

WIND

OWP Yunlin – 640 MW
Taiwans 1st large OWP

- 24th January 2019 -



- 5th Asia Offshore Wind Day, Tokyo -

OWP Yunlin 640 MW

Contents

1. Introduction: wpd group
2. Introduction: wpd in Taiwan
3. Yunlin - Project Insights
 - Project Introduction
 - Structure
 - Permit Status
 - Timeline
 - Project partners
 - Details
4. Guanyin – Project Introduction



wpd group

Introduction to wpd

wpd Group



Global Project Developer & Independent Renewable Power Producer (IRPP)

- **4,400 MW (2,180 WTG)** installed
- **IRPP with 1,600 MW** own capacity
- **608** employees
- **32** Offices in **20** countries
- **Onshore, Offshore, PV**
- Pipelines of **10 GW+ onshore and 7 GW offshore**
- **A-Rating** since 2003



Leading wind farm operator

- **1,965 WTG/ 4,030 MW** under TCMA
- Technical 24/365 Management
- Commercial operations
- **365** employees
- **10 offices** in **7 countries**
- Multiple technologies
- Broad variety of clients

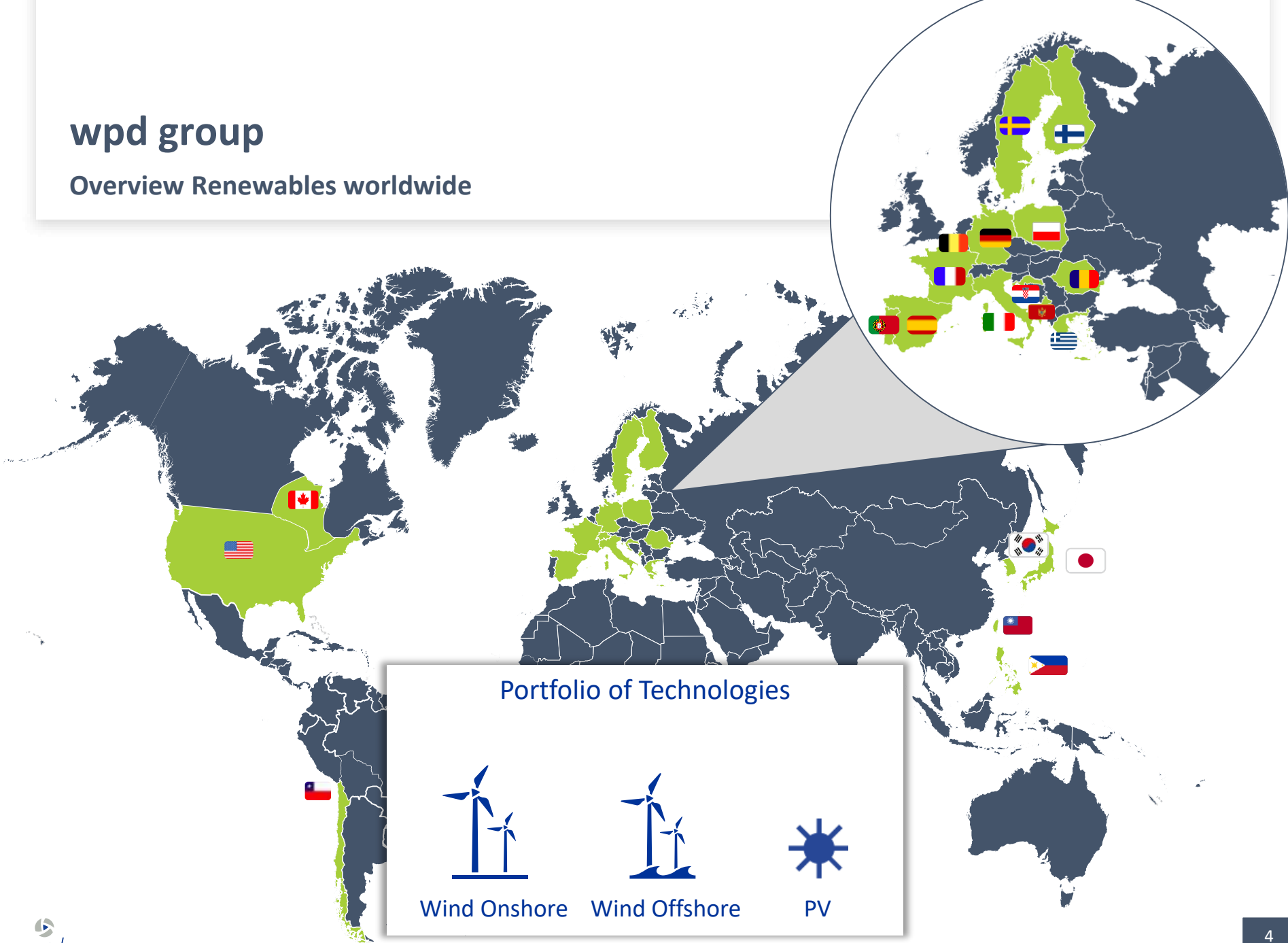


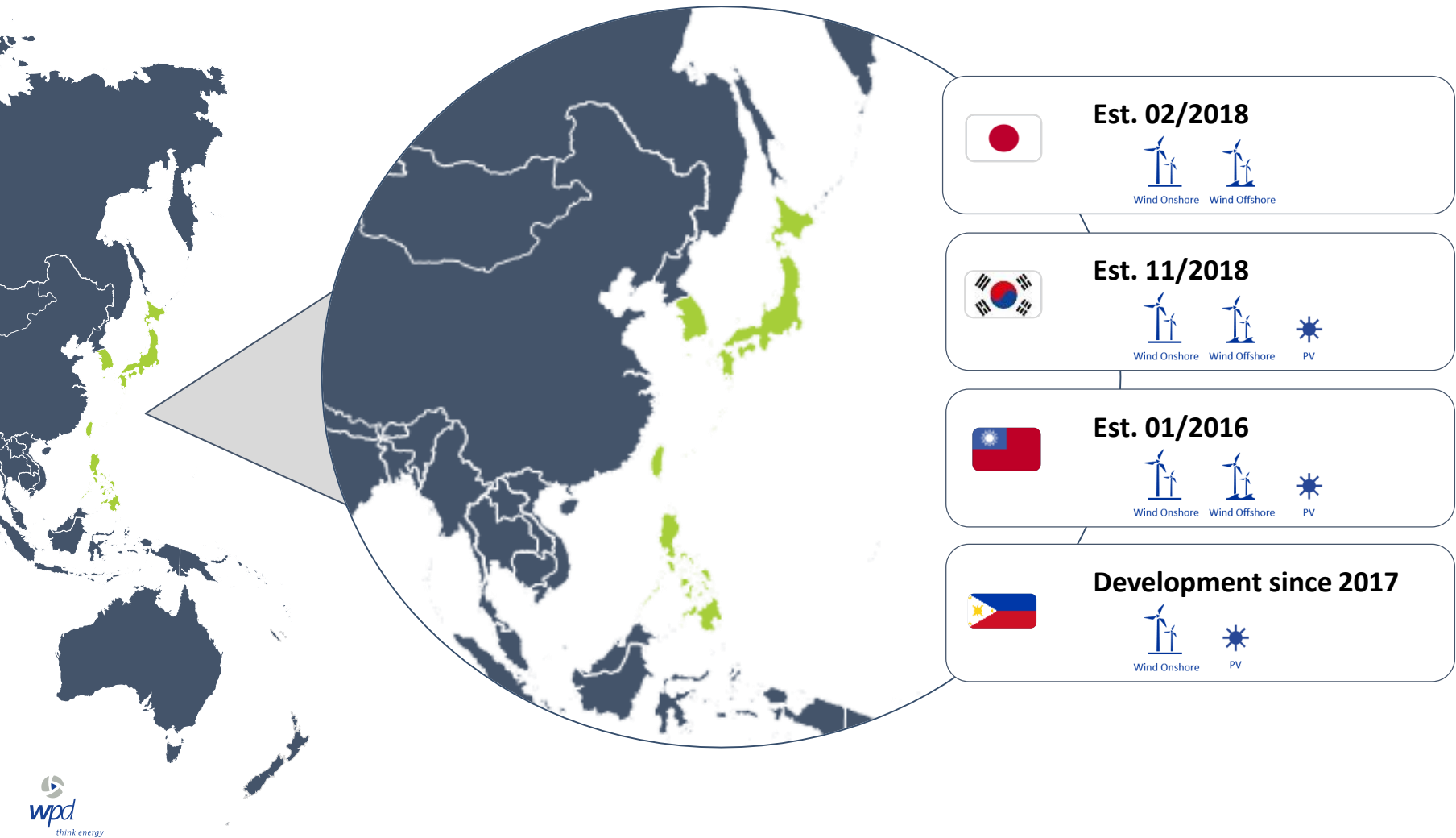
Independent, multi-brand O&M provider for wind turbines

