

# PowerChina Offshore Wind Engineering Co. Ltd.

June, 2023

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- 2| Design Capability**
- 3| Procurement Capability**
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# 1 Group/Company Profile

1.1 Power Construction Corporation of China Ltd.

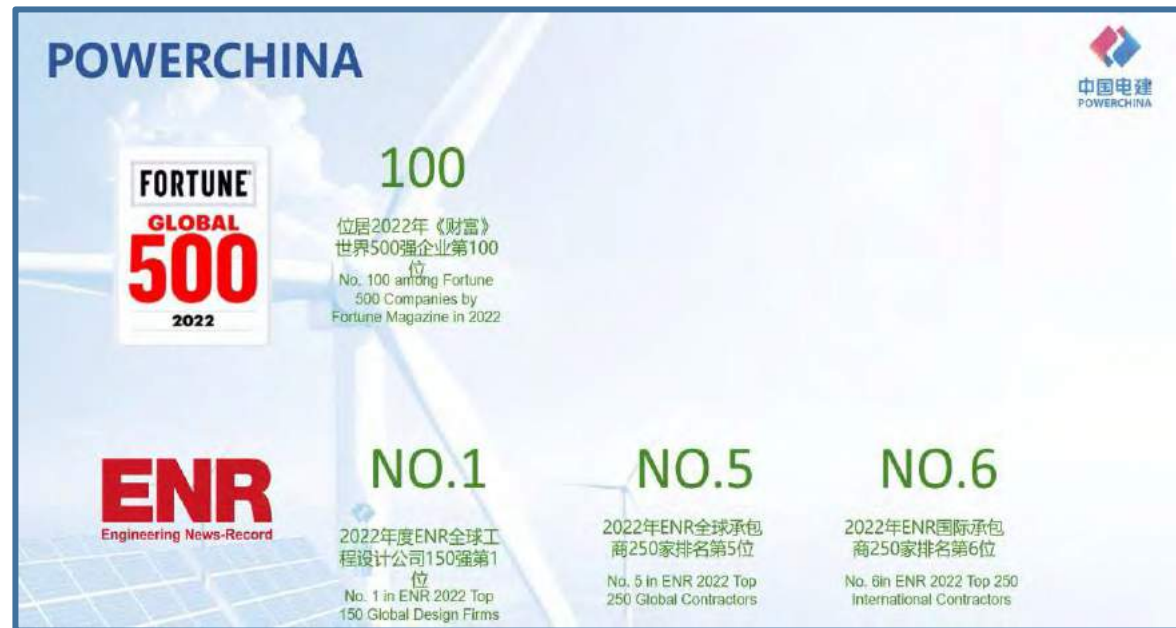
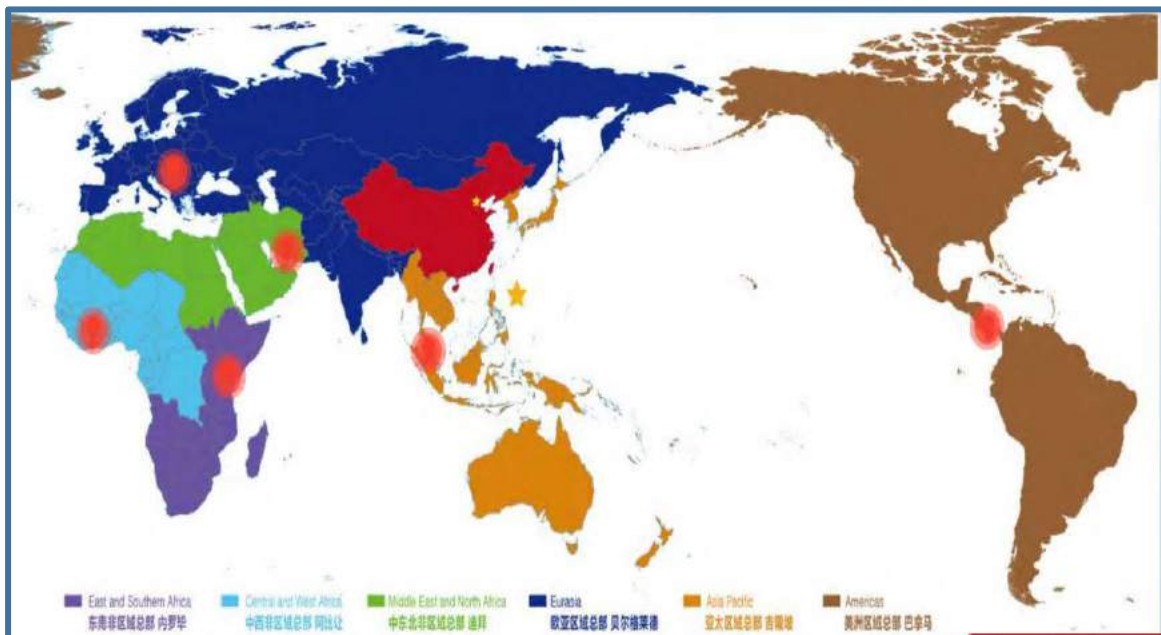


