CRUISE LINES
Research Brief

SASB’s Industry Brief provides evidence for the material sustainability issues in the Cruise Lines industry. The brief opens with a summary of the industry, including relevant legislative and regulatory trends and sustainability risks and opportunities. Following this, evidence for each material sustainability issue (in the categories of Environment, Social Capital, Human Capital, Business Model and Innovation, and Leadership and Governance) is presented. SASB’s Industry Brief can be used to understand the data underlying SASB Sustainability Accounting Standards. For accounting metrics and disclosure guidance, please see SASB’s Sustainability Accounting Standards. For information about the legal basis for SASB and SASB’s standards development process, please see the Conceptual Framework.

SASB identifies the minimum set of sustainability issues likely to be material for companies within a given industry. However, the final determination of materiality is the onus of the company.

Related Documents

- Cruise Lines Sustainability Accounting Standards
- Industry Working Group Participants
- SASB Conceptual Framework

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Cruise vacations are an ideal of luxury—traveling to exotic destinations over pristine waters with amenities of a five-star resort. Traditionally preferred by older travelers who wish to travel in comfort, cruise lines are increasingly attracting younger crowds with activities and adventures for all ages.

As the single fastest-growing segment of the tourism industry, the environmental and social impacts of the industry are growing in scale. The ecosystems that the industry depends upon are sensitive and can be threatened by the scale of the resources consumed and the resulting emissions and effluents. Due to the international nature of crews and the network of labor laws governing cruise lines, it is important for companies to manage labor relations effectively, ensuring high standards of labor practices. Though major accidents are not common, they have a great impact on the industry, as customers switch to other forms of travel.

Management (or mismanagement) of material sustainability issues, therefore, has the potential to affect company valuation through impacts on profits, assets, liabilities, and cost of capital.

Investors would obtain a more holistic and comparable view of performance with Cruise Lines companies reporting metrics on the material sustainability risks and opportunities that could affect value in the near and long term in their regulatory filings. This would include both positive and negative externalities, and the nonfinancial forms of capital that the industry relies on for value creation.

Specifically, performance on the following sustainability issues will drive competitiveness within the Cruise Lines industry:

- Reducing emissions through fuel management and emissions purification;
- Minimizing ecological impacts by mitigating harmful effects of waste discharge and operations;
- Ensuring passenger and worker safety through staff training, sanitation practices, and screening of workers;
- Providing good working conditions and ensuring fair wages and hours; and
- Minimizing accidents through proper vessel maintenance and crew training.

**SUSTAINABILITY DISCLOSURE TOPICS**

**ENVIRONMENT**
- Fuel Use & Air Emissions
- Discharge Management & Ecological Impacts

**SOCIAL CAPITAL**
- Shipboard Health & Safety Management

**HUMAN CAPITAL**
- Fair Labor Practices

**LEADERSHIP AND GOVERNANCE**
- Accident Management

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**INTRODUCTION**

Cruise vacations are an ideal of luxury—traveling to exotic destinations over pristine waters with amenities of a five-star resort. Traditionally preferred by older travelers who wish to travel in comfort, cruise lines are increasingly attracting younger crowds with activities and adventures for all ages.

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INDUSTRY SUMMARY

The Cruise Lines industry comprises companies that provide passenger transportation and leisure entertainment, including deep sea cruises and river cruises. Carnival Corporation, Royal Caribbean Cruises, and Norwegian Cruise Line Holdings are the only three U.S.-listed companies whose primary business is operating cruises. The Walt Disney Company also operates a handful of cruises.

Incorporated in Panama, Carnival is the largest operator, with 101 cruise ships under ten brands sailing to major destinations around the world. Nearly two-thirds of Carnival’s passenger capacity is deployed to the Caribbean (35 percent) and Europe (29 percent). Incorporated in Liberia, Royal Caribbean operates 41 ships under six brands and Norwegian Cruise Lines (NCL) was established in Bermuda and operates 13 ships. However, all three have principal executive offices in Florida, U.S.

Disney’s cruise line includes four ships that originate trips from North America and Europe.

While the majority of cruise lines operate internationally, the mature North American market makes up almost 60 percent of global cruise passengers, with an estimated 11.8 million passengers in 2013. Currently, an estimated 20 percent of the cruise market consists of retirees, and the industry is expected to grow with the aging of the U.S. population. Between 2012 and 2022, the industry’s primary age group, 45 years and older, is expected to increase by 19 million, or 13 percent, in the U.S. and Canada, and 16 million, or 11 percent, in Western European countries. At the same time, operators are expanding internationally to non-mature markets where passengers have more available vacation time. European, Australian, Asian, and other regions’ cruise passengers increased at a compound annual growth rate of 11 percent from 2006 to 2011, measurably stronger than North America’s rate of two percent. Carnival’s revenues from passengers outside the U.S. are up 40 percent since 2006, now accounting for more than half of its revenues.

Despite facing challenges during the recent financial crisis, the cruise industry has been the fastest-growing segment of the travel industry, achieving 2,100 percent growth since 1970. Global revenues from companies publicly listed and those traded over-the-counter in the U.S. are nearly $29 billion. Key market drivers for the industry include disposable income and the world price of crude oil, each contributing to high levels of income volatility. The 2008 global financial crisis caused significant declines in market growth as consumers’ disposable income fell. Many cruise lines resorted to large discounts and special offers to keep occupancy rates high, and both industry revenue and profit contracted. Some operators were forced out of the industry in 2008. Due to the economic recovery since 2010, revenue is expected to improve as demand increases once again, though the industry will face competition from other modes of transportation and tourism industries. Furthermore, in 2013, two separate cruise ship

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1 Industry composition is based on the mapping of the Sustainable Industry Classification System (SICSSTM) to the Bloomberg Industry Classification System (BICS). A list of representative companies appears in Appendix I.

1 The primary SICS industry for Walt Disney Company is Media Production & Distribution under the Services sector.
Accidents affected the industry’s reputation, potentially heightening customers’ concern for safety and increasing openness to alternatives.\textsuperscript{15}

Net income margin for FY2013 ranged from about four to seven percent.\textsuperscript{16} Fuel accounts for a considerable amount of the industry’s expenses. Other major expenses include payroll and other costs related to shipboard personnel and cost of passenger cruise bookings, like travel agent commissions and pre- and post-cruise transportation for guests.\textsuperscript{17} Royal Caribbean’s major costs in 2013 were “commissions, transportation and other” expenses at 16.5 percent of cruise operating expenses, followed by fuel at 11.6 percent, and “payroll and related” expenses at 10.6 percent.\textsuperscript{18} Fuel costs were 19 percent of NCL’s total cruise operating expenses in 2012, 17 percent in 2011, and 15 percent in 2010. Inflated fuel pricing forces firms to pass fuel surcharges onto clients and compounds revenue volatility.\textsuperscript{19} In 2009, declining demand and decreasing fuel prices (hindering fuel surcharge revenue) contributed to an 18 percent reduction in industry revenue.\textsuperscript{20} Political instability impacts operations through changes in fuel prices and demand for cruise travel.\textsuperscript{21} The unforeseen continuation of unrest in the Middle East has left the fate of oil prices uncertain, contributing to earnings uncertainty and potential erosion in share prices.\textsuperscript{22}

Cruise line operators face moderate competition, and there are high barriers to entry for new players. These barriers include the existence of several established and recognizable brands, and the financial resources and time required to fill orders of new ships. The Cruise Lines industry is highly concentrated with the three largest companies generating about 90 percent of industry revenue.\textsuperscript{23} The recent market rate to build a cruise ship can range from approximately $500 million to $1.4 billion, depending on the ship’s size and quality of product offering, and can take 27 to 36 months, or longer as the size of ships increases.\textsuperscript{24} Royal Caribbean recently ordered the world’s largest cruise ship, an Oasis-class vessel with the capacity to accommodate 6,300 passengers and almost 2,400 crew members.\textsuperscript{25} At 360 meters in length, this class of ship is comparable to some of the largest cargo ships.\textsuperscript{26}

\textbf{LEGISLATIVE AND REGULATORY TRENDS IN THE CRUISE LINES INDUSTRY}

The following section provides a brief summary of key regulations, and self-regulatory and legislative efforts related to this industry.\textsuperscript{11}

The laws, regulations, treaties, and other legal requirements of cruise lines’ operations can change daily with the international, national, state, and local jurisdictions of a ship’s itinerary. Ships are also regulated by the jurisdictions in which they are registered and are required to comply with relevant international conventions. Vessels are subject to periodic inspections by the country of registry and destination port authorities to verify compliance with these regulations. Such inspections include verification of compliance with the maritime safety, security, environmental, customs, immigration, health,
and labor regulations applicable to the ship’s country of registration, current port, and international conventions.\(^{27}\)

Cruise operators can choose the country in which their ships are registered, based on various financial and regulatory factors, irrespective of where the company is headquartered. The chosen registration state is referred to as a ship’s “flag state.” Flag states must be members of the International Maritime Organization (IMO), and therefore must adopt the IMO’s maritime safety Resolutions and Conventions, and must have the capacity to enforce international and national regulations. In addition to enforcing IMO requirements, flag states have their own rules for vessels. These rules can include crew nationality, crew composition, ship owner citizenship, and ship-building requirements.\(^{28}\)

The requirements for U.S.-flagged vessels are among the strictest.\(^{29}\) As a result, 90 percent of commercial vessels calling on U.S. ports operate under foreign flags, and NCL’s Pride of America is the only cruise ship registered in the United States.\(^{30}\) NCL, therefore, is subject to laws and regulations of the U.S. federal government and federal regulatory agencies, such as the U.S. Public Health Service, U.S. Coast Guard, Food and Drug Administration (FDA), Environmental Protection Agency (EPA), and the Department of Labor. For example, if a ship transports passengers exclusively between U.S. ports, U.S. law requires that the ship itself be built entirely in the U.S., documented under U.S. law, crewed by Americans, and at least 75 percent owned and operated by U.S. citizens.\(^{31}\)

