

# PERFORMANCE SUMMARY - Environmental Data

	Units	2014	2015	2016
Total Ships	Number	100	99	102

## GREENHOUSE GAS EMISSIONS (GHGs)<sup>1</sup>

Total GHG Emissions - Location Based	Metric Tonnes CO <sub>2</sub> e	10,385,721	10,374,922	10,539,036
Total GHG Emissions - Market Based	Metric Tonnes CO <sub>2</sub> e	N/A	10,377,235	10,538,413
Direct GHG Emissions	Metric Tonnes CO <sub>2</sub> e	10,319,475	10,320,701	10,491,277
> Ship Direct GHG Emissions	Metric Tonnes CO <sub>2</sub> e	10,296,032	10,301,296	10,462,851
>> Ship Fuel GHG Emissions	Metric Tonnes CO <sub>2</sub> e	10,062,313	10,059,618	10,226,588
>> Ship Refrigerant GHG Emissions	Metric Tonnes CO <sub>2</sub> e	233,719	241,678	236,263
> Shore Direct GHG Emissions	Metric Tonnes CO <sub>2</sub> e	23,443	19,405	28,425
Indirect GHG Emissions - Location Based <sup>2</sup>	Metric Tonnes CO <sub>2</sub> e	66,246	54,221	47,759
> Shore Indirect GHG Emissions - Location Based	Metric Tonnes CO <sub>2</sub> e	45,534	45,201	41,019
> Ship Indirect GHG Emissions - Location Based <sup>3</sup>	Metric Tonnes CO <sub>2</sub> e	20,712	9,020	6,740
Indirect GHG Emissions - Market Based <sup>2</sup>	Metric Tonnes CO <sub>2</sub> e	N/A	56,533	47,136
> Shore Indirect GHG Emissions - Market Based	Metric Tonnes CO <sub>2</sub> e	N/A	44,646	37,851
> Ship Indirect GHG Emissions - Market Based <sup>3</sup>	Metric Tonnes CO <sub>2</sub> e	N/A	11,887	9,285
Ship Fuel Greenhouse Gas Emission Rate	Grams CO <sub>2</sub> e/ ALB-Km	274	266	261

## AIR EMISSIONS

Ship Fugitive Refrigerant Releases <sup>1</sup>	Kilograms	115,918	125,603	117,936
Ship Ozone Depleting Substances (ODS) Emissions <sup>1,4</sup>	Kg CFC-11e	667	2,130	10,292
Total Sulfur Oxides (SOx) Emissions <sup>5</sup>	Metric Tonnes	132,538	113,390	98,089
Sulfur Oxides (SOx) Emissions Rate <sup>5</sup>	Kg SOx/NM	14.3	12.3	10.4
Total Nitrogen Oxides (NOx) Emissions <sup>6</sup>	Metric Tonnes	249,605	249,421	253,532
Nitrogen Oxides (NOx) Emissions Rate <sup>6</sup>	Kg NOx/NM	27.0	27.0	27.0
Total Particulate Matter (PM <sub>2.5</sub> ) Emissions <sup>7</sup>	Metric Tonnes	2,425	2,174	2,092
Particulate Matter (PM <sub>2.5</sub> ) Emission Rate <sup>7</sup>	Kg PM/NM	0.26	0.24	0.22

## ENERGY & ELECTRICITY

Total Energy Consumption	Gigajoules	131,221,157	131,964,513	134,237,025
> Ship Energy Consumption	Gigajoules	130,916,520	131,697,157	133,946,419
> Shore Energy Consumption	Gigajoules	304,637	267,356	290,606
Total Energy Consumption Rate	Kilojoules/ ALB-Km	3,572	3,492	3,427
Total Ship Fuel Consumption <sup>1</sup>	Metric Tonnes	3,194,177	3,181,202	3,233,138
Ship Fuel Consumption Rate <sup>1</sup>	Grams Fuel/ ALB-Km	87	84	83
Total Purchased Electricity	MWh	96,467	115,819	102,723
> Shore Purchased Electricity	MWh	68,008	85,925	78,827
> Ship Purchased Electricity	MWh	28,459	29,894	23,896

## SHIP FUEL<sup>1</sup>

High Sulfur Fuel Oil (HSFO)	Percent	74.9	78.4	75.8
Low Sulfur Fuel Oil (LSFO)	Percent	17.9	1.3	3.0
Marine Diesel Oil/Marine Gas Oil (MDO/MGO)	Percent	7.2	20.2	21.2

## POTABLE WATER

Total Water Consumption <sup>8</sup>	Metric Tonnes	25,632,560	25,591,974	26,566,505
> Water Purchased (From Shore)	Metric Tonnes	6,968,014	6,099,369	6,079,254
> Water Produced (From Sea)	Metric Tonnes	18,664,546	19,492,605	20,487,252
Water Consumption Rate	Liters/Person-Day	232	232	232

<sup>1</sup> Independently verified by Lloyd's Register Quality Assurance (LRQA) in accordance with ISO 14064-3:2006, "Greenhouse gases - Part 3: Specification with guidance for the validation and verification of greenhouse gas assertion." <sup>2</sup> Revised FY2016 emission factors in accordance with GHG protocol emissions factor library, Green-E and reliable disclosure. <sup>3</sup> Enhanced data control processes to improve FY2015 and FY2016 data consistency. <sup>4</sup> The conversion factors to obtain the amount of CFC-equivalent from the various types of refrigerant gases are those given in the Montreal Protocol Technical Papers. FY2016 increase was due to accidental releases of a gas with a high ODS value into the environment.

