

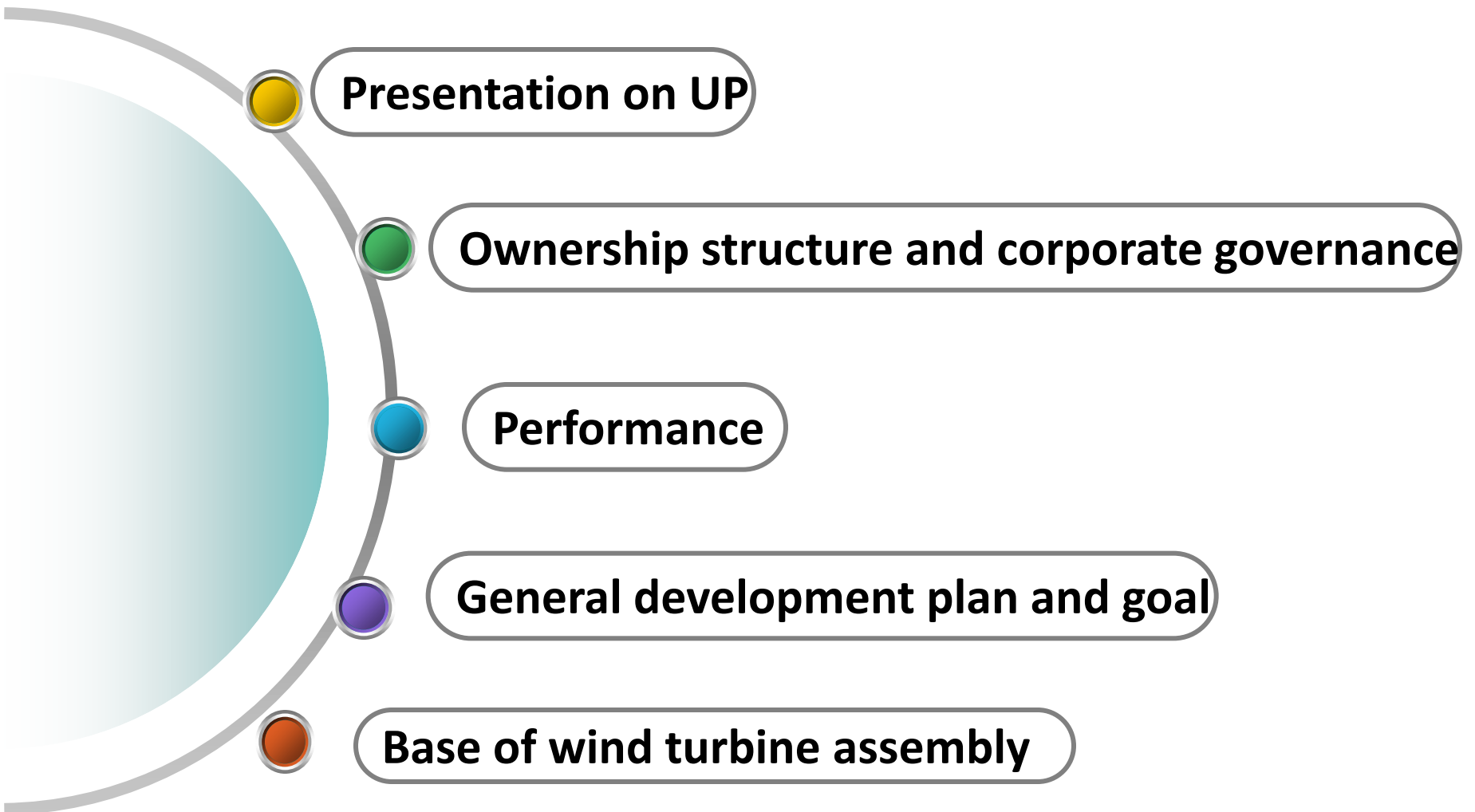


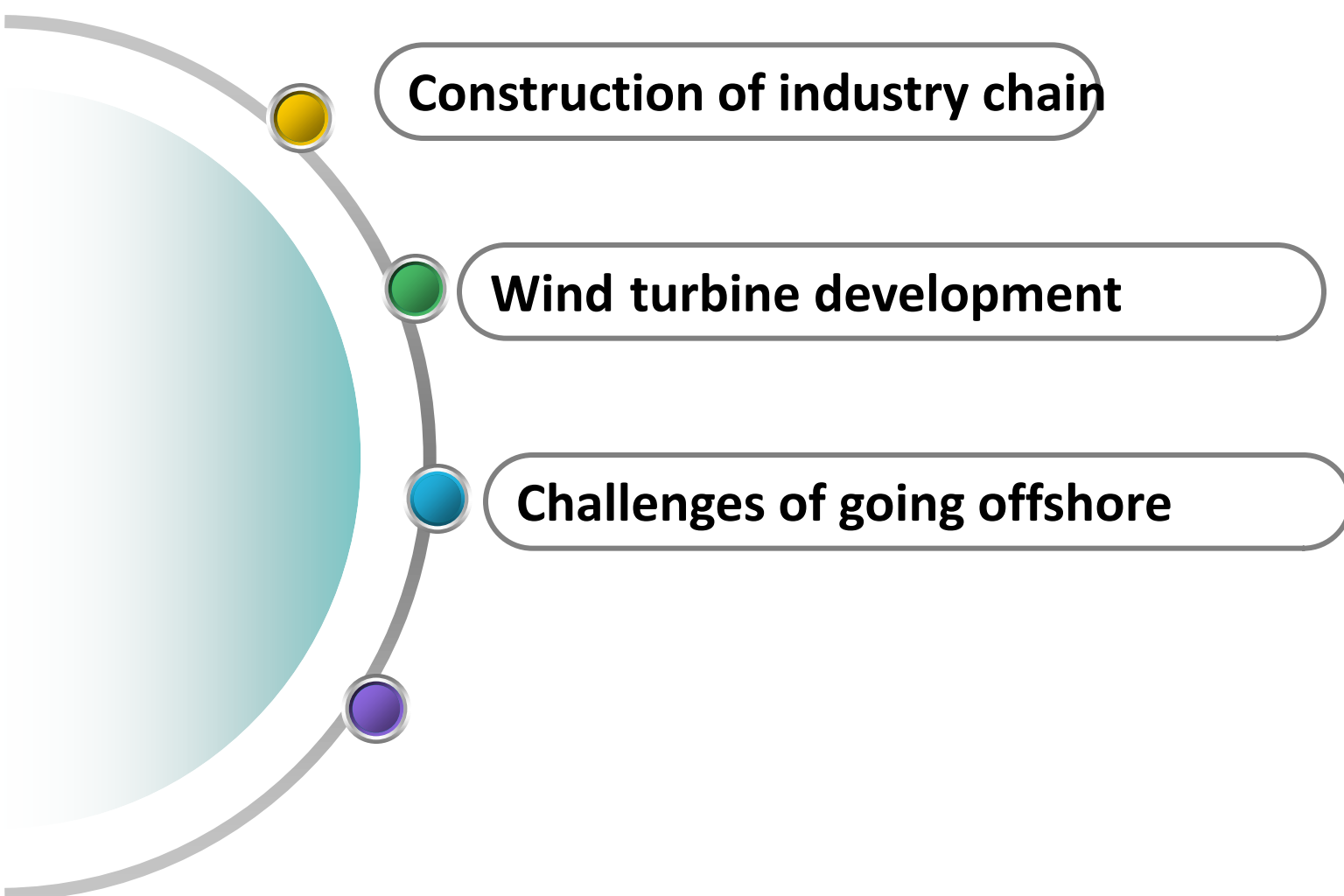
# GUODIAN

**UNITED POWER TECHNOLOGY CO., LTD.**



**GuoDian United Power Technology Co.,Ltd.**





## Corporation Introduction

GuoDian United Power Technology Co.,Ltd. is a high-tech wind turbine equipment manufacturer ,which was established in April 2007 by China GuoDian Co. for the purpose of solving the key and major equipments localization and its registered capital is 573 million RMB.



Main

Business

Designing of Wind turbine generator system, manufacturing, contracting of project, R&D, Selling product conjoint, providing systematic protocol and relevant electromechanical equipment/technical service.



## Development Chronicle

**2010**

1500 windturbine productivity

**2009.12**

manufactured 800 1.5MW windturbine successfully

**2008.12**

manufactured 100 1.5MW windturbine successfully

**2007.4**

establishment of GuoDian United Power Technology Co.,Ltd.

