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CHINA COMMERCIAL INTELLIGENCE: *China Insight for China Strategy*

CHINA NEW ENERGY INTERNATIONAL FORUM

EVENT BRIEFING

This briefing is brought to you by *Interfax-China* and China New Energy Chamber of Commerce to help provide additional perspective on the topics covered in event speeches. The China New Energy International Forum will be held on December 11-12 at Wuxi, China.

Articles are selected from the *Interfax-China* China Energy Weekly Monitor, which is a weekly news report keeping senior executives informed of important events within China's energy sector. To receive a free trial of this exclusive publication please contact Jasmine Xiao of Interfax China or visit us on the web at www.interfax.cn

POLICY – TARGETS

Renewable energy projects will account for 15 percent of China's total energy consumption by 2020, according to a new plan for the development of the country's renewable energy sector released by the National Development and Reform Commission.

According to the plan, China will have 300,000 megawatts of hydropower generation capacity, 30,000 MW of wind power generation capacity, 30,000 MW of biomass power generation capacity, and 1,800 MW of solar power generation capacity by 2020.

China also aims to replace 10 million tons of petroleum with biomass and produce 50 million tons of bio-fuels.

The government will take measures such as compulsory market share, preferential electricity prices, financial support, and tax holidays to support the development of the renewable energy industry.

However, it remains technically difficult to fix the electricity price for wind power projects, NDRC Deputy Director, Chen Deming, said during the press conference yesterday.

Chen explained that wind volume and velocity varies from time to time, which makes it impossible to set accurate electricity prices for wind power projects.

The government will take environmental factors into consideration when setting electricity prices, but will not fully ease control over electricity pricing, Chen said.

"If we fully ease controls, we may see more new coal-fired power projects and less wind and solar power projects," Chen noted.

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FINANCIAL INCENTIVES FOR RENEWABLE ENERGY DEVELOPMENT

China's National Development and Reform Commission (NDRC) released a circular on Sept. 30 detailing how subsidies will be provided to a number of power projects that utilize renewable energy.

Building on regulations announced last year that specified that renewable energy power projects are to receive subsidies from provincial power grid companies, the circular details how such subsidies are to be provided to 38 specific renewable energy power projects. Industry experts believe the subsidies will greatly benefit investors involved in the sector.

According the circular, 31 wind power projects with a combined installed capacity of 1,330.15 megawatts will receive RMB 226.62 million ($30.14 million) in total subsidies. At the same time, 6 biomass power projects with a combined

installed capacity of 84 megawatts will receive RMB 24.74 million ($3.29 million), and a 0.10-megawatt photovoltaic power project in Tibet will receive RMB 100,000 ($13,297).

When provincial power grid companies are unable to provide such subsidies, the new measures allows them to sell an approved quota of electricity to other provinces. Money gained from such sales is to be used to build up capital that can then be channeled back to subsidize local renewable energy power projects.

Under the circular, prices for electricity produced by existing renewable energy power projects are to be settled by provincial grid companies and the respective renewable energy power projects by Oct. 10.

China's Renewable Energy Law, as well as a number associated regulations, came into effect at the beginning of 2006. As one of the key features of the law, renewable energy power projects are to be provided with subsidies generated from electricity sales. Until the release of this subsidy though, there was no guide for how or to what extent such subsidies should be provided.

Meng Xiangan, the secretary general of the China Renewable Energy Society (CRES), told Interfax that the development of the renewable energy industry is still in the early stages in China, and that the government is still implementing various regulations designed to gradually improve the development environment for the industry.

In regards to the country's solar power industry, Meng noted that "90 percent of all raw material used by the industry is imported, while 70 percent of all products are exported. We are simply a processor within the industry, and unless a large domestic market emerges, the domestic industry's development will be hindered."

"It is important to push forward the construction of a domestic market, and to attract more investors, including large state-owned companies and private and foreign inventors," Meng added.

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SOLAR POWER

PV cell industry

China's photovoltaic cell output will surpass 1,000 megawatts by 2010, making the country the world's largest producer, according to the China Renewable Energy Industrial Report 2006 released recently by the New Energy Chamber of Commerce.

According to the report, China's production capacity of silicon wafers reached 200 megawatts, solar cells 243 megawatts and photovoltaic modules 400 megawatts by the end of 2005.