The International Convention for the Safety of Life at Sea (SOLAS) is an international maritime safety treaty that ensures that ships flying signatory states’ flags comply with minimum safety standards in construction, equipment, and operation.\(^{32}\) SOLAS establishes requirements for vessel design, structural features, construction methods and materials, refurbishment standards, life-saving equipment, fire protection and detection, safety management, operation, and security, in order to help ensure guest and crew safety. Cruise ships operate seasonally with annual periods of months-long maintenance, where international requirements can significantly impact the time and cost required to keep the ship up-to-standards.\(^{33}\)

“Port state control” gives countries the right to inspect any vessel coming to their ports in accordance with IMO conventions. The IMO defines a deficiency as the violation of, or deviation from, international convention measures that should be rectified. Sometimes a deficiency can lead to a detention of the ship until it is rectified. In addition, many cruise ships are covered by a classification system set by the members of the International Association of Classification Societies, which is dedicated to “safe ships and clean seas.”\(^{34}\) The condition of each ship, including conditions of the hull and equipment, is evaluated on an annual basis, and a class is assigned from “first or highest class” down.\(^{35}\)

Furthermore, the International Labour Organization’s (ILO) Maritime Labor Convention of 2006 became international law on August 20, 2013. It will regulate many aspects of maritime crew labor, like conditions of employment, accommodation, recreational facilities, food, health protection, and medical care. The convention has the potential to impact the worldwide sourcing of new crew members, potentially making it more difficult
and costly to staff operations. The Joint Maritime Commission (JMC), a permanent bipartite standing body of the ILO dating back to 1920, is composed of ship owner and seafarer representatives from across the globe. It plays a vital advisory role in the standard setting process.

While the Vessel Sanitation Program has a basis in U.S. law (42 U.S.C. Section 264), the Vessel Sanitation Program (VSP) is actually voluntary. The VSP was established in the 1970s as a cooperative activity between the Centers for Disease Control and Prevention (CDC) and the Cruise Lines industry. The program assists the cruise ship industry in fulfilling its responsibility for developing and implementing comprehensive sanitation programs. Through the VSP, the U.S. Public Health Service requires ratings by inspectors from the CDC and the FDA to ensure the health and wellbeing of passengers and onboard crew. The VSP applies to ships with more than 13 passengers that are either flagged in the U.S. or foreign ships that have U.S. ports on their itineraries. Under the program, ships must follow guidelines for public health practices, submit to both scheduled and unannounced inspections, and report gastrointestinal illness outbreaks.

Many aspects of the cruise industry are subject to IMO conventions relating to ocean-going passenger ships, including the prevention of marine pollution by ships. Its International Convention for the Prevention of Pollution from Ships (MARPOL) is the most important international marine environmental convention designed to minimize pollution of the seas, including dumping, oil, and exhaust pollution. MARPOL requires ships to adhere to strict performance related to discharging of materials, such as gray water, petrochemicals, and plastics, into waterways. Entries into the Oil Record Book and Ballast Water Record Book are among the ways cruise ships document waste generated, treated, and discharged.

Emissions of greenhouse gases (GHGs), including carbon dioxide (CO$_2$) and nitrous oxide (N$_2$O), are of particular concern to regulators and the industry. In general, environmental protection regulations are becoming more stringent, placing the Cruise Lines industry at risk of higher compliance costs in domestic and international markets. For example, MARPOL Annex VI included progressive reduction in emissions of sulfur oxides, nitrogen oxides, and particulate matter. The designation of Emissions Control Areas to U.S. coastal waters and other future ECAs will apply stringent engine emission standards and fuel sulfur limits to ships that navigate those waters. Additionally, the European Commission’s proposed mandatory monitoring, reporting, and verification of CO$_2$ emissions from large ships using EU ports is likely to come into effect in the near term.

Some environmental groups have lobbied for more extensive oversight of cruise ships. The industry’s environmental footprint is associated with the operation of cruise ships, including the use of fuel, water, and food, as well as the discharge of wastewaters, generation and disposal of solid wastes, and emissions from combustion and refrigeration equipment. Furthermore, cruise operations can impact the biodiversity of the areas of operation. The U.S. and various state and foreign governments or regulatory agencies have enacted, or are considering, new environmental regulations or policies. These include requiring the use of low-sulfur fuels, increasing fuel efficiency requirements, or restrictions on emissions.
newly implemented EPA’s Vessel General Discharge (VGD) permit provides more guidelines on proper wastewater discharge, such as gray water from laundry or bathing, and ballast water that may carry invasive species that could harm the native ecosystem.\textsuperscript{45}

Compliance with such laws and regulations as discussed above may entail significant, and potentially unforeseen, expenses for ship modification and changes in operating procedures, which could adversely impact operations of companies that are not proactive in implementing measures to reduce their impacts.

\textbf{SUSTAINABILITY-RELATED RISKS AND OPPORTUNITIES}

Industry drivers and recent regulations suggest that traditional value drivers will continue to impact financial performance. However, intangible assets such as social, human, and environmental capitals, company leadership and governance, and the company’s ability to innovate to address these issues are likely to increasingly contribute to financial and business value.

Broad industry trends and characteristics are driving the importance of sustainability performance in the Cruise Lines industry:

- \textbf{Environmental externalities, public concern, and regulatory response:} The industry’s operations create environmental externalities, including air emissions and impacts on marine and coastal ecology. Global regulations are focusing on addressing these externalities as environmental concerns increase, creating risks for industry players and incentivizing them to mitigate these impacts. Additionally, minimizing their environmental impact is important for cruise operators to maintain continued access to ports.

- \textbf{Impacts on the productive value of human capital:} The Cruise Lines industry employs workers from around the world to run all aspects of operations, from bus boys to officers. Management of pay, working hours, and other working conditions is important due to both the complex and varying regulations and customer-facing nature of the industry.

- \textbf{Safety management to maintain license to operate:} Accidents in the Cruise Lines industry, though rare, can lead to social and environmental costs by affecting lives, the environment, property, and goods. In addition, smaller chronic instances of crime, assault, and injuries on both guests and crew can impact company value through liabilities and harm reputation not only of the company involved, but the entire industry.

As described above, the regulatory and legislative environment surrounding the Cruise Lines industry emphasizes the importance of sustainability management and performance. Specifically, recent trends suggest a regulatory emphasis on environmental protection, customer and worker safety, and fair labor practices that will serve to align the interests of society with those of investors.

The following section provides a brief description of each sustainability issue that is likely to have material implications for
companies in the Cruise Lines industry. This includes an explanation of how the issue could impact valuation and evidence of actual financial impact. Further information on the nature of the value impact, based on SASB’s research and analysis, is provided in Appendix IIA and IIB. Appendix IIA also provides a summary of the evidence of investor interest in the issues. This is based on a systematic analysis of companies’ 10-K and 20-F filings, shareholder resolutions, and other public documents. It is also based on the results of consultation with experts participating in an industry-working group convened by SASB.

A summary of the recommended disclosure framework and accounting metrics appears in Appendix III. The complete SASB standards for the industry, including technical protocols, can be downloaded from www.sasb.org. Finally, Appendix IV provides an analysis of the quality of current disclosure on these issues in SEC filings by the leading companies in the industry.

**ENVIRONMENT**

The environmental dimension of sustainability includes corporate impacts on the environment. This could be through the use of natural resources as inputs to the factors of production (e.g., water, minerals, ecosystems, and biodiversity) or environmental externalities and harmful releases in the environment, such as air and water pollution, waste disposal, and GHG emissions.

One of the Cruise Lines industry’s greatest sustainability challenges comes from the regulation of greenhouse gases and other air pollutants. These regulations can affect fuel costs and may require extensive capital investments to upgrade equipment. Other externalities related to the environment include broad ecological impacts as they pertain to waste disposal, invasive species, and harm to marine wildlife.

**Fuel Use & Air Emissions**

Cruise Lines companies generate emissions mainly from the combustion of diesel in ship engines. The industry’s reliance on heavy bunker fuel is important to manage due to intensifying emissions regulations and rising fuel costs. Recent environmental regulations are driving adoption of more fuel-efficient engines and use of cleaner burning fuels, both of which can result in fewer emissions. Furthermore, fuel constitutes a major expense for industry players, providing another significant incentive for fuel efficiency.

Greenhouse gases and air pollutants including carbon dioxide (CO₂), nitrogen oxides (NOx), sulfur oxides (SOx), and particulate matter (PM) are the main environmental externalities of fuel use for cruise companies. On a relative basis, ships are among the most fuel efficient of the major transportation modes, in terms of fuel use per ton shipped. However, due to the great demand for onboard electricity, the energy intensity of cruise operations is much higher than cargo ships.

Some air pollutants tend to have more localized environmental and health impacts than greenhouse gases, and are thus a concern at port cities. SOx is responsible for acid rain, NOx contributes to the formation of ground level ozone, and PM is associated with health effects such as premature mortality for adults and infants, heart attacks, asthma, and lost workdays. Since cruise ships make brief stops
at various port cities, they can impact local air quality and may raise public health concerns.

Emissions are directly related to the total fuel consumed, the type of fuel, and other factors such as engine type. Improving fleet fuel efficiency through purchase of new ships or retrofits can improve performance in this area. Regulatory compliance through lower emissions and increased fuel efficiency can be significant, both in terms of capital investment and operating cost. Proper management of this issue may result in fuel cost savings, and can contribute to lowering regulatory risks and penalties.

The use of renewable energy, including biofuels and solar onboard, is not yet common in the industry. Instead, innovation is coming from the use of onshore power to supply electricity to power the ship while it is docked at ports. At some ports, plugging into shore power is required by law. Coordination between ports and cruise companies is necessary for wide-scale adoption of this technology. Ports need to install necessary infrastructure, and ships must be retrofitted to enable them to connect to the grid. While this may shift emissions from Scope 1 to Scope 2 for cruise lines, onshore power would preserve air quality at ports and, depending on the power source, even reduce overall emissions.

