



Financial factors for the next tender in Taiwan

7th Asia Offshore Wind Day, Taipei, 15 October 2019

William Jackson

Green Giraffe – The renewable energy finance specialist

We get deals done

Deep roots in renewable energy finance

- Launched in 2010 by experienced finance specialists with a **strong and proven track record** in renewable energy
- 85+ professionals with offices in Boston (USA), Cape Town (South Africa), Hamburg (Germany), London (UK), Paris (France), and Utrecht (the Netherlands)
- Multi-disciplinary skillset including **project & corporate finance, M&A, tendering, contracting, and legal** expertise



Close to **EUR 25 billion** funding raised for renewable energy projects in **9 years**



85+ professionals in **6 countries** on 3 continents

High-quality, specialised advisory services

- Focus on projects where we can actually add value
- We can provide a holistic approach and are able to include sector-specific tasks in addition to traditional debt or M&A advisory (such as contracting, tender advice, strategic advisory, and development services)
- Widening geographical reach beyond Europe, with a growing presence in the Americas, Africa, and Asia
- Priority given to **getting the deal done!**

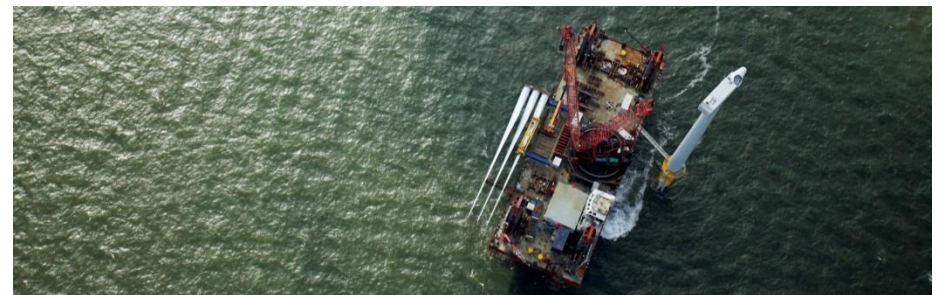


Involved in over **150 renewable energy transactions or projects** with a total capacity of circa **35 GW**

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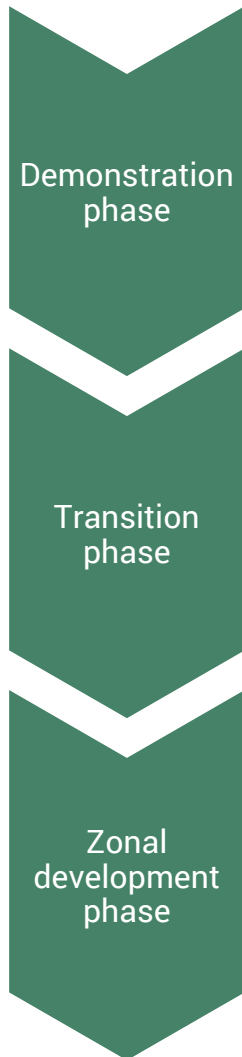
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3. Where we are now
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1. Tender recap

Three-stage process to develop OW in Taiwan



Demonstration phase projects: COD 2016 – 2020

- 3 projects awarded contracts with an aggregate capacity of ~360 MW (Swancor, TGC & Taipower)
- Swancor's Formosa 1 phase 1 installed 2 x 4 MW WTGs, COD in 2017
- Formosa 1 phase 2 reached FC in June 2018
- TGC's Fuhai demo. project failed to secure an EPA and Taipower's Changhua demo. is under development

Transition phase:

- July 2015 – the BoE released 36 zones for potential OW projects; applicants were required to have received preliminary EIA approval by the end of 2017
- 3.5 GW were available through the allocation round, which were guaranteed a fixed 20-year FiT and another 2 GW could be secured via a competitive tender
- 24 projects had received preliminary approval in-time to be eligible to enter the allocation round

Zonal development phase: COD 2021 – 2025

- The ~5.6 GW of projects awarded grid connection & PPA through allocation and auction rounds will be developed as self-sustaining projects
- Local content requirements for allocation projects stepping up over time
- wpd's Yunlin and Macquarie/Swancor's Formosa 2 successfully secured the 2018 tariff level

