COMMITMENT

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Risk Management

Risk management is ingrained in our corporate culture. Effective risk management strategies allow us to identify impacts, risks and opportunities, thereby helping us to mitigate risks while executing our business strategies.
2020 GOAL & UPDATE

BUSINESS PARTNER CODE OF CONDUCT & ETHICS

Further develop and implement vendor assurance procedures ensuring compliance with Carnival Corporation & plc’s Business Partner Code of Conduct and Ethics. We comply with regulatory requirements and follow best management practices addressing human rights, ethics, and environmental protection throughout our operations and expect our business partners to adopt and incorporate these into their own organization.

HUMAN RIGHTS

- We are committed to furthering our commitment to human rights by developing a human rights policy in 2020.

ANIMAL WELFARE

- We continue our partnership with the Association of British Travel Agents (ABTA) to help us ensure we are responsibly managing excursions involving animals.
- We continue to work with third-party animal welfare auditors.
- Completed 100% of animal welfare audits for tour encounters offering dog sledding in Alaska.
- Completed more than 50% of animal welfare audits for tour encounters with dolphins in captivity between FY2018 and FY2019.
Ethics & Compliance

In 2019, we focused on enhancing our compliance framework by developing a dedicated ethics and compliance program and corresponding strategic plan. Through this, we were able to significantly increase the resources devoted to our compliance function. Our Chief Ethics and Compliance Officer (CECO), a member of the executive leadership team, leads the effort to further develop our ethics and compliance program across the entire corporation. The CECO is assisted by other leaders who focus on key areas (including environmental, health, safety and various general compliance issues), as well as important processes (investigations, compliance training, risks, and communications). It is important to note that the Ethics & Compliance is not just a single Department within All Brands Groups - but rather a corporate-wide program - with key Ethics & Compliance Officers (also known as “ECO’s”) who help shape and implement the program initiatives in each of the operating companies.

Through the collective efforts of these leaders, this corporate-wide program involves compliance risk management, improved compliance training programs for our employees, thorough investigations and remedial actions relating to health, environmental and safety incidents, and efforts to strengthen our corporate culture. To further heighten the focus on ethics and compliance, the Boards of Directors established Compliance Committees to oversee the ethics and compliance program, maintain regular communications with the Chief Ethics and Compliance Officer, and ensure implementation of the ethics and compliance program’s strategic plan across the corporation.

Carnival’s Pathway to Decarbonization

Addressing climate change is one of our top priorities and we are committed to continue to lead the path within the cruise industry. Our entire management team, including our Boards of Directors, is committed to addressing climate change. Our path to decarbonization involves multimillion-dollar investments and a multi-faceted strategy. Key components of this strategy include adopting international frameworks and working with industry regulatory bodies to: address upcoming regulatory requirements and conditions, maximize efficiency opportunities/gains, implement low carbon fuels, invest in carbon-efficient technologies, support and accelerate industry-specific research & development projects, establish internal goals supporting the path as well as partner with other companies, NGOs, and relevant stakeholders.

In the coming years, we are likely to see an array of emerging technological innovations as currently there is not a single (nor a combination of technologies) that can move the maritime industry straight into a decarbonization path. As we navigate this journey, we are committed to evaluate options, work with various stakeholders, and adjust our path as needed. Please see page 109-117 for further details.

Civil Unrest

Throughout the world in 2019, as countries experienced outbreaks of civil unrest, we worked closely with industry partners and regional governments. We implemented appropriate security measures which allowed us to navigate through protests with limited impact.
Visible Body Worn Cameras
Most of our onboard security teams now use Body Worn Cameras to record interactions with guests and gather video evidence of developing security situations. The use of cameras is clearly marked on the security officer’s uniform. These cameras have proven useful in capturing interactions between guests and crew members and in preventing confrontations by defusing tense situations.

Port & Destination Vulnerability and Threat Assessments
We regularly conduct port vulnerability and threat assessments to ensure the safety and well-being of our passengers and crew. These assessments document a port’s physical security, vulnerabilities, and any threats specific to the location. The assessments dictate the risk-mitigation actions that must be taken by ships calling on the port.

Audit & Investigations
• Our ships are regulated by various international, national, state and local laws, regulations and treaties enforced in the jurisdictions in which they operate. Compliance with these laws and regulations is verified through regular third-party inspections, surveys, and audits.
• Internal Health, Environment, Safety and Security (HESS) compliance audits are conducted annually of each of our brands’ head offices, 100% of our fleet, our ports, hotels, and land transport assets.
• HESS investigations are also carried out as needed to determine the root cause of incidents and identify corrective and preventative actions that will reduce the risk of future occurrences.

In 2019, we made a number of improvements to our investigative function, which included: a) adding additional investigators; b) revising our investigation policies to reduce the tendency to place blame and to emphasize the need to learn from incidents; c) improving investigative training on root cause analysis; d) reducing the backlog of investigations. Additional improvements to the investigation program are planned and ongoing throughout 2020.
• To better promote sharing of "lessons learned" throughout the corporation, all incident investigation recommendations, audit observations, findings and non-conformities are periodically reviewed by HESS leaders, reported to the brands and to relevant corporate groups for review and resolution. Additionally, internal focus reviews are performed based on identified root causes from incident investigations, audits, and management risk assessments.

CyberSecurity
In 2019, we continued to enhance cybersecurity capabilities and data privacy initiatives to protect the fleet, employees and our guests from any threats that could impact operational technology systems and data privacy. We introduced data privacy and cybersecurity training for applicable shipboard staff and shoreside employees. Cybersecurity policies and procedures were introduced into our Global Health, Environment, Safety and Security (HESS) management system. We also have implemented procedures to ensure compliance with applicable data privacy laws in various jurisdictions.
Psychometric Evaluation Program
We continue to evaluate our Deck, Technical and Environmental Officers through a Psychometric Evaluation Program. The program is utilized across all brands for the selection and promotion of officers through the evaluation of specific psychological attributes at certain career stages. To ensure that all officers possess the attributes required for each of their roles, a variety of psychometric evaluations, both online and in-person with psychologists are utilized. The program includes a series of online and proctored evaluations as part of the new hire process including a comprehensive in-person evaluation as part of the senior officer promotion process and ongoing “check in” evaluations of our senior officers.

HESS Event Reporting System
In 2019, we completed the fleetwide rollout of a new health, environment, safety and security (HESS) event reporting system. This platform has allowed us to standardize our HESS event reporting and analysis capabilities across the entire fleet.

Human Rights Policy
As part of our ongoing efforts and support for human rights, we are committed to develop a human rights policy that will be in alignment with the Universal Declaration of Human Rights in 2020.

Animal Welfare
- We continue our partnership with the Association of British Travel Agents (ABTA) to help us ensure we are responsibly managing excursions involving animals.
- We continue to work with third-party animal welfare auditor.
- Completed 100% of animal welfare audits for tour encounters offering dog sledding in Alaska.
- Completed more than 50% of animal welfare audits for tour encounters with dolphins in captivity between FY2018 and FY2019.

Ethisphere Partnership
The Ethisphere® Institute is a global leader in defining and advancing standards of ethical business practices that fuel corporate character, marketplace trust, and business success. We are honored to be a member of The Business Ethics Leadership Alliance (BELA) within the Ethisphere organization. BELA supports the sharing of experiences and best practices within its members to improve ethics and compliance programs globally.

Arison Maritime Center - CSMART
- We continue to train our officers in our world-class facility equipped with the latest maritime simulation technology and equipment. The Center provides rigorous safety training for bridge, engineering and environmental officers responsible for the navigation, operation and environmental compliance of the world’s largest fleet of cruise ships. Participants receive a maritime training experience that fosters critical thinking, problem solving, ethical decision making and skill development. [Click here for more information.]
- Carnival Corporation & plc’s CSMART Training Center received the 2019 SAFETY4SEA Training Award, for providing high-quality maritime training services for industry-wide safety, sustainability and operational excellence. [Read more here.]
Like companies in any industry, we face a number of challenges and opportunities related to our performance, including the regulatory environment, global political and socioeconomic landscape and the advancement of science and technology. We take an active approach to identifying risks and opportunities and use a variety of strategies to manage and take advantage of them. We work to identify the best approaches to managing these issues, while simultaneously focusing on our sustainability.

Risk management is embedded throughout our organization. Our strategy to manage our risks and seek out opportunities consists of a system of internal controls comprised of our management systems, organizational structures, audit processes, investigations, standards, and our Code of Business Conduct and Ethics. Risks are managed at every level of the organization and discussed openly with leadership in order to minimize the impact of foreseen and unforeseen events. Upper management and the Boards of Directors are regularly advised on corporate risk management issues and on the status of compliance with our health, environment, safety, security and sustainability policies and procedures.

Our key impacts, risks and opportunities are addressed throughout this report. The following is a partial list of our impacts, risks and opportunities:

- Protecting the health and safety of our guests and crew.
- Ensuring the security of our guests, crew and ships.
- Building and maintaining trust and integrity in our supply chain.
- Preserving the natural environment.
- Remaining transparent in our sustainability performance accountability and reporting.

- Recruiting, training and retaining qualified employees.
- Operating in a changing geopolitical climate.
- Improving our performance through technological solutions and initiatives.
- Conserving fuel and minimizing engine emissions.
- Climate change - reducing greenhouse gas (GHG) emissions.
- Operating in an evolving regulatory landscape.
- Improving natural resource management.
- Strengthening stakeholder engagement.
- Partnering with communities/ports-of-call.
Our health, environment, safety, security and sustainability principles focus on detection, prevention, implementation, feedback and improvement. We plan and establish objectives and processes necessary to achieve the required and expected results. We then implement the plan and processes. Studying the actual results of implementation and comparing against the expected results, we then take action on significant differences between actual and planned results. Finally, we analyze these differences to determine their root causes and then determine where to apply changes that will improve the process or results.

Identification and mitigation of risks is a management responsibility. To facilitate this process, the Risk Advisory and Assurance Services department (RAAS) provides the enterprise with a holistic risk framework and methodology for quantifying risk and assessing management’s capabilities for improving risk management. RAAS also provides services via their internal audit program that can provide assurance that risk mitigations are designed and operating effectively.

Pursuant to this program, the RAAS department works closely with management to perform annual assessments, identify risks and evaluate controls to ensure compliance with company policies and procedures, as well as laws and regulations. Management reviews the assessments and updates with the Audit Committees.
SUSTAINABILITY
FROM SHIP TO SHORE
Safety

Safety is paramount to our success, and we focus on delivering safe operations fleetwide every day, and everywhere around the world. We take this responsibility seriously and continuously evaluate ways to further improve and build a culture where safety is always intrinsic in everything we do.
GUEST AND CREWMEMBER HEALTH, SAFETY & SECURITY

Striving to be free of injuries, we continue to build on our commitment to protect the health, safety and security of our guests, employees and all others working on our behalf.

ACROSS OUR CRUISE BRANDS...

We have implemented a series of initiatives to prevent guest and crew injuries. Some examples include:

- Implemented additional programs to support Health, Environmental, Safety and Security culture
**FY 2019 PERFORMANCE**

**CSMART - Safety4Sea Award - Training Services**
Carnival Corporation & plc’s CSMART Training Center received the 2019 SAFETY4SEA EUROPORT Training Award, for the second consecutive year for providing high-quality maritime training services for industry-wide safety, sustainability and operational excellence.

**HESS Event Reporting System**
In 2019, we completed the fleetwide rollout of a new Health, Environment, Safety and Security (HESS) event reporting system. This platform has allowed us to standardize our HESS event reporting and analysis capabilities across the entire fleet.

**Emergency Response Efficiency - Electronic Mustering System**
Electronic mustering systems improve the speed with which we can account for personnel in emergency situations. In 2019, we completed fleetwide implementation of these systems which are designed to deliver a faster, more efficient mustering process and provide accurate, real-time measurement of assembly and evacuation, if ever needed.

**Civil Unrest**
Throughout the world in 2019, as countries experienced outbreaks of civil unrest, we worked closely with industry partners and regional governments. We implemented appropriate security measures which allowed us to navigate through protests with limited impact.

**Security Support Teams**
In 2019, some of our brands created Security Support Teams to augment security staff during priority activities or incidents. The teams serve to deter potential confrontations or physical altercations amongst guests.

**Monitoring**
Management monitors safety performance through a weekly company-wide safety performance dashboard and monthly meetings designed to evaluate trends and assess performance. We actively seek opportunities to learn from our experiences. Additionally, we take part in cross-industry working groups which include shipbuilders and Classification Societies to ensure best practices from throughout each sector are considered for adoption.

**Fire Prevention**
Our entire fleet has been upgraded with the latest engine room fire prevention, detection and suppression technologies.
Audit & Investigations

• Our ships are regulated by various international, national, state and local laws, regulations and treaties enforced in the jurisdictions in which they operate. Compliance with these laws and regulations is verified through regular third-party inspections, surveys and audits.

• Internal Health, Environment, Safety and Security (HESS) compliance audits are conducted annually of each of our brands’ head offices, 100% of our fleet, our ports, hotels and land transport assets. HESS investigations are also carried out as needed to determine the root cause of incidents and identify corrective and preventative actions that will reduce the risk of future occurrences.

In 2019, we made a number of improvements to our investigative function, which included: a) adding additional investigators; b) revising our investigation policies to reduce the tendency to place blame and to emphasize the need to learn from incidents; c) improving investigative training on root cause analysis; d) reducing the backlog of investigations. Additional improvements to the investigation program are planned and on-going throughout 2020.

• To better promote sharing of “lessons learned” throughout the corporation, all incident investigation recommendations, audit observations, findings and non-conformities are periodically reviewed by HESS leaders, reported to the brands and to relevant corporate groups for review and resolution. Additionally, internal focus reviews are performed based on identified root causes from incident investigations, audits, and management risk assessments.

