GREEN FINANCE
FORUM OF 60
绿色金融60人论坛

金融支持航运业低碳转型的中国政策与实践分享

Financing for Shipping decarbonization —— A review on Policy and Market Development from China

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航运低碳转型的背景与融资需求

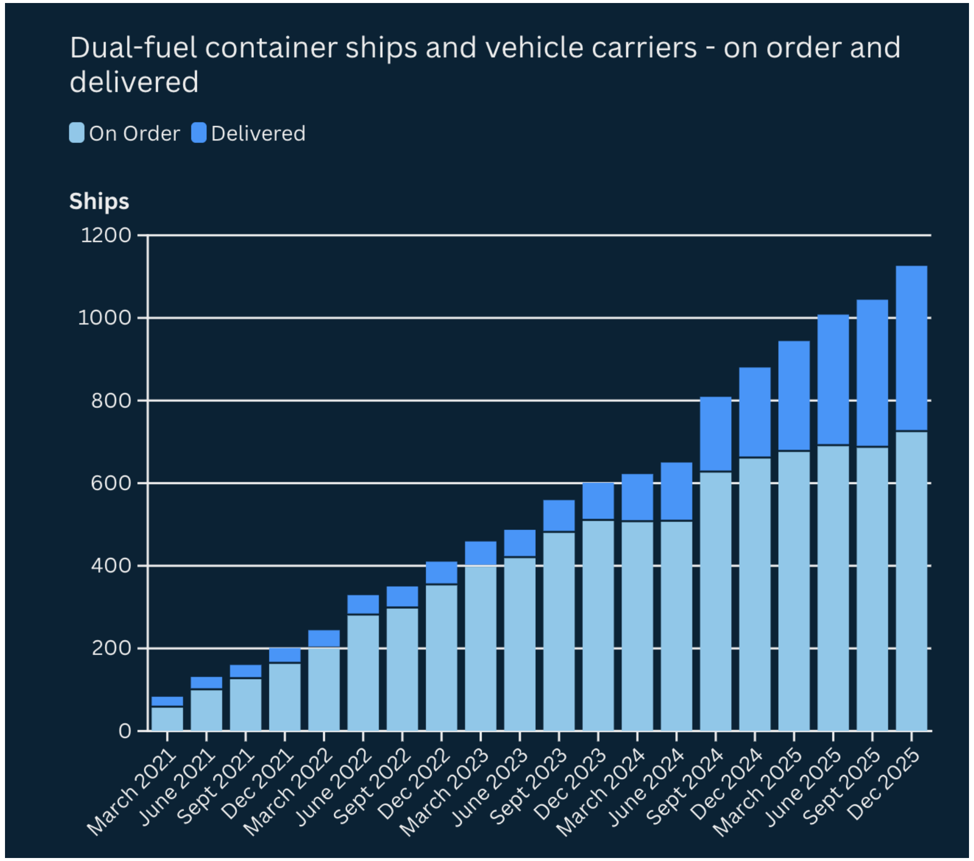
Background

1.1 航运净零转型面临较大资金缺口 A Major Financing Gap for Shipping Decarbonization

- **Investment required for Shipping Decarbonization:** $1.2–1.6 trillion cumulative needed by 2030–2050, with 87% for shore infrastructure and alternative fuel production.
- **Ship Financing Shift：** Capital flow to newbuilds accelerated towards dual-fuel fleet, with over 50% of newbuilds in 2024–2025 are alternative-fuel ready, but retrofitting the existing fleet still faces a major funding gap.
- **Small shipowner facing financing pressure：** access to green financing remain limited due to weak credit status, collateral and perceived risks by conventional lenders, while credit continues to flow to large fleet leaders.

Shipping decarbonization requires not only stand-alone project/ship financing but a systemic capital reallocation across the value chain of vessels, alternative fuels, ports, and infrastructure. A mismatch lies between the massive funding needs and conventional shipping finance models.

