

GTAI Webinar Windenergie in Taiwan »



Company Presentation

24th September 2020

Germany Largest Fully Integrated Utility Company in Taiwan

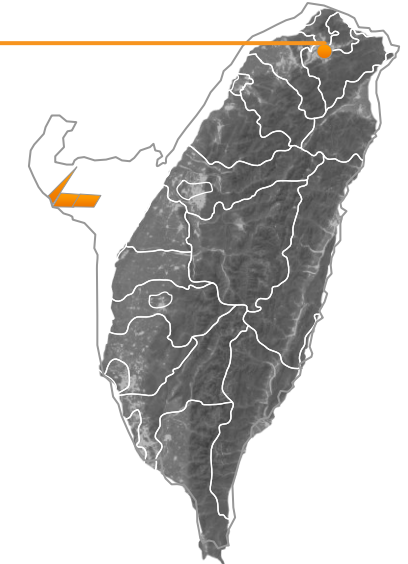
Key Facts¹

- › 5.5 Million Customers
- › 13 GW Generation Portfolio
- › 20,000 Employees
- › 22 Billion Euro Revenue
- › More than 100 years history

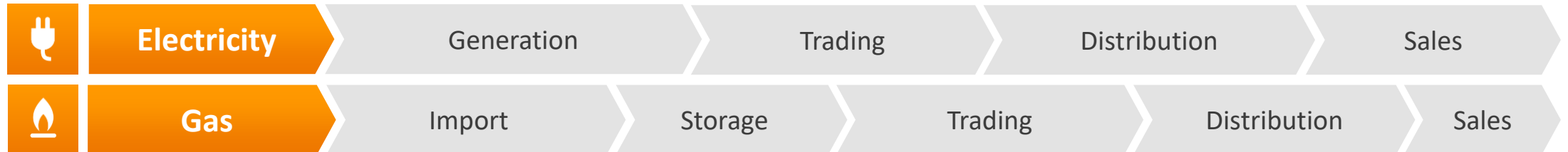
¹2017

Office

- › Since 2018 in Taipei
- › Currently 12 Experts
- › Renewable energy
- › Expending and hiring local talents



Fully Integrated



4 Business Segments



Formosa III project overview

A total potential capacity of 2.0 GW of offshore wind farms in Taiwan

Overview

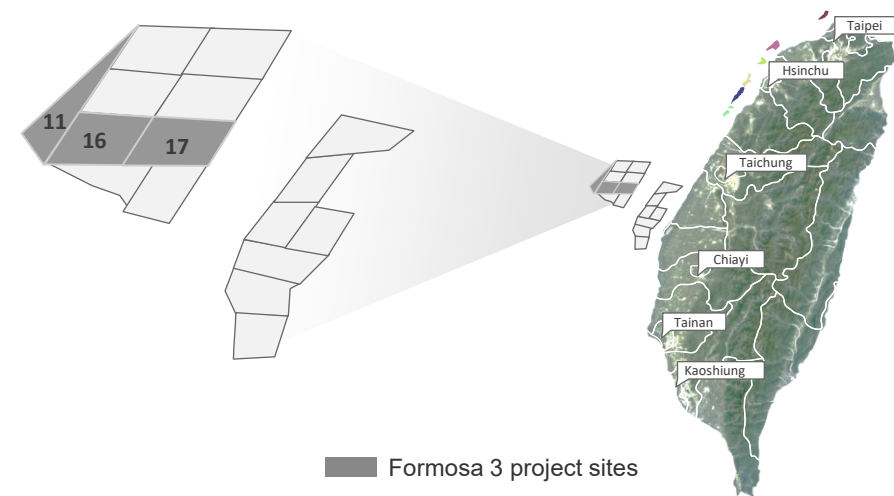
JERA, Macquarie and EnBW are currently developing three zones of offshore wind sites collectively referred to as **Formosa III**

- **Zones 11, 16 and 17** of Formosa III are located in the Changhua county
- Project secured EIA approved in 2018
- Minimum regulated capacity is 1.9GW with a potential capacity of up to 2.0GW with an optimal turbine selection

	Zone 11	Zone 16	Zone 17
Distance to shore	62.1km	50.3km	36.8km
Area size	95.0km ²	111.7km ²	103.4km ²
Min regulated capacity	475MW	555MW	515MW
Water depth (m)	21.9 – 50.7	19.1 – 48.8	34.0 – 44.9

Location

Formosa 3 has the largest buildout capacity with full EIA approvals to participate Zonal Development in a strategic location



Overview Taiwan offshore wind market

	Demonstration Phase 1	Selection (2020 commissioning)	Selection (Round 1)	Auction (Round 2)	Zonal Development Phase 3 (draft)
Selection Date	2013-2015	2018/4/20	2018/4/30	2018/6/22	2021 Q2 (draft)
Commissioning Year	By 2020	2020	2021-2025	2025	2026-2030
Targeted Capacity	N/A	0.5 GW	3 GW	Total 2.5 GW	5 GW / 1GW per year
Allocated Capacity	237 MW	738 MW	3098 MW	1664 MW	Auction1: 1GW (2021) Auction2: 2GW (2022) Auction3: 2GW (2023)
Grid Allocation Criteria	N/A	Scores on capabilities: Technical Financial Operation	Scores on capabilities: Technical Financial Operation Local content	Only projects received over 60% score at selection round	Project receive over 60% score at prequalification round can join the bid. (Score criteria: Technical, financial and local content)
Selected Developers	Swancor (128MW, 海洋 Formosa 1) Taipower (109MW, TPC project)	JERA+Macquarie+Swancor (Formosa 2, 378MW) Wpd (Yulin, 允能, 640MW)	* wpd (QuanYin 350MW) Orsted CIP China Steel Co. Taipower NPI+Yushan energy	Orsted (920MW, CPPA with TSMC, 2020/July) NPI+Yushan+Mistui (744MW)	JERA+MQ+EnBW Orsted CIP China steel Wpd+Lea Lea Taipower RWE(Innogy)+Far Eastern
Price	FIT	FIT (TWD 5.8498)	FIT (TWD 5.516)	TWD (2.2245~2.5481)	Bid



Facts

1. Market is growing with strong pace, and it has been moving fast over the last 3 years.
2. International developers dominate the current market, over 70% of the planned capacity were awarded to international players.



Opportunities

1. Wind speed in the Taiwan Strait are around 12m/s, offers great market potential
2. Strong government support with high guaranteed regulatory incentives
3. Taiwan is the pioneer country in Asia in offshore wind development. Taiwan can become a gateway for foreign firms to tap into Asia's offshore wind power market
4. Potential 5 GW capacity for deep water development gives future opportunities



Potential Challenges / Risks

1. **Consent process**
 - For obtaining EPA modification and other consent letters can be lengthy and unpredictable, especially that there's no one-step window for this services and the developers need to obtain the approvals and permit from different authorities.
2. **Lack of qualified local suppliers**
 - Although allocated developers have committed to the local suppliers, but the local suppliers cannot deliver on time could be a problem.
3. **Political uncertainty**
 - Further green field for the deep-water development is not clear yet, the policy is encouraging the same site competition instead of future new site exploration
 - Phase 3 timeline has been delayed for around 2 years; it will effect the commissioning time for 2026-27 projects.
4. **Grid connection points**
 - The grid capacity for future offshore wind farm connection is not well defined yet, it will cause more cost and the non-expectation scenario for further development