1. Tender recap

Projects with awarded capacity

Projects awarded through auction round

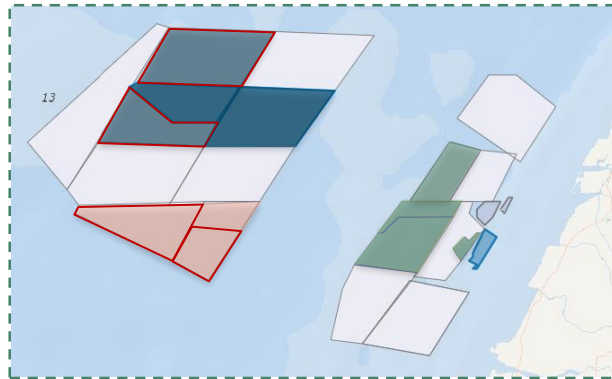
Changhua NW	Changhua SW p.1	Changhua SW p.2
Ørsted	Ørsted	Ørsted
583 MW	295 MW	337 MW
2025	2021	2025

Changhua SE
Ørsted
605 MW
2021

Hai Long 3
NPI, Yushan
512 MW
2025

Hai Long 2a
NPI, Yushan
300 MW
2024

Hai Long 2b
NPI, Yushan
232 MW
2025



Changfang p.1
CIP, Taiwan Life
100 MW
2021

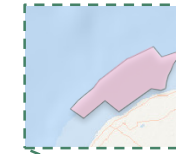
Chongneng
CIP, CSC, DGE
300 MW
2024

Changfang p.2
CIP, Taiwan Life
452 MW
2023

Xi Dao
CIP
48 MW
2024

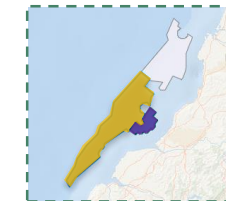
Formosa 1 p.1
Ørsted, Macquarie, Swancor
8 MW
2017

Formosa 2
Macq., Swancor, JERA
378 MW
2020



Guanyin
wpd
350 MW
2021

Formosa 1 p.2
Ørsted, Macquarie, Swancor
120 MW
2019



Yunlin p.1
wpd, Sojitz et. al
360 MW
2020

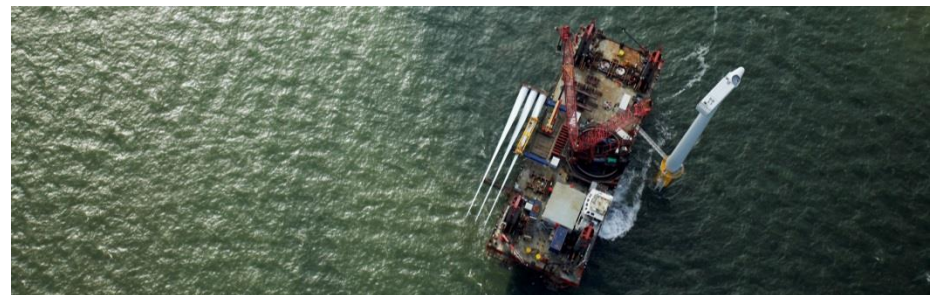
Yunlin p.2
wpd, Sojitz et. al
348 MW
2021



