

The background features a large, light blue map of Taiwan. A teal horizontal band across the middle contains white silhouettes of wind turbines and birds. At the bottom, there are teal silhouettes of wind turbines and birds against a grey background.

Taiwan's Port Infrastructure For Offshore Wind Energy Development

Chung Ying Feng, Vice President of Business, TIPC
2021.10.26

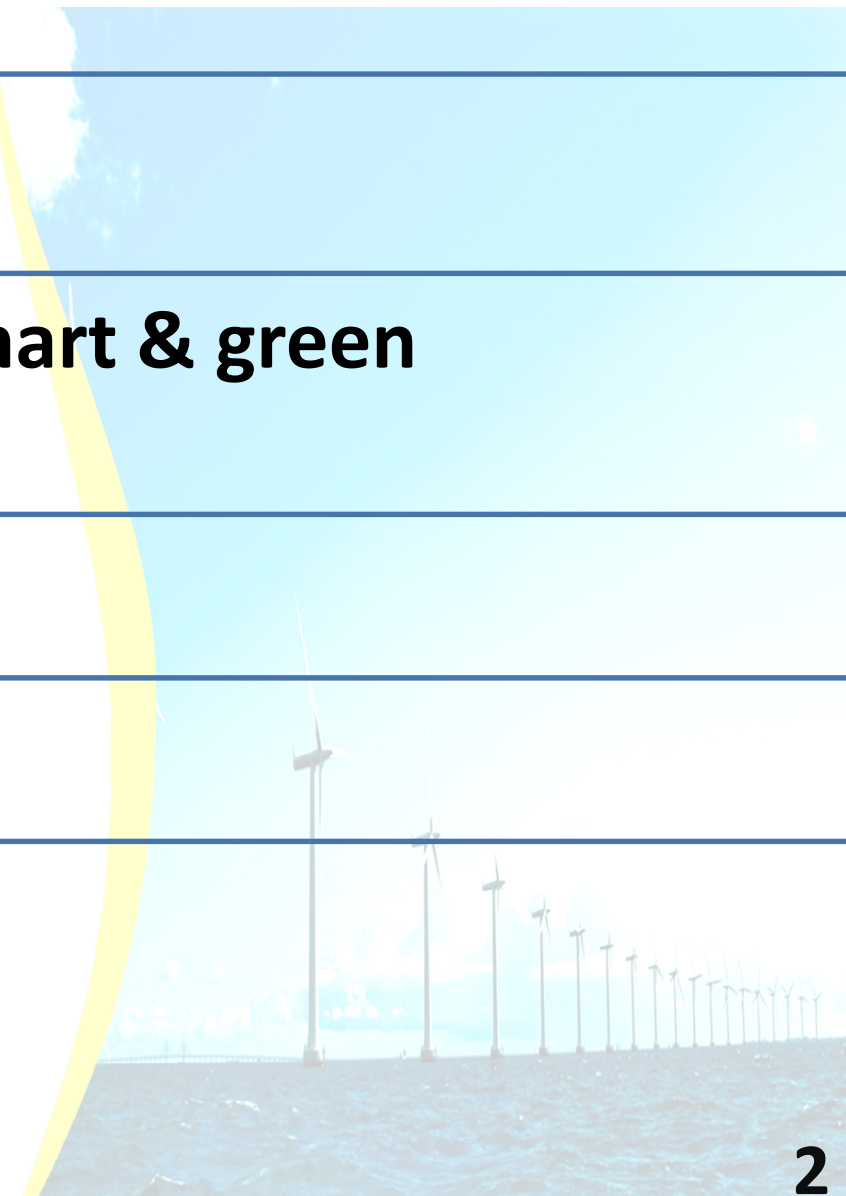


1. About TIPC

2. Net Zero Port Future by smart & green transformation

(1) Smart Port Plan

(2) OWP plan of TIPC

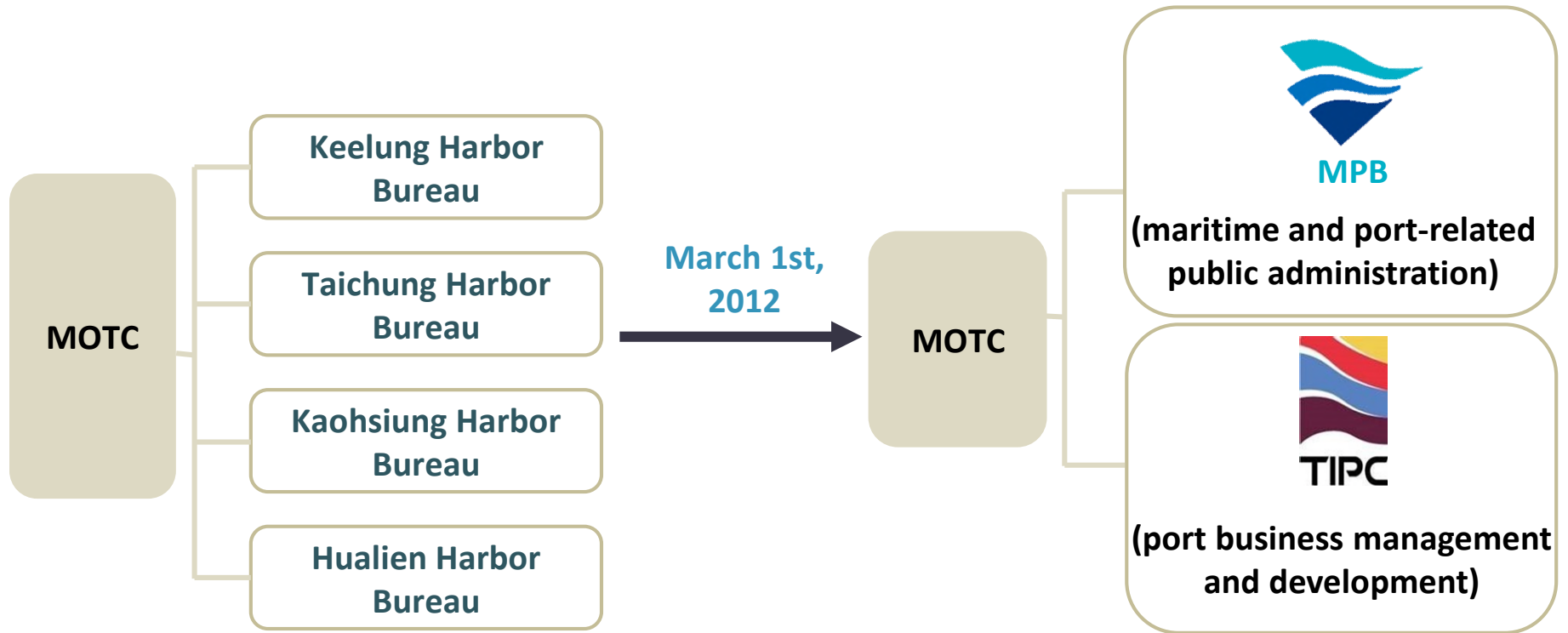




1、About TIPC



Harbor and Navigation Government Organizational Reform



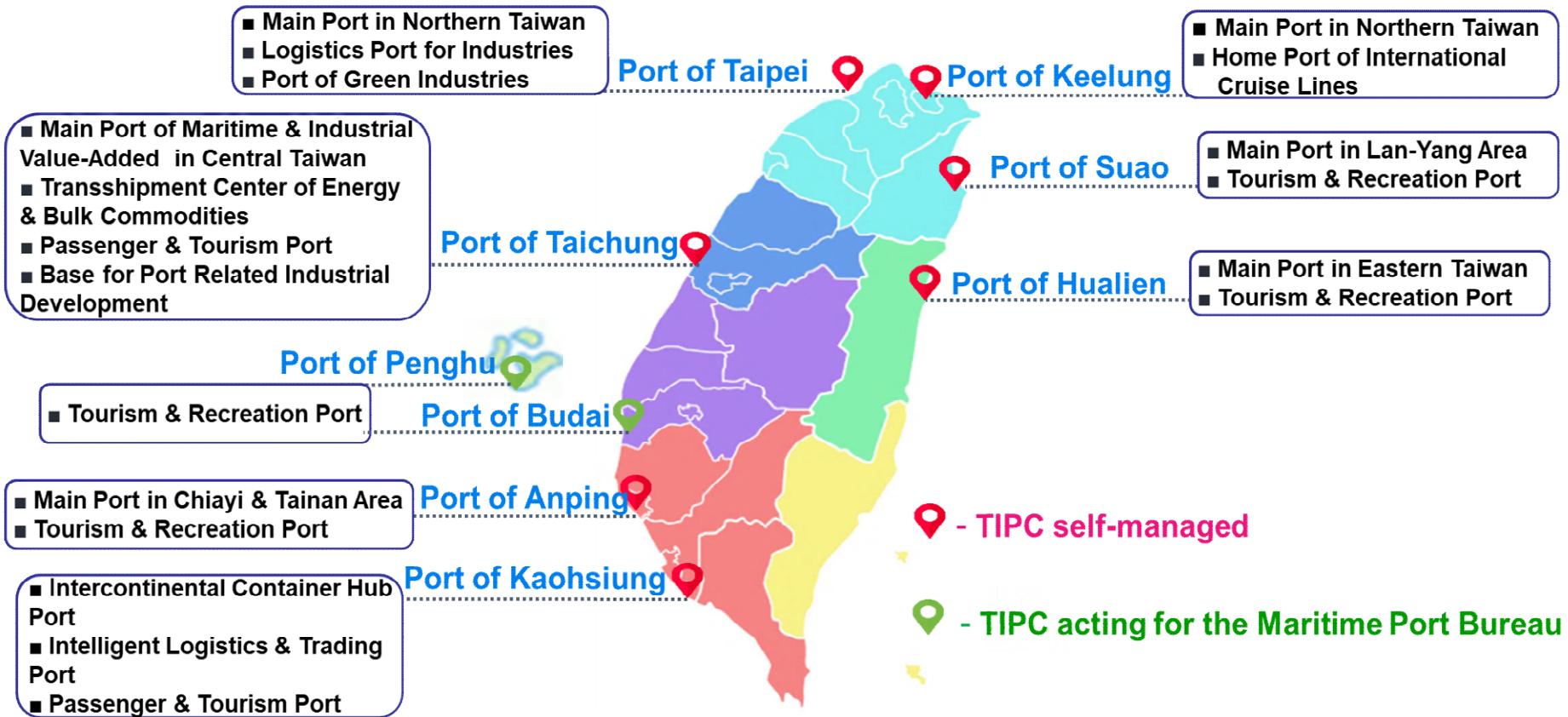


1、About TIPC



TIPC- 4 Subsidiaries/7 International Commercial Ports/2 Domestic Commercial Ports

