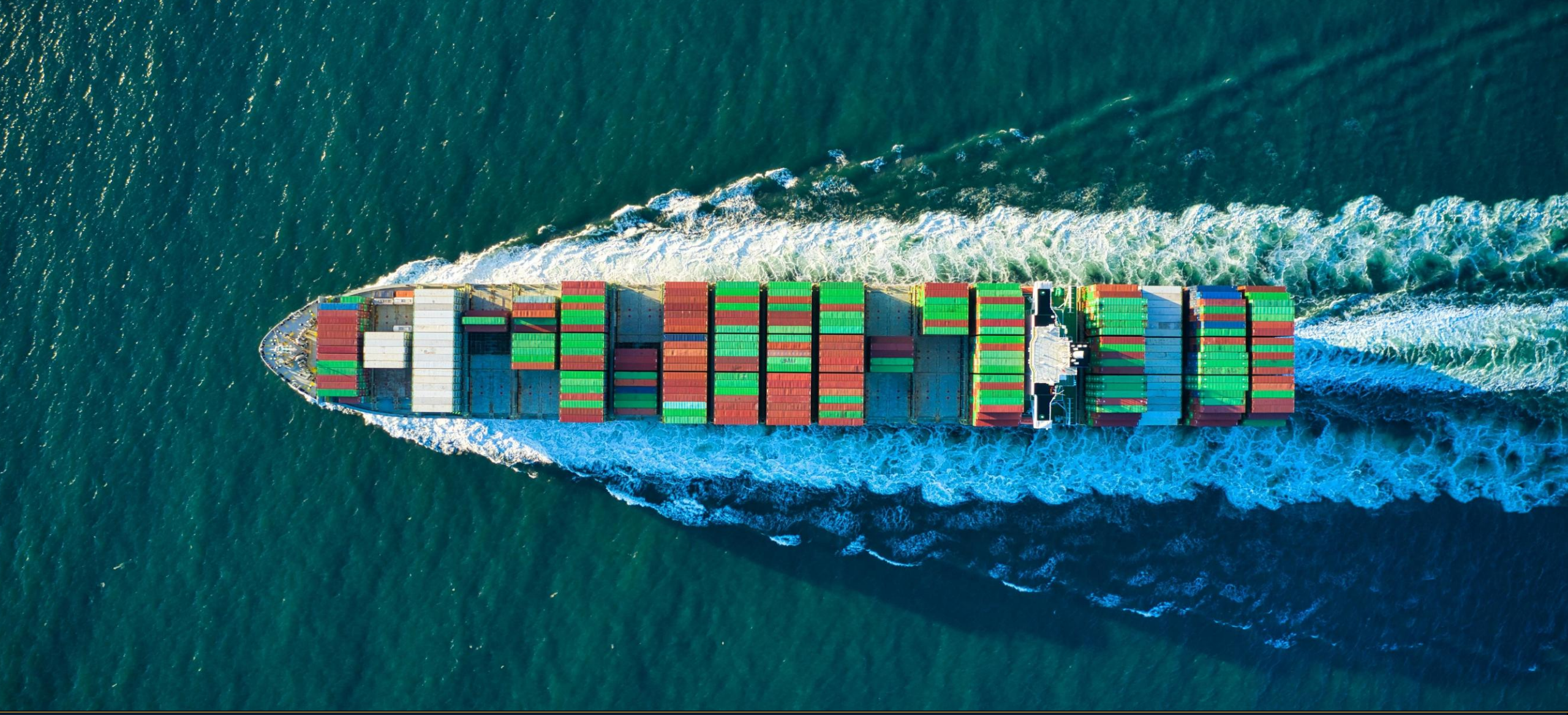


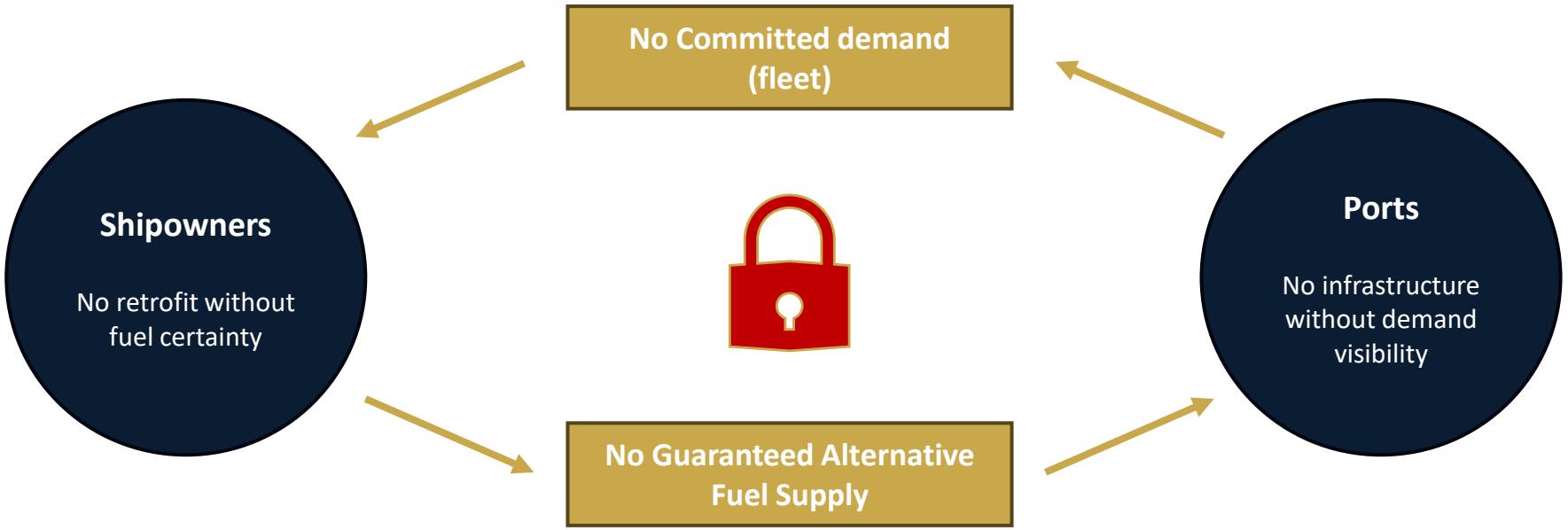
Green Shipping Corridor Fund

Unlocking Green Finance for Maritime Decarbonization

SEACHANGE CAPITAL

A Coordination Failure Locks 60% of Asia Shipping Out of Green Finance

Neither ports nor shipowners can move first – each require the other's commitment. The result: a self-reinforcing decarbonization deadlock.



IMPLICATIONS

+50%

Projected rise in GHG emissions by 2050 on maritime shipping while absolute shipping emissions rose 12% (2016-2023) despite efficiency gains.

265,000

premature deaths annually (0.5% of global mortality) are attributable to shipping emissions. Pollution is concentrated along major routes and ports, disproportionately impacting coastal populations.

$1.4 Trillion

Asia maritime decarbonization investment gap through 2050, primarily in fuel production and port infrastructure (85-90%), while vessels account for only 10-15%.

The Green Shipping Corridor Fund

Infrastructure Debt

$450M – 60% of fund

- Singapore & Shanghai ports
- LNG / Methanol bunkering
- Shore power
- Security: concession rights, take-or-pay

Vessel Retrofit Financing

$300M – 40% of fund

- Small-mid shipowners
- Dual-fuel retrofit
- Efficiency upgrades
- Serviced via fuel savings
- OPEX reduction

Corridor Covenants

Cross-asset linkage:

- Ports guarantee fuel sales baseline
- shipowners commit 80%+ of voyages to the corridor

Decarbonizing the World's Most Critical Shipping Lane

Asia carries 60% of global container traffic and 40% of shipping CO2 emissions

WHY HERE

Singapore

Bunkering:	#1 globally (6% share)
Traffic:	39M TEU/yr
Green MoU:	Signed
Policy:	100% port dues waiver

Shanghai

Bunkering:	Major Asian hub
Traffic:	Top 3 globally
Green MoU:	Signed
Policy:	National green targets

WHY NOW

$1.2-1.6 Trillion

Total investment needed to fully decarbonize shipping by 2050

26% CAGR

The green shipping tech market is projected to grow from $22 billion in 2024 to $141 billion in 2032.

<1%

Of zero-emission bunkering infrastructure exists today

$450 Billion

needed to retrofit the global fleet by 2050, roughly $17B per year for shipowners

Two Product Lines Underwritten to the Same Corridor-Locked Structure

Port Infrastructure - $450M - 60% of AUM

Anchored at PSA Singapore (Tuas) and SIPG Shanghai (Yangshan)

LNG/methanol bunkering terminals

- The fueling infrastructure that makes alternative fuels available on the corridor

$30-$150M per project

Shore power installations

