

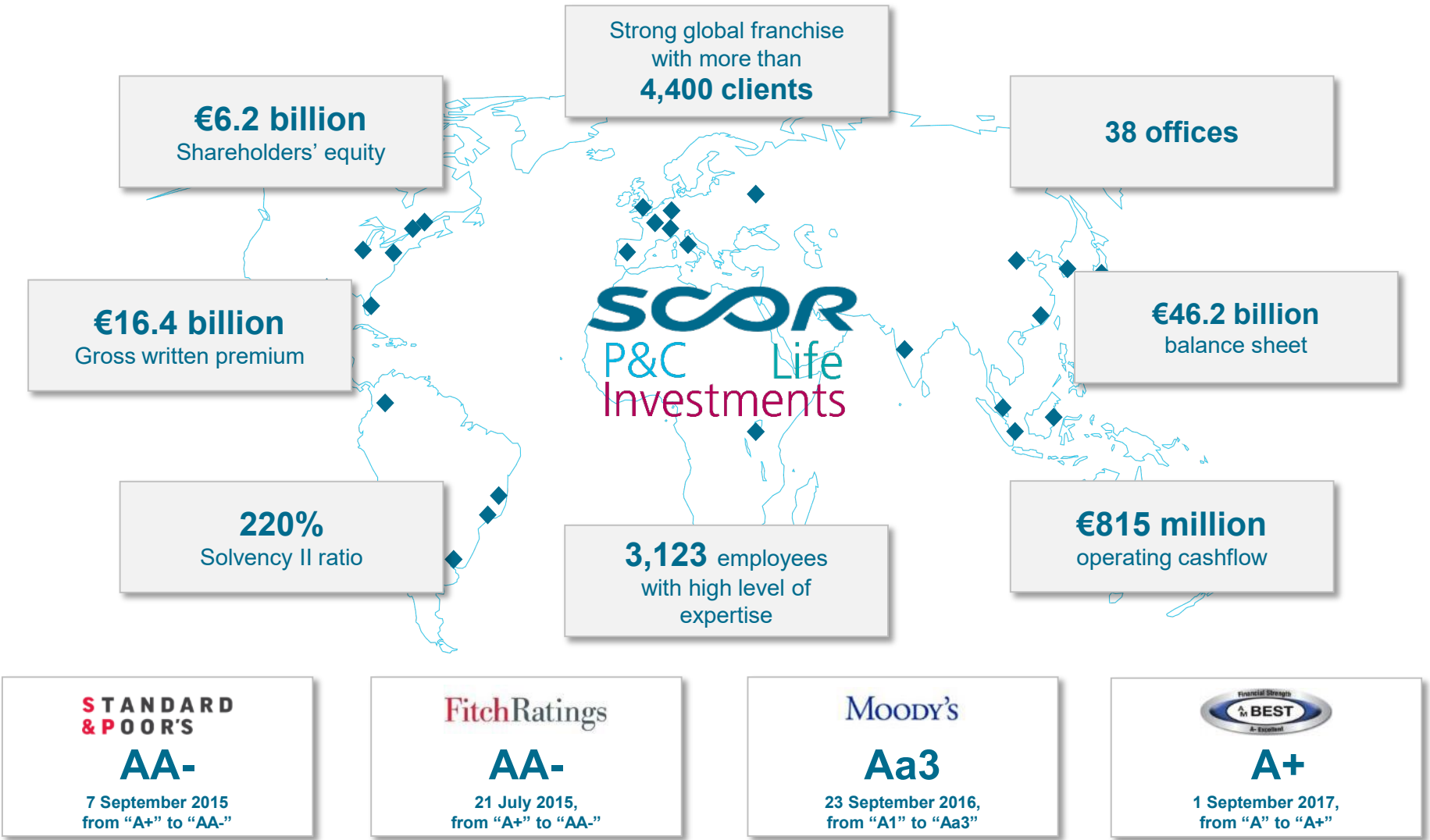


An overview of offshore wind farm development in China – from insurance perspective