- **3,258** turbines under contract
- **1,010** employees
- **128** Offices & service stations
- **Multi-brand strategy** (incl. Vestas, Siemens, Nordex, Senvion, Gamesa, Fuhrlander, etc.)
- **Services for On- and Offshore wind**

wpd group

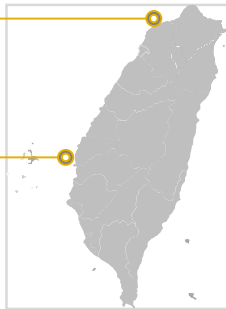
Overview Renewables worldwide





Taiwan

- Guanyin (350 MW)
- Yunlin (640 MW)



Project stages (total output)

- in operation (447.3 MW)
- approved and in the procurement process (1938 MW)
- approved (1,481 MW)
- participation in tender process (1,000 MW)
- early approval stage (640 MW)

Sweden

- Storgrundet (420 MW)

Finland

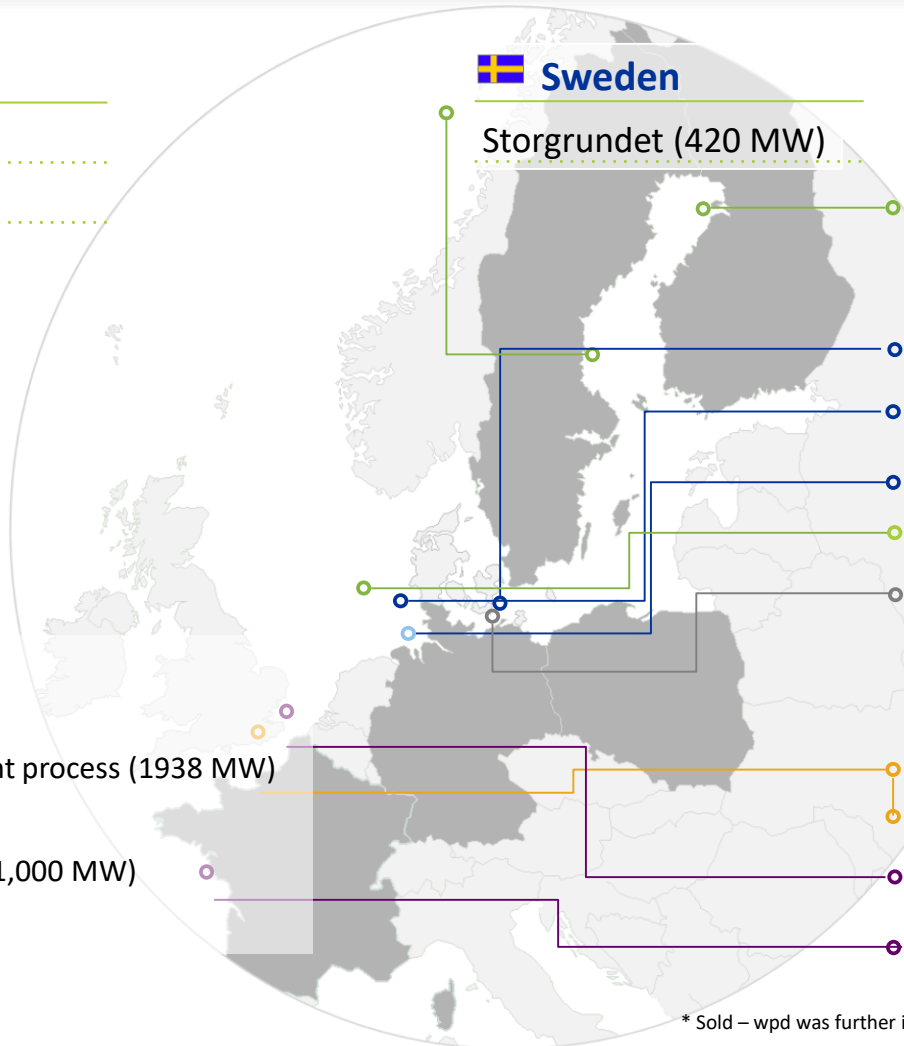
- Suurhiekkä (480 MW)

Germany

- Baltic 1 (48,3 MW)*
- Butendiek (288 MW)
- Nordergründe (111 MW)
- Kaikas (581 MW)
- Gennaker (640 MW)

France

- Courseulles (450 MW)
- Fécamp (498 MW)
- Dunkerque (500 MW)
- Oléron (500 MW)



* Sold – wpd was further involved in the construction management

Taiwan @ wpd

Introduction to wpd

- One of wpd's **core markets** outside of Europe
- Activities started in **2001** (as part of InfraVest)
- More than 380 MW installed onshore projects
- Market share of more than 50%
- 100% wpd ownership since 2016
- Today employing around 75 staff