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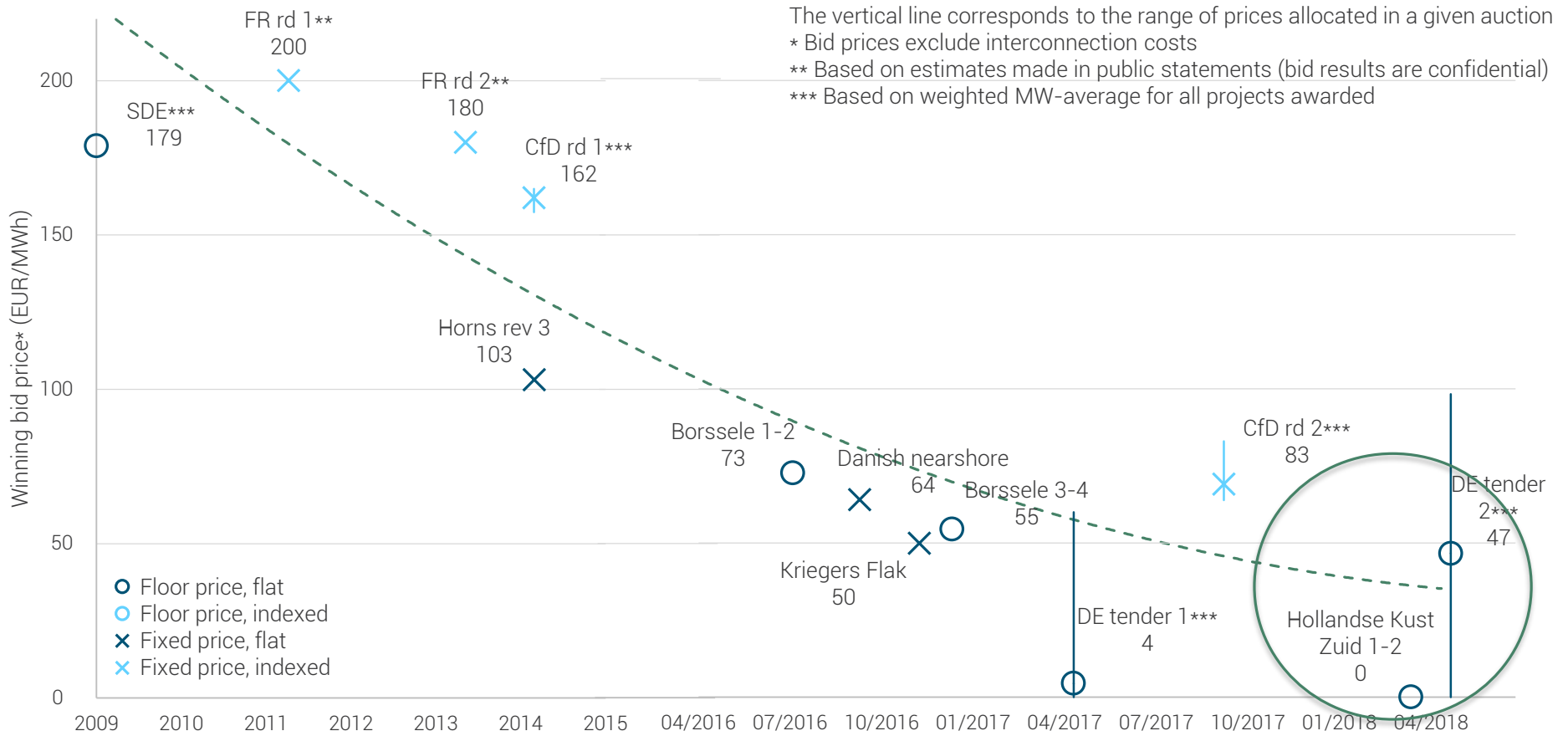
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2. Background to the first tender

Flashback: Falling power prices for offshore wind projects in Europe



Going into the first tender, the projects could benefit from the global OW learning curve

2. Background to the first tender

Flashback: Key factors affecting financing assumptions in first tender

Contractor pricing

- Pricing carries uncertainty and early projects need to pay for the deployment of the supply chain
- Potential single source pricing risk

