

Oceana Group Limited

Carbon Footprint Assessment Report

1 October 2015 to 30 September 2016



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GLOSSARY

AR4	Fourth Assessment Report (IPCC, 2007)
BCP	Blue Continent Products
CCS Logistics	Commercial Cold Storage Logistics
CO ₂ e	Carbon dioxide equivalent
tCO ₂ e	Metric tonnes carbon dioxide equivalent
DEFRA	Department of Environment, Food and Rural Affairs (UK)
GHG	Greenhouse gases
GWP	Global Warming Potential
HFO	Heavy fuel oil
IFO	Intermediate fuel oil
IPCC	Intergovernmental Panel on Climate Change
Kg	Kilogram
kL	Kilolitre
km	Kilometre
kWh	Kilowatt hour
LPG	Liquefied Petroleum Gas (Propane)
MGO	Marine gas oil
MMBtu	Million British thermal units
OLS	Oceana Lobster Squid (formerly Lobster Squid and Fries)
OGL	Oceana Group Limited
R'M	Million Rands
SAR	Second Assessment Report (IPCC, 1996)
Tonnes	Metric tonnes
UNFCCC	United Nations Framework Convention on Climate Change
WBCSD	World Business Council for Sustainable Development
WRI	World Resource Institute

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1 OVERVIEW OF OCEANA'S FY16 EMISSIONS

Reporting Period:

1 October 2015 to 30 September 2016 (hereafter referred to as FY16)

Carbon footprint calculation conducted on:

All divisions under Oceana Group Limited (hereafter referred to as Oceana)

1.1 Oceana Absolute Emissions Overview:

Table 1: Oceana emissions overview

Scope		Source	TOTAL tCO ₂ e
Scope 1		Mobile Fuels	91 376.28
		Stationary Fuels	115 628.51
		Waste Water Treatment	952.73
Sub Total: Scope 1			207 957.52
Scope 2		Purchased Electricity - Location-based method	83 647.60
		Purchased Electricity - Market-based method	83 647.60
Sub Total: Scope 1 & 2			291 605.12
Scope 3	Business Travel	Flights	3 201.23
		Rental Vehicles *	20.40
		Subsidised Travel	565.22
	Purchased Goods & Services	Packaging	26 355.02
		Paper Consumption	179.61
		Water	964.93
	Fuel & Energy Related Activities	Transmission & Distribution Losses from purchased electricity	7 666.54
	Waste generated in operations	Waste	3 572.28
Sub Total Scope 3			42 525.22
Total Scope 1, 2 & 3			334 130.34
Product Use: Refrigerant gases (Non-Kyoto Protocol): R-22 gas			72 606.16
Total measured emissions			406 736.50

Note: * Except for BCP, car rental emissions were estimated using FY15 data.

Total emissions by Scope in FY16:

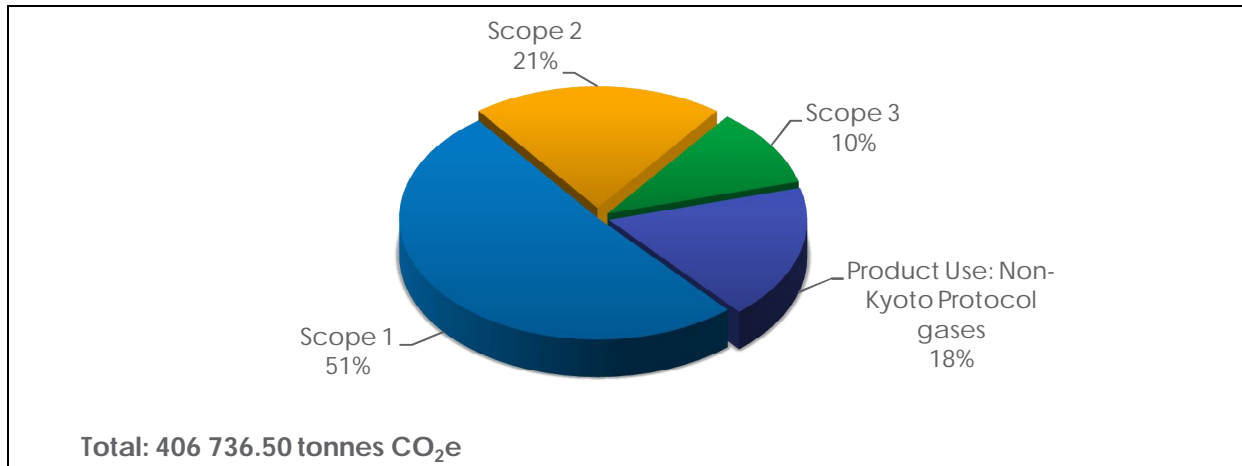


Figure 1: Breakdown of emissions by Scope for FY16

Total emissions by activity FY16:

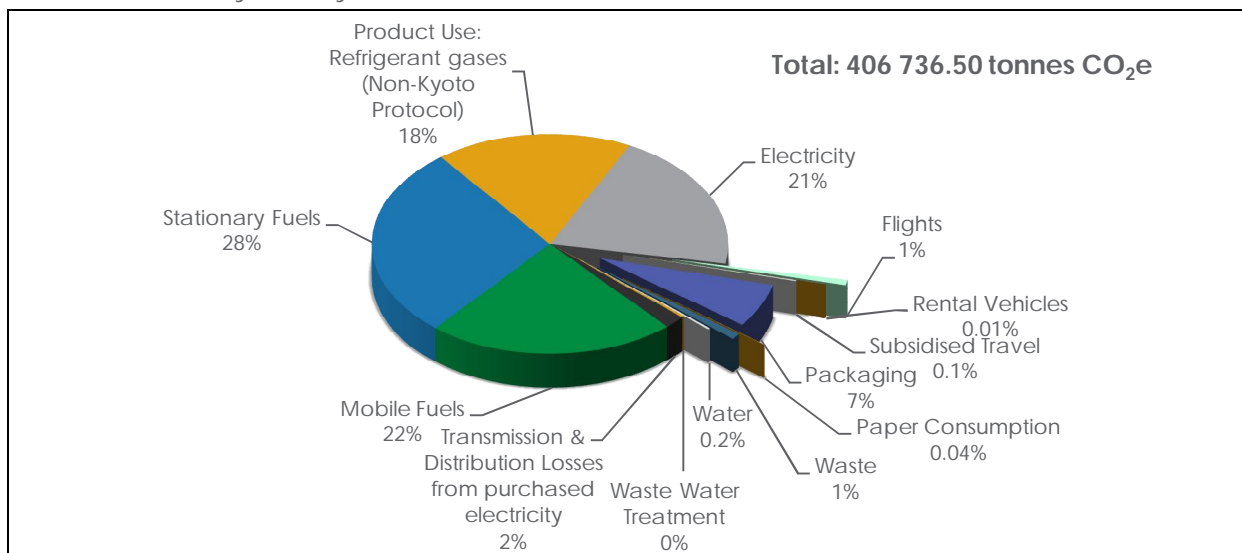


Figure 2: Breakdown of emissions by activity for FY16

Total emissions by division FY16:

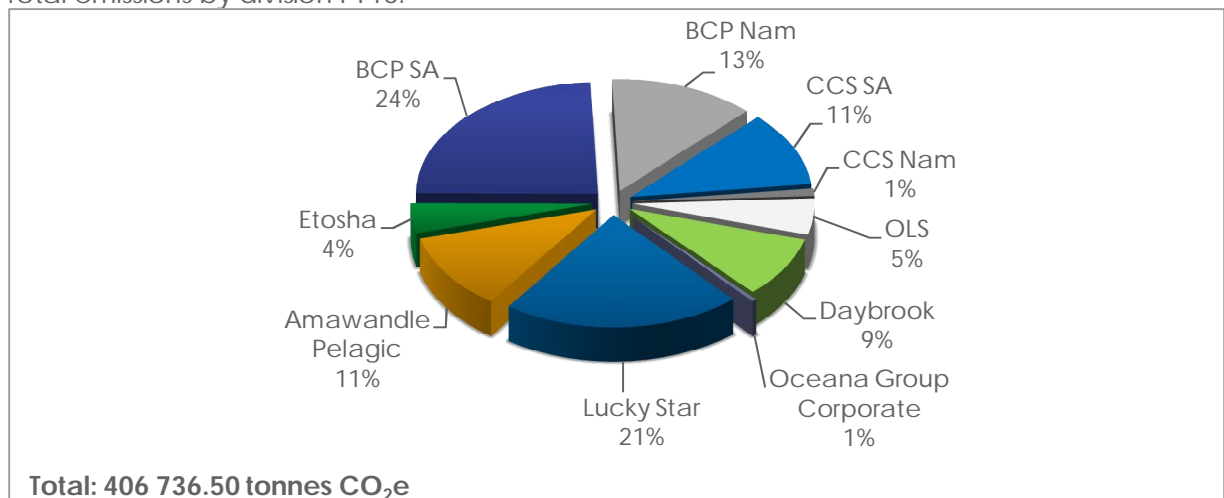


Figure 3: Breakdown of emissions by division for FY16

Table 2: Oceana emissions by division (tCO₂e)

Scope		Source	Lucky Star	Amawandle Pelagic	Etosha	BCP SA	BCP Nam	CCS Logistics SA	CCS Logistics Nam	OLS *	Daybrook	Oceana Group Corporate	TOTAL
Scope 1		Mobile Fuels	9 180.41	3 145.94	3 069.08	35 991.66	37 194.61	7.19	0.25	2 251.63	509.21	26.32	91 376.28
		Stationary Fuels	47 828.06	27 339.67	3 964.53	0.00	0.00	0.00	27.12	7 655.79	28 813.34	0.00	115 628.51
		Waste Water Treatment	0.00	0.00	952.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	952.73
Sub Total: Scope 1			57 008.46	30 485.61	7 986.34	35 991.66	37 194.61	7.19	27.36	9 907.41	29 322.56	26.32	207 957.52
Scope 2		Purchased Electricity - Location-based method	13 953.04	4 234.19	4 139.48	3 107.56	58.95	38 978.88	4 030.86	8 112.29	6 099.28	933.07	83 647.60
		Purchased Electricity - Market-based method											83 647.60
Sub Total: Scope 1 & 2			70 961.51	34 719.80	12 125.81	39 099.22	37 253.56	38 986.07	4 058.22	18 019.70	35 421.84	959.39	291 605.12
Scope 3	Business Travel	Flights	1 173.52	0.00	65.70	0.00	1 206.23	205.24	0.00	67.09	0.00	483.44	3 201.23
		Rental Vehicles	10.50	0.00	0.61	0.00	0.95	5.08	0.00	1.54	0.00	1.72	20.40
		Subsidised Travel	236.22	0.00	79.80	0.00	39.03	45.58	0.08	80.46	0.00	84.04	565.22
	Purchased Goods & Services	Packaging	10 758.80	7 050.60	4 449.56	845.89	1 399.76	86.47	126.60	1 637.34	0.00	0.00	26 355.02
		Paper Consumption	42.76	0.00	0.00	11.28	4.19	45.38	7.49	20.25	0.00	48.26	179.61
		Water	514.85	166.89	86.79	21.95	2.59	105.37	12.13	16.54	37.03	0.79	964.93
	Fuel & Energy Related Activities	Transmission & Distribution Losses from purchased electricity	1 310.89	397.80	390.90	291.96	5.57	3 662.07	380.64	762.15	376.91	87.66	7 666.54
	Waste generated in operations	Waste	1 003.17	424.95	15.83	444.52	1 053.84	251.45	12.40	354.71	0.00	11.40	3 572.28
Sub Total Scope 3			15 050.71	8 040.24	5 089.18	1 615.60	3 712.17	4 406.64	539.35	2 940.07	413.95	717.31	42 525.22
Total Scope 1, 2 & 3			86 012.22	42 760.04	17 214.99	40 714.81	40 965.73	43 392.71	4 597.57	20 959.77	35 835.78	1 676.70	334 130.34
Product Use: Refrigerant gases (Non-Kyoto Protocol): R-22 gas			9.05	2 349.38	0.00	57 903.71	11 898.94	445.08	0.00	0.00	0.00	0.00	72 606.16
Total measured emissions			86 021.27	45 109.42	17 214.99	98 618.52	52 864.67	43 837.79	4 597.57	20 959.77	35 835.78	1 676.70	406 736.50
Total percentage breakdown			21.1%	11.1%	4.2%	24.2%	13.0%	10.8%	1.1%	5.2%	8.8%	0.4%	100.0%

Note: * OLS emissions Include Fries up to end July 2016 when it was sold

GHG emissions data (CO₂, CH₄, N₂O and HCFCs) are shown separately in metric tonnes and in tonnes of CO₂ equivalent (tCO₂e):

Table 3: Breakdown of GHG emission data

Source	CO ₂		CH ₄		N ₂ O		HFCs		HCFCs	
	tCO ₂	tCO ₂ e	tCH ₄	tCO ₂ e	N ₂ O	tCO ₂ e	tons	tCO ₂ e	tons	tCO ₂ e
Scope 1	200 080.47	200 080.47	271.74	6 793.40	3.64	1 083.65	-	-	-	-
Scope 2	83 647.60	83 647.60	-	-	-	-	-	-	-	-
Non-Kyoto gases	-	-	-	-	-	-	-	-	40.11	72 606.16
Oceana Total	283 728.07	283 728.07	271.74	6 793.40	3.64	1 083.65	0.00	0.00	40.11	72 606.16

Note: The Global Warming Potential (GWP) used for Carbon Dioxide, Nitrous Oxide and Methane were 1; 298 and 25 respectively, in accordance with the IPCC AR4 (2007).

1.2 Company Description

Oceana Group Limited is the holding company of a number of subsidiary companies that operate in the southern African fishing industry, and which trade in a number of fish products sourced and sold around the globe.

Incorporated in 1918, Oceana Group is the largest fishing company in South Africa, ranked as one of the top 10 seafood companies in the world by market capitalisation, revenue growth and share price performance. Oceana core fishing business is the catching, procuring, processing, marketing and distribution of canned fish, fishmeal, fish oil, lobster, horse mackerel, squid and hake. The business includes mid-water trawling (horse mackerel), deep-sea trawling (hake), and in-shore fishing for pelagic fish (anchovy, the gulf menhaden species, redeye herring and pilchard). In addition, Oceana provide refrigerated warehouse facilities and logistical support services.

1.3 Structural Changes during Reporting Period

Oceana underwent the following structural changes to its operations during the 2016 financial year:

- OLS sold the French Fries division on 1 August 2016. These emissions were included in this assessment until transfer.
- Oceana International (which operates from the Isle of Man) ceased operations in 2016.
- CCS Logistics sold MFT and MW cold storage facilities in April 2016. Emissions were included until that date. On 30 April 2016, the group disposed of the commercial cold storage fruit business.
- Oceana commissioned a fishmeal plant in Angola through Oceana Boa Pesca joint venture.
- BCP sold the Desert Rose vessel.

1.4 Organisational Boundary

In accordance with both the GHG Protocol Corporate Standard and the ISO 14064 Standard, the organisational boundary can be set using either the control principle or the shareholding principle. Under the control principle all emissions by entities and activities controlled by the organisation must be accounted for.

The organisational boundary was drawn around the operationally controlled activities of Oceana. Data was provided for the following companies/facilities:

- Lucky Star (LS) (including Amawandle Pelagic) - Operating in South Africa
- Etosha - Operating in Namibia & Angola
- CCS Logistics - Operating in South Africa, Namibia & Angola
- Blue Continent Products (BCP) - Operating in South Africa (including Amawandle Hake) and Namibia (Erongo Marine)
- Oceana Lobster Squid and French Fries (OLS) - Operating in South Africa only (Fries was disposed of in July 2016 but emissions included up until that date)
- Daybrook - operating in USA
- Group Corporate Office - Oceana House, comprising of all South African divisions corporate head offices, except for CCS Logistics.

Etosha is 44.9% owned by Oceana, but is managed and controlled by them. Therefore, in line with the control approach for consolidating emissions, 100% of Etosha emissions have been included in the report.

The following entities//facilities were excluded from the organisational boundary:

- Lucky Star Angolan operations, including newly commissioned joint venture Oceana Boa Pesca fishmeal plant.
- Oceana International office, Isle of Man.

1.5 Operational Boundary

All measurable Scope 1 and 2 GHG emissions resulting from activities under the control of Oceana Group were included in the assessment, as per the operational control approach for consolidating emissions. Scope 3 reporting is still optional for Oceana, however the following value chain emissions sources were reported on:

- Business travel (flights, car rentals, subsidised travel)
- Purchased goods and services (packaging, paper consumption, water)
- Waste generated in operations
- Fuel & Energy Related Activities (Transmission & Distribution Losses from purchased electricity)

Exclusions

The following sources were omitted:

- Scope 1: Welding gases (e.g. oxy-acetylene)
- Scope 3: All GHG emissions for Daybrook, except for those associated with water consumption.

- o Scope 3: Emissions associated with fuel usage by Oceana contractors, such as 3rd party fishing vessels which produce some of Oceana's product sold (data inaccessible).
- o Scope 3: Transportation of Oceana products by 3rd parties, including all imports and exports (data inaccessible).
- o Scope 3: Waste to landfill from damaged imported canned product, as well as emissions from landfilled and recycled waste for OLS lobster vessels.

1.6 Total Scope 1 & 2 Emissions

For the financial reporting period 1 October 2015 to 30 September 2016, using the operational control approach for consolidating GHG emissions according to the GHG Protocol Corporate Standard.

Scope 1 emissions are direct emissions at source. Oceana Scope 1 emissions include emissions from fuels combusted by company-owned/controlled stationary and mobile sources on site and by vessels in operation. Mandatory reporting on direct Scope 1 emissions and activity data are as follows:

Table 4: Breakdown of Scope 1 emissions for various sources

		Lucky Star	BCP	CCS Logistics	OLS	Etosha	Daybrook	Group Corporate	Total activity data	Equivalent tonnes CO ₂ e	% Contribution
Mobile Fuel Consumption	MGO litres		8 674 914		684 519	1 089 035			10 448 468	28 234.19	13.58%
	MGO tonnes		1 768						1 768	5 637.99	2.71%
	Diesel litres (500 ppm)	4 417 189							4 417 189	12 016.71	5.78%
	IFO tonnes		13 935						13 935	43 822.36	21.07%
	LPG tonnes	34			3	11			48	132.59	0.06%
	Lubrication tonnes *	8	58	1		5			71	226.43	0.11%
	Company Vehicles - Petrol litres	10 876	37 172	2 295	28 476		132 183	11 431	222 432	512.15	0.25%
	Company Vehicles - Diesel litres	61 510	35 739	162	107 975	14 703	76 549		296 637	793.86	0.38%
	Sub-Total Equivalent tonnes CO₂e	12 326.34	73 186.27	7.43	2 251.63	3 069.08	509.21	26.32		91 376.28	43.94%
Stationary Fuel Consumption	Coal tonnes	25 987			2 894				28 880	76 409.28	36.74%
	HFO tonnes	2 037				741			2 778	8 736.26	4.20%
	Natural Gas MMBtu						542 473		542 473	28 813.34	13.86%
	Diesel litres			10 133					10 133	27.12	0.01%
	Recycled HFO litres					537			537	1 642.51	0.79%
	Sub-Total Equivalent tonnes CO₂e	75 167.73	0.00	27.12	7 655.79	3 964.53	28 813.34	0.00		115 628.51	55.60%

		Lucky Star	BCP	CCS Logistics	OLS	Etosha	Daybrook	Group Corporate	Total activity data	Equivalent tonnes CO ₂ e	% Contribution
Waste Water Treatment	Treatment of waste water disposed m ³					239 680			239 680	952.73	0.46%
	Sub-Total Equivalent tonnes CO ₂ e					952.73				952.73	0.46%
TOTAL Scope 1 emissions tonnes CO ₂ e		87 494.07	73 186.27	34.55	9 907.41	7 986.34	29 322.56	26.32		207 957.52	
Percent of Scope 1 emissions		42.07%	35.19%	0.02%	4.76%	3.84%	14.10%	0.01%			

Note: * Only 20% of total lubricants used were included as approximately only this amount is combusted. Lubricants were only included for vessels (mobile) as lubricants are not combusted in stationary machinery.

- In previous assessments company-owned or controlled mobile source emissions accounted for the majority of Scope 1 emissions. This portion has shown a decreasing trend: 44% (FY16), 60% (FY15), 62% (FY14) and 69% (FY13). Stationary fuels now account for the majority of Scope 1 emissions, contributing 55% of emissions.
- Lucky Star accounted for the largest share of total Scope 1 emissions (42%), with BCP second largest contributor at 35%. This was the inverse from last reporting period, where Lucky Star accounted for 36% and BCP 51% respectively.
- Coal usage in boilers at Lucky Star (25 987 tonnes) and LSF (2 894 tonnes) was the single largest source of emissions, contributing 37% of total Scope 1 emissions, and 19% of total measured emissions across the Group.
- No Scope 1 emissions arose from fugitive emissions from refrigeration systems, as Oceana only uses ammonia and nitrogen (which has no global warming potential) and Freon (R22) – a gas not listed under the Kyoto Protocol (see "Product Use: Refrigerant gases (Non-Kyoto Protocol)" below for details).

Oceana **Scope 1** emissions make up:

