

Positive and Negative Impacts of Wind Power Concession Projects in China



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WIND POWER CONCESSION



- The National Development and Reform Commission (NDRC) is promoting **wind power Concession projects**, for large scale commercial wind power development.
- 2003, 2 projects, 200 MW
- 2004, 3 projects, 650 MW
- 2005, 3 projects, 600 MW
- 2006, 3 projects, 1000 MW
- Total **2450MW**

BACKGROUND



- Wind power not able to compete with coal power in the power market due to **high cost**
- Small wind project without **scale benefit**
- Small domestic wind turbine **manufacturing** industry
- Uncertainty of **price**
- Private and foreign **investors** were not involved
- Difficulties in **connection** to power grid

BASIC CONCEPT



- The **provincial government** will invite investors both international and domestic, to develop at least 100MW size wind farm on potential wind site **through tendering procedure.**
- To bring **down the wind power generating cost.**

MAJOR COMPONENTS



- Each project should be **at least 100 MW** and wind turbine size not smaller than 600 kW (**750kW** since 2006).
- 50% (**70%** since 2004) of the **components** should be domestic made, wind turbine also to be assembled in China.
- **County government** invest and build **access road** to wind farm.
- **Power grid company** invest and build **transmission line** to wind farm

MAJOR COMPONENTS



- **Investor** will be selected by public bidding procedure, the bidder offering the **lowest price** (changed since 2005) would obtain the contract.
- The **period** of wind power Concession will be **25** years.
- All **electricity generated** by wind project must be purchased by **provincial power grid company** according to Power Purchase Agreement signed with the winner.

MAJOR COMPONENTS



- The **increment cost** of wind power will be shared within **provincial power grid (nationwide since 2006)**.
- **Two different price** will be gained by the winner.
- The **first phase** cumulative electricity production equivalent to **30,000 full load hours**, price will be the **bidding price** offered by the winner;
- The **second phase** will be the **average price** on the power market at that time.

CONCESSION vs NORMAL

	Wind power concession	Normal
Price	Fixed price commitment by the government for a certain quantity of electricity	No fixed price commitment by the government, maybe changed during operation period
Project preparation work	Coordinated by the government. The costs will be covered by the winner of the bid.	To be done by developers.
Transmission line from wind farm to power grid	Invest and built by power grid company.	Invest and built by developer.
Percentage of local made components	70 % local made components, assembled in China.	No requests.
Government commitment	Government will sign an agreement with the winner. Provincial power grid company will sign a power purchase agreement with winner.	No commitment.



Bidding results

Price offered by winners (including 8.5% of VAT for sale electric energy, and 33% of income tax)

Year	Project Name	Size (MW)	Annual Full Load Hours	Winner	Bidding price within 30000 full-load hours (Euro cents)	Guessing Price after 30000 full-load hours (Euro cents)	Average Price during lifetime 20 years (Euro cents)
2003	Rudong Phase 1 (Jiangsu province)	100	2191	Hua Rui	4.365	3.300	4.033
	Huilai (Guangdong province)	100	1990	Yue Dian	5.013	3.038	4.527

Bidding results

2004	Rudong Phase 2 (Jiangsu province)	150	2273	Long Yuan	5.190	4.500	4.955
	Huitengxile (Inner Mongolia)	100	2588	Bei Guo Dian	3.820	4.174	3.969
	Tongyu (Jilin province)	200	2309	Long Yuan	5.090	3.500	4.533
	Tongyu (Jilin province)	200	2524	Hua Neng	5.090	3.500	4.533

Bidding results

2005	Dongtai (Jiangsu province)	200	2126	Guo Hua	4.877	0.4861	4.867
	Dafeng (Jiangsu province)	200	?	Zhong Dian Tou	4.877	0.4861	4.867
	Anxi (Gansu province)	100	2358	Zhong Dian Tou	4.616	3.800	4.317
	Jimo (Shandong province)	100	1686	Hua Dian International	6.000	?	?

