



# **Offshore Wind Farm (OWF) Third Party Certification and Certification Review System**

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# Third Party Certification System Introduction



## ■ Project Certification (PC)

Project certification helps to verify that wind farms meet site-specific conditions. It identifies risks at an early stage when they are more manageable. If initiated in the early stages, project certification can significantly reduce the risk profile of a wind project.



## ■ Due Diligence (DD)

Due diligence is an investigation or audit prior to an investment, divesture or selling transaction. It confirms that all material facts are correct and therefore reduces the probability of risk to the buyer, seller or investor in the transaction.



Finance

Legal

Insurance

Technical

## ■ Marine Warranty Survey (MWS)

Marine warranty survey verify the requirements laid down by the insurer or underwriter in warranty clauses connected to the respective marine operations, which ensures that all necessary precautions are taken to keep the risks As Low As Reasonably Practicable (ALARP).



Load out

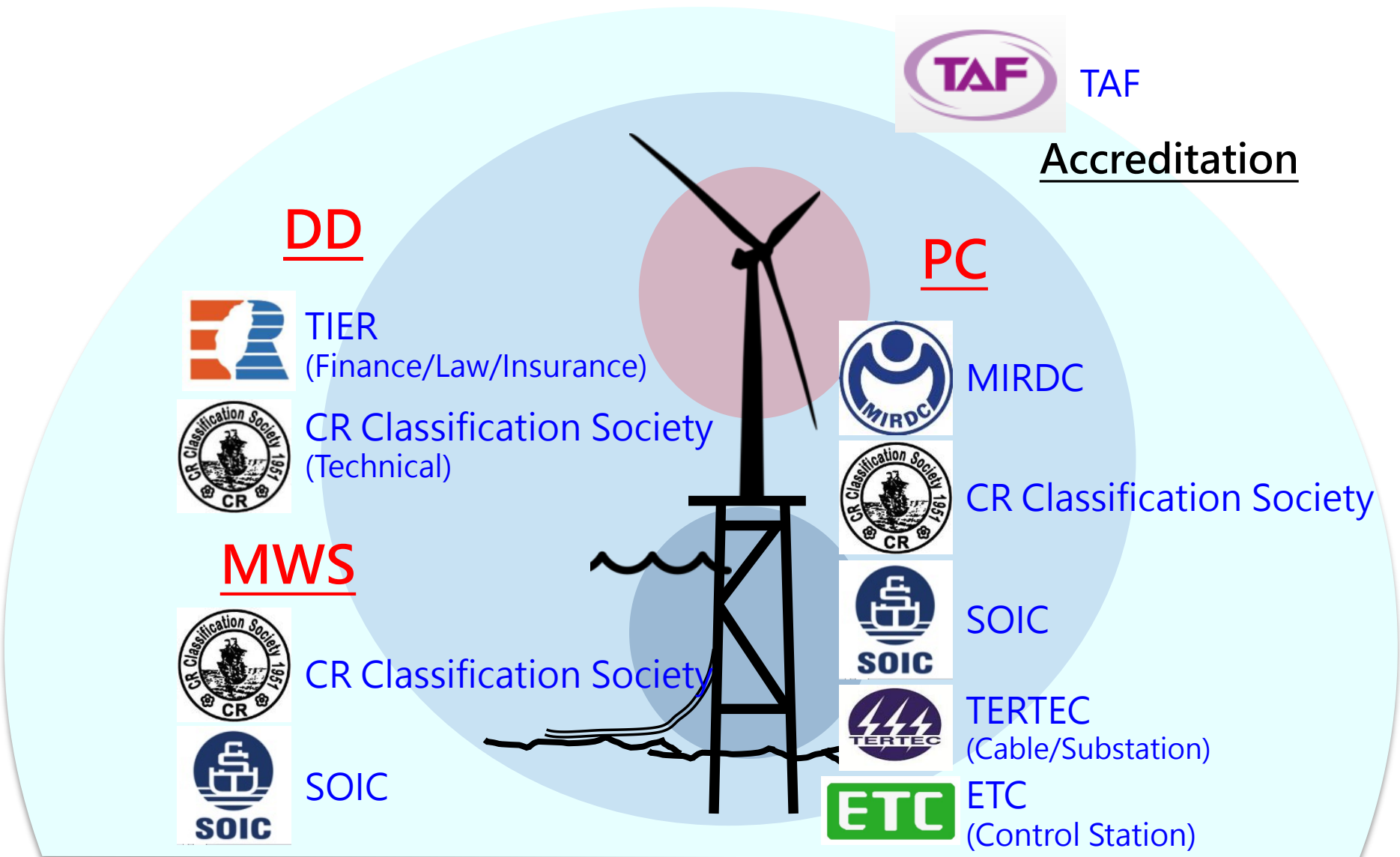
Transportation

Lifting

Installation

Cable laying

# Team Members



# National Standard for Seismic and Typhoon Resistance

## ■ Revise the CNS 15176-1 with consideration of typhoon and earthquakes

### ✓ Typhoon resistance

Amend class T level of wind turbine into CNS 15176-1 in 2016.  
(which is equivalent to the severe typhoon level)

Wind turbine classes	I	II	III	S
$V_{ref}$	50	42.5	37.5	Values specified by the designer
$V_{ref, T}$	57			
A	0.16			
B	0.14			
C	0.12			

Typhoon classes	Maximum wind speed at center	
	m/sec	Beaufort scale
Mild	17.2-32.6	8-11
Medium	32.7-50.9	12-15
Severe	51.0↑	16↑

### ✓ Seismic resistance

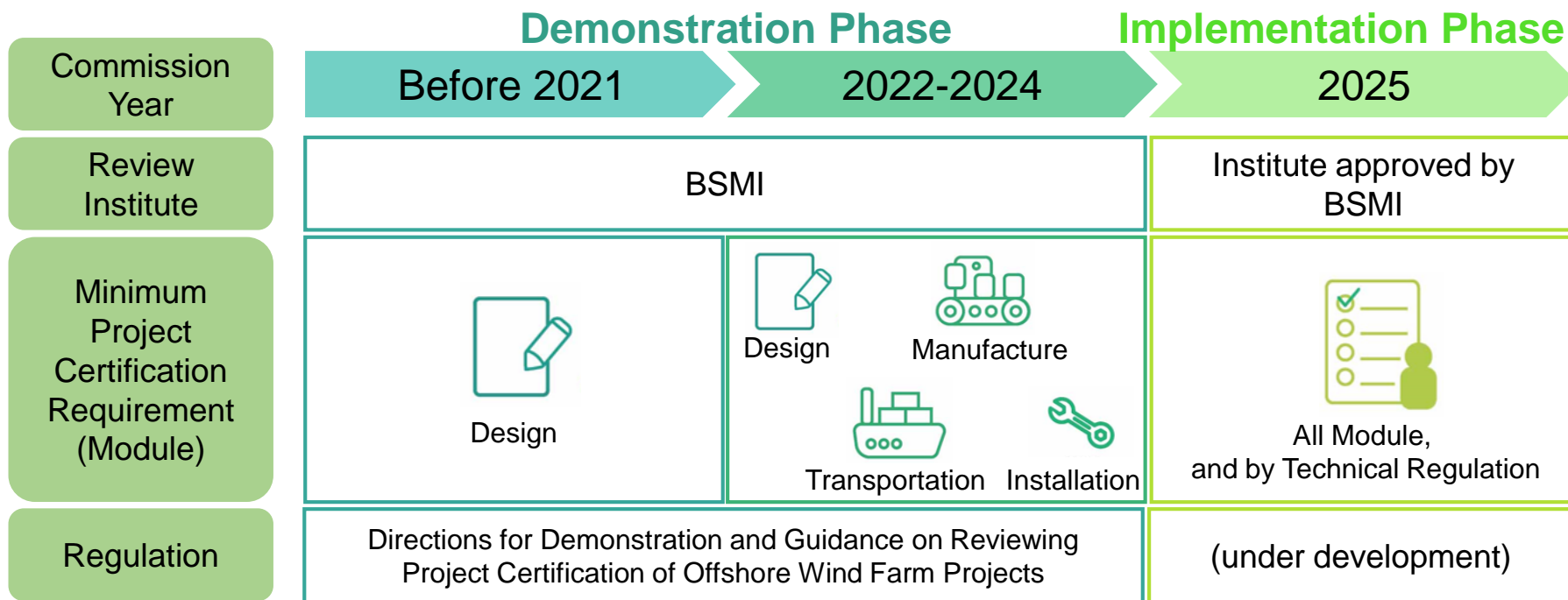
Amend “Basic Requirements for Seismic Design of Offshore Wind Farms in Taiwan” into CNS 17176-1 in 2017.

