The TRADE COUNCIL OF DENMARK, BEIJING, CHINA

CHINA WIND POWER NEWSLETTER

August 2010

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Editor's word:

This summer we have been suffering more effects of climate changing. It has been historically warm for most countries in North. Floods take place in many countries including China. Forest fires seem never end in Russia and the ash capped Moscow for days. And don't forget, we need years to digest the leaking oil in Gulf of Mexico.

Over-industrialization and endless need of energy is the main challenge human kind has to face. Hopefully the development of renewable energies will lead to a solution for this planet before it is too late. And wind power should contribute as much as it could.

Subscription:

The price for half a year's reading is DKK 2,700. Please email Liang Wanliang (wanlia@um.dk) for subscription.

Members of DWEGC (Danish Wind Energy Group China) will receive the newsletters of 2010 directly from Angela Zhang, since Danish Export Association has reached a group subscription agreement with Danish embassy in Beijing.

DANISH WIND ENERGY GROUP CHINA

Sino-Denmark Government Cooperative Wind Energy Development Programme

Recently, the Danish Minister for the Environment Mrs. Karen Ellemann and director of New/Renewable Energy Department of China National Energy Administration Mr. Liang Zhipeng attended the results releasing ceremony of Sino-Denmark Government Cooperative Wind Energy Development (WED) Programme held at Shanghai World Expo State Grid Pavilion. At the ceremony, they jointly announced the successful completion of the 3-year WED project and its great achievements in China.

Minister Karen Ellemann at State Grid Pavilion

The Sino-Denmark WED programme is the first special research project focusing on wind power development cooperated by Chinese and foreign governments. The programme has introduced Danish leading technology and related management experience to Chinese wind power industry. It creates advanced wind power development and management patterns in line with China's national conditions and obtains rich achievements.

WED
中丹风能发展项目

China and Denmark have become cooperative partners in wind power field since 2005. The two governments then initiated the renewable energy technical project ——Sino-Denmark wind energy development programme the following year. The steering committee consisted of NEA (National Energy Administration), Ministry of Commerce and Danish Embassy. A project office affiliated to National Development and Reform Committee was in charge of the project's coordination, management and supervision.

WED programme consists of the following four sub projects:

Project 1	***Project 2***
China Meteorological Administration cooperates with Danish RISØ Lab to carry out evaluation of wind resource and promote the methods around the nation.	WED has organized a series of training classes, seminars and propagandas to promote the spread of technology and knowledge.
Project 3	***Project 4***
To satisfy the demand of developing large-scale wind farms, WED assisted China Hydropower Engineering Consulting Group Co. (CHECC) to develop a standard template for wind farm feasibility study report in line with China's national conditions and make promotion.	Grid connection of wind power has been a problem for China for a long time. WED supported China Electric Power Research Institute (CEPRI) to revise the existing guide rules for wind power grid connection and upgrade it to the national standard.

WED Award Ceremony for wind power knowledge contest

Mr. Liang Zhipeng at the ceremony

Mrs. Karen Ellemann at the ceremony

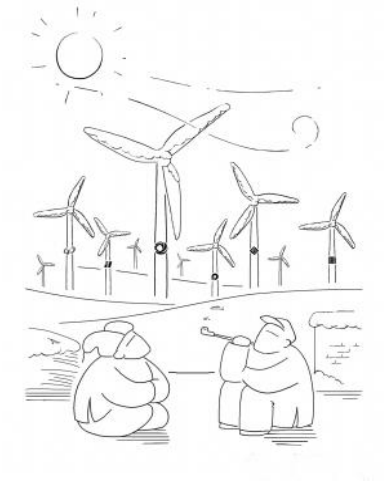
On 26th June, WED held the award ceremony for *entering the campus——wind power knowledge contest*. This event was hosted by WED and aimed at encouraging more young talents to engage in the green wind power industry. A lot of primary and secondary schools as well as colleges and universities in Beijing, Jilin, Liaoning and Inner Mongolia took part in it.

The Danish Minister for Environment, Mrs. Karen Ellemann stated, in future Denmark would support the development of China's renewable energy industry as always.

