

# 2022 ENVIRONMENTAL/ENERGY PERFORMANCE REPORT

Significant Environmental Aspect	Environmental/Energy Objective		Performance			PIC																																	
	Target	Criteria(Q'ty)	Result	Achievement(%)	Remark																																		
Marine pollution due to emergencies such as hull damage, etc.	Prevent emergencies And minimize damage	<b>The number of emergency (ZERO)</b>	Oil spill zero	100.0	* Continuous verification of safety procedures through audit/inspection. * Implementation of PMS for each vessel and maintaining records.	VESSEL, MT, QAT																																	
Marine pollution due to malfunction of machinery/equipment	Management of pollution prevention equipment	<b>Oily bilge separator 15ppm Monitoring System Calibration (28 vessels)</b>	30 vessels	107.1	* 30 vessels performed. -. CNTR 1T : 11 vessels, CNTR 2T : 3 vessels, CNTR 3T : 6 vessels LNG : 1 vessels, TANKER : 7 vessels -. In case of Tanker/LNG fleets, annual calibration is being carried out in accordance with the requirements of major company and MESQAC.	VESSEL, MT																																	
Air pollution from ship operation	Minimize fuel consumption and increase energy efficiency	<b>Reduction of fuel consumption (1.4 %, reduction rate compared to baseline in 2016)</b>	1.8%	128.6	* fuel consumption in 2016 : 759,058 M/T (BASELINE) * fuel consumption in 2022 : 745,395 M/T (1.8% reduction compared to 2016) * applies to : Main Engine, Aux. Engine (Aux. Boiler excluded) * 11k CNTR : Set the 2018 performance as baseline * 24k CNTR : Set the 2020 performance as baseline * 16k CNTR : Set the 2021 performance as baseline	R&D																																	
		<b>F.O consumption intensity (0.8490g/DWT*km)</b>	0.8307	102.2	* Annual performance of F.O consumption intensity <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>2019</th> <th>2020</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>CNTR</td> <td>1.1496</td> <td>1.0058</td> <td>0.9315</td> <td>0.9428</td> </tr> <tr> <td>TANKER</td> <td>0.3657</td> <td>0.3594</td> <td>0.3462</td> <td>0.3541</td> </tr> <tr> <td>BULK</td> <td>0.7201</td> <td>0.6972</td> <td>0.7508</td> <td>0.7056</td> </tr> <tr> <td>LNG</td> <td>1.3359</td> <td>0.8810</td> <td>0.9536</td> <td>1.2213</td> </tr> <tr> <td>MPV</td> <td>-</td> <td>-</td> <td>1.9900</td> <td>2.0114</td> </tr> <tr> <td><b>TOTAL</b></td> <td><b>0.9417</b></td> <td><b>0.8171</b></td> <td><b>0.8140</b></td> <td><b>0.8307</b></td> </tr> </tbody> </table> * Target : 1% improvement value of the 3 years average (2019-2021) * Some reduction in fuel efficiency due to the delivery of ships with low deadweight tonnage(DWT) and operation. * LNG vessel energy efficiency decreased due to increase in use of LSGO.		2019	2020	2021	2022	CNTR	1.1496	1.0058	0.9315	0.9428	TANKER	0.3657	0.3594	0.3462	0.3541	BULK	0.7201	0.6972	0.7508	0.7056	LNG	1.3359	0.8810	0.9536	1.2213	MPV	-	-	1.9900	2.0114	<b>TOTAL</b>	<b>0.9417</b>	<b>0.8171</b>	<b>0.8140</b>
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Air pollution from ship operation	Minimize fuel consumption and increase energy efficiency	<b>Hull Inspection (78 vessels)</b>	74 vessels	94.9	* 85 vessels performed. -. CNTR 1T: 32 vessels, CNTR 2T : 16 vessels, CNTR 3T: 15 vessels LNG : 6 vessels, TANKER : 5 vessels -. Inspection period of the CNTR fleet is every 6 months. -. LNG, BULK, TANKER fleet is performed according to the vessel condition.	MT, R&D										
	Legal operation of Incinerator	<b>Incinerator procedure (Violation ZERO)</b>	Violation ZERO	100.0	* No violation existed.	QAT										
Marine pollution from ship operation	Legal management of Garbage	<b>Disposal of Garbage (Violation ZERO)</b>	Violation ZERO	100.0	* Operation of the plastic compactor and garbage grinder (16 vessels) -. CNTR 2 team : 2 vessels (HPP, HBB) -. LNG team : 7 vessels (TFSS, BIAE, BIDE, BPVI, BDRM, B1DU, B1AT) -. Tanker team : 7 vessels (OULD, OUWN, OUCA, OUP, OUVT, OODD, OOGL)	VESSEL, QAT, MT										
	Minimize generation of Waste oil	<b>Waste oil generation ratio (1.76 %)</b>	1.92 %	90.9	* Annual performance of W.O generation (%) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>2019</th> <th>2020</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>W.O generation (%)</td> <td>1.78</td> <td>1.73</td> <td>1.83</td> <td>1.92</td> </tr> </tbody> </table> * LNG Fleet : Relatively high W.O generation rate is made due to the use of fuel mainly for BOG. * For CNTR fleet, W.O generation rate increased compared last year due to low quality of fuel oil supplied, long-time waiting(anchoring/drift) and slow-steaming operation.		2019	2020	2021	2022	W.O generation (%)	1.78	1.73	1.83	1.92	
		2019	2020	2021	2022											
W.O generation (%)	1.78	1.73	1.83	1.92												
Legal management of Ballast water	<b>Ballast water management regulation/convention (Violation ZERO)</b>	Violation ZERO	100.0	* 62 vessels are operating the BWMS. (Total : 69 vessels) -. CNTR 44 vessels, TANKER 8 vessels, LNG 1 vessel, MPV 4 vessel, BULK 5 vessel * According to BWMS installation, Revision of BWMP (reflecting D-2) and re-issue of IBWMC would be conducted.	QAT											

