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The 12th Five-Year Plan explicitly aims for a 17 percent reduction in carbon dioxide emissions by 2015. Specific reduction goals indicated by China's National Development and Reform Commission vary geographically, as shown in the map

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## **Editor Commentary**

### **Shale Gas Win Renewables on Price and Policy**

Renewables are surrounded bad news and seemed sunk in another unexpected recession but chasing a moving target as discovery of cheap shale gas beyond United States.

Greatly falling of solar modular prices are more than 10 percent, which would greatly cut second quarter margins of Chinese Solar Giant in comparison of their first quarter levels. The exactly case is LDK.

Chinese wind power manufactures were announced to end subsidies established during industry infancy of 600 yuan (\$92.55) a kilowatt (kw).

Shale gas revolution is widening nowadays and killing economics of renewables in price and permission, even as falling costs and indigenous innovation allow solar and wind to take in place of fossil fuels in niche regions.

Big renewables investors like as French energy company Total look upon solar as a tiny part of the picture decades out, compared with clean gas. Total paid \$1.4 billion for a majority stake in U.S.-based SunPower Corp.

"You have one energy that represents today more than 20 percent of the energy mix, and solar today is close to zero and will represent maybe 1 or 1.5 percent in 20 years from now," said Jean-Jacques Mosconi, Total head of strategy. The trouble is that a new "golden age of gas," as the International Energy Agency dubbed it, has created massive over capacity in a key rival fuel for power generation.

"The economic viability of a lot of the renewables are getting killed because we have too much gas in the world right now," said Jeff Currie, global head of commodities research at Goldman Sachs.

"It's made a lot of these other projects like solar and wind struggle in terms of their economic viability, and coal too."

Building new gas plants was half the price of new nuclear, and much cheaper than wind and solar, said John Rowe, chairman of U.S. power company Exelon Corp. Shale gas has especially suppressed prices in the United States.

"When Germany say they are going to use alternative energy sources, I just don't see it, if you try to switch now to solar power it will cost them 20 times more," said Peter Csoregh at Robeco's Natural Resource equities fund, expecting instead greater use in Germany of coal or gas.

Analysts and renewable energy supporters often point to hidden costs in the case of fossil fuels producing carbon emissions whose damaging impact on the world's climate is not priced outside Europe. Question marks have been raised over the impact of shale gas on water quality.

"It's essential that we provide a policy framework that provides a level playing field," said Rajendra Pachauri, the head of a U.N. panel of climate scientists.

Offshore wind may be in the same cost range as gas by 2015, said Joergen Kildahl, a board member at Germany's E.ON group, one of the world's biggest utilities.

But that did not include the cost of building back-up for the intermittent power source. "You need to buy the flexibility to balance your production. That's a big question mark," he said.

After steep price falls solar power is now near to being economic but running into difficulties except for niche regions including of California and Italy, sunny places with high power prices and fewer alternatives.

Falls in solar panel prices may flatten by 2013-2014, said Steven Chan, president of Suntech America, the North American unit of Chinese panel maker Suntech, who cited studies suggesting widespread grid parity with retail power prices by 2015.

Not only prices should be considered in wouldbe energy projects, permits are thought of not easy to be issued in solar and wind industries. However renewed attention is being attached to shale gas.

In late April, the country's top planner, the National Development and Reform Commission, issued an 'Industrial Restructuring Catalog (2011 edition)', which lists 'new energy' including non-conventional resource such as shale gas as an 'encouraged area'.

IN 12th Five-Year Plan (2011-2015) has adopted a broader energy system, with gas usage expected to outpace the popularity of coal.

Minimal growth in gas-fired power generation although in 2000-2009, China's current domestic gas production is 94.5 billion cubic metres which covers about 85-90 per cent of consumption, the shortfall being met through imports from Central Asia and Australia. In the next five years, China plans to up gas usage to 260 billion cubic metres annually, which will be 8.3 per cent of its primary energy mix.

Recognising as a significant portion of China's energy mix is substantial, China's shale gas production is expected to account for 8-10 per cent of the conventional gas output by 2020.

In April, state-owned company PetroChina completed the nation's first horizontal shale gas well in Sichuan. While shale gas extraction has yet to become economically competitive, it appears to hold promise in reducing China's dependence on imported fuel.

The Ministry of Land and Resources has launched a nationwide strategic investigation for this clean energy source. It expects to complete an assessment of China's shale gas resource by 2013.

The Sichuan basin, Erdos basin, Bohai Bay are the most likely areas for further exploration, along with the upstream regions of Yangtze River valley. So far, different agencies have varying estimates about shale gas reserves in China. The Ministry of Land and Resources estimates the size reserves at 26 trillion cubic metres, more than 10 times the known reserves of conventional natural gas. The US Energy Information Agency has estimated that China's technically recoverable shale gas reserves were almost 50 per cent higher than that of the US at 36.1 trillion cubic metres.

Energy experts in China believe that developing unconventional gas resources will help maintain a balance of power with the Middle East. It will reduce China's dependence on Mena oil, taking the country's energy security a notch higher.

The shale gas arm of economical feasibility is before eyes however of some difficulties has a long way to go such as drilling or securities.

### **Clean Energy- Policy Environment**

#### **QSolar's Chinese subsidiary awarded 17% export incentive**

Located in Shanghai, QSolar's subsidiary has qualified for the Chinese export incentive programme at the maximum rate of 17 per cent of the dollar value of solar panel exports from China.

#### **Ambassador sees carbon-capture opportunity in China**

AUSTRALIA'S outgoing ambassador to China has used his last public address to warn that China's explosive growth and reliance on coal-fired electricity will be unsustainable without technology to capture carbon emissions.

#### **Chinese scientists urge better nuke safety**

Chinese scientists say the People's Republic of China should improve its system for ensuring the safety of its rapidly expanding nuclear power program. Writing in the journal Environmental Science & Technology, scientists from the Chinese Academy of Sciences say that despite having 40 percent of the world's proposed nuclear power plants, the country lacks an independent regulatory agency and sufficient staff to keep pace with nuclear power development.

#### **China targets 30 GW offshore wind power capacity by 2020 - Xinhua**

China plans to install 5 gigawatts of offshore wind power generating capacity by 2015 and 30 GW by 2020, the official Xinhua News Agency reported on Wednesday, citing a plan by the National Energy Administration. The country built a 100-megawatt offshore wind power project off the coast of Shanghai in June last year, showcasing its drive for clean energy from the ocean ahead of Shanghai Expo 2010. China had installed more than 40 GW of onshore wind power generators as of the end of last year, with nearly 31 GW having secured grid connections.

#### **China's wind power industry doldrums linked to grid integration**

With 44.73 gigawatts (GW) of wind power installed capacity at the end of 2010, China is already the world's largest wind power provider, and plans to continue its rapid wind power development through the 12th Five-Year Plan (FYP) period (2011-2015). Yet, despite years of explosive development, the country is facing a host of transmission problems that threaten to slow progress.

#### **China Offshore Wind Power Capacity to Reach 30GW, Xinhua Says**

China will increase offshore wind power installed capacity to five gigawatts by 2015 and 30 gigawatts by 2020, Xinhua News Agency reported today, citing the National Energy Administration at a meeting in Jiangsu province. Public tender for the second round of offshore wind power concession projects with a total installed capacity of up to 2 gigawatts will be completed during the first half of 2012, according to the report.

#### **China Aims to Boost Share of Non-Fossil Sources in Energy Supply**

China aims to boost the share of non-fossil sources in its energy mix to 20 percent by 2030 and to 33 percent by 2050, said Han Wenke, head of energy research at the National Development & Reform Commission. Non-fossil sources including wind, solar, biomass, hydro and nuclear power accounted for about 9.6 percent of China's energy supply at the end of last year, Han said at a conference in Beijing today, citing government data.

#### **China says urbanization drive will be low-carbon**

China will push for the use of clean power and energy-saving technologies in its massive urbanization drive across the country over the next five years, a senior energy official said Tuesday. Qian Zhimin, deputy director with the National Energy Administration, told a low-carbon forum in Tianjin that by 2015 China will establish 100 model cities, 200 model counties, 1,000 model districts, and 10,000 model towns of green and new energy. China plans to raise urbanization rate to 52 percent by 2015 and 65 percent by 2030, according to the government's 12th Five-Year-Plan (2011-2015). Technologies such as smart grids, solar power utilities, and clean energy-powered vehicles will be promoted in city planning, Qian said, adding that the development of public transport and rail transport will be prioritized.

#### **NEA plans second bid for offshore wind farm construction in H1 2012 – report**

The National Energy Administration (NEA) will hold a second round of bids for offshore wind farm construction in the first half (H1) of 2012, state media reported June 23.