Company performance in this area can be analyzed in a cost-beneficial way internally and externally through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Gross global Scope 1 emissions;
- Discussion of strategies to reduce emissions, and performance against those targets;
- Energy consumed, percentage from heavy fuel oil and percentage from onshore power supply (OPS), percentage from renewables;
- Emissions of NOx, SOx, and PM; and
- Energy Efficiency Design Index for new ships.

**Evidence**

Even though ships are among the most fuel-efficient modes of transport, cruise line operations can be quite energy-intensive due to the energy needs of their onboard hotel operations. This results in significant and direct GHG emissions and local air pollutants. The IMO estimated that passenger ferries and cruise ships generated 96 metric tons of carbon dioxide equivalent (CO2e) in Scope 1 emissions, or 9.5 percent of the total emissions from global shipping, in 2007. Marine passenger and cargo transportation generates about three percent of global GHG emissions, doubling in absolute terms between 1990 and 2007. It contributes five to eight percent of SOx emissions, and 15 percent of NOx emissions. While the relative size of the industry is small, it is the fastest-growing segment of tourism, with an annual growth rate of 7.4 percent since 1990. As such, energy management within cruise lines has significant sustainability implications due to resulting air emissions.

There are several regulations driving energy and emissions reduction in the industry. In 2013, the European Commission proposed mandating “monitoring, reporting and verification of CO2 emissions from large ships using EU ports.”
An informal agreement on these new rules, that would be effective July 2015, was reached in November 2014. The rule covers CO₂ emissions from ships that are over 5,000 gross tons and that use EU ports irrespective of where the ships are registered. This rule will likely apply to most cruise ships calling on EU ports because even smaller cruise ships with only capacity for about 148 passengers can be over 5,000 gross tons, and the average cruise ships carries over 1,000 passengers.

In 1997, IMO introduced a MARPOL annex called Regulations for the Prevention of Air Pollution from Ships (Annex VI). Its aim was to reduce airborne emissions, including NOx, SOx, PMs, and VOCs. Annex VI contains a program that applies increasingly stringent emission standards and fuel sulfur limits to ships that operate in Emission Control Areas. An amendment to the annex aimed at reducing GHG emissions went into effect January 1, 2013. It includes a set of efficiency indexes, including the Energy Efficiency Design Index, which details minimum energy efficiency requirements for ships built after 2013. The non-prescriptive measure requires progressive efficiency gains of 10 to 30 percent between the years 2013 and 2030 in terms of CO₂ per capacity-mile.

The EPA and U.S. Coast Guard designated Emission Control Areas (ECAs) in U.S. territorial waters, where the MARPOL guidelines on engine emission standards and fuel sulfur limits to ships apply. Both U.S. flagged vessels and non-U.S. flagged vessels may be liable for a civil penalty of up to $25,000 for each day of violation. The Cruise Lines International Association (CLIA) estimated the economic impact of the designation of North American ECAs on cruise itineraries in Alaska, Canada/New England, and the Northeast/Bahamas/Caribbean markets. For cruise ships, the fuel costs were projected to increase between 56 and 80 percent, due to higher cost of lower emission fuel. The increase is estimated to result in a decline in passenger visits and a loss of $728 million.

Fuel expense is another consideration for energy management, as it is one of the largest operating expenses for Cruise Lines. For FY2013, fuel costs accounted for 17.4 percent of cruise operating expenses for Royal Caribbean Cruises, 18.3 percent for NCL, and 21 percent for Carnival. Marine fuels used by cruise ships account for nearly all of the industry’s GHGs and other emissions. Several companies have chosen to commit to corporate reduction targets. Carnival, for example, has set a target of 20 percent reduction by 2015 (using a 2005 baseline) in the intensity of carbon dioxide emissions from shipboard operations. Both technical and operational means of lowering fuel consumption lead to lower emissions across the board, and have the potential for lower fuel costs. The industry is currently focused on lowering emissions of SOx and NOx to be in compliance with regulations. These reductions can be achieved through use of alternative, costlier fuels and treatment of exhaust gas. Additionally, there are technologies that prevent the formation of NOx during combustion.

According to Carnival Corporation’s FY2012 Form 10-K, the company spent $20 million on fuel that meets the current sulfur standards. The company estimates that at current fuel prices, it will cost an additional $255 million to $275 million per year after January 2015 to meet MARPOL standards of a 0.1 percent fuel
sulfur content limit. The company says they will be exploring many avenues to mitigate cost impacts of implementing progressively lower sulfur content limits, including engine performance improvements, air conditioning efficiency improvements, new itinerary options, decreasing ship speeds, new air lubrication systems, increased energy use awareness, efficient lighting, and voyage optimization tools. In its FY2012 Form 10-K, Carnival Corporation states that implementing initiatives in these categories has already allowed the company to reduce the rate of fuel consumption by 18 percent over the previous seven years.

The use of low sulfur fuels to lower emissions can be costly, as indicated above. As an alternative, major cruise lines, including Carnival, are investing in scrubber technology. Scrubbers installed on ships allow companies to meet the new sulfur fuel content regulations by purifying emissions to the level of using lower sulfur content fuel. Carnival estimated that the company would be spending about $180 million on equipment for 32 of their 100 ships over the next two to three years. In similar fashion, Royal Caribbean projected that its 2013 fuel costs would increase between $65 and $70 million with implementation of the 0.1 percent low sulfur content requirement in all four currently designated ECAs. The company has planned to move ship deployments from Maryland and Virginia, ahead of the ECA implementation dates, to Florida, citing “itinerary operating costs including fuel costs.” However, the possibility exists for additional ECAs to be established in the future: in particular, other geographic areas off the coasts of Australia, Mexico, Hong Kong, Japan, and the Mediterranean Sea.

In its FY2013 Form 10-K, Royal Caribbean disclosed that it has been proactive in taking steps that would mitigate the impact of most of the upcoming regulations on fuel costs. For example, all new ships ordered will have advanced exhaust purification systems covering all engines. The company expressed concern about the 2020 MARPOL global sulfur limit of 0.5 percent, which is pending a feasibility review. The company stated if the limit is implemented “and we have not been able to successfully mitigate the impact with evolving technical solutions, our fuel costs could increase significantly.”

Using onshore power while docked at ports can reduce NOx, SOx, and PM emissions by 90 percent. There may be a net decline in greenhouse gas emissions as well, depending on the source of grid electricity. It can be a source of cost savings based on the going rates for fuel versus electricity, the sulfur content requirements at port, and the reduced maintenance cost for auxiliary engines. In order to reduce air pollution at ports, several North American ports, including Juneau, Alaska; Long Beach, Los Angeles, San Francisco, and San Diego, California; Seattle, Washington, and Vancouver, British Columbia, are equipped with onshore power, which enables ships to ‘cold iron,’ or turn off their engines and plug into the port’s electricity grid. The Shore Power Regulation is a law that requires fleets calling at California ports to shut down the auxiliary engines and plug into the electric grid while at port. Starting in 2014, fleets are required plug in during at least 50 percent of port calls. This requirement increases to 80 percent from 2020 onwards. Vessel operators may be penalized for noncompliance from $1,000 to $75,000 per violation, and
there may be multiple violations for one ship visit.\textsuperscript{80}

Companies are recognizing the importance of connecting to grid power at ports where it is available. The Port of Los Angeles, which has emission reduction targets for docked container, cruise, and reefer vessels, reported that Disney Cruise Line, Princess Cruises, and NCL had all taken advantage of the shore power offered.\textsuperscript{81} Eleven Princess Cruise ships, with three more underway,\textsuperscript{82} and 21 Carnival ships have all been equipped with shore power technology.\textsuperscript{83}

Disclosure around the issue in current 10-K filings of some companies goes beyond cost estimates from future regulations. Carnival, for example, is the only company in the industry that provides emission rates to their investors, including its ship fuel GHG emission rate (measured as grams of CO\textsubscript{2} equivalent per available lower berth kilometer) and its NO\textsubscript{x} and SO\textsubscript{x} emissions rates (both measured as kilogram of emissions per nautical mile). The company also provides ship fuel consumption metrics, measured in terms of grams of fuel per available lower berth kilometer.\textsuperscript{84}

**Value Impact**

Management of fuel use can provide operational efficiency and affect cost structure of companies in the industry.

Compliance with emerging laws and regulations around greenhouse gases and other air pollutants may entail significant capital expenses for ship modifications, like installation of scrubber technology and changes in operating procedures. (These laws include, in particular, MARPOL’s stricter sulfur emissions rules in Emission Control Areas.) At the same time, companies that are able to implement fuel-saving technologies, either via retrofitting current ships or acquiring more efficient vessels, will be better positioned to realize fuel cost savings and mitigate impacts of fuel price volatility. On the downside, companies that regularly violate emissions standards can face increased extraordinary expenses due to fines.

The magnitude of regulatory impacts can be estimated using companies’ Global Scope 1 GHG emissions, as well other emissions, both in absolute terms and relative terms. The impact of fuel use on operating costs and profitability can be analyzed through energy efficiency (through overall energy consumption and ship design) and energy mix (including heavy fuel and renewables). Specifically, the use of renewable energy indicates a firm’s ability to mitigate its carbon footprint and reduce its exposure to volatile energy costs.

As international and national climate change mitigation efforts continue, including in marine transportation, the probability and magnitude of these impacts are likely to increase in the near to medium term.

**Discharge Management & Ecological Impacts**

Cruise vacations offer unique access to pristine ocean waters and destinations with delicate ecosystems. However, the sensitivity of these ecosystems can be threatened. Threats include the size of the ships, the influx of foreign tourists, and the scale of the resources consumed or waste generated onboard.

Cruise ships hold thousands of passengers and provide luxury resort-level amenities, plus the infrastructure of a floating city. This means
handling passenger waste streams, supplying fresh water, generating electricity, and managing bilge and ballast water are part of their operations. Cruise ships discharge ballast water, treated bilge water, food waste, and treated “black water” (sewage). They also discharge gray water from bathrooms and laundry facilities, and effluent from advanced wastewater treatment into the ocean. Back on land, ships are able to dispose of solid waste, recyclables, and hazardous waste. 85

Despite their vast size, current regulations allow ships to dump untreated sewage once they are 12 nautical miles from shore. 86 These combined factors mean that companies in this industry have to pay special attention to their impact on the ecosystems they interact with in order to preserve the splendor of their destinations and maintain their license to operate. Cruise ship operations, like anchoring, waste discharge, and the influx of tourists to ecologically sensitive areas have the potential to harm coral reefs and other marine and shore ecology. If cruises are associated with significant environmental externalities, local communities may oppose expansion or continuation of calls to port.