The report said that the development of the industrial chain in China's photovoltaic industry is imbalanced, which means that the production capacity of upstream sectors including silicon wafers is too small, while that of downstream sectors, including module packaging, is too large.

Quite a few companies have invested in silicon production, which is expected to see significant increases in capacity by around 2008.

Meng Xiangan, the secretary of China Solar Energy Association, told Interfax that China's photovoltaic manufacturing industry was suffering from overcapacity because China's photovoltaic market was not big enough to consume the products. The companies will continue to rely largely on foreign markets.

Meng said that more on-grid projects, rather than independent photovoltaic systems, should be built to improve profitability.

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Domestic solar power development

The price consumers pay for solar-produced electricity should be increased and be subject to government subsidies in order to encourage the development of the country's solar energy, a senior official with a Chinese solar energy association told Interfax.

Shi Dinghuan, the president of the Chinese Solar Energy Society (CSES), said at the ISES Solar World Congress 2007, organized by International Solar Energy Society (ISES) and CSES, that the on-grid price for solar power should be 10 times higher than that for thermally produced power.

Since China published its Law of Renewable Energy in January last year, on-grid solar power prices have become one of the biggest concerns for businesses involved in the industry. The law says that the price of solar power-produced electricity should be set by the government, though it does not specify what the price should be.

"The lack of preferential policies that are designed to support the solar power industry has led to the current situation where solar power accounts for only a small proportion of the country's overall installed power generation capacity," Shi said.

According to the 2007 Energy Development Report of China that was issued by the China Social Sciences Academy in June, China has around 1.09 million megawatts in potential solar power reserves, but less than 1 percent of its reserves have been tapped.

The report also found that costs associated with hydropower and wind power are 1.2 and 1.7 times higher than those associated with coal power respectively, while solar power costs between 11 and 18 times more than coal power.

According to Shi, the high research and development costs associated with solar power have hindered many companies from entering into the industry.

"As China has no preferential pricing system for solar power, over 90 percent of all 300-MW solar photovoltaic (PV) cells produced in the country last year were exported to overseas markets," Shi added.

Shi also said that the country is trying to encourage foreign investment in its solar power industry, and that foreign enterprises are able to both invest directly or set up joint venture in the country's solar power industry. Currently, only 8 percent of investment from abroad occurs in China 担 renewable energy industry.

Shi noted that China is currently working to develop clean energy technology and systems in order to save coal resources and reduce pollution. The country aims to bring its total wind power generation capacity up to 300,000 MW and its hydropower capacity up to 30,000 MW by the end of 2020. By that time, the country's total solar power generation capacity is expected to have reached 1,800 MW.

In last year alone, hydropower and solar power saved 150 million and 50 million tons of coal equivalent in China respectively, Shi said.

BIOMASS-BASED ENERGY DEVELOPMENT

Biomass power

China's biomass power plants are expected to record profits in three year's time though currently, are only managing to strike balance in cost and economic return, said an official with the country's leading biomass-based power producer told Interfax.

With core technologies sourced from Denmark, the global leader in electricity powered from biomass materials, the National Bio Energy Corp., a subsidiary under China's State Grid, was assigned by the State Council to carry out pioneer work in the field. Now, the company has 30 such projects under construction with six of them already producing electricity, according to Zhang Yanru, project manager of the company's science and technology department.

The company aims to have around 2,050 megawatts or 2.05 gigawatts (GW) of installed capacity of biomass power projects under construction and in operation by 2010, Zhang added.

As the raw materials of the projects are mostly corn straws, the cost of power production varies according to the quality of straws in different regions and seasons, but on average, it costs around RMB 0.5 ($0.067) to produce each kilowatt hour of electricity. Even with the RMB 0.25 ($0.033) subsidy from the government, the on-grid tariff such power plants get from the grid operators can still hardly cover the costs, she said.

As biomass power generation technologies progress and rising awareness of farmers to keep such straws in good quality, Zhang said she is positive that the biomass power plants will be able turn a profit in three years.

According to China's renewable energy development targets, biomass power will grow almost three-fold to reach 5.5 GW in 2010 from 2 GW in 2005, and 15 times as much by 2020, to 30 GW.

