

Environmental Data

This report contains consolidated data (Mitsui O.S.K. Lines, Ltd. and MOL Group consolidated subsidiaries) and non-consolidated data (Mitsui O.S.K. Lines, Ltd. only) as of the end of each FY.

■ Energy Consumption

	FY2019	FY2020	FY2021	FY2022	FY2023	Scope
Fuel oil *1 (thousand tons)	3,273	2,865	2,925	2,874	2,904	Mitsui O.S.K. Lines, Ltd., MOL Group consolidated subsidiaries in Japan and overseas (cover rate based on consolidated sales :97%)
Marine Diesel oil *1 (thousand tons)	255	253	282	243	263	
Diesel oil (K liters)	6,572	6,040	6,944	6,621	12,347	
LNG (thousand tons)	37	27	19	47	22	
Bio-fuel (thousand tons)	-	-	-	9	14	
Electricity (MWh)	86,924	76,951	80,475	77,604	80,067	
	Total renewable energy used *3	237	248	3,532	39,983	
	Renewable energy used rate (%)	0.3	0.3	4.4	51.5	
Municipal gas (thousand m3)	1,648	1,627	1,618	1,663	1,456	
Total energy consumption *2 (thousand GJ)	158,105	142,492	146,748	143,150	146,277	

*1 Used mainly for vessel fuel.
*2 The energy equivalent of heat originated from fuel oil, diesel oil, bio-fuel, electricity, municipal gas and other energy consumed.
*3 Mainly due to introduction of renewable energy to offices.

■ Greenhouse Gas Emissions

Organizational boundary for GHG data consolidation is operational control under the control approach.

	FY2019	FY2020	FY2021	FY2022	FY2023	Scope
Scope1 (tons) *1	11,136,501	9,831,022	10,112,053	10,086,254	10,055,247	Mitsui O.S.K. Lines, Ltd., MOL Group consolidated subsidiaries in Japan and overseas (cover rate based on consolidated sales :97%)
	Vessels	11,114,501	9,811,474	10,088,981	10,063,916	9,985,812
	Others	22,000	19,548	23,072	22,338	69,435
Scope2 (tons) *2	Location-based	45,116	38,735	39,018	37,224	41,405
	Market-based	-	-	35,887	19,483	18,104
Scope3 (tons) *3		3,983,625	3,111,120	3,187,594	3,995,887	3,912,372
	Category1 Purchased goods and services	51,067	40,138	43,292	50,420	57,882
	Category2 Capital goods	721,175	481,817	511,873	1,221,693	1,160,221
	Category3 Fuel- and energy related activities (not included in scope 1 or scope 2)	2,402,901	2,126,190	2,186,927	2,168,636	2,187,031
	Category5 Waste generated in operations	477	638	907	653	628
	Category6 Business travel	7,957	1,774	2,045	9,081	11,543
	Category7 Employee commuting	283	282	71	210	357
	Category11 Use of sold products	799,765	460,281	442,479	545,194	494,710
Scope1+2 (tons)		11,181,617	9,869,757	10,147,940	10,105,737	10,073,351
Scope1+2+3 (tons)		15,165,242	12,980,877	13,335,534	14,101,624	13,985,723

*1 Scope1 : CO2 emissions originating mainly from the combustion of marine fuel.
*2 Scope2 : CO2 emissions originating mainly from electricity consumption.
*3 Scope3 : GHG emissions originating mainly from when the capital goods and/or ship's stores are produced, fuels the vessels used are generated etc.
Due to the change in the emission factor used to calculate Category3, results from FY 2019 to FY 2022 have been retroactively revised.

■ GHG Emissions from Biofuel used by Ships

	FY2019	FY2020	FY2021	FY2022	FY2023	Scope
Biofuel "Well-to-Wake" (tons)	-	-	-	-	8,871	Mitsui O.S.K. Lines, Ltd., major ocean-going vessels MOL Group subsidiaries in Japan and overseas

[Third-party Verification of GHG Emission Data]

MOL acquired third-party verification by Class NK to ensure the fairness, accuracy, and transparency of FY2022 GHG emission data included in this report.
The verification was conducted based on ISO14064-3:2006, ISO14064-1:2006 and GHG protocols.
<Verification Target>
Scope1(Direct emissions), Scope2(Energy indirect emissions), Scope3(Other indirect emissions from Applicant's value chain), GHG Emissions from Biofuel used by Ships, and Energy Consumption.