- Electrification of berth clusters so vessels can plug in at port and cut engine emissions while docked

$15-$40M per berth cluster

Digital port optimization systems

- Software and systems to reduce idle time, improve vessel scheduling, and cut port emissions

$5-$15M per project

Vessel Retrofit Financing - $300M - 40% of AUM

Targeting 3,000 – 15,000 TEU mid-size operators

Dual-Fuel Engine Conversions

- Retrofitting existing vessels to run on LNG or methanol alongside conventional fuel

$8–15M per vessel

Efficiency Upgrades

- Broader technical improvements to reduce fuel consumption and improve CII ratings

Covered under the $10–30M per borrower envelope

Sustainability-Linked Margin Ratchet

- CII “A”/”B”: Rate decreases 10-25 bps
- CII drops to “C”: Rate steps up 50 bps

Corridor Covenant

- **Dual-trigger disbursement** links vessel and port financing, with capital released against operational milestones (e.g. infrastructure readiness, retrofit completion) and penalties for delays to avoid holding up counterpart investments
- **Captive demand lock-in** is ensured through take-or-pay fuel offtake guarantees and ≥80% corridor utilization commitments from shipowners

From Market Momentum to Execution: How GSFC Solves the Coordination Gap

The Market is Moving

- **Standards**: Poseidon Principles: green financing standards for shipping (bank-led)
- Green Corridor MoU signed between Singapore and China in 2025
- MDB financing (e.g. ADB's $1B Sustainable and Resilient Maritime Fund)
- Cargo owners (Amazon, IKEA…) actively pushing Scope 3 reductions
- Large shipping companies are already transitioning

But the Gap Persists

- Nobody finances ports and ships **within a single corridor-locked structure**
- Policy momentum exists, but **no binding investment or offtake commitments**
- **Existing solutions address only one side of the market at the asset level**, leaving coordination across fuel, ports, and vessels unresolved
- Fleet ownership is **fragmented, with small and mid-sized operators** lacking capital and capacity to take first-mover risk

GSFC Closes It by

- Linking port and vessel investments within a single corridor-level financing structure
- Creating binding demand through take-or-pay offtake and corridor voyage commitments
- Synchronizing capex across ports, vessels, and fuel supply
- Enabling small and mid-sized operators to access capital and reduce first-mover risk
- Converting policy momentum into investable, bankable projects
- Providing a scalable template for global green corridors

