

# Current Status and Future Innovations of the China Shipbuilding Industry

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(<https://www.asef2015.com/>)

China Association of the National Shipbuilding Industry (CANSI)

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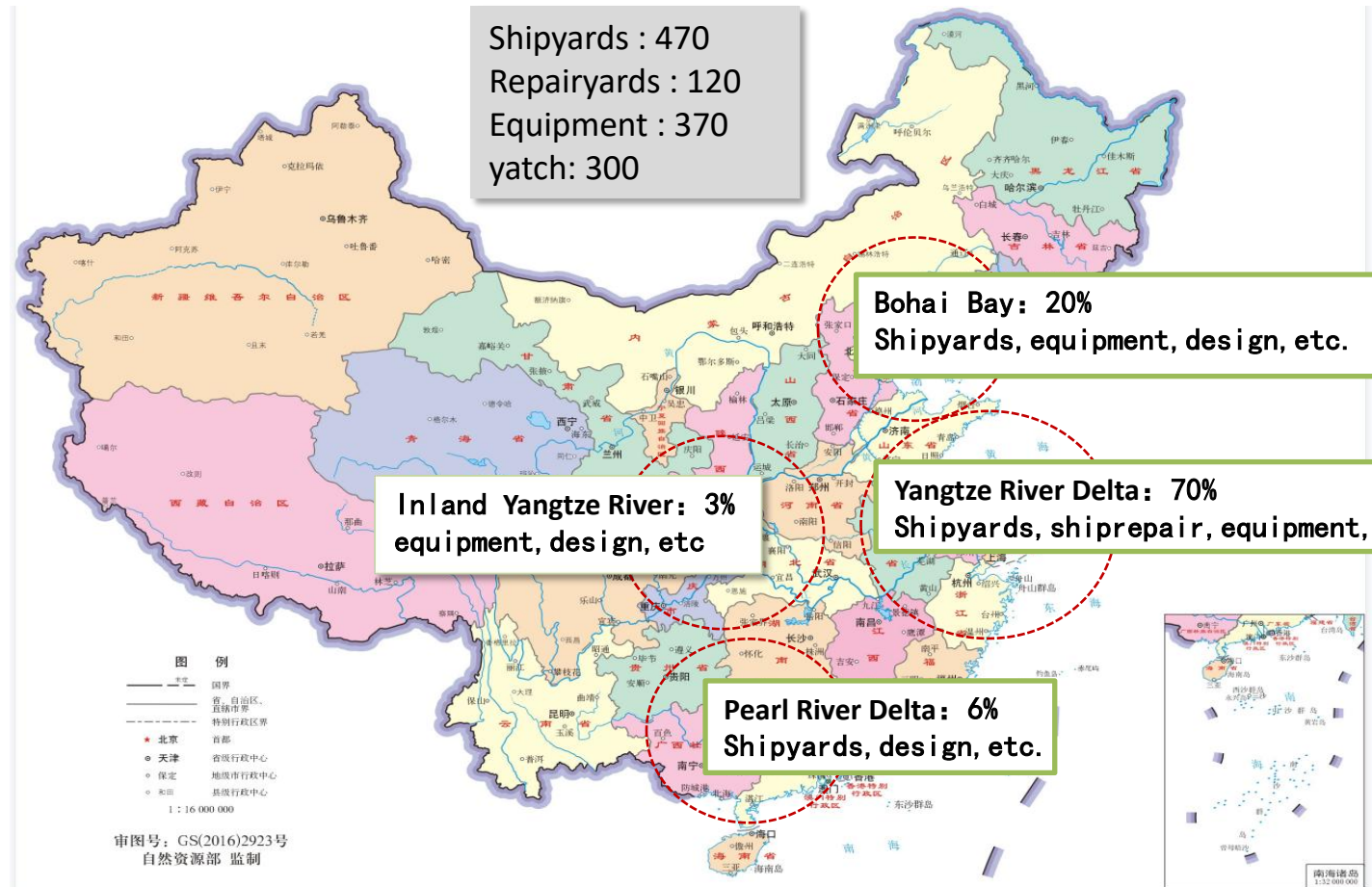
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- Chinese shipyards and related companies are mainly concentrated in the Bohai Bay Economic Zone, Yangtze River Delta Economic Zone, and Pearl River Delta Economic Zone.