#### **China will strive to meet emission reduction target: official**

A Chinese official said Thursday that the country will strive to fulfill its emission reduction targets for 2020.

#### **Problems for phase two of Kyoto Protocol**

China's top climate change official, Xie Zhenhua, said on Wednesday that climate talks should stick to the dual-track approach in Durban, South Africa, at the end of this year.

#### **China's \$10bn geothermal ambition to spark investment opportunities**

China has set an ambitious goal of developing a \$10bn geothermal industry under its 12th five year plan, which is likely to kick-start a number of investment opportunities. According to a report in the China Daily, the use of geothermal energy in the country will reach its peak over the next five years. It is thought that China has 12 major geothermal basins with reserves equal to 853 billion tons of standard coal equivalent. China is also thought to have proved reserves, which are deeper underground, of 3,000 to 10,000 tonnes which can more than cover the country's energy consumption. The government has not yet made it clear whether it will look to outside expertise to exploit these resources.

### **Clean Energy-Undergoing Project**

#### **China's new draft regulation exempts "green" vehicles from taxation**

The State Council, or China's cabinet, on Wednesday began soliciting public opinions on a draft regulation for the implementation of the Vehicle and Vessel Tax Law, which will exempt electric cars, fuel-cell vehicles and hybrid vehicles from taxation.

#### **Hsinchu County, Mitsubishi sign MOU on electric vehicles**

Developing electric vehicles (EV) has become a major policy for the government, which is committed to reducing carbon emissions. Under a special initiative, the government is planning to help manufacturers roll out 3,000 EVs in 10 districts of Taiwan in three years. To promote EVs, the Hsinchu County Government recently signed a memorandum of understanding (MOU) with Mitsubishi Motor, China Motor and Mitsubishi Corp. to offer shuttle services at the Taiwan High-Speed Rail Hsinchu Station using Mitsubishi's i-MiEV electric vehicles. With the MOU, Hsinchu County became the first in Taiwan to provide EV shuttle services.

#### **INTERNATIONAL ROUNDUP: Siemens To Develop Chinese Offshore Wind Farm**

German wind turbine manufacturer Siemens AG said that it has received a contract to develop an offshore wind farm in China, the Associated Press reported. The project will include 21 2.3-megawatt turbines near the coast of Jiangsu province and is scheduled to be completed by the end of the year.

#### **OPEL Solar Asia, Ltd. continues growth in Chinese market, signs second utility HCPV agreement through its joint venture with Ecotech**

OPEL Solar International Inc. (Shelton, Connecticut; Toronto, Ontario) on June 20th, 2011 announced that the Company has closed on a second agreement for its HCPV panels and dual axis trackers. This success in penetrating the China Market comes six months since the formation of OPEL Solar Asia ("OSA"). OSA has signed an agreement with a second of the five national power utilities in China, for the supply and installation of OPEL's HCPV systems to be deployed in the region of Inner Mongolia in China.

### **China bulks up solar power in southwest Beijing city**

For the past five years, Baoding, China, a self-proclaimed "Clean Energy City," has been filling itself with wind turbines, solar panels and other methods of green energy. The news source reports that Chinese utility companies are now required to install wind turbines in Baoding, and Beijing has promised to pay part of the cost of the city's solar equipment cost. The city started billing itself as a renewable energy center in 2002 after the success of homegrown company Yingli Green Energy, a major supplier of solar panels, the AP reports. The city now has two government research labs and 170 companies that produce clean energy power cities. The companies had \$7 billion in revenue last year, according to the news source.

### **Chinese Banks Back \$10 Billion Bid to Build Solar in Europe**

For any company, pouring 100 billion yuan (\$15.47 billion) into a fledging industry could be risky, according to Li Hejun, president of Hanergy Holding Group Ltd, a private Chinese power generator that is betting on a niche technology in solar cells.

### **China targets 30 GW offshore wind power capacity by 2020 - Xinhua**

China, already seen as a big player in wind energy despite trade disputes over how its industry is supported, looks as well to be making a huge play for solar power capacity. An official with China's National Energy Administration has said that China is aiming for a 10 gigawatt solar power capacity by 2015. The country's current solar capacity is said to be 860,000 kilowatts, so getting to its goal within the next few years will certainly test its solar energy sector. A plan looks to have been laid out, however, that could help it reach the magic number. One aspect of the plan is to speed up construction of grid-connected solar-power projects in western China, where "adequate solar energy resources" reportedly already exist. It is said the planned solar power capacity of just this portion alone could equate to 5 gigawatts of cleaner energy. Another aspect of China's big solar energy push is a dramatic increase in distributed rooftop solar-power systems in urban areas, especially in industrial parks with lots of open roofs available for solar panels to be laid out. This would be joined by new PV systems as part of what is said to be "construction of China's 100 pilot cities for new energy and 200 counties for green energy."