■ GHG Emissions Intensity

	FY2019	FY2020	FY2021	FY2022	FY2023	Scope
CO2 emissions per ton-mile (g/ton-mile) Standard method	12.12	11.65	11.68	11.59	11.25	Mitsui O.S.K. Lines, Ltd., major ocean-going vessls MOL Group subsidiaries in Japan and overseas

*Due to the change in the emission factor, we have retroactively revised the results from fiscal 2019 to fiscal 2022.

[*Please refer P.45 of Environmental Vision 2.2 for definitions of the standard methods.](#)

【Third-party Verification of GHG Emissions Intensity Data】

MOL acquired third-party verification by Class NK to ensure the fairness, accuracy, and transparency of FY2022 GHG emissions intensity data included in this report.

■ NOx and SOx Emissions

	FY2019	FY2020	FY2021	FY2022	FY2023	Scope
NOx emissions (tons)	271,704	230,918	230,911	230,609	214,527	Mitsui O.S.K. Lines, Ltd., MOL Group vessel operating subsidiaries in Japan and overseas (cover rate based on consolidated sales :81%)
SOx emissions (tons)	130,494	23,500	27,891	27,558	26,937	

【Third-party Verification of SOx Emissions Data】

MOL acquired third-party verification by Class NK to ensure the fairness, accuracy, and transparency of FY2022 SOx emissions data included in this report.

■ NOx and SOx Emissions Intensity

	FY2019	FY2020	FY2021	FY2022	FY2023	Scope
NOx emissions per ton-mile (g/ton-mile)	0.25	0.23	0.22	0.21	0.20	Mitsui O.S.K. Lines, Ltd., major ocean-going vessls MOL Group subsidiaries in Japan and overseas
SOx emissions per ton-mile (g/ton-mile)	0.12	0.02	0.03	0.02	0.02	

■ Other Resources

	FY2019	FY2020	FY2021	FY2022	FY2023	Scope
Total waste (tons)*1	2,723	2,478	2,905	3,531	2,909	Mitsui O.S.K. Lines, Ltd., MOL Group consolidated subsidiaries in Japan and overseas (cover rate based on consolidated sales:97%)
	Recyclable	1,637	1,323	1,340	1,825	
	Non-recyclable	1,086	1,155	1,565	1,706	
Recycling ratio (%)	60.1	53.4	46.1	51.7	52.5	
Hazardous Waste Generation (tons)*2	1.84	15.01	8.86	0.57	0.00	Mitsui O.S.K. Lines, Ltd., MOL Group consolidated subsidiaries in Japan (cover rate based on consolidated sales:53%)
Total ship recycling (tons)	37,327	75,007	0	0	7,996	Mitsui O.S.K. Lines, Ltd.
Total water intake (m3)*3	599,478	410,230	403,406	632,754	468,204	Mitsui O.S.K. Lines, Ltd., MOL Group consolidated subsidiaries in Japan and overseas (cover rate based on consolidated sales :97%)
	Tap water	599,478	410,230	403,406	468,204	
	River water	-	-	-	-	
	Seawater (cyclic usage)	-	-	-	-	
Total wastewater (m3)	599,478	410,230	403,406	632,754	468,204	

*1 The total of waste from offices etc.

*2 Total amount of PCB-containing equipment disposed of.

*3 The volume of water used in offices. Most of the water used in vessels is made from seawater and recycled.
The incese in the number from previous year is due to coverage increase.

■ Environment Investment Amount

	FY2020	FY2021	FY2022	FY2023	Scope
Environment Investment Amount (billion yen)	64.4	119.4	206.6	260	Mitsui O.S.K. Lines, Ltd., MOL Group consolidated subsidiaries in Japan and overseas (cover rate based on consolidated sales :100%)
	Reduction of our Group’s GHG Emissions*1	5.6	22.4	38.0	
	Low/Decarbonization Energy Business*2	58.8	97.0	168.6	

*1 Investment in the development and ordering LNG-fueled bulkers, PCCs, etc.

Zero emission vessel to reduce emissions of GHG in its own operations.

This corresponds to the R&D cost and the business area costs in Environmental Accounting Guidelines, the Ministry of the Environment.

*2 Investment in the development of LNG carriers, LPG/Ammonia carriers, Wind Power business and its associated business to contribute to reduce GHG emissions in society.

■ Violations of Environmental Laws and Regulations

	FY2020	FY2021	FY2022	FY2023	Scope
Violations of environmental laws and regulations	Number of cases	0	0	0	Mitsui O.S.K. Lines, Ltd.
	Fine (million yen)	0	0	0	

*Violations resulting in fines exceeding US\$10,000.