**2007.11**

completion of the Baoding production base construction

**2007.12**

establishment of world class

1.5MW full power and network control overall Performance test platform

**2007.12**

successfully manufactured 3 prototypes

**2006.11**

Signed technology import covenant with Aerodvn Co., of German



## Development Chronicle

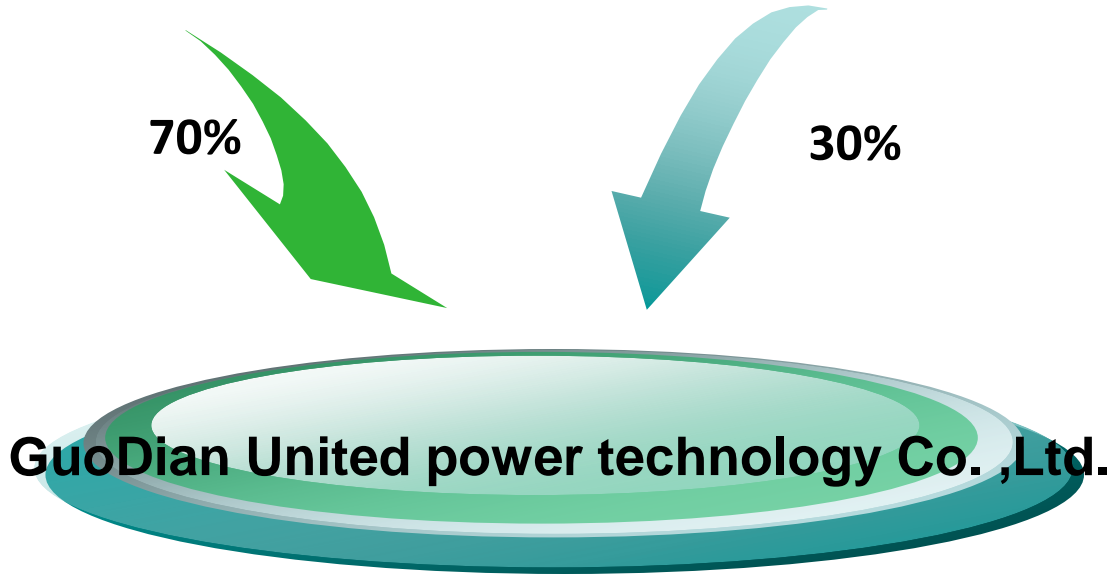
From signing the design contract to manufacture the prototype, UP spent only 13 months creates the establishment prestigious image of domestic windturbine industry.



Ownership structure (registered capital 0.313 billion RMB)

**GuoDian  
Technology & environment Co., Ltd.**

**GuoDian  
LongYuan Power Group Co. Ltd**



## About GuoDian Corporation

China GuoDian Corporation, established on the basis of partial assets of former State Power Corporation of China, is one of the big five nationwide power generation groups approved by the State Council of China in the power industry restructuring. The registered capital is 12 billion RMB.



## About GuoDian Corporation

China GuoDian Corporation mainly engages in the development, investment, construction, operation and management of power generation, and the sales of power (and heat). It is involved in the investment, construction, operation and management of the business relevant to its core business, such as coal, power generation equipment, new energy, transportation, high-tech, environment protection, technological services and consulting business.



## About GuoDian Corporation

In addition, UP also involved in both domestic and international financing, and international trade, economic cooperation, international project contracting ,international laboring service and other business ratified and a permitted by state.