1.2 PowerChina Guizhou Engineering Co. Ltd.

1.3 PowerChina Offshore Wind Engineering Co. Ltd.

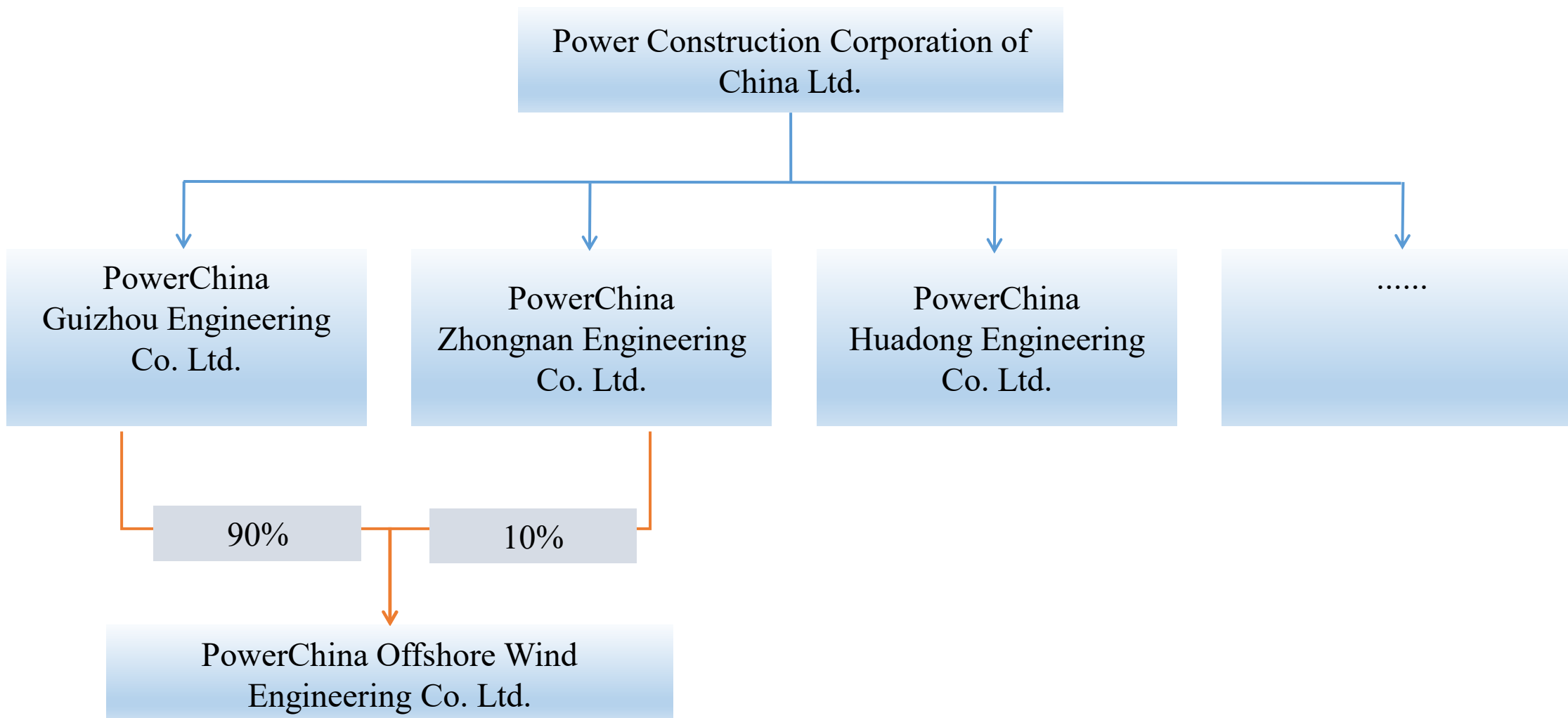
1.4 EPC Credit

1.5 Projects in Progress



- Global leader in planning, investigation, designing, consulting, civil works construction to M&E installation and manufacturing services in hydropower, thermal power, new energy, and infrastructure.
- Integrated services and solutions Provider covered F, EPC, and OM.
- 453 offices in 120 countries, 180,000 employees.
- No. 100 in Global 500 of Fortune.

# 1.1 Power Construction Corporation of China Ltd.



- Established in 2015 with the registered capital of RMB 800 million and 2,300 employees
- Leader in EPC companies of new energy especially in Wind and Solar energy
- Dynamic business model based on Win-Win principle

中国电建  
POWERCHINA

知行合一 价值创造  
Knowledge as action  
Value Creation

Create value for Clients

Create profit for Shareholders

Create wealth for the Society

Create happiness for Employees

Creat Value for the whole chain



## Subsidiaries

8 subsidiaries in China and 24 subsidiaries oversea



## Employees

2,300 employees including 1,500 engineers and management with more than 500 registered engineers



## Construction Machine

3,200 sets of various types of advanced machinery with the construction capacity of large-scale EPC




**In March 2020**  
Gamonarejo 50MW photovoltaic power station in Spain

**In February 2020**  
Al-kharsaa 800.15MW photovoltaic power station project in Qatar

**In September 2019**  
Scatec 148MW photovoltaic power generation project in Ukraine

**In June 2019**  
the Savmah cement clinker plant project (producing 6000 tons per day) in Kenya

**In December 2018**  
the 130 MW photovoltaic power generation project in Cherkov, Belarus

**In July 2018**  
the 354.6 MW Helio wind power project in Argentina

**In May 2018**  
the construction, operation and maintenance for the new terminal building (Terminal 2) of Kuwait International Airport

**In February 2018**  
the Loiyangalani-Suswa 400kV power transmission line project in Kenya

**In December 2017**  
the EPC contract for the 100 MW PV power project in Quetta, Pakistan

**In November 2017**  
the 300MWp self-provided PV power plant project in Siem Reap, Cambodia

**In April 2017**  
the 6MW PV power plant project (Phase I) in the Republic of Namibia

**In January 2017**  
the EPC contract for the Matuno River 8MW hydropower project in the Philippines

**In October 2016**  
the Olkaria-Lessos-Kisumu transmission line project in Kenya

Gamonarejo 50MW photovoltaic power station in Spain

Kuwait International Airport Project Image

Capital of Andhra Pradesh in India Planning Drawing

- With business in 32 countries around the world
- More than 300 Wind power and PV power farms
- Total installed capacity of 20GW



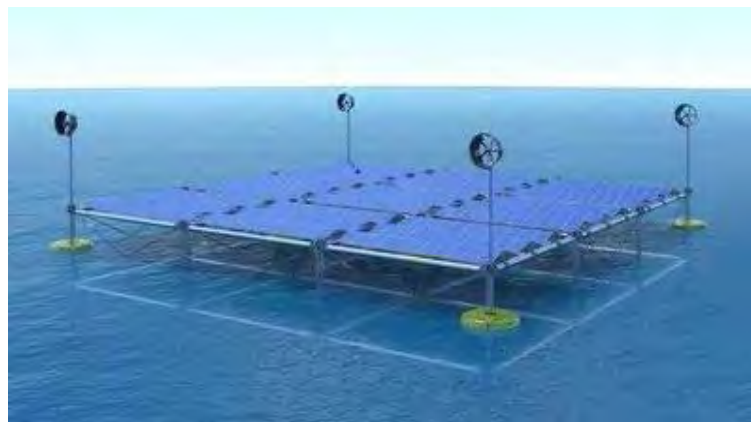
- June 2022, established in Hainan with a registered capital of RMB 500 million.
- 120 Employees based on professional teams of offshore wind engineering of two parent companies and enhanced by a group of high-end mature talents from offshore oil & gas engineering.
- Equipped with several sets of offshore wind installation vessels and with good credit in offshore wind execution.
- Developing floating offshore wind capability through the Mingyang floating pilot project and Wanning floating offshore wind project.



# Core Business of Offshore Wind Engineering Co.



EPC of Offshore wind



EPC of Offshore Solar



EPC of Offshore wind  
combined with fishery



Offshore wind O&M



EPC of Offshore wind and Solar  
complementation



EPC of Offshore Wind combined  
with Hydrogen

## 1.4.1 Qingzhou III 500MW Offshore Wind Project in China



Project Name	Qingzhou III 500MW offshore wind project				
Capacity	500MW	WTG	MySE6.8-158 MySE8.3-180	Number of Turbines	65
Location	Yang Jiang offshore, Guangdong, China	Distance to Land	55km	Water Depth	41~46 m
Foundation Type	Monopile + jacket	Foundation Weight	Monopile: 244t~314t Jacket: ~ 1400t	Duration	9 mons
220kV Subsea Cable	147km×2 loops		35kV Subsea Cable	64km× 8 loops	



- EPC signed by Parent company- Guizhou Engineering Co. in 2020, installed during 03 - 12, 2021
- Farthest offshore distance, deepest water depth and biggest installation capacity of single WTG in 2021
- Most of team members joined in the Offshore Wind Engineering CO.