The Development & Positioning of Taiwan International Ports

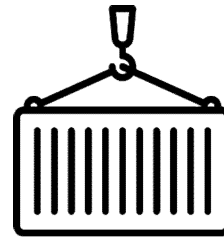


Y2020 Statistical Overview



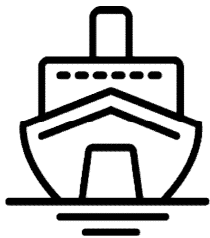
Operating revenues

741M USD



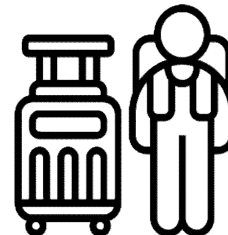
Container Throughput

14.59M TEU



Number of cruise calling

281 vessels



Passenger

0.27M people



1、About TIPC



New Business Development

Establishment
yyyy.mm

2014.10



2014.10



2017.03



2018.05



Establishment
yyyy.mm

2018.05



2018.10



2020.12





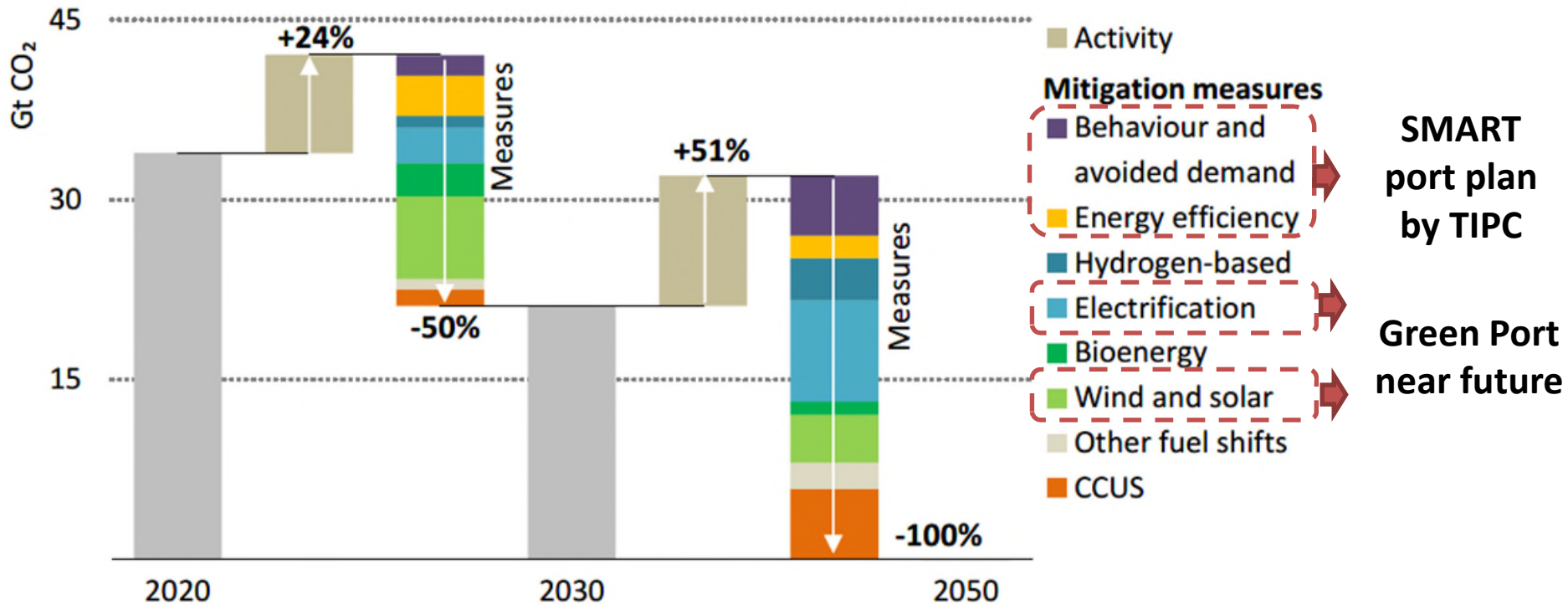
2、 Net Zero Port Future by smart & green transformation

2、 Net Zero Port Future by smart & green transformation



(1) Smart Port Plan

Key pillars of decarbonization



Solar, wind and energy efficiency deliver around half of emissions reductions to 2030 in the NZE, while electrification, CCUS and hydrogen ramp up thereafter

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(1) Smart Port Plan

Update for Smart Port : The Seven Action Plans in Phase 1



■ The demo ports for the seven action plans in phase 1 were duly accomplished by 2020.

Trans- SMART Plan

Objectives

Optimize the environment of port operation, enhance the efficiency of pot handling and strengthen the port safety.