We have also supported the development of an international design and performance standard against which we will require these systems to be certified. The standard has now been finalized and will require a high detection rate with a low false alarm rate (to avoid unnecessary distractions to the Bridge team navigating the ship) under a variety of maritime conditions. We continue to engage with manufacturers as they continue to develop systems intended to meet the standard.

Visible Body Worn Cameras

Most of our onboard security teams now use Body Worn Cameras to record interactions with guests and gather video evidence of developing security situations. The use of cameras is clearly marked on the security officer’s uniform. These cameras have proven useful in capturing interactions between guests and crew members and in preventing confrontations by defusing tense situations.

Dual-View X-Ray Systems

In 2019, we expanded our investment in cutting-edge screening equipment and technology, equipping ports with dual-view X-ray systems. These systems enhanced the passenger experience by improving throughput, thereby helping to expedite security checks.

Man Overboard Detection Systems

We continue to research, test and pilot man overboard detection systems and associated technologies. These systems are intended to support shipboard personnel by identifying an incident involving a person falling or jumping overboard as it occurs.

Port and Destination Vulnerability and Threat Assessments

We regularly conduct port vulnerability and threat assessments to ensure the safety and well-being of our guests and crew. These assessments document a port’s physical security and vulnerabilities along with any threats specific to the location. The assessments dictate the risk-mitigation actions that must be taken by ships calling on the port.
Our COMMITMENT

A core part of our company vision is to deliver safe and memorable vacations for our guests while delivering safe operations fleetwide everyday, and everywhere around the world. We have developed and implemented best-practice safety policies and procedures that go beyond compliance with the International Maritime Organization’s Safety of Life at Sea (SOLAS) requirements. Our occupational health and safety management system is based on and incorporates the principles and practices delineated in OHSAS 18001:2007, the world’s most recognized occupational health and safety management system standard. In fact, several of our brands have obtained voluntary third-party certification in accordance with the OHSAS 18001 standard. We continually update our safety standards and practices by leveraging the expertise across our brand teams to introduce improved training procedures, incorporate new knowledge and learnings, identify and implement best management practices and evaluate new technologies.

Our STRATEGY

Crew
Because our crew work and live on board our ships, we maintain a 24/7 responsibility for their safety. Our Safety Management Systems (SMS), workplace safety committees and focused shipboard and shoreside training programs are in place to ensure the safest possible working environment.

The vast majority of our workforce is represented through formal joint management and worker health and safety committees. During regularly scheduled meetings, shipboard safety committees review and address specific workplace safety topics. These committees play a key role in reducing shipboard accidents through hazard assessments, accident reviews and inspections. These sessions also serve as a forum for promoting safety awareness and for raising, discussing and identifying solutions for shipboard safety issues. Safety representatives in brand shoreside departments communicate and share experiences and best practices throughout their respective fleets and across fleets through cross-brand safety working groups.
**Guests**

We take the safety of our 12 million annual guests very seriously. International, national, flag state administration, and most importantly, our own regulations via our Safety Management System (SMS) require us to provide a safe physical environment on board for our guests and ensure they are informed about what to do in an emergency situation.

Our safety strategy is based on injury and accident prevention through the implementation of related procedures and processes, performance measurement, and continuous improvement activities. Our SMS establishes accountability for safety throughout the organization and incorporates both regulatory and company management safety requirements that go beyond compliance.

Our safety practices comply with or exceed international ship safety standards, employ state-of-the-art technologies in ship design and operations, require rigorous staff safety training and proficiency drills, utilize a variety of guest communication tools, administer ongoing ship audit and inspection programs and ensure all safety equipment is maintained. We examine new technologies that have the potential to positively influence the safety environment of our guests.
Security

Criminal activities are always a potential threat to our business given our global footprint and reach. Therefore, we are focused on maintaining a high-level of security for our guests, crew and assets. We take every possible action to anticipate, prepare and guard against such risks. These efforts start long before any guests board our vessels or any voyage sails.
2020 GOAL & UPDATE

GUEST AND CREWMEMBER HEALTH, SAFETY & SECURITY

Striving to be free of injuries, we continue to build on our commitment to protect the health, safety and security of our guests, employees and all others working on our behalf.

ACTIVE ASSAILANT PROGRAM

Carnival completed the implementation of an Active Assailant Program with the objective of reducing any potential risk while protecting guests and crewmembers from bodily harm on our ships. In 2019, we introduced a fleetwide Active Assailant Procedure requiring annual training and exercises for our staff.
In 2019, we continued to enhance cybersecurity capabilities and data privacy initiatives to protect the fleet, employees and our guests from any threats that could impact operational technology systems and data privacy. We introduced data privacy and cybersecurity training for applicable shipboard staff and shoreside employees. Cybersecurity policies and procedures were introduced into our Global Health, Environment, Safety and Security (HESS) management system. We also have implemented procedures to ensure compliance with applicable data privacy laws in various jurisdictions.

Port and Destination Vulnerability and Threat Assessments
We regularly conduct port vulnerability and threat assessments to ensure the safety and well-being of our guests and crew. These assessments document a port’s physical security and vulnerabilities along with any threats specific to the location. The assessments dictate the risk-mitigation actions that must be taken by ships calling on the port.

Civil Unrest
Throughout the world in 2019, as countries experienced outbreaks of civil unrest, we worked closely with industry partners and regional governments. We implemented appropriate security measures which allowed us to navigate through protests with limited impact.

Security Support Teams
In 2019, some of our brands created Security Support Teams to augment security staff during priority activities or incidents. The teams serve to deter potential confrontations or physical altercations amongst guests.

Insider Threat Program
Carnival Corporation & plc completed the implementation of an Insider Threat Program across all ships. A part of the program includes additional security screening of potential new employees. Since 2018, Carnival Corporation & plc conducted over 40,000 security screenings of new employees and continues to work closely with Law Enforcement Organizations to identify and mitigate possible insider threats.

HESS Event Reporting System
In 2019, we completed the fleetwide rollout of a new Health, Environment, Safety and Security (HESS) event reporting system. This platform has allowed us to standardize our HESS event reporting and analysis capabilities across the entire fleet.
**Active Assailant Program**
Carnival Corporation & plc completed the implementation of an Active Assailant Program with the objective of reducing any potential risk while protecting guests and crew members from bodily harm on our ships. In 2019, we introduced a fleetwide Active Assailant Procedure requiring annual training and exercises for our staff.

**Visible Body Worn Cameras**
Most of our onboard security teams now use Body Worn Cameras to record interactions with guests and gather video evidence of developing security situations. The use of cameras is clearly marked on the security officer’s uniform. These cameras have proven useful in capturing interactions between guests and crew members and in preventing confrontations by defusing tense situations.

**Security Officer Training Program (SOTP)**
Carnival Corporation & plc’s SOTP is based in the Philippines and provides a comprehensive two-week curriculum that prepares our new hire security team members for duty on board any of our ships as a security officer. The curriculum is regularly reviewed and updated by brand security experts so that the training reflects the company’s latest procedures, requirements, and best practices.

**Dual-View X-Ray Systems**
In 2019, we expanded our investment in cutting-edge screening equipment and technology, equipping ports with dual-view X-ray systems. These systems enhanced the passenger experience by improving throughput, thereby helping to expedite security checks.

**Man Overboard Detection Systems**
We continue to research, test, and pilot man overboard detection systems and associated technologies. These systems are intended to support shipboard personnel by identifying an incident involving a person falling or jumping overboard as it occurs. We have also supported the development of an international design and performance standard against which we will require these systems to be certified. The standard has now been finalized and will require a high detection rate with a low false alarm rate (to avoid unnecessary distractions to the Bridge team navigating the ship) under a variety of maritime conditions. We continue to engage with manufacturers as they continue to develop systems intended to meet the standard.
Our COMMITMENT

The security of our guests and crew is of paramount importance. Our ships are subject to the International Ship and Port Facility Security (ISPS) Code, a set of regulations and guidelines created and approved by the International Maritime Organization (IMO). All of our ships and their daily operations meet or exceed the requirements of the ISPS Code. The code defines security standards, requirements, arrangements and procedures for ships, ports, and governments. It also prescribes the responsibilities for governments, shipping companies, shipboard personnel, and port/facility personnel, among others, to develop security plans, detect security threats and take preventative measures against potential security incidents affecting ships or port facilities.

Compliance is verified by inspections and surveys conducted by the Flag State, or by its delegated representative (usually a classification society), and certificates are issued that confirm compliance. Cruise ships are also subject to domestic security in the countries they visit. Our ships meet or exceed the requirements of the U.S. Maritime Transportation Safety Act (MTSA) and domestic regulations in the other countries we visit. We have developed and issued a comprehensive set of security procedures that go beyond regulatory requirements to further ensure the security of our guests, crew and ships.

Our STRATEGY

Our security professionals, most of whom come from a military or law enforcement background, maintain close working relationships with law enforcement, coast guards, naval authorities and governmental agencies around the world. They participate in, and many times lead, government/private sector and industry maritime security working groups. Some of these relationships include the U.S. Department of Defense, U.S. State Department, Federal Bureau of Investigation (FBI), UK Foreign & Commonwealth Office (FCO) and International Criminal Police Organization (INTERPOL). Specifically, our security leaders serve in various roles/capacities on the following organizations: The U.S. Department of State’s Overseas Security Advisory Council’s Maritime Security Working Group, the FBI’s Domestic Security Alliance Council’s (DSAC) Intelligence and Threats Committee and the DSAC’s Leadership Council.

These relationships result in information-sharing arrangements and collaborative efforts that are essential to our proactive security program. Further, our security professionals monitor numerous information and intelligence platforms to detect issues before they impact our passengers, crew, or vessels. Many of the ports that our vessels call on are assessed by our security professionals on a scheduled basis beyond any requirements set forth by applicable laws, rules, or code.

Our security processes are designed to minimize security-related risks while allowing for the smooth but controlled flow of guests, crew, and supplies. Guests and crew will notice a visible security presence while embarking the ship and throughout each cruise. Security personnel maintain strict access control to our ships. We employ a variety of technologies to assist security personnel. These include surveillance technologies such as closed-circuit television and screening technologies such as metal detectors, x-ray machines and explosives detection equipment. We also are constantly assessing and evaluating new technologies for future projects and security enhancements.

Our security processes guard against criminal activity threats. Each ship in our fleet must report alleged criminal activity. Depending on jurisdictional considerations and the severity of alleged offenses, we coordinate investigative efforts with appropriate law enforcement authorities.
SUSTAINABILITY
FROM SHIP TO SHORE
Health

Protecting and maintaining the health of our guests and crew is a priority.
Guest and Crewmember Health, Safety & Security

Striving to be free of injuries, we continue to build on our commitment to protect the health, safety and security of our guests, employees and all others working on our behalf.

Health

- We continued to implement a series of initiatives to prevent guest and crew injuries.
- We continued to enhance our health procedures.
Public Health Training
In 2019, additional interactive food safety training modules were developed and launched on all of our ships. New innovative training videos using a combination of live action and animation have been added to the training library.

Public Health Inspections
All of our ships that call on U.S. ports are subject to unannounced, twice-yearly public health inspections from the Center of Disease Control (CDC) – Vessel Sanitation Program (VSP). In 2019, two of our ships received a perfect score of 100 and one of our ships received a failing score of 77 in July. Immediate corrective actions were implemented and when the ship was inspected again in October it received a score of 99. In 2019, four of our ships received a perfect score from the Public Health Agency of Canada (PHAC).

SeaCare
Enhancements to our fleetwide standard electronic health record (EHR) platform were made and SeaCare now helps support many aspects of our medical operations and services.

Measles
In 2019, a worldwide increase in measles cases was widely reported with significant outbreaks occurring in the United States, Europe and the Pacific regions. We proactively provided our ships with additional procedures and guidance for the prevention and control of measles cases on board including:
- Recommendations for crew and passenger vaccinations.
- Specific health information and advice.
- Measures to ensure identification and management of any possible measles cases and their close contacts.
- Information on country-specific requirements and control measures.
In 2019, no significant health impacts from measles were reported on any of our ships.

Guest & Crew Care Team
Our Care Team continues to provide compassionate care for guests and crew in the event of an emergency while on board. Care Team employees have received specialized training on how to sensitively and appropriately support guests, crew and their families during an emergency. They are available 24 hours a day, seven days a week and respond to a variety of guest and crew emergencies, primarily medical related situations, and are dispatched to locations throughout our cruising regions to provide personalized support and assistance as needed to all of our brands.

Officer Wellness Program
The 2018 executive health assessment pilot program provided by the clinic and medical wellness facility at the Arison Maritime Center (known as CSMART) for Deck and Technical Officers was adopted by all our Operating Lines. This program promotes long-term health improvements among our officers over time.
Maritime Medical Procedure Development

Our entire suite of comprehensive medical procedures was reviewed and improved in 2019. The key enhancements included:

• Providing a more user-friendly procedure structure and formats to help effective use by our medical teams.
• Updating clinical guidance and requirements in line with recognized international healthcare best practices.
• Providing additional and enhanced fleetwide procedures and guidance covering issues such as clinical pathways, the provision of medical assistance ashore, use of X-rays, management of controlled drugs, onboard emergency medical response, and the management of measles cases.

Industry Communication and Best Practice Sharing

As members of the Cruise Lines International Association (CLIA), we regularly discuss health matters and communicate with all member lines to share best practices. In 2019, we participated in several CLIA health programs and initiatives such as:

• Consultation on changes to the ANVISA Brazilian ship sanitation manual.
• The development of European Union Healthy Gateways joint action provisions for grading of ship inspections.
• Proposals to provide a new score grading approach to ship inspections conducted by the U.S. Vessel Sanitation Program.