## Human capital

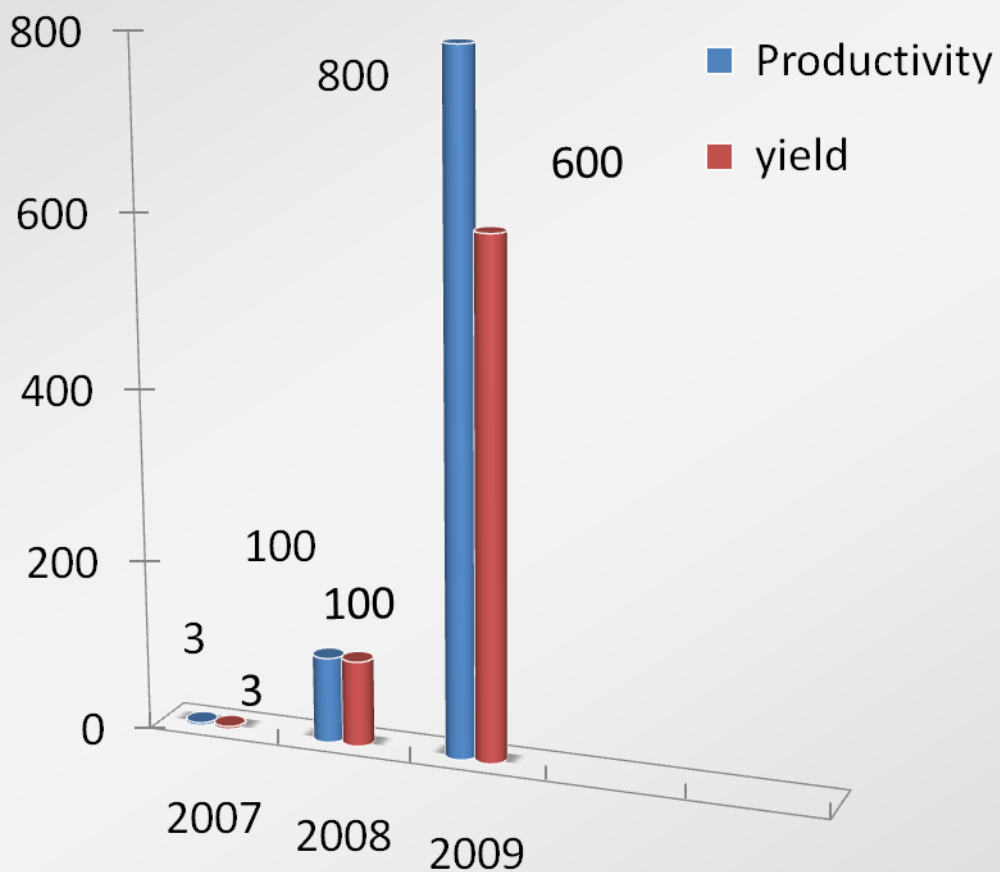
▶ By the end of Dec.2009,UP has a total employee of 2753 including staff of 2100 engage in manufacturing.

▶ Peking headquarter owns employee of 164 including 9 Dr. and taking 5%, 50 MD. and taking 30% ,85 BD. and taking 52% and other employee taking 13% .

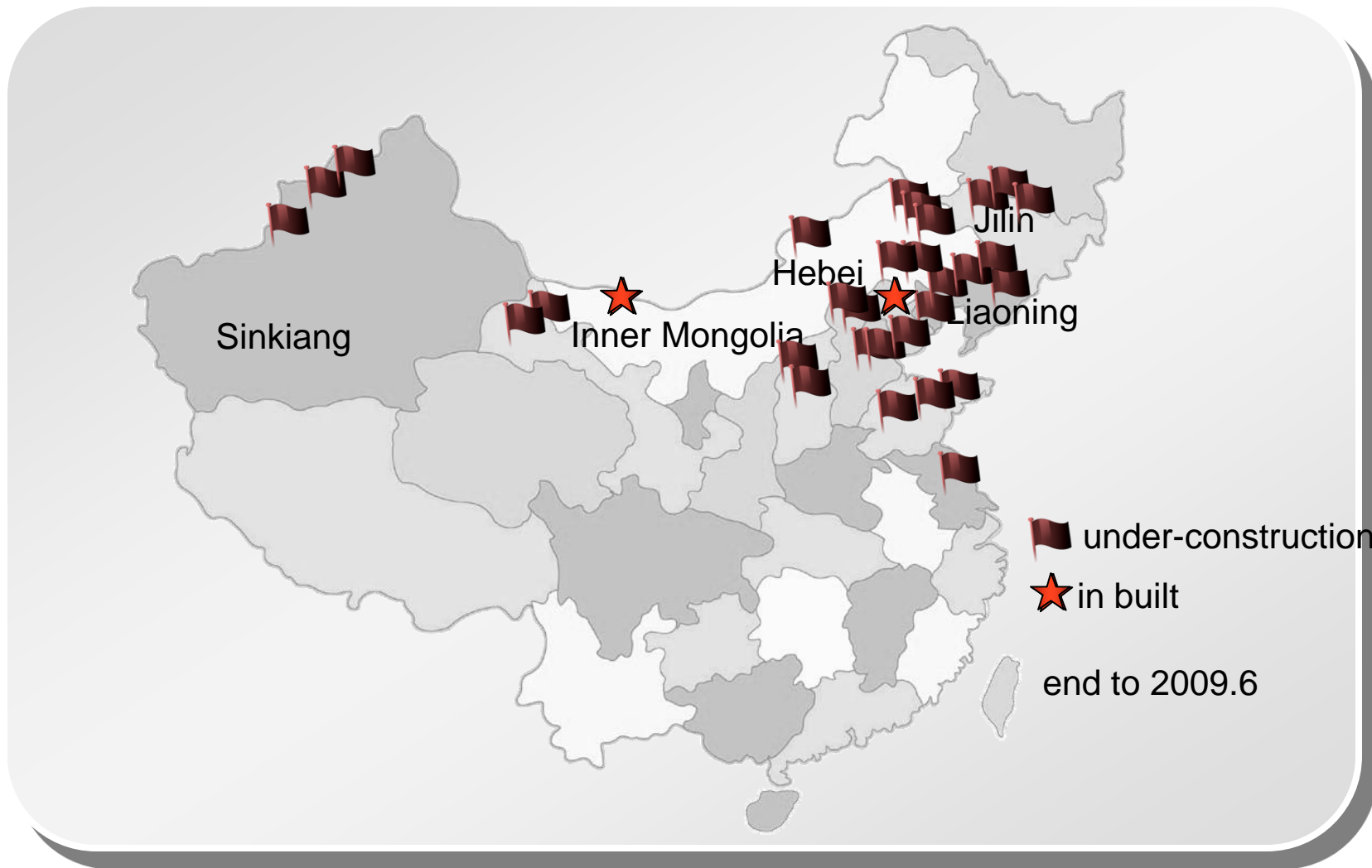
▶ Planning to the end of 2010,UP will own employee about 4000 personnel.