截止2026年2月，全球在订及已交付的替代燃料双燃料船（集装箱船与汽车滚装船型）已有 ***1126*** *艘，较上年增长* ***28%***



世界航运理事会（WSC），Dual-Fuel Fleet dashboard
https://www.worldshipping.org/dual-fuel-fleet-dashboard

1.2 国际航运可持续金融标准及主要进展
Driving forces and key development in global shipping finance policy framework

Compliance and Voluntary standards	Implication	Financing Decisions
• IMO，2025,《IMO Net Zero Framework》 • EU，2024/2025，EU-ETS & FuelEU Maritime • Major Financial Institutions，2019,《Poseidon Principles》 CBI，2021,《Climate Bond Taxonomy: Shipping industry》	• A potential carbon price estimated at 100-380 USD/tCO_2eq following IMO NZF • EU ETS: first year spending expected of EUR 2.2 billon; FuelEU tightened emission intensity targets • The Poseidon Principles signatories cover near 3/4 global ship finance portfolio, with a 95% disclosure rate in 2025 and avg portfolio gap narrowed to 12% misaligned with the IMO's "minimum trajectory" • Mandatory disclosure with clearly defined boundary and key quantifiable metrics including CII，MRP	• Policy direction and market responses by the EU, IMO, and major financial institutions show international rules are tightening. This means **higher compliance costs for carbon-intensive vessels**, resulting in a fundamental shift in **financial risk pricing and asset devaluation** of high-emitting vessels. • Driving **further expansion of net-zero investment** in the shipping sector, with potential wider adoption of new transition finance instruments

02

中国绿色转型金融政策框架

China's Sustainable Finance Policy Framework

2.1 中国航运转型金融政策和标准试点
China’s Green and Transition Finance Framework and Industry Taxonomy

China has promulgated a series of regulations, policy guidance and taxonomy, resulting in a comprehensive policy framework to guide the green industry transition with targeted financial support

National Green Industry Policy

<2024 Green and Low-carbon transition Industry Taxonomy>

National Green Finance Policy

<Green Finance Taxonomy 2025>

Marco-level structured monetary policy

<Guidance on Strengthening Finance Support for Green and Low-Carbon Development>; PBoC Facility for Carbon Emission Reduction

A balanced approach:

- **Top-down vs bottom-Up**
- expanding finance support for **green** technologies and projects, while putting an emphasis on retrofitting and upgrade of existing stock of fleets to improve EE and low carbon fuel substitution.

Focus areas for support:

- **Green Finance:** net-zero emission new ship-building, Green port infrastructure, upgrading of port electricity supply, manufacturing and supply of sustainable biofuels;
- **Transition Finance :** retrofitting existing fleets on EE performance and low-emission fuels substitution, Electrification of port machinery, transition planning of shipping companies; (A bottom-up approach)

2.2 地方转型金融试点 Local Pilots in Sustainable Finance Shipping Taxonomy

Local taxonomy still in pilot phase with incentives tailored for local industry transition and development priorities

Region	Policy Name 政策/目录名称	Date 发布时间	Support Area 主要支持方向	Financial Innovation 金融工具与创新	Achievement 标志性成果/案例
江苏 Jiangsu	《江苏省转型金融支持经济活动目录（航运行业）（2024年版）》	2024	船舶制造、水上运输、港口建设、新能源船舶（LNG、甲醇、氨、电动）、能效提升 Shipbuilding including dual-fuel fleet, EET, Port Infrastructure	首笔转型金融贷款（南京银行向兴洋船舶发放1000万元），可持续发展挂钩贷款	全国首个省级航运转型金融目录，建立“1+N+N”认定与产品体系
上海 Shanghai	《上海市转型金融目录（试行）》	2024	水上运输业低碳转型：绿色船舶更新、碳强度控制（CII）、智能能效管理 Green Shipbuilding Upgrade and Retrofit, CII, Smart EE system	全国首单水上运输业转型贷款（交通银行向中远海运发放7.5亿元）	全国首笔水上运输业转型金融贷款落地，纳入《目录》先进值管理，对接联合国SDG13
广东 Guangdong	《广东省绿色港口行动计划（2023-2025年）》	2023	岸电设施改造，老旧船舶拆解补贴，鼓励为绿色低碳转型项目提供金融支持 Port Electrification upgrade, Existing fleet retrofitting,	建立以政府资金为引导、企业资金为主体的绿色港口建设投入机制	深圳港岸电设施泊位覆盖率已超过90%，用电量突破4400万度；盐田港泊位岸电覆盖率超过95%
福建 Fujian	《福建省电动船舶产业发展行动计划（2026—2028年）》	2026	船舶电动化替代、产业集聚、一体化基础设施建设 Vessel Electrification, Industry Clustering, Port Infrastructure	绿色信贷、设备租赁、融资租赁等。探索通过碳收益反哺全生命周期成本	全国首艘海上运营纯电动旅游客船“屿见77”获得绿色信贷支持