Commodity / currency & FX exposure

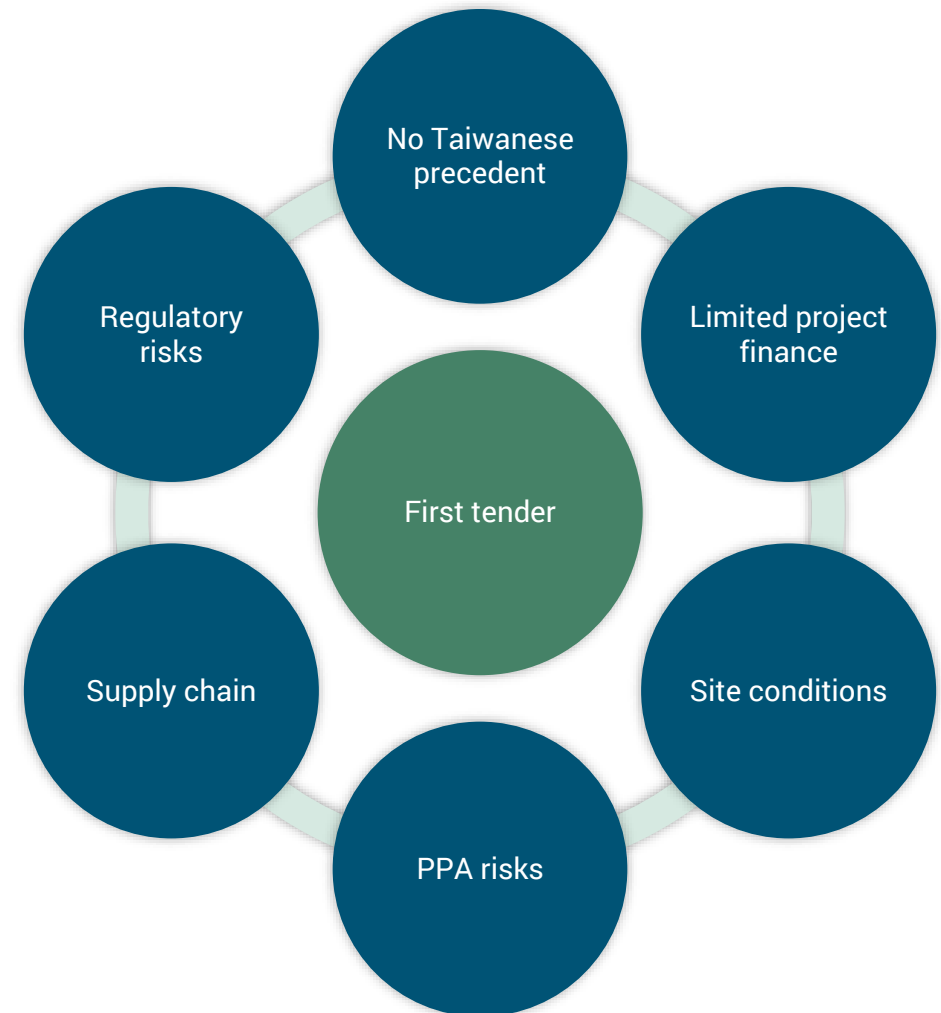
- Pricing based on current commodity and currency exchange rates

Financing / interest rates

- Managing risks related to movements in the underlying rates, spreads and execution
- Concerns about NTD liquidity
- Limited availability of tenor and liquidity for FX and interest rate hedging

Domestic content

- Compliance procedures to be clarified



2. Background to the first tender

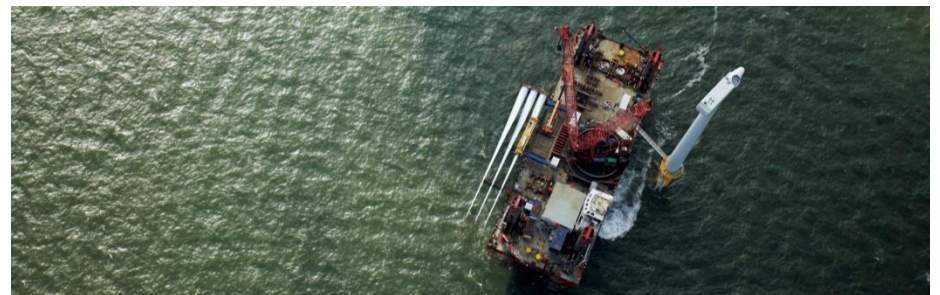
Flashback: Sources of debt available to sponsors in first tender