China produces 600 million tons of rural straw annually, around 300 million tons of which can be used as energy, which is equivalent to about 150 million tons of standard coal. However, the country is still lacking an efficient system to collect the material from dispersed farmers. In the meanwhile, farmers are still lacking awareness that straws should be kept in good quality and turned in to the power plants.

The National Bio Energy Corp. started three pilot biomass power projects in Shan county of Shandong Province, Suqian in Jiangsu Province and the Wei county in Hebei Province from 2003 and signed an agreement with the Danish Ministry of Foreign Affairs to sell the emission reduction credits from the projects from 2007 to 2012.

In addition to the company, the country's power producers such as Guodian Group, are all actively constructing biomass-based power plants, mostly in the provinces of Shandong, Jilin, Jiangsu, Henan, Heilongjiang and Liaoning.

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Biomass Fuel

China's Ministry of Finance has finalized a subsidy plan for farmers and firms involved in planting feedstock for the domestic biofuel industry, which will be implemented early next year, a senior official with the ministry's tax department said at the Next Biofuels Technologies forum.

Firms who plant crops for biofuel on land not intended for food will be subsidized RMB 200 ($26.9) per mu ($403.5 per hectare) a year, while such crops grown in forested areas will receive RMB 180 ($24) per mu ($360 per hectare), said Liu Yonglu, deputy director of the Ministry of Finance 担 Tax Department.

The stipulation that the subsidy will only go to biofuel crops on land not intended for food crops is meant to reduce the risk of reducing China's food production capabilities in order to serve the biofuel industry.

Such subsidies would also only go to producers that have guaranteed that end users of the crops are biodiesel and fuel ethanol producers. There is no restriction on the properties of the producers, which could also include foreign enterprises, Liu added.
Major domestically-produced non-grain feedstock for fuel ethanol in China includes sweet sorghum, sweet potato and cassava, while jatropha curcas and physic nut are being planted as feedstock for biodiesel.

The move is the latest gesture from the Chinese government in its efforts to promote the biofuel industry, which will help offset over-dependency on fossil fuels and associated environmental damage. However, after a larger-than-expected amount of corn, a common feedstock for fuel ethanol, was supplied to the profitable deep processing industrial sector last year, the government implemented policies that would encourage only projects that use non-grain products.

According to China's Renewable Energy Mid- and Long-Term Plan released last month, China aims to eventually replace 10 million tons of fossil fuel with biomass, and produce 10 million tons of non-grain ethanol fuel annually.

As the third-largest ethanol fuel producer and consumer after the United States and Brazil, China's annual ethanol fuel output is currently around 1.02 million tons, of which 800,000 tons are processed from corn. Only four enterprises in the country are approved by the government to use grains to process ethanol.

China will focus on the construction of several sweet sorghum-based ethanol projects in Shandong Province and other northeastern areas, as well as constructing a number of sweet potato-based projects in southern China by 2010.

The country plans to have biofuel account for 15 percent of the country's total transportation fuel consumption by 2020.

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WIND POWER DEVELOPMENT

Wind power equipment manufacturing

China will implement further policies to encourage the development of the country's wind power equipment manufacturing industry in the near future.

At present, China is lacking the capacity to manufacture mid and large-scale wind power generation units, with domestic companies holding few industry related intellectual property rights and are yet to master core wind power unit technologies.

For these reasons, the National Development and Reform Commission and the Ministry of Finance have recently been developing new policies that will give financial support to domestic producers of wind power equipment and spare parts

that hold intellectual property rights, Wang Zhongying, director of the NDRC's Renewable Energy Development Center, was cited by the China Industry News as saying.

"In 2006, 60 percent of all wind power equipment in use in China was imported from overseas. Such equipment is expensive, as equipment prices have soared in recent years on the international market," Qin Haiyan, secretary-general of the China Wind Energy Association, said.

"The cost to build a wind power plant in China is currently between RMB 9 million ($1.81 million) and RMB 10 million ($1.31 million) per megawatt, and only three domestic companies are able to mass produce equipment with individual capacity of more than 1.5 MW," Qin explained.

Nevertheless, China is rich in wind power resources with room for more growth. The country plans to expand its total wind power generation capacity to 4,000 MW by 2010, and to reach 10,000 MW of capacity by 2015, according to the NDRC's Wind Power Development Plan.