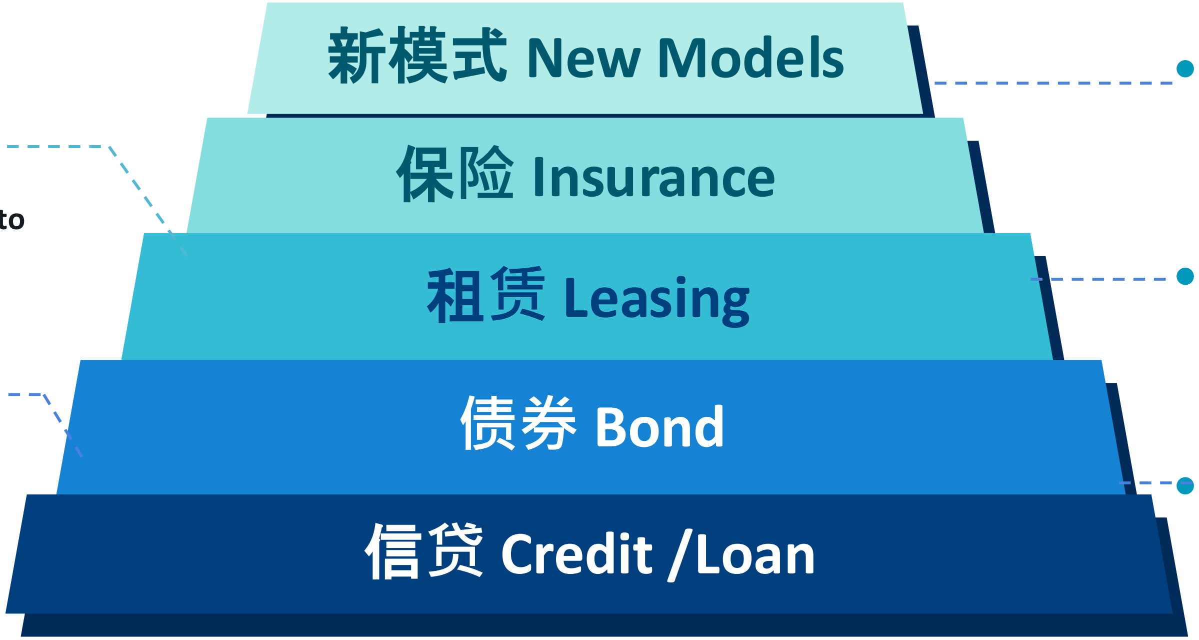
03

金融工具与市场实践

Sustainable Shipping Finance Market Development & Instruments in China

3.1 金融工具详解 Major financial instruments for shipping decarbonization

- Acceleration in financial product innovation and market adoption, guided by transition taxonomy and the identification of shipping decarbonization activities and technologies
- Multi-layered instruments of sustainable shipping finance, still in its nascent pilot stage for scaling up



Insurance

From traditional liability assurance to covering risks of carbon pricing and decarbonization tech management

Bond

Increased bond issuance labelled as Green\Transition\SLB

New Models

Retrofitting lease linked to EE performance (collateral-waived),
supply chain finance, innovative blended finance models

Leasing

Ideal for fleet retrofitting & new purchase of green vessels, but still in limited cases

Credit

Green\transition\SLL are main financing instruments for shipping decarbonization

- 信贷层面：交行7.5亿元转型贷款、工行绿色航运贷款、中行航运ESG银团贷款是代表案例。
- 债券层面：中国船舶租赁绿蓝色双认证债券、中远海运发展低碳转型公司债体现直接融资拓展。
- 租赁层面：交银金租等机构已探索可持续挂钩船舶融资，但尚未形成大规模复制。
- 保险层面：太保“欧盟碳排放成本价格指数保险”体现低碳风险管理起步。
- 新模式层面：新加坡GCMD FEET通过无抵押改造租赁和节能绩效验证体现“重效益、轻抵押”。

3.2 中国航运可持续金融创新案例 （信贷）
A Non-exhaustive List of Chinese Sustainable Shipping Finance Examples (Loans)