Unique experience as long-term wind farm owner and operator in Taiwan



Taiwan @ wpd

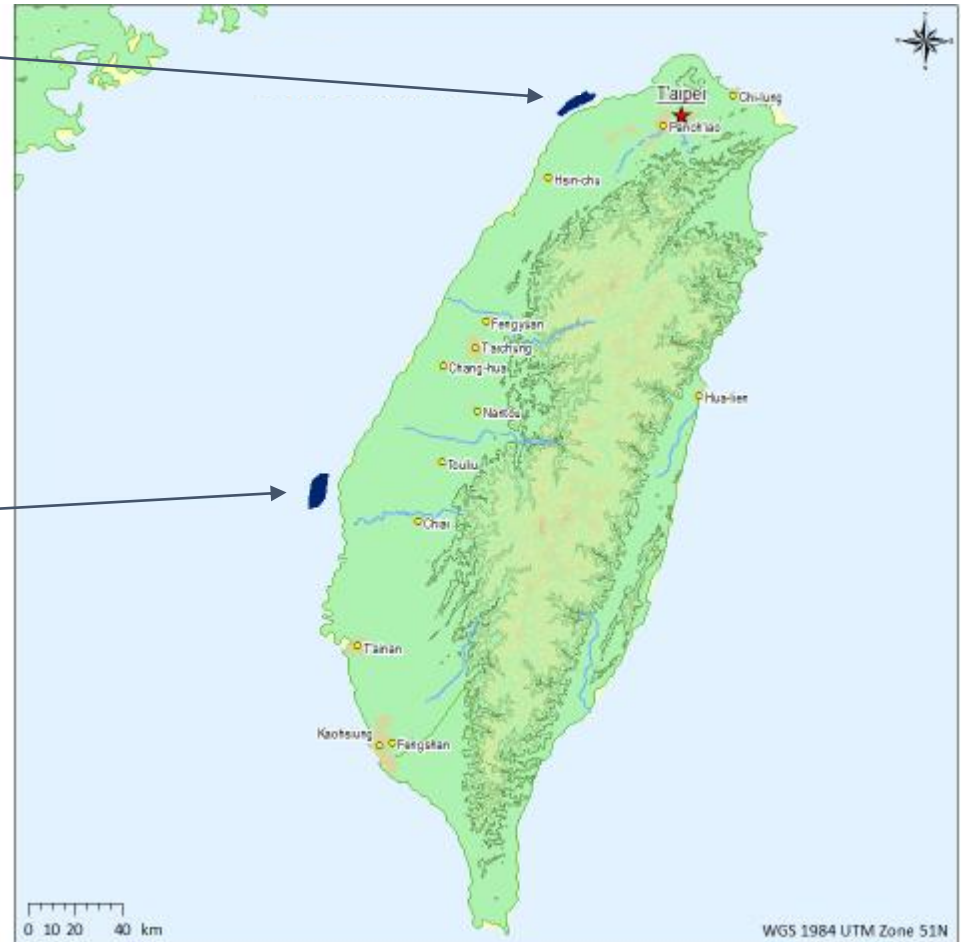
Offshore Projects - 990 MW Offshore Wind Capacity to be Realized Until 2021

OWF Guanyin (350 MW)

- EIA approval 04.12.2017
- Successful in first Taiwanese offshore tender (Offshore Selection Process)
- To be commissioned in 2021/22
- Fixed Feed-In tariff

OWF Yunlin (640 MW*)

- EIA approval 28.03.2018
- Successful in first Taiwanese offshore tender (Offshore Selection Process)
- To be commissioned in 2020/2021
- Fixed Feed-In tariff, executed PPA of 2018