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Wind Power Pricing:

Chinese authorities will use a new system to assess feed-in tariffs for wind farm projects submitted for the upcoming round of bidding for wind farm development rights, an official with an industry association told Interfax.

At present, all wind farm projects proposed for development in China with a potential installed capacity of more than 50 megawatts must go through a public bidding process. Organized by the National Development and Reform Commission (NDRC), bidding is used to select which company will develop each proposed project.

Shi Pengfei, vice president of the Chinese Wind Energy Association, said at the Wind Power Shanghai 2007 conference that the next round of bidding for new wind farm projects will start at the end of this month, and that four projects with a total potential installed capacity of 950 megawatts will be up for grabs. The upcoming round is the fifth such round of bidding to be conducted in China.

According to Shi, the most successful bidders under the new system will be those who propose a feed-in tariff closest to the average feed-in tariff for all other bids in the pool.

When the country's first and second rounds of bidding for such projects were conducted, the government chose the winning bids solely on their proposed on-grid tariffs. The system was changed for both the third and fourth rounds, with the importance of on-grid tariffs declining, to become weighted at 40 percent and 25 percent respectively, Shi explained.

During these third and fourth rounds, bidders who quoted the lowest on-grid tariffs in each pool were still the most likely to achieve success, Shi said.

Wind power developers and industry experts have argued that low on-grid tariffs for wind farms means that they cannot ensure profits, and as a result, it is difficult to attract further investment into the industry.

Shi said that the government had decided to reform the bid assessment system for this very reason, and that it hopes it will help to discourage low on-grid tariffs for wind farms.

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Wind Farm Development

China's first large-scale wind power plant, the largest the country has seen, began operation in June in the county of Rudong in Jiangsu Province, China Longyuan Electric Power Group, the investor and operator of the project announced

The plant, which is located along the coast, uses advanced wind power technology, and has a total of 67 wind power generation units, each 120 meters high.

It is the largest wind power project in China, with a total wind power generation installed capacity of 100 megawatts. Each generator's capacity is at least 0.6 megawatts, according to People 担 Daily.

"The electricity output of the power plant will reach 2.5 million megawatt hours per year, saving 300,000 tons of coal, and it will reduce carbon dioxide emissions by 200,000 tons annually," Xie Changjun, general manager of Longyuan Power, was cited as saying by state-backed CCTV news.

The wind power project is included in Kyoto Protocol. A French company that preferred to remain anonymous will buy 200,000 tons of carbon credits for 2 million euros ($2.676 million) per year. The plant's income from this sale of credits is expected to hit 11.84 million euros ($15.842 million) by 2012.

The sale of carbon credits allow companies that emit excessive levels of greenhouse gasses to still adhere to emissions regulations by buying "credits," which are allowances to emit a certain amount of greenhouse gasses, from renewable energy projects in developing countries that do not have emissions quotas.

Longyuan Power won the tender for construction of the project in 2004, and started construction in 2005.

"We had planned to construct 5,000 MW of wind power generation units by 2010 across China, but the wind power industry has been developing so fast in recent years that we may reach 10,000 MW," Zhang Baoguo, the vice director of the NDRC, said.

Most of China's large-scale wind power generation facilities are imported from overseas, since most China manufacturing companies are only able to produce small wind power generators with installed capacities of less than 0.75 MW.

The industry has been growing so fast around the world that some purchase orders for large-scale wind power facilities cannot be filled until 2009.

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China Longyuan becomes first Chinese company to attain wind power capacity of over 1,000 MW

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RENEWABLE ENERGY AND CDM

Renewable energy projects are likely to lead China's next round of Clean Development Mechanism (CDM) bids as low cost but less sustainable investment in energy efficiency and cutting hydrofluorocarbon emissions has lost favor with the Chinese government, industry insiders told Interfax.

However, renewable projects are facing difficulties with registration with the United Nations, the final essential step in making the credits tradable on the international market. Many projects lack proven methodologies that explain how they have met the strict standards required to be included on the CDM list, a lawyer with a British law firm specializing in CDM application told Interfax.