案例 Case	工商银行绿色航运贷款 ICBC Green Shipping Loan	中行ESG银团贷款 BoC ESG Syndicated Loan	交行转型贷款 BoComm Transition Loan	交银金租船舶融资 BoCom Leasing Vessel Finance
时间/Time	2022.05	2023.09	2024.03	2023.05
金额/Amount	$37M	CNY 1.5B	CNY 750M	$200M
关键指标	波塞冬原则达标	碳排放强度	碳强度	船舶能效指数
KPIs	Poseidon Principles	Carbon intensity	carbon Intensity	EEXI
利率机制	固定利率+绿色溢价	浮动利率±20BP联动	阶梯式惩罚利率	双区间动态定价
Pricing	Fixed rate + green premium	Floating rate ±20bps	Tier-ed penalty rate	Dual-range Flex pricing
增信措施	LNG船第一抵押权	母公司维好协议	碳排放权质押	船舶资产证券化
Credit Enhancement	First-mortgage claim on LNG vessels	Keepwell deed by mother company	Carbon credit allowance	Vessel ABS
项目背景	国内首个LNG江海联运示范项目	中远海运船队低碳升级	上海市转型目录首批试点	符合LMA/APLMA国际标准
Feature	First national pilot project on LNG vessel river-sea co-transport	COSCO fleet upgrading on carbon emission reduction	First pilot following Shanghai transition finance taxnomy	LMA/APLMA compliant

3.2 中国航运可持续金融创新案例 (债券)
A Non-exhaustive List of Chinese Sustainable Shipping Finance Examples (Bonds)

案例 Case	绿蓝色双认证债券 Green-Blue Dual-Certified Bond	可持续发展挂钩债券 SLB	低碳转型公司债 Low-Carbon Corporate Transition Bond	船舶能效提升债 Vessel EE Improvement –linked Bond
发行人Issuer	中国船舶租赁 CSSC Leasing	中国船舶租赁 CSSC Leasing	中远海运发展 COSCO Development	中国船舶租赁 CSSC Leasing
发行市场 Market	港交所 HKEX	银行间市场 Interbank	上交所 SSE	银行间市场 Interbank
核心条款 Key Terms	双认证（绿+蓝） Dual Certified (Blue and Green Bond)	KPI：绿色船舶 ≥24% KPI：Green vessels ≥24%	100%低碳船舶投资 100% for low-carbon vessels investment	
利率机制 Pricing	固定利率 Fixed rate	浮动联动±10BP Float rate ±10BP, linked to KPI	固定利率 Fixed rate	动态调节 Dynamic float rate
创新价值	首单国际双认证融资	国内首单船舶SLB	行业转型标杆产品	能效数据联动
Innovation	1st global dual-certified bond	First SLB issued for green vessel financing in China	A Product benchmark on Corporate Shipping transition finance	Linked to Vessel Energy Efficiency data

3.3 Case #1：BoCom Shanghai Transition Finance Loan 交行上海分行转型金融贷款

【Case】a 10-year Transition Finance Loan of CNY 750million to COSCO by BoComm Shanghai, to support low-carbon vessel retrofitting and investment.

