Guohua Energy Investment Corporation, Ltd.

-- A Leading Developer of Renewable Energy in China

March 2010

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1. Guohua Energy Investment Co,. Ltd

1.1 History

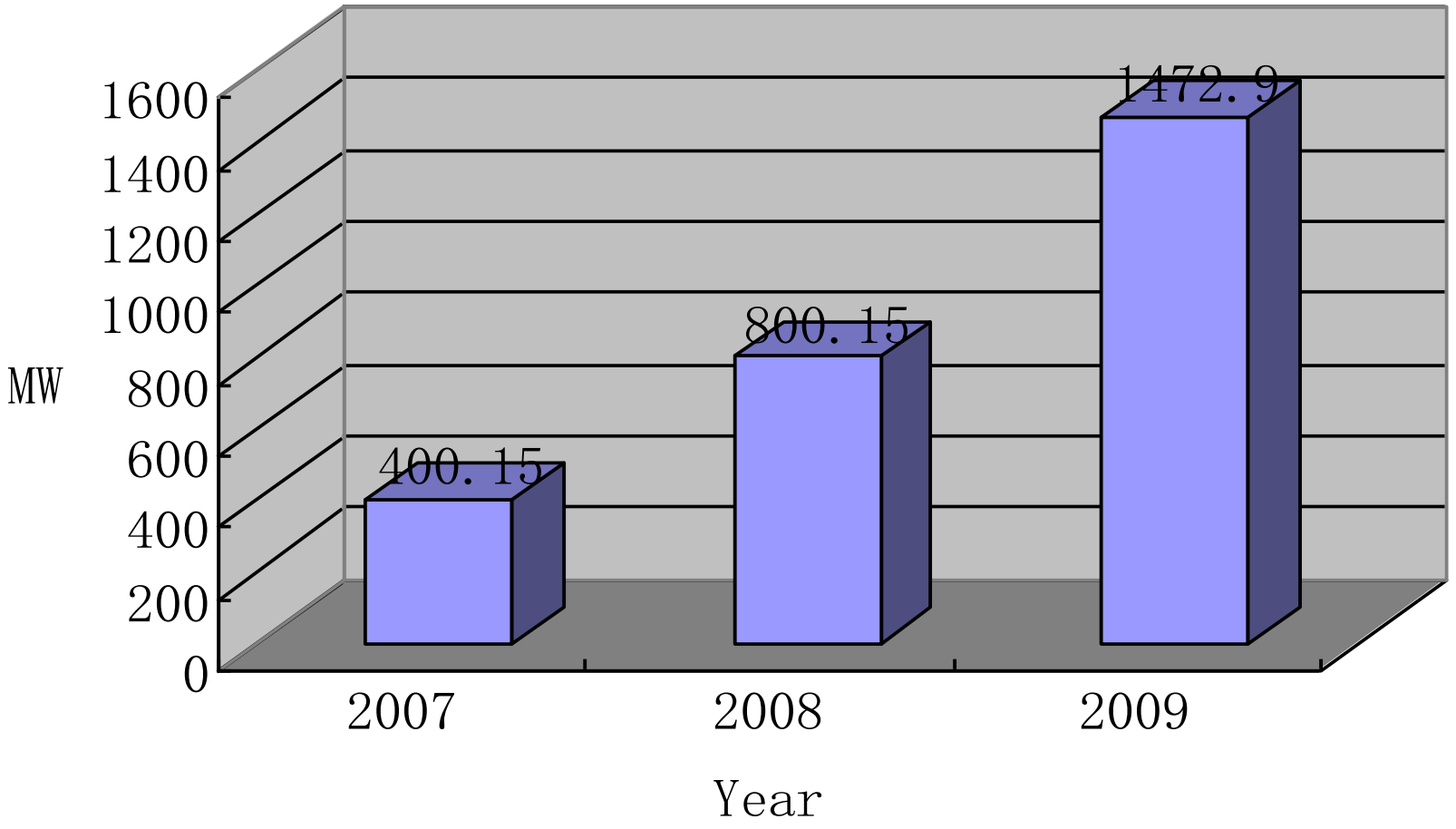
❃A state-owned enterprise restructured from the former Office of Special Fund for Substitution of Oil with Coal (SOC) of the State Planning Commission, approved by the State Council in 1998;

❃ Affiliated to the Shenhua Group Corporation (the largest coal-producing company in the world) in 1999;

❃ The Initial Mission -- reclaiming and managing the fund for substitution of oil with coal and providing part of equities to Shenhua projects and exploiting businesses of energy, real estate, finance and environmental protection.