Bidding results

2006	Bayin (Inner Mongolia)	200	2318	Long Yuan	4.656	3.822	4.362
	Danjinghe (Hebei province)	200	2193	Zhong Jie Neng	5.006	4.500	4.846
	Huitengliang (Inner Mongolia)	300	2876	Bei Fang Lian He	4.200	3.472	3.852
	Huitengliang (Inner Mongolia)	300	2988	Zhong Guang He	4.200 (4.058*)	3.800	3.930

* Bidding price offered



Full English name of the winners

- Bei Fang Lian He – Beifang Lianhe Power Co. Ltd.
- Bei Guo Dian – Beijing International New Energy Co., Ltd.
- Guo Hua – Guohua Energy Investment Corporation
- Hua Neng – HUANENG New Energy Co., Ltd.
- Hua Rui – Farsighted Group
- Long Yuan – China LONG YUAN Electric Power Group Corp.
- Yue Dian – Guangdong YUDEAN Power Co., Ltd.
- Zhong Dian Tou – China Power Investment Corporation
- Zhong Guang He – China Guangdong Nuclear Power Group Co.
- Zhong Jie Neng – China Energy Conservation Investment Co.

POSITIVE IMPACTS



- Wind power Concession project shows that wind power will **not join the power market competition.**
- **Large scale** development. Project size up to 300MW.
- Providing **market guarantee** for domestic wind turbine and components manufacturing industry.

POSITIVE IMPACTS



- **Government commitment of fixed price** for a certain quantity of wind generated electricity.
- All **electricity generated** by wind project must be purchased by **provincial power grid company** according to Power Purchase Agreement signed with the winner.
- **Power grid company have to invest** and build the transmission line connect to power grid.
- The **major principles** were adopted by the Renewable Energy Law.

Principles of Renewable Energy

Law for wind power

Term	Principles
Development target	Energy authorities sets middle and long-term target of the total volume for the development of RE at the national level, which shall be released to the public after being approved by the central government.
Feed-in tariff	Feed-in tariff of RE power generation projects shall be determined by the price authorities in the principle of being beneficial to the development of RE and being economic and reasonable, where timely adjustment shall be made on the basis of the development of technology for the development RE. The Feed-in tariff shall be publicized

Principles of Renewable Energy Law for wind power

Obligation of power grid enterprises	Power grid enterprises shall enter into grid connection agreement with renewable power generation enterprises that have obtained license, and purchase the electric energy generated by RE within the coverage of their power grid.
Right of power grid enterprises	Grid connection expenses paid by power grid enterprises for the purchase of electric energy from RE and other reasonable expenses may be included into the grid enterprise power transmission cost and retrieved from the selling price.
Share of incremental cost	The incremental cost of feed-in tariff with conventional energy shall be shared in the selling price. Price authority shall prepare specific methods.



Regulations for wind power

- In the beginning of year 2006 there were two regulations had been issued, one for the price and share of incremental cost, and the other for the administration of electric energy generation by RE.
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- The most important two terms for wind power are:
 - Power generation enterprise have the **obligation to take a certain mandated market share of electric energy generation by RE**, detailed quantity will be identified by the national authority in other regulation.
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- ● Feed-in tariff of wind generated electric energy shall be “government guided price” which **determined by the price authorities, based on the results of bidding process.**



Regulations for wind power

- At the moment these two issues are **big uncertainties**, new completed wind power projects have to sale their electric energy at the price same as the local coal power projects.
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- The **price offered via bidding process by the winners of previous wind power concession projects are extremely low and definitely make the projects not profitable**. The comparison of the winner price and average bidding price are listed bellow as reference.
- Price offered by winners (including 8.5% of VAT for sale electric energy, and 33% of income tax)

Winner price vs average in 2006

Price (Euro Cents/kWh)	Bayin	Danjinghe	Huitenglian g
The highest	5.550	6.010	5.651
The lowest	4.566	5.006	4.058
Average	5.143	5.361	4.803
Winner	4.656	5.006	4.200
Winner to lowest	0.09	0	0.142
Winner to Average	-0.487	-0.355	-0.603

NEGATIVE IMPACTS



- The winner offered **extremely low price**, 3.8 Euro cents, **no incentive** to the wind industry.
- Low price lead to use **low quality equipment** during construction, **higher the risks** in operation.
- The projects **not profitable**, **no income tax** contribute to local economic development.