	OW and PF experience	Knowledge of the Taiwanese market
Export credit agencies (EKF / Credendo / EH etc.)	Very experienced in OW and PF	Limited knowledge of the Taiwanese market
International banks	Very experienced in OW and PF	Limited knowledge of the Taiwanese market
Taiwanese banks	Very limited knowledge of OW and PF	Familiar with the regulatory framework
Taiwanese institutional investors / Taiwanese LifeCos	No knowledge of OW and PF	Regulatory constraints prevent them from funding construction period

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3. Where we are now

Developments in Taiwan since the first tender

The industry has progressed rapidly since the first tender

The first projects secured debt financing

- Formosa 1 phase 2 reached financial close in 2019
- Yunlin also reached financial close in 2019

Projects in construction have a total capacity of 1.2 GW

- 128 MW have gone through the construction cycle

However 4.4 GW remain in development

Only Formosa 1 phase 1 has been fully commissioned

Formosa 1 phase 2 is expected to reach this milestone before the end of the year

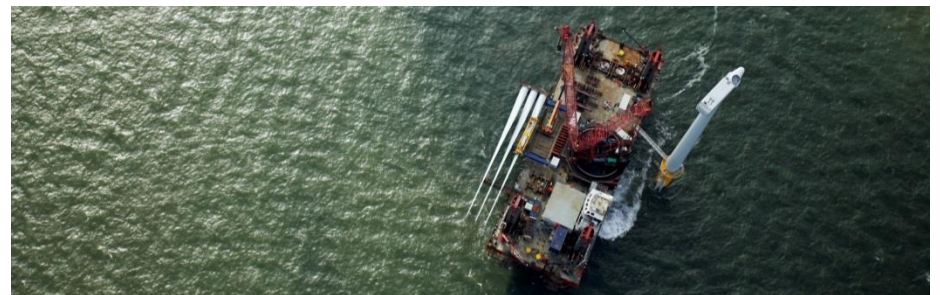
- Projects in operation
- Projects under construction
- Projects in development

Project	Capacity MW	Exp. COD
Formosa 1 phase 1	8	2017
Formosa 1 phase 2	120	2019
Yunlin Phase 1	360	2020/21
Yunlin Phase 2	348	2021/22
Formosa 2	378	2020/21
Guanyin	350	2021/22
Changhua SE	605	
Changhua SW phase 1	295	
Changfang Phase 1	100	
Changfang Phase 2	452	2023/24
Chongneng	300	2024/25
Xi-Dao	48	
Hai Long 2 phase 1	300	
Taipower phase 2	300	
Changhua SW phase 2	337	2025/26
Changhua NW	583	
Hai Long 2 phase 2	232	
Hai Long 3	512	

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4. Considerations for the next auction

Looking ahead to the next tender round

I

Early 2020 if it remains in line with current schedule, however the Presidential elections may affect the timing of the next tender round

II

Either 1 GW will be tendered each year over five years of grid connection (2025-2029), or all 5 GW will be tendered in the 2020 auction with grid connections over 2025-2029

III

Localisation requirements are still under discussion; % capex spent or continuation of 2024 allocation round requirements?

IV

Scoring criteria to be clarified, maybe a two stage process with qualitative pre-selection then a competitive auction, or a single stage process on both criteria