Production performance



Supplying site



## Production performance



**general assembly workshop 4 of Baoding plant**

## Production performance



**hoisting spindle**



**Spindle assembly**



## Production performance



**general assembly workshop 2 of Baoding plant**

## Production performance



**blade attachment workshop 3 of Baoding plant**



## Production performance



**hub assembly of Baoding plant**



## Production performance



**finished product of Wind turbine generator**

Production performance



**product transportation**

## Production performance



## wind turbine generator Hoisting

## Production performance



**blade hoisting**



In accordance with strategic goal of corporation development, combined the reality of internal and external market, United Power has worked out medium and long term development plan.

Market share ratio is expected to rise by over 20% by 2011, the market share is to be top 2 in domestic, to achieve a strategic goal of leading position.



1

Base of windturbine assembly

2

Construction of industry chain



Base of wind turbine generators

**Key program for UP:  
4 Base of wind turbine assembly**

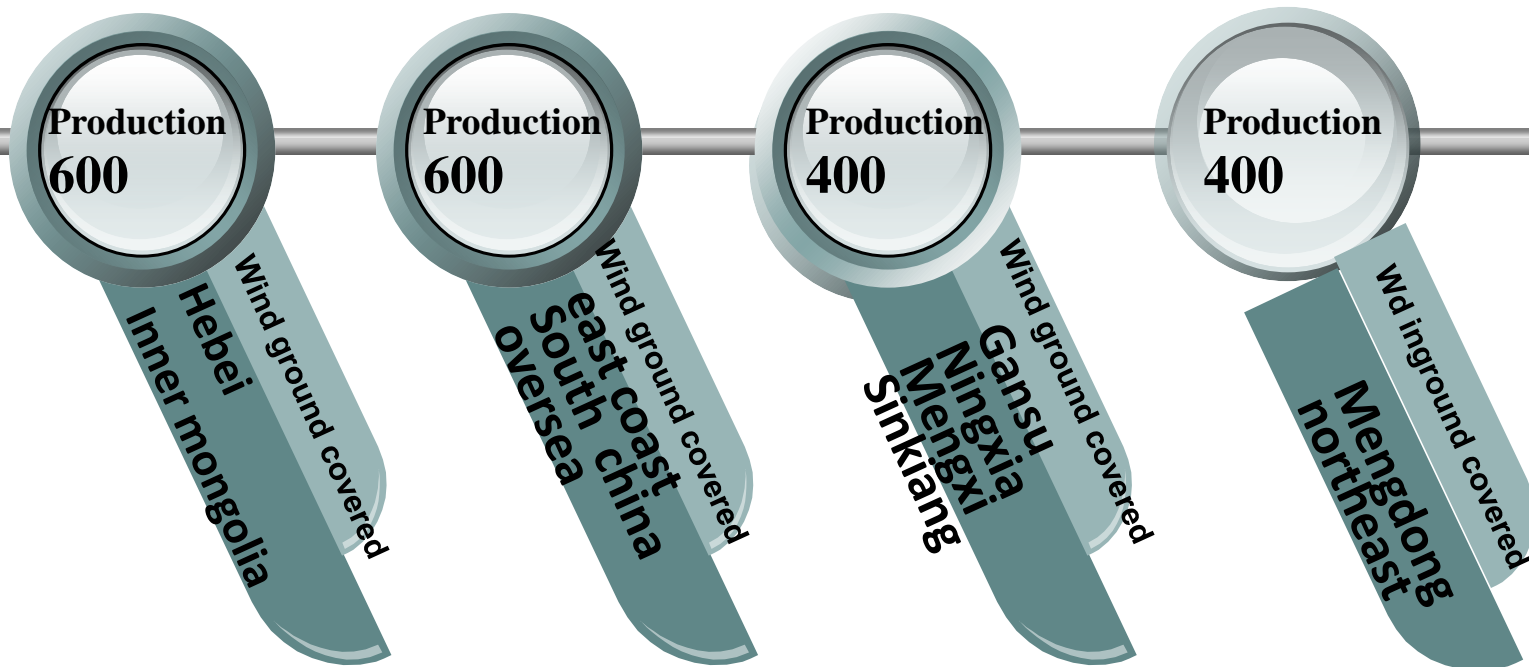
UP has mapped out 4 wind turbine assembly base of Baoding, Eastern of Inner Mongolia, Lianyungang, Northwest site, has included 6 1000MW wind ground into reasonable supplying channel. The construction of 4 base will be effectively improve competitive edge of UP production and UP industry footing.