The director of New and Renewable Energy Department of National Energy Administration, Mr. Liang Zhipeng said, WED could provide reference to not only China's wind power development, but also energy conservation and emission reduction, the industry's personnel cultivation and the confronting work of global climate change.

Nowadays China's renewable energy industry is facing new challenges. To consolidate and amplify WED's achievements and guarantee the industry's long-term and sustainable development, China and Denmark have started the new RED (Renewable Energy Development) Programme in February 2010.

Kick-off meeting of RED Programme

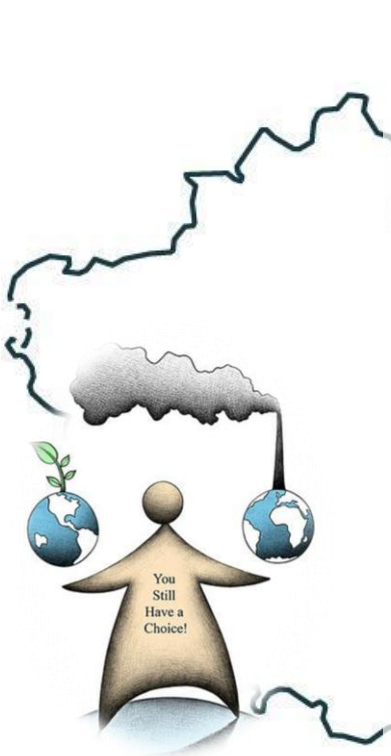


WIND POWER WILL GROW INTO

the 3rd largest conventional energy source

At the moment China has begun to formulate its Twelfth Five-Year Plan energy development program as well as to revise the nuclear energy development plan. A series of major policies on new energy are expected to be released and a strategic plan of new industry will carry out within this year.

By the end of 2009, China's annual renewable energy sources have reached a total number of 268 million tons of standard coal equivalent and taken up 9 percent of the primary energy consumption, increasing by 2 percent compared with the 7 percent of 2005. Hydropower occupies about 200 million tons and others like wind power, solar energy and biomass takes up the rest 70 million.



Mr. Gao Hu

Deputy Director of the National Development and Reform Committee (NDRC) Energy Research Institute Renewable Energy Development Center

In 2020 wind energy would become the third largest conventional source after thermal power and hydropower. China has further raised the planning objective to be a minimum 150 GW and will strive for 200 GW. It is also planned to construct offshore wind power plants in southeast coastal areas. Furthermore, installed capacity of wind power is expected to reach 300 and 500 GW separately by the year 2030 and 2050. Wind power will occupy above 20% of China's total capacity and 10% of China's electricity output.

However, grid connection of renewable energies especially wind power will still be a major challenge during the Twelfth Five-Year Plan.

State Grid Launched Pilot Projects on Storage and Transmission of Wind & Solar Power

State Grid recently revealed its grid-connected wind power capacity has been multiplying for four consecutive years and reached a total number of 12.44 GW by the end of 2009. At present, State Grid has established National Energy Large-scale Wind Power Grid Connection R&D/Test Centre and Solar Energy Generation R&D Centre, for the purpose of conducting grid connection research and pilot project construction for renewable energies.

According to the *National Smart Grid Standards Plan* which was issued on June 29th, State Grid has divided the construction of strong smart grid into three stages.

Year 2009 to 2010 is the pilot phase during which the main tasks would be programming, research and conducting pilot projects. Year 2011 to 2015 is the comprehensive construction phase. R&D on key technology and equipments would be further advanced basing on the prior stage's achievements. Formation of a complete technology standards system and preliminary completion of smart grid would also be important issues for this phase. Year 2016 to 2020 will be an upgrading phase. A strong smart grid would come into being by 2020.