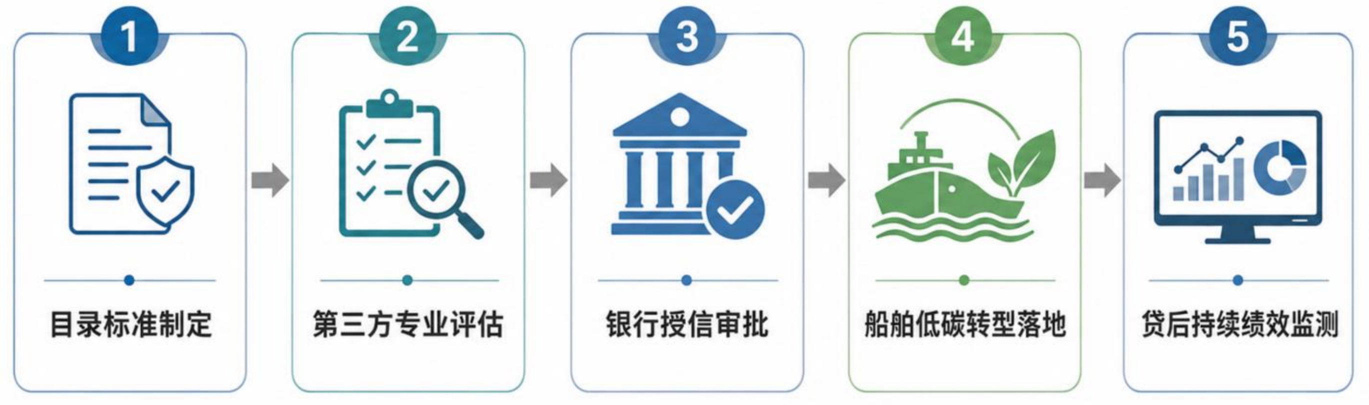
【4 key features - closed loop】

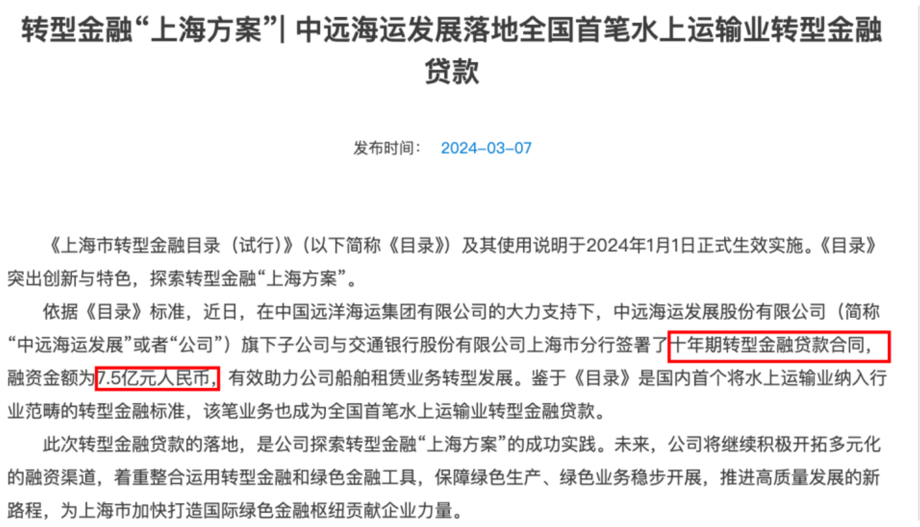
① Standards 标准： <Shanghai transition finance taxonomy – shipping sector>

② 3rd party Assessment and verification 引入第三方专业评估

③ Use of proceed 资金投向：dedicated account for vessel upgrading in alignment with the Shanghai Taxnomy

④ KPI 绩效指标：Vessel CII meeting the ‘Advanced’ value as set forth in the Shanghai Taxonomy





转型金融"上海方案"| 中远海运发展落地全国首笔水上运输业转型金融贷款

发布时间： 2024-03-07

《上海市转型金融目录（试行）》（以下简称《目录》）及其使用说明于2024年1月1日正式生效实施。《目录》突出创新与特色，探索转型金融"上海方案"。

依据《目录》标准，近日，在中国远洋海运集团有限公司的大力支持下，中远海运发展股份有限公司（简称"中远海运发展"或者"公司"）旗下子公司与交通银行股份有限公司上海市分行签署了十年期转型金融贷款合同，融资金额为7.5亿元人民币，有效助力公司船舶租赁业务转型发展。鉴于《目录》是国内首个将水上运输业纳入行业范畴的转型金融标准，该笔业务也成为全国首笔水上运输业转型金融贷款。

此次转型金融贷款的落地，是公司探索转型金融"上海方案"的成功实践。未来，公司将继续积极开拓多元化的融资渠道，着重整合运用转型金融和绿色金融工具，保障绿色生产、绿色业务稳步开展，推进高质量发展的新路程，为上海市加快打造国际绿色金融枢纽贡献企业力量。

转型金融价值

通过"政策+市场"的联动机制，将绿色标准转化为实实在在的金融资源，有效降低航运企业低碳转型的融资成本，加速行业能源替代进程

中远海运发展公告整理
https://development.coscoshipping.com/col/col1555/art/2024/art_3403770b4bc3480f9c2a33b2baf4c6bb.html

