

Environmental Technologies and Practices
CLIA Global Oceangoing Cruise Lines - August 2018

This table provides aggregated data across CLIA’s global oceangoing cruise line membership. The table reflects the number of ships equipped with certain technologies, corresponding passenger capacities (lower berth at double occupancy) and the percentage of the entire fleet represented.

INVESTMENTS, COMMITMENTS AND PRACTICES	SHIPS REPORTING (OF 253)	CAPACITY LOWER BERTH DOUBLE OCCUPANCY	AGGREGATE % OF FLEET CAPACITY (OF 507,972)	NOTES
Oceangoing Ships Reporting	229	484,933	95.5%	Cruise lines continue to transform the modern fleet to protect the oceans, air and destinations enjoyed by millions of passengers each year. CLIA’s Waste Management Policy is available here . Each year, cruise line CEO’s verify implementation as a condition of membership. The Policy is incorporated into each ship’s Safety Management System (SMS) and is subject to third party and internal auditing. Additional environmental reports, including third party research on air and waste water performance, are available here . Many individual cruise line sustainability reports are publicly available on company websites.
New Ships On Order	56	196,761 38.7% increase		
Ships (to be) added to the fleet between 1 January 2018 and 31 December 2018	11	34,497		
Ships (to be) removed from the fleet between 1 January 2018 and 31 December 2018	6	7,327		
Average age of fleet as of 1 January 2018	14.6			
EXHAUST GAS CLEANING SYSTEMS (EGCS)				
Ships fitted with exhaust gas cleaning systems (EGCS)	111	305,590	60.2%	Companies report that EGCS systems remove 99% of sulfur & well over 50% of particulate matter, including elemental & organic carbon. Catalytic filter & other systems further reduce particulate matter by over 30% & reduce nitrogen oxides by 10%. Twelve ships are being retrofitted with EGCS and planning is continually evolving for more than thirty additional ships consistent with annual plans. Existing & forecast EGCS installations are for hybrid or open loop systems and many include wash water filters. Some include a catalytic filter on the engine exhaust prior to the EGCS, as well as continuous monitoring equipment to automatically record all parameters. A variety of technologies further clean the EGCS wash water stream including fine-mesh filtration, purification, centrifugal separation & dissolved air with flocculant. EGCS wash water filter residue & process tank residue are disposed of ashore. Four ships operate EGCS continuously in global operations even beyond regulatory requirements (ports, (S)ECAs, etc.)
Ships fitted with open loop EGCS	69	168,226	33.1%	
Ships fitted with open loop EGCS and additional wash water filters	41	100,914	19.9%	
Ships fitted with hybrid EGCS	42	137,364	27.0%	
Ships fitted with hybrid EGCS and additional wash water filters	35	112,030	22.1%	
New build ships committed to be fitted with EGCS	27	95,988 48.8% of new builds		

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LIQUIFIED NATURAL GAS (LNG)				
Ships able to operate on LNG in port	2	6,572	1.29%	
New build ships committed to use LNG as primary fuel for propulsion	17	68,579 34.8% of new builds		
ALTERNATIVE FUELS				
Ships capable of using alternative fuels other than LNG (methanol, biodiesel etc.)	152	356,670	70.2%	<p>Many cruise ships are equipped to operate on both biodiesel and traditional fossil fuels.</p> <p>Several companies are exploring fuel cell and equivalent technologies for future new builds or retrofit projects.</p> <p>Ships use Marine Gas Oil (MGO) in many regions to comply with IMO ECAs (North America & Caribbean Sea, North Sea and Baltic Sea), EU Mediterranean Sea ports, the Arctic, China's emission control area, Australian ports and to meet other locally imposed requirements. Ships may also use Very Low Sulphur Fuel Oil (VLSFO) or Ultra Low Sulphur Fuel Oil (ULSFO) in these regions to comply with emissions requirements. Ships fitted with EGCS will generally use this equivalent technology unless its use is not permitted, and will use MGO where specifically required.</p>
SHORE SIDE ELECTRICITY / COLD IRONING				
Ships fitted with Shore Side Electricity (SSE) systems	55	141,873	27.9%	<p>The following 13 ports/specific berths visited by CLIA oceangoing ships are fitted with shore side electricity / cold ironing capacity</p> <p>Greater than 10MW: Brooklyn, Halifax, Hamburg Altona, Montreal, San Diego, San Francisco Berth 35, Los Angeles, Long Beach, San Pedro Berths 92 & 93, Seattle, Shanghai, and Vancouver Canada Place.</p> <p>7-9 MW: Juneau</p>
Ships planned to be retrofitted with SSE systems	11	22,408	4.4%	
New build ships committed to be fitted with SSE systems	17	58,712 29.8% of newbuilds		
Ships configured to add SSE in the future	121	284,248	56.0%	
New build ships which will be configured to add SSE in the future	33	118,153 60% of new builds		
ADDITIONAL AIR POLLUTION & ENERGY EFFICIENCY TECHNOLOGIES				
Ships fitted with particulate filters	17	45,622	8.98%	Some ships equipped with Selective Catalytic Reduction systems (SCR) use them in every port and when transiting inbound and outbound.
Ships fitted with Selective Catalytic Reduction (SCR) Systems	7	16,168	3.18%	
Ships capable of complying with NOx Tier III limits:	13	26,224	5.16%	
Ships that have air lubrication systems fitted	13	47,386	9.33%	
Ships with low friction hull coatings installed	209	468,088	92.1%	

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WASTE WATER				
Ships that have an advanced waste water treatment facility on board, approved, used and capable of meeting or exceeding IMO MARPOL Annex IV discharge norms	136	315,949	62.2%	Many ships are equipped with advanced waste water treatment systems (AWTS) that are capable of exceeding MARPOL Annex IV requirements and are operated to meet or exceed the more stringent sewage discharge criteria in Alaskan waters and/or the forthcoming Baltic Sea Special Area, as well as gray water requirements under the U.S. Vessel General Permit (VGP).
New build ships that will have an advanced waste water treatment facility on board, approved and capable of meeting or exceeding IMO MARPOL Annex IV discharge norms.	56	196,761 100% of new builds		
Ships that have a waste water treatment facility on board, approved and capable of meeting the discharge standards of the IMO MARPOL Annex IV Baltic Sea Special Area	16	36,244	7.14%	CLIA members recognize the extraordinary eutrophication situation in the Baltic Sea. While the requirements of the IMO Baltic Sea Special Area do not take effect for new ships until 2019 and for existing ships until 2021, by CLIA Policy, when operating in the Baltic, ships are to discharge MARPOL Annex IV waste ashore where adequate port reception facilities are available under a 'no special fee' arrangement.
# of new build ships that will have a waste water treatment facility on board, approved and capable of meeting the discharge standards of the IMO MARPOL Annex IV Baltic Sea Special Area	48	164,161 83.4% of new builds		By CLIA policy, bio-residual from advanced waste water systems may be landed ashore, dried and incinerated or discharged at sea in accordance with MARPOL Annex IV when the ship is more than 12 nm from nearest land while moving at a speed greater than 4 knots.