HESS Event Reporting System

In 2019, we completed the fleetwide rollout of a new health, environment, safety and security (HESS) event reporting system. This platform has allowed us to standardize our HESS event reporting and analysis capabilities across the entire fleet.
Our
COMMITMENT

We have established comprehensive health standards that go beyond regulatory requirements to help protect the health of our guests, crew and port employees. These standards are implemented and enforced by each of our brands on all of our ships and within the port facilities that we own and operate. As part of our commitment, we also lead and participate in health-related cruise industry task forces and working groups.

We have taken a proactive role in addressing the quality of shipboard medical care. All of our medical personnel are expected to meet the qualification standards outlined in our medical and public health procedures. Our onboard facilities are designed to be able to provide emergency medical care for guests and crew, stabilize patients and initiate reasonable diagnostic and therapeutic intervention and facilitate the evacuation of seriously ill or injured patients when deemed necessary.

Our
STRATEGY

Our public health programs have been developed from worldwide health and sanitation regulations, best practices and ship operating experience. Our programs are audited both internally by public health specialists and externally by officers from health authorities worldwide. We coordinate internal cross-brand and external cross-company Medical and Public Health Working Groups, which help to drive our ongoing health strategies and focus on continuous improvement. Through these forums, we are able to leverage the extensive health expertise and experience that exists both within our individual brands and across the cruise industry. In the U.S., we collaborate with the Centers for Disease Control and Prevention (CDC), an agency of the U.S. Department of Health and Human Services, which oversees health and sanitary conditions on all passenger vessels visiting U.S. ports. The CDC provides guidelines, reviews plans and conducts unannounced ship inspections. We continue to work with the CDC throughout a ship’s life to maintain safe standards through regular inspections, crew training, and guest education.

One of our priorities remains promoting the prevention of gastrointestinal illness on board our ships and the port facilities we own and operate. Our fleetwide Outbreak Prevention and Response Plan guides our actions to prevent and respond to outbreaks of illness on board our ships. The strategy detailed in the plan addresses health screening and surveillance measures, the communication and provision of health advice, isolation of ill guests and crew, medical treatment, reporting to health authorities and the use of proven sanitation and infection control measures.

Additionally, we collect relevant data on all cases of gastrointestinal illness and report this information to international health agencies. This information helps with identification of types of infection, potential sources, and the likely methods of transmission, thereby allowing us to implement even more effective risk mitigation strategies.
SUSTAINABILITY
FROM SHIP TO SHORE
Environmental Management

Across our nine brands, we host 12.9 million guests a year and visit over 700 ports of call around the world. The health and vitality of the oceans, seas, and communities through which we travel is absolutely essential to our business. That makes protecting the environment and biodiversity one of our most critical areas of focus. Our employees not only take great pride in making sure our guests’ vacation exceeds their expectations, but are also deeply committed to protecting the oceans and seas.
2020 GOAL & UPDATE

CARBON FOOTPRINT  🌍 ACHIEVED IN 2017

2020 Goal: Reduce the intensity of CO₂e (carbon dioxide equivalent) emissions from our operations by 25% by 2020 relative to our 2005 baseline, measured in grams of CO₂e per ALB-km.

2030 Goal: Reduce the intensity of CO₂e (carbon dioxide equivalent) emissions from our operations by 40% by 2030 relative to our 2008 baseline, measured in grams of CO₂e per ALB-km.

Reducing Emissions: We achieved our 2020 goal in 2017 and made more progress by:
- A 29.1% reduction relative to our 2005 baseline.
- A 24.8% reduction relative to 2008 baseline, in line with our 2030 goal.
- Delivering the second cruise ship in the world to be powered by liquefied natural gas (LNG) both at sea and in port.
- Becoming the first cruise company to join the Getting to Zero Coalition.
- Investing in fuel-cell technology.
- Investing in battery technology.

AWWTS TECHNOLOGY 🌿 ACHIEVED IN 2019

Increased Advanced Waste Water Treatment System (AWWTS) coverage of our fleetwide capacity by 10 percentage points by 2020 relative to our 2014 baseline.
- Reached our goal by achieving a 10.3 percentage points in our AWWTS coverage of fleetwide capacity relative to our 2014 baseline.
WATER EFFICIENCY

Achieved in 2019

Improve water use efficiency of our shipboard operations by 5% by 2020 relative to our 2010 baseline, as measured by liters per person per day.

• Surpassed our goal by achieving an 8.7% reduction relative to our 2010 baseline.
• Further improved our water efficiency by supplying 82% of our water needs from the ocean and purchasing only 18% at designated ports.

WASTE REDUCTION

Achieved in 2019

Continue to reduce waste generated by our shipboard operations by 5% by 2020 relative to our 2016 baseline, as measured by kilograms of non-recycled waste per person per day.

• Reached our goal by achieving a 5.6% reduction in our waste rate relative to our 2016 baseline.
• Committed to a new food waste reduction goal of 10% across our entire fleet by the end of 2021.
• Committed to a new goal to reduce all non-essential single-use items, including plastics, on board our ships by 50% by the end of 2021.
• Completed Phase I of the single-use items and plastics program by eliminating or replacing straws, cups, lids, stir sticks, cocktail picks, toothpicks, butter foils, and plastic shopping bags with sustainable alternatives.
• Installed additional food waste digesters throughout the fleet.

ADVANCED AIR QUALITY SYSTEMS (AAQS)

On Track

Continue to improve the quality of our emissions into the air by installing Advanced Air Quality Systems across the fleet. These systems significantly reduce sulfur compounds and particulate matter, including black carbon, from our ship’s engine exhaust.

• 77% of our fleet is equipped with Advanced Air Quality Systems.
• Developed a public website dedicated to Advanced Air Quality Systems.
• 236 engines equipped with Advanced Air Quality Systems.
**Newsweek (Most Responsible Companies – Environmental, Social and Governance)**

Carnival Corporation & plc has been recognized in Newsweek’s first ranking of America’s Most Responsible Companies 2020. Companies were evaluated based on their environmental, social, and corporate governance performance. A total of 2000 American public companies were evaluated and the top 300 are included on the list. We are honored to be listed as the highest-ranking company in the cruise sector. [The list of companies can be viewed here.](#)

**Neptune Award (Greenest Shipowner)**

Carnival Corporation & plc has been honored by maritime industry peers with the Greenest Shipowner of the Year Neptune Award, which recognizes a company that has shown excellence in reducing environmental impact in the operation of its fleet in the past year. Winners were chosen by executives from ship owners, ports, and marine technology companies who gathered to share best practices and cutting-edge technologies to enable continued reductions in the environmental impacts of shipping. [Click here for more information.](#)

**Germany’s Blue Angel Eco-Label Award (Environmentally Friendly Ship Design)**

Carnival’s AIDA Cruises has been awarded the “Blue Angel,” Germany’s Federal Government eco-label, for AIDAnova’s environmentally-friendly ship design. Through the use of liquefied natural gas (LNG), the ship emissions of particulate matter and sulfur oxides are almost completely eliminated; nitrogen oxide and CO₂ emissions are sustainably reduced. In September 2019, the “Blue Angel” logo was painted onto AIDAnova’s side at the Port of Marseille. [Click here for more information.](#)
Carnival’s Pathway to Decarbonization
Addressing climate change is one of our top priorities and we are committed to continue to lead the path within the cruise industry. Our entire management team, including our Boards of Directors, is committed to addressing climate change. Our path to decarbonization involves multimillion dollar investments and a multi-faceted strategy. Key components of this strategy include adopting international frameworks and working with industry regulatory bodies to: address upcoming regulatory requirements and conditions, maximize efficiency opportunities/gains, implement low carbon fuels, invest in carbon-efficient technologies, support and accelerate industry-specific research & development projects, establish internal goals supporting the path as well as partner with other companies, NGOs, and relevant stakeholders. In the coming years, we are likely to see an array of emerging technological innovations as currently there is not a single (nor a combination of technologies) that can move the maritime industry straight into a decarbonization path. As we navigate this journey, we are committed to evaluate options, work with various stakeholders, and adjust our path as needed. Please see page 109-117 for further details.

Carnival Corporation Environmental Excellence Awards
We continue to honor excellence in environmental performance throughout our fleet. The Carnival Corporation & plc environmental excellence award honors the accomplishments of the ship’s management and crew that best represents our commitment to protecting and preserving the environment. Their example promotes continuous improvement throughout our fleet. Every year one ship from each cruise brand is selected and from those nine total ships, one is recognized as the best in environmental excellence. For FY2019 performance, Carnival Cruise Line’s ship Carnival Horizon was the recipient of the Environmental Excellence Award.

The individual best in brand Environmental Excellence Award winners are:
- AIDA Cruises: AIDAVita
- Carnival Cruise Line: Carnival Vista
- Costa Cruises: Costa Fascinosa / Costa Asia: Costa Serena
- Cunard: Queen Victoria
- Holland America Line: Koningsdam
- P&O Australia: Pacific Dawn
- P&O Cruises: Ventura
- Princess Cruises: Ruby Princess
- Seabourn: Seabourn Sojourn
Audit & Investigation

- Our ships are regulated by various international, national, state and local laws, regulations and treaties enforced in the jurisdictions in which they operate. Compliance with these laws and regulations is verified through regular third-party inspections, surveys and audits.
- Internal Health, Environment, Safety and Security (HESS) compliance audits are conducted annually of each of our brands’ head offices, 100% of our fleet, our ports, hotels and land transport assets. HESS investigations are also carried out as needed to determine the root cause of incidents and identify corrective and preventative actions that will reduce the risk of future occurrences. In 2019, we made a number of improvements to our investigative function, which included: a) adding additional investigators; b) revising our investigation policies to reduce the tendency to place blame and to emphasize the need to learn from incidents; c) improving investigative training on root cause analysis; d) reducing the backlog of investigations. Additional improvements to the investigation program are planned and ongoing throughout 2020.
- To better promote sharing of “lessons learned” throughout the corporation, all incident investigation recommendations, audit observations, findings and non-conformities are periodically reviewed by HESS leaders, reported to the brands and to relevant corporate groups for review and resolution. Additionally, internal focus reviews are performed based on identified root causes from incident investigations, audits, and management risk assessments.

Partnership - Getting to Zero Coalition

The Getting to Zero Coalition is an alliance of organizations across the maritime, energy, infrastructure, and finance sectors committed to accelerating the decarbonization of the international shipping industry. Carnival Corporation & plc is the first cruise company to join this global alliance.

The coalition’s goal aligns with the International Maritime Organization’s (IMO) strategy to reduce greenhouse gas emissions from shipping by at least 50% by 2050 as compared to 2008 emissions. To meet the target, the Getting to Zero Coalition aspires to having technically feasible, commercially viable zero-emission deep-sea vessels (ZEVs) entering the global shipping fleet as early as 2030. The alliance’s goal also includes scalable infrastructure for zero-carbon energy sources, including production, distribution, storage, and bunkering.

Supported by key governments and intergovernmental organizations, the coalition represents a leading group of over 80 companies, including global stakeholders from a variety of shipping-related industries such as fuel suppliers, engine manufacturers, marine classification societies, shipping companies, major ports, and more.
Partnership - Jean-Michel Cousteau - Ocean Futures Society
Carnival Corporation & plc partnered with renowned ocean explorer and life-long environmental advocate Jean-Michel Cousteau and his Ocean Futures Society, a nonprofit marine conservation and education organization that serves as a “Voice for the Ocean” on the importance of effective environmental and sustainability policy. Cousteau is providing valuable external expertise on environmental initiatives as we continue our commitment to sustainability and our oceans.

Partnership - Ocean Plastics Leadership Network
We have become members of the Ocean Plastics Leadership Network, a new global community of retailers, brands, and non-governmental organizations committed to sharing best practices, new business models, to develop new approaches, innovations and solutions-based projects to address the impacts of plastic waste on the marine environment.

Carnival Cruise Line’s Partnerships with Clean the World and Soap Aid
Our Carnival Cruise Line brand partnered with Clean the World and Soap Aid, both organizations recycle hotel soap and hotel amenities. Discarded soap from Carnival’s guest and crew staterooms are gathered throughout the fleet and sent to a Clean the World or Soap Aid recycling center where the soap is sanitized, melted down, and reprocessed. Together, Carnival Cruise Line and their soap recycling partners will distribute more than 400,000 recycled, clean bars of soap to people in need across the globe each year. Through its partnership with Carnival Cruise Line, Clean the World was able to expand its existing recycling program to locations throughout the Bahamas, Puerto Rico, Mexico, Bermuda, and Central America providing life-saving hygiene services to residents in these areas.

Food Waste Reduction
In 2019, Carnival Corporation & plc committed to a new food waste reduction goal across our entire fleet of 10% by the end of 2021. As part of this initiative, a new baseline was established and we are working on solutions that involve the development of new and the revision of existing food waste management systems and practices on board our ships.

Food Waste Biodigesters
In 2019, we continued to evaluate technologies and operational changes to minimize the volume of food waste generated and installed additional biodigesters throughout the fleet. Biodigesters use an aerobic digestion process that takes place within the machines and efficiently breaks down food waste. This green technology also supports and enhances operations on board, making it more efficient for crew members to manage and control food waste. We are excited about this technology and are planning to expand the use of these systems across our fleet as part of our commitment to environmental excellence.
Costa Cruises and AIDA - Sahara Forest Project
Costa Cruises Foundation – Costa Crociere joined forces with the Norwegian nonprofit Sahara Forest Project Foundation to enlarge the scope to revegetate the desert in Jordan with sustainable technologies and to promote social and environmental improvement within the region. Currently, the Sahara Forest Project operates three hectares of commercial facility, located 12 kilometers north of the port of Aqaba. The project focuses on combining saltwater-cooled greenhouses, solar energy panels, and different techniques for outdoor revegetation in dry areas. An important part of the agreement is represented by the involvement of Costa Cruises and AIDA Cruises guests: guests cruising on Costa and AIDA ships calling at Aqaba will have the unique chance to taste, for the very first time in the world, at least ten different environmentally-friendly vegetables produced by using solar power and saltwater in the Jordan desert, through special recipes created by the Executive Chefs of the two cruise companies to emphasize their taste and quality.