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SCOR is a Tier 1 Global Reinsurer – 4th Rank worldwide

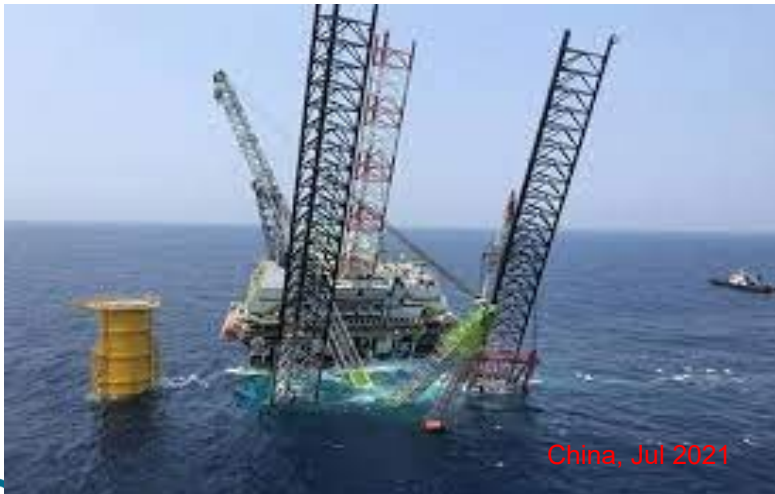


Role of Insurance – financial security & knowledge sharing



Financial Security:

- Safeguard against financial loss;
- Assurance to investors and developers to adopt new technologies and methods;

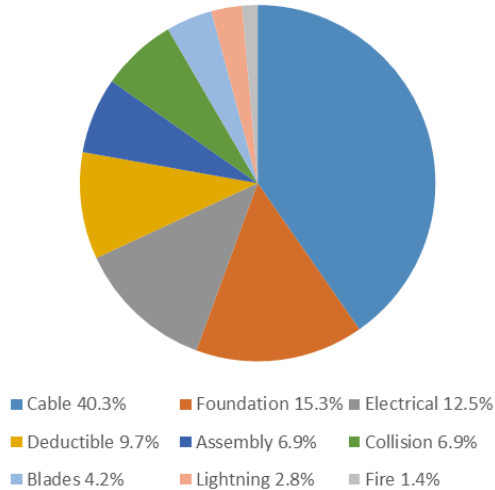


Knowledge Sharing:

- Loss history of offshore wind farm;
- Technical challenges and best industry practices and risk mitigations

Insurance Claim Experience

2005- 2020, Offshore Wind Farm Construction Claims - Incurred

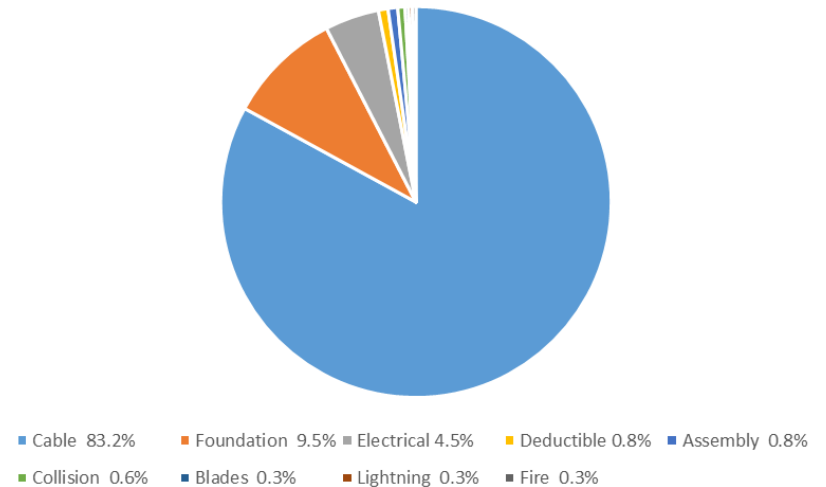


- By 2020, total offshore wind claim: > EUR 550M
- Ave. claim cost: ~ EUR 3M;
- Cable loss account for >60% of total loss

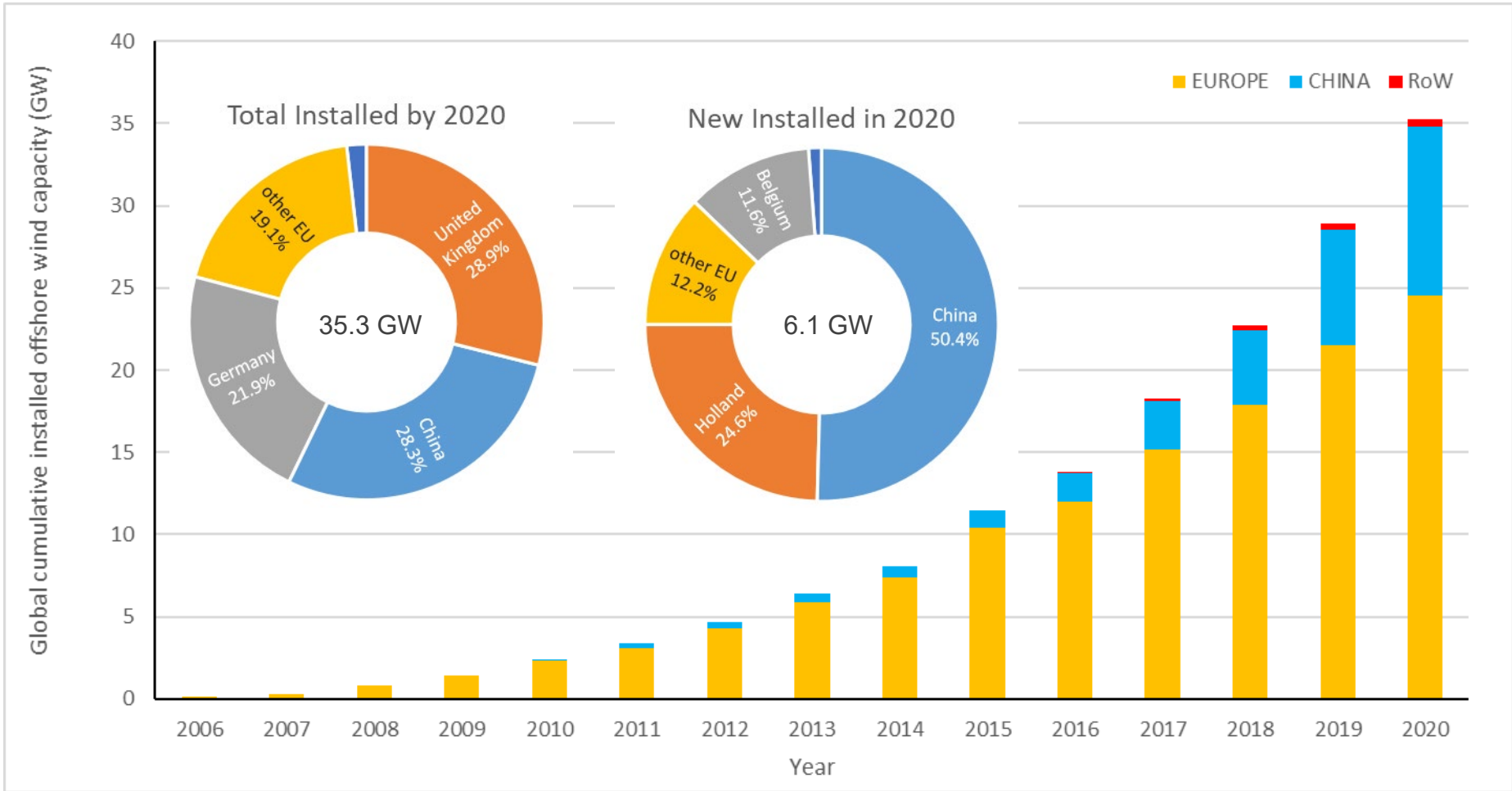
The Assets - Cables

- Average claim cost: EUR 2,250,000
- Inter- array cable damage: EUR 1,200,000 – 3,800,000
- Export cable damage: EUR 7,500,000 – 25,000,000
- 57 of the last 60 construction projects have experienced cable claims
- Vessel costs a major contributor (EUR 100,000 – 280,000 p/day)