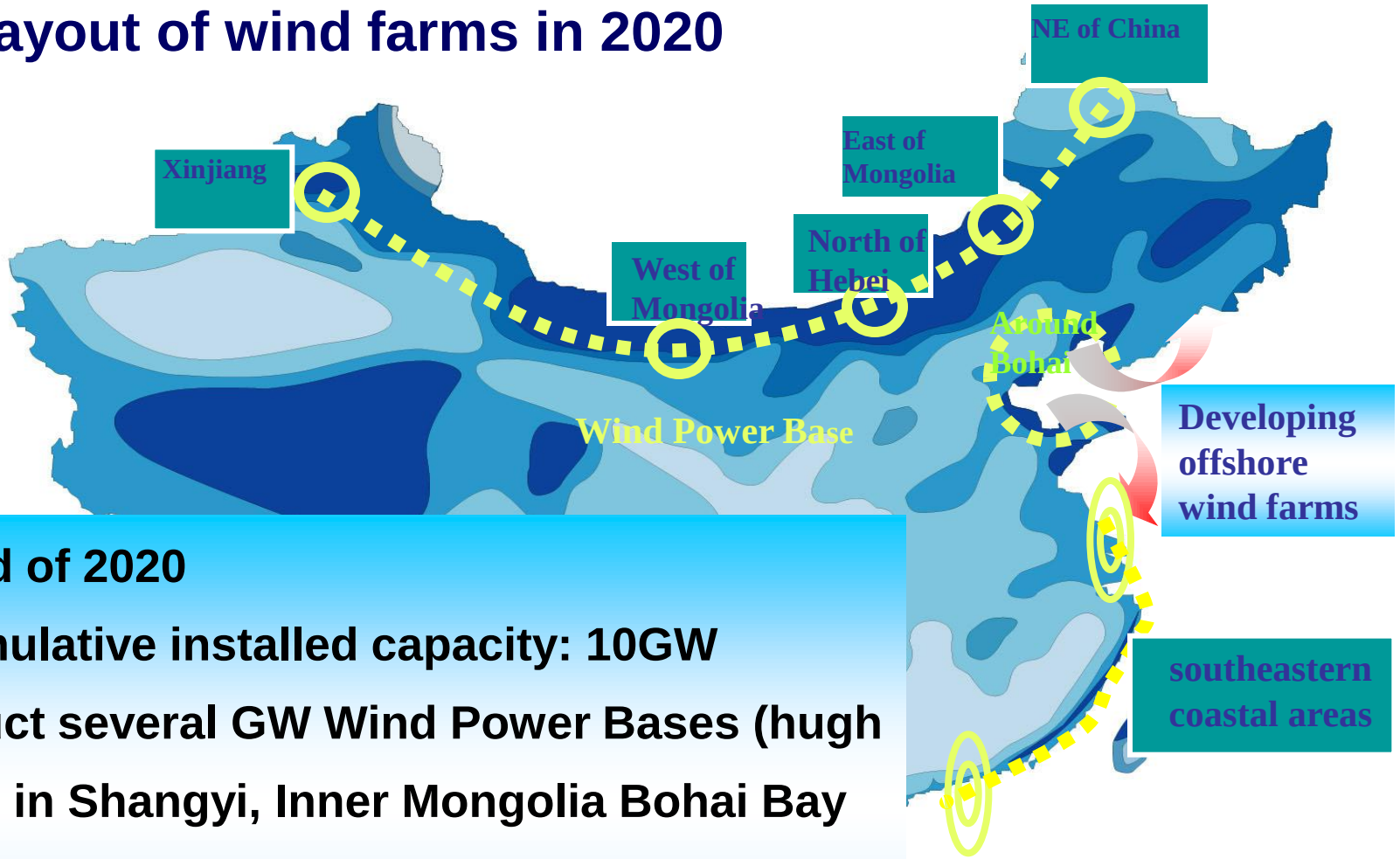
❃ Guohua adjusted its principal business—transferred to wind power business in 2005, according to the strategic deployment of Shenhua Group.