CDP Disclosure
We have reported our carbon emissions in the CDP (formerly known as the Carbon Disclosure Project) since 2007. In 2019, we submitted our disclosures and received a management score level (B-) for both carbon and water scarcity.

Arison Maritime Center - CSMART
Carnival Corporation & plc partnered with University of West Florida, Innovation Institute to launch a new Environmental Excellence course designed to foster a culture of learning, ownership and greater understanding of environmental compliance. The course uses the Innovation Institute’s challenge-based learning concepts to provide interactive instruction and continuous professional development for environmental officers across the Carnival Corporation & plc fleet.

HESS
HESS Event Reporting
In 2019, we completed the fleetwide rollout of a new health, environment, safety and security (HESS) event reporting system. This platform has allowed us to standardize our HESS event reporting and analysis capabilities across the entire fleet.

Animal Welfare
Tour Operators
- Completed 100% of animal welfare audits for tour encounters offering dog sledding in Alaska.
- Completed more than 50% of animal welfare audits for tour encounters with dolphins in captivity between FY2018 and FY2019.

Water Use Efficiency
We are committed to finding innovative ways to improve our water use efficiency and in 2019 we:
- Improved our water use rate to 57.1 gallons per person per day vs. the U.S. national average of 90 gallons per person per day. This represents a 0.6 gallon per person reduction achieved from our FY2018 performance.
- We produce approximately 82% of the water we use on board our ships from sea water.
- We purchased approximately 18% of our water from the ports or the water suppliers in the ports we visit.
Operation Oceans Alive - FY2019 Update

In 2018, we launched Operation Oceans Alive, a new environmental stewardship program. Operation Oceans Alive is a call to action for all employees to care about and protect our oceans, seas, and waterways from environmental harm - ensuring their ecosystems, plant life, and aquatic animals thrive both now and in the future. In its second year (2019), Operation Oceans Alive continued to grow through new programs and procedural changes, commitments, educational and training channels, and, perhaps most importantly, through individual choices and actions. The following is a list of accomplishments in 2019:

- Committed to a new food waste reduction goal of 10% across our entire fleet by the end of 2021.
- Committed to a new goal to reduce all non-essential single-use items, including plastics, on board our ships by 50% by the end of 2021.
- Completed Phase I of the single-use items and plastics program by eliminating or replacing straws, cups, lids, stir sticks, cocktail picks, toothpicks, butter foils, and plastic shopping bags with sustainable alternatives.
- Installed additional food waste digesters through the fleet.

Removing Single-Use Items, Including Plastics

Following the global movement to reduce single-use item consumption we are eliminating all non-essential single-use items, including plastics, on board our ships by the end of 2021. Our journey started in 2018 and we have already made great progress since. In 2019, we further supported this commitment with the implementation of our Single-Use Item Policy. We also established a single-use item task force to coordinate the reduction and elimination process of these items.
We are committed to protecting and preserving the beauty and majesty of the oceans, seas, and land environments that we visit. We are also committed to continuously improving our operations and heightening our environmental focus. We actively participate in the process of determining our company and industry’s role in addressing climate change and understanding our impact areas. We focus on four main environmental pillars:

- Energy & Emissions
- Waste Management
- Water Management
- Biodiversity

We continue to lead the decarbonization path within the cruise industry. This involves closely monitoring our energy & emissions profile. Our shipboard fuel consumption contributes to 97.3% of our direct carbon emissions (Scope 1) and is therefore the most significant contributor to our carbon footprint. Please see page 118 for further details. Responsible waste management is also an essential component of our environmental program. To better manage our waste, we are working towards adopting the principles of a circular economy. Waste generated by our operations and activities of our guests and crew mirrors the waste generated by hotels and resort complexes worldwide. We are committed to minimize waste generated by our operations and activities. Our shipboard waste is disposed of in strict accordance with our environmental procedures that are designed to meet and exceed internal, international, regional, and local environmental regulatory requirements as well as industry standards. A challenge that limits the volume of recycling materials is the lack of recycling infrastructure available at certain ports we visit worldwide. Our approach is to hold recycling materials on board, where possible, until a port that offers recycling services is reached within the itinerary. To minimize our impact on watersheds and biodiversity, we work diligently to protect marine life and closely collaborate with our supply chain and shore excursion providers to ensure ethical and environmentally-safe practices. We produce approximately 82% of the water we use on board our ships from sea water, while the remaining 18% is purchased from the water suppliers in the ports we visit. In ports or regions experiencing water scarcity or restrictions, our water sourcing patterns are modified in order to only bunker water from ports where water is abundant, of high-quality and is cost-efficient to purchase. Our ships’ holding capacities and equipment, allows us to adapt our water sourcing patterns in times of water scarcity. Sustainable tourism is also an important component of environmental management and we recognize our responsibility. To protect ecosystems, and to contribute to improved biodiversity of the communities we visit, we partner with environmental protection and conservation organizations in order to support programs and initiatives related to our operations. We actively engage our guests in supporting our sustainability initiatives by raising awareness for the importance of saving natural resources. This includes guest-facing communications that encourages water conservation and waste segregation/recycling. To keep things fun and engaging, we invite our guests to join us in celebrating environmental holidays and to support our efforts to raise awareness for the importance of environmental protection.
Our environmental management strategy is based on the values and objectives set forth in our Health, Environment, Safety and Security Strategy (HESS) Policy and our 2020 and beyond sustainability goals. As part of our 2020 sustainability strategy and as we finalize our 2030 sustainability goals, we have aligned our strategy with the United Nations (UN) Global Sustainable Development Agenda. The agenda follows recognized frameworks such as the UN Guiding Principles on Business and Human Rights, the UN Sustainable Development Goals (SDGs) and the Paris Agreement on climate change. Our pathway towards decarbonization involves multimillion dollar investments and a multi-faceted strategy. We carefully manage environmental activities and address environmental stewardship at every level of our organization. Our strategy encompasses multiple elements, including addressing climate change, investing in port communities, complying with a changing regulatory landscape, evaluating new technologies, addressing stakeholder needs, and expanding partnerships – all of which are designed to protect the environment while supporting our objective to exceed expectations. Our entire management team, including our Boards of Directors, is committed to addressing climate change.

We evaluate environmental risks, develop standards and procedures, and put high emphasis on our associated environmental leadership and performance. We have consolidated our brand’s best environmental practices and procedures into a single corporate-wide HESS management system to ensure a consistent approach across all our brands.

Our management teams identify and manage environmental aspects and impacts, supervise the environmental performance of our ships, and ensure compliance with environmental statutory requirements including best management practices and company environmental procedures. Most importantly, our dedicated ships’ officers and crew carry out our policies and procedures on board daily.

To further support our environmental strategies, our Environmental Management System (EMS) is certified in accordance with the ISO 14001:2015 Environmental Management System standard. An independent, third-party organization audits and certifies our EMS in accordance with ISO 14001. We have also developed a greenhouse gas inventory management plan (GHG IMP) in accordance with the requirements of the ISO 14064-1:2006 and The Greenhouse Gas Protocol, which enables our third-party GHG verifier to certify our GHG emissions inventory to that standard. Each ship in our fleet has a full-time Environmental Officer (EO), who oversees environmental compliance and implementation of environmental procedures (for more details see the EO section in the Appendix).

In addition, Operation Oceans Alive forms a central element of our environmental management strategy. The environmental stewardship program was launched in 2018, and is a call to action for all employees to care about and to protect our oceans, seas, and waterways from environmental harm – ensuring their ecosystems, plant life, and aquatic animals thrive both now and in the future. Further information can be found on page 84.

We are also actively involved in research and development projects for our existing ships and for new ships under development. We have dedicated departments that evaluate technologies and new systems for installation throughout our fleet. These departments evaluate technical, regulatory, safety, environmental, and operational aspects associated with maritime environmental systems/technologies. Among the challenges typically encountered when adapting shore-based technologies to maritime
use are adjustments for space, weight and access limitations, material standards, operating environment, and regulatory approvals. All of these factors increase the complexity of projects to improve environmental technologies in the maritime domain. In order to efficiently evaluate these opportunities, ships within the fleet are regularly selected to test systems and technologies while also running pilot programs, where applicable.

We pioneered the use of Liquefied Natural Gas (LNG), the marine industry’s most advanced fuel technology, and are expanding our LNG investment as part of our decarbonization pathway. We began the implementation of our LNG vision by using LNG while in port in Hamburg, Germany 2015. Since then, we have expanded our LNG capabilities. In 2018, we made history with the launch of AIDAnova, the first cruise ship in the world powered 100% by LNG both at sea and in port. In 2019, we launched the second LNG cruise ship in our fleet, and in the world, Costa Smeralda. We are leading the cruise industry’s use of LNG to power cruise ships; we have nine additional sister vessels due for delivery between 2020 and 2025.

We recognize that successful, long-term environmental change requires significant collective action and as such we collaborate closely with our suppliers and industry peers within the travel and tourism industry to address environmental challenges and opportunities. This includes close partnerships with a variety of environmentally-focused organizations, local communities, and our shore excursion providers as well as close collaboration with industry associations such as The World Tourism Council (WTC) and The International Maritime Organization (IMO). Even though the goals of these partnerships vary depending on the type of organization, the input from these partners enable us to develop strategies around key environmental areas, including climate action, destination stewardship, sustainable waste and water management as well as biodiversity. Learn more about our partnerships on page 176-179.
In 2018, we launched Operation Oceans Alive, a new environmental stewardship program. Operation Oceans Alive began as an internal effort and call to action to further ensure all employees continue the companywide commitment to protecting our oceans, seas, and waterways from environmental harm – ensuring their ecosystems, plant life, and aquatic animals thrive both now and in the future.

Now in its second year, Operation Oceans Alive continued to expand through new programs and procedural changes, commitments, educational and training channels, and, perhaps most importantly, through individual choices and actions. Below we list some of the initiatives we accomplished in 2019.

**REDUCING SINGLE-USE ITEMS**

Our efforts to drastically reduce single-use items are a key part of the program. We are strongly committed to significantly reducing non-essential single-use items, including plastics, on board our ships by the end of 2021. The objective to reduce the purchase and consumption of single-use items as part of our overall commitment to reducing our environmental impact is also manifested in our Single-Use Item Policy, which went into effect in 2019. The policy eliminates the procurement of prohibited single-use items. In parallel, we established a single-use item cross-brand task force.

The phase-out and reduction process is clustered into two phases and aligns with the Single-Use Item Policy. The first phase was completed by the end of FY2019 and single-use items such as straws, cups, lids, stir sticks, cocktail picks, toothpicks, butter foils, and plastic shopping bags have since been eliminated or replaced with sustainable alternatives wherever possible.

While it is easier to phase out and/or replace some items, it is more challenging for others. As part of the company’s stringent Health, Environment, Safety and Security (HESS) policy and to comply with national and international regulations governing cruise ship operations, there are some single-use plastic items that cannot be completely eliminated, including plastic trash can liners in common areas, medical equipment and sanitary gloves, among others. As such, we are focusing on reducing single-use items that are not used for sanitary or health-related purposes.

**REDUCING FOOD WASTE**

Within the scope of Operation Oceans Alive, we are aiming to reduce the total weight of food waste across our entire fleet by 10% by the end of 2021, with some of our brands setting themselves even more ambitious reduction targets. A first step involved obtaining a standardized list of food loss...
We are committed to a food waste reduction goal of 10% across the entire fleet by the end of 2021.

on board. As a result, FY2019 was established as a baseline to measure the weight of all food waste generated on board our ships. To fulfill and eventually surpass this commitment, we are working on solutions that involve the development of new and the revision of existing food waste management systems and practices on board of our ships.

To increase awareness on the issue of food waste and to highlight that reducing food waste can be fun, in 2019 we initiated the ‘Food Waste Shuffle’ music video challenge. The video challenge provided a great opportunity to engage and educate in a creative way on the importance of food waste reduction and separation. The engagement level was high and we received a total of 76 original video submissions from our ships and offices all around the world.

BIO-DIGESTERS
In 2019, we continued to evaluate technologies and operations to minimize the volume of food waste generated on board our ships by installing additional bio-digesters throughout the fleet. Through an anaerobic digestion process that takes place within the machines, food waste is efficiently broken down. This green technology provides a number of benefits, and supports and enhances operations on board, making it more efficient for crew members to manage and control food waste. Moving forward, we are excited to expand the use of bio-digesters across our fleet in 2020 as part of our commitment to environmental excellence.

BUILDING PARTNERSHIPS
In 2019, we announced a partnership with the University of West Florida (UWF) to enhance our fleetwide environmental officer training program with the launch of an innovative and interactive new Environmental Excellence course. The weeklong course consists of a virtual 23-day voyage aboard the MV Oceans Alive as the “ship” departs on a repositioning cruise from Dubai, United Arab Emirates to Venice, Italy, followed by a 7-day voyage in the Adriatic and Ionian Seas. Participants of varying experience levels work together in small cross-brand teams to enhance communication, collaboration, and leadership skills by investigating real-world challenges, researching rules and regulations, and conducting shared-learning discussions throughout the continuing storyline.

CELEBRATING ENVIRONMENTAL HOLIDAYS
We have been celebrating environmental holidays across our fleet to continue promoting environmental awareness and to remind ourselves that every single one of us can make a positive impact in protecting the environment.

