OXFORD ECONOMICS

CLIA

# ENVIRONMENTAL COMMITMENT, INNOVATION AND RESULTS OF THE CRUISE INDUSTRY

**$22** BILLION
Invested in new energy efficiency technologies and cleaner fuels

**40%** TARGET
Reduction in rate of carbon emissions by 2030 (compared to 2008)

**14.1** YEARS
Average age of fleet, vs. 14.6 years in 2018

## ADVANCE WASTEWATER TREATMENT SYSTEMS (AWTS)

AWTS systems utilize advanced tertiary-level treatment to generate effluent discharges often equivalent to best shoreside treatment plants and, consistent with CLIA policy, well beyond international requirements.

**100%** NEW SHIPS
on order specified to have these systems (up 26% over 2018)

**68%** GLOBAL CAPACITY
is served by advanced wastewater systems (up 13% over 2018)

## LIQUIFIED NATURAL GAS (LNG)

LNG has virtually zero sulfur emissions, a 95% to 100% reduction in particulate emissions, an 85% reduction in NOx emissions, and up to 20% reduction in greenhouse gas emissions.

**26** LNG-POWERED
ships currently ordered or under construction

**44%** NEW CAPACITY
committed to rely on LNG for primary propulsion (60% increase in global capacity over 2018)

## EXHAUST GAS CLEANING SYSTEMS (EGCS)

EGCS reduces sulfur oxide levels by as much as 98%, a typical total particulate matter reduction of 50% or more, including elemental and organic carbon and black carbon, and nitrogen oxides by up to 12%.

**68%** GLOBAL CAPACITY
utilizes EGCS to meet or exceed air emissions requirements (up 17% over to 2018)

**75%** NEW SHIPS
not relying on LNG will have EGCS installed (8% increase in global capacity over 2018)

## SHORE-SIDE POWER CAPABILITY

Cruise ships may operate on shore-side electricity at 16 ports worldwide, reducing overall emissions while at port.

**30%** GLOBAL CAPACITY
are fitted to operate on shore-side electricity (up 10% over 2018)

**18%** TO BE RETROFITTED
with shore-side electricity systems (up 300% over 2018)

**88%** NEW SHIPS
will be fitted with shore-side electricity systems or configured to add shore-side power in the future