1.3 Wind Power Installed Capacity of Guohua



1.5 Development strategy of Guohua

The layout of wind farms in 2020



By the end of 2020

The accumulative installed capacity: 10GW

To construct several GW Wind Power Bases (hugh wind farm) in Shangyi, Inner Mongolia Bohai Bay and Dongtai.

To Develop offshore wind farms in Southeastern coastal area

2. Guohua Offshore wind Activities

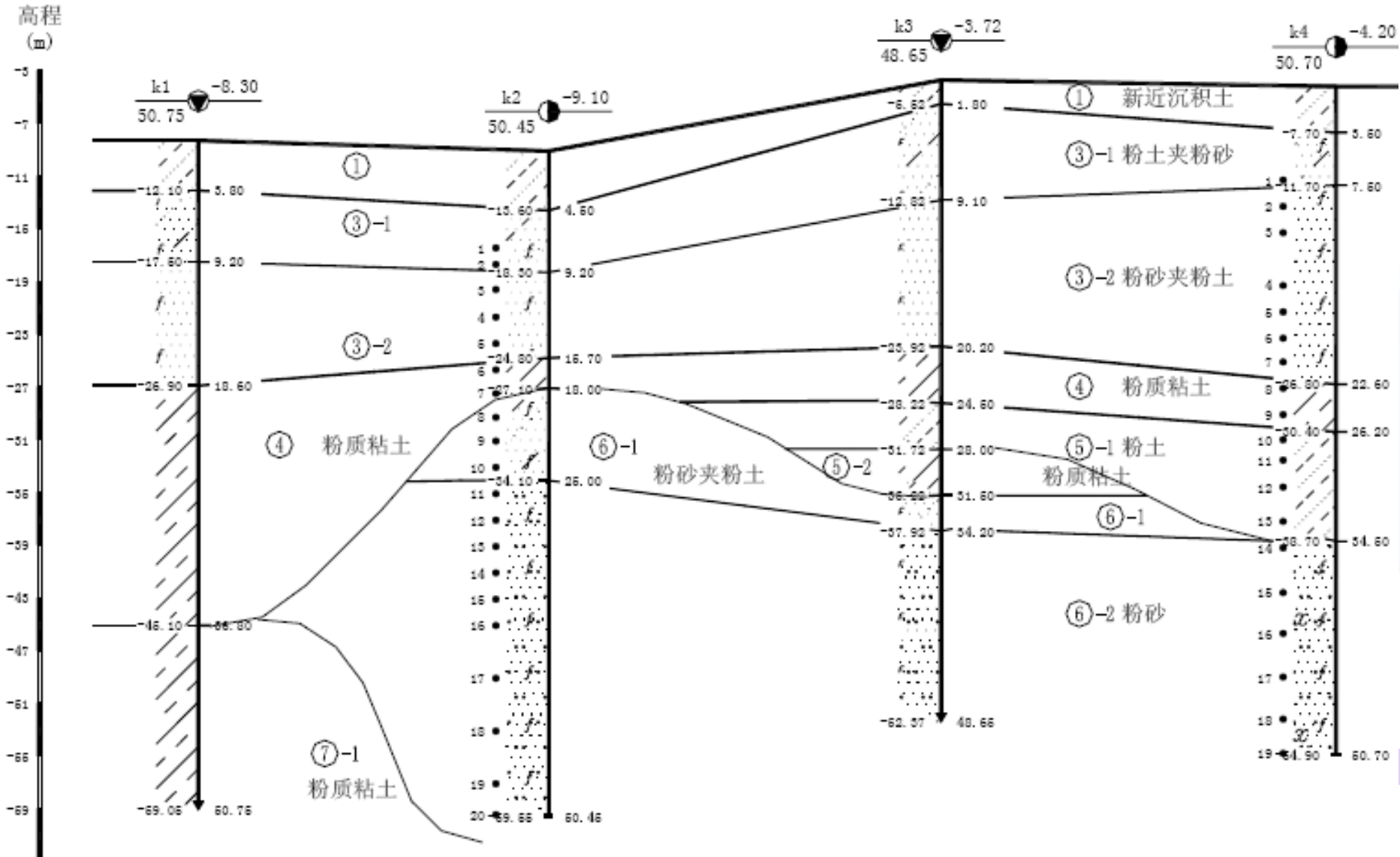
2.1 offshore wind measurement

In 2008, two offshore wind masts installed in Dongtai and Huanghua individually.

2.2 Dongtai Offshore Wind Site

- **42km to the shore**
- **Water depth: 1.3-16m**
- **160km2**
- **7.44 m/s at 90m**
- **300MW in planning**