In 2019, we adopted the following globally recognized environmental holidays to our celebration activities: Global Recycling Day, Earth Day and World Oceans Day.

Many of the brands celebrated additional environmental holidays on their own.
GLOBAL RECYCLING DAY

Celebrating Global Recycling Day reminded us of the importance of preserving primary resources and protecting and preserving the planet through recycling. At Carnival Corporation & plc, we focus on recycling by gradually increasing the & plc type of recyclable materials we collect.

In addition to celebrating Global Recycling Day, we took the opportunity to rename our “Garbage rooms,” to “Recycling Centers.” This places a greater emphasis on recycling and serves as a reminder to everyone to divert waste from landfills in the first place and recycle as much as possible. In addition, educational activities were celebrated on board the ships as well as ashore.

Our Seabourn brand held competitions on their ships. Seabourn Encore created ship models out of recycled materials, Seabourn Sojourn provided a fun environmental quiz, and Seabourn Ovation held a recycling fashion show with items found on board.

EARTH DAY

Earth Day is an opportunity to celebrate the Earth and remind us to protect and preserve the precious ecosystems in which we live. Across the fleet, ships celebrated this day with special programming for guests and crew that included: Environmental Officer (EO) talks, awareness messaging, and themed activities in kids clubs, among other activities.
WORLD OCEANS DAY
The waters on which we sail are our home – and our future. To honor these waters, we celebrated World Oceans Day with a variety of activities for guests and team members. On board our Holland America Line fleet, the crew participated in festivities such as baking eye-catching cakes, conducting training on food waste, and offering unique kids club activities. Holland America Line and Carnival Cruise Line ships organized beach clean-ups to help make a positive impact on local communities.

RECOGNITIONS
We celebrate and recognize our employees on board and ashore for their hard work and commitment to being stewards of the environment. We have done so through the following recognition and award programs:

Environmental Excellence Award
We continue to honor excellence in environmental performance throughout our fleet. The Carnival Corporation & plc environmental excellence award honors the accomplishments of the ship’s management and crew that best represents our commitment to protecting and preserving the environment. Their example promotes continuous improvement throughout our fleet. Every year one ship from each cruise brand is selected and from those nine total ships, one is recognized as the best in environmental excellence. For FY2019 performance, Carnival Cruise Line’s ship Carnival Horizon was the recipient of the Environmental Excellence Award.

The individual best in brand Environmental Excellence Award winners are:
- AIDA Cruises: AIDAVita
- Carnival Cruise Line: Carnival Vista
- Costa Cruises: Costa Fascinosa / Costa Asia: Costa Serena
- Cunard: Queen Victoria
- Holland America Line: Koningsdam
- P&O Australia: Pacific Dawn
- P&O Cruises: Ventura
- Princess Cruises: Ruby Princess
- Seabourn: Seabourn Sojourn

Environmental Excellence Coin
As part of our environmental recognition program, we award Environmental Excellence coins to personnel who have gone above and beyond in their commitment to environmental stewardship. In November 2019, the Recycling Center team of our Holland America Line ship Koningsdam was awarded the Environmental Excellence coin for their hard work and commitment to environmental excellence.
While plastics are, in many areas, fundamental to everyday life, they are unique examples of a “throw-away society” in which consumer goods are only used for a very short period of time – and in many cases, only once. This is in sharp contrast to a circular economy that is restorative and regenerative by design and where materials constantly flow around a ‘closed loop’ system, rather than being used once and then discarded. As a company, we are doing our share to contribute to a more circular economy where single-use items are drastically minimized and plastic does not become waste in the first place.

PHASING OUT SINGLE-USE ITEMS & PLASTICS

Supporting the global movement to reduce single-use consumption, in 2018 we started an initiative to evaluate our collective use of single-use items. We purposefully made the decision to focus not only on the usage of single-use petroleum-based plastics, but to also take a more holistic approach and tackle the issue of single-use items as a whole.

Our ongoing efforts to significantly reduce non-essential single-use items are a key part of our environmental compliance and stewardship program, Operation Oceans Alive. Launched in 2018 and now in its second year, Operation Oceans Alive continues to grow through procedural changes, educational and training channels, and perhaps most importantly, through our individual choices and actions. We are strongly committed to significantly reducing the purchase and consumption of non-essential single-use items, including plastics, on board our ships by 50% by the end of 2021. As part of our overall commitment to reducing our environmental impact, the objective to reduce the purchase and consumption of single-use items is also manifested in our Single-Use Item Policy, which went into effect in 2019. The policy prohibits the procurement of certain single-use items that are difficult to recycle or separate from food waste. In parallel, we established a single-use item cross-brand task force.

The task force consists of procurement and sustainability/environmental representatives from Carnival Corporation & plc and all nine of the company’s brands. Together, the task force coordinates the reduction and elimination of single-use items and shares best practices such as identifying and sourcing environmentally friendly alternatives, using bulk and reusable containers, and more. We are also working closely with specific suppliers within our supply chain, sharing knowledge and ideas to identify new and innovative environmentally friendly materials wherever possible.
CLOSING THE LOOP

The phase-out and reduction plan has two phases and aligns with our Single-Use Item Policy. The first phase was completed by the end of 2019 with the sourcing of approximately 80 million plastic items reduced, including straws, cups, lids, stir sticks, cocktail picks, toothpicks, and plastic shopping bags, which have since been eliminated or replaced with sustainable alternatives such as plant-based products or reusable options. Additionally, 95+ million other single-use items, such as paper serving packets and butter foils, were reduced or eliminated. In 2018, we started replacing plastic straws and cups on board our ships with non-plastic or biodegradable alternatives. Some of our brands have taken the commitment further by only providing non-plastic straws upon request. The second phase for 2020 is underway and includes the elimination or reduction of single-use items such as individual servings of select packaged food items, toiletry items, and chopsticks, among others. Additionally, we have started to explore alternatives to single-use plastic water bottles. On many of our ships we are already using glass water bottles or providing refillable options in the onboard restaurants. When we use plastic water bottles, they are incorporated into our plastic recycling program and landed wherever possible for recycling ashore. In line with the overall commitment, the completion date for the second phase of single-use item reduction targets is scheduled for the end of 2021.

Sustainable product alternatives include options that provide environmental, social and economic benefits while protecting public health and the environment over their life cycle. While it is easier to phase out and/or replace some items, it is more challenging for others. As part of the company’s stringent Health, Environment, Safety and Security (HESS) Policy and to comply with national and international regulations governing cruise ship operations, there are some single-use plastic items that cannot be completely eliminated, including plastic trash can liners in common areas, medical equipment and sanitary gloves, among others. As such, we are focusing on reducing single-use items that are not used for sanitary or health-related purposes.

ADDRESSING THE CHALLENGES

While celebrating our successes in reducing single-use plastics, we continue to openly discuss the challenges we face in finding suitable alternative materials that can truly be considered more environmentally friendly. For example, an item labeled as biodegradable must meet certain standards where the product should break down relatively quickly rather than taking years, while at the same time, it must not leave any harmful residuals behind. The biggest issue we have found is the absence of a standard definition for the term biodegradable itself. With such varying standards and criteria, many products take an unsuitable length of time to break down and only do so at ideal conditions that are crucial to encouraging the process of biodegradability in the first place. We will continue to work with our supply chain to find suitable alternatives wherever possible.
Responsible Consumption, Reducing Overconsumption and Reducing Waste

Food loss and waste is a global problem that has a serious impact on food security and goes hand-in-hand with immense ethical, environmental, and financial costs. Food is lost or wasted throughout the entire supply chain – at the production stage through poor farming practices, at the retail stage through inadequate transportation and storage, and at the consumer level when more food is purchased than consumed. Overall, food that is never consumed represents a waste of precious resources, such as land, water and energy, as well as other inputs used in its production.

We acknowledge food waste as a key global issue and recognize that everyone has a part to play in reducing food loss and waste. The United Nations Agenda 2030 identifies 17 Sustainable Development Goals (SDGs), one of which, Goal 12, focuses on Responsible Consumption. According to the Food and Agricultural Organization of the United Nations, approximately one-third of food produced in the world annually – approximately 1.3 billion metric tonnes – is lost or wasted.

In 2019, we committed to a food waste reduction goal of 10% across our entire fleet by the end of 2021, with some of our brands setting themselves even more ambitious reduction targets. To achieve our commitment, we are working on solutions that involve the revision of existing, and development of new, food waste management systems and practices on board our ships.

We are committed to a food waste reduction goal of 10% across the entire fleet by the end of 2021.

1.3 Billion Tonnes of Food Production are Wasted Every Year Globally
That’s One-Third of the World’s Food Production.

Worldwide More Than 820 Million People Do Not Have Enough Food to Eat

The Value of Food

As per the Food and Agricultural Organization of the United Nations.
TACKLING FOOD WASTE ON BOARD OUR SHIPS

In 2019, as part of our environmental compliance and stewardship program, Operation Oceans Alive, we established a Food Waste Task Force. The goal of the task force is to improve food waste management across the global fleet. Its team members have a diverse expertise in hotel food and beverage operations, environmental compliance, technological operations and galley design. Third party consultants were brought in to support the task force with diverse technical expertise regarding food waste processing systems and galley design. In 2019, members of the task force visited several ships across all brands to evaluate food waste management and technical equipment. Based on their observations, the task force provided a detailed recommendation and implementation plan to improve food waste management across the fleet. Recommendations were related to the food waste separation process, simplification/streamlining of procedures, signage and training, as well as a review of technical aspects and equipment, and the adequacy of manning for food waste management responsibilities. The task force also identified many potential best practices that are already in place on board the ships and can function as a blueprint to improve food waste management efficiency across the global fleet.

We are working toward adopting the principles of a circular economy to prevent unnecessary food waste. The circular economy is an economic model that aims to avoid waste and to preserve the value of resources (raw materials, energy and water) for as long as possible. Products and materials are continuously recirculated, as opposed to a linear model in which they are discarded as waste after use.

Considering the unique environment of a cruise ship, in its simplest form, the concept of a circular economy can be applied to food as follows:

- **Linear**
  - Take. Make. Dispose.

- **Circular**
  - Sustainable materials.
  - Smart design.
  - Close the loop.

**RESPONSIBLE PROCUREMENT**
Re-think Procurement Practices

**WASTE MANAGEMENT**
Investment in treatment systems such as bio-digesters to process waste on board and reduce volume disposed.

**RESPONSIBLE FOOD MANAGEMENT & CONSUMPTION**
Re-think food menus and displays, and reduce overproduction and preparation of meals and food.

**PARTNERSHIPS**
Partner with communities and organizations in ports of call and donate surplus meals.
REINFORCING THE PROGRAM WITH FUN

With food loss and waste being a global problem, raising awareness and education is a key component of successful food waste management. Even in light of the seriousness of the matter, preventing and reducing food waste can be fun if everyone is on board. In 2019, we initiated the “Food Waste Shuffle” music video challenge. The video challenge provided an opportunity to engage and educate our entire organization in a creative and fun way on the importance of food waste reduction and separation. Each ship and shoreside office was invited to participate in the challenge. The engagement level was high and we received a total of 76 submissions from our ships and offices all around the world.

**Shipboard Winners**

1st Place
P&O UK Britannia

2nd Place
Carnival Inspiration

3rd Place
Costa Atlantica
P&O UK Arcadia

**Shoreside Winners**

1st Place
Carnival UK
Southampton Office

2nd Place
Princess Cruises
Santa Clarita Office

3rd Place
Carnival Cruise Line
Miami Office
FOOD WASTE DIGESTERS
In 2019, we continued to evaluate technologies and operations to minimize the volume of food waste generated, and we installed additional bio-digesters throughout the fleet. The bio-digesters use an aerobic digestion process that takes place within the machines and efficiently breaks down food particles. This green technology also supports and enhances operations on board, making it more efficient for crew members to manage and control food waste. We continue to evaluate different digesters and are planning to expand the use of these systems across our fleet as part of our commitment to environmental excellence.

COSTA CRUISES 4GOODFOOD INITIATIVE
In early 2018, our Costa brand unveiled the 4GOODFOOD program, a program it has been developing since 2016 and successfully piloted on the flagship Costa Diadema in the same year. 4GOODFOOD is a far-reaching program that considers every aspect from food preparation and consumption on board to the donation of surplus food – the first of its kind within the cruise industry. The program supports Costa Cruises’ ambitious target to reduce food waste by 50% by 2020. Following its success, we are working on expanding this type of program throughout our brands.

4GOODFOOD is based on four main pillars – Value, Reduction, Return and Recovery – considering every aspect of food waste preparation and consumption on board a ship, involving active participation from crew, cruise guests and local communities as an essential component.

An integral part of the program is the shipboard communication campaign “Taste don’t Waste,” with a focus to encourage responsible consumption in the ships’ buffets. The campaign addresses values and emotions, and is designed to directly involve guests by encouraging responsible behaviors and proactive engagement, particularly in the buffet area. To prevent surplus food from becoming waste, surplus food and meals prepared but not consumed on board are donated to communities in a number of ports in Italy, France, Spain, Guadeloupe and Martinique. This is made possible through a partnership with food bank charity Foundation Banco Alimentare and local port partners.

Over 150,000 portions of quality food have been distributed to a total of 12 associations that look after people in need. Costa Cruises aims to involve other ports as well and further extend the surplus food donation initiative to reach as many disadvantaged communities as possible. Costa Cruises’ innovative approach to reduce food waste and to foster environmentally friendly operations received the Sustainable Performance Award for their 4GOODFOOD program at the Ayming Institute Business Performance Awards in 2019. Costa also earned the MedCruise Award for Cruise Line with the Greatest Charity Program in 2019 and was further recognized as a finalist of the 15th United Nations World Travel Organization (UNWTO) Enterprise Award.
Energy & Emissions

We have initiatives underway across each of our brands to reduce our carbon footprint.
2020 GOAL & UPDATE

CARBON FOOTPRINT

2020 Goal: Reduce the intensity of CO₂e (carbon dioxide equivalent) emissions from our operations by 25% by 2020 relative to our 2005 baseline, measured in grams of CO₂e per ALB-km.