## 1.4.2 Bozhong A 501MW Offshore Wind Project in China



Project Name	Bozhong A 501MW offshore wind project				
Capacity	501MW	WTG	HZ220-8350	Number of Turbines	60
Location	Offshore Dongying, Shandong, China	Distance to Land	14-24 km	Water Depth	11-15m
Foundation Type	Monopile	Foundation Weight	1160t	Duration	8 mons



- EPC Signed by Parent company- Zhongnan Engineering Co.
- Installed by Offshore Wind Engineering Co. during April - December 2021

## 1.4.3 Laizhou 304MW Offshore Wind Combined with Fishery in China



Project Name	Laizhou 304MW pilot project of offshore wind combined with fishery				
Capacity	304MW	WTG	HZ220-8000	Number of Turbines	38
Location	Offshore Laizhou, Shandong, China	Distance to Land	12km	Water Depth	6.2-8.2m
Foundation Type	Monopile	Foundation Weight	700t	Duration	6 mons



- EPC Signed by Parent company- Zhongnan Engineering Co.
- Management of construction provided by Offshore Wind Engineering Co. during 07 - 12, 2022

## 1.4.4 Bac Lieu Phase III 141MW Offshore Wind Project in Vietnam



Project Name	Bac Lieu Phase III 141MW Offshore Wind Project				
Capacity	141MW	WTG	Gold Wind 3 MW	Number of Turbines	47
Location	Offshore Bac Lieu, Vietnam	Distance to Land	10 km	Water Depth	10m
Foundation Type	Piles Platform	Foundation Weight	65t	Duration	1 year

- EPC Signed by Parent company- Zhongnan Engineering Co. in 2020
- Installed from 2021 to 2022

## 1.4.5 Soc Trang Phase I 30MW Offshore Wind Project in Vietnam



Project Name	Soc Trang Phase I 30MW Offshore Wind Project				
Capacity	30MW	WTG	Gold Wind 3 MW	Number of Turbines	10
Location	Offshore Soc Trang, Vietnam	Distance to Land	5 km	Water Depth	6m
Foundation Type	Piles platform	Foundation Weight	65t	Duration	1 year

- EPC Signed by Parent company- Zhongnan Engineering Co. in 2020
- Installed from 2021 to 2022

## 1.4.6 Tra Vinh No.2 Offshore Wind Project in Vietnam

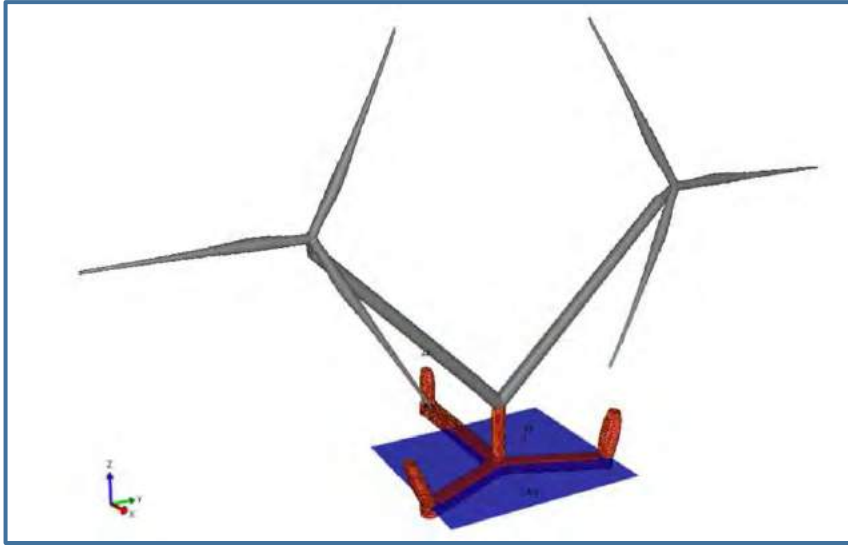


Project Name	Tra Vinh No.2 Offshore Wind Project				
Capacity	54MW	WTG	Gold Wind GW-4.5	Number of Turbines	12
Location	Offshore Tra Vinh, Vietnam	Distance to Land	5km	Water Depth	4m
Foundation Type	Monopile	Foundation Weight	480t	Duration	4 mons



- EPC Signed by Brother company- Zhongnan Engineering Co. in 2020
- Installed from June to October 2021

## 1.5.1 Mingyang Floating Twin-Turbines Pilot Project in China



Project Name	Mingyang Floating Twin-Turbines Pilot Project				
Capacity	16.6MW	WTG	MySE8.3-180	Number of Turbines	2
Location	Offshore Shapa Town, Guangdong, China	Distance to Land	70 km	Water Depth	45m
Foundation type	Semi-submersible floater (steel structure + concrete)	Foundation weight	8200 T	Duration	120 days

- EPC Signed by Offshore Wind Engineering Co. in 2022
- The biggest capacity of single floating offshore wind (16.6 MW)
- An innovative floating foundation - concrete+steel structure to cut cost



## 1.5.2 Wanning 1GW Floating Offshore Wind Project in China



Project Name	Wanning 1GW floating offshore wind project				
Capacity	1000 MW	WTG	H256-16.7MW DEW262-17MW MY260-16MW HE261-18MW	Number of Turbines	6
Location	Offshore Wanning, Hainan, China	Distance to Land	22km	Water Depth	100 m
Foundation Type	Semi-submersible (Type A + Type F)	Foundation Weight	6000 t	Duration	5 years

- EPC of construction be responsible by Offshore Wind Engineering Co.
- The largest commercial floating offshore wind project in the world
- Offshore construction from Sept. 2023 to June 2024

## 1.5.3 Procurement of Jacket Foundation and Steel Piles for Qingzhou IV Offshore Wind in China

Project Name	Procurement of Jacket Foundation and Steel Piles				
Capacity	500MW	WTG	MySE12MW-242 MySE11MW-230	Number of Turbines	43
Location	Offshore Shapa, Yangjiang, Guangdong, China	Distance to Land	55km	Water Depth	41-46m
Foundation Type	Four-legs jacket	Foundation Weight	Steel piles: monopile 420t Jackets: ~ 1550t	Duration	6 mons

- Signed by Offshore Wind Engineering Co. in 2022
- Started from Decemeber of 2022, to be completed in June 2023

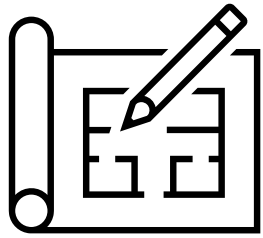
## 1.5.4 Shantou Lemen (II) Offshore Wind Project in China



Project Name	Shantou Lemen (II) Offshore Wind Project				
Capacity	594 MW	WTG	SEW11.0-208	Number of Turbines	15
Location	Offshore Shantou, Guangdong, China	Distance to Land	14 km	Water Depth	20-30 m
Foundation Type	Monopile	Foundation Weight	1800 t	Duration	4 mons

- Signed by Offshore Wind Engineering Co. in 2022
- Started from February 2002, to be completed in June 2023

## 2| Design Capability



2.1 PowerChina Zhongnan Engineering Co. Ltd.

2.2 PowerChina Huadong Engineering Co. Ltd.

2.3 Wison Engineering

- Design of Offshore Wind Farms and Foundation supported by Parent company  
- Zhongnan Engineering and Brother company- Huadong Engineering
- International design supported by strategic partner - Wison Engineering