CANSI was established in 1995, currently member units located in major shipbuilding areas such as the Bohai Bay, Yangtze River Delta, etc., including shipbuilding, design institutes, marine engineering, ship equipment, financial institutions, and higher education institutions.

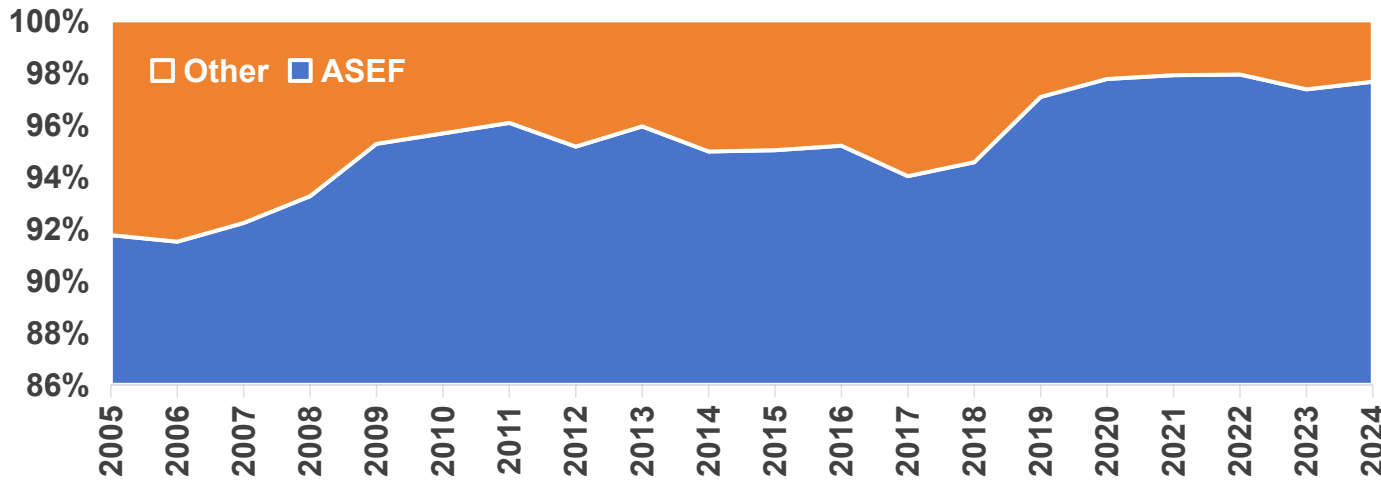
In recent years, there have been applications from companies in related industries such as artificial intelligence, materials, environmental protection, and logistics for membership.

CANSI is willing to become a bridge and link for cooperation, and provide support to the best of its ability.



- **CANSI is also the Chairmanship member of ASEF.**
- **ASEF is NGO of IMO and representing the shipbuilding industry in the international maritime society**