Transform Sustainable, Modern and Advanced ports with Revolutionary Technology

Land Side

- Smart transportation system in port area
- Smart monitoring management system
- Automated container terminal (Private Investment)

Sea Side

- Ship navigation aid system
- IoT sea meteorology real-time system
- Intelligent port dispatching integration system
- Maritime robots



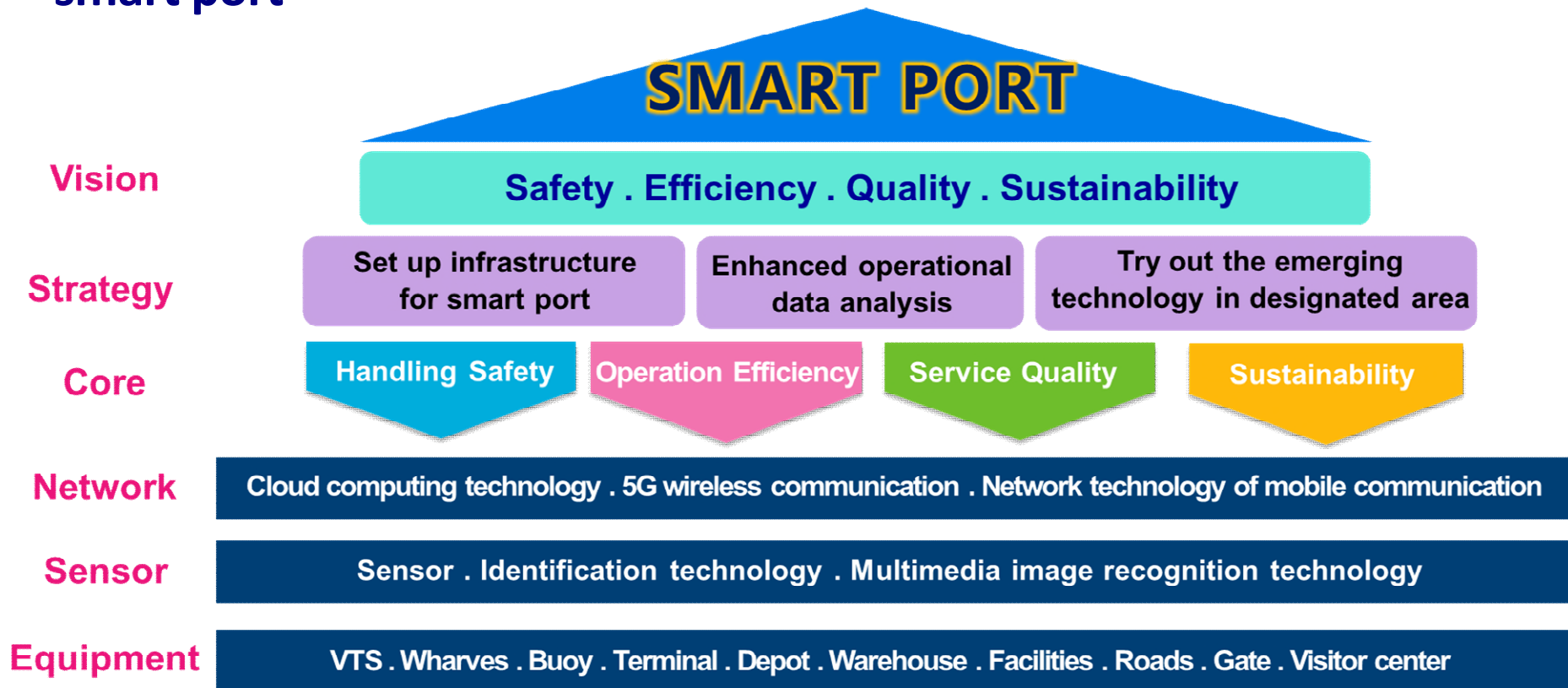


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(1) Smart Port Plan

Blueprint of Smart Port : Planning the development structure of smart port



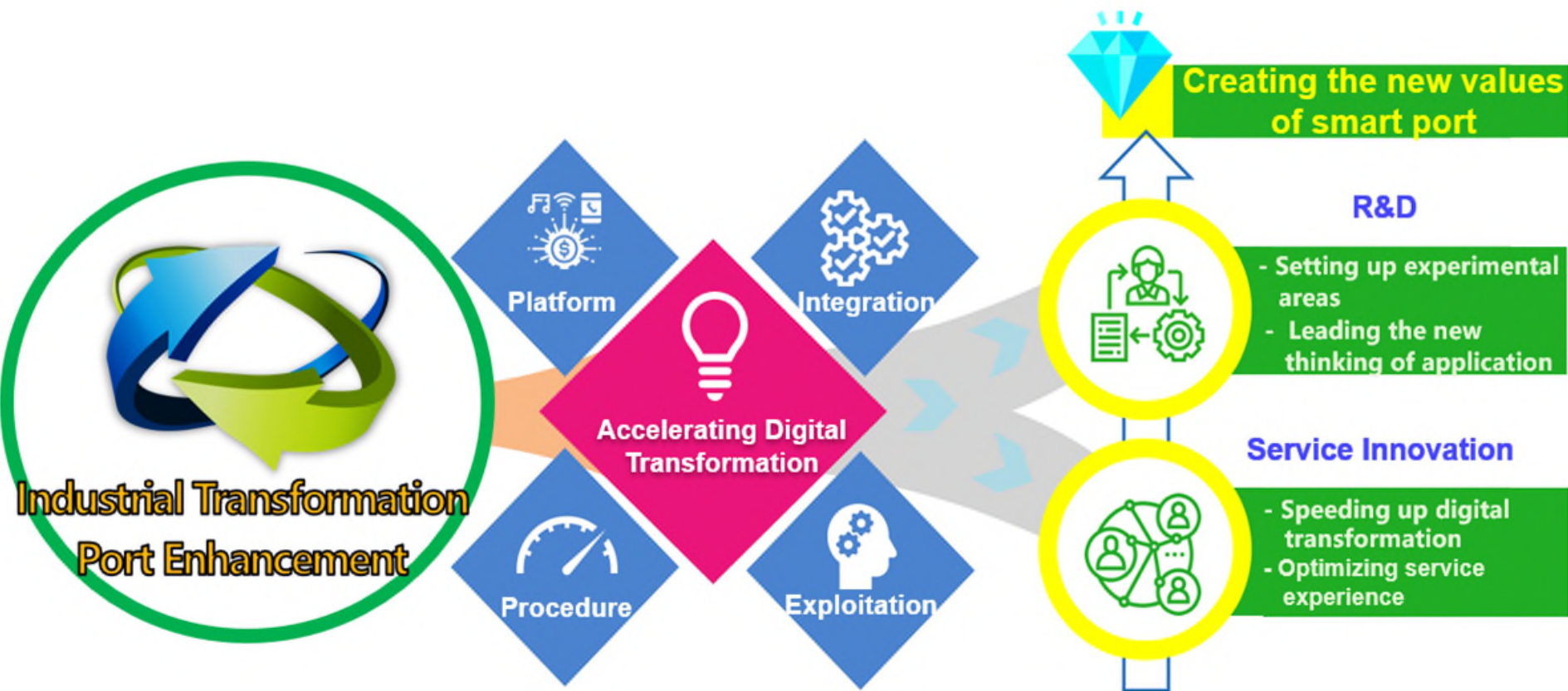


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(1) Smart Port Plan

Achieving the Vision of Digital Transformation





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Taiwan's OWP Policy

THREE PHASES STRATEGY



Source : Bureau of Energy

Phase 3 Zonal Development

- ◆ Release capacity
Y2026-2035 1.5GW/per year
- ◆ Set up sites
Predict more than 15 GW
- ◆ Two phases investment
Qualification review & Bidding

Phase 2

Zone Application for Planning

- ◆ Y2015 : 36 potential site
- ◆ Y2017 : 10.5 GW Pass EIA
- ◆ Y2020-2025 : 5.5 GW commercial operation
 - ✓ Selection 3.8 GW
 - ✓ Bidding 1.7 GW



Phase 1

Demonstration Incentive Program

- ◆ Y2013 : Select demonstration wind farm
- ◆ Y2017 : 2 demonstration wind turbine
(8 MW) @Miaoli
- ◆ Y2020 : 2 demonstration windfarm
(230 MW)
 - ✓ Formosa1 @ Miaoli (Y2019 completed)
 - ✓ Taipower@ Changhua (To be completed of 2020)





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(2) OWP plan of TIPC

FOUR DIRECTIONS

Turbine Pre-assembly Area

↳ Turbine: Taichung Port

- Four wharves for turbine pre-assembly area
- Home port for working vessels
- Stevedoring, warehousing, transportation & logistics services