2.4 Geological situation

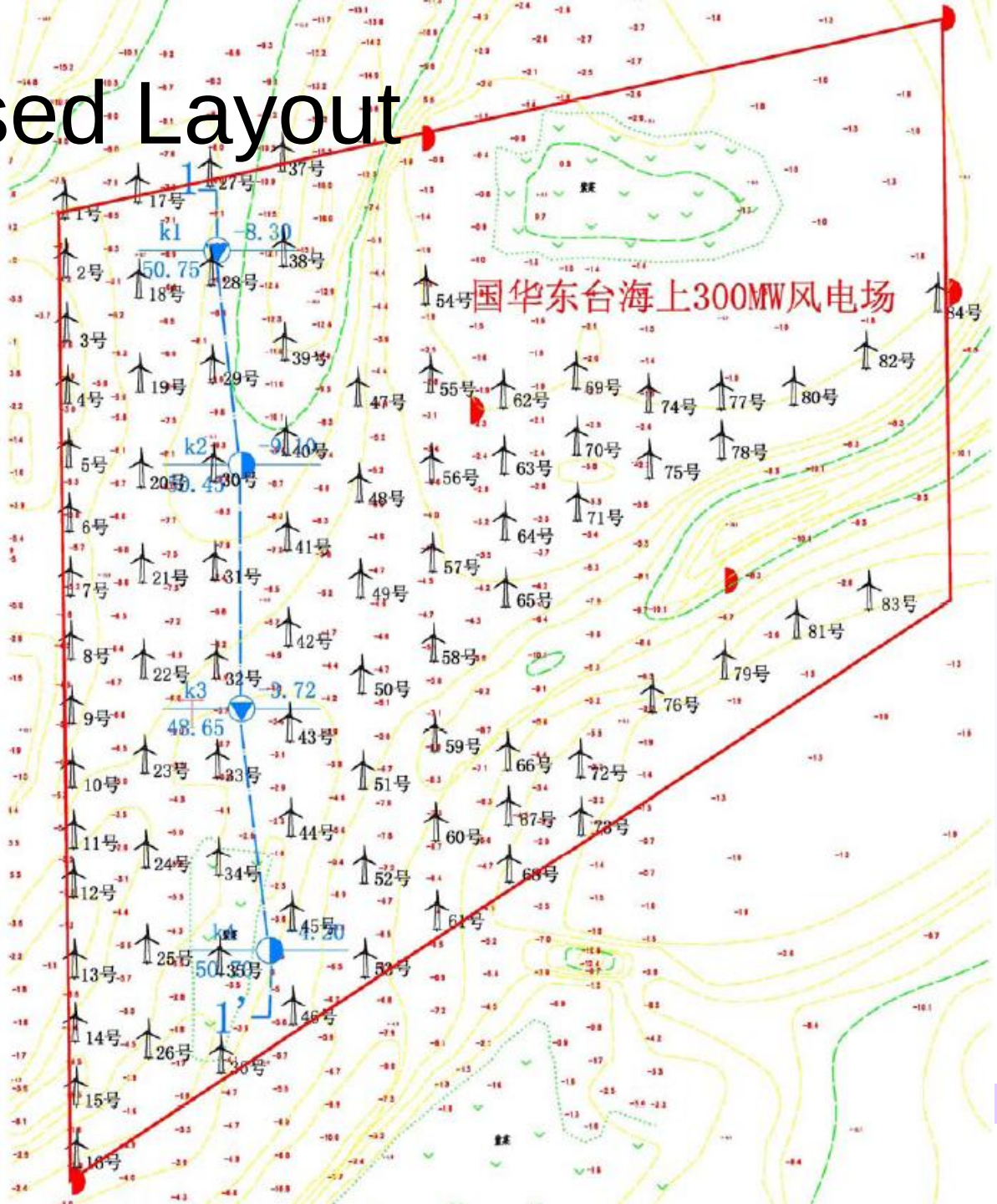


2.5 Foundation

- Five piles
- Length of pile: 56m
- Pile Diameter:1.6m

2.6 Proposed Layout

- 84*3.6MW turbines (300MW)
- 710GWh/a
- Total Investment: RMB 6.36 billion
- RMB 1.122 /kWh



3. China’s challenges in developing offshore wind farms

3.1 Three main types in China wind power development

Onshore Wind