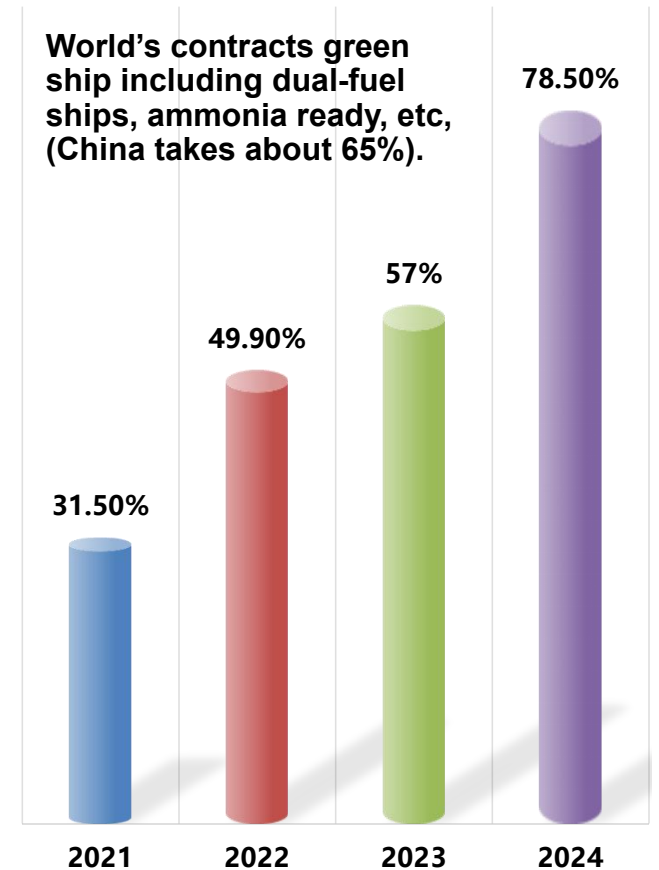
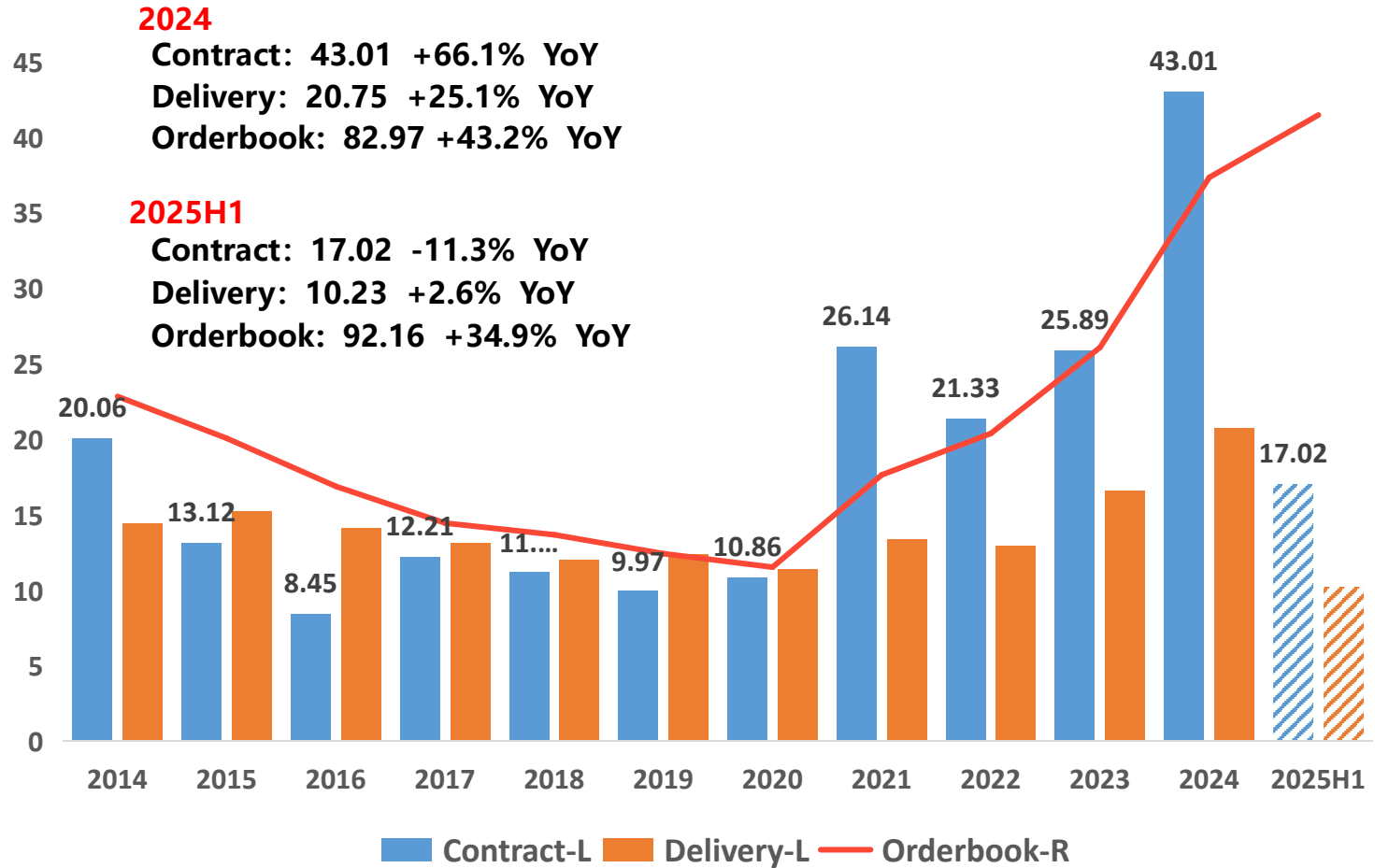
Active Shipbuilding Experts' Federation (ASEF) is an international organization representing shipbuilding industry. It contributes to sound development of international maritime transportation and further enhancement of the world maritime safety, marine environment protection and maritime security.