## I Four Comprehensive Class A Qualifications

Class-A National Engineering Survey Integrated Qualification

Class-A National Engineering Design Integrated Qualification

Class-A National Consulting Integrated Qualification

Class-A National Engineering Supervision Integrated Qualification

Top **60** Chinese Engineering Design Firms    Top **80** Chinese Contractors

- **Provider of wind farm planning, feasibility study, wind farm design, foundation design, design of offshore booster station and converter station, design of subsea cable , and seabed survey**
- **Designed 5GW of offshore wind in China and 800MW in Vietnam**
- **Designed the world's largest commercial floating offshore wind project (Wanning 1 GW)**

**2**

academicians of the Chinese Academy of Engineering

**1**

national engineering survey and design master

**2**

national level talents selected for the National Hundred, Thousand and Ten Thousand Talent Project

**15**

experts enjoying special government allowances of the State Council

**2**

engineering survey and design masters of Hunan Province

**6**

electric power survey and design masters

**Over 1800**

employees with various registered qualification certificates





- The earliest enterprise to carry out offshore wind power design research in China
- 16 GW offshore wind FS/FEED/EPC , about 65% of the China offshore wind market
- The main technical communication platform of offshore wind between China and Europe
- International benchmarking and case studies of Chinese offshore wind technology standards



Asia's first 110kV offshore booster station - Rudong 150MW offshore wind project



Binhai North H2#400MW Offshore Wind



The most difficult offshore wind farm with the longest offshore distance in Asia-- Jiangsu Dongtai 200MW Offshore Wind Farm



The First National Gold Quality Award for Offshore Wind Project - Binhai North H1#100MW



- An international business partner of PowerChina Offshore Engineering
- EPC of the floater of Chinese first floating offshore wind “Three Gorges Leading”



- Understanding international design standards
- Supported by international engineering companies

# 3 Procurement Capability



## 3.1 WTG Foundation

## 3.2 WTG



## 3.1.1 CIMC SOE

### 地理位置

中集太平洋海工总部位于上海，生产基地坐落在扬子江畔的江苏启东船舶工业园区。从总部到生产基地，开车仅需两小时。





### 中集太平洋海工场地

- 660,000m<sup>2</sup> 场地
- 820m 海岸线
- 900T 龙门吊
- 100m<sup>2</sup>/m<sup>2</sup> 操作平台
- 一流的钢结构生产车间、涂装车间和独立不锈钢管处理车间
- 开放码头可直接对外出口
- 新建两条钢管桩生产线
- 拟增加一台900吨龙门吊，以加强大型装备下水能力
- 管桩生产能力8万吨/年



风电管桩制作车间: 226m(L) x 156m(W) x 24m(H), 面积: 35,256m<sup>2</sup>  
 D 梁: 326m (L) x 42m (W), 面积: 9492m<sup>2</sup>  
 起重能力: SWL150T x 22(H) x 2; SWL20T x 16(H) x 3;  
 主要设备: 170吨卷板机1台 (套圈); 140吨卷板机1台 (回圈)

切割车间: 35m x 156m, 面积: 5616m<sup>2</sup>  
 SWL20T x 4, 高精龙门式切割机

SWL32T 龙门吊 x 3

码头: 518m x 25m  
 桥面宽: 27m  
 码头水深: 7.5m

900T 龙门吊 x 2  
 跨度: 45m  
 高度: 48m

打砂 & 油漆车间  
 A1: 90m x 40m = 3,600m<sup>2</sup>  
 A2: 120m x 40m = 4,800m<sup>2</sup>

钢板存储区  
 156m x 50m, 面积: 7,800m<sup>2</sup>  
 起重能力: SWL20T x 4

煤炭仓库  
 100m x 30m = 3,000m<sup>2</sup>  
 起重能力: SWL20T, SWL3T x 2

总装场地

家属区

办公楼

员工宿舍

食堂



- Strategic partners of PowerChina Offshore Wind Engineering Co. Ltd.
- An international engineering company specializing in manufacturing high-end equipment such as liquefied gas carriers and liquid cargo systems, offshore modules, and offshore wind power facilities
- Manufacturing and supplying monopile foundation, tower, jacket and guiding frame for offshore wind power projects