4. Considerations for the next auction

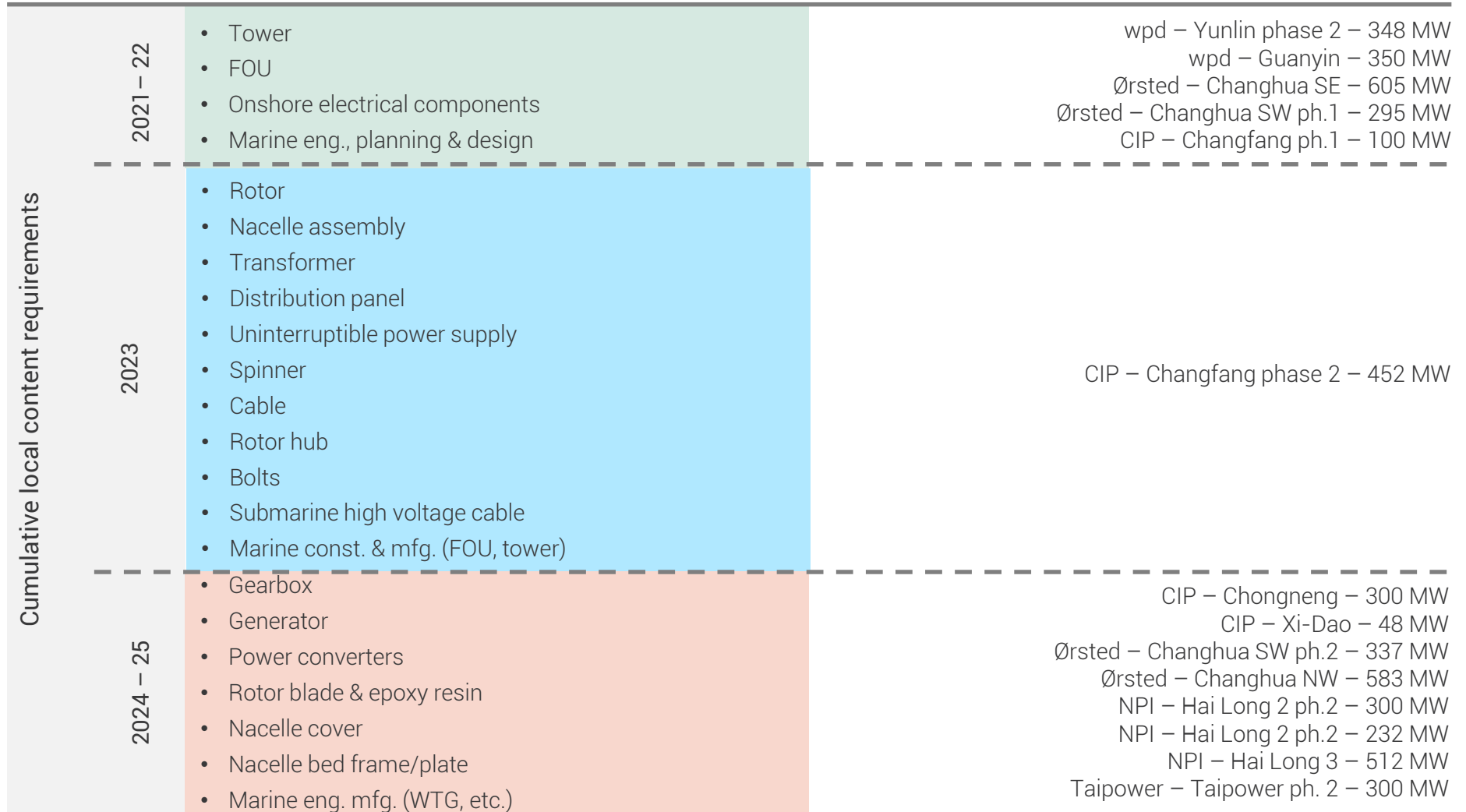
Developing lender landscape

Project	International banks	Taiwan banks	ECAs	LifeCos.
Formosa 1	ANZ	KGI EnTie Bank		
Formosa 1 & Yunlin	BNPP CA-CIB ING	DBS SocGen MUFG	Cathay United Bank Fubon Bank	EKF
Yunlin	KFW-Ipex Commerzbank Deutsche Bank Siemens Bank	Standard Chart. Natixis OCBC Mizuho SMBC	E.SUN CTBC	Atradius Euler Hermes
Other lenders	Other European, North American and Asian lenders	Taishin Bank Land Bank of TW Shin Kong Bank Sinopac Bank of Taiwan Yushan Bank Mega Bank Chang Hwa TW Co-op Bank	K-SURE Credendo UK Export Finance JBIC NEXI KEXIM	Cathay Life China Trust Fubon LifeCo. Taiwan Life TransGlobe

A core group of lenders is emerging, however the potential upside of LifeCo funding is yet to be tapped and other financing sources could be considered

4. Considerations for the next auction

Maturing supply chain and localisation requirements



4. Considerations for the next auction

Debt funding in the coming years

Many projects will seek to raise debt finance at the same time as competing projects