Blended Capital Structure and Investor Proposition

Catalytic first-loss capital de-risks the structure and crowds in institutional investors

CAPITAL STACK

Senior Notes
$525M
70%
Secured by hard assets

Mezzanine
$150M
20%
Subordinated Risk

Catalytic First-Loss Equity
$75M
10%
Returnable concessional capital

INVESTOR TERMS

Senior Notes – 6.5% blended coupon

Tenor	8-10 years
Rate	6.5% (SOFR + spread)
Security	First lien on port assets + vessel mortgage
Covenants	DSCR $\geq$ 1.35x; LTV $\leq$ 65%

Mezzanine – 10% blended coupon

Tenor	7-9 years
Rate	10% (cash coupon + PIK)
Security	Second lien + equity kicker

Catalytic First Loss – 1.4-1.5x return – 9:1 mobilization

Tenor	12 years (full fund life)
Return target	1.47x (capital preservation + return)
KPI	9:1 private capital mobilized

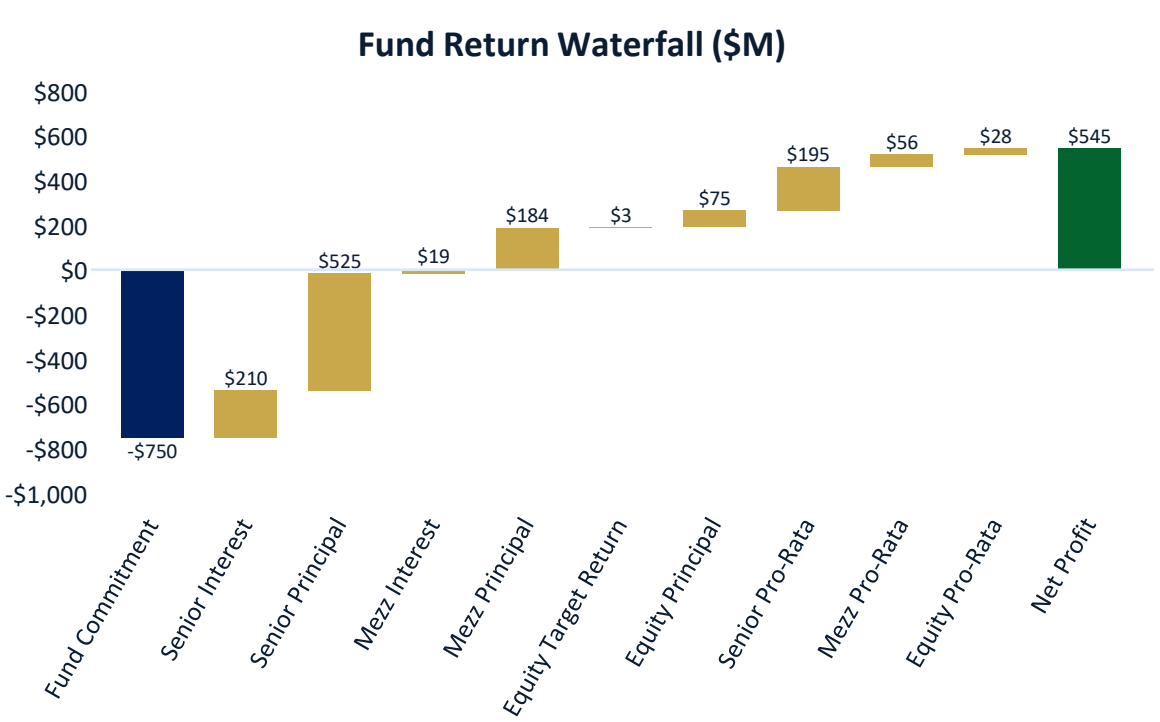
TARGET INVESTORS

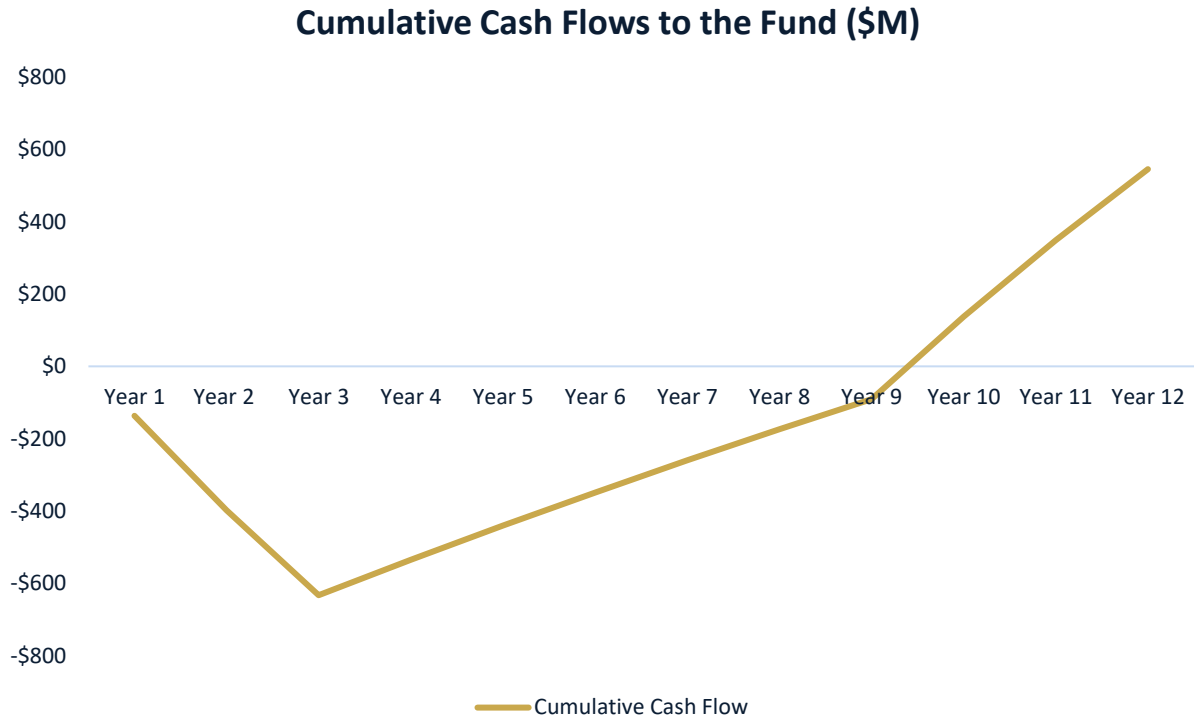
- GIC (Singapore)
- Temasek Infrastructure
- Allianz Global Investors
- AXA IM Alts
- APG Asset Management