Membership of ASEF (A-Z)	
1.	ASMI - Association of Singapore Marine & Offshore Energy Industries
2.	AMIM - Association of Marine Industries of Malaysia
3.	<b>CANSI - China Association of the National Shipbuilding Industry</b>
4.	CDPLC - Colombo Dockyard PLC (Sri Lanka)
5.	<b>GISBIR - Turkish Shipbuilders' Association</b>
6.	IPERINDO - Indonesia Shipbuilding and Offshore Industry Association
7.	<b>KOSHIPA - Korea Offshore &amp; Shipbuilding Association</b>
8.	SAI - Shipyards Association of India
9.	<b>SAJ - The Shipbuilders' Association of Japan</b>
10.	SBIC - Shipbuilding Industry Corporation (Vietnam)
11.	TSBA - Thai Shipbuilding and Repairing Association

No.	IMO session	Document number	Document name	Submitters
1	MEPC80	MEPC 80/7/7	The use of onboard carbon capture systems within IMO's regulatory framework	China, Japan, Liberia, Norway, Republic of Korea and ASEF
2	SDC10	SDC 10/8/2	Comments on MSC 105/18/1 (part 2)	Japan and ASEF
3	PPR11	PPR 11/5/6	Proposal for development of guidance for verification of in-water cleaning systems and certification of in-water cleaning service providers	the Republic of Korea, ASEF and Global TestNet
4	MEPC82	MEPC 82/9	The Tripartite Working Group on Underwater Radiated Noise	ASEF, etc.

- The contract of China shipbuilding industry keeps increasing.
- Chinese shipyards takes the majority of global green ship orders.



Source: CANSI

- **China commitment to the world of "30-60" decarbonization plan, and so the China shipbuilding industry and related industries set the decarbonization as the main target of future development.**



From 2018, IMO MEPC 72 set a relatively aggressive emission reduction plan, IMO MEPC 80 set the goal of achieving net-zero emissions in shipping by 2050.

The IMO Net-Zero Framework has been approved, and sets the base targets and direct compliance targets, which is expected to enter into force on March 1, 2027.



Risks and Challenges still in the global emission reduction process, The United States will officially withdraw from the Paris Agreement in January 2026



