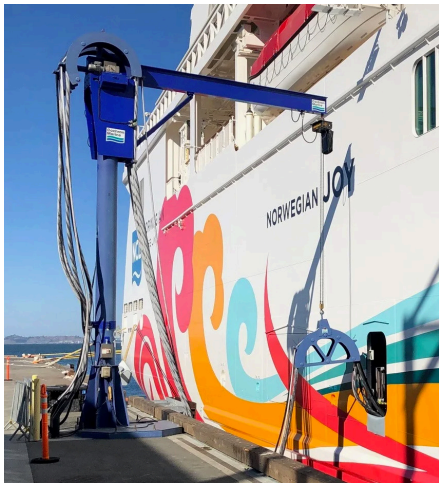
# ENERGY & EMISSIONS

NCLH NORWEGIAN CRUISE LINE HOLDINGS LTD.

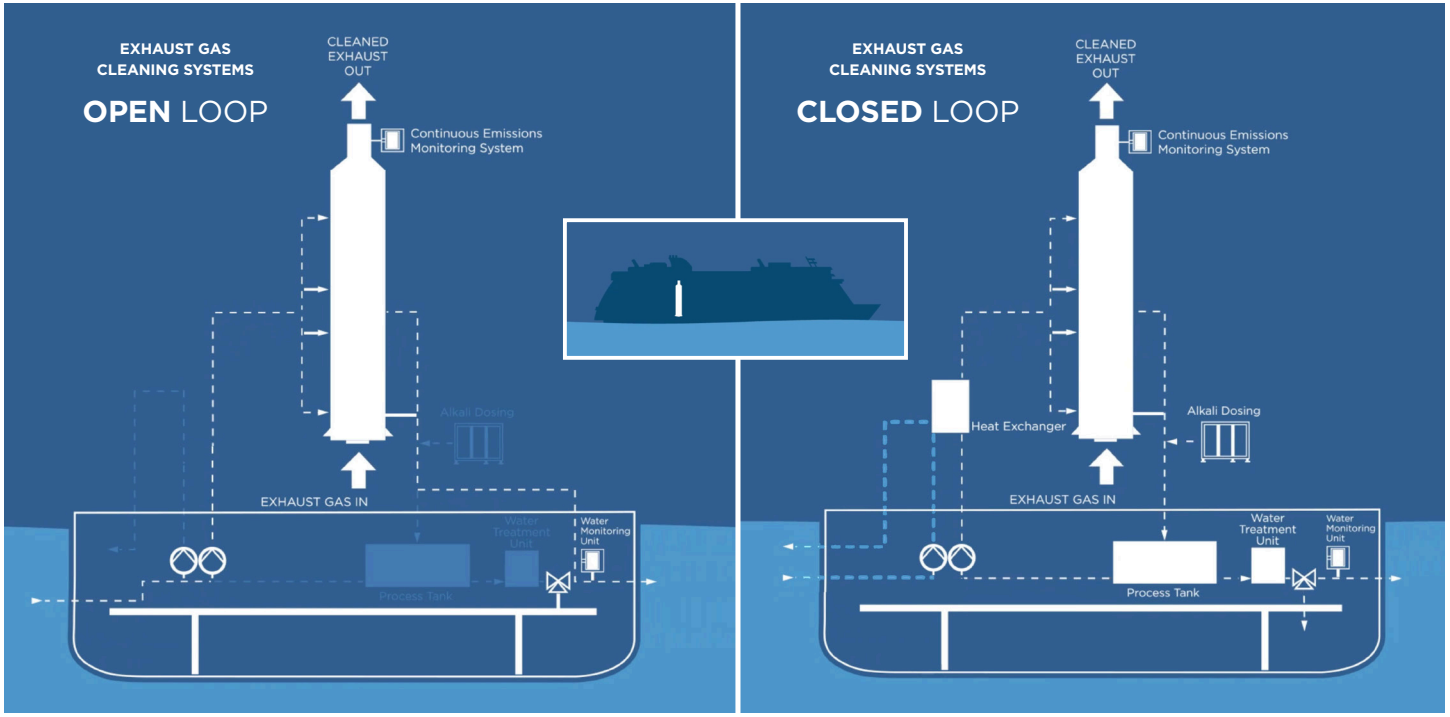
As leaders in the cruise industry, we must work to help mitigate actions that negatively impact our planet. To reduce our impact on the environment, we have several initiatives aimed at lowering energy consumption, and therefore reducing our carbon footprint.