According to the Kyoto Protocol that came into force in 2005, companies in Europe, Japan, Canada and other countries that signed the agreement must meet greenhouse gas emission targets by implementing measures domestically, by buying European Union Allowance (EUA) credits from Europe, or by funding CDM projects in developing countries such as China and India to obtain Carbon Emission Reduction (CER) credits in order to offset over-quota emissions in their own countries.

Such carbon credits, representing carbon prevented from being released, can also be traded on the global market, such as the European exchange, starting from next year.

The penalty for non-compliance and the cost of carbon dioxide reduction are far higher than the expense of carbon credits. While non-compliant companies in the first phase, which is the year 2007, are penalized EUR 40 ($54.97) per ton of carbon dioxide, non-compliant companies in the second phase, covering 2008 to 2012, must pay EUR 100 ($137.42) per ton. In comparison, companies that buy EUA credits pay an average of EUR 20 ($27.48) per ton, while companies that fund projects in "developing countries" generally pay 20 percent to 30 percent less than if they were to buy credits in Europe.

According to the Kyoto Protocol rules, companies must show that they are making every effort to cut domestic emissions before funding foreign projects.

Because of this new scheme, a carbon credit industry has rapidly emerged, which involves not only companies eager to minimize the cost of compliance but also financial institutions that, speculating that future credit prices will rise, buy credits now so as to sell them for a profit later.

The carbon trading market tripled last year to $30 billion, according to the World Bank. Trading volume is expected to double this year and double again in 2008. Market insiders expect the world credit market to grow to $250 billion by 2010.

In the global CDM scene, India leads the seller market with a 34.77 percent share in terms of registered projects. Following Brazil, China comes in third with 13.61 percent.

While potentially holding 42.71 percent of global carbon credits, China is a latecomer to the carbon trading business due to previous lack of commitment from the government, represented by a long one-year approval period for such transactions, according to Peter Corne, managing director of Eversheds LLP's Shanghai office.

"Economic conditions of a country can undergo significant changes within a year, so it turned potential investors away from China to countries like India, which went ahead with the CDM program as soon as it was enforced," Corne said.

But now the Chinese government is much more encouraging of foreign investors in the CDM industry and has shortened the approval period to three months, though foreign partners can still hold a minority stake of up to 49 percent in such projects, Corne added.

After getting the go-ahead from the Chinese government, project operators still need to go to a third-party agency, called Designated Operational Entities, which are either a legal entity or an accredited international organization, in order to be registered with the United Nations.

As of July 13, China had approved a total of 601 projects with 94 being successfully registered with the U.N. and 13 that have been issued CER credits.

China's early CDM projects are mostly focused on equipping the country's old power plants with newer technology in order to help them increase energy efficiency. This kind of project had low costs, since companies were dealing with

outdated technologies. Later, investment flooded into projects that involved cutting hydrofluorocarbon (HFC) emissions, due to the huge amount of credits that can be generated from such projects.

The Chinese government has tried to curb speculative investment in CDM projects and instead encourages more sustainable development by imposing rules in which the government obtains a 65 percent share in revenues of HFC projects while leaving those for renewable energy projects at only 2 percent.

This policy offers great incentives for foreign investment in renewable energy projects including wind, hydro and biomass. A representative with a European bank who wished to remain anonymous also said that the representative's company is starting projects on liquefied natural gas using new methodologies.

When asked whether it is probable that a carbon credit trading exchange will be established in Beijing in the foreseeable future, Eversheds LLP's Corne said he does not expect to see such an exchange in China for at least five years, due to the still unstable carbon market and the uncertainties that cloud the future of CDM after 2012, when the current protocol expires.

The United States and China, the world's two largest emitters, have been urged by the international community to commit to emission quotas in future protocols.

China, which as a "developing country", is currently not bound to emission targets and has pledged to reduce emissions by about 16 percent over the next five years by using more hydro, wind and biomass power as well as boosting nuclear generation and making coal power stations more efficient. However, the country still resists mandatory quotas.

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British company to purchase emission credits from Chinese wind farms

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Contact

CNECC

Cliff Liu

Tel: 86 (10) 63107433

liuqingzheng@cnecc.org.cn

Interfax China

Jasmine Xiao

Tel: 86 (21) 5239 8839

jasmine@interfax.cn