Base of wind turbine generators

### 4 Base of wind turbine assembly

Baoding → Lianyungang → Northwest → Chifeng



Introduction on industry chain

**Key plan for program of UP:  
Construction of industry chain**

According to the experience of leading industry enterprises in domestic and international, the key components manufactured by ourselves can guarantee the safety of supply and quality of components, improving enterprises industry profitability and capability of price negotiation on the outsourcing.

Improvement of construction of industry chain is the absolute trend of industry development.



## Introduction on industry chain

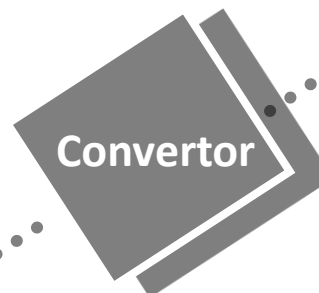
### Incremental improvement on industry



First stage of 400 unit per year, second stage of 400 plus, in total 800 unit per year. construction on infrastructure and facilities purchase. Finish roof top of first stage workshop in 2009.



Independent research on wind to electricity pitch-controlled oar system  
Samples are on the lab for test.



Samples are under fully test.  
Controlled number of production in 2009.



feasibility research

Contracted with Germany LDW company of technology introduction.  
Site on Yixing for base construction, will be on operation net year.



## Introduction on industry chain

1

### Base for gear case

Co-funded by China Guodian Co.,Ltd, United Power, China Enginery Inner Mongolia No 1 Machinery Corporation. United Power as shareholder.

Two stages of the program. First stage started at Mar 2009, the capacity of 400 1.5MW wind turbine gear case per year after the completion. Second stage, will start at 2010, and 400 plus units per year, in total 800 per year.



Introduction on industry chain

2

## Yixin base for generator

With the aim to improve construction of industry chain, United Power has registered in Nanchang in July 2009, United Power Technology Company ,focusing on wind turbine generators, accounting for 100% shares.

The program is expected to launch in Oct 2009,complete in May 2010. With the capacity of 1000 set electricity generator, 150 unit of electricity generator in 2010.





Current 1.5MW wind turbine

Co-design with aerodyn. Modification made according to domestic market.

3 different length blade for wind class II, III, and below III  
Onshore normal version, onshore high attitude version, onshore 60Hz net version, nearshore version





developing 3MW wind turbine

Cooperate with GH. Designed for offshore  
Concept design-GH and UP  
Preliminary design-GH  
Detail design-UP

Prototype finish at the end of 2010  
Erected at tidal range





## Turbine design

Special requirement: offshore wind condition, environment condition, corrosion protection, etc.

Foundation design

Parts reliability design





Lack of maintenance experience

Transport method

Offshore environment effect on maintenance work





## conclusion

Market ask us to develop proper offshore wind turbine

Start by nearshore, collecting experience, step by step to the sea

Open mind, welcome cooperation with any experienced company or organization





<http://www.gdupc.com.cn/en>

THANKS



GuoDian United Power Technology Co.,Ltd.