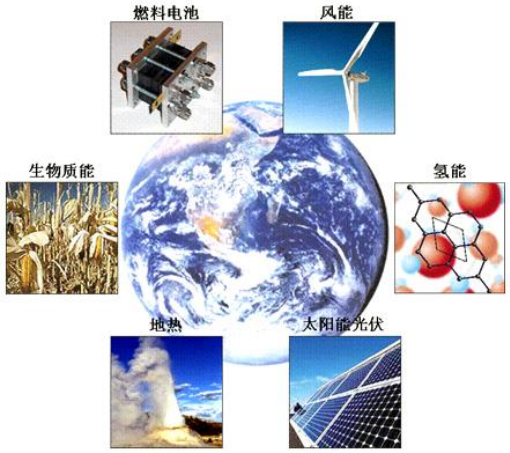
View of Smart Grid

Mr. Zheng Baosen

Deputy General Manager of State Grid

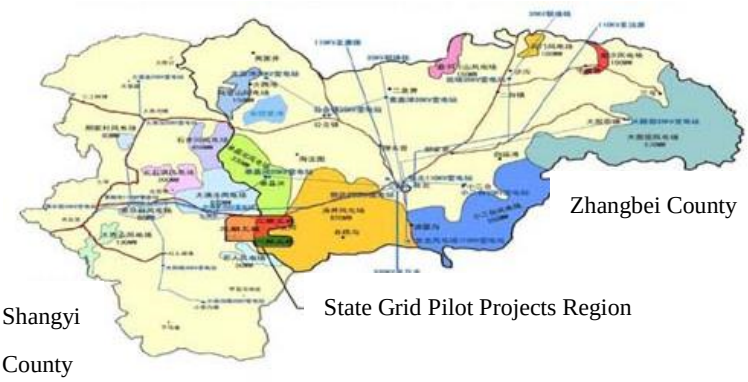
Up to now State Grid has already completed planning for national smart grid and made breakthroughs in key techniques. They have initiated a number of pilot projects covering key areas such as new energy, electric vehicles and fiber-to-the-home. The first smart grid pilot project is Shanghai Expo Site which has been put into operation and the second one in Tianjin Eco-city is under construction.

GOVENMENT: POLICY, PLAN AND ACTIONS



Wind and solar powers are called green power for their advantages in renewability, pollution-free and vast reverse. However, they also challenge the grid for discontinuity, randomness and low schedulability. In State Grid Pavilion of Shanghai Expo, the pilot project on storage and transmission of wind & solar power is displayed. The project can realize an effective use by predicting and controlling the power output, matching up with energy storing devices.

State Grid and Hebei province have reached an agreement to construct this pilot project in Zhangbei County and Shangyi County in Zhangjiakou city. The construction scale is 500 MW of wind power, 100 MW of solar power and 110 MW of energy storage. The construction will be conducted in three phases and its total investment is RMB 12 billion. The one displayed in Shanghai Expo is phase Ⅰ which includes wind power of 100 MW, photovoltaic power of 50 MW and energy storage of 20 MW.



Location Map of State Grid Pilot Project

Aerial View of Zhangbei Pilot Project

Shanghai Electric Power Design Institute affiliated to Shanghai Municipal Electric Power Company has won the bidding for the design work of the pilot project on storage and transmission of wind & solar power.

Shenyang CCWE (China Creative Wind Energy) defeated other wind turbine manufactures and won the bidding for wind turbines supplying of phase Ⅰ of the pilot project on storage and transmission of wind & solar power.

Luoyang Bearing Group (LYC) is the bearing supplier for wind turbines of the pilot project on storage and transmission of wind & solar power.

龙源电力集团股份有限公司
CHINA LONGYUAN POWER GROUP CORPORATION LIMITED

ZPMC 上海振华重工（集团）股份有限公司
Shanghai Zhenhua Heavy Industry Co.Ltd

Longyuan Zhenhua Ocean Engineering Co., Ltd.

Jiangsu Longyuan Zhenhua Ocean Engineering Co. Ltd. held the opening ceremony in Nantong Development Zone. It marked the two state-owned companies, Longyuan Power and Zhenhua Heavy Industry started to collaborate in building a first-class offshore wind power enterprise in Nantong City, Jiangsu Province.

Opening Ceremony of Longyuan Zhenhua

Longyuan Power is a subsidiary focusing on renewable energy resources of China Guodian Group. It now ranks first in Asia and fifth in the world in wind farm development. Zhenhua Heavy Industry is the world's biggest harbour machinery and large-scale steel structure manufacturer.