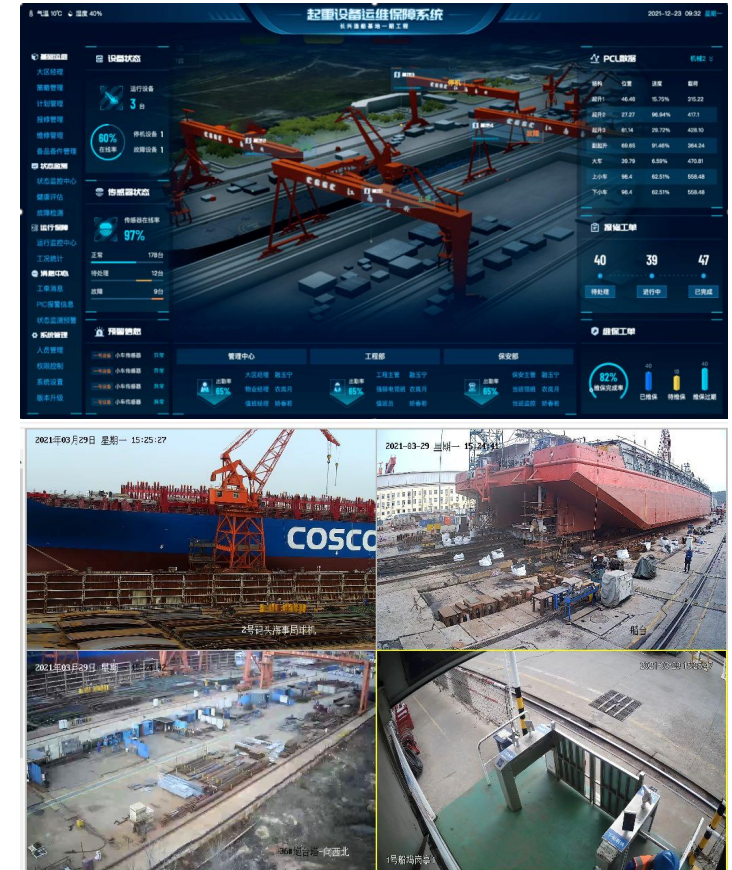
By 2020, China put forward "30-60" Dual Carbon Strategy, strive to peak carbon dioxide emissions before 2030 and achieve carbon neutrality before 2060.

By 2035, Chinese net GHG emissions will be reduced by 7% to 10% compared to the peak, the non-fossil energy in the total energy consumption will reached over 30%.



- **Corresponding United Nations and IMO emission reduction strategies,China shipbuilding industry also aims to “A Green Ship Building System”**

1. **Establish an advanced shipbuilding system.** Promoting lean management and information technologies such as 5G, industrial Internet. Strengthen collaborative control of ship design and manufacturing, and build digital workshops and intelligent shipyards.
2. **Promote the construction of world ‘s green shiprepair center.** Develop green and digital ship repair. Promote green rust removal technology, strengthen comprehensive treatment of VOCs, establish a recycling and pollution control system.
3. **Fully implement safe and environmentally friendly ship dismantling.** Strictly implement the system of listing harmful substances on ships, strengthen the research and development of new materials, improve the technical level of ship component reprocessing, remanufacturing, and material reuse.
4. **Expand the application scope of green and low-carbon special technologies.** Build an efficient and low-carbon energy recycling system, promote the application of green painting, shore power and other technologies, and promote the utilization of renewable energy. Strengthen the standardized management of solid waste. Promote advanced and applicable water-saving technologies and the application of circulating water.



- **Corresponding United Nations and IMO emission reduction strategies,China shipbuilding industry aims to “A Green Ship Product System”.**

<b>1.Green Ship</b>	Implement the green intelligent ship standardization, accelerate the R&D development of new energy powered ship types, and form a series of green ship type brand products. Use advanced and applicable energy-saving and emission reduction technologies, implement traditional power ship technology transformation.
<b>2.Ship Design</b>	Establish a green product design concept, incorporating resource conservation, energy efficiency, decarbonization, toxic & harmful substances reduction into ship design. Improve the design methods for green ship products and establish a digital collaborative design system.
<b>3.Green Power</b>	Improve the efficiency of traditional fuel and LNG engines, expand the market application of LNG engines, promote the low-carbon and zero carbon fuel marine engine technologies such as methanol, ammonia, ethanol, and hydrogen, and accelerate the research and application of new fuel supply, exhaust gas treatment, and pollutant emission monitoring.
<b>4.Ship Equipment</b>	Improve the energy efficiency of cabin equipment, deck machinery, environmental protection equipment, accelerate the research and application of energy-saving and low-carbon technologies, strengthen the research and application of environmental protection equipment and materials, and strengthen the research and application of ship pollutant treatment equipment.

- Collaborating with shipowners and ship design companies, to research and propose new energy ships that meet international decarbonization requirements, many ship types have entered market operation.