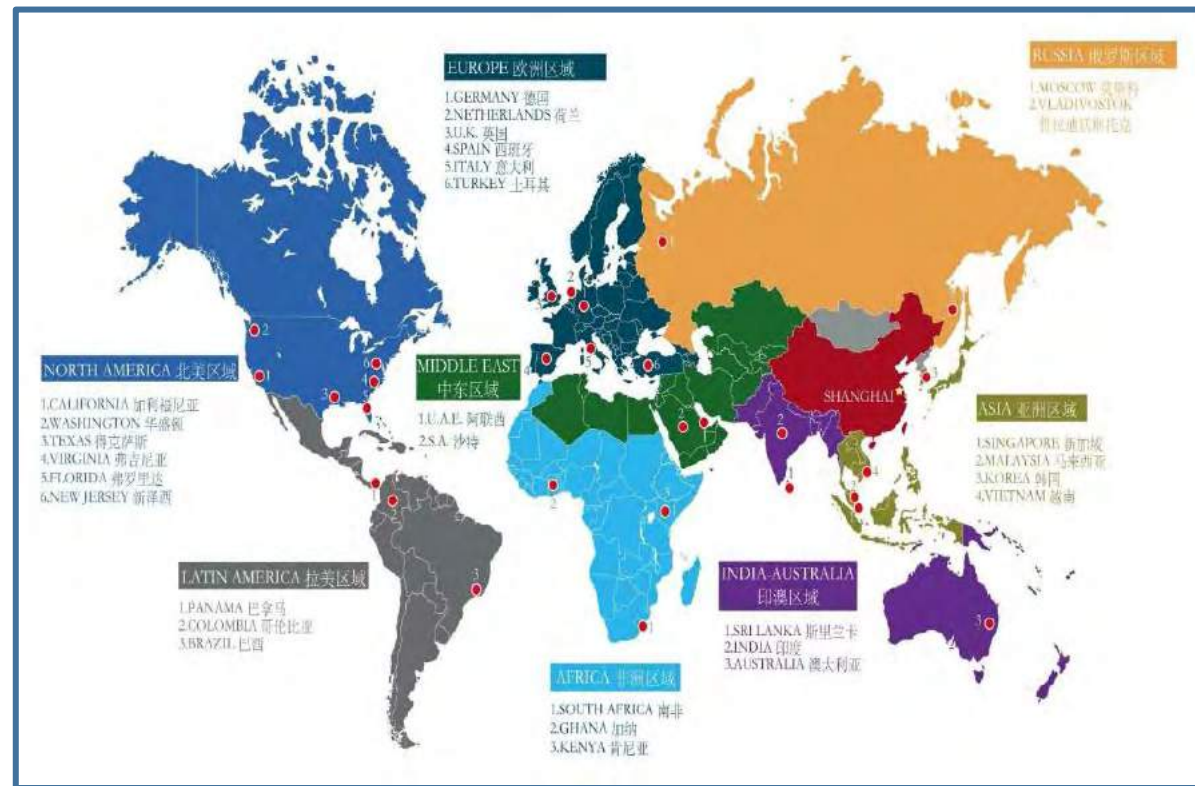
### Offshore Wind Credit

Product	Project Name	Client/ End User	Scope	Duratio	Status
Steel Tube Pile	Three Gorges Rudong H6 Project	Three Gorges	2 Monopiles	2 Months	Delivered
	Three Gorges Rudong H10 Project	Three Gorges	6 Monopiles	2 Months	Delivered
	Three Gorges Rudong H10 Project	Three Gorges	6 Monopiles	2 Months	Delivered
	Three Gorges Rudong H10 Project	Three Gorges	6 Monopiles and 6 Cages	2 Months	Delivered
	GCL-Poly Rudong H15 Project	GCL-Poly	5 Monopiles and 5 cages	2 Months	Delivered
	Three Gorges Rudong H10 Project	Three Gorges	6 Monopiles and 6 Cages	2 Months	Delivered
	Three Gorges Rudong H10 Project	Three Gorges	5 Monopiles and 5 cages	2 Months	Delivered
	CGN Rudong H18 Project	CGN	5 Monopiles	2 Months	Delivered
	Qingzhou III 500MW offshore wind project	PowerChina	6 Steel piles	5 Months	Delivered
	Qingzhou III Offshore Wind Project	CEEC	10 Steel piles	5 Months	Delivered
Tower	STATE POWER INVESTMENT Zhanjiang Xuwen Offshore Wind Project II	STATE POWER INVESTMENT	12 Towers	5 Months	Delivered
	Qingzhou III 500MW offshore wind project	MingYang Smart Energy	12 Towers	7 Months	Delivered
	Mingyang Yangjiang Shapa 300MW R&D demonstrate Project	Mingyang Yangjiang	16 Towers	6 Months	Delivered
Guide Frame	Qingzhou III 500MW offshore wind project	CEEC Guangdong Power Engineering	1 Guide frame	1 Month	Delivered
Jacket	Qingzhou III offshore wind project	PowerChina	6 Jackets	6 Months	Delivered
	Qingzhou III 500MW offshore wind project	CEEC	3 Jackets	4 Months	Delivered
	Three Gorges New Energy Yangxi Shapa Phase II (400WM) Offshore Wind Project	Three Gorges	4 Jackets	4 Months	Delivered
Pile leg	CL20001 Cylindrical Pile legs	NCBC	12 Pile legs	4 Months	Delivered

- A strategic partner of PowerChina Offshore Engineering Co. Ltd.
- Established in 1992, a port equipment manufacturer of China Communications Construction Company Limited (CCCC)
- 8 main manufacturing bases in Shanghai, Nantong and Jiangyin, covering an area of 6,670 hectares and 10 km of coastline
- 1 million tons per year of production covered 103 countries and regions



Nantong Production Base



Global Business Layout

## Company Introduction



上海振华重工

### Main Certificates

- ✓ISO 9001:2015
- ✓EN 1090 EXC4
- ✓HSE OHSAS 18001
- ✓ISO 3834
- ✓DIN 18800-7
- ✓AISC
- ✓CWB

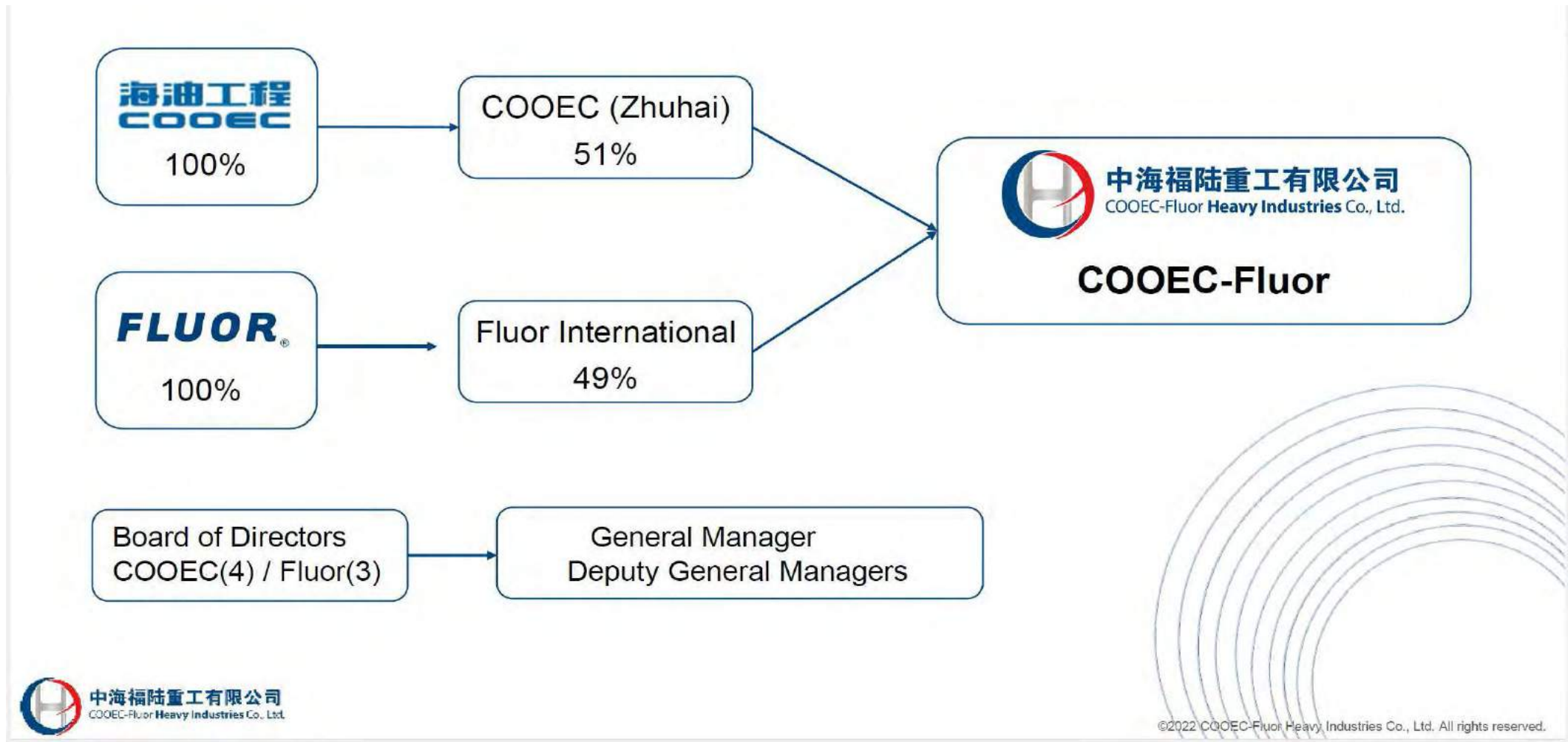


## Certification System

N°	Project Name	Year	Structure type	Qty.	Parameters
1	UK 500MW Project	2009	Monopile	140	
2	Longyuan Rudong 150MW Project	2010	Monopile	58	Diameter 5m, pile weight 536t
3	Taiwan Offshore Wind Power Pilot Project	2012	Monopile	2	Diameter 5.8m, pile weight 704t
4	Scottish 7MW pilot wind turbine	2013	Tower (diameter 7m)	1	Diameter 7m, pile weight 410t
5	German wind power pilot pile project	2015	Transition Pile	1	
6	Longyuan Rudong 200MW Project	2016	Monopile* transition section	22	Diameter 5m, pile weight 536t

## Offshore Wind Credit

## 3.1.3 COOEC Fluor



## 3.1.3 COOEC Fluor

**Location:** Zhuhai, China

**Capacity:** Structural Steel Fabrication: 84,000 MT/YR  
Piping Fabrication: 2.5 MM DI/YR  
Module Assembly: 250,000 MT/YR

**Supplying:** Structure steel fabrication

Pipe fabrication

Fabrication and assembly of onshore modules

Offshore fixed platform jackets and topsides

Floater, FPSO/FLNG modules

Subsea equipment

One of the world's largest fabrication yards at

**Over 2 million square meters**

↓  
**290** ×

International Standard  
Football Fields



In the highest production year (2021),  
over **18+ Million** safe work hours.