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## WASTEWATER

Bilge Water Discharge to Sea	Metric Tonnes	264,471	223,185	205,846
Bilge Water Sea Discharge Rate	Liters/NM	28.6	24.2	21.9
Total Gray Water Discharged	Metric Tonnes	18,096,245	17,494,817	18,003,643
> Gray Water Discharged to Sea	Metric Tonnes	17,919,686	17,347,118	17,862,704
> Gray Water Discharged to Shore	Metric Tonnes	176,559	147,698	140,939
Gray Water Discharge Rate	Liters/Person-Day	164	159	157
Total Black Water Discharged	Metric Tonnes	7,098,169	7,692,427	7,963,662
> Treated Black Water Discharged to Sea <sup>9</sup>	Metric Tonnes	7,030,809	7,578,235	7,860,077
> Treated Black Water Discharged to Shore <sup>9</sup>	Metric Tonnes	32,469	44,721	46,484
> Untreated Black Water Discharged to Sea <sup>10</sup>	Metric Tonnes	31,808	69,303	55,181
> Untreated Black Water Discharged to Shore	Metric Tonnes	3,083	169	1,920
Black Water Discharge Rate <sup>9</sup>	Liters/Person-Day	64.4	69.8	69.5

## WASTE DISPOSAL<sup>11</sup>

Total Waste	Metric Tonnes	477,570	486,451	-
> Hazardous Waste	Metric Tonnes	21,657	27,904	-
> Non-Hazardous Waste	Metric Tonnes	455,913	458,546	-
Waste Rate (Excluding Recycling)	Kilograms/Person-Day	3.2	3.2	-
Total Waste Disposed to Shore	Metric Tonnes	156,402	160,748	-
> Hazardous Waste Disposed to Shore	Metric Tonnes	9,178	11,308	-
> Non-Hazardous Waste Disposed to Shore	Metric Tonnes	147,223	149,440	-
Total Waste Recycled to Shore	Metric Tonnes	128,956	129,499	-
> Hazardous Waste Recycled to Shore	Metric Tonnes	11,392	15,648	-
> Non-Hazardous Waste Recycled to Shore	Metric Tonnes	117,565	113,851	-
Food Waste Discharged to Sea	Metric Tonnes	102,688	105,658	-
Total Waste Incinerated Shipboard	Metric Tonnes	89,524	90,545	-
Non-Hazardous and Hazardous Waste Recycled	Percent	27.0	26.6	-

## SPILLS & FINES<sup>8</sup>

Total Number of Significant Spills <sup>12</sup>	Number	0	0	0
Total Number of Reportable Spills <sup>13</sup>	Number	30	49	39
Total Volume of Reportable Spills	Liters	3,108	8,488	1,577
Total # of Non-monetary Sanctions	Number	3	0	0
Monetary Value of Fines <sup>14</sup>	U.S. Dollars (\$)	62,939	35,900	277,401

**5)** The SOx weight calculations take into account the weighted-average sulfur content of the fuel consumed and the default emission factors. The default emission factor used for calculating SOx value is %S x 20 x 0.96, where S is the fuel sulfur content. This calculation has been adjusted to account for exhaust gas cleaning system (EGCS) use in FY2016. This adjustment was made based on the near-zero sulfur emissions resulting from planned HFO fuel consumption during EGCS operations. In addition, FY2015 data has been revised to correct an error. **6)** The NOx weight is calculated based on default emission factors. The default emission factor used for calculating NOx value for HFO/LFO is 78 kg, MGO is 80 kg, and LNG is 7 kg of NOx per tonne of fuel consumed. These factors have been applied to FY2015 and FY2014 for comparison purposes. **7)** PM<sub>2.5</sub> refers to particles with diameters between 2.5 and 10 micrometers. The PM<sub>2.5</sub> weight is calculated based on default emission factors. The default emission factor used for calculating PM<sub>2.5</sub> value for HFO is 0.82 kg, LFO is 0.75 kg, MGO is 0.15 kg, and LNG negligible kilograms of PM<sub>2.5</sub> per tonne of fuel consumed. These factors have been applied to FY2015 and FY2014 for comparison purposes. This calculation has been adjusted to account for EGCS use in FY2016. This adjustment was made based on PM<sub>2.5</sub> emissions reduction resulting from planned HFO fuel consumption during EGCS operations. **8)** Independently verified by LRQA **9)** FY2015 & FY2016 treated black water discharges include treated black wastewater, treated gray wastewater and black and gray wastewater mixtures. In addition for FY2016, data control processes were enhanced to improve data consistency. **10)** Carnival's policy is to treat all black water prior to discharge to sea. These volumes are the result of accidental/ equipment failure discharges. **11)** In FY2016, we commenced a comprehensive evaluation of our waste management accounting practices and introduced a new approach for sustainability reporting purposes. With the goal of continuous operational improvement, we refocused our efforts to standardize waste definitions and units of measure across our global brands. This approach allows for consistent trend analysis and reporting. FY2016 waste data will be available in the next performance summary. For regulatory reporting purposes, we comply with the requirements of the particular country where waste is landed. **12)** A significant spill is defined as a spill for which the monetary sanctions are \$100,000 or greater, and which is reportable in the Carnival Corporation & plc Annual Report on Form 10-K. **13)** For FY2015 & FY2016, Carnival has defined a reportable spill for internal reporting purposes as a release of soot as well as a release of oil/grease/chemicals that is in excess of 0.5 liters (500 ml). However, in U.S. waters a spill that causes oil sheen is also reported and included in the total number of spills reported, even though the volume may be less than 0.5 liters. **14)** Carnival settled and paid \$277,401 during FY2016, the bulk of which was in relation to emerging sulfur emissions regulatory changes. On December 1, 2016 (FY2017), Princess Cruises paid a \$40M USD fine as part of a plea agreement with the U.S. Government.