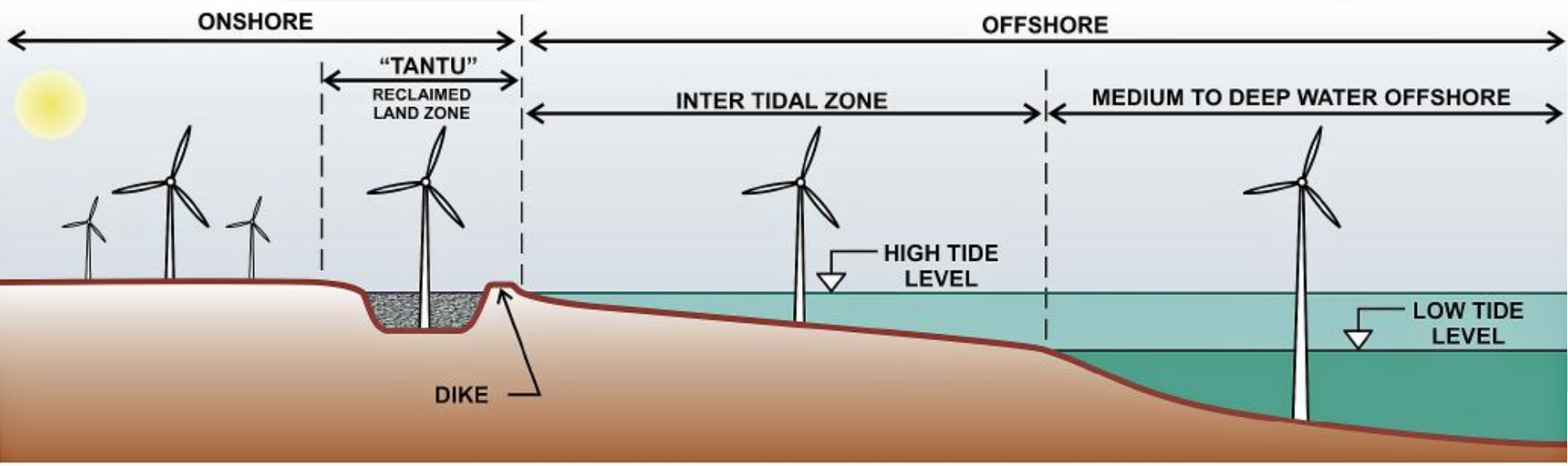
- Highest wind speeds
- Lowest cost
- Extensive local experience
- High potential in China
- Measures to improve capacity factor are key to cost efficiency.
- No global experience on planned 4-10 GW-scale wind bases
- Serious wake issue with large scale installations
- Grid planning and micro-siting of turbines key to success.