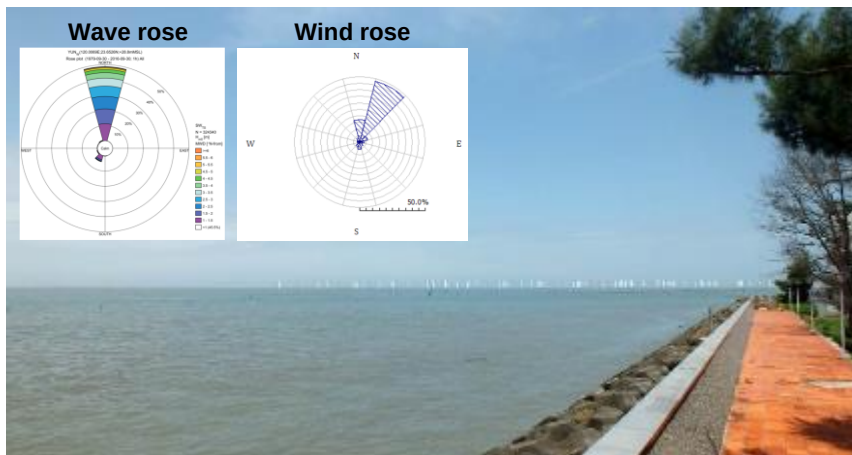
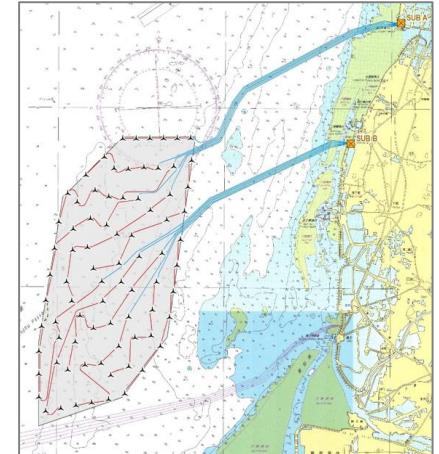
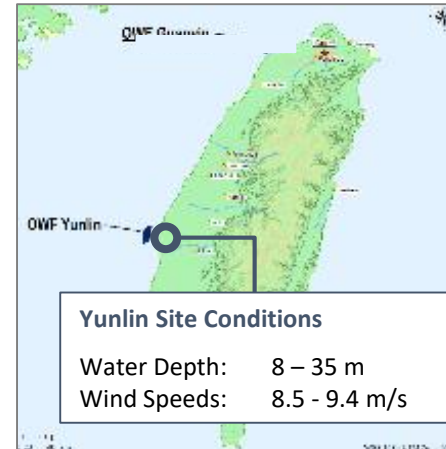
* Initial award was up to 708 MW, however Yunlin is now designed for 640MW

Nearshore Project Yunlin

Introduction to Yunlin Project

OWF Yunlin Quickfacts

Location	Yunlin County, 8 km off shore
Project size	640 MW (80 x SGRE 8.0-167 DD)
Status	Establishment Permit Received in 11/2018
Start of Construction	2019 (Onshore) / 2020 (Offshore)
COD	2021
Status	Financial close expected for Q1/2019 Full non-Recourse Project Financing Investment amount >2 bn €



Supplier consortium

Wind Turbine	SIEMENS Gamesa RENEWABLE ENERGY
Foundations	Ongoing, Multicontracting
Inner Array and Export Cabling	Seaway Offshore Cables
Substation (onshore)	
Project Management	 think energy

Nearshore Project Yunlin

Project Timeline

Project Schedule	2018				2019				2020				2021		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Project Financing					FID										
Engineering															
Manufacturing															
Foundation – Installation															
Cable – Installation															
WTG Installation and Commissioning															

Project Milestones

- Financial Close: Q1 2019
- Start of offshore works (installation): Q1 2020
- Start of commissioning (first feed-in): Q3 2020
- COD (640 MW): Q3 2021