### LNG-powered ships



LNG Dual-Fuel 23,000 TEU Container ship



LNG Dual-Fuel VLCC

### Methanol-powered ships



Methanol Dual-Fuel 16,000 TEU Container Ship



Methanol Dual-Fuel PCTC

### Electric/Hybrid-powered ships



Electric-powered 700 TEU Container Ship



Hydrogen fuel cell inland river 64 TEU Container Ship

### Ammonia-powered ships



Ammonia-fueled VLAC



Ammonia-fueled Container Ship

- Based on market and shipowner's suggestions, research and launch two auxiliary technology solutions to provide shipowner with diversified and economical choices.

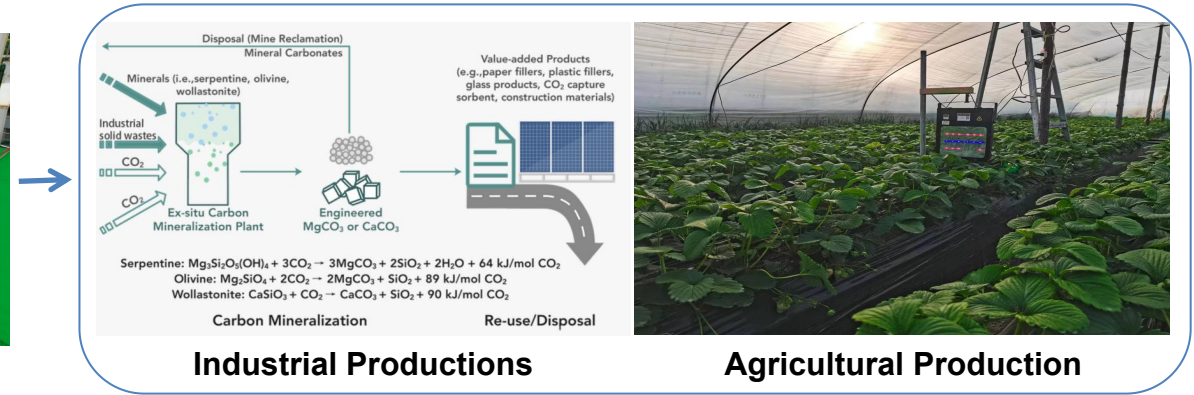
### Capture CO2 from ships, store and transport them for industrial and agricultural production