2030 Goal: Reduce the intensity of CO₂e (carbon dioxide equivalent) emissions from our operations by 40% by 2030 relative to our 2008 baseline, measured in grams of CO₂e per ALB-km.

Reducing Emissions: We made more progress on our 2020 goal, and achieved a 29.1% reduction relative to our 2005 baseline, and for our 2030 goal we achieved a 24.8% reduction relative to 2008 baseline.

- Delivered the second cruise ship in the world to be powered by liquefied natural gas (LNG) both at sea and in port.
- Became first cruise company to join The Getting to Zero Coalition for decarbonization.
- Invested in fuel-cell technology.
- Invested in battery technology.
- Received Greenest Shipowner of the Year Neptune Award.
- Received Germany’s Blue Angel award for AIDAnova’s environmentally-friendly ship design.
ADVANCED AIR QUALITY SYSTEMS

We continue to improve the quality of our emissions into the air by installing and Advanced Air Quality Systems across the fleet. These systems significantly reduce sulfur compounds and particulate matter, including black carbon, from our ship’s engine exhaust.

- 77% of our fleet is equipped with Advanced Air Quality Systems.
- 236 engines equipped with Advanced Air Quality Systems.
- Developed a public website dedicated to Advanced Air Quality Systems.

COLD IRONING CAPACITY

Increase cold ironing coverage of our fleetwide capacity in relation to future port capabilities.

- 47 ships equipped with the ability to utilize cold ironing/shore power technology.
- We connected to 12 cruise ports equipped with cold ironing technology globally.
FY 2019

AWARDS & RECOGNITION

Newsweek (Most Responsible Companies — Environmental, Social and Governance)
Carnival Corporation & plc has been recognized in Newsweek’s first ranking of America’s Most Responsible Companies 2020. Companies were evaluated based on their environmental, social, and corporate governance performance. A total of 2000 American public companies were evaluated and the top 300 are included on the list. We are honored to be listed as the highest-ranking company in the cruise sector. The list of companies can be viewed here.

Neptune Award (Greenest Shipowner)
Carnival Corporation & plc has been honored by maritime industry peers with the Greenest Shipowner of the Year Neptune Award, which recognizes a company that has shown excellence in reducing environmental impact in the operation of its fleet in the past year. Winners were chosen by executives from ship owners, ports, and marine technology companies who gathered to share best practices and cutting-edge technologies to enable continued reductions in the environmental impacts of shipping. Click here for more information.

Germany’s Blue Angel Eco-Label Award (Environmentally Friendly Ship Design)
Carnival’s AIDA Cruises has been awarded the “Blue Angel,” Germany’s Federal Government eco-label, for AIDAnova’s environmentally-friendly ship design. Click here for more.

AWARDS & RECOGNITION

FY 2019

INTRODUCTION

CRUISING

COMMITMENT

COMMUNITY

APPENDIX
Carnival’s Pathway to Decarbonization

Addressing climate change is one of our top priorities and we are committed to continue to lead the path within the cruise industry. Our entire management team, including our Boards of Directors, is committed to addressing climate change. Our path to decarbonization involves multimillion-dollar investments and a multi-faceted strategy. Key components of this strategy include adopting international frameworks and working with industry regulatory bodies to: address upcoming regulatory requirements and conditions, maximize efficiency opportunities/gains, implement low carbon fuels, invest in carbon-efficient technologies, support and accelerate industry-specific research & development projects, establish internal goals supporting the path as well as partner with other companies, NGOs, and relevant stakeholders. In the coming years, we are likely to see an array of emerging technological innovations as currently there is not a single (nor a combination of technologies) that can move the maritime industry straight into a decarbonization path. As we navigate this journey, we are committed to evaluate options, work with various stakeholders, and adjust our path as needed. Please see page 109 for further details.

Alternative Fuels: Liquefied Natural Gas (LNG)

The introduction of LNG to power cruise ships is a major development that supports our environmental goals and significantly improves overall air emissions. In 2019, Carnival Corporation & plc continued to pioneer the use of LNG in the cruise industry by introducing Carnival Corporation & plc’s second LNG-powered ship, Costa Smeralda. She follows AIDAnova, delivered in 2018 as the world’s first cruise vessel to be powered by LNG. Carnival Corporation & plc has an additional nine next-generation LNG-powered cruise ships on order using the company’s innovative environmental design with expected delivery dates for these new ships between 2020 and 2025.

Fuel Cells

In 2019, we announced a joint venture between Carnival Corporation & plc’s AIDA brand, the Meyer Werft shipyard, Freudenberg Sealing Technologies and other partners funded by the German Federal Ministry of Transport and Digital Infrastructure. The objective of the joint venture is to find practical solutions for climate-neutral mobility across all of shipping. The groundbreaking “Pa-X-ell2” project specifically aims to develop a decentralized energy network and a hybrid energy system by using a new generation of fuel cells in oceangoing passenger vessels. As early as 2021, AIDA Cruises will be the world’s first cruise company to test the use of fuel cells on a large passenger ship. The fuel cells are powered by hydrogen derived from methanol and will enable cruise ships to cut carbon emissions, reduce noise, and lower vibrations.

Batteries

In 2019, we signed an agreement with Corvus Energy, the world’s leading marine battery supplier, to begin production and installation of a first-of-its-kind lithium-ion battery storage system on board a cruise ship. The battery system is scheduled to be installed in 2020. The technology is currently set to become the world’s largest battery storage system ever installed on a passenger ship.
Cold Iron/Shore Power Plug-In Capabilities
Cruise ships equipped with cold ironing or shore power plug-in capabilities can plug in to specific port connections facilities allowing the ship to receive electricity from the electrical grid in the port instead of using the ship’s engines and fuel to generate power. Electricity generated by renewable sources such as water (hydro), solar, wind, and geothermal have a minimal climate change and air emission impact compared with non-renewable sources such as fossil fuels. In 2019, there were only twelve ports worldwide able to provide shore power connections to our fleet based on our port-itinerary and our ships connected in all of them. Within the Carnival fleet, 47 ships are equipped with the ability to utilize cold ironing/shore power connections.

2020 Global Sulphur Cap - IMO 2020
As of the 1st of January 2020, the global limit for sulphur in fuel oil used on board all ships operating outside designated Emission Control Areas (ECAs) was reduced from 3.50% to 0.50%. This new marine emission requirement is also referred to as IMO 2020. In preparation for the new global requirement, each Carnival Corporation & plc ship developed a ship-specific implementation plan to address using new fuels, fuel oil system modifications, and fuel tank configuration changes. In addition, fuel procurement, sampling requirements, and fuel oil bunkering procedures were revised. We have also equipped our fleet with Advanced Air Quality Systems (also known as scrubbers) which remove 99% of sulphur in fuel.

Advanced Air Quality Systems - Fleet Update
Advanced air quality systems (AAQS), generically known as exhaust gas cleaning systems or scrubbers, remove sulphur compounds and particulate matter from our ships’ engine exhaust at any operating state – at sea, during maneuvering, and in port. As of the end of FY2019, 77% of our fleet has been equipped with AAQS and we plan to deploy additional systems across our global fleet. In 2019, we also released the Carnival/DNVGL 2018 Wash Water Assessment, a four-year scientific wash water study that collected 281 wash water samples from 53 Carnival ships and completed lab analyses on each sample for 54 different parameters. The AAQS wash water samples were well below the limits set by several major national and international land-based water quality standards up to and including the World Health Organization (WHO) standards for drinking water. We also developed a specific website to provide comprehensive AAQS details for all interested stakeholders.

Partnership - Jean-Michel Cousteau - Ocean Futures Society
Carnival Corporation & plc partnered with renowned ocean explorer and life-long environmental advocate Jean-Michel Cousteau and his Ocean Futures Society, a nonprofit marine conservation and education organization that serves as a “Voice for the Ocean” on the importance of effective environmental and sustainability policy. Cousteau is providing valuable external expertise on environmental initiatives as we continue our commitment to sustainability and our oceans.
**Partnership - Getting to Zero Coalition**

The Getting to Zero Coalition is an alliance of organizations across the maritime, energy, infrastructure, and finance sectors committed to accelerating the decarbonization of the international shipping industry. Carnival Corporation & plc is the first cruise company to join this global alliance.

The coalition’s goal aligns with the International Maritime Organization’s (IMO) strategy to reduce greenhouse gas emissions from shipping by at least 50% by 2050 as compared to 2008 emissions. To meet the target, the Getting to Zero Coalition aspires to having technically feasible, commercially viable zero-emission deep-sea vessels (ZEVs) entering the global shipping fleet as early as 2030. The alliance’s goal also includes scalable infrastructure for zero-carbon energy sources, including production, distribution, storage, and bunkering.

Supported by key governments and intergovernmental organizations, the coalition represents a leading group of over 80 companies, including global stakeholders from a variety of shipping-related industries such as fuel suppliers, engine manufacturers, marine classification societies, shipping companies, major ports, and more.

**Voluntary Emissions Reduction Agreements**

Carnival’s Costa Cruises signed two voluntary emission reduction agreements in 2019, The Marseille and La Spezia Blue Flag Agreements.

**Direct & Indirect Emissions**

We quantify, report, and verify our greenhouse gas (GHG) emissions, including our direct (Scope 1) and indirect (Scope 2) emissions. Our direct GHG emissions represent 99.6 percent of our total emissions and the emissions generated from our ships’ fuel consumption represented the vast majority of our GHG footprint (97.3 percent). Our indirect GHG emissions represent only 0.4 percent of our total emissions, the majority of which are attributed to electricity purchased to power our shore-based buildings. The graphic on page 118 depicts our energy use and related emissions.

**HESS Event Reporting System**

In 2019, we completed the fleetwide rollout of a new health, environment, safety and security (HESS) event reporting system. This platform has allowed us to standardize our HESS event reporting and analysis capabilities across the entire fleet.

**CDP Carbon Disclosure**

We have reported our carbon emissions in the CDP (formerly known as the Carbon Disclosure Project) since 2007. In 2019, we submitted our disclosure and received a management score level (B-) for climate change.
Scope 3 Emissions
We have reported our Scope 3 emissions in the CDP (formerly known as the Carbon Disclosure Project) since 2009. Scope 3 emissions are derived from the energy used in other upstream and downstream indirect emissions like business travel, passenger transportation to and from our ships, fuel transport, waste disposal, and deliveries of supplies.

Carnival Corporation Environmental Excellence Awards
We continue to honor excellence in environmental performance throughout our fleet. The Carnival Corporation & plc environmental excellence award honors the accomplishments of the ship’s management and crew that best represents our commitment to protecting and preserving the environment. Their example promotes continuous improvement throughout our fleet. Every year one ship from each cruise brand is selected and from those nine total ships, one is recognized as the best in environmental excellence. For FY2019 performance, Carnival Cruise Line’s ship Carnival Horizon was the recipient of the Environmental Excellence Award.

The individual best in brand Environmental Excellence Award winners are:
- AIDA Cruises: AIDAVita
- Carnival Cruise Line: Carnival Vista
- Costa Cruises: Costa Fascinosa / Costa Asia: Costa Serena
- Cunard: Queen Victoria
- Holland America Line: Koningsdam
- P&O Australia: Pacific Dawn
- P&O Cruises: Ventura
- Princess Cruises: Ruby Princess
- Seabourn: Seabourn Sojourn
Our COMMITMENT

We believe in communicating transparently about our company and industry’s role in addressing climate change. We have publicly disclosed our carbon footprint since 2006 and are taking specific and proactive steps to reduce this footprint. Energy is vital to our business so that guests can enjoy our facilities and amenities on our ships while at sea and in port. Fuel is the primary source of energy consumed for the propulsion of our fleet and our onboard hotel power requirements. Our shipboard fuel consumption contributes to 97.3% of our direct carbon emissions (Scope 1) and is therefore the most significant contributor to our carbon footprint and the number one focus of our carbon reduction efforts. See the graphic on page 118 for further details.

Our STRATEGY

We have implemented multiple energy-savings initiatives to manage our emissions footprint. See Energy-Saving Initiatives in the Appendix for further details.

We have established a Corporate Energy Conservation group charged with reducing our overall energy consumption. The goal of this group is to identify both immediate and long term opportunities for saving fuel.

We are actively involved in new shipbuilding research and development for emission abatement technologies and new equipment to further improve energy efficiency. We are pioneering the use of liquefied natural gas (LNG) for the cruise industry. In 2018, we made history with the launch of AIDAnova, the first cruise ship in the world powered by LNG both at sea and in port. In 2019, we launched the second LNG cruise ship in our fleet, and in the world, Costa Smeralda. We are leading the cruise industry’s use of LNG to power cruise ships; we have nine additional sister vessels due for delivery between 2020 and 2025 for our Costa Cruises, AIDA Cruises, P&O Cruises UK, Carnival Cruise Line and Princess Cruises. We also continue to work on practical, feasible energy reduction and conservation initiatives to help us reach our targets. Reducing fuel use and driving energy efficiency takes multi-million dollar investments and a multi-pronged, multi-year strategy.