Evidence

Over the last two decades, cruise ships have more than tripled their passenger capacity. In 2012, North American cruise lines carried about 17 million passengers. 88 The newest ships each carry upwards of 8,000 passengers. 89 As the industry is growing, so is the potential for environmental damage. Much of the water that cruise ships sail on are protected conservation areas. For instance, 41 percent of U.S. marine waters are protected in some way, with three percent classified as “no take” marine protected areas or marine reserves. These areas are more restrictive and limit the catching of fish, collection of shells, or other activities

However, over the last decade, the EPA has performed several studies with the goal of creating targeted and enforceable regulations to limit the ecological impact of cruise ships marketed in the United States. Another indication of the importance of waste management is the movement by the CLIA to adopt environmental standards for their members, which exceed the requirements of the U.S. and international laws. 87

Company performance in this area can be analyzed in a cost-beneficial way internally and externally through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Amount of ship waste discharged to the environment, percentage treated;
- Percentage of fleet with ballast water (1) exchange and (2) treatment;
- Cruise duration in areas of protected conservation status; and
- Number of notices of violations received for dumping.

Given the environmental externalities that can result from waste streams of this scale, companies in this industry can insulate themselves from future regulations, litigation, and limitations of their license to operate by voluntarily adopting best environmental practices. The regulations that govern activities related to waste streams and ecological impact depend on a ship’s flag state and current location. This patchwork of legislation has led to lax enforcement compared to other industries.
According to a 2004 survey conducted by the EPA, the average sewage generation rate for cruise ships operating in Alaska is 8.4 gallons/day/person. By that estimate, a seven-day cruise with 3,000 passengers and crew generates about 176,400 gallons of sewage. Known as “black water,” sewage on cruise ships is usually treated using a marine sanitation device that biologically treats and disinfects the waste before discharging it into the ocean. Untreated black water can carry enteric bacteria, pathogens, diseases, viruses, eggs of intestinal parasites, and harmful nutrients. Discharges of untreated or inadequately treated black water can cause bacterial and viral contamination of commercial and recreational shellfish beds, and pose risks to public health.

Some cruise ships have installed Advanced Wastewater Treatment systems (AWTs) to further treat sewage and gray water, which includes wastewater from sinks, baths, showers, laundry, and galleys. On ships without AWTs, gray water is not generally treated. The 2004 EPA survey mentioned above also measured gray water generation rates and found the average rate to be 67 gallons/day/person, which translates into 170,000 gallons/day/vessel. Gray water can contain inorganic compounds and harmful substances, such as nitrogen and phosphorous, which can deplete the dissolved oxygen in water that is necessary to support life. It represents the largest category of liquid waste generated by cruise ships, by far.

Solid waste on cruise lines includes garbage, recyclables, food waste, sludge, and other hazardous material. In 1999, Royal Caribbean Cruises reported that a ship can generate up to 15 tons of waste in just one day. Approximately 75 to 85 percent of trash is incinerated onboard, and the resulting ash is discharged at sea. The remaining waste, including recyclables and hazardous waste, is brought to port and offloaded for disposal or recycling.

Over the course of regular operations, cruise ships accumulate bilge water along the bottom of the ship’s hull (the bilge) that can contain oil and other chemicals that leak from engines, equipment, and cargo. Depending on the ship age, size, engine room configuration, and maintenance practices, cruise ships produce between 1,300 to 37,000 gallons of oily bilge water per day. It is important to make sure this oily water is not discharged directly into the oceans, where it can impact the aquatic ecosystem. According to the Port of Cordova, Alaska, “one pint of spilled oil can cause a sheen over an acre of water and kill the marine organisms that live on the surface.” Long-term exposure to low concentration of petroleum hydrocarbons can be harmful to birds and fur-bearing marine mammals. Egg and larval forms of many species are sensitive to small quantities of oil, even at low concentrations. Generally, oily bilge water can either be retained onboard in a holding tank for discharge at a reception facility onshore, or treated onboard with an Oily Water Separator (OWS) after which it can be discharged overboard.

Ballast water is seawater pumped into special compartments in a ship’s hull to maintain stability. Ballast water is often discharged into an entirely different body of water than its origin. Because of this, it can be a contributor in spreading invasive species and disrupting
ecosystems. For the Cruise Lines industry, entries must be made in the ship’s Ballast Water Record Book any time ballast water is taken on or discharged.

In 2000, the Bluewater Network, representing 53 environmental organizations, filed a petition with the U.S. EPA to address cruise ship pollution. The petition requested that the EPA identify sources of pollution from cruise ships and take regulatory action. The resulting 2008 report from the EPA, titled Cruise Ship Discharge Assessment Report, provided significant research on the treatment of sewage and gray water. The results were compelling enough that the EPA is performing further studies. It may revise or add pollution-related regulations in Alaska, pursuant to the federal legislation “Certain Alaskan Ship Operations.”

The same study also claimed that while all large cruise ships are subject to MARPOL and other environmental regulations, “the lack of enforcement of these requirements by individual cruise ships has resulted in criminal violations of the law.” Cruise operators have been found dumping oil, hazardous chemicals, and waste water in violation of discharge regulations. Royal Caribbean pleaded guilty to 21 counts of dumping oil and hazardous waste. In July 1999, the company was fined a total of $21.5 million by U.S. states, Puerto Rico, and the U.S. Virgin Islands. More recently, it received water pollution violation notices from the State of Alaska between 2007 and 2009, including one for discharging wastewater contaminated with zinc. In 2008, Carnival Corporation’s Princess Cruises and Holland America Line received 38 Notices of Violation for violations of wastewater permits. In July 2002, NCL pleaded guilty to having discharged oily bilge water for several years and to having falsified discharge logs, for which it was fined $1 million and ordered to contribute $500,000 to environmental service programs in Florida.

The EPA found the most common violations were from knowingly falsifying statements in the ship’s Oil Record Books at a material scale. For example, ships have discharged hundreds of thousands of gallons of oil-contaminated waste per ship per year. Recourse for these actions has involved probations and requirements to enhance environmental compliance systems, all of which are costly in terms of time and equipment.

In addition to waste discharge, cruise ship anchoring and the influx of thousands of tourists per cruise liner can negatively impact local ecosystems. By 1995, of the 109 countries with coral reefs, reefs in 90 countries were being damaged by human activities, including cruise ships anchoring and intentional breaking of coral. One study found that a cruise anchor dropped in a coral reef for a day can leave damage the size of a football field—which would take 50 years to recover. Accordingly, some areas that are extremely sensitive are designated No Anchoring Areas (NAA) and Areas to be Avoided (ATBA). According to the World Resources Institute, about 15 percent of the coral reef in the Caribbean, a popular cruise destination, is threatened by cruise ship waste water discharge, damage from ship groundings and anchors, and oil leaks. The Caribbean is one of many destinations where cruise lines must minimize impact in order to preserve the natural beauty that their guests wish to see.

Managing the environmental impacts of cruise line operations is also important for
maintaining access to ports. Unavailability of ports is a significant concern for the Cruise Lines industry since it is one of the main factors influencing purchasing decisions for cruise guests. In August 2014, officials in Venice agreed to ban ships above 40,000 metric tons from Saint Mark’s basin and Giudecca Canal due to environmental concerns. Environmentalists have been concerned about the effect of cruise ships on the fragile ecosystem in the lagoon surrounding Venice. In the Cayman Islands, environmentalists fear that construction of a new approved cruise berthing facility will be a threat to sensitive coral and marine life.

In Key West, additional dredging is needed to accommodate the newer, larger cruise ships. Like most small port communities, cruises are important for commerce there—cruise ship taxes and fees amount to 15 percent of the city’s tax revenue. Additionally, the influx of cruise tourists brings millions in revenue to local businesses. However, in October 2014, residents voted against dredging the channel due to the serious environmental consequences.

Addressing environmental concerns in its FY2013 Form 10-K, Carnival reports: “Negative publicity concerning the cruise business in general or us in particular, including any adverse environmental impacts of cruising, could impact the demand for cruises, affect our reputation and harm our future sales and profitability.” Additionally, NCL discloses in its FY2013 Form 10-K: “(t)he availability of ports is affected by a number of factors, including, but not limited to, (...) local governmental regulations and local community concerns about port development and other adverse impacts on their communities from additional tourists.” The company further states: “(a)ny limitations on the availability of our ports of call could adversely affect our business, financial condition and results of operations.” Carnival and Royal Caribbean have similar disclosures in their respective Forms 10-K. One example is the continuation of NCL’s operations in Glacier Bay National Park and Preserve in Alaska, which is dependent on the company’s ability to renew the concession permit it currently holds.

**Value Impact**

Companies that hold themselves to full compliance, or exceed environmental requirements, will preserve the environment their guests value. They will also save themselves the disruption in cash flow, disruption in operating procedures, and negative media coverage involved in noncompliance.

Mitigating negative impacts on biodiversity and ecosystems through proper management of ballast, bilge, and waste water reduces the risk of litigation and regulatory fines. It also protects a company’s brand image and reputation. At the same time, it may require cruise line companies to incur additional capital expenditure. In more extreme situations, improper discharge management and ecological impacts can affect a company’s license to operate in certain ports or routes, directly impacting market share and revenue growth.

The percentage of ship duration in marine protected areas indicates a company’s exposure to the risk of ecological impacts, while the percentage of a company’s fleet with ballast water exchange and treatment indicates proactive risk management. These forward-
looking metrics can be complemented by an understanding of past performance in mitigating ecological impacts, through the amount of ship waste discharged to the environment, percentage treated. Lastly, the number of violations of discharge regulations also indicates past performance that could affect license to operate.