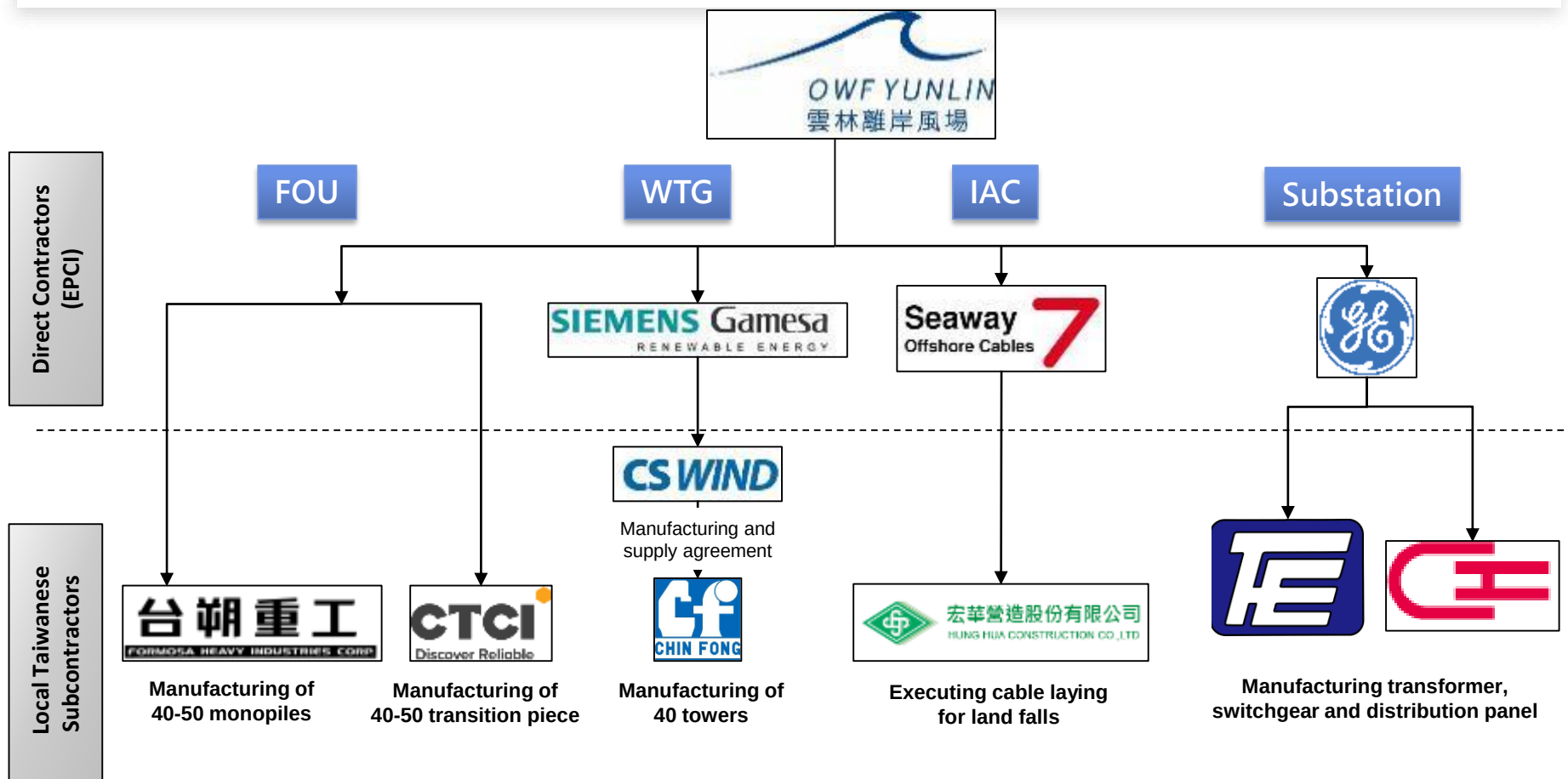
Nearshore Project Yunlin

Status Permit Process / Approvals

0	Pre-Concession	Pre-Concession for site registered on 01.12.2016	
1	Grid Capacity Award	Grid capacity award (04/2018): up to 708 MW	
2	EIA Approval	EIA approval received on 21.06.2018	
3	Concession	Application for concession has been approved on 29.11.2018	
4	PPA	To be entered into after Concession approved and PIN obtained, granted on 12.12.18	
5	IDB Approval	As a requirement to be obtained until 31.12.2018, approved on 21.12.18	
6	Work Permit	To be obtained before start of offshore installations	Indicative Timing Dec. 2019 (exp.)
7	Power License	To be requested after technical completion of wind energy turbines	COD