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Marine pollution from ship operation	Legal operation of Scrubber	<b>EGCS washwater discharge regulation (Violation ZERO)</b>	<b>1 Violation</b>	0	* 51 vessels are operating the Scrubber. (Total : 69 vessels) -. CNTR 39 vessels, TANKER 8 vessels, BULK 1 vessel, MPV 3 vessels -. The remaining 18 ships are using VLSFO with a sulfur content of 0.5% or less. -. Updating Control area to ban discharge of washwater from EGCS is conducted continuously. -. <u>HMM LE HAVRE : During departing from CNTAO, EGCS washwater spilled to sea due to structural problem of process tank.</u> ( Violation of ban discharge of EGCS washwater in China ECA )	VESSEL, R&D, QAT																																													
	Compliance with regional regulations for various incidental discharges from ship operation (GREY WATER, SEWAGE, ANTI-FOULING PAINTS, NOISE, etc)	<b>EGCS washwater discharge regulation (Violation ZERO)</b>	Violation ZERO	100.0	* Identify and thoroughly comply with regional regulations such as US VGP regulations, VOC, gray water, and sewage discharges, etc.	QAT																																													
Resources management of office	Reduce fuel oil consumption for vehicle	<b>Gasoline</b> <b>21,824 ℓ</b>	23,109.7 ℓ	94.1	* Annual environmental performance of office <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="text-align: left;">구 분</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>Gasoline (ℓ)</td> <td>24,063</td> <td>17,197</td> <td>19,975</td> <td>23,110</td> </tr> <tr> <td>Diesel (ℓ)</td> <td>208</td> <td>120</td> <td>43</td> <td>120</td> </tr> <tr> <td>Boiler (Nm<sup>3</sup>)</td> <td>49,143</td> <td>42,903</td> <td>41,791</td> <td>24,129</td> </tr> <tr> <td>Cooking facility (Nm<sup>3</sup>)</td> <td>15,161</td> <td>14,251</td> <td>12,415</td> <td>5794</td> </tr> <tr> <td>Electricity (MWh)</td> <td>2,927</td> <td>2,765</td> <td>2,920</td> <td>2004</td> </tr> <tr> <td>Employee</td> <td>841</td> <td>919</td> <td>940</td> <td>958</td> </tr> <tr> <td>Energy consumption (MJ)</td> <td>13,777,463</td> <td>12,704,303</td> <td>13,229,769</td> <td>9,086,457</td> </tr> <tr> <td>Energy consumption (MJ/Person)</td> <td><b>16,382</b></td> <td><b>13,824</b></td> <td><b>14,074</b></td> <td><b>9,485</b></td> </tr> </tbody> </table>	구 분	2019	2020	2021	2022	Gasoline (ℓ)	24,063	17,197	19,975	23,110	Diesel (ℓ)	208	120	43	120	Boiler (Nm <sup>3</sup> )	49,143	42,903	41,791	24,129	Cooking facility (Nm <sup>3</sup> )	15,161	14,251	12,415	5794	Electricity (MWh)	2,927	2,765	2,920	2004	Employee	841	919	940	958	Energy consumption (MJ)	13,777,463	12,704,303	13,229,769	9,086,457	Energy consumption (MJ/Person)	<b>16,382</b>	<b>13,824</b>	<b>14,074</b>	<b>9,485</b>	CAD
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<b>Diesel</b> <b>172 ℓ</b>	119.68 ℓ	130.4																																																	
Reduce the electricity	<b>Electricity (2,875 MWh)</b>	2,920 MWh	2,004.36 MWh																																																
Reduce the LNG fuel	<b>Boiler</b> <b>45,208 Nm<sup>3</sup></b>	24,128.91 Nm <sup>3</sup>	146.6																																																
* Minimizing out-of-work and outside schedules to prevent Covid-19 * Use of Gasoline and diesel increased due to increase in business use of vehicle																																																			

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		Cooking facility 13,895 Nm <sup>3</sup>	5,794.03 Nm <sup>3</sup>	158.3	according to face to face work and 1 more business vehicle added. * After relocation of the office from Yeonji-dong to Yeouido in Seoul, Electricity consumption decreased due to reduced quantity of EHP having high consumption of electricity. * After relocation of the office from Yeonji-dong to Yeouido in Seoul, LNG fuel consumption decreased due to no use of boiler and cooking facilities	