3.3 Case #1：BoComm Shanghai Introduced an Integrated Value Chain Financing Package for Shipping Decarbonization 交通银行上海航运产业链金融方案

1. An integrated Financing Approach

- **launched by BoComm Shanghai**
- **Shifting from a single vessel-loan approach to enabler of full value chain transition**

2. Coverage (full value chain)

- Low-carbon Fuel Supply Chain
- Low-carbon Vessel build, purchase and retrofitting
- Vessel EE Technology and Management System
- Green P Infrastructure and upgrade to low-carbon performance

3. Key Scenarios

🚢 Shanghai Port –LA Port Green Shipping Corridor Development

⛽ International Center for Green Fuel Filling at Shanghai Port

上海港-国际船舶能源加注中心建设

案例价值与行业意义 Value

该方案跳出传统的单一船舶融资视角，通过“链式金融”思维，打通了航运产业链上下游资金流，有效解决了航运业绿色转型中的“有船无燃料”、“有技术无资金”等结构性痛点。通过紧密对接上海“国际航运中心”与“国际金融中心”的双重战略优势，为航运业实现系统性降碳提供了可复制的金融解决方案，也是金融支持实体经济低碳转型的典型示范。

- Addressing structural pain-points with an integrated financing solution for sustainable shipping value chain, from upstream fuel supply and manufacture, port infrastructure, vessel finance and technology systems (facing issues such as vessel ready without fuel supply, technology ready but no capital deployment)
- Response to Shanghai’ s vision to develop a world-class shipping center and international finance center

3.3 Case Study (2): FEET by GCMD (New Model)

Model overview

Program Name: Global Maritime Decarbonization Centre (GCMD) set up a dedicated USD 35mio Fund for Energy Efficiency Technologies (FEET), through Pay-As-You-Save financing model for fleet EET retrofitting linked to verifiable energy saving results.

Positioning: An Innovative financial platform especially tailored to provide upfront transition financing to small and medium-sized shipping enterprises

Key features: By shifting the financing decision-making from " hard assets" basis to "emission reduction benefits (energy saving basis)", the challenge of insufficient collateral and risk mismatch of conventional credit is overcome.

The logic of putting more focus on performance, less on collateral credit

1 No additional collateral required, lowering the entry threshold

Small and medium-sized enterprises can obtain the right to use energy-saving equipment without providing mortgage for traditional assets such as real estate and ships.

2 Accurately match the lease period and revenue recovery period

The recovery cycle of energy conservation income is directly linked to the equipment lease period to ensure that the company's operating cash flow is sufficient to cover the leasing cost and avoid excessive repayment pressure.

3 Digital monitoring to ensure the authenticity of emission reduction

Deploy sensors to monitor and verify energy-saving effects in real time, so that the "emission reduction benefits" can be quantified and verified, and provide risk protection for financial institutions.

💡 Change the credit risk control logic from "looking at the asset stock in the past" to looking at the future emission reduction and cash flow increment", and effectively revitalize the value of environmental equity.