2005- 2020, Offshore Wind Farm Construction Claims - Cost



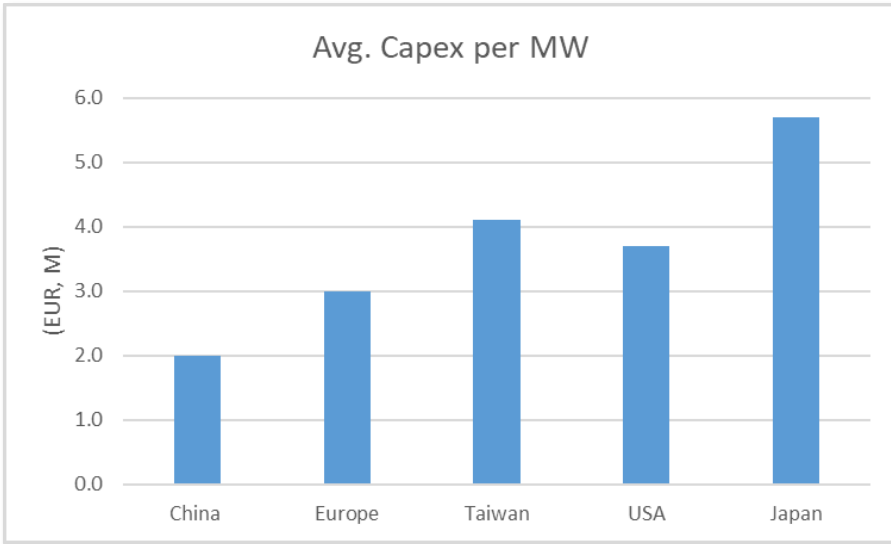
Global Offshore wind – Europe and China leading the race



1) Source: GWEC

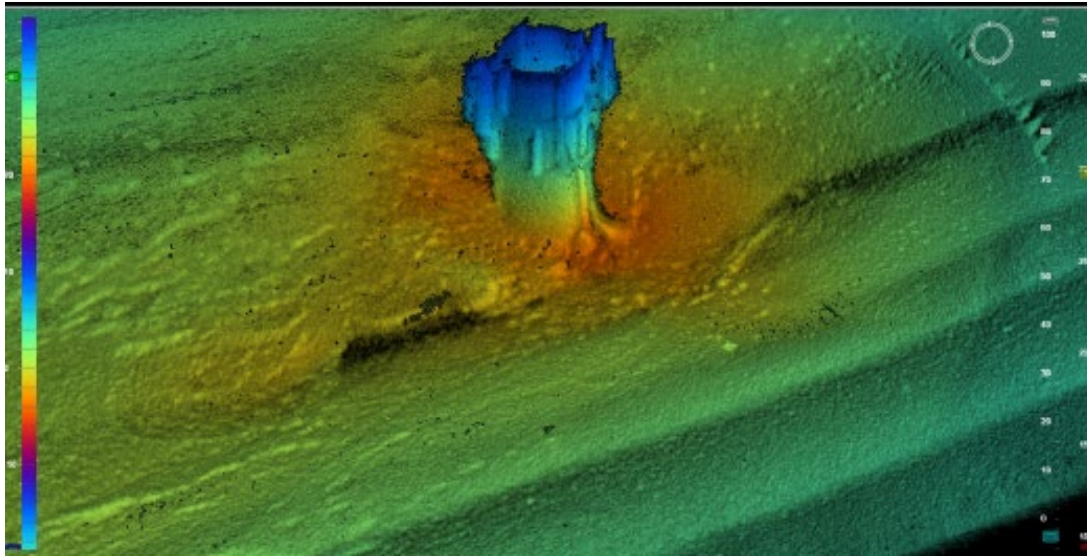
2) China: mainland only excl. Hong Kong, Macau and Taiwan