## COLD-IRONING

Our ships continue to generate their own power while in port, providing heat, air conditioning, lighting and hot water for guests and crew. A small number of the ports we visit have installed infrastructure for cruise ships to connect to onshore electrical power grids to supply much of the power needed while docked — a process known as cold-ironing.

Thirty-five percent of Norwegian Cruise Line's ships are equipped with cold-ironing capabilities, also referred to as shore power. We are continuing to evaluate the availability of shore-power connections for future new builds and itinerary planning.




**In 2018, we developed a greenhouse gas inventory management strategy. This enables us to account for our GHG emissions and have our annual emissions verified by a third party.**

## EXHAUST GAS CLEANING SYSTEMS (EGCS)

One innovative technology our ships use to decrease exhaust emissions is an Exhaust Gas Cleaning System (EGCS). This technology reduces the amount of sulfur oxide (SOx) and particulate matter emitted from the ship by cleaning, or scrubbing, the emissions before they are released from the stack.

On occasion, a white plume may be visible from the funnel of the vessel when an EGCS is in use, which is a result of vapor/steam mixing with the regulatory compliant emissions.

Ships equipped with this technology can reduce SOx emissions by up to 99%. Ninety-one percent of systems installed on our ships can operate in open or closed-loop, which is known as a hybrid system. This allows the ships to operate the systems within compliance in expanded areas of the world.

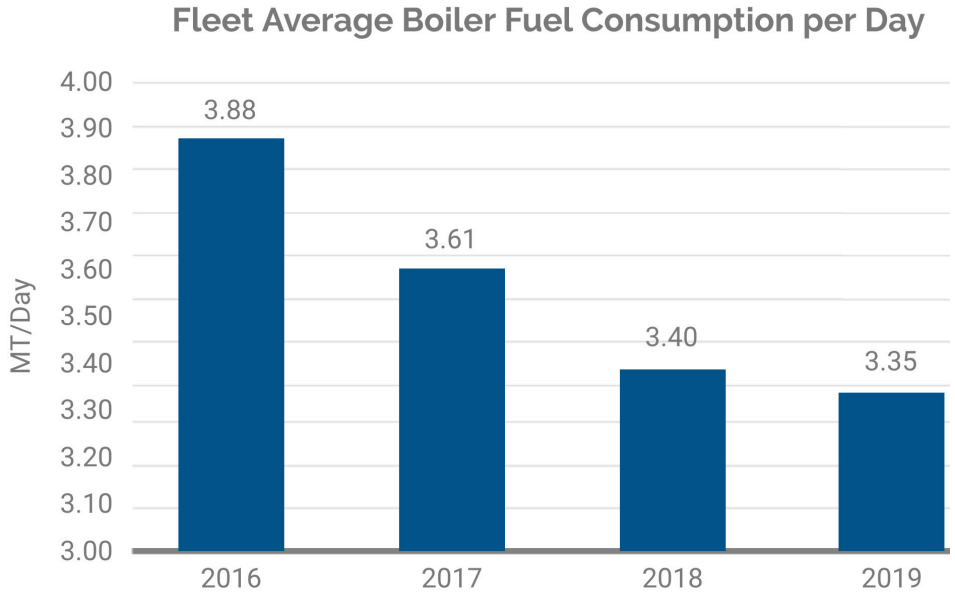
## SHIPBOARD ENERGY EFFICIENCY MANAGEMENT PLAN (SEEMP)

The SEEMP is a ship-specific plan that focuses on improving energy efficiency. We do so through improving voyage planning, speed optimization or operating engines on their most economic loads, optimization of the air conditioning system and improving our ships' hydrodynamic capabilities by upgrading the propulsion systems with more efficient propellers. Onboard energy management meetings are also held quarterly to discuss energy conservation projects, tracking energy efficiency initiatives and future projects.

One of the most successful programs implemented on our ships is Waste Heat Recovery (WHR). This process works by recovering heat from the engines and transferring it to freshwater piping — allowing us to utilize a free source of energy for improving water production and saving fuel.

### 2019 ENERGY SAVINGS HIGHLIGHT

**Estimated decrease in boiler consumption of 13.7% per day since 2016.**




## EMISSION REDUCTION COMMITMENT

In 2018, we signed the Cruise Lines International Association (CLIA) historic commitment to reduce the carbon emissions rate industry-wide by 40% by 2030. This is another important step we are undertaking to help reduce our impact on the environment, in addition to meeting the new, more stringent air emissions regulations.