The ship with OCCS system



LCO<sub>2</sub> carrier with volume of 500 m<sup>3</sup>



Industrial Productions

Agricultural Production

### Wind-assisted propulsion helps save fuel and reduce emissions

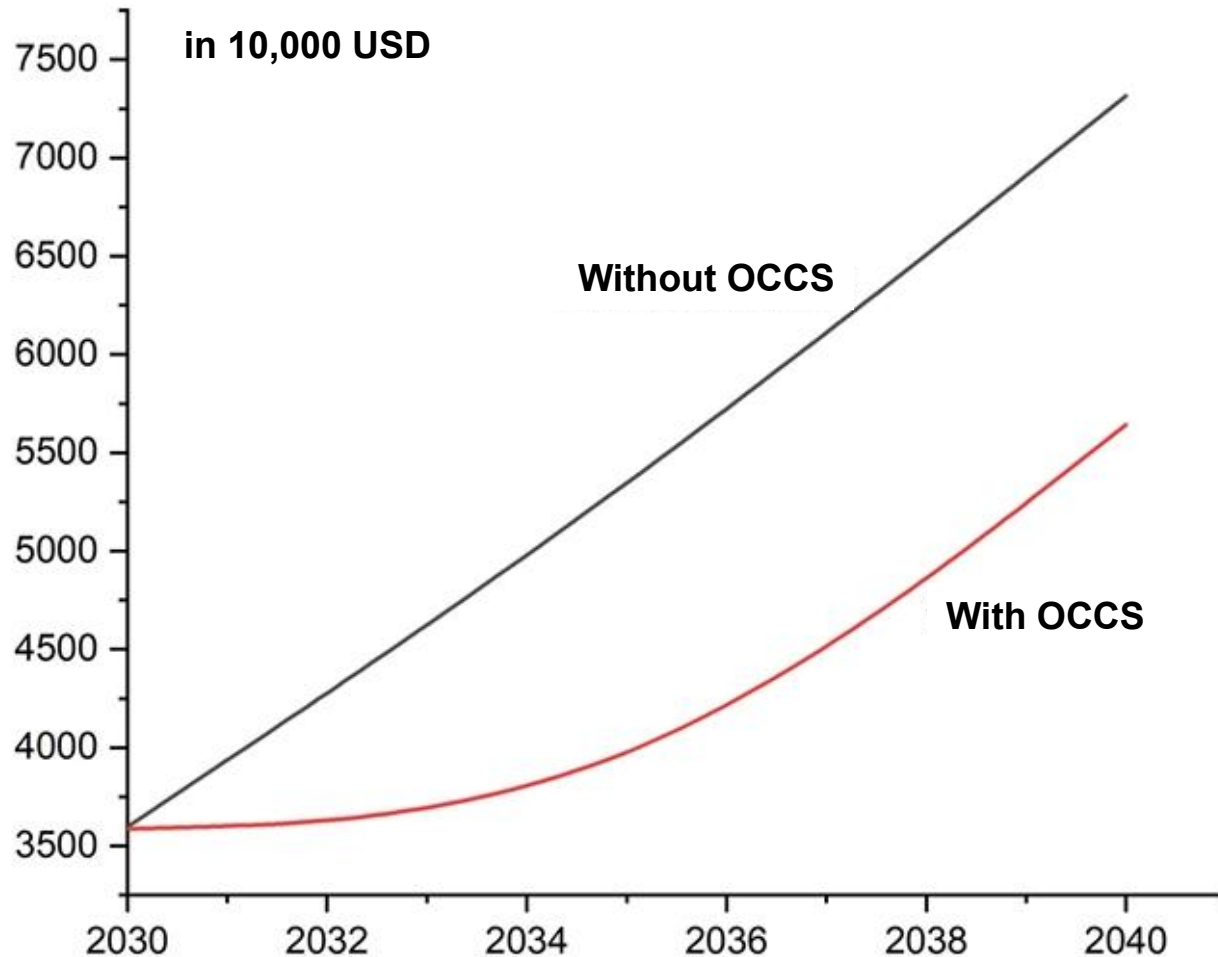


Wind-assisted propulsion system design as a whole with the hull



Wind-assisted propulsion system, modular design separated from hull design

- A statistic research on the expenditure of with/without OCCS shows, OCCS can help shipowner to save cost in short term when low/zero carbon fuels is insufficient supply.



2030, **Cost Even**

- Pay the carbon emission fee, with a comprehensive fuel cost about **\$36 million/Y**;
- Installing OCCS cost about **\$35.9 million/Y**.

2030 - 2035, **Save \$16 million/Y**

- Pay the carbon emission fee, with a comprehensive fuel cost of **\$52.91 million/Y**;
- Installing OCCS cost about **\$36.59 million/Y**, saving approximately **\$16 million/Y**.

2035 - 2040, **Save \$16.75 million/Y**

- Pay the carbon emission fee, with a comprehensive fuel cost of **\$73.16 million/Y**;
- Installing OCCS cost **\$56.41 million/Y**, saving approximately **\$16.75 million/Y**.

- **CANSI is willing to support and cooperate with ASEF and its members:**
- **China has a large domestic market, it can provide a large number of application scenarios and potential market opportunities for new concepts, products and technologies.**
- **Strengthening cooperation in design, research, and producing of low-carbon and green products to shipowners. Especially in the current decarbonization of world's maritime society, it can be considered to explore the creation of a new supply chain system for maritime low/zore carbon fuels.**
- **Carry out joint talent training and further promote mutual recognition of professional qualifications and academic qualifications among maritime industry practitioners.**
- **CANSI is willing to make positive contributions to the development of ASEF and, through the ASEF platform, hopes to collaborate with ASEF members to jointly export ASEF's technical solutions to the international maritime society**