China offshore wind development – differences & challenges

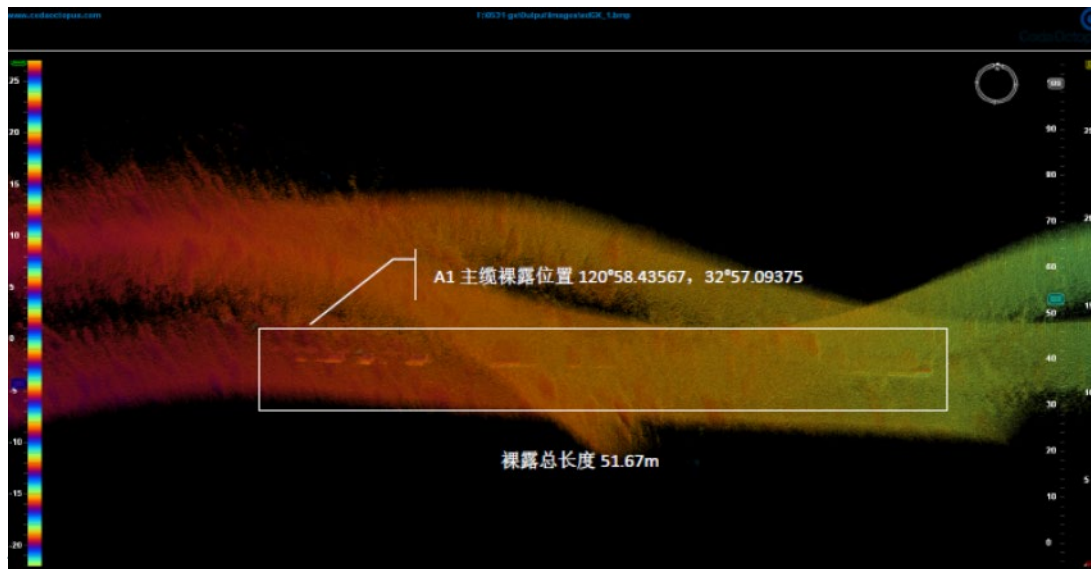


- Large state-owned energy companies play the lead role. Development cost either from balance sheet or gov. sponsored bank loan.
- Comprehensive, mature and very competitive domestic supply chain.
- “Chinese speed” - from design to commission: ~2-4 yrs vs. 7-10 yrs in EU.
- Lack of dedicated OWF installation vessel and experienced crew & contractors.
- Variable and challenge site conditions: seismic, typhoon, aggressive scour, icy, rock outcrop
- Fast-paced in adopting new designs and technologies: TP less monopile, suction bucket (jacket and monopod), floating, large turbine (e.g. Mingyang 16MW)

CASE STUDY – Aggressive Scour, Jiangsu



- Significant scour around monopiles. Avg. depth = ~5m; max. depth = ~8m, avg. length = ~8m; max. length = 26m;



- Designed buried depth for export cable is 2m.
- As per survey data, export cable buried depth:
 - 9%: > 2m;
 - 22%: < 0.5m;
 - 23%: 0.5m – 1m
 - 45%: 1m – 2m.

CASE STUDY – “Punch-through”, Guangdong



Construction Jack-up Shenping 001, Jul 2021 China



The End