- Macquarie Asset Mgmt
- Brookfield Infra Credit
- IFM Investors
- FMO (Dutch DFI)
- Proparco (French DFI)

- Anchor MDB (e.g. ADB or AIIB)
- Green Climate Fund
- Singapore MAS / MSGI
- JICA (Japan)
- EDCF (Korea)

Forecast Returns





10.22%
Fund Net IRR

Year 9
Cumulative Breakeven

$545M
Total Return by Year 12

1.73x
Implied MOIC

Unit Economic Analysis

	VESSEL RETROFIT	PORT INFRASTRUCTURE
DEAL STRUCTURE		
Investment per unit	$15M	$175M
Asset life	15 years	30 years
ANNUAL ECONOMICS → CREDIT COVERAGE		
Annual revenue	$4.69M	$33.36M
(−) Operating cost (non-debt)	$0.95M	$9.83M
(=) Operating cash flow	**$3.74M**	**$23.53M**
(−) Annual debt service (interest)	$0.86M	$12.60M
Debt Service Coverage Ratio	**4.3x**	**1.9x**
(=) Net annual benefit to borrower	**$2.88M**	**$9.46M**
LIFETIME VALUE & IMPACT		
Residual equity value (PV, after debt service)	$538M (20 vessels)	$282M (2 ports)
CO_2 avoided (annual per unit / lifetime)	10K tonnes / 3.0M tonnes	45K tonnes / 2.7M tonnes

4.3x

Vessel DSCR

$4.69M cash flow covers $0.86M debt service

1.9x

Port DSCR

$23.5M EBITDA covers $12.6M debt service

$130

Per tonne CO_2 abated

Below IMF $185 social cost of carbon

* WACC used to bring cashflows to present value is 6.6%. Calculation made assuming 20 vessels and 2 ports.
* DSCR = annual cash flow ÷ annual debt service. Standard credit metric for infra lenders.

Delivering Measurable Climate and Health Impact

5.7M

Tonnes CO_2 abated

10,000 tons CO_2 avoided per vessel retrofit

45,000 tons CO_2 per port project

Reduction in port air pollutants (SOx, NOx, PM)

