CLIA 2019 ENVIRONMENTAL TECHNOLOGIES AND PRACTICES REPORT (11 September 2019)

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.

	AUGUST 2019			
INVESTMENTS, COMMITMENTS AND PRACTICES	SHIPS REPORTING (OF 268)	CAPACITY LOWER BERTH DOUBLE OCCUPANCY (533,302 Est. Total Fleet)	AGGREGATE % OF REPORTING CAPACITY	NOTES
Oceangoing Ships Reporting	249	522,916	98% of Total CLIA Fleet	CLIA's Environmental Protection 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. Ships being removed in 2019 may remain in service outside the CLIA fleet.
New Ships On Order	88	248,193		
Ships (to be) added to the fleet between 1 January 2019 and 31 December 2019	19	40,446		
Ships (to be) removed from the fleet between 1 January 2019 and 31 December 2019	3	4,383		
Average age of fleet as of 1 January 2019	15.2			
EXHAUST GAS CLEANING SYSTEMS (EGCS)				
Ships fitted with exhaust gas cleaning systems (EGCS)	129	356,326	68.1%	EGCS systems are designed to remove 98% of sulfur & well over 50% of particulate matter, including elemental & organic carbon and black carbon. Catalytic filters & other systems further reduce particulate matter by over 30% & nitrogen oxides by up to 12%. 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
- Ships fitted with open loop EGCS	80	198,514	38.0%	
- Ships fitted with open loop EGCS and additional wash water filters	52	128,448	24.6%	

- Ships fitted with hybrid EGCS	49	157,812	30.2%	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.). EGCS wash water sample analysis shows that average PAH and nitrate levels are well below IMO washwater criteria and there is little to no contribution from the EGCS process to concentrations of a number of trace metal parameters (Arsenic, Cadmium, Lead, Mercury, Selenium and Thallium). Sample analysis shows average washwater concentrations are below the limits for comparable land-based industrial point source waste water standards and average washwater concentrations also compare favorably to water quality standards with strict criteria. Studies are available here and here.
- Ships fitted with hybrid EGCS and additional wash water filters	35	115,116	22.0%	
New build ships committed to be fitted with EGCS	29	104,088 (42% of new build capacity)		
LIQUIFIED NATURAL GAS (LNG)				
Ships able to operate on LNG in port	2	6,572	1.3%	
New build ships committed to use LNG as primary fuel for propulsion	26	109,358 (44% of new build capacity)		
ALTERNATIVE FUELS				
Ships capable of using alternative fuels other than LNG (methanol, biodiesel etc.)	152	363,164	69.4%	Many cruise ships are equipped to operate on both biodiesel and traditional fossil fuels. Several companies are exploring fuel cell and equivalent technologies for future new builds or retrofit projects. Ships use Marine Gas Oil (MGO) in many regions to comply with IMO ECAs (North American & 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 or, in the alternative, will use MGO.
SHORE SIDE ELECTRICITY				
Ships fitted with Shore Side Electricity (SSE) systems	59	157,245	30.1%	The following 16 ports visited by CLIA oceangoing ships have at least one berth fitted with shore side electricity for cruise ships: Brooklyn, Halifax, Hamburg Altona, Juneau, Kristiansand, Los
Ships planned to be retrofitted with SSE systems	45	92,649	17.7%	

New build ships committed to be fitted with SSE systems	20	82,882 (33% of new build capacity)		Angeles, Long Beach, Montreal, Oslo, Prince Rupert B.C., San Diego, San Francisco Berth 29, San Pedro Berths 92 & 93, Seattle, Shanghai, and Vancouver Canada Place. Shore side electricity installations should follow the international standard agreed by the International Maritime Organization consistent with ISO/IEC/IEEE 80005-1.
Ships configured to add SSE in the future	90	202,536	38.7%	
New build ships which will be configured to add SSE in the future	35	135,385 (55% of new build capacity)		
ADDITIONAL AIR POLLUTION & ENERGY EFFICIENCY TECHNOLOGIES				
Ships fitted with particulate filters	28	77,906	14.9%	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	16	31,002	5.9%	
Ships capable of complying with NOx Tier III limits	15	25,457	4.9%	
Ships that have air lubrication systems fitted	15	53,354	10.2%	
Ships with low friction hull coatings installed	203	461,838	88.3%	
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	157	355,428	68.0%	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 Baltic Sea Special Area, as well as gray water requirements under the U.S. Vessel General Permit (VGP). 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 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.
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.	88	248,193 (100% of new build capacity)		
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	28	43,818	8.4%	
# 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	169,644 (68% of new build capacity)		