### **UPDATE 4-EnCana, PetroChina end C\$5.4 bln Canadian shale deal**

China's biggest North American energy deal to date was called off on Tuesday, as Encana Corp (ECA.TO) and PetroChina failed to reach terms for a C\$5.4 billion (\$5.6 billion) joint venture to develop a Canadian shale gas play.

### **Germany's Siemens AG lands contract to develop offshore wind farm in China**

German industrial conglomerate Siemens AG says it has been awarded a contract to develop an offshore wind farm in eastern China. The Munich company said in a statement Tuesday the contract calls for 21 2.3-megawatt windmills, for a project off the coast of Jiangsu province. It did not provide a value for the contract.

### **China Nuvo Solar Provides Update on Freya Acquisition**

China Nuvo Solar Energy, Inc. (otcqb:CNUV) updated today its progress with the previously announced Freya Energy, Inc. acquisition. Although the current Letter of Intent has expired, the parties are continuing the negotiations for a stock purchase agreement regarding a number of issues, but have not reached agreement on the issues under discussion. In addition, the company has not been able to finalize a term sheet to meet the financing conditions for closing. None of the term sheets presented in final analysis met the previously announced criteria that they be substantially non-dilutive and non-toxic to existing shareholders. The Company continues to seek financing alternatives that would meet these requirements, but can make no assurance that it will be successful in doing so.

### **China Windpower Group To List Subsidiary**

China Windpower Group (0182.HK) plans to list its wind power pylon producing division Tianhe New Energy Equipment on the Hong Kong Stock Exchange, reports qq.com, citing Hong Kong media reports.

### **China automaker to expand new energy vehicle sales**

China-based automaker BYD is already selling new energy vehicles in Beijing and is expected to begin selling the vehicles in other cities across the country during the second half of this year, including Shan ghai, Changchun, Hangzhou, and Hefei, the automaker's sales general manager Xia Zhibing revealed. The automaker began to sell F3DM vehicles to consumers in China's southeastern city of Shenzhen from last March. The electric vehicle model is priced at \$26,000, almost \$15,500 higher than the traditional gasoline-powered model BYD F3. As the first commercialized dual-mode electric vehicle in the country, the F3DM model's buyers will be entitled to subsidies from both the state and Shenzhen's city government. The new electric vehicle co-developed by BYD and Daimler AG is scheduled for a roll-out in 2013 and is expected to be priced at between \$46,000 and \$93,000.

### **Xinjiang's wind power installed capacity to reach 8.5 GW by 2015**

Western China's Xinjiang Autonomous Region will expand its wind power installed capacity to 8.5 gigawatts (GW) by 2015, the Xinjiang government forecast June 20.

#### **China WindPower Plans to Spin Off Tower Manufacturing Business**

China WindPower Group Ltd. (182), a Hong Kong-listed Chinese wind power company, plans a spin-off listing of its manufacturing units of wind-turbine components in the city. Tianhe New Energy Equipment Ltd., the holding company of China WindPower's tower-tube manufacturing business, has applied for a listing on the Hong Kong stock exchange, according to a filing to the city's bourse today.

#### **Power plants will double output of Three Gorges Dam**

The China Three Gorges Corporation says four planned hydroelectric power stations being built on the Jinsha River will be capable of producing twice as much power as the Three Gorges Dam, which is currently the world's largest-capacity hydroelectric power plant.

#### **Russia and China to Create Green Energy Joint Venture**

Inter RAO Unified Energy Systems and China's National Bio Energy Co. agreed to create the Green Energy Corporation joint venture by the end of 2011 to overhaul inefficient power plants that run on coal and fuel oil to include the use of biomass, according to the Russian state-run corporation's web site.

#### **China's MIIT Putting Together Proposal for China's New Energy Car Industry**

China's Ministry of Industry and Information Technology (MIIT) announced on its official website on June 22 that it has basically completed the drafting of the development planning for energy-efficient and new energy vehicle industry (2011-2020).