Longyuan Zhenhua is jointly invested by Longyuan Power and Zhenhua Heavy Industry. Each one holds 50% shares. Its registered capital is RMB 300 million. The company deals mainly in manufacturer, installation and maintenance of steel structure, offshore wind facility, subsea cable system and ocean engineering. As the leader of wind farm developing, Longyuan is obviously aiming at the offshore field by jointly establishing this new company with Zhenhua.

Mr. Xie Changjun

President of Longyuan Power

Compared to onshore ones, offshore projects experience steadier performances and more available resources. It is going to be the mainstream of global wind power industry. China's offshore installed capacity will exceed 10 GW in the future few years.

In the second half of this year, Longyuan Zhenhua will begin its first project since establishment. It is the tidal zone wind farm in Rudong, Jiangsu province, with a total capacity of 150 MW.

Hefei Sungrow Power

In July 2010, Hefei Sungrow Power reached cooperation agreements with China Northern Locomotive Stock Industry (CNR) Wind Power. According to the contract, Sungrow would provide 100 sets of WindPlus Series 1.5 MW double-fed converters. Converter is always considered as one of key components of wind turbine and crucial for performance of the whole system.

Sungrow WG 1500KDF

Nowadays Sungrow has grown into a well known company in domestic photovoltaic and wind power industry. It masters a number of core technologies and completely independent intellectual property rights. Sungrow is considered as the first photovoltaic inverter brand in China and its wind power converter products have been successfully applied in several local wind farms including Tongliao of Inner Mongolia and Liuao of Fujian Province.

Sinovel Affiliated Dalian Guotong Electric

Dalian Guotong Electric which is affiliated to Sinovel Wind Power held a ground breaking ceremony in Dalian Jinzhou New Area on June 29th. This project will mainly produce frequency converters for wind turbine.

Guotong plans to invest RMB 125 million in this new frequency converter project which is located in Dalian Jinshi IT industrial park and covers 34,000 square metres. Guotong sets the expected first-phase productive capacity to be 5,000 sets of MW class turbine (water-cooling, double-fed) frequency converters. It can be capable of import substitution after finished and put into operation.

Ground Breaking Ceremony of Guotong Electric

The recent surge in U.S. wind energy development has prompted two U.S.-based manufacturers of automated machine tools to make significant developmental and strategic marketing decisions.

Ingersoll introduced in April two developments for the wind energy industry. First is the intended launch of an automated wind blade production demonstrator, as a means of prototyping and qualifying processes and processing equipment for sale to wind turbine blade manufacturers. A second, the MasterWind Lean Manufacturing Center, will put those automated technologies to work and put Ingersoll in the business of making wind turbine mechanical components, such as hubs, gearboxes, plates and nacelles. The first MasterWind Center will be in operation by the end of 2010 at Ingersoll's headquarters in Rockford, according to the company. These initiatives are supported by a grant of $5 million (USD), awarded through the Green Industry Business Development Program, a component of the Illinois State's Energy Plan, administered by the U.S. Department of Commerce and Economic Opportunity and funded by the American Recovery & Reinvestment Act.

MAG Industrial Automation Systems, the CNC machinery supplier announced the formation of a new Renewable Energy Business unit to design and build automated manufacturing systems for both wind turbine components and solar panels. According to Joe Jones, MAG's head of operations in the Americas, the renewable energy business is off to a strong start. "In recent years, we have pivoted our composites and machine tool automation businesses to concentrate on wind turbine components, allowing us to bring to market new systems for automated lay up of composite wind blades, finishing, and root-end drilling, all of them based on proven technologies and modules." MAG is currently sharing a $7 million grant from the U.S. state of Michigan. Grant funds will be used to develop carbon-fibre turbine blades and design and manufacture a reportedly "revolutionary" wind-hub machining cell for high-volume manufacturing.

Focus on Envision：the Legend of Wind Power Industry

In March 2010, a Chinese wind power company called Envision drew lots of attentions from all over the industry. It signed strategic agreements with the global largest blade manufacturer ——Danish company LM Glasfiber.