**SOCIAL CAPITAL**

Social capital relates to the perceived role of business in society, or the expectation of business contribution to society in return for its license to operate. It addresses the management of relationships with key outside stakeholders, such as customers, local communities, the public, and the government.

Consumer expectation of safety and comfort is high, so issues such as health risks and physical safety risks are especially important to avoid. It is also important to deal with such risks promptly and effectively to avoid losing market share. Companies that manage passenger safety will be positioned to deal with international travel risks, public health issues, food safety, and customer concerns over safety and service, thereby protecting shareholder value.

**Shipboard Health & Safety Management**

Cruise liners offer a variety of luxury and activity experiences to their customers, including elaborate shows, casinos, fine dining, indoor skydiving, spa treatments, swimming, and fitness facilities. Each activity comes with its own set of health risks, safety challenges, and liabilities that cruise companies must navigate. The main health and safety concerns include theft, injury, assault, fires, and disease outbreaks. Cruise companies operate a uniquely transitory service where they must provide all the safety oversight of a small city, including medical and security staff. Companies in this industry that manage health and safety concerns through proper sanitation, qualified medical staff, and security will experience increased customer satisfaction and safety.

Cruise passengers and crew members have been subject to theft, assault, and disappearance. While crime rates are low when compared to U.S. crime statistics, the law enforcement is much trickier, and cases are not as easy to resolve. It is not unusual for a ship serving the U.S. to take its passengers outside U.S. waters on a foreign-flagged vessel, leaving them unsure who is responsible for their law enforcement needs. For U.S. citizens, the FBI may be involved in investigations, but another nation may also have jurisdiction. Domestic incidents are the jurisdiction of the U.S. Coast Guard. However, neither will be onboard until the ship comes ashore, so immediate protection will come from cruise ship security personnel. Additionally, many crew members are non-U.S. citizens, or may not be aware of the protections afforded to them. There can be several governing bodies—including the flag state, port state, and home country of a crew member—involved in both providing and enforcing safety regulations for the industry. These regulations can create confusion regarding the protections afforded to crew members.

Cruise ship operators can take a proactive approach by providing high-quality security
Fires onboard ships are usually caused by mechanical failure and point to the need for proper maintenance and system upgrades.\textsuperscript{122} While rarely fatal and usually contained, recent events described in the evidence section imply that fires onboard cruise ships can escalate and have unforeseen consequences that dramatically impact passenger experience.

Furthermore, a commitment to providing a clean and sanitary environment onboard is important in mitigating passenger and crew health risks. In addition to the limitation of not having immediate access to mainland medical facilities, cruise passengers and shipboard employees live in a shared facility, and any contagious illness can spread easily. Ensuring a healthy workforce is important in maintaining full staffing and reducing risk of illness that spreads to guests.

The CDC’s Vessel Sanitation Program enforces guidelines for public health on all cruise ships that visit U.S. ports. The program uses scheduled and unscheduled inspections, usually two per vessel per year, to monitor the level of compliance. However, the guidelines under the Vessel Sanitation Program are not laws, and the CDC’s only recourse are through publicly publishing health scores and illness outbreaks and detaining a ship in port to remEDIATE deficiencies.\textsuperscript{123} Although the CDC has authority to detain a ship for unsanitary conditions, it is a rare occurrence.

Company performance in this area can be analyzed in a cost-beneficial way internally and externally through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Number of alleged crimes incidents;
- Fleet average VSP inspection score, percentage of inspections failed; and
- Rate of injuries for customers, and number of voyages with gastrointestinal illness count exceeding two percent; and
- Seafarer lost time injury rate.

Evidence

The CLIA estimates that 17.6 million passengers sailed onboard cruise ships in 2013. By having safety features on ships, maintaining proper sanitation, and having adequate medical and security staff onboard, the Cruise Lines industry can ensure a safe and comfortable experience for millions of travelers. Public perception of the safety of cruises is a major factor in determining consumer demand. As such it is important to manage health and safety risks in order to reduce reputational risk.

Between 2011 and 2014, Carnival Corporation was involved in 845 lawsuits, 791 (or 94 percent) of which were related to personal injury. Royal Caribbean had 319 personal injury lawsuits (78 percent of total lawsuits) during the same time period.\textsuperscript{124} Disney reported carrying over 200,000 passengers and 5,000 staff in each of the first three quarters in 2014. The company self-reported on its website one claim of alleged assault and four claims of alleged sexual assault and rape, including three
against crew members. To the company’s knowledge, charges were filed in connection with only one case of alleged sexual assault.125 While some of these cases are related to larger cruise accidents (discussed in more detail under the Accident Management issue), these numbers demonstrate the legal battles cruise line operators can face related to passenger and crew safety. They also indicate the importance of focusing on passenger safety to reduce contingent liabilities.

In 2013, after the major cruise accident involving Costa Concordia, the U.S. government and the Cruise Lines industry moved towards more laws and disclosure of safety issues and practices onboard cruise ships.126 In July 2013, Senator John Rockefeller of West Virginia introduced the Cruise Passenger Protection Act (CPPA), calling for disclosure of safety information to potential passengers before they book their trips. The proposed law also has other requirements related to passenger safety that include: revised vessel design and retrofitting requirements, compilation of statistics on missing persons, crimes, other information on a Department of Transportation website, and civil and criminal penalties for violating these requirements.127

Voluntary disclosures can be useful tools to reduce regulatory risk. However, the disclosure in this case has fallen short of what Senator Rockefeller expected, and there may be further regulatory scrutiny. For example, over a three-month period in 2013, NCL claims to have carried 380,000 passengers with zero incidents of reportable crime.128 Over the same period, Carnival Corporation reports ten incidents of crime while carrying almost 6.7 million passengers.129 Such low numbers are believed by some to indicate underreporting by these companies. Reacting to the values disclosed, Senator Rockefeller said: “It falls short of what passengers need to make an informed decision about potential safety issues on their vacations.”130 The proposed CPPA would revise requirements around “log book entries and reporting of deaths, missing individuals, thefts, and other crime.”131 Around the same time, the Cruise Lines industry voluntarily adopted the Cruise Industry Passenger Bill of Rights. The rights include access to safe facilities, properly trained staff, emergency procedures, and other essential and basic safety rights.132

Fires onboard are usually contained; however, they can sometimes lead to bigger problems. In March 2012, Carnival’s Costa Cruises subsidiary faced another challenging incident when the Costa Allegra caught fire. Passengers onboard spent three days without power or water, and for a portion of that time, they were drifting in waters known to harbor pirates. The ship was successfully towed to safety. But during the three days of exposure, those onboard faced sewage backups and had to sleep outside while temperatures inside their rooms exceeded 100 degrees.133 In February 2013, a fire broke out in the Carnival Triumph ship’s engine room that left the ship without power, air conditioning, or working toilets for five days. A group of 33 passengers on that ship are seeking $5,000 a month for life from the cruise line, with a second pending lawsuit with nearly a hundred plaintiffs.134

Pirate attacks, though uncommon, have the ability to impact cruise sales and cause reputational damage. Cruise liners cross thousands of miles of ocean, at times near areas frequented by pirates. According to the International Chamber of Commerce’s International Maritime Bureau Piracy Reporting...
Centre, Somali pirates have been pursuing passenger liners in addition to cargo ships. Their objective with the cruise liners is to steal valuables and demand ransom for the safe return of the passengers.\(^{135}\)

In 2005, Seabourn Cruise Lines’ “Spirit” narrowly outran an attack from pirates off the coast of Somalia. The ship was carrying 150 passengers and a crew of 160. The pirates attacked the cruise liner from two smaller boats using machine guns and a rocket-propelled grenade. The Spirit captain, Mike Rogers, acted quickly, kept all the passengers below deck to ensure their safety, and was able to outrun the pirates. The attack resulted in minor damage to the ship, a temporary loss of water onboard, and one minor injury.\(^{136}\) The incident prompted Seabourn to reevaluate service to that part of the world. The incident highlights the importance of evaluating international travel risks to avoid dangerous incidents and sudden changes in a destination’s viability.

Apart from the potentially significant personal safety and security incidents on cruises mentioned above, every year there are several instances of norovirus and other disease outbreaks on cruises. Since 2010, there have been 62 outbreaks, an average of over 12 per year, on cruise ships.\(^{137}\) Most of the known causes of these outbreaks were attributed to norovirus and the rest to E.coli, for which the most common cause is contaminated food or water. These are all cases where at least three percent of passengers or crew reported symptoms. An example of such outbreaks occurred in November 2014, when 158 passengers (5.25 percent of total) and 14 crewmembers (1.21 percent) reported being ill during the month-long Princess Cruise. Though crews cleaned it after the outbreak, the same ship reported 152 cases of norovirus and E.coli in April 2014.\(^{138}\) Repeated cases of illness outbreaks, like that on the Princess Cruise, can damage company reputation. Carnival reports in its FY 2013 Form 10-K: "Incidents, the spread of contagious diseases (...) and other incidents affecting the health, safety, security and satisfaction of guests and crew could have an adverse effect on our sales and profitability."\(^{139}\) Public perception of the safety of cruise travel is of utmost importance, as NCL states: "Public perception about the safety of travel and adverse publicity related to passenger or crew illness, such as incidents of H1N1, stomach flu, or other contagious diseases, may impact demand for cruises. If any wide-ranging health scare should occur, our business, financial condition and results of operations would likely be adversely affected."\(^{140}\)

A 2013 health violation on the Silver Shadow, a luxury cruise ship operated by Silversea Cruises, highlights the challenges of maintaining food safety standards and the moral hazard resulting from a lack of regulatory oversight. The ship, which markets a “world class” culinary experience, received a failing grade after a surprise inspection from the CDC. The inspection was prompted by anonymous tips from crew members and cited the ship “with using an ‘organized effort’ to remove 15 trolleys of food from the ship’s galley to individual crew cabins to ‘avoid inspection.’” Despite the failing grade, the ship was allowed to continue operations on the condition that the issues would be rectified. The absence of enforcement results from CDC’s lack of authority over cruise vessels.\(^{141}\) The CDC Cruise Ship Inspection Score database indicated that
of the roughly 240 annual inspections\textsuperscript{iv} in 2012 and 2013, seven percent received nonsatisfactory scores in 2013, which is more than double the number for 2012.\textsuperscript{142} A lax approach to food safety, however, makes cruise lines’ brand value susceptible to damage, especially given the increase in social media use and consumers’ access to information on the internet. Carnival cites the use of social media as an additional way that the company’s reputation may be affected: “The considerable expansion in the use of social media over recent years has increased the ways in which our reputation can be impacted, and the speed with which it can occur. Anything that damages our reputation, whether or not justified, could have an adverse impact on demand, which could lead to price reductions and a reduction in our sales and profitability.”\textsuperscript{143}

**Value Impact**

Health and safety incidents involving passenger and worker safety can impact reputation and brand value—especially when they are highly publicized—and have a direct impact on revenue and market share.Poor health and safety management can also result in extraordinary expenses and contingent liabilities from lawsuits and regulatory actions.