# PERFORMANCE SUMMARY – Social Data (Shipboard)

	Units	2014	2015	2016
<b>WORKFORCE</b>				
Average Crew	Number	81,200	82,200	84,600
<b>DIVERSITY</b>				
Labor Sourcing Region:				
> North & Central America	Percent	5.5	4.4	9.2
> South America	Percent	4.6	3.7	3.1
> Europe	Percent	20.4	17.9	16.6
> Asia	Percent	67.7	70.6	69.4
> Australia	Percent	0.5	2.3	0.7
> Africa	Percent	1.4	0.9	1.0
Gender Distribution - Female	Percent	17.3	16.6	17.0
Gender Distribution - Male	Percent	82.7	83.4	83.0
<b>INJURIES &amp; FATALITIES</b>				
Total Injuries	Number	2,304	2,265	2,357
> Minor Injuries	Number	1,155	1,211	1,304
> Serious Injuries	Number	660	603	544
> Major Injuries	Number	489	451	509
Accidental Deaths	Number	2	4	1
<b>HEALTH &amp; SAFETY<sup>1</sup></b>				
Total CDC VSP Inspections	Number	110	130	109
> CDC VSP Inspections - Ships scoring 100%	Number	17	30	13
> CDC VSP Inspections - Ships scoring 86 - 99%	Number	92	100	94
> CDC VSP Inspections - Ships scoring < 86%	Number	1	0	2
<b>OTHER STATISTICS</b>				
Employee Turnover	Percent	18.6	23.2	21.2
Employees Covered by Collective Bargaining Agreements (CBA) <sup>2</sup>	Percent	47.0	54.5	54.6
Employees Represented by H&S Committees	Percent	100.0	100.0	100.0

# PERFORMANCE SUMMARY – Social Data (Shoreside)

	Units	2014	2015	2016
<b>WORKFORCE</b>				
Average Number of Full Time Employees	Number	10,100	10,000	10,500
Average Number of Part Time Employees	Number	2,800	2,400	2,100
Shoreside Employee Status - Full Time	Percent	78.3	80.8	83.2
Shoreside Employee Status - Part Time	Percent	21.7	19.2	16.8
<b>DIVERSITY</b>				
Gender Distribution - Female	Percent	58.7	58.5	58.8
Gender Distribution - Male	Percent	41.3	41.5	41.2
<b>EMPLOYEES BY BRAND HEADQUARTER REGION<sup>5</sup></b>				
Australia	Percent	2.3	2.9	3.1
Europe	Percent	20.7	30.5	31.3
North America	Percent	77.0	66.6	65.6
<b>INJURIES &amp; FATALITIES</b>				
Injuries	Number	172	118	107
Accidental Deaths	Number	1	0	0
<b>TRAINING AND PERFORMANCE<sup>4</sup></b>				
Total Training	Hours	129,468	132,613	125,029
<b>OTHER STATISTICS</b>				
Employee Turnover <sup>5</sup>	Percent	37.2	19.8	16.0
Employees Covered by Collective Bargaining Agreements (CBA) <sup>2</sup>	Percent	14.5	23.5	19.8
Employees Represented by Health & Safety (H&S) Committees	Percent	66.3	74.2	73.5

1) Independently verified by LRQA

2) For FY2015 & FY2016 CBA's are defined as per labor unions or labor organizations at the various countries or geographical regions where we do business.

3) In addition to our headquarter locations, other offices are located worldwide. Due to varying legal requirements worldwide, further detail on our employee base is limited.

4) For FY2015 & FY2016, enhanced data control processes to improve consistency.

5) For FY2015 & FY2016, adjusted for seasonal employees at Holland America Princess Alaska Tours. Therefore, FY2014 turnover percentages are not comparable to FY2015 and FY2016.