These include abatement technologies and equipment to further reduce engine emissions such as:

- Advanced Air Quality Systems (AAQS) that use proprietary technology to remove sulfur oxides and particulate matter from engine exhaust.
- Cold ironing capabilities that allow us to plug into a port’s electrical grid while in port if the shoreside infrastructure is available.
- Air Lubrication Systems using air bubbles to reduce friction between ship’s hull and the water.
- A performance-based maintenance and engine efficiency monitoring agreement with Wärtsilä, our largest main engine manufacturer.
We quantify, monitor, report, and verify our GHG emissions. We developed a GHG Inventory Management Plan (GHG IMP) in 2010 in accordance with the requirements of ISO 14064-1:2006 and The Greenhouse Gas Protocol. Our GHG emissions are independently verified by a third-party. Lloyd’s Register Quality Assurance Inc. (LRQA) certified our scope 1 and scope 2 GHG emissions inventory. For more information on our third-party verification visit our Assurance Statement in the Appendix.

We continue to train and certify employees responsible for main engine, refrigeration and air-conditioning plants. We use recovery units certified to meet refrigerant recycling and recovery requirements and we implement programs to reduce Ozone Depleting Substance (ODS) releases.
In 2013, we announced our plans to install Advanced Air Quality Systems (AAQS), generically known as exhaust gas cleaning systems (EGCS) or scrubbers, on our ships. These systems remove sulfur compounds and particulate matter from our ships’ engine exhaust at any operating state of a ship – at sea, during maneuvering and in port. Due to the initial limited availability of ship-ready AAQS for marine applications, Carnival Corporation & plc led the way in developing the technology to successfully function in the restricted spaces available on cruise ships. Making the necessary investments – totaling approximately $500 million of installations to date – has led to a significant development in shipboard environmental technology.

As of 2019, 77% of our fleet is equipped with AAQS and we plan to develop and deploy the systems across our global fleet – significantly improving the quality of air emissions from our ships and reinforcing our environmental commitment. In 2019, we developed a public website dedicated to Advanced Air Quality Systems updates. Please visit this website for further details.

Through extensive independent testing, the systems have proven capable of outperforming low-sulfur fuel alternatives such as marine gas oil (MGO) in terms of overall cleaner air emissions and no negative environmental impact to oceans and seas. Ships using AAQS to scrub heavy fuel oil (HFO) are also effective in reducing particulate matter and typically have lower sulfur dioxide (SO2) emission levels than MGO, as well as lower NOx and fewer polycyclic aromatic hydrocarbons (PAHs).

**OPEN LOOP SYSTEM**
Carnival Corporation & plc’s AAQS are open loop systems that use a sea water spray for removing sulfur from engine exhaust, converting it to sulfates (which are abundant in the sea) before returning the seawater to the ocean. The seawater is monitored by pH, PAH and turbidity sensors through this process to ensure that it meets or exceeds the IMO required standards before returning to the ocean. A further filtration process while in port ensures a seawater quality meeting other applicable environmental standards for operations.
INDEPENDENT TWO-YEAR SCIENTIFIC WASH WATER STUDY

In March 2019, we released the Carnival/DNVGL 2018 Wash Water Assessment. The four-year scientific wash water study collected 281 wash water samples from 53 Carnival ships, conducted lab analyses on each sample for 54 different parameters including PAHs and metals, and partnered with DNVGL to evaluate and compare the results to major national and international water quality standards. The study demonstrated that the AAQS wash water samples were well below the limits set by several major national and international land-based water quality standards up to and including the World Health Organization (WHO) standards for drinking water.

Specific to IMO wash water requirements, the study confirmed results from previous studies showing the quality of the water used in the AAQS process was always far below the IMO monitoring limits for PAHs and the annual limits for nitrates. In fact, when measured against IMO standards, the average wash water test results in this study were more than 90 percent lower than maximum allowable levels. In many cases, the materials were completely undetectable in the laboratory testing process.

The results were also compared against other standards such as the German Waste Water Ordinance, which as a “point source discharge” standard was the most directly applicable, and also the EU Industrial Emissions Standards and the Surface Water Standards of the EU’s Water Framework Directive, both “water quality” standards. The AAQS test results compared favorably with all of these major benchmark standards, demonstrating that the composition of the water was not only consistently below, but in most cases, significantly below the most stringent limits. The full study briefing can be found here.

EMISSIONS PROFILE

To further enhance our emissions profile, we have also started to install a catalytic reactor on the engine exhaust to reduce particulate matter (PM) even before the exhaust reaches the AAQS tower, which also is effective in reducing PM. Our standard AAQS removes 98% of sulfur (in the form of SO₂) and up to 60-90% of the particulate matter, including elemental and organic and black carbon, as well as PAHs. The combined effect of the AAQS, catalytic reactor and other systems is a further reduction of the particulate matter, including the very fine PM 10 and 2.5 particles. The use of AAQS with HFO fuel and other systems creates a reduction of between 5-15% compared to MGO fuel use.

All AAQS comply with international regulations and are certified by a classification society. In addition, all systems are equipped with continuous monitoring equipment to automatically record required parameters – specifically SO₂ in the exhaust gas and pH, PAH and turbidity in the wash water.

In 2018, Carnival Corporation & plc was a founding member of Clean Shipping Alliance 2020, a new industry association consisting of 39 leading shipping and maritime companies, and providing education and information on the benefits of AAQS, as well as a public voice. Collectively, these companies represent over 3,000 ships across the sectors of commercial shipping and cruising.
**Pioneering Liquefied Natural Gas (LNG)**

The introduction of liquefied natural gas (LNG) to power cruise ships is a major development that supports Carnival Corporation & plc’s decarbonization pathway. In the cruise industry, we have pioneered the use of LNG, and we are continuing to expand our investments in LNG as the marine industry’s most advanced fuel technology to date.

We began the implementation of our LNG vision by using LNG in port. In 2015, AIDA Cruises’ AIDAsol made history as the first cruise ship in the world to be supplied with power by an LNG hybrid barge while in port in Hamburg, Germany. Through a unique pilot project with Becker Marine Systems, the barge was designed, constructed and commissioned in three years. Since then, we have expanded our LNG capabilities to supply LNG directly to AIDAprima and AIDaperla, each with dual-fuel powered engines. The two ships can be powered by LNG while in select ports, drawing fuel directly from trucks alongside the ship.

In 2018, we made history with the launch of AIDAnova, the first cruise ship in the world that can be powered by LNG both at sea and in port. Most recently in 2019, we launched the second LNG-powered cruise ship for our global fleet, Costa Smeralda. We are leading the cruise industry’s use of LNG to power cruise ships and have nine additional next-generation LNG-powered vessels due for delivery between 2020 and 2025 for our Costa Cruises, AIDA Cruises, P&O Cruises UK, Carnival Cruise Line and Princess Cruises brands.

**SECOND CRUISE SHIP POWERED BY LNG AT SEA AND IN PORT**

Costa Smeralda was built at the Meyer Turku shipyard in Finland and delivered to our Costa Cruises brand in December 2019. Barcelona was the first port to welcome the new ship after the shipyard departure. During the first refueling operation, which was made possible through our partnership with Shell, the Coral Methane tanker ship filled Costa Smeralda’s three tanks with approximately 3,200 cubic meters of LNG. Two of these tanks have a capacity of 1,525 cubic meters, while the third tank has a capacity of approximately 520 cubic meters. With one complete LNG tank filling, which occurs while the ship is in Barcelona, Costa Smeralda can be powered for at least two weeks.

**SWITCHING FROM MARINE DIESEL TO LNG**

| Sulfur Dioxide Emissions | 0%
| ------------------------- | 95-100% Reduction in Particulate Matter
| Reduction in Nitrogen Oxides | 85%
| Reduction in Carbon Emissions | up to 20%

Click the video above to learn more about the first Costa cruise ship powered by LNG.
STRENGTHENING OUR LNG SUPPLY CHAIN

In 2017, we expanded our partnership with Shell to fuel North America’s first next-generation LNG powered cruise ships – the first of which, Carnival Cruise Line’s Mardi Gras, is scheduled to arrive in 2020. As part of the agreement, the two ships, built with our next-generation “green cruising” ship design, will be fueled through Shell’s Partner Quality LNG transport (Q-LNG) Bunker Barge (LBB) – a project that is part of Shell’s strategic plan to develop a global LNG bunkering network. The ongoing LBB, which is designed to support growing cruise line demand for LNG as a marine fuel, will be the first of its kind in the U.S. and will allow these ships to refuel with LNG at ports along the southeastern U.S. coast.

We are working with Shell as they are making the necessary Bio-LNG investments to scale the technology and build a reliable infrastructure. Bio-LNG, or liquefied Biogas develops when anaerobic digestion occurs, biological matter breaks down and gas is emitted in the process. Bio-LNG is practical CO₂ neutral and has all the advantages of LNG, including reduced CO₂ emissions, lower engine sound, lower NOx and significantly less particulate matter emissions.

We are proud to be on the forefront of advancing LNG as a fuel source for the cruise industry – an innovation that supports our sustainability goals and significantly improves overall air emissions. One of the keys to establishing LNG as a standard for powering cruise ships is building out an extensive, safe and reliable infrastructure across the globe for this advanced fuel technology. We are looking forward to working closely with Shell as they help to bring LNG to North America in what we hope will be the first step in building a strong foundation for the future of LNG fuel supply for cruise ships in the region.

LNG Program Timeline

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In Port Capabilities

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<td>2025</td>
<td>AIDA</td>
<td>First AIDA ship with LNG</td>
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In Port & at Sea Capabilities
EXPANDING OUR LNG SHIP ORDERS TO 2025

Looking ahead to 2025, we have nine additional next-generation ships on order. The first of these will be the Iona for our P&O Cruises UK brand. The ship is being built in Meyer Werft shipyard in Germany and is scheduled to be delivered in the 2020. Iona will be the first LNG ship for P&O UK and the third within the Carnival Corporation & plc global fleet. Iona will also debut as the largest cruise ship ever built exclusively for the British cruise holiday market. The company’s second LNG ship scheduled for delivery in late 2020 is the Carnival Mardi Gras. Named after its very first ship TSS Mardi Gras, which launched in 1971, the new Carnival Cruise Line ship will be the brand’s first ship powered by LNG. Mardi Gras will also be the first LNG-powered cruise ship in North America. The ship is scheduled to operate from Port Canaveral, FL. To support LNG as an alternative fuel, Port Canaveral is investing in infrastructure and will soon welcome a new LNG bunkering barge, the Q-LNG 4000, which will refuel the Mardi Gras as part of our partnership with Shell. In 2021, the second LNG-powered ships for Costa Cruises and AIDA Cruises are scheduled to be delivered. P&O UK’s second LNG ship is scheduled for delivery in 2022 as well as the second ship for Carnival Cruise Line. Our AIDA Cruises brand has one additional LNG ship on order, expected to be delivered in 2023. In addition, our Princess Cruises brand also has two LNG ships on order with expected delivery dates in 2023 and 2025.
Climate change is a global problem. Making progress requires that progressive countries and companies lead the way by demonstrating practical, scalable ways to achieve decarbonization. **Addressing climate change is one of our top priorities and we are committed to continue to lead the path within the cruise industry.** Looking ahead, our business success, and our reputation, strongly depends upon ensuring our guests can continue to cruise in even cleaner, efficient and sustainable ways. This will allow us to maintain our economic success while also ensuring that our business model can thrive well into the future to serve many generations to come.

Our entire management team, including our Boards of Directors, is committed to addressing climate change. Our path to decarbonization involves multimillion-dollar investments and a multi-faceted strategy. Key components of this strategy include adopting international frameworks and working with industry regulatory bodies to: address upcoming regulatory requirements and conditions, implement initiatives to maximize efficiency opportunities/gains, identify and implement low carbon fuels, invest in carbon efficient technologies, support and accelerate industry-specific research and development projects, establish internal goals supporting the path, and partner with other companies, non-governmental organizations and relevant stakeholders to help us achieve our objectives.

In the coming years, we are likely to see an array of emerging technological innovations as there is not a single technology (nor a combination of technologies) that can move the maritime industry straight into a decarbonization path at this time. **As we navigate this journey, we are committed to evaluating options, working with various stakeholders, and adjusting our path as needed.**
2005
Started focusing on energy efficiency programs throughout the fleet.

2010
Announced our first carbon reduction goal of 20% by 2015.

2014
Achieved our 2015 goal of 20% carbon reduction ahead of time.
Announced our 2020 carbon reduction goal of 25%.

2015
Surpassed our 2015 carbon reduction goal by delivering a 23.4% reduction.
AIDAsol supplied with power by LNG hybrid barge while in port.

2016
AIDAprima launched with LNG capabilities while in port.

2017
Achieved and surpassed our 2020 carbon reduction goal by delivering a 26.3% reduction.
AIDAperla launched with LNG capabilities while in port.
2018
Achieved further progress on our 2020 carbon reduction goal by delivering a 27.6% carbon reduction.

CLIA announced industry-wide 2030 carbon reduction goal of 40%.

AIDAnova launched as first cruise ship in the world powered 100% by LNG.

2019
Achieved further progress on our 2020 carbon reduction goal by delivering a 29.1% reduction.

Committed to a new carbon reduction goal of 40% by 2030 & achieved a 24.8% reduction.

Costa Smeralda launched as second cruise ship in the world powered by LNG.

Announced commitment to support fuel cell technology.

Announced commitment to support lithium-ion battery storage system technology.

2030
CLIA and IMO commitment - reducing emissions by 40%.

2050
In accordance with the CLIA and IMO vision - reducing emissions rate by 70%.

Reduce absolute emissions by a minimum of 50%.