**12,500** Craft,



**1,300+** Staff

## 3.1.3 COOEC Fluor





## 3.1.3 COOEC Fluor

### Major Facilities



#### Structural Cutting Workshop

- ▶ Annual capacity: ~ 84,000 tons
- ▶ Total area: ~ 33,300 m<sup>2</sup>



#### Structural Pre-Assembly Workshop

- ▶ Annual capacity: ~ 84,000 tons
- ▶ Total area: ~ 34,000 m<sup>2</sup>



#### Structural Blasting and Painting Workshop

- ▶ Total area: 11,000 m<sup>2</sup>
- ▶ Building #1: 4 bays 42 x 33 x 13 m
- ▶ Building #2: 4 bays 42 x 33 x 19 m



#### Piping Workshop

- ▶ Annual capacity: ~ 2.5MM DI
- ▶ Total area: ~ 31,300 m<sup>2</sup>



#### Piping Blasting, and Painting Workshop

- ▶ Total workshop areas: 1,120 m<sup>2</sup> + 2,700 m<sup>2</sup>
- ▶ Temporary painting sheds could also be built.



#### Warehouse

- ▶ Indoor area: 22,500 m<sup>2</sup>
- ▶ Conditioned area: 3,000 m<sup>2</sup>
- ▶ Steel stock area: 36,000 m<sup>2</sup>
- ▶ Outdoor area: 70,500 m<sup>2</sup>



#### Assembly Areas: 851,700 m<sup>2</sup>

- ▶ Assembly area #1: 356,400 m<sup>2</sup>
- ▶ Assembly area #2: 292,600 m<sup>2</sup>
- ▶ Assembly area #3: 132,200 m<sup>2</sup>
- ▶ Assembly area #4: 70,500 m<sup>2</sup>



#### LOAD-OUT:

- ▶ #1 Skidway: 35,000 MT
- ▶ #3 Skidway: 12,000 MT
- ▶ #2 Skidway (under development)
- ▶ 108 axles SPMT

## 3.1.3 COOEC Fluor

### Project Reference

QTY	Track Record (2013-2022)
16	Topsides for Fixed Platform
7	Jackets for Fixed Platform
8	Mudmats
1	Compressor Module
205	Upstream/Downstream Modules
188	LNG Modules
7	LNG Terminals
34	Renewables - Offshore Wind Jackets
1	Structure Steel Fabrication

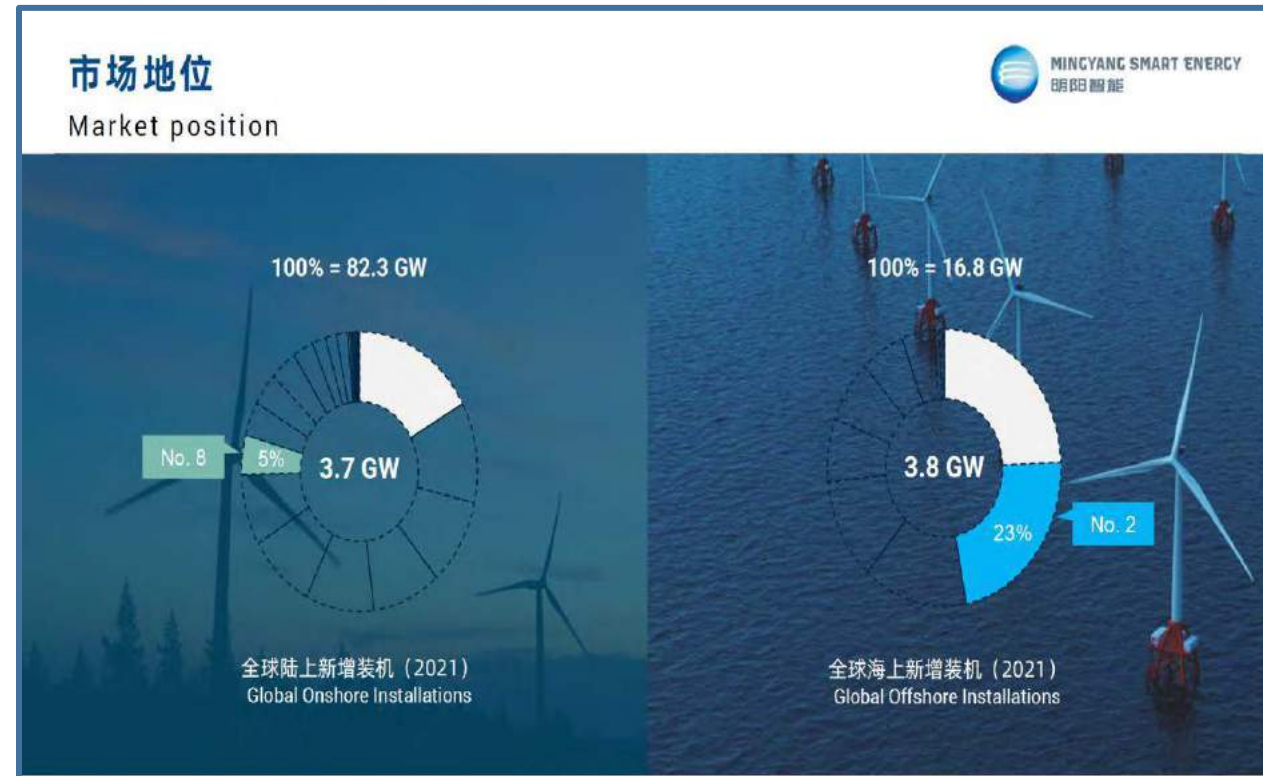


## 3.1.3 COOEC Fluor Offshore Wind

Seagreen Offshore Windfarm	
Owner/Client	SSE / Seaway7
Tonnage	~ 67,000 MT / 34 sets
Scope of Works	Shop Engineering/ Procurement/ Fabrication/ Load Out
Project Description	Located in North Sea, UK; Wind turbine generator support structures fabrication.
Fab Duration	2020 – 2022



## 3.2.1 Mingyang Smart Energy



- On January 10, 2023, 18 MW world's largest offshore wind turbine launched
- World's largest floating offshore wind turbine (16.6MW) launched
- All the company launched models have received DNV-GL certification.

## 3.2.2 Vestas

Long-term partner - Vestas is a world-renowned wind turbine manufacturer with an installed capacity of over 160GW in 88 countries, covering the design, manufacturing, installation and service of onshore and offshore wind turbines. PowerChina Guizhou have a long-standing relationship with Vestas and have purchased 111 sets of Vestas fans.