↳ Foundation: Taichung Port & Anping Port

- Foundation warehousing, transportation & logistics

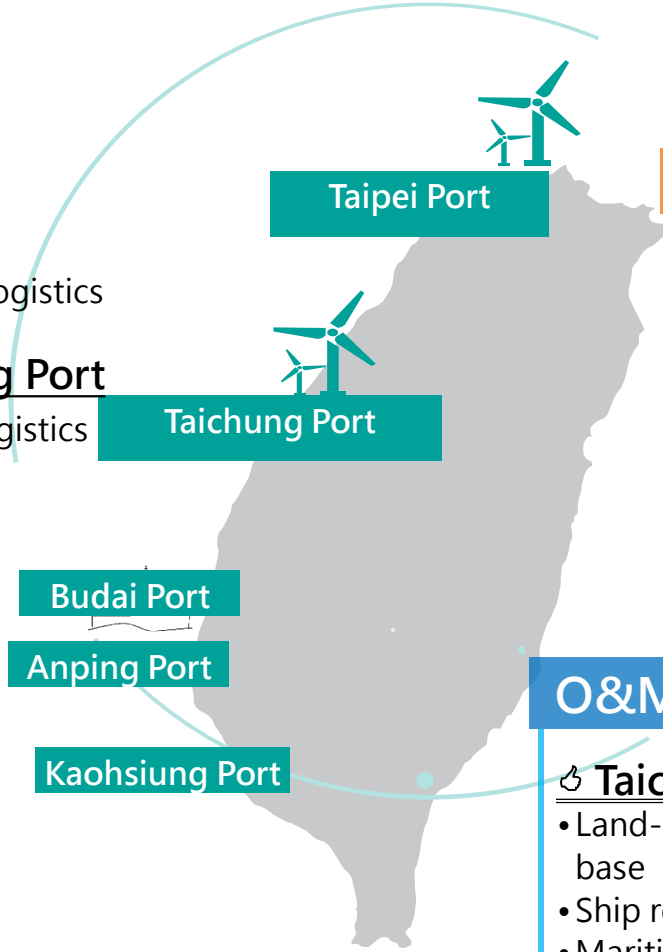
Localized Manufacturing Area

↳ Taichung Port

- Turbine manufacturing Area
- Wharf#106 import-export of turbine components

↳ Taipei Port and Kaohsiung Port

- Foundation manufacturing area



Training Center

↳ Taichung Port

- Set up an OWP training center to provide GWO and customized courses

O&M service

↳ Taichung Port & Budai Port

- Land-based & water-based O&M base
- Ship repairing works
- Maritime transport services
- Warehousing & logistics services



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(2) OWP plan of TIPC Turbine Pre-assembly Area- Taichung Port

3 Bases for Turbine Pre-assembly and dispatch #107 for short-term use

Total area provided: 5 heavy-loaded quays; 185 ha of land





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(2) OWP plan of TIPC Formosa 1 Demonstration Wind Farm

Blade



Tower



Nacelle



Taichung port quay#2



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(2) OWP plan of TIPC Formosa 1 Demonstration Wind Farm

Monopile



Mediterranean mooring

Into the warehouse



Taichung Port quay #43



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(2) OWP plan of TIPC **Taipower Demonstration Wind farm**

Taichung Port quay #5A





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(2) OWP plan of TIPC Greater Changhua SE & SW Wind farm

Taichung Port quay #36





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(2) OWP plan of TIPC Foundation Storage Area



Taichung Port

Total area provided: 9.9 ha



Anping Port

Total area provided: 4.9 ha



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(2) OWP plan of TIPC

Yun-Neng Wind Farm

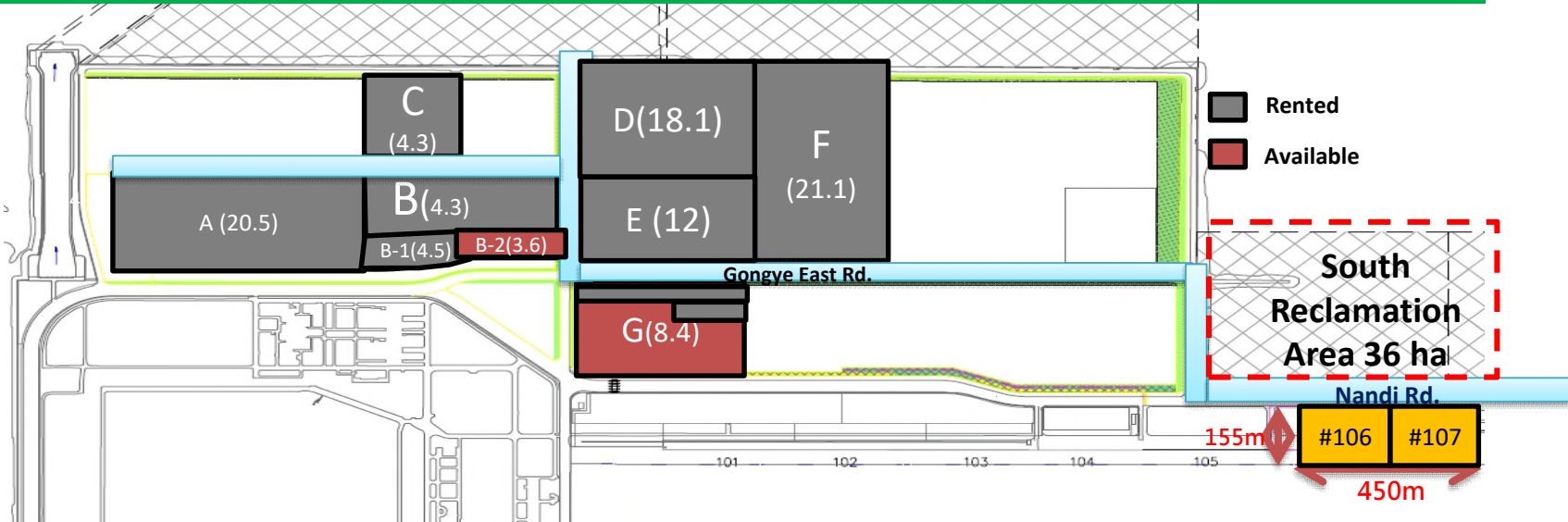
Anping Port quay #10



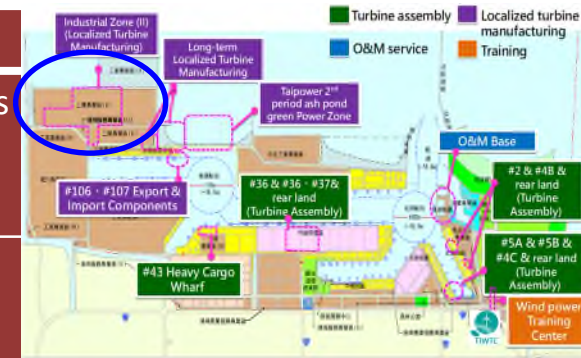
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Localized Turbine Manufacturing Area-Taichung Port