Offshore – Intertidal

- Muddy tidal flat area
- Potential attractive from a cost perspective
- Virtually no international experience in constructing wind-farms on tidal flats.
- Potentially quite attractive given proximity to load centers – reducing transmission costs
- Foundation construction and turbine erection methods have to be developed to minimize costs.

Offshore – Medium to Deep Water

- Likely to be most expensive (at least twice the price of on-shore)
- Significant international experience to develop upon.
- High costs of construction and maintenance – large capacity wind turbine (> 3 MW) will reduce costs.
- Uncertainties/risks of foundation construction (muddy seabed)
- Typhoon risk may be high in south China



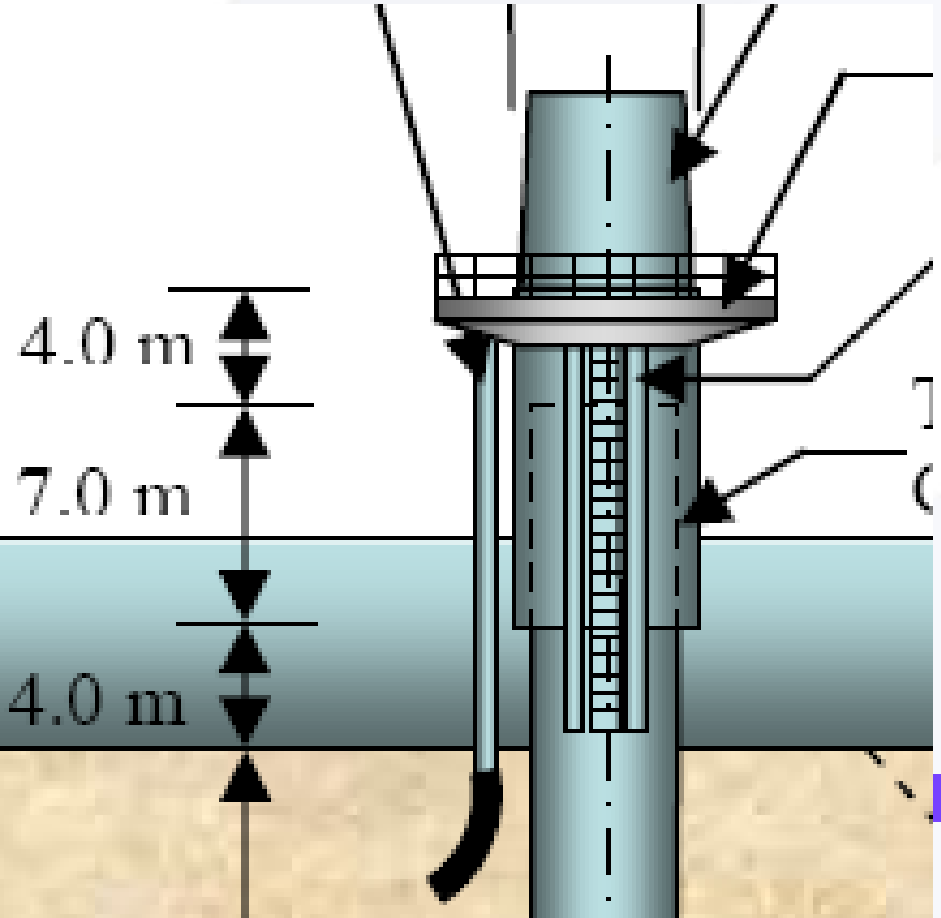
3.2 Impact of Typhoon and Muddy Seabed

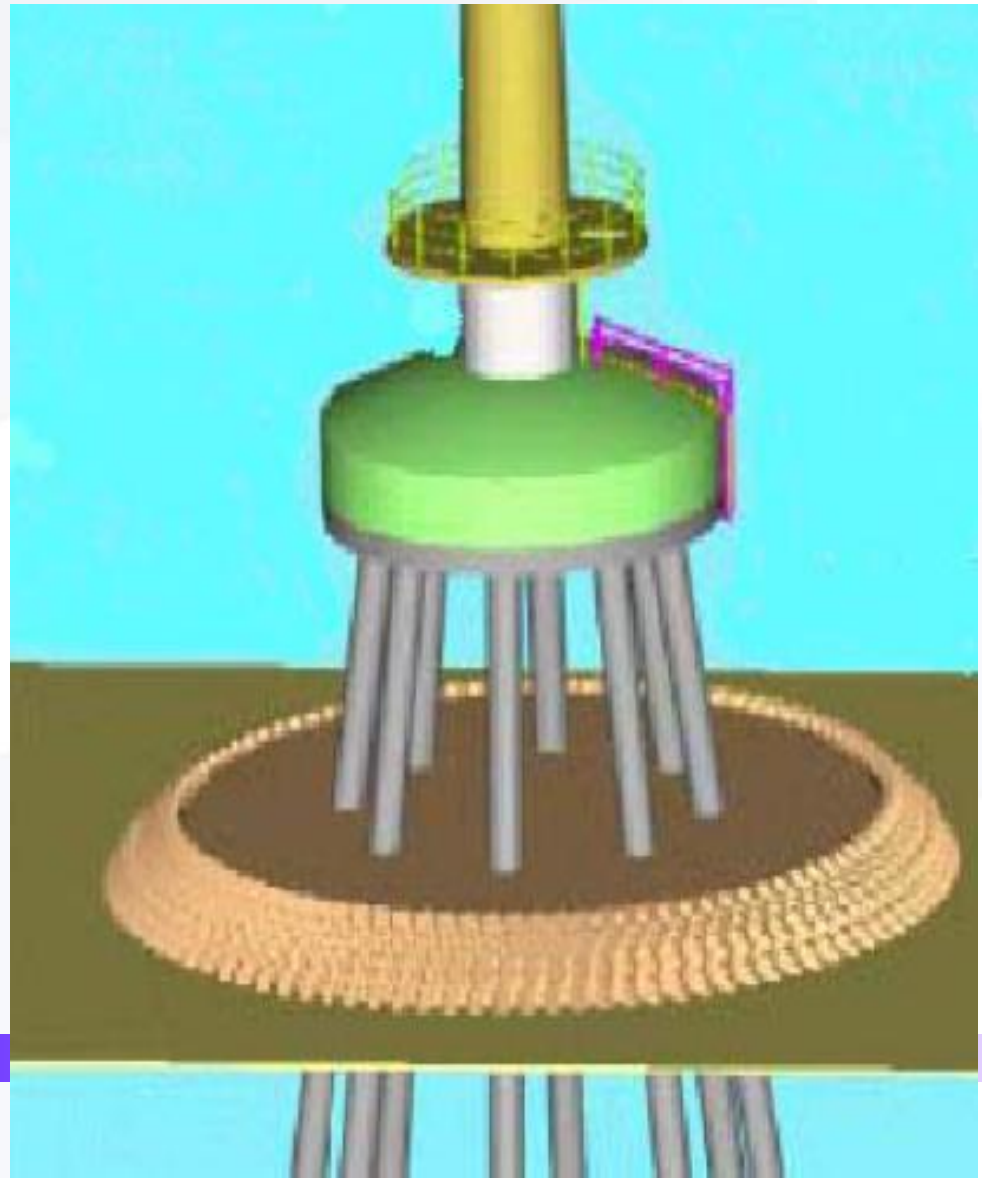
3.3 Extreme Typhoon is a Disaster!

3.3.1 Damaged by Typhoon

3.4 Muddy Seabed →Longer Construction Period

Multi-piles foundation causes longer construction period.





3.5 Muddy Seabed →Difficulties in Erection

European erection vessel cannot be used, so, the stability of the vessel during erection should be considered specially.