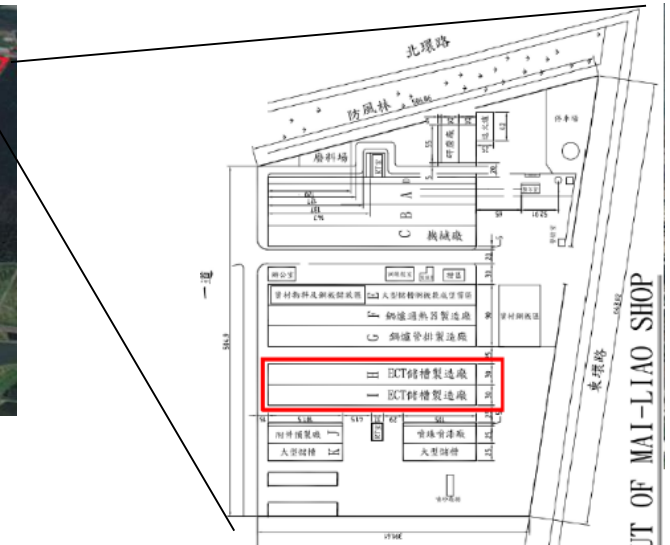
Nearshore Project Yunlin

Local Supply Chain - Overview



→ Strong support for evolvement of local industry

Formosa Heavy Industries (FHI) – Local Supplier for Monopiles



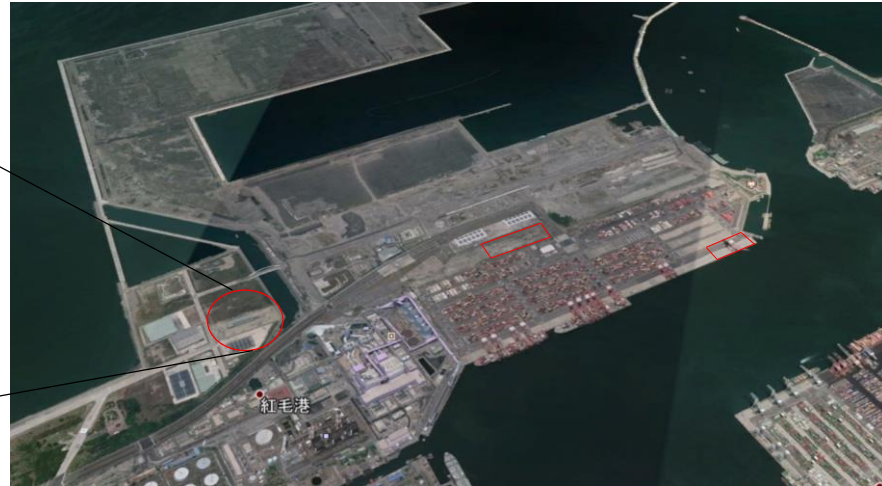
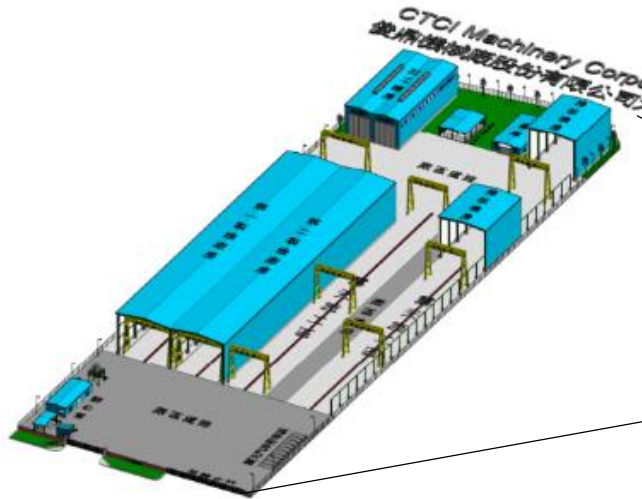
UT OF MAI-LIAO SHOP

- [illegible]