(seismic capacity of wind turbines should meet the average seismic intensity calculated based on the 475-year return period)

# Administration for Offshore Wind Farm Project Certification

## ■ Regulation & Enforcement

### ✓ Administration Planning



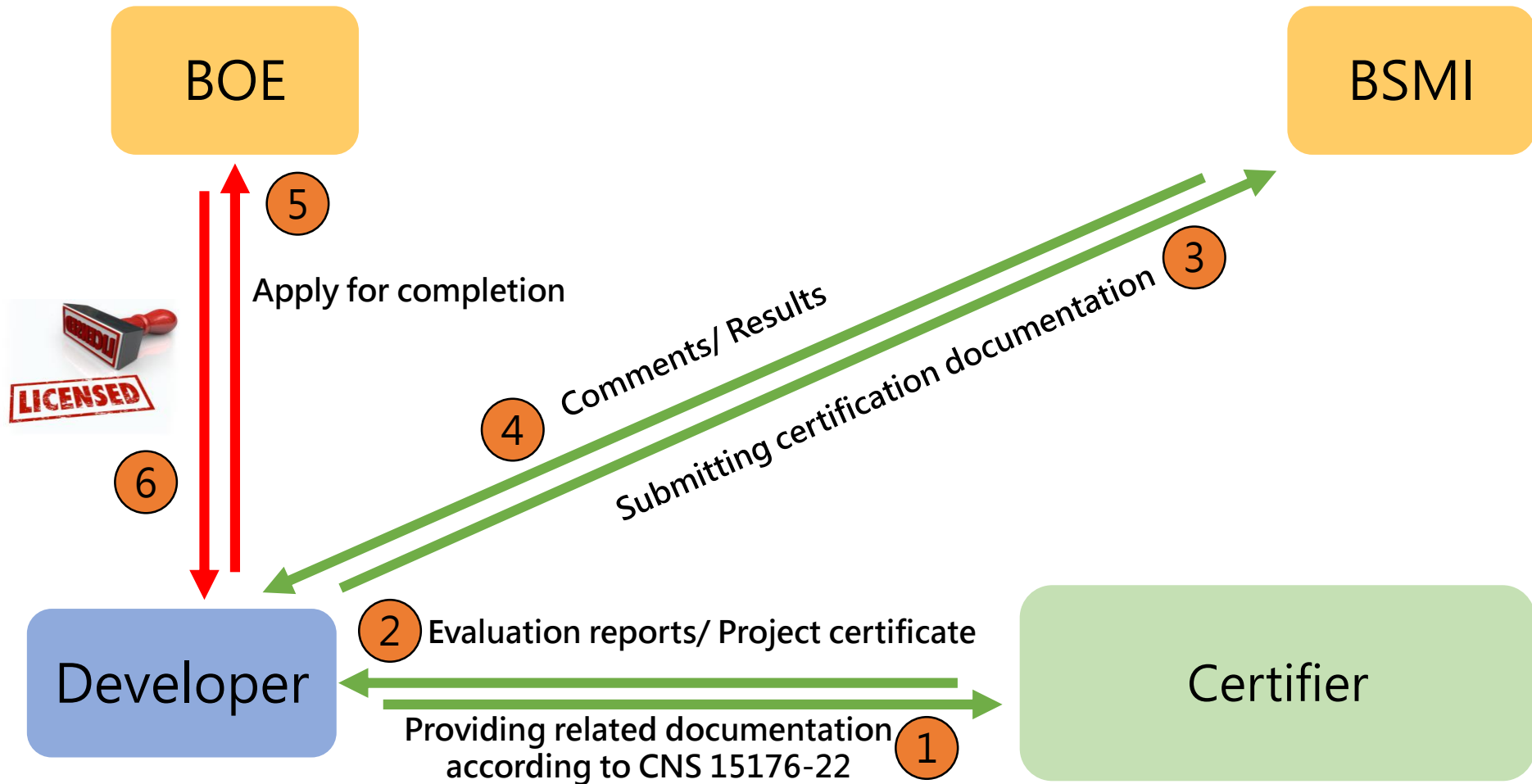
### ✓ OWF Project Certification Review Progress

