, by stipulating the actual equipment or methods that must be adopted by firms to comply with regulations, are attractive from an administrative perspective, they tend to be the most capital-intensive - a serious drawback in a developing country.

Also, as the costs of reducing pollution vary greatly among firms, the appropriate technology for one firm may not be so for another. So one of the advantages that market instruments offer over administrative orders is cost efficiency.

Economic instruments allow pollution control to be realized at the lowest overall cost to society as firms that can reduce pollution most cheaply have an incentive to increase such a reduction, Pan said.

Green axe hangs over local officials

August 15 (China Daily) -- About 60 percent provincial and regional government officials' career success depends on their achievements in saving energy and protecting the environment, a top development official said yesterday.

The central government announced last year that local government officials' promotions would depend not only on economic growth, but also on their environmental efforts. Which means they will not be promoted if they fail to achieve their green targets.

Xie Zhenhua, vice-minister of the National Development and Reform Commission, said the progress made since is a "great achievement" despite some local officials' "slow response".

China has vowed to cut its energy consumption per unit of GDP by 20 percent by 2010.

It also vowed to cut pollutant emission by 10 percent during the 11th Five-Year Plan (2006-10).

The central government has told all provinces and autonomous regions to cut their share, taking the 2005 level as the benchmark. So "the local governments' performance is vital to the nation's goal", Xie said.

But the energy saving story is still "grim", Xie said, even though the officials' performances are yet to be assessed. They will be judged on a five-yearly basis.

In 2006, China managed to reduce the use of energy by 1.23 percent, though the target was 4 percent. It reached closer to its target last year, but still fell short by 0.34 percentage points.

The first half of this year saw a reduction of 2.88 percent, only 0.1 percentage point better year-on-year.

Only Beijing has been able to meet its energy saving target in the last two years if we assess the performance on a region-by-region basis.

But Xie still believes the country can meet its five-year goal.

Apart from economic growth and environmental protection, the other criteria to assess officials' performance are energy conservation, implementation of the family planning program and workplace safety rules. Failure to meet any of these targets would cost an official his promotion.

Executives of leading State-owned enterprises (SOE), too, will be judged on the basis of their green performance, Xie said. "We have already

included the top managers of the 154 enterprises directly under the central government in the assessment."

China getting serious on clearing up rural pollution

August 4 (China Daily) -- When the central government announced plans to conduct China's first rural pollution survey last December, some took it as a sign that the authorities were serious about tackling the serious issue.

And a first-ever State Council meeting on environmental protection in the countryside two weeks ago carried more significance.

Within a mere 10 months, the world's most populous country, where more than half of its registered residents are from the countryside, has gone from drafting a point of reference for reducing rural pollution - the results of which will be published at the end of this year - to elevating environmental protection in rural areas to a strategic position at top levels.

Pollution control in rural China hasn't been easy.

Millions of rural Chinese still have no access to clean drinking water and pollution is the culprit for 90 million of them. Add that to the growing amount of sewage waste throughout the countryside even in face of a deteriorating labor force and diminishing population.

According to Vice-Minister of Environment Protection Wu Xiaoqing, 280 million tons of household garbage, 9 billion tons of domestic sewage and 260 million tons of human excrement were generated - and mostly dispersed on site or at will - per year.

Nonpoint source pollution is also a growing danger. As the world's biggest fertilizer and pesticide user, the country's 30 percent use of these manure and chemicals (as compared to 60 percent in developed countries) means that much is swept away by runoff, causing eutrophication of surface water (such as the algae choking Dianchi Lake, Taihu Lake and Chaohu Lake) or polluting underground water systems.

Pollution from livestock breeding is also a huge problem. While 2.7 billion tons of livestock excrement was generated annually, only 20 percent of rural breeding farms had adequate (if any) pollution treatment facilities. In some regions, Wu noted that pollution from livestock breeding had become an important factor behind the deterioration of water sources.

A complete picture of the status quo of China's rural environment is all that and more, including the soaring pollution caused by dispersed rural factories and mines and the exploitative development that has long jeopardized ecology.

A document jointly issued by the former State Environmental Protection Administration (SEPA) and seven other government departments last December pledged to ensure the quality of all drinking water sources by 2010.

In a harbinger to the State Council meeting earlier this month, the document also promised to increase the use of soil testing, boost the volume of waste materials by at least 10 percent, and provide access to sanitary toilets for 65 percent of rural residents.

This document has facilitated the ever-expansive financial, technological and human assistance needed throughout each level of government in order to encourage reforestation, recycling and green farming.

The effort takes on a distinctively local flavor around the country. China's southernmost island province of Hainan, for example, piloted in 1996 and officially introduced in 2001 a program aimed at transforming its rural areas.

Among other qualifications, villages that have paved roads, a forestation rate of 60 percent or more, designated personnel for sewage treatment and use alternative energy are designated as "ecological civilization villages", and granted handsome subsidies for future project-specific environment protection efforts. More than a third of the island's villages now carry the honor.