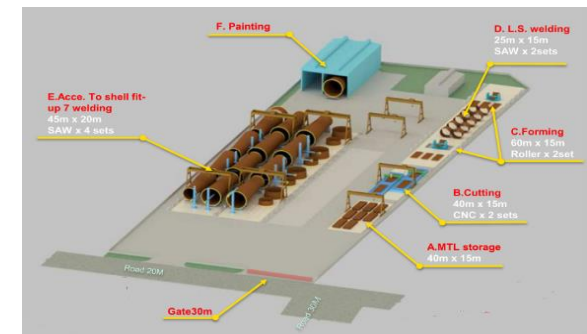
13

Nearshore Project Yunlin

CTCI-Machinery (CTCI-Mac) – Local Supplier for Transition Pieces

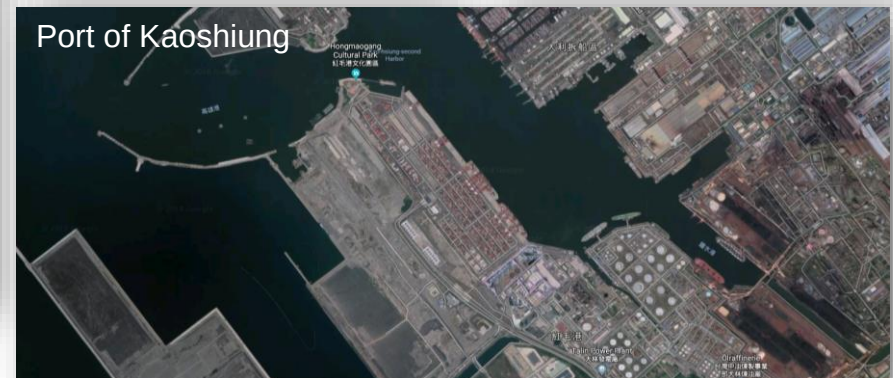
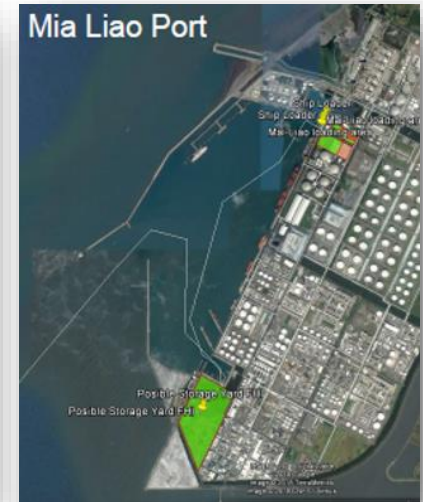
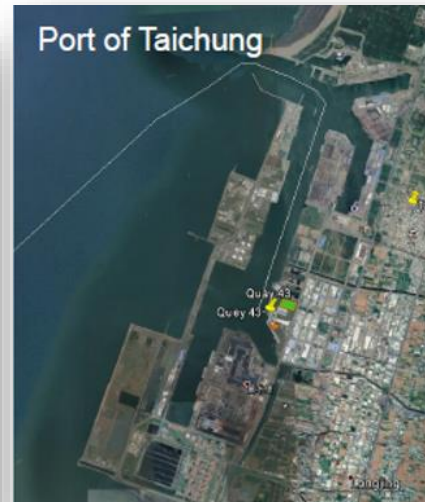
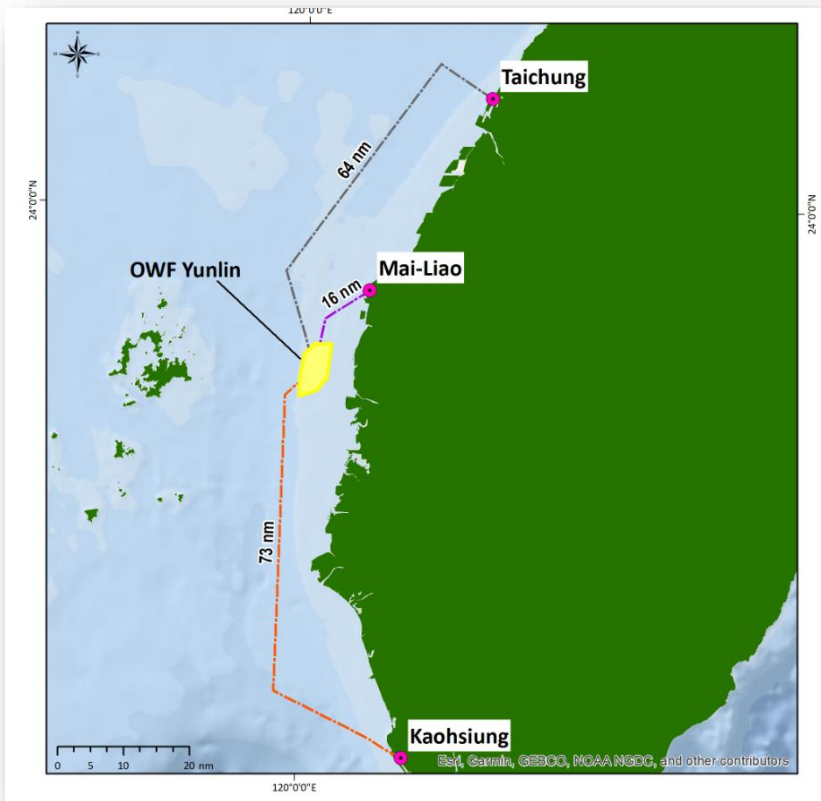


- CTCI Machinery Corporation (CTCI MAC) a subsidiary CTCI group, Engineering, Procurement, and Construction (EPC) services provider established in 1979
- >30 years of equipment fabrication
- Provision of 40 localized Transition Pieces (TP)
- Fully compliant to guideline for industrialization(by IDB)



Nearshore Project Yunlin

Harbours



Nearshore Project Guanyin

Introduction to Guanyin Project

- Maximum Capacity 350 MW
- WTG type still flexible, range 4 – 6,5 MW
- FOU type: monopile
- FOU pre-design available
- No offshore substation

Supplier consortium

Wind Turbine	Selection Process ongoing
Foundations	Selection Process ongoing
Inner Array Cabling	Selection Process ongoing
Substation (onshore)	Selection Process ongoing
Project Management	Selection Process ongoing



Nearshore Project Guanyin

Indicative Project Timeline

Project schedule	2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Procurement																				
Project financing																				
Engineering / Manufacturing																				
Foundation -installation																				
IAC - Installation																				
Commisioning																				

Project Milestones

- Main contracts signed: Q1 2019
- Financial Close: Q2 2019
- Start of offshore works (installation): Q1 2021
- Start of commissioning (first feed-in): Q3 2021
- COD (350 MW): Q3 2022

Contact Details



Contact:

Eike Schimanski

Director OWP Yunlin
Taiwan
wpd offshore solutions GmbH
Email: e.schimanski@wpd.de

Hans Brumberg

Director Business Development APAC
Japan
wpd AG
Email: h.brumberg@wpd.de