2100
IMO’s ultimate goal is to achieve zero-emission shipping.
**Regulatory Bodies and International Frameworks**

The International Maritime Organization (IMO) is the United Nations (UN) agency responsible for regulating maritime shipping. The IMO estimates that approximately 2.2% of global CO₂ emissions are generated by the shipping industry of which the cruise industry is a small part. We actively participate in IMO meetings and working groups through our trade association, Cruise Lines International Association (CLIA), to promote and develop initiatives that support a carbon-neutral shipping industry. We also recognize the role that international frameworks play in supporting carbon neutrality and we participate in those discussions as well. The following is a summary of the key recognized frameworks:

**Paris Agreement**

The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC), to address Greenhouse Gas (GHG) emissions, mitigation, adaptation, and finance, signed in 2016. The agreement’s language was negotiated by representatives of 196 state parties. As of February 2020, all UNFCCC members have signed the agreement, 189 have become party to it, and the only significant emitters which are not parties are Iran and Turkey. The United States began the process to withdraw from the Paris Agreement in November 2019. Per the terms of the agreement, the withdrawal will take effect one year from delivery of the notification.

The Paris Agreement’s long-term goal is to keep the increase in global average temperature to well below 2 degrees Celsius above pre-industrial levels; and to pursue efforts to limit the increase to 1.5 degrees Celsius, recognizing that this would substantially reduce the risks and impacts of climate change. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. To reach these ambitious goals, new frameworks will be put in place including developing appropriate financial flows, a new technology framework and an enhanced capacity building framework. This will further support action by developing countries and the most vulnerable countries, in-line with their own national objectives. In 2018, the IMO established an initial strategy on the reduction of GHG emissions from ships in line with the Paris Agreement and in support of the UN’s Sustainable Development Goals. The strategy includes reducing international shipping’s average CO₂ emissions intensity by at least 40% by 2030 and by 70% by 2050 (relative to 2008 baseline). The strategy also includes reducing absolute international shipping GHG emissions by at least 50% by 2050 compared to 2008 baseline and pursuing efforts toward phasing them out entirely by the end of this century.

Carnival Corporation & plc fully supports the IMO’s strategy which is in alignment with the Paris Agreement.

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**Proposed International Maritime Industry Greenhouse Gas R&D Fund:**

Several leading global shipping associations have developed a submission to the IMO to be considered by the Marine Environment Protection Committee. Carnival Corporation & plc supports this proposal under CLIA, which is a signatory to the proposal. The submission proposes the concept of an International Maritime Industry GHG Research and Development Board (IMRB), funded by mandatory R&D contributions from shipping companies. The industry proposal would principally rely on contributions from shipping companies at an initially proposed level of $2 per ton of fuel purchased for consumption. We remain optimistic on the approval of the proposal as it demonstrates the industry’s leadership and commitment to work together to fund innovative technologies.
European Union Green Deal (EGD)
The incoming European Commission has been preparing a series of new climate and environmental laws (the EGD) which were published in December 2019. Some noteworthy aspects of the EGD framework include the following:

- An objective to deliver climate neutrality by 2050;
- A near-term plan on how to increase the EU’s GHG emission reduction target for 2030 to at least 50% compared to 1990 levels (this is not aligned with the IMO or CLIA targets);
- A likely proposal to end “fossil fuel subsidies” and review of tax exemptions for maritime fuels;
- Extending the EU cap-and-trade scheme for carbon emissions to the maritime sector; and a potential regulation requiring docked ships to use shore power when in port.

Goals and Commitments
In December 2018, the Cruise Lines International Association (CLIA) announced a historic global cruise industry commitment to reduce the rate of carbon emissions across the industry fleet by 40% by 2030. As CLIA members, we fully support this industry goal and have also adopted this target as our new carbon emission reduction goal for 2030. Our concentrated efforts to reduce the intensity of our CO₂ emissions began more than a decade ago and we have made significant progress ever since. To further support our disclosures, each year our GHG emissions are independently verified by Lloyd’s Register Quality Assurance, Inc.

### 2015 Carnival Corporation & plc Goal
Reduce the intensity of CO₂e (carbon dioxide equivalent) emissions from our operations by 20% by 2015 relative to our 2005 baseline, measured in grams of CO₂e per ALB-km.

- In 2014, we achieved our goal by delivering a 20% reduction.
- In 2015, we made further progress by delivering a cumulative 23.4% reduction.

### 2020 Carnival Corporation & plc Goal
Reduce the intensity of CO₂e (carbon dioxide equivalent) emissions from our operations by 25% by 2020 relative to our 2005 baseline, measured in grams of CO₂e per ALB-km.

- In 2017, we surpassed our goal by delivering a 26.3% reduction.
- In 2018, we made further progress by delivering a cumulative 27.6% reduction.
- In 2019, we made further progress by delivering a cumulative 29.1% reduction.

### 2030 Carbon Emission Reduction Goal
Reduce the intensity of CO₂e (carbon dioxide equivalent) emissions from our operations by 40% by 2030, relative to our 2008 baseline, measured in grams of CO₂e per ALB-km.

In 2019, we achieved a 24.8% reduction from our 2008 baseline.
**Partnerships**

We recognize that addressing climate change requires a global effort and commitment, and we have worked and partnered with others within the industry to reduce our emissions and develop alternative fuels and technologies. Our efforts to deliver cleaner emissions from our ships also rely on the support of and the collaboration with key partners.

**NGO – Partnerships**

We partnered with the Bellona Foundation in 2018 to help support our climate change initiatives. Bellona Foundation is an independent non-profit organization that aims to meet and tackle climate challenges by identifying and implementing sustainable environmental solutions. In 2019, we became the first cruise company to join the Getting to Zero Coalition. This coalition is an alliance of organizations across the maritime, energy, infrastructure, and finance sectors committed to accelerating the decarbonization of the international shipping industry. The alliance’s goal also includes scalable infrastructure for zero-carbon energy sources, including production, distribution, storage, and bunkering. Supported by key governments and intergovernmental organizations, the coalition represents a leading group of over 80 companies, including global stakeholders from a variety of shipping-related industries such as fuel suppliers, engine manufacturers, marine classification societies, shipping companies, major ports, and more.

**Wärtsilä Partnership**

In 2017, as part of our plans to address our impact on climate change we enhanced our long-term partnership with Wärtsilä, one of our main engine manufacturers. We signed a 12-year strategic agreement, worth approximately $1 billion in total, which includes all engine maintenance and monitoring for 78 vessels within our fleet of 100+ vessels. As part of the agreement, engine-level efficiency and fuel consumption will be measured on a regular basis, providing improved transparency into engine performance that will result in further improvements to engine operations. The data provided will also allow for tailored optimization of the combustion process, which will also improve the quality of our air emissions.

**Alternative Low Carbon Fuels - Liquefied Natural Gas (LNG)**

The introduction of Liquefied Natural Gas (LNG) to power cruise ships is a major development that supports Carnival Corporation & plc’s decarbonization pathway. In the cruise industry, we have pioneered the use of LNG, and we are continuing to expand our investments in LNG as the marine industry’s most advanced fuel technology to date. We began the implementation of our LNG vision by using LNG while in port in Hamburg, Germany, in 2015. Since then, we have expanded our LNG capabilities. In 2018, we made history with the launch of AIDAnova, the first cruise ship in the world powered by LNG both at sea and in port. In 2019, we launched the second LNG cruise ship for our global fleet, and in the world, Costa Smeralda.

**Switching from marine diesel fuel to LNG provides many air emission benefits**

- 0% Sulfur Dioxide Emissions
- 95-100% Reduction in Particulate Matter
- 85% Reduction in Nitrogen Oxides
- 20% Reduction in Carbon Emissions
On the supply side, one of the keys to establishing LNG as a standard for powering cruise ships is building out an extensive, safe, and reliable infrastructure across the globe for this advanced fuel technology. As part of our strategy, we signed a framework agreement with Shell Western LNG B.V. (Shell) to be our supplier for the fuel to power our first LNG-powered cruise ships, and recently expanded our partnership to fuel North America’s first next-generation LNG-powered cruise ships. As part of this agreement, some ships will be fueled through Shell’s Partner Quality LNG Transport (Q-LNG) LNG Bunker Barge (LBB), a project that is part of Shell’s strategic plan to develop a global LNG bunkering network. The ocean-going LBB, which is designed to support growing cruise line demand for LNG as a marine fuel, will be the first of its kind in the U.S. and will allow our ships to refuel with LNG at ports along the southeastern U.S. coast. We are proud to be on the forefront of advancing LNG as a fuel source for the cruise industry. We look forward to continuing to work closely with Shell as they help to bring LNG to North America in what we hope will be the first step in building a strong foundation for the future of LNG fuel supply for cruise ships in the region.
Germany’s Blue Angel Eco-Label Award
Carnival Corporation & plc’s AIDA Cruises was awarded the “Blue Angel” certification by Germany’s Federal Ministry for AIDAnova’s environmentally friendly ship design. The award recognizes AIDAnova’s design and technical innovations as the first cruise ship in the world powered by LNG both at sea and in port. In September 2019, the Blue Angel logo was painted onto AIDAnova’s side at the Port of Marseille. [Click here for more information.]

Bio-LNG
Bio-LNG or liquefied biomethane is a biofuel made by processing organic waste flows. Biogas develops when anaerobic digestion occurs, biological matter breaks down and gas is emitted in the process. Bio-LNG is practically CO₂ neutral and has all the advantages of LNG versus diesel, including reduced CO₂ emissions, quieter engine sound, lower NOx and significantly less pm (particulate matter) emissions. We are working with Shell as they are making the necessary investment to scale the technology and build a reliable supply infrastructure.

Investing in Carbon Efficient Technologies
We know that currently there is not a single technology (nor a combination of technologies) that can move the maritime industry straight into a decarbonization path. Therefore, we are committed to supporting industry-specific technologies as well as research and development projects.

Fuel Cell Technology
In 2019, we announced a joint venture between Carnival’s AIDA brand, Meyer Werft shipyard, Freudenberg Sealing Technologies and other partners funded by the German Federal Ministry of Transport and Digital Infrastructure. The objective of the joint venture is to find practical solutions for climate-neutral mobility across all shipping. The groundbreaking “Pa-X-ell2” project specifically aims to develop a decentralized energy network and a hybrid energy system with a new generation of fuel cells for use in oceangoing passenger vessels. As early as 2021, AIDA Cruises will be the world’s first cruise company to test the use of fuel cells on a large passenger ship. The fuel cells are powered by hydrogen derived from methanol. The cells will enable cruise ships to cut carbon emissions, reduce noise and lower vibrations.

Battery Systems
In 2019, our AIDA Cruises brand signed an agreement with Corvus Energy, the world’s leading marine battery supplier, to begin production and installation of a first-of-its-kind lithium-ion battery storage system on a cruise ship. The battery system is scheduled to be installed in 2020. The technology is currently set to become the world’s largest battery storage system ever installed on a passenger ship.

Cold Ironing / Shore Power Technology
Cruise ships equipped with “cold ironing” or shore power plug-in capabilities can plug in to specific port connection facilities, allowing the ship to receive electricity from the electrical grid in the port instead of using the ship’s engines and fuel to generate power. Electricity generated by renewable sources such as hydro, solar, wind, and geothermal have a minimal climate change and air emission impact compared with non-renewable sources such as fossil fuels. In 2019, only 16 ports worldwide had the infrastructure able to provide shore power connections to our fleet, based on our itineraries and capabilities of ships frequenting those ports. These ports included: Hamburg, Germany; Seattle, Washington; Vancouver, Halifax and Montreal, Canada; Juneau, Alaska; San Diego, San Francisco and Los Angeles, California; Brooklyn, New York; and Shanghai, China.
Within the Carnival Corporation & plc fleet, by the end of FY2019, 47 ships were equipped with the ability to utilize cold ironing/shore power technology.

**Operational Efficiencies**
Throughout the years, we have invested in various systems to significantly increase our energy efficiency, which has resulted in fuel reduction as well as direct energy emission reduction. Below is a list of some of the initiatives we are currently working on:

- Designing ships for greater efficiency
- Increasing efficiency through ship operations and maintenance
- Minimizing fuel use and engine emissions
- Implementing other energy-saving initiatives
- Minimizing engine emissions

**Carbon Offsets**
Our shipboard fuel consumption contributes to more than 97% of our direct and indirect carbon emissions. Therefore, our efforts are focused on actions that can directly reduce and ultimately eliminate the emissions generated by our fuel consumption. We understand that carbon offsets may play a role in our decarbonization pathway if technological innovations are not sufficient to eliminate our emissions. To address those potential gaps in the future, we may have to invest in climate protection projects to offset or counterbalance the impact of any remaining emissions. If any of our guests would like to offset the emissions generated by their cruise, we provide them with the number of CO₂ emissions from their trip. In turn, they can contact an offset provider and contribute to specific climate projects based on their preferences. We are evaluating potential providers to facilitate the process for our guests.
**Energy & Greenhouse Gas Emissions**

**SCOPE 1**
- **Direct GHG Emissions**
  - **2%** Shore Direct GHG Emissions
  - **2%** Ship Refrigerant GHG Emissions
  - **97.3%** Ship Fuel GHG Emissions

**SCOPE 2**
- **Indirect GHG Emissions**
  - **0.4%** Location and Market-Based Ship Indirect GHG Emissions
  - **0.3%** Location and Market-Based Shore Indirect GHG Emissions

**SHIP INDIRECT GHG EMISSIONS**
Electricity purchased at the port of call for power while docked (cold ironing).

**SHORE INDIRECT GHG EMISSIONS**
Electricity purchased and used to power the corporate and brand headquarters buildings and the land-based hotels.

**SHIP FUEL DIRECT GHG EMISSIONS**
Fuel to propel the ships and run the ships generators to provide electricity.

**SHIP REFRIGERANT DIRECT GHG EMISSIONS**
Refrigerants to cool appliances such as refrigerators and AC units on the ships.

**SHORE DIRECT GHG EMISSIONS**
Fuel for company cars and building generators.

**Direct GHG Emissions**
- **99.6%**

**Indirect GHG Emissions**
- **0.4%**