3.6 Low Wind Speed →High Power Tariff

Wind Speed: 7-8m/s

Full Load hours:

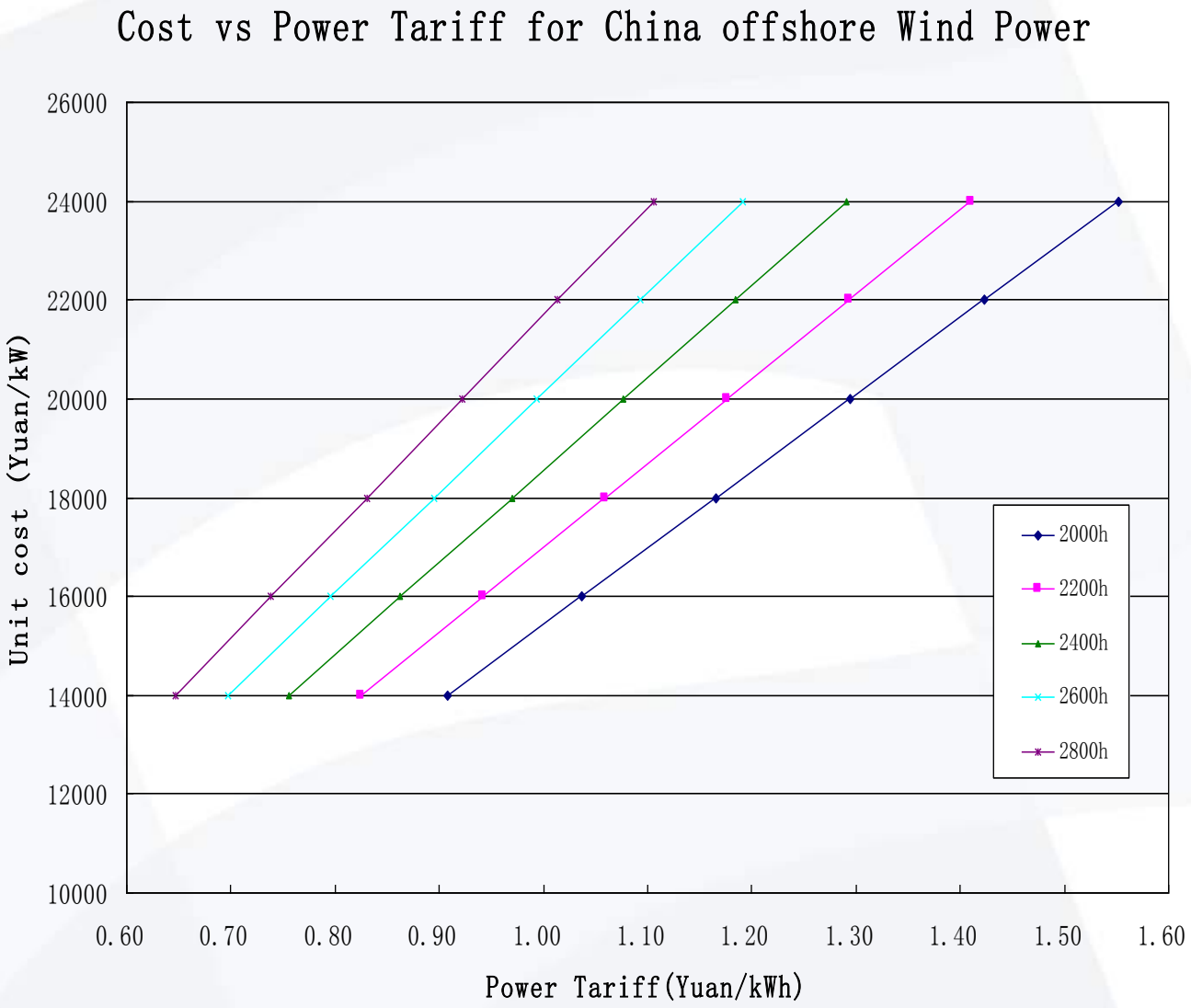
2400h/a

Total investment:

RMB 22000/kW

Power Tariff:

RMB1.2/kWh



3.7 Conclusion

The Challenges for the development of Chinese offshore wind farms mainly are resulted from

1. Typhoon
2. soft muddy seabed
3. Low wind speed

Thank you!

Question?