04

航运可持续金融发展挑战及建议

Challenges and Recommendation

4.1 四大挑战 Four challenges

挑战一：产业链支持 Integrated Value Chain Support

产业链支持不足：

金融资源集中于船舶购置，对绿色燃料生产、储运加注等环节支持不足，存在“**有船无燃料**”**的**风险。

挑战二：中小企业融资 SME financing

中小企业融资困难：

中小船东面临主体信用弱、抵押资产不足、转型规划能力有限等**多重障碍**，较难获得充足资金支持。

航运低碳转型面临的关键瓶颈

挑战三：数据基础 Lack of credible Data

数据基础薄弱：

碳排放核算标准与金融需求脱节，行业内数据共享机制缺失，导致**碳排放数据**验证成本高、难度大。

挑战四：风险分担机制 Risk sharing mechanisms

风险分担机制不足：

航运低碳转型项目普遍具有投资**周期**长、不确定性风险高的特点，**与商**业银行风险偏好不匹配，**缺乏有效的**风险分担和激励机制。

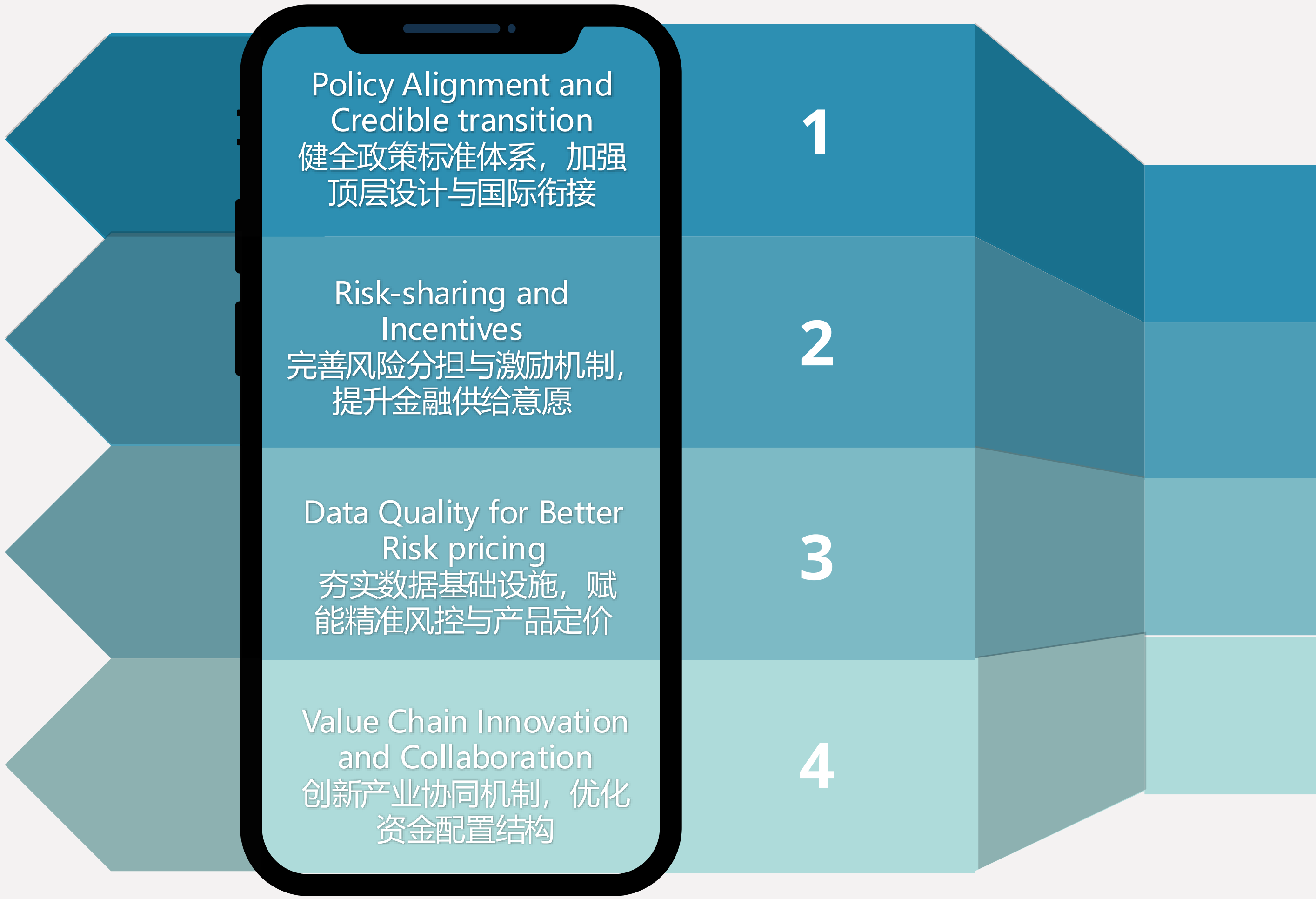
4.2 建议 Recommendations

A clearly defined Shipping Decarbonization Transition Pathway with objective, timetable and viable technologies; key indicators and compliance requirement aligned with international standards and norms and can be used for financing decision-making

Further adoption and scaling of fiscal and monetary policies and incentives, explore innovative financing mechanisms including insurance/blended finance to improve risk-sharing, incentives and targeted SME financing support

A unified MRV platform for emission reduction verification in shipping sector and data sharing with financial stakeholders to encourage CII-linked financial products and carbon finance innovation

Explore demand-side aggregation mechanisms through buyer alliance, multi-year contract for early market formation and easing pricing volatility; promote supply chain finance innovation for SMEs



谢 谢

T H A N K S

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