The fleet average VSP inspection score is a proxy for how well sanitation is managed. Higher VSP inspection scores indicate reduced risks of gastrointestinal illness outbreaks. The number of incidents (crimes, fatalities, and injuries) indicates how well companies manage this issue, and provides an understanding of the probability and magnitude of future incidents.

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**HUMAN CAPITAL**

Human capital addresses the management of a company’s human resources (employees and individual contractors), as a key asset to delivering long-term value. It includes factors that affect the productivity of employees, such as employee engagement, diversity, and incentives and compensation, as well as the attraction and retention of employees in highly competitive or constrained markets for specific talent, skills, or education. It also addresses the management of labor relations in industries that rely on economies of scale and compete on the price of products and services. Lastly, it includes the management of the health and safety of employees and the ability to create a safety culture for companies that operate in dangerous working environments.

Cruise lines employs a large international workforce to work onboard ships. Many of these workers interact with guests and are responsible for a safe and pleasant cruise experience. Ensuring good working conditions and fair wages is important for cruise operators, not only due to the physical nature of some jobs and the international nature of the workforce, but also because it can enhance guest experience, reduce risk to reputation, and limit contingent liabilities.

\textsuperscript{iv} There were 240 inspections in 2012 and 241 inspections in 2013.
Fair Labor Practices

A ship’s registration determines what country’s labor laws apply to its staff and, therefore, the stringency of the regulatory regime under which it operates. As stated previously, only one cruise ship is registered in the U.S. The rest of the cruise ships serving the U.S. sail under foreign flags, most commonly the Bahamas and Panama. Strict requirements regarding crew nationality, crew composition, ship owner citizenship, and ship building for U.S. flagships are among the reasons the CLIA cites for cruise companies avoiding registration for vessels in the U.S.144 Compared to U.S. laws, foreign labor laws allow flexibility in many dimensions, including pay, hours, fair treatment, and termination. Therefore, while it may be more cost effective to hire foreign workers, it can also expose companies to potential litigation and reputational damage if proper compensation and good working conditions are not ensured.

Cruise lines employ thousands of workers for both shoreside operations and onboard. Shipboard workers live on the ship, where they have minimal living expenses and can travel to exciting destinations. However, in return, they often make less money than comparable U.S.-based hospitality jobs and may have strenuous work schedules. While housing is provided, it comes with the added strain of small living quarters, which are sometimes shared. This can make it difficult to recuperate after a long working day or a stressful work situation. The Maritime Labour Convention (MLC) is an International Labour Organization (ILO) convention that “establishes minimum working and living standards for all seafarers working on ships flying the flags of ratifying countries.”145 It was established as a way to address the patchwork and widely varying nature of labor standards from country to country.

The use of employment agencies is the predominant mode of employment of seafarers throughout the entire maritime industry, of which cruise ships are a small fraction. The nature of the industry itself lends to engagement of employees from across the globe by contract via agencies. Due to the international nature of the shipboard workforce, there may be language barriers and lack of loyalty and communication between the groups.146

Company performance in this area can be analyzed in a cost-beneficial way internally and externally through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Average hourly wage for seafarers, by region;
- Percentage of seafarers working maximum hours;
- Percentage of seafarers paid for overtime; and
- Amount of legal and regulatory fines and settlements for labor law violations.

Evidence

Cruise lines employ a large number of employees, most of which work aboard ships. Labor costs are among the biggest operating expenses for cruise operators. For instance, Royal Caribbean’s 2013 “payroll and related” costs accounted for 10.6 percent of operating expenses.147 In FY 2013, Carnival’s shoreside operations were managed by 9,700 full-time and 4,500 part-time workers, and 78,500 crew
members worked aboard its ships. Royal Caribbean had 6,200 full-time and 700 part-time employees in its shoreside operations and 57,000 shipboard employees, while NLC employed 1,900 full-time employees for shoreside operations and 15,000 shipboard employees. Many shipboard employees work on a contract basis. According to the IMO’s 2010 estimates, most seafaring officers are from OECD countries (29.4 percent) and the Far East (29.5 percent), followed by officers from Eastern Europe (20.3 percent), the Indian Sub-Continent (12.8), and Africa/Latin America (8.0 percent). For “ratings” or non-officer-ranked seafarers, the Far East has the greatest representation (36.7 percent). The other four regions are more balanced, constituting between 14.5 and 19.2 percent of all ratings. Women only make up two percent of the global maritime workforce, and they mainly work in cruise lines and on ferries.

The MLC 2006, also known as the seafarer’s bill of rights, seeks to protect workers by establishing minimum working and living standards for all seafarers working on ships flying the flags of ratifying countries. Additionally, ships that enter the ports of countries that have ratified the MLC are also subject to the same laws. Ships are subject to inspection to ensure compliance with MLC. The MLC officially came into force on August 20, 2013. To date, 65 countries, including Panama and the Bahamas, have ratified the treaty, with the treaty due to come into force in several other countries by 2015. With widespread adoption, the MLC will provide a one-stop shop for labor standards for the cruise industry. With changing standards, companies in the industry will have to ensure they are meeting, or staying ahead of, these requirements both internally and through any external hiring agencies. In addition, the requirements of the MLC are expected to increase labor costs for cruise line companies and could have a significant impact on profitability. As mentioned, labor costs are already a significant expense for cruise operators.

Work on cruise ships can be characterized by long hours, typically 12 hours per day. This is especially difficult, since many are contract workers who must keep this pace for several months at a time. While the maximum number of hours allowed by the Maritime Labor Convention is 14, some even reported working over 16 hours a day. Brazilian police rescued 11 workers from a cruise ship owned by Italian cruise operator MSC Cruises in April 2014. The workers were found to be working 16-hour days and some were allegedly victims of sexual assault. This is significantly higher than the average number of hours worked by Leisure and Hospitality workers in the US—26 hours per week.

In 2000, a study by the International Transport Workers Federation found that more than half of cruise ship workers earned less than $1,000 per month, including 16 percent who earned less than $500. Some companies employ a gratuity-based wage structure like the one Carnival reports using in its FY2013 Form 10-K. Some companies do not allow tipping, and instead add on gratuity to passengers’ bills, which can ensure a certain level of wage, while others allow direct tipping. In February 2014, a subcommittee of the Joint Maritime Commission agreed to a resolution raising the minimum monthly basic wage from $585 to $592, as of January 1, 2015, and $614, as of January 1, 2016. In contrast, Leisure and Hospitality workers in the U.S. earn on average
about $1,450 per month, working 26 hours a week at $14 per hour.\textsuperscript{164}

The international nature of the workforce can cause issues if labor is not properly managed. A University of Leeds research report on the Cruise Lines industry highlighted evidence dating back to 2010 of the “frequent violation of rights for disadvantaged groups, including charges for medical examinations, visas, transport and administration, putting cruise industry workers into a level of debt that cannot be repaid and is comparable to forced labor.”\textsuperscript{165} For example, research indicated that disadvantaged groups are allocated tasks and paid salaries according to nationality and cultural background, not capability or performance.\textsuperscript{166}

In addition to low wages, many international workers are hired through agents who are paid high fees of around $600 to $1,000 by each worker hired. Though the ILO prohibits agents from taking money from workers, it is not an uncommon practice. Instead, agents are supposed to be paid by the employer. Adding travel costs and agent fees, workers can start their employment with over $1,000 in debt to that they must repay.\textsuperscript{167}

In Carnival Corporation’s 2012 Form 10-K the company acknowledges the MLC 2006 as important legislature. The company estimates that while they already comply with many of the provisions, full compliance will further increase their annual ship operating costs by $15 million to $25 million.\textsuperscript{168} Norwegian Cruise Line also mentions the MLC in their 2012 Form 10-K, pointing out that the new requirements will “regulate many aspects of maritime crew labor and will impact the worldwide sourcing of new crew members.”\textsuperscript{169} Cruise industry members are claimed to be backing a proposed bill in the U.S., HR 4005, which includes a clause that would prevent foreign workers from filing suits in the U.S. for injury compensation or poor medical care onboard ships owned by cruise companies headquartered in the U.S.\textsuperscript{170}

Class action lawsuits and fines levied against cruise operators for wage deductions, excessive working hours, and other labor law violations indicate potential financial impacts related to companies’ labor practices. In July 2009, a class action complaint was filed against NCL “on behalf of crew members alleging inappropriate deductions of their wages pursuant to the Seaman’s Wage Act and wrongful termination resulting in a loss of retirement benefits.” The Seaman’s Wage Act was enacted to protect the rights of U.S. seamen. In May 2011, a separate class action lawsuit was filed for similar allegations. This action was stayed pending the outcome of the 2009 class action.\textsuperscript{171}

In June 2011, a class action complaint was lodged against Royal Caribbean for alleged violation of the U.S. Seaman’s Wage Act. A certain class of stateroom attendants claimed that they were forced to pay other crew members to help with their duties.\textsuperscript{172} In November 2013, the 11th Circuit U.S. Court of Appeals affirmed a decision to grant Royal Caribbean’s motion to compel arbitration of the case that was filed by cruise line workers, finding that the workers agreed to arbitrate the dispute.\textsuperscript{173} Most recently, in October 2014, Dutch labor inspectors fined Royal Caribbean €600,000 for violating local labor laws when it arrived at a Dutch port. For instance, crew members were found to be working in excess of 16 hours a day. The final fine, which may be higher, will be levied upon completion of the investigation.\textsuperscript{174}
Value Impact

Recent labor regulations, particularly the Maritime Labor Convention, are likely to increase ship-operating costs due to higher wage requirements and limitations on working hours. Companies that fail to comply with these standards may also face extraordinary expenses and contingent liabilities from litigation, fines, and penalties. The average wage for seafarers and percentage working maximum hours and paid overtime indicate a company’s susceptibility to higher structural costs as regulatory pressure continues to push minimum wages and overtime compensation. The amount of past legal and regulatory fines and settlements associated with labor law violations is a proxy for how well companies manage this issue, and provide an understanding of the probability and magnitude of incidents.

LEADERSHIP AND GOVERNANCE

As applied to sustainability, governance involves the management of issues that are inherent to the business model or common practice in the industry and are in potential conflict with the interest of broader stakeholder groups (government, community, customers, and employees). They therefore create a potential liability, or worse, a limitation or removal of license to operate. This includes regulatory compliance, lobbying, and political contributions. It also includes risk management, safety management, supply chain and resource management, conflict of interest, anti-competitive behavior, and corruption and bribery.

In the Cruise Lines industry, Leadership and Governance issues play out in the form of maintaining and managing large fleets with ships traveling across different countries, so that vessels are deployed in a way that optimizes shareholder value and the safety of those onboard.

Accident Management

Statistically, cruising is one of the safest forms of travel for vacationing. Anxious flyers gravitate to cruise vacations as a safer way to see exotic locations. However, the industry competes largely on customer experience and satisfaction, and given the scale of the ships and the vulnerability of passengers at sea, it may only take one mismanaged accident to shake consumer confidence in a company. As such, it is important to not only mitigate risk of accidents, but to also respond promptly and effectively to rectify any mishaps. Proper equipment maintenance, staff training, and use of the latest safety technology and methods across the entire fleet can improve a cruise line company’s safety record and enhance the customer experience. Major accidents also have the potential for great environmental damage and associated contingent liabilities. Claims for the negative environmental consequences of a cruise ship accident can extend well beyond the local property owners to others whose livelihoods may be affected, such as fishermen and tour operators.

Rogue waves, storms, and collisions are the most common causes of accidents and major safety incidents for cruise ships. Rogue waves, while unpredictable, are a natural phenomenon and can be up to 100 feet. Ship windows are being strengthened to account for the force of
these waves, and scientists are researching prediction methods.

Storm systems, on the other hand, can be monitored by buoys and satellites so that ships can avoid them. The most common reason a ship would get caught in a storm is human error, highlighting the importance of proper training and emergency management protocols. Similar to storms, collisions, either with rocks, reefs, icebergs, piers, or other vessels, are mostly attributed to human error and can be avoided using navigation aids. It is important that operators not only use navigation aids, but also contribute to them by uploading information about obstacles into the wider system. Collisions have been attributed to outdated charts.

Company performance in this area can be analyzed in a cost-beneficial way internally and externally through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Number of Conditions of Class or Recommendations;
- Number of port state control deficiencies and detentions; and
- Number of accidents and incidents.

Evidence

As mentioned previously, there are hundreds of personal injury cases against cruise lines each year, many of these are related to major incidents. Major accidents, though uncommon, have the ability to impact cruise sales, increase contingent liabilities, and cause reputational damage. According to the IMO’s public database, of the 105 “very serious” incidents in 2013 (i.e., those that involve total loss of the ship, loss of life, or severe pollution), nine involved passenger ships. Among these were four incidences involving cruise ships, all of which involved crew or passenger fatalities.

One of the most recent cases of a major incident happened in January 2012, when Carnival’s Costa Concordia ship ran aground off the shores of Italy, killing 32 of the 4,200 people on board. CNN reported that survivors claimed they had received little or no safety training after boarding the ship. This was, in part, because laws at the time recommended safety drills within 24 hours of embarkation, and for 600 of the passengers, that threshold had not been met. Upon news of the incident, company shares dove 17 percent, reducing the market value of the company by about $1 billion. Initial estimates of the cost were about $95 million. The $450 million ship was insured for $405 million, but analysts estimated that injury and other liability claims could push the total cost to insurers as high as $1 billion.

As part of the largest ship salvage effort ever, the Costa Concordia was moved from the harbor where it sank to its home port in Genoa. The effort started over a year and a half after the ship sank, and was estimated to take the 500-person salvage crew over several months to complete. The estimated cost of the salvage operation was $1.2 billion.

Even though Carnival reported that “substantially all of the ship removal costs and the costs of these and future claims will be covered by insurance,” they suffered significant loss in brand perception. It took two years for the company to recover 75 percent of the loss in its brand perception and 80 percent of the loss in its brand consideration among first-time cruisers. Since the accident, Carnival and others have adopted the Cruise
Industry Passenger Bill of Rights. Carnival announced a $300 million vessel enhancement program, as part of a larger $700 million corporate program to improve emergency power capabilities, to introduce new or enhanced fire safety technology, and introduce additional operating redundancies across its entire fleet.

Ship crashes and groundings also have the potential to impact marine ecology at the site of accident. Cruise ship accidents, in particular, can have serious environmental consequences since they visit ecologically sensitive areas. In the Costa Concordia salvage operation, care was taken to minimize environmental damage, since the accident took place close to a harbor in the Tuscan Archipelago National Park, the largest marine conservation area in the Mediterranean Sea. Salvage workers and conservationists transplanted the nearly extinct Noble Pen Shell (a large saltwater clam), extracted heavy oil and diesel from the ship, installed pollutant-absorbent booms, and created “bubble walls” in the water to reduce noise pollution. Social costs of accidents, beyond their impact on crew and passengers, include impacts on the livelihoods of local fisherman, tour operators, and others. Negative media attention from these well-publicized incidents affects the image of the entire Cruise Lines industry.

The Cruise Lines industry places safety management as a top priority, and while accidents like the ones described above are rare, they do have the potential to affect not only a company’s revenues and reputation, but the industry’s as a whole. Following the Costa Concordia incident, Royal Caribbean, which was not involved in the accident, reported in its FY2012 Form 10-K that their results of operations were “negatively impacted by the effect of the Costa Concordia incident on booking patterns throughout the industry.” The company reports that these effects were magnified by the timing of the incident, which happened during “wave season,” a time when cruise lines experience disproportionately higher volumes of cruise sales.

Incidents like these increase regulatory oversight and also increase company expenses dedicated for safety audits. After the Costa Concordia incident, Carnival engaged outside-industry experts to assist with comprehensive safety audits and reviews. The company reports in its FY2012 Form 10-K that as a result of these audits, they will “continue to implement improvements to [their] already established procedures for bridge operations, quality assurance and auditing of ship operations, bridge officer training, safety and emergency response and crew training programs.”

**Value Impact**

Noncompliance with safety standards can lead to additional extraordinary expenses due to regulatory fines. Detention at port following safety inspections can result in lost revenues.

Accidents and incidents can be highly publicized events and adversely affect company reputation and brand value. Furthermore, accidents that result in loss of, or damage to, ships can lead to tangible asset impairments and lead to asset salvage costs.

While some of the direct costs associated with accidents may be covered by insurance, the chronic and acute impact on sales can be significant. In addition, high-impact accidents are also likely to increase the risk profile of cruise line companies, resulting in higher
insurance coverage premiums and increased cost of capital.

The number of past accidents and incidents indicate how well companies manage this issue, and provide an understanding of the probability and magnitude of incidents. Safety violations (condition of class or recommendations, state port deficiencies, and detentions), provide complementary forward-looking insight on how companies are likely to perform in the future.
REFERENCES

4 Carnival Corp., FY2013 10-K for the fiscal year ended November 30, 2013 (filed January 29, 2014), p. 4-6
11 Carnival Corporation. FY 2012 Form 10-K for the Fiscal Year ending November 30, 2012, (Filed January 31, 2013) p.6-7
13 Data from Bloomberg Professional service accessed on November 18, 2014, using the ICS <GO> command. The data represents global revenues of companies listed on global exchanges and traded over-the-counter from the Cruise Lines industry, using Level 3 of the Bloomberg Industry Classification System.
16 Data from Bloomberg Professional service, accessed on September 3, 2014 using Equity Screen (EQS) for US-listed companies (including those traded primarily OTC) that generate at least 20 percent of revenue from their Cruise Lines segment and for which Cruise Lines is a primary SICS industry.
23 Author’s calculation based on data from Bloomberg Professional service accessed on November 18, 2014, using the ICS <GO> command. The data represents global revenues of companies listed on global exchanges...
and traded over-the-counter from the Cruise Lines industry, using Level 3 of the Bloomberg Industry Classification System.


63 Author’s calculations based on data from Royal Caribbean Cruises Ltd., FY2013 Form 10-K for the fiscal year ending December 31, 2013 (filed Feb 20, 2014), p. 47.

64 Norwegian Cruise Line Holdings Ltd. FY2013 Form 10-K for the period ending December 31, 2013 (filed February 21, 2014), p.27.


104 Ross Klein, “Getting a Grip on Cruise Ship Pollution,” Friends of the Earth, December 1, 2009, p. 13-16


124 Author’s calculation based on data from Bloomberg Professional service, accessed on November 18, 2014, using the CL <GO> command for Carnival Corporation and Royal Caribbean Cruises.