No.	Project name	Duration	Qty of Turbines	Type	Project Status
1	Shandong Lingcheng 76MW Wind Power Project	November 20, 2017	35	V110-2.2MW	Completion
2	UPC Renewable Jiangsu Suining 61.6MW Wind Power Project	December 06, 2019	28	V120 low speed wind version - 2.2MW	Completion
3	Shunzhi Wind Power Project, Lingsheng District, Dezhou	09 April, 2020	21	V120-2.4MW	Completion
4	Jiangsu Jinhua Xiangdong 99.7 MW Wind Power Project	30 April, 2020	17	V120-2.4MW	Completion

# 4 Installation Vessels



4.1 Installation Platforms

4.2 Floating Crane

4.3 Transport Vessels

4.4 Tugboats

## 4.1.1 JuJie701/702



Name	JuJie701/702	Main Dimension	141m*36m*6m
Draft	4m	Max. Submerged Draft	24 m
Load of Main Hook	700T@24m	Lifting Height of Main Hook	140m over Deck 25m under Deck
Load of Auxiliary Hook	150 T@44m	Lifting Height of Auxiliary Hook	150m over Deck 25m under Deck
CS	CCS	Navigation Zone	Non-restriction waters



## 4.1.2 JuJie703/706



Name	JuJie703/706	Main Dimension	90m*38m*6m
Draft	4 m	Max. Submerged Draft	14m
Lifting Equipment	1600T Crawler Crand *1 500T Crane*1	Lifting Height	147m
CS	CCS	Capability	4-7MW
Navigation Zone	Non-restriction waters	GT	8121T



## 4.1.3 Spring Blue Sea

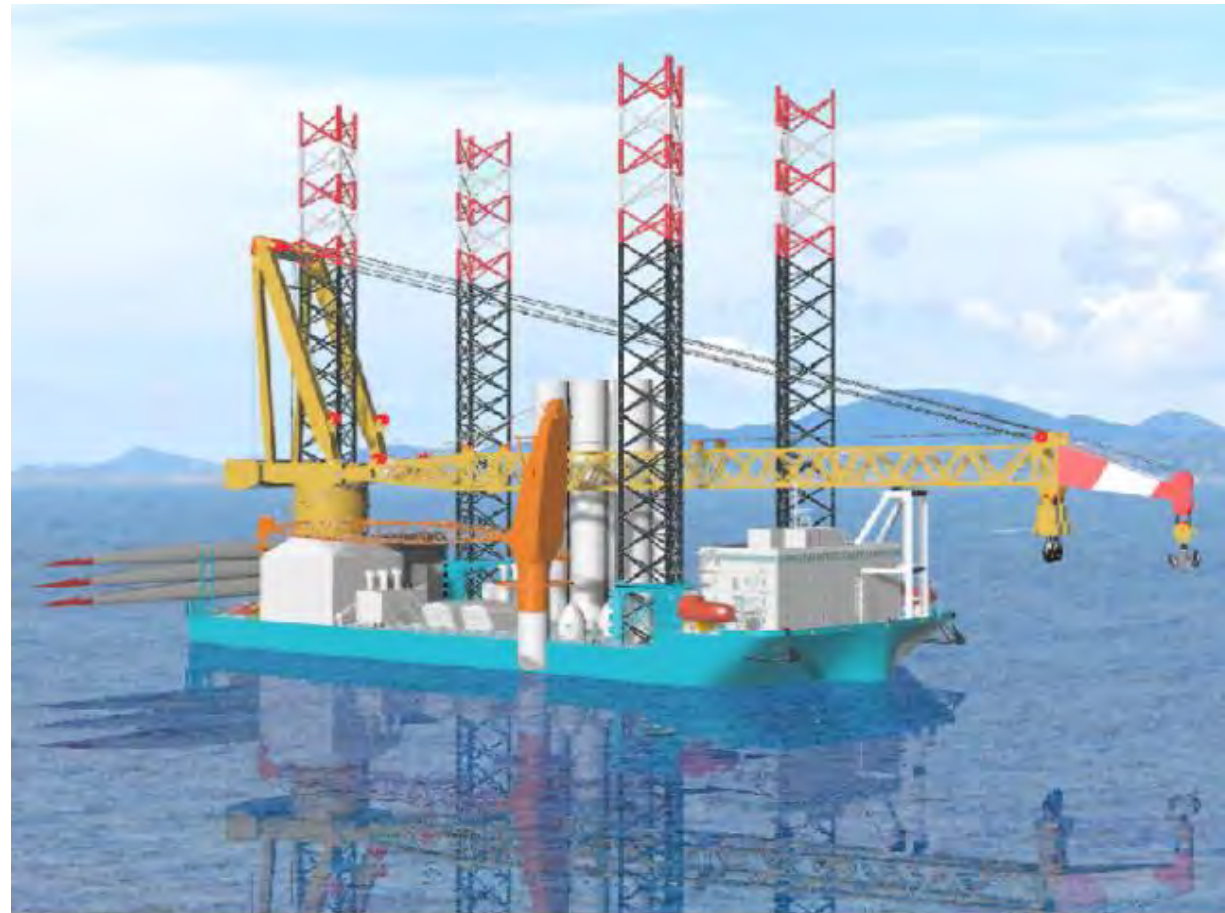


Name	Spring Blue Sea	Main dimension	70.6m*43.3m*7.1m
Pile Leg	4-legged trussed	Leg length	114m
Max. water depth	70m	DPS	DP1
Lifting capacity of main crane	800T@23.5m 100T@70m	Lifting height	117m (above deck) 40m (below deck)
Variable load	1200T	Installation capability	12 MW