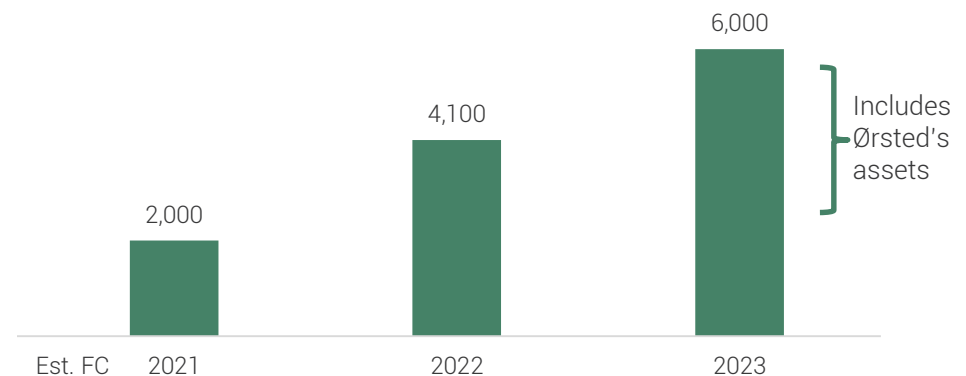
- 5.5 GW of projects granted feed-in tariff support in April & June 2018 with expected COD between 2020 and 2025
- The majority of competing projects will also be seeking non-recourse financing to fund their capex needs
- Banks will have overall limit per sponsor and a capped exposure to OW

Not all projects are equal

- Projects have been funded and both local and international banks have been active
- However the early projects benefit from high allocation round tariffs and minor local content requirements
- Will there be sufficient liquidity to allow a “healthy” negotiation?

Other pockets of liquidity may be explored (insurance companies, capital markets, etc.)

Estimated NTD debt volume required
(USD M equivalent)



The volume above is based on various high level assumptions

- Debt leverage around 75% (on average)
- Taipower's project is excluded
- Ørsted's projects are included (as leverage may be in the form of corporate debt or via holdco financings)
- Timing based on project allocation & grid connection dates
- FC/FID assumed to be raised 2 - 3 years in advance of COD

4. Considerations for the next auction

Opportunities

- 1 Precedent and growing track record
- 2 Maturing supply chain
- 3 Growing pool of lenders
- 4 Local regulations are better understood

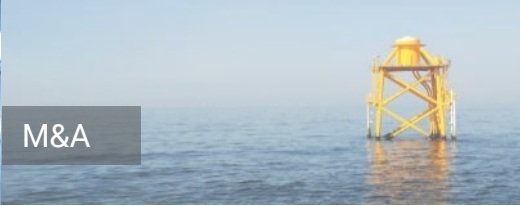
Challenges

- 1 Not so many projects yet operational
- 2 Projects with strict localisation yet to deliver
- 3 Refinancing yet to occur
- 4 Lower tariffs may tighten DSCRs

Challenges in Taiwanese offshore wind have so far been overcome!



Debt



M&A



Strategic



Contracting

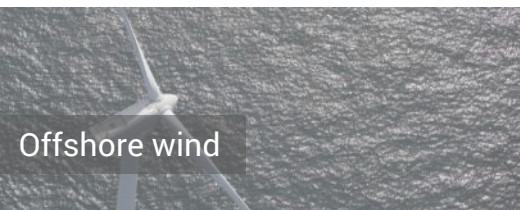


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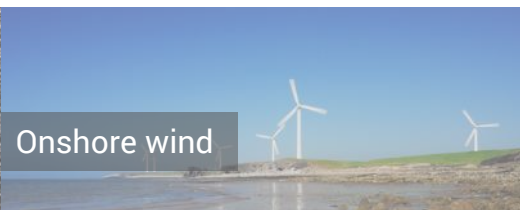
The renewable energy financial advisors

BOSTON • CAPE TOWN • HAMBURG • LONDON • PARIS • UTRECHT

green-giraffe.eu



Offshore wind



Onshore wind



Solar power



Other renewables