#### **China to build new hydroelectric power plants**

China will invest 400 billion yuan (\$62 billion) in the construction of four hydroelectric dams, to help the government boost the share of non-fossil fuels in national energy consumption.

#### **Yingli to Provide PV Modules for Italian Solar Plants**

Yingli has entered into an agreement to supply PV modules for Etrion Corporation's 10 MW Helios ITA-3 solar power project under construction in Italy's Puglia region. The power project includes two 5MW ground-mounted solar PV plants - Brindisi and Mesagne.

#### **Thermal power plants to receive green subsidies**

China's thermal power plants equipped with nitrogen oxide (NOx) removal equipment to reduce emissions will possibly receive subsidies of 0.012 yuan per kilowatt-hour.

#### **Vestas inks wind turbine deal with Chinese firm**

Vestas, one of the world's largest wind turbine manufacturers, has signed a large contract with the China Datang Corporation Renewable Power Co, Ltd, Vestas said in a press release issued on Monday in Beijing. The contract consists of the delivery, installation and commissioning of 58 V60-model 850-kilowatt wind turbines. The turbines will be installed on the Dayuanshan wind farm, which is located in Wuchuan County in north China's Inner Mongolia Autonomous Region, according to the press release. The contract also includes a two-year service and maintenance agreement, as well as other business-related services provided by Vestas, the press release said. The turbines are scheduled to be delivered in the third quarter of 2011, according to the press release.

#### **Etrion Corp. signs module supply deal with China-based Yingli Green Energy**

Italian photovoltaics provider Etrion Corp. will be expecting the delivery of PV modules from Yingli Green Energy Holding Company Ltd. for Etrion's 10-megawatt Helios ITA-3 solar project based in Italy. The two PV businesses have forged a supply agreement recently that is aimed for the construction of the Italian company's solar project. The Helios ITA-3 project features two 5-MW ground-mounted solar PV parks under construction in the country's Puglia region. Etrion Corp.'s solar project is expected to be completed on August 31. The Italian PV company presently owns 47 MW of operational, ground-based solar photovoltaic power plants in Italy.

#### **China Longyuan to start wind power project in Canada**

China Longyuan Power Group Corp Ltd, which is mainly engaged in the design, development, construction, management and operation of wind farms, will invest and operate a 100-megawatt wind power project near Toronto of Canada, China Knowledge reported, citing China Longyuan Power president Xie Changjun as saying.

#### **Geothermal power will bring 70 bln yuan market potential to China**

China's efforts to expand the use of clean energy will facilitate the rapid development of the geothermal power industry over the next five years, with a market scale of 70 billion yuan (about 10.8 billion U.S. dollars), experts have said.

#### **Russia's energy ministry inks renewable energy agreement with China firm**

Russia's Energy Ministry, Inter RAO UES, has signed a cooperative framework agreement with China Bio-Energy Corp. covering renewable energy and energy efficiency.

#### **New hydropower station begins operation in Tibet**

A new hydropower station became operational Friday in southwest Tibet autonomous region, as a first step to build a clean energy base in the plateau region. The Laohuzui -- which translates into "tiger's mouth" -- hydropower station in Gongbo Gyamda county of Nyingchi prefecture, about 343 km from Tibet's capital Lhasa, is designed to generate 2.5 million to 2.6 million kilowatt-hours of electricity daily to supply Lhasa. Construction began in 2007. The 1.288 billion yuan (\$200 million) project has an installed capacity of 102 megawatts, said Ponwa, a deputy official in Nyingchi.

#### **Clean Energy-Conference**

Inner Magnolia International Solar PV Industry Exhibition	Jul 15, 2011	Inner Magnolia International Exhibition Centre
Qindao International PV Industry Exhibition 2011	Jul 28, 2011	Qindao International Exhibition Centre
3rd Guangzhou International Solar PV Exhibition	Aug 11, 2011	China Import & Export Commodity Exchange Exhibition
3rd Sino-Europe International Solar PV Industry Development Forum	Aug 25, 2011	Shanghai Sheraton Asia Pacific Grand Pazhou Complex
4th CDNEE New Energy International Summit 2011 Chengdu: Solar Energy	Sep 27, 2011	Chengdu Century City New International Exhibition Centre
6th SNEC International Solar PV Exhibition Shanghai 2012	May 16, 2012	Shanghai New International Expo Centre

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