Rented 87.6ha		Available 12h	
A:YGG (20.5ha)	Hub	B:3.6ha	Turbine components manufacturing and storage area
B-1:Siemens Gamesa (4.5ha)	Nacelle	G:8.4ha	
B+C (8.6ha)	--	--	
D+E: Century Huaxin (30.1ha)	Tower/Pinpile	--	
F:Tien Li (21.1ha)	Blade	--	
G:Taipower(2.8ha)	--	--	



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(2) OWP plan of TIPC

Localized Manufacturing Area-Taichung Port



YGG invests in manufacture of hubs factory and will start production in 2022.



Siemens Gamesa invests in nacelle assembly factory and will start production in 2021.

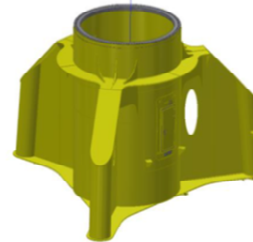


CHIN FONG and CS WIND cooperate to manufacture towers and already start production.



Tien Li invests in manufacture blades factory and will start production in 2021.

世紀樺欣公司



Century Huaxin invests in manufacture tower & pin pile factory and will start production in 2021.



Fortune Electric manufactures transformer & electric system and already start production.



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(2) OWP plan of TIPC

Localized Manufacturing Area-Taipei Port (South terminal)

Base for underwater foundation manufacturing and storage



South wharf connection with main road

Century Wind Power CO., Ltd leases 30Ha land to invest and operate underwater manufacture factory

The first phase : operating
The second and third phase : expected to start from December of 2021

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2) OWP plan of TIPC

Localized Manufacturing Area-Kaohsiung Port



Foundation manufacturing area

Total area provided: 13.1 ha



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(2) OWP plan of TIPC

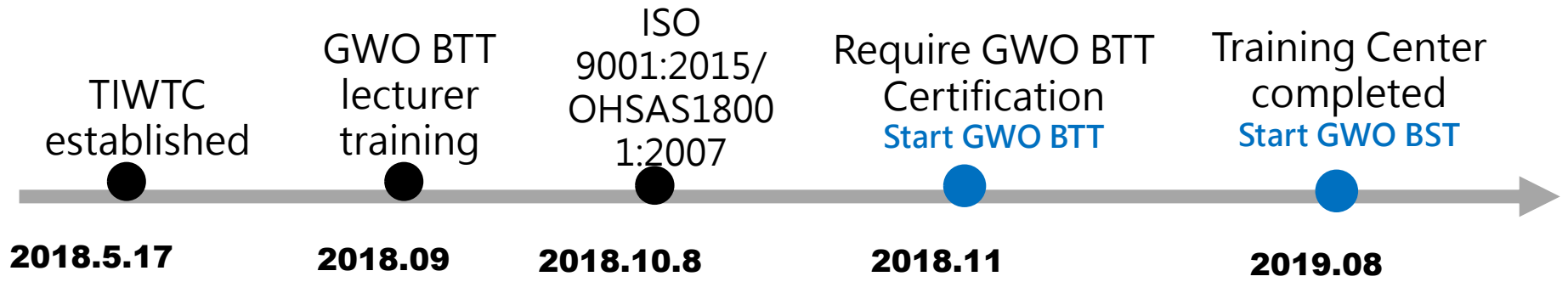
Local Talent Training Center in Taichung Port



T I W T C
(Taiwan International
Windpower Training Corp.)



A Joint Venture of





(3) OWP plan of TIPC



(2) OWP plan of TIPC

Local Talent Training Center in Taichung Port



TIWTC ranked as Asia No. 1 certification center in 2020 by GWO.