Completed OWF Formosa 1 (October 28, 2019)

Currently processing OWF Project Certification Review · including Changhua Demonstration, Yunlin, Formosa 2, Greater Changhua 1, Greater Changhua 2a, Changfang

# Administration for Offshore Wind Farm Project Certification

- Regulation & Enforcement
  - ✓ Review Mechanism

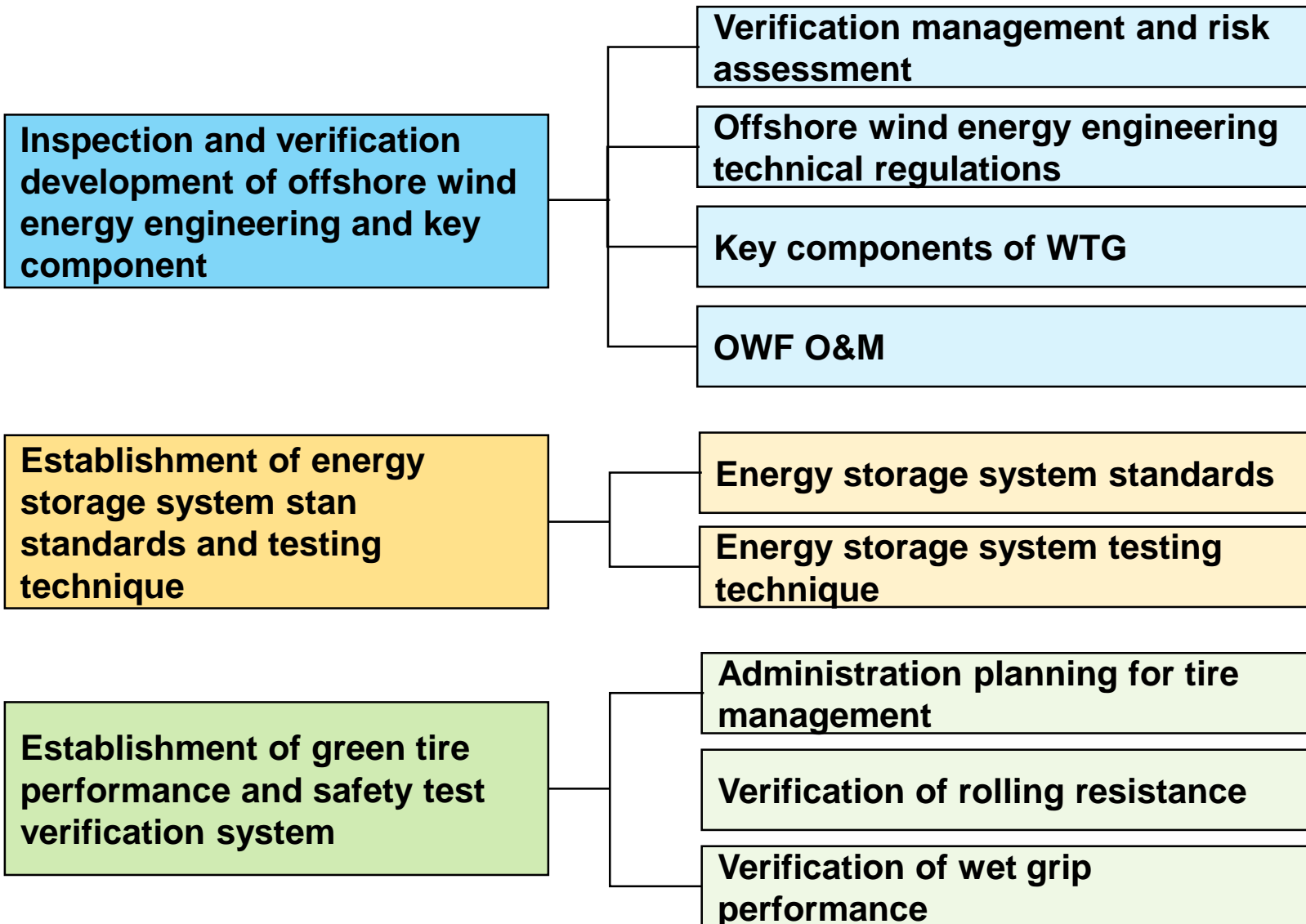




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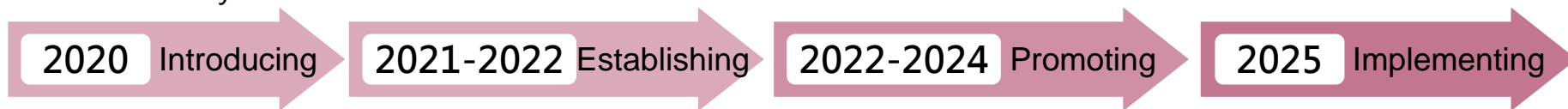
# Future Plan Framework- National Green Energy Standard Testing and Verification Program



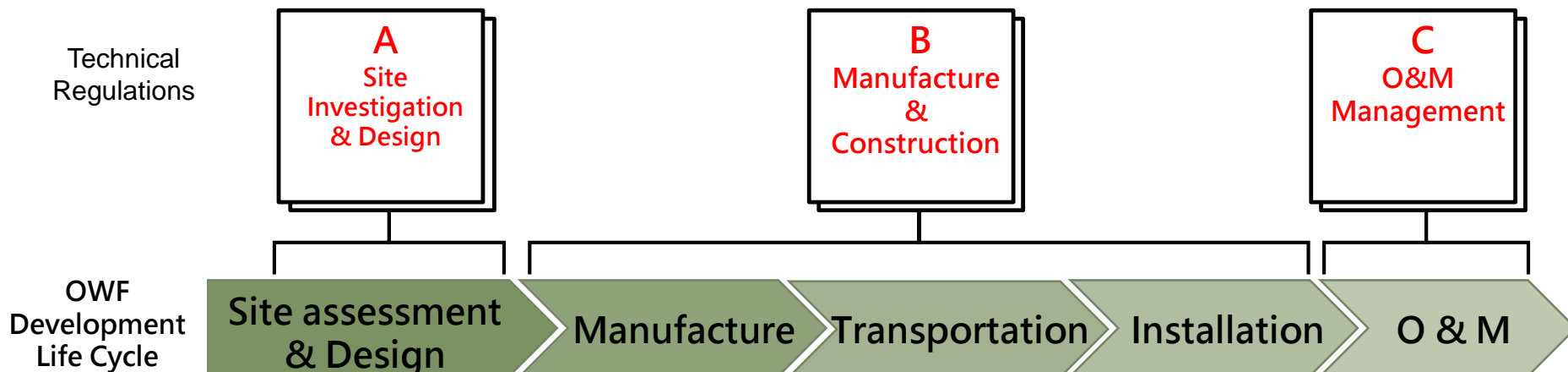
# Offshore Wind Power Technical Regulations

## ■ Integrate foreign experience with domestic research to establish local technical regulations

- ✓ Formulate local technical regulations (site investigation, design, manufacture, construction, and O&M) with the experience of Germany and Japan