188 Royal Caribbean Cruises LTD. FY 2012 Form 10-K for the Fiscal Year Ending December 31, 2012. (Filed February 25, 2013. p.50

APPENDIX I:
Three Representative Cruise Lines Companies

<table>
<thead>
<tr>
<th>COMPANY NAME (TICKER SYMBOL)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Royal Caribbean Cruises Ltd. (RCL)</td>
<td></td>
</tr>
<tr>
<td>Norwegian Cruise Line Holdings Ltd. (NCLH)</td>
<td></td>
</tr>
<tr>
<td>Carnival Corporation (CCL)</td>
<td></td>
</tr>
</tbody>
</table>

* This list includes three companies representative of the Cruise Lines industry and its activities. This includes only companies for which the Cruise Lines industry is the primary industry, companies that are U.S.-listed but are not primarily traded Over-the-Counter, and for which at least 20 percent of revenue is generated by activities in this industry, according to the latest information available on Bloomberg Professional Services. Retrieved on October 20, 2014.
## APPENDIX IIA:
### Evidence For Sustainability Disclosure Topics

<table>
<thead>
<tr>
<th>Sustainability Disclosure Topics</th>
<th>EVIDENCE OF INTEREST</th>
<th>EVIDENCE OF FINANCIAL IMPACT</th>
<th>FORWARD-LOOKING IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HM (1-100)</td>
<td>IWGs % Priority</td>
<td>EI Revenue/ Cost Asset/ Liabilities Cost of Capital EFI Probability/ Magnitude Externals FLI</td>
</tr>
<tr>
<td>Fuel Use &amp; Air Emissions</td>
<td>100* 100 3 High</td>
<td>• • High</td>
<td>High • • •</td>
</tr>
<tr>
<td>Discharge Management &amp; Ecological Impacts</td>
<td>71* 80 4t High</td>
<td>• • Medium</td>
<td>High</td>
</tr>
<tr>
<td>Shipboard Health &amp; Safety Management</td>
<td>100* 90 1 High</td>
<td>• • High</td>
<td>High</td>
</tr>
<tr>
<td>Fair Labor Practices</td>
<td>50 90 4t High</td>
<td>• • Medium</td>
<td>High</td>
</tr>
<tr>
<td>Accident Management</td>
<td>94* 90 2 High</td>
<td>• • High</td>
<td>High</td>
</tr>
</tbody>
</table>

**HM:** Heat Map, a score out of 100 indicating the relative importance of the topic among SASB’s initial list of 43 generic sustainability issues; asterisks indicate “top issues.” The score is based on the frequency of relevant keywords in documents (i.e., 10-Ks, 20-Fs, shareholder resolutions, legal news, news articles, and corporate sustainability reports) that are available on the Bloomberg terminal for the industry’s publicly-listed companies; issues for which keyword frequency is in the top quartile are “top issues.”

**IWGs:** SASB Industry Working Groups

%: The percentage of IWG participants that found the disclosure topic to likely constitute material information for companies in the industry. (-) denotes that the issue was added after the IWG was convened.

**Priority:** Average ranking of the issue in terms of importance. One denotes the most important issue. (-) denotes that the issue was added after the IWG was convened.

**EI:** Evidence of Interest, a subjective assessment based on quantitative and qualitative findings.

**EFI:** Evidence of Financial Impact, a subjective assessment based on quantitative and qualitative findings.

**FLI:** Forward Looking Impact, a subjective assessment on the presence of a material forward-looking impact.
### APPENDIX IIB:
Evidence Of Financial Impact For Sustainability Disclosure Topics

<table>
<thead>
<tr>
<th>Evidence of Financial Impact</th>
<th>Revenue</th>
<th>Operating Expenses</th>
<th>Non-operating Expenses</th>
<th>Assets</th>
<th>Liabilities</th>
<th>Cost of Capital</th>
<th>Industry Divestment Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel Use &amp; Air Emissions</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discharge Management &amp; Ecological Impacts</td>
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<tr>
<td>Shipboard Health &amp; Safety Management</td>
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<tr>
<td>Fair Labor Practices</td>
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<td></td>
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<tr>
<td>Accident Management</td>
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<td></td>
</tr>
</tbody>
</table>

- **HIGH IMPACT**
- **MEDIUM IMPACT**

- **Revenue**
- **Operating Expenses**
- **Non-operating Expenses**
- **Assets**
- **Liabilities**
- **Cost of Capital**
- **Industry Divestment Risk**
## APPENDIX III: Sustainability Accounting Metrics | Cruise Lines

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>ACCOUNTING METRIC</th>
<th>CATEGORY</th>
<th>UNIT OF MEASURE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fuel Use &amp; Air Emissions</strong></td>
<td>Gross global Scope 1 emissions</td>
<td>Quantitative</td>
<td>Metric tons CO2-e</td>
<td>SV0205-01</td>
</tr>
<tr>
<td></td>
<td>Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions-reduction targets, and an analysis of performance against those targets</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>SV0205-02</td>
</tr>
<tr>
<td></td>
<td>Total energy consumed, percentage from heavy fuel oil, percentage from onshore power supply (OPS), percentage from renewables</td>
<td>Quantitative</td>
<td>Gigajoules, Percentage (%)</td>
<td>SV0205-03</td>
</tr>
<tr>
<td></td>
<td>Air emissions for the following pollutants: NOx, SOx, and particulate matter (PM)</td>
<td>Quantitative</td>
<td>Metric tons (t)</td>
<td>SV0205-04</td>
</tr>
<tr>
<td></td>
<td>Average Energy Efficiency Design Index (EEDI) for new ships</td>
<td>Quantitative</td>
<td>Grams of CO2 per ton-nautical mile</td>
<td>SV0205-05</td>
</tr>
<tr>
<td><strong>Discharge Management &amp; Ecological Impacts</strong></td>
<td>Amount of ship waste discharged to the environment, percentage treated prior to discharge</td>
<td>Quantitative</td>
<td>Metric tons, Percentage (%)</td>
<td>SV0205-06</td>
</tr>
<tr>
<td></td>
<td>Percentage of fleet implementing (1) ballast water exchange and (2) ballast water treatment</td>
<td>Quantitative</td>
<td>Percentage (%)</td>
<td>SV0205-07</td>
</tr>
<tr>
<td></td>
<td>Cruise duration in marine protected areas and areas of protected conservation status</td>
<td>Quantitative</td>
<td>Number of travel days</td>
<td>SV0205-08</td>
</tr>
<tr>
<td></td>
<td>Number of notices of violations received for dumping*</td>
<td>Quantitative</td>
<td>Number</td>
<td>SV0205-09</td>
</tr>
<tr>
<td><strong>Shipboard Health &amp; Safety Management</strong></td>
<td>Number of alleged crime incidents involving passengers or employees</td>
<td>Quantitative</td>
<td>Number</td>
<td>SV0205-10</td>
</tr>
<tr>
<td></td>
<td>Fleet average CDC Vessel Sanitation Program inspection score, percentage of inspections failed</td>
<td>Quantitative</td>
<td>Number, Percentage (%)</td>
<td>SV0205-11</td>
</tr>
<tr>
<td></td>
<td>Number of (1) serious injuries per million customers and (2) voyages with a gastrointestinal illness count exceeding 2%</td>
<td>Quantitative</td>
<td>Rate, Number</td>
<td>SV0205-12</td>
</tr>
<tr>
<td></td>
<td>Seafarer lost time injury rate</td>
<td>Quantitative</td>
<td>Rate</td>
<td>SV0205-13</td>
</tr>
<tr>
<td><strong>Fair Labor Practices</strong></td>
<td>Average hourly wage for seafarers, by region</td>
<td>Quantitative</td>
<td>U.S. Dollars ($) per hour</td>
<td>SV0205-14</td>
</tr>
<tr>
<td></td>
<td>Percentage of seafarers working maximum hours</td>
<td>Quantitative</td>
<td>Percentage (%)</td>
<td>SV0205-15</td>
</tr>
</tbody>
</table>

*Note to SV0204-09 - Disclosure shall include a description of significant penalties and corrective actions implemented in response to events.
# APPENDIX III: Sustainability Accounting Metrics Cruise Lines (cont.)

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>ACCOUNTING METRIC</th>
<th>CATEGORY</th>
<th>UNIT OF MEASURE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair Labor Practices</td>
<td>Percentage of seafarers paid for overtime</td>
<td>Quantitative</td>
<td>Percentage (%)</td>
<td>SV0205-16</td>
</tr>
<tr>
<td></td>
<td>Amount of legal and regulatory fines and settlements associated with labor law violations**</td>
<td>Quantitative</td>
<td>U.S. Dollars ($)</td>
<td>SV0205-17</td>
</tr>
<tr>
<td>Accident Management</td>
<td>Number of Conditions of Class or Recommendations</td>
<td>Quantitative</td>
<td>Number</td>
<td>SV0205-18</td>
</tr>
<tr>
<td></td>
<td>Number of port state control (1) deficiencies and (2) detentions</td>
<td>Quantitative</td>
<td>Number</td>
<td>SV0205-19</td>
</tr>
<tr>
<td></td>
<td>Number of accidents and incidents***</td>
<td>Quantitative</td>
<td>Number</td>
<td>SV0205-2</td>
</tr>
</tbody>
</table>

**Note to SV0205-15 – Disclosure shall include a description of fines and settlements and corrective actions implemented in response to events.

***Note to SV0205-18 – Disclosure shall include a description of serious marine accidents, outcomes, and corrective actions implemented in response.
APPENDIX IV: Analysis of SEC Disclosures | Cruise Lines

The following graph demonstrates an aggregate assessment of how representative U.S.-listed Cruise Line companies are currently reporting on sustainability topics in their SEC annual filings.

![Graph showing the percentage of Cruise Lines reporting on sustainability topics](image_url)

**Cruise Lines**

<table>
<thead>
<tr>
<th>TYPE OF DISCLOSURE ON MATERIAL SUSTAINABILITY TOPICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Use &amp; Air Emissions</td>
</tr>
<tr>
<td>Discharge Management &amp; Ecological Impacts</td>
</tr>
<tr>
<td>Shipboard Health &amp; Safety Management</td>
</tr>
<tr>
<td>Fair Labor Practices</td>
</tr>
<tr>
<td>Accident Management</td>
</tr>
</tbody>
</table>

IWG Feedback*

*Percentage of IWG participants that agreed topic was likely to constitute material information for companies in the industry.