"The aim is to combine economic development with improvements to the environment. We are doing this by encouraging tropical agriculture and the courtyard economy," Hainan Governor Luo Baoming says.

But the road ahead calls for more strenuous efforts.

The central government has already boosted investment in the countryside. Last year's 420 billion yuan was a record-high increase of 80 billion yuan from 2006.

And yet, experts have said still more money must go to the rural areas, if the country is to achieve its bold goal announced two weeks ago.

To realize a 10 percent rise in the treatment of sewage and consumer waste, and a similar increase for the livestock and poultry waste utilization rate by 2010 will take much more than words.

With barely 16 months away, the government should also introduce tax and credit incentives to encourage more private enterprises to get involved in the rural environmental protection market, Wang Shaojie, vice-chairman of the China Democratic National Construction Association, earlier said.

Additionally, policymakers such as Lu Ming, deputy head of the countryside affairs committee of the National People's Congress, have argued that the major obstacle to rural water management - and rural environment protection as well - is that despite the fact that several ministries and the Department of Environment Protection each allocates funds to individual projects, no single body is directly responsible for the whole.

"There should be one special department to coordinate the issue," Lu says.

China's environment watchdog expands

August 5 (Xinhua) -- BEIJING -- The Ministry of Environmental Protection (MEP) has expanded, with three new departments.

These are the Department for Control of Pollutant Discharge, the Environment Monitoring Department, and the Department of Publicity and Education.

"The reshuffle is conducive to the historic improvement of environmental protection," said

Zhou Shengxian, minister of the MEP, at the ministry's mobilization meeting on July 25.

"We would aim to strengthen our roles in coordination, policy-making, law-enforcement, and public service," Zhou added.

The expansion was approved by the State Council on July 10 and the MEP announced the results last Friday.

"The approval of our re-arrangement reflected the central government's greater concern about the environmental protection," said Zhou.

The move highlighted the ministry's duties to prevent pollution at its source, react to environmental incidents and reduce emission.

The expansion also clarified the MEP's role in prevention and control of water pollution.

The expanded ministry now has 14 bodies under its name while its personnel remained unchanged.

The MEP was established on March 27 this year. It developed from the previous State Environmental Protection Administration (SEPA).

Coal's future is safe, but climate's not so certain

August 6 (China Daily) -- Does coal have a future? Climate change protesters and coal traders alike say it's a daft question, but agreement ends there.

For protesters, the shiny black lumps of fossilized wood and plants are contributing to drastic climate change. For traders, coal is an energy no-brainer which offers a ray of hope for 1.6 billion people living without electricity.

They're probably both right.

By mid-century, the world may have an extra 3 billion people and four times the wealth but somehow it must also at least halve carbon emissions from its main energy source - fossil fuels - to rein in dangerous global warming, scientists say.

Power generation accounts for about two-fifths of global emissions, from burning fossil fuels, of the main man-made greenhouse gas, carbon dioxide, and coal for most of that.

"You've got to say - 'Right, here's the line in the sand, we're going to stop it here because it's madness to continue'," said Connor O'Brien, spokesman for protesters against a proposed new coal-fired power station in southern England, which would be Britain's first for nearly 30 years.

The Camp for Climate Action in Kingsnorth, Kent, has so far recruited about 600 people, organizers say, and joins four similar protests worldwide this year, targeting the coal industry in Australia, Germany and North America.

The Kent camp protesters aim to try and shut on Saturday the existing coal-fired power station which is slated for replacement, owned by the UK arm of German utility E.ON.

Despite environmentalists' concerns, energy companies say they are racing to meet demand for coal, especially in developing countries where the fuel is cheap and plentiful even in a year where coal price rises have outstripped those of oil.

"It doesn't paint a very good picture of the future for carbon emissions but there is no other real choice - coal is one of the few fuel sources which has a real capacity to expand," said Francisco Blanch, head of global commodities research at Merrill Lynch.

Meanwhile, industrialized nations want to avoid over-dependence on imported, cleaner gas, given security of supply concerns. Ukraine is a case in point, now switching to domestic coal after neighboring Russia halted gas supplies in a price dispute two years ago.

Future

Dilemmas of choice, to balance competing benefits and tradeoffs, have left the world's energy future wide open.

Nuclear, for example, is hemmed in by public opposition in much of the developed world, while developing countries may be geologically unstable, or else, like India, face a political leap to sign a non-proliferation treaty which grants access to imported uranium.

Wind farms are growing rapidly but grid connection poses an extra expense, while in poorer nations antiquated networks struggle to handle the volatile power source. Solar power is booming, but only provides a tiny fraction of all power.

Environmentalists stress the benefits of renewable energy, which is often more expensive than oil and coal, in saved fuel and avoided climate change, and have won some battles.