Envision and LM would jointly develop the blade for 1.5MW wind turbine. LM would set up a plant in Jiangyin for Envision and start the delivery from the second quarter of this year.

Envision Energy is a young wind turbine manufacturer based in China backed by a European investment firm. Its core business comprises research & development, manufacturing, sales and maintenance of advanced-technology wind turbines.

Mr. Zhang Lei, General Manager of Envision

In 2006 year end, Envision's general manager, Mr. Zhang Lei returned to China together with his entrepreneurial team. They set up Envision in Mr. Zhang's hometown Jiangyin of Jiangsu Province. Jiangyin is one of China's most active and fastest growing areas and about one and half hour driving distance from the largest city of China, Shanghai. It has ranked first in the economic strength assessment of Chinese counties for a continuous seven years. Now Envision's manufacturing base is still located there.

During just less than three years, Mr. Zhang and his team have completed all the tasks from layout design to grid connection of prototype and large-scale production. Envision has grown into the first local wind power company which can accomplish dynamic load of MW class turbine and design of core control system independently.

Nowadays Envision has become a legend. Its 1.5MW wind turbine with proprietary intellectual property rights successfully came off the production line in 2008 April. And its total sale has reached RMB 1 billion since the foundation just three years ago and is expected to rise to 3 billion in 2010.

Envision has a strategic partnership with Longyuan – the largest wind farm developer in China and the fifth largest in the world. Longyuan has fully participated in assessment and evaluation since the research and development of Envision's prototype. In 2008, Longyuan decided to adopt 33 sets of Envision wind turbines of which the total value was RMB 300 million in its Nantong wind farm which was Longyuan's national wind power demonstration base. Meanwhile, it has become one of the very few suppliers to undertake NDRC (National Development and Reform Commission)'s "Offshore Three Gorges" wind farm project in Jiangsu Province.

Another international developer US Tang Energy Group has also signed an export contract worth RMB 3 billion of 250 sets with Envision.

Envision's 1.5MW wind turbine offline ceremony

Longyuan Nantong Wind Farm

NDRC "Offshore Three Gorges" wind farm project

Envision has been building a professional management team from beginning. Its core management team consists of senior managers from McKinsey, Barclays Capital, Morgan Stanley, GE, GM and ITT. It also emphasizes technology innovation and set up Global Innovation Center in Aarhus, Denmark and R&D Center in Shanghai.

For wind power supporting enterprises located in Jiangyin, Envision acted the role of supply chain integrator. It has partnership with about 10 local component manufacturers. Now Envision's supporting capacity in Jiangyin local market has exceeded 50% and reached 100% within Jiangsu Province.

Danish Wind Energy Group China

Danish Wind Energy Group China (DWEG China) was established on the 1st September, 2009 to service the Danish Wind Industry in China and currently consists of 45 member companies. All companies are highly specialized Danish Wind Turbine sub suppliers, and are very active on the Chinese market.

The network serves as a local forum where members meet and discuss common challenges and set up new initiatives in the market. As a member you get access to a network of experience, knowledge and connections.

China Wind Power 2010, October 13 - 15, Beijing

Danish Wind Energy Group and its members are going to China Wind Power, October 13 - 15. Up to now, 24 member companies will join the national pavilion. More information for CWP, please visit www.dk-export.com/page6544.aspx.

The 4th member meeting of DWEG China will also be held in Beijing in connection with China Wind Power. Detail information, including the agenda will be informed later.

More information about DWEG China's activities, please visit www.dk-windchina.com

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Wind power is a key industry that Trade Council of Denmark in China is looking at. We have built up network with wind companies, associations and also relevant government agencies.

During preparation of this edition, we not only selected news from Chinese media and translated them into English, but also talked to people in our network to get latest and most reliable information. In upcoming editions, we'd also like to have articles like interviews, introduction and comparison of different locations and industrial parks in China, deep insight of major players in Chinese wind market.

We are looking forward to hearing your comments and suggestions. Our goal is making this China wind power newsletter a valuable handbook for all Danish wind companies.

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- Xing Xiaoxing
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