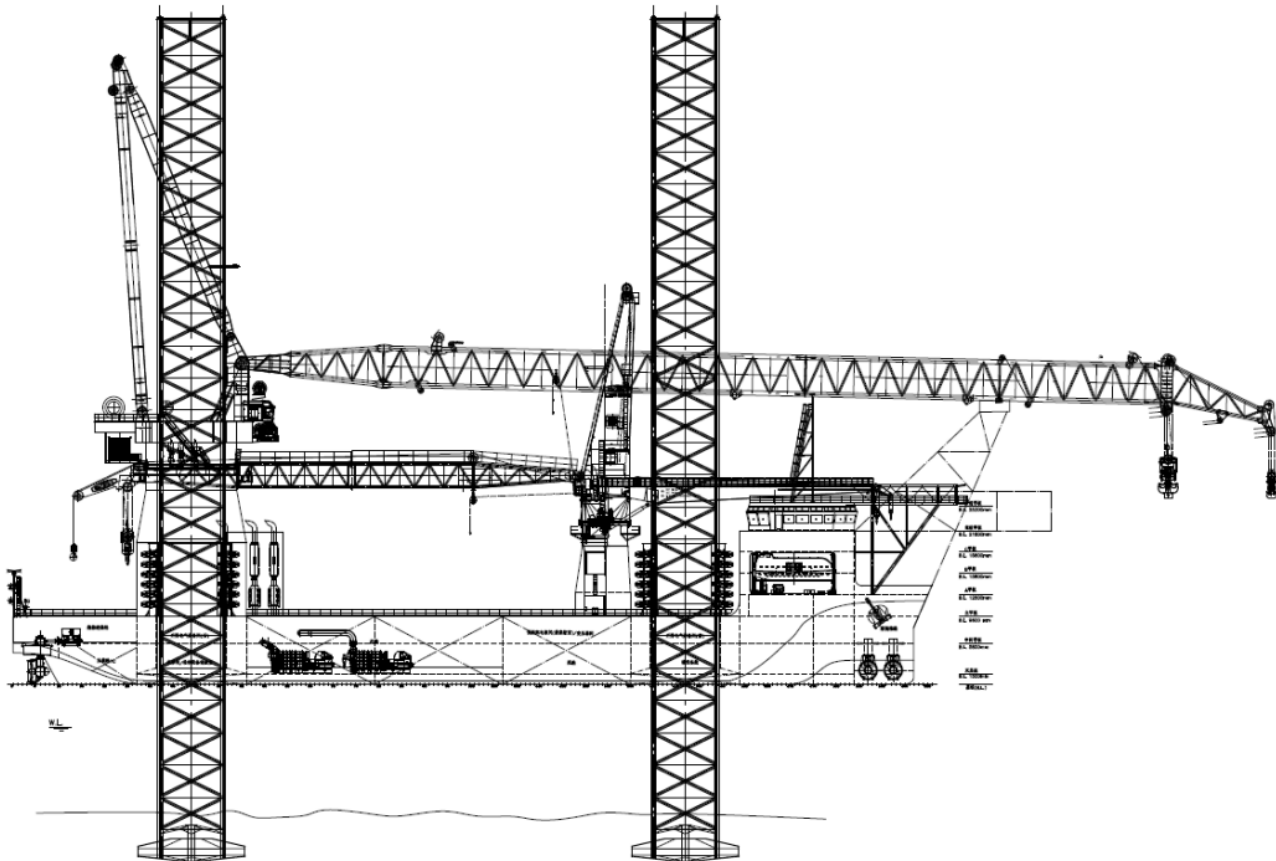
- Signed a five-year rental agreement by PowerChina Offshore Engineering Co.
- Installation capability of 12MW offshore wind turbines

## 4.1.4 Autumn Blue Sea

Name	Autumn Blue Sea	Main dimension	125.14m*48m*9.5m
Pile leg	4-legged trussed	Leg length	131.08m
Max. water depth	70m	DPS	DP2
Lifting capacity of main crane	1600T@39.5m 350T@98.7m	Lifting height	175m (above deck)
Variable load	5500 T	Installation capability	20MW



## 4.1.5 HaiYang92



Name	HaiYang92	Main dimension	130.6m*48m*9.6m
Pile leg	4-legged trussed	Leg length	125m
Max. water depth	70m	DPS	DP1
Lifting capacity of main crane	1600T@35m 50T@100m	Lifting height	150m (above deck)
Variable load	6000t	Installation Capability	20MW

## 4.1.6 Sharing Installation Platforms

	Name	Main demension	Max. Water Depth	Lifting capacity	DPS
1	Ouyang 003	75.6*40*7	50	600T@28m	DP1
2	Ouyang 004	75.6*40*7	50	600T@28m	DP1
3	Hailong Xingye	94.5*43.3*7.6	60	1200T@26m	DP1
4	Huaxianglong	130*42*9	50	1200T@25m	DP2
5	Three Gorges Energy 001	85.8*40*7	55	800T@32m	-
6	Huihai I	138.55*40.8*10	40	1000T@25m	DP2

## 4.2.1 Shuanghai One

Name	Shuanghai One	Main dimension	171m×44m×14m	Operating draught	11m
Main hook fixed tail crane	3600t@36m	Main hook slewing crane	2400t@35m	Main hook lifting height	113m
Aux. hook full swing	900t@66m (Lift height 135m)	Self-sustainability	60d	CS	CCS
POB	60P	Max.Deck Load	4000T	Deck load	12T/m <sup>2</sup>



## 4.2.2 Chuang Li

Name	Chuangli	Main dimension	199m*47m*14m	Operating draught	11m
Main hook fixed tail crane	4500T@40m	Main hook slewing crane	3500T@40m	Main hook lifting height	95m
Self-sustainability	60d	CS	CCS	DPS	DP3
POB	399P	Max.Deck load	7000T	Deck load	10T/m <sup>2</sup>



## 4.2.3 Hailong 106

Name	Hailong 106	Main dimension	169m*46m*13.5m	Operating draught	7m-8.7m
Main hook fixed tail crane	3000T@40m	Main hook slewing crane	2000T@35m	Main hook lifting height	85m
Mooring equipment	12x12 STEVPRIS	Self-sustainability	60d	CS	CCS
POB	302P	Max.Deck load	5000T	Deck load	10T/m <sup>2</sup>



## 4.2.4 Sharing Floating Cranes

No.	Name	Main demension	Lifting capacity	DPS
1	Zhenhua 30	297.55*58*28.8	Fixed crane: 12,000T@54m Full swing: 7,000T@54m	DP2
2	Huatianlong	175*48*16.5	Fixed crane: 4000T@40m Full swing: 2000T@45m	DP2
3	Weili	140.76*40*12.8	Fixed crane:3000T@40m Full swing: 2100T@27.4m	DP2
4	Hengtong 3500	141*54.8*10.8	Fixed crane: 3500T@40m Full swing: 2500T@35m	-
5	Haobo Offshore	194.29*52*12.15	Fixed crane: 4000T@40m Full swing: 2800T@40m	8*750KN Positioning winch



## 4.3.1 Long-term Rental Vessels



Name	Hanhang Longyun	Navigation Area	Near-shore Area
Main dimension	133m*35m*7.8m	POB	11P
Full Load Displacement	21058.8T	Load capacity	15798T

Name	Haifeng Energy	Navigation Area	Near-shore Area
Main dimension	149.8m*40.2m*6m	POB	10P
Full Load Displacement	33226T	Load capacity	19975T

## 4.3.1 Sharing Transport Vessels

No.	Name	Type	Vessel size (m)	Reference load capacity(t)
1	Zhenxin2	Front driving deck barge	133*30*7.38	13087
2	Zhenxin2	Front driving deck barge	133*35*7.8	15662
3	Offshore wind construction	Front driving deck barge	149.8*40.2*8.6	19975
4	Shengjie Yunhai	Front driving deck barge	112.98*27*7.1	10800
5	Jinlv logistic	Front driving deck barge	129.8*28*7.8	11889

## 4.4.1 Long-term Rental Tugboats



Name	Minhui	Lifting Capacity	3 T , 12 m
Main dimension	65m*15.8m*6.5m	DP	DP2
Full Load Displacement	2071T	Gross Horse Power	6500 HP



Name	Minzhong	Lifting Capacity	3 T , 15 m
Main dimension	65m*16.8m*7m	DP	DP2
Full Load Displacement	2624 T	Gross Horse Power	7000 HP

### 4.4.2 Sharing Tugboats

No.	Name	GHP(HP)	Vessel size (m)	DPS	Max Speed (Knots)
1	Lianhe Qihua	23500	82.1*72.4*20	DP2	18.9
2	lianhe Qirui	23500	82.1*72.4*20	DP2	18.9
3	Kantan 222	16314	75*18*8.1	DP2	16

# THANKS

**Thunder Jiang,  
+86 13910157872,  
thunderjiang@qq.com**