~5500 deaths

Avoided annually

$ 9:1 Private capital mobilization

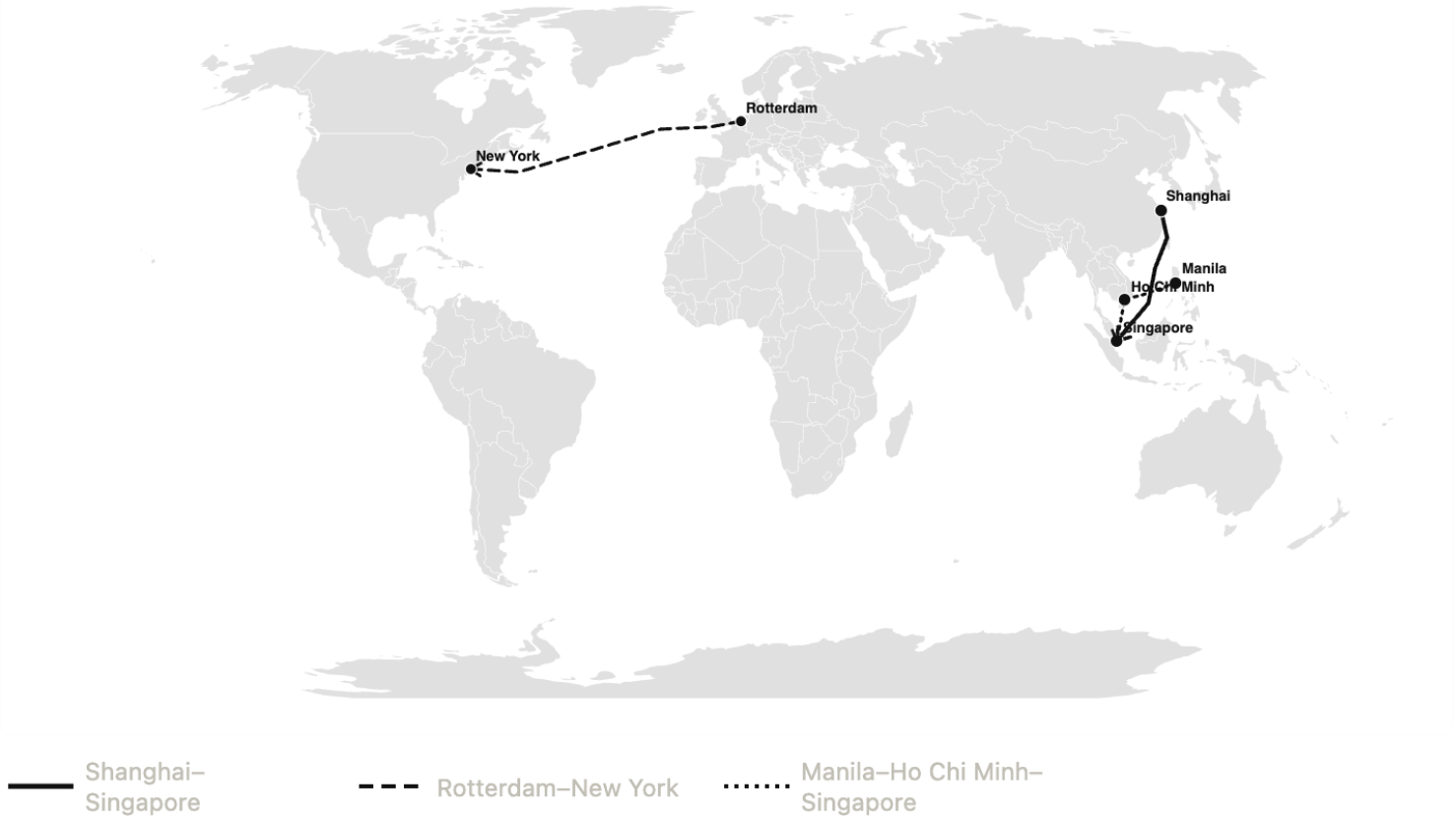
Key Risks and Mitigants

Low Medium High

Risk	Description	Severity	Mitigation Strategy	Likelihood
Stranded Asset	Risk of technology shift (H2/ammonia) leading to stranded assets; limited near-term fuel availability	Low	• Phase 1: Proven LNG/methanol only (DNV-approved). • Phase 2: Pilots w/ 10% allocation. 3rd-party verification.	
Counterparty	Borrower default or underperformance on port or vessel commitments	High	• Conservative LTVs (≤60–70%) • Asset-backed security + cross-collateralization • Step-in rights / covenant enforcement	
Demand/Offtake	Cargo owners may not sustain willingness to pay green fuel premiums	High	• Minimum revenue floor secured via take-or-pay contracts • Anchor cargo owners (Amazon, IKEA-type) • Blended finance / subsidies in early years	
Regulatory	Regulatory changes (IMO/EU ETS) and evolving fuel standards	Low	• Flexible, CII/EEXI-linked covenants • geo-diversification (8+ ports) • Aligned with emerging standards (MSGI/MOUs)	
Fuel Price	Green fuel premium volatility (15-20% > Fossil fuels)	Medium	• OPEX savings service debt (15-20% fuel cut) • Hedging clauses; Port baseline guarantee of fuel sales helps in hedging price volatility also	
Construction	18-24 month procurement cycle means committed capital may be undrawn in Year 1, inflating the fee base	Medium	• Phased deployment ensures at least one terminal is operational • Contingency buffers built into timelines and budgets	

Next Port of Call – Scaling Up Green Shipping Corridors

Replicating the Singapore–Shanghai corridor model across Rotterdam and the Vietnam–Philippines region to decarbonise high-emission maritime trade routes



Rotterdam-New York

High-volume corridor with infrastructure mismatch ideal for scaling corridor finance

- High-volume transatlantic corridor with concentrated operator base (55% controlled by few players)
- Infrastructure mismatch: LNG in Rotterdam, but no methanol/LNG bunkering in New Yok

South China Sea : Manilla / Ho Chi Minh

Fast-growing trade lane with zero green fuel access immediate financing gap

- Fast-growing intra-Asia trade (China+1 shift)
- 7,100+ islands, 17,000 Vietnam ship transits in Apr 2025 (+7% YoY); zero LNG or methanol at any portDual-fuel vessel delivered in the Philippines have to sail to Singapore to refuel
- Minimal green finance; cabotage rules trap independent operators with no path to self-fund

Team

Alejandro Michel Marron

Nationality: Mexican

School: INSEAD

Experience: 3 years in healthcare operations and private equity. Insurance underwriting at Lloyd's of London. Impact investing in Central America.

Julien Trehet, CFA

Nationality: French

School: INSEAD

Experience: 5 years experience in development finance and sustainable investing, 2.5 years in infrastructure investing advisory.

Varun Mustyala

Nationality: Indian

School: INSEAD

Experience: 3 years experience in financial services consulting and 3 years experience in consumer services tech

Dhananjay Sahoo

Nationality: Indian

School: INSEAD

Experience: 3.5 years experience in financial technology and 3 years experience in consumer tech

APPENDIX

Special Thanks to Our Mentors and Advisors

Gabriel Ng

Investment Director

Better Society Capital

Julie Ansidei

MD, EMEA Head of Sustainability Policy and External Engagement

BlackRock

Lucie Teplá

Senior Affiliate Professor of Finance

INSEAD

Tony Chan

Partner

Orrick

Hoffmann Institute

Upgrading Today’s Fleet for a Low-Carbon Future

Approximately 90% of today’s fleet will still be in service by 2030–2040. New ships are expensive and slow to deploy. Retrofitting delivers immediate emissions reductions at lower cost

Alternative fuel conversion

Engines and fuel systems adapted to run on LNG, methanol or ammonia
Impact: 20-90% CO_2 reduction depending on fuel

Hull and energy efficiency

Technologies that reduce drag and energy loss (e.g., hull coatings, air lubrication)
Impact: 5-10% fuel savings

Engine and propulsion upgrades

Improved engines and propeller systems to increase efficiency
Impact: 5-15% fuel savings

Operational Optimization

Digital tools to optimize speed, routing and fuel use (e.g., voyage planning, speed optimization)
Impact: 3-10% fuel savings

Unit Economic Analysis - Vessels

Investment	$15M per vessel	Per unit capital cost
Financing	$9M (60% LTV) at 9.5%	Senior secured vessel loan
Asset Life	15 years	Useful economic life of retrofit

Revenue & Savings Breakdown		
Fuel OPEX savings	$2.5M	15-20% consumption reduction vs. HFO baseline; blended fuel price differential
CII band upgrade & compliance savings	$0.84M	Avoided CII penalty charges + green band rating premium from flag state
Green charter rate premium	$0.96M	Uplift from ESG-mandated cargo owners (Amazon, IKEA, etc.)
Carbon credits & regulatory incentives	$0.39M	Voluntary carbon market credits + EU ETS compliance value ($39/tonne net)
Total Annual Revenue	**$4.69M**	

Cost Breakdown		
Debt service – interest (blended)	$0.86M	Annual interest on $9M vessel loan at 9.5%
O&M & equipment maintenance	$0.48M	Retrofit hardware servicing, dry-dock inspections, spare parts
Crew training & alt fuel handling	$0.27M	STCW alt-fuel endorsements, safety drills, annual refreshers
Insurance & certification uplift	$0.2M	P&I/H&M delta for new fuel systems; class survey fees
Total Annual Cost	**$1.81M**	

Net Annual Benefit	**$2.88M**	**Per vessel, annually**

LNG/Methanol Terminals

Comparison of infrastructure requirements and deployment constraints for LNG and methanol bunkering

LNG Infrastructure:

- Mature global bunkering network in major hubs
- Requires cryogenic storage (-162°C) and specialised terminals
- Limited number of ports due to high capex and complexity
- Strong adoption: 1,200+ vessels on order using LNG

Methanol Infrastructure

- Can be stored in conventional fuel tanks (no cryogenics)
- Bunkering uses standard pumps and logistics
- Easier to deploy across secondary and emerging ports
- Still limited supply of green methanol production

LNG is infrastructure-heavy but already deployed. Methanol is infrastructure-light but not yet scaled

Shore Power

What is shorepower? Why to use it?

- Port builds substation + frequency converter (50Hz grid → 60Hz ship) + cable reel at berth
- Ships plug into the port's electrical grid while docked, shutting off their diesel generators
- Powers all onboard systems lighting, reefers, HVAC from clean grid electricity
- Docked ships burn heavy fuel oil 24/7 just sitting still 1-5 tonnes/hour
- Ship retrofitted with compatible socket and medium-voltage switchboard

Port Infrastructure Unit Economic Analysis

Investment	$175M per port	Per port capital cost
Financing	80% senior ($140M) at 6.5% + 20% mezz ($35M) at 10%	Financed through fund's infra debt allocation
Blended cost of debt	7.2%	Weighted: (80% × 6.5%) + (20% × 10%)
Asset Life	30 years	Useful economic life of port infrastructure

Revenue Breakdown		
LNG bunkering margin	$8.40M	80K tonnes/yr throughput at $105/tonne margin
Methanol & ammonia dispensing fees	$5.60M	53K tonnes/yr combined; $106/tonne margin
Green corridor access & certification fees	$9.20M	Per-call levy on vessels using certified green shipping lane
Alt fuel storage & infrastructure lease	$5.80M	Tank farm & jetty lease to fuel suppliers; long-term offtake
Carbon credits & regulatory incentives	$4.36M	Port-level VERs + government green port incentive scheme
Total Annual Revenue	**$33.36M**	

Cost Breakdown		
Debt service – senior interest ($140M at 6.5%)	$9.10M	Annual interest on 80% senior tranche from fund
Debt service – mezz interest ($35M at 10%)	$3.50M	Annual interest on 20% mezzanine tranche from fund
O&M & equipment maintenance	$5.80M	Jetty upkeep, cryogenic equipment, pipeline integrity, capex reserve
Fuel inventory management & safety ops	$3.50M	Working capital cost of alt fuel stock; HAZMAT compliance
Staffing & administration	$2.00M	Operations crew, compliance officers, port authority liaison
Total Annual Cost	**$23.90M**	

Net Annual Benefit	**$9.46M**	**Per port, annually**

Interest Rate Sensitivity: Fund IRR Under Different Scenarios

RATE STRUCTURE DECOMPOSITION

Tranche	SOFR component	Credit spread	Total coupon
Senior Notes ($525M)	SOFR	+ 220 bps	6.50%
Mezzanine ($150M) — cash	SOFR	+ 425 bps	8.00%
Mezzanine ($150M) — PIK	Fixed	—	2.00%
Mezzanine — total			***10.00%***
Catalytic first-loss ($75M)	Fixed	—	1.47×

Base case: SOFR at 4.30% (current spot). Forward curve: 3.50–4.00% for 2026–2030.

HEDGING STRATEGY

Target hedge ratio

50–70% of floating-rate exposure swapped to fixed via IRS

Estimated swap cost

20 bps p.a. on hedged notional; reflected in net return projections

Residual float exposure

30–50% intentionally left floating — rising rates increase coupon income; fund benefits from rate increases as a net lender

Natural hedge

Vessel fuel savings (revenue side) are inflation-correlated, partially offsetting higher funding costs for borrowers

FUND NET IRR SENSITIVITY TO SOFR

SOFR	Senior coupon	Mezz total coupon	Fund net IRR	Δ
2.50%	4.70%	8.75%	**8.5%**	*-1.7%*
3.00%	5.20%	9.25%	**9.0%**	*-1.2%*
3.50%	5.70%	9.75%	**9.6%**	*-0.6%*
4.30%	**6.50%**	**10.30%**	**10.22%**	**Base**
4.50%	6.70%	10.50%	**10.4%**	*+0.2%*
5.00%	7.20%	11.00%	**10.9%**	*+0.7%*
5.50%	7.70%	11.50%	**11.4%**	*+1.2%*

Indicative Term Sheet

FUND STRUCTURE	
Fund size	**$750M target**
Strategy	**Infrastructure / Impact**
Domicile	**Singapore (VCC)**
Currency	**USD**
Fund life	**12 years**
Investment period	**4 years**
Extension	**2 × 1 year (GP discretion)**
GP commitment	**≥ 2% of commitments**
Min. LP ticket	**$10M**
First close	**[Q2 2028]**

ECONOMICS & TARGET RETURNS	
Management fee	**1.5% on committed**
	1.0% post-investment period
Carried interest	**20% above hurdle**
Preferred return	**8% p.a. (compounding)**
Catch-up	**100% GP catch-up**
Waterfall	**European (whole-fund)**
Target net IRR	**10.22% (base case)**
Target net MOIC	**1.73×**
Target yield	**6-8% cash yield (Yr 3+)**
WACC	**6.6%**

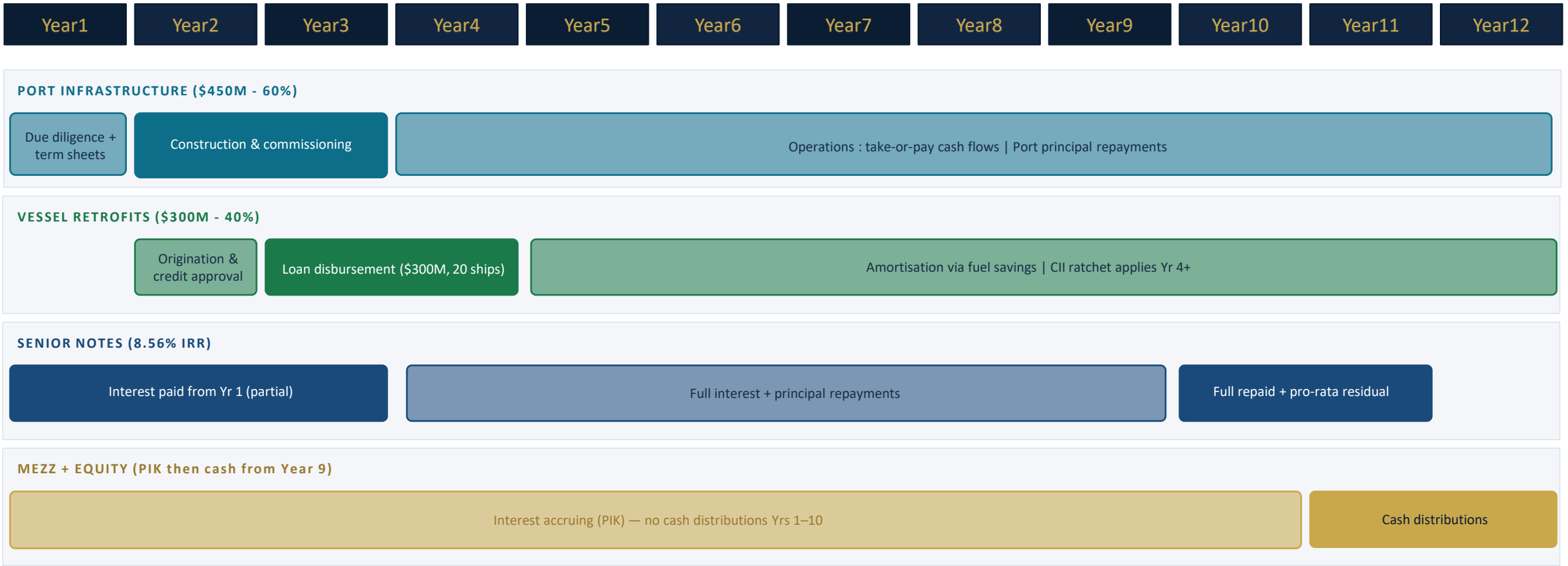
INVESTMENT PARAMETERS	
Asset types	**Vessel retrofits, port infra**
Geography	**Asia-Pacific corridors**
Anchor corridor	**Singapore–Shanghai**
Capital stack	**Senior / Mezz / Equity**
Senior notes	**$525M · 70% · secured**
Mezzanine	**$150M · 20% · subordinated**
First-loss	**$75M · 10% · DFI-led**
Max single asset	**25% of fund NAV**
ESG standard	**IFC Performance Standards**
Impact target	**5.7M tCO_2 avoided / yr**

KEY PROVISIONS

Key person Fund suspends if 2+ key persons depart without LP consent	**LPAC** ≥ 3 institutional LPs; approves conflicts & valuations	**Clawback** Full GP clawback on carry at fund wind-down	**Co-invest** Pro-rata rights for LPs ≥ $25M on deals > 25% NAV	**Reporting** Quarterly NAV; annual IFRS audit; TCFD-aligned impact

Fund Deployment Timeline

4-year disbursement period | 12-year model horizon



Key Stakeholders

REGULATORY

- **MPA Singapore**
  MSGI green ship incentives · CII enforcement · corridor lead
- **IMO**
  CII / EEXI global framework · MARPOL Annex VI · net-zero 2050
- **China Maritime Safety Admin.**
  Port-state inspections · emission control areas · Shanghai
- **Shanghai Municipal Transport**
  Local port regulation · green corridor MoU signatory

VERIFICATION & CLASSIFICATION

- **DNV**
  Green corridor feasibility · CII rating audits · class cert.
- **RightShip**
  GHG rating platform · vessel vetting for charterers
- **Lloyd's Register**
  Technical verification · alternative fuel safety approvals
- **Port State Control**
  Flag state enforcement · inspection authority

PORT AUTHORITIES

- **PSA Singapore**
  World's 2nd largest port · shore power · bunkering hub
- **Jurong Port**
  Alternative fuel bunkering · LNG / methanol pilot hub
- **Shanghai Int'l Port Group**
  World's largest port · zero-emission refuelling target 2030
- **Yangshan Deep-Water Port**
  Key bunkering location · green fuel infrastructure

MID-SIZED SHIPPING COMPANIES - CORRIDOR SIGNATORIES

- **Pacific Basin Shipping**
  Asia dry bulk · 200+ vessels · CII compliance pressure
- **Wan Hai Lines**
  Intra-Asia container specialist · Singapore - Shanghai route
- **Swire Shipping**
  South-East Asia focus · active sustainability commitments
- **Thoresen Thai Agencies**
  SE Asia dry bulk · retrofit candidate fleet

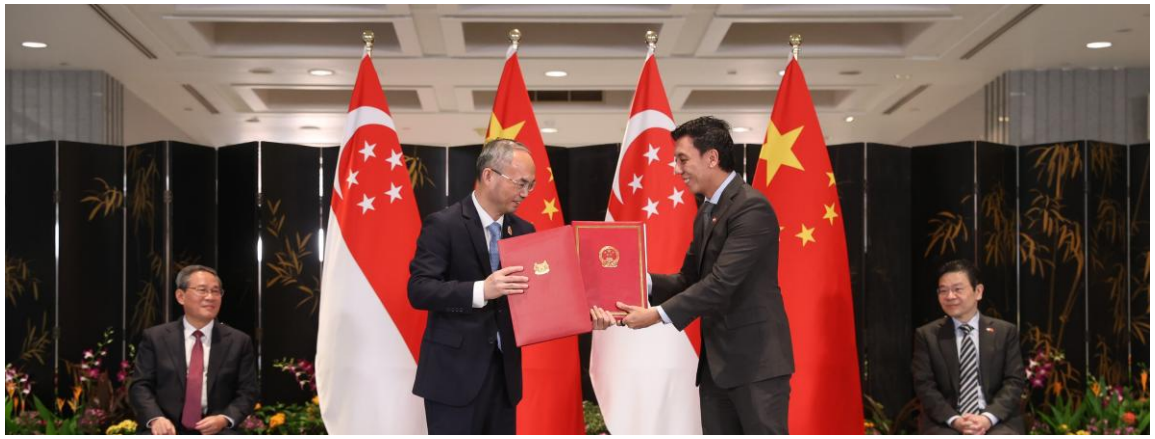
DEMAND-SIDE & KNOWLEDGE PARTNERS

- **Amazon / IKEA (Scope 3)**
  coZEV signatories · zero-emission ocean freight by 2040
- **Charterers & cargo owners**
  Prefer CII A/B rated vessels · green premium willingness
- **Export credit agencies**
  UK Export Finance · ECIC · green-linked trade finance
- **Getting to Zero Coalition / TERI**
  Technical advisory · corridor design · R&D

Policy and Regulatory Environment for Green Shipping

Singapore–China Green & Digital Shipping Corridor

- Bilateral framework aligning Singapore and China on maritime decarbonization and digitalization, building on existing port-level initiatives
- Public–private platform to coordinate development of fuel infrastructure, technologies, and common standards across the value chain
- Integrated approach combining alternative fuels, port efficiency, and digital solutions to improve resilience and emissions performance



Maritime Singapore Decarbonization Blueprint (2050)

- National strategy (MPA, 2022) aligned with IMO, Paris Agreement, and UN SDGs, targeting net-zero maritime emissions by 2050
- Comprehensive scope across ports, harbour craft, future fuels & bunkering, ship incentives, regulation, R&D, and green finance
- Clear transition pathway:
  - Port terminals: −60% emissions by 2030 → net zero by 2050
  - Harbour craft: full shift to low/zero-carbon fuels
  - Deployment of multi-fuel bunkering (methanol, ammonia, hydrogen

Clydebank Declaration (COP26)

- 20+ countries committed to establishing green shipping corridors by 2030
- Focus on zero-emission routes between major ports
- Encourages collaboration across governments and industries

Impact Metrics

SUSTAINABILITY METRICS:

Metric 1: Total CO_2 reduced across East/South Asian corridors (baseline: 250K tons/port as of 2024)

Metric 2: : % of financed fleet achieving CII "A" or "B" rating (baseline: 36% of ships currently rated A-B)

Metric 3: : Volume of alternative marine fuels supplied at participating ports (baseline: <5% of marine fuels are alternative)

5,500 estimated annual deaths avoided
(range: 3,000–8,000)

Based on:

- 265,000 global shipping-related deaths (baseline)
- 8.5% corridor exposure
- 25% average emissions reduction across vessel activity