- ✓ Analyze the existing research on the Taiwan Strait environment and commission research institute to study needed site condition to establish a database



## ■ Establish the basis for technician visa and supervision of manufacturing to ensure the design and construction of OWF meet the requirements of local site conditions



# Energy Storage System testing technique

## Large-scale energy storage system (360kW/360kWh) safety inspection laboratory

- ✓ International Standards
  - Energy Storage IEC 62619
  - Battery ECE R100.02
  - Transportation UN 38.3
- ✓ Targeted operation time : 2024
- ✓ Test items

### SYSTEM



Electric bus



Electric car



Electric scooter



Home energy storage

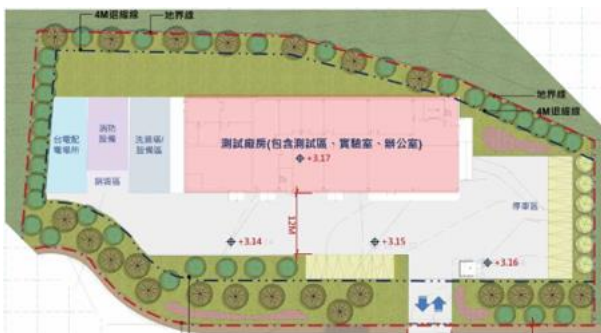


Battery swap station

### COMPONENT



Grid energy storage container





**The end**