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(2) OWP plan of TIPC

O&M Base in Taichung Port

Marine Coordination Center



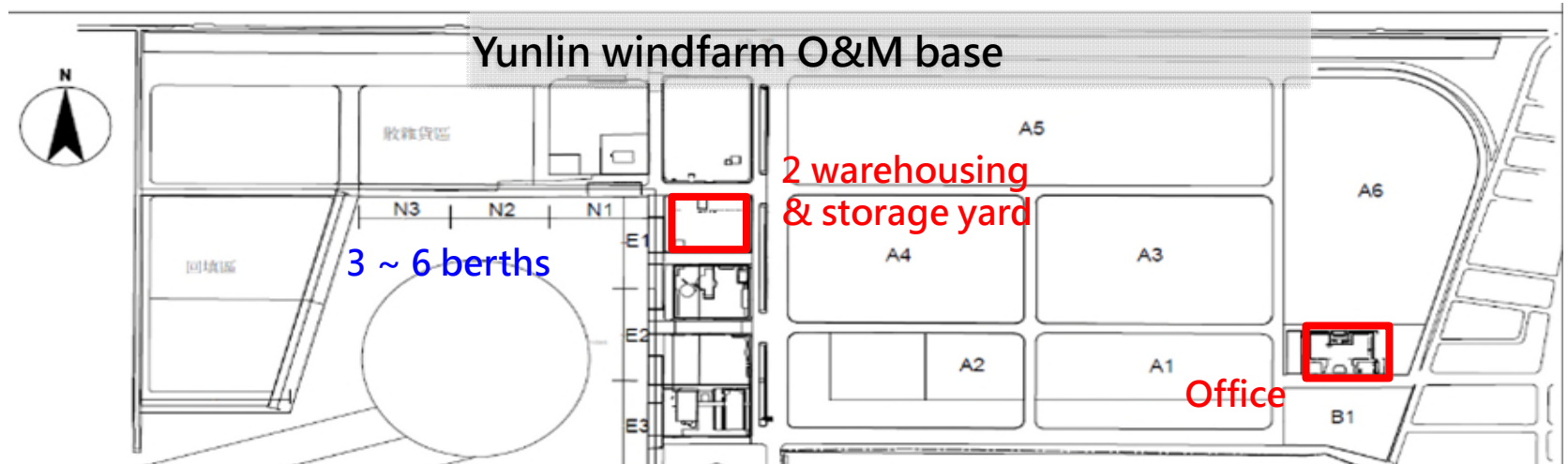


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(2) OWP plan of TIPC

O&M Base in Budai Port





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(2) OWP plan of TIPC O&M Service-Maritime Transport Service

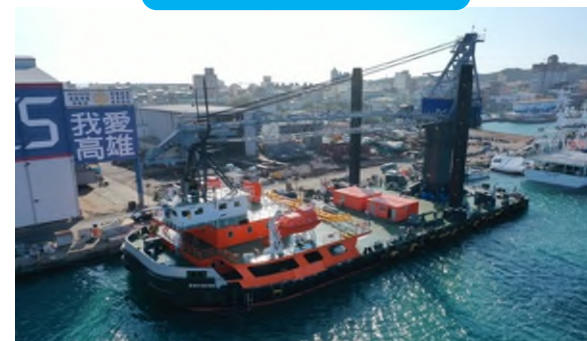
Barge



High-Horsepower Tugboat



Crane Vessel



CTV



Tugboat (Guard Boat)



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(2) OWP plan of TIPC

Heavy-Machinery Service-TIPH

➤ A Joint Venture of TIPC(49%)

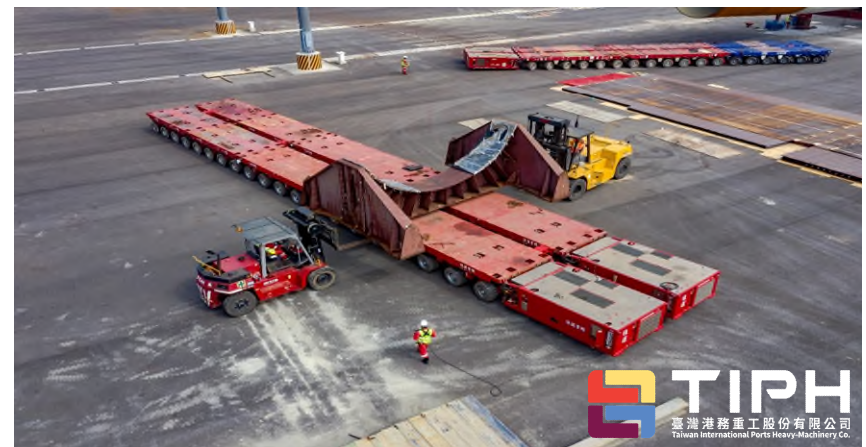


and GIANT(51%)



➤ Services :

- ① Transportation planning and execution
 - ② Heavy Lifted equipment
 - ③ Engineering
- Turnkey solutions in compliance with Marine Warranty Survey.



Established
Date

Opening
Reception

Operation

2020.12.16

2021.1.22

2021.4.7





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(2) OWP plan of TIPC **TIPC tentative plan for OWP Phase 3**

Following phase 3 policy, TIPC plans to provide Turbine Pre-Assembly、Foundation Storage、Localized Turbine Manufacturing and O&M Base

Turbine Pre-Assembly

- Three main bases for turbine assembly , Taichung Port quay #5A、#5B、#36、#37、#107 with hinterland .

Localization Manufacturing

- Taipei Port quay #S09 and 48 hectares of land. Taipei Port will expand hinterland (quay #S07、#S08) about 15 hectares of land.
- Taichung Port Industrial Zone(II) 107.3 hectares land and quay #106. (About 12 hectares land available now)
- Kaohsiung #75 hinterland、Intercontinental Container Terminal Project and Nan Hsing Porject District total about 18 hectares land.

Foundation Storage

- Taichung Port quay #43 or #42 with #42 hinterland
- Anping quay #10、#11 hinterland about 5 hectares of land
- If above as is still insufficient, Taichung #40&41 hinterland or Anping Port quay #17、#18 hinterland about 5.8 hectares of land.

O&M Base

- Taichung Port and Budai Port.
- Depend on windfarm development demand, offering the port located nearby windfarm (Ex: Taipei port)



Thank you for listening