

ENVIRONMENTAL PILLAR				
	Unit	2021	2020	2019
GHG EMISSIONS				
TOTAL GHG EMISSIONS	tonnes CO_{2e}	4,186,562	4,180,914	4,394,098
Scope 1	tonnes CO _{2e}	4,148,617	4,132,383	4,342,386
Scope 2	tonnes CO _{2e}	37,946	48,531	51,712
TOTAL SCOPE 1	tonnes CO_{2e}	4,148,617	4,132,383	4,342,386
Breakdown by Operations				
Shipping		4,121,458	4,311,872	4,103,313
Gas	tonnes CO _{2e}	2,506,131	2,319,137	2,300,260
Petroleum	tonnes CO _{2e}	1,557,596	1,714,706	1,789,880
Product	tonnes CO _{2e}	51,988	64,768	216,254
Workboat	tonnes CO _{2e}	5,744	4,702	5,478
Non-Shipping	tonnes CO _{2e}	27,158	29,070	30,514
TOTAL SCOPE 2	tonnes CO_{2e}	37,946	48,531	51,712
Non-Shipping	tonnes CO ₂	37,946	48,531	51,712
TOTAL SCOPE 3 (Based on initial inventory)	tonnes CO_{2e}	1,352,596		
Breakdown by Category				
Category 8 – Upstream Leased Assets	tonnes CO _{2e}	101,723	-	-
Category 13 – Downstream Leased Assets	tonnes CO _{2e}	1,229,410	-	-
Category 15 – Investments	tonnes CO _{2e}	21,463	-	-
AIR EMISSIONS				
NO _x emissions ⁶	tonnes	38,763	38,289	44,174
SO _x emissions ⁷	tonnes	3,922	3,352	30,500
PM10 emissions ⁸ (2020 and 2021 data are for non-shipping only)	tonnes	2	2	4,275
Ozone depleting substances (ODS)	tonnes	0.93	2.11	1.76

PERFORMANCE DATA

	Unit	2021	2020	2019
CARBON INTENSITY AND ANNUAL EFFICIENCY RATIO				
ANNUAL EFFICIENCY RATIO (AER)				
MISC Shipping Fleet (Gas and Petroleum) *	gCO ₂ / ton-nm	6.28	5.77	5.54
ANNUAL EFFICIENCY RATIO (AER^{CO2e})				
MISC Shipping Fleet (Gas and Petroleum) *	gCO _{2e} / ton-nm	6.48	5.96	5.71
OPERATIONAL DATA				
Total distance traveled by vessels Gas, Petroleum ^{11*}	nautical miles (nm)	5,365,388	5,245,189	5,206,356
AVERAGE ENERGY EFFICIENCY DESIGN INDEX (EEDI⁵) FOR NEW VESSELS				
Very Large Ethane Carrier (VLEC)	(gCO ₂ per tonne-mile)	6.080		
LNG Dual-Fuel Dynamic Positioning Shuttle Tanker (DPST)	(gCO ₂ per tonne-mile)		2.879	
Conventional Dynamic Positioning Shuttle Tanker (DPST)	(gCO ₂ per tonne-mile)		3.006	
LNG Dual-Fuel Aframax	(gCO ₂ per tonne-mile)			2.938
ENERGY				
TOTAL GROUP ENERGY CONSUMPTION ²				
Heavy Fuel Oil ³	tonnes	70,130	68,854	535,775
Low Sulphur Heavy Fuel Oil	tonnes	330,863	255,470	16,395
Ultra-Low Sulphur Heavy Fuel Oil	tonnes	3,400	22,822	34,285
Marine Gas Oil	tonnes	190	3,500	316
Low Sulphur Marine Gas Oil	tonnes	5,333	9,377	8,628
Ultra-Low Sulphur Marine Gas Oil	tonnes	232,194	264,185	165,667
Liquefied Natural Gas	tonnes	707,014	731,887	647,782
Diesel	Litre	5,609,360	5,900,968	6,102,294
Petrol	Litre	24,039	41,835	66,896
Compressed natural gas	m ³	298,920	280,671	263,769
Liquefied petroleum gas	tonnes	4	4	13
Electricity	kWh	55,452,999	70,913,588	75,562,847
Ethane	tonnes	15,709	-	-
Renewable energy ⁴	MWh	6,075	-	-

	Unit	2021	2020	2019
ENERGY INTENSITY RATIO				
Shipping operations - gas and petroleum fleet	(GJ per million transport work)	92	85	79
Heavy & Marine Engineering	(GJ per million revenues in RM)	144	172	279
Maritime Education & Training	(GJ per million sales in RM)	167	216	326
Port Management & Maritime Services	(GJ per hour)	4	4	4
WASTE				
NON-SHIPING OPERATIONS				
TOTAL GENERATION HAZARDOUS WASTE/ NON-HAZARDOUS				
Total waste recycled/reuse/recovered	tonnes	4,562	6,332	6,855
Total final disposal	tonnes	157	418	465
	tonnes	4,405	5,914	6,391
TOTAL GENERATION HAZARDOUS WASTE				
Total waste recycled/reuse/recovered	tonnes	15,805	19,401	24,908
Total waste sent for disposal (incineration/landfill)	tonnes	11,715	13,955	23,760
	tonnes	7	36	219
SHIPPING OPERATIONS				
Ship oil sludge	m ³	4,903	3,259	4,253
Ship operational effluent discharge - comprises bilge water and cargo residues	m ³	46,600	60,822	51,437
Operational effluent discharge per vessel per month - bilge water	m ³	26.51	25.96	25.77
Ship garbage	m ³	6,492	7,405	6,969
Ship garbage disposed to reception facility	m ³	5,514	6,594	5,991
Ship garbage discharged to sea - Category B	m ³	450	424	499
Ship garbage incinerated onboard	m ³	528	387	478

PERFORMANCE DATA

	Unit	2021	2020	2019
Water				
TOTAL FRESHWATER WITHDRAWAL	m ³	658,153	635,686	740,542
Total freshwater withdrawal from Surface Water	m ³	0	0	0
Total Freshwater Withdrawal from Third Party Water	m ³	658,153	635,686	740,542
BALLAST WATER				
Percentage of fleet implementing ballast water exchange and treatment	%			
• exchange ¹²	%	24	n/a	n/a
• treatment ¹³	%	76	n/a	n/a
Spills				
Total spills ⁹	Number	3	1	2
Average volume of spills and releases to the environment ¹⁰	Litre	140	30-40	1,542
Fines / Penalties and Audits				
Fines / penalties on environmental related non-compliance	Number	1	-	2
Audits conducted on environmental related matters	Number	21	15	17
ISO Certification				
ISO 50001 Energy Management System	Yes/No			
Gas Assets & Solutions		Yes		
Petroleum & Product Shipping		Yes		
Offshore Business		No		
Marine & Heavy Engineering		No		
Integrated Maritime Services		No		
Port Management & Maritime Services		No		
Maritime Education & Training		No		
ISO 40001 Energy Management System	Yes/No			
Gas Assets & Solutions		No		
Petroleum & Product Shipping		No		
Offshore Business		No		
Marine & Heavy Engineering		Yes		
Integrated Maritime Services		Yes		
Port Management & Maritime Services		Yes		
Maritime Education & Training		No		

Training and Awareness Conducted in 2021

No		Total Number of Programmes	Total Number of Participants
1	Environment	11	748

Scope of ISO certification

Certification	Entity	Scope
ISO50001:2018 Energy Management System	Eaglestar Shipmanagement (L) Pte Ltd	Provision of Fleet Management Services
ISO50001:2011 Energy Management System	Eaglestar Shipmanagement (S) Pte Ltd	Shore Management of operation of tanker
ISO 14001:2015 Environment Management System	Eaglestar Shipmanagement (L) Pte Ltd	Provision of Fleet Management Services
	Eaglestar Shipmanagement (S) Pte Ltd	Shore Management of operation of tanker
	MISC Berhad (Offshore Business)	Provision of Engineering, Procurement and Construction Management of Subcontractors, Installation, Commissioning, Operation & Maintenance and Decommissioning of Offshore Floating / Mobile Facilities
	Malaysia Marine and Heavy Engineering Sdn. Bhd.	<ul style="list-style-type: none"> Repair, Construction, Refurbishment and Conversion of Ships & Marine Vessels Engineering, Procurement, Construction, Hook Up, Testing & Commissioning and Maintenance of Production System and Its Facilities Fabrication, Testing, Commissioning and Maintenance of Onshore Production Systems and Its Facilities Project Management for Transportation and Installation of Offshore Production System and Its Facilities

Note:

¹⁻¹³ referring to SASB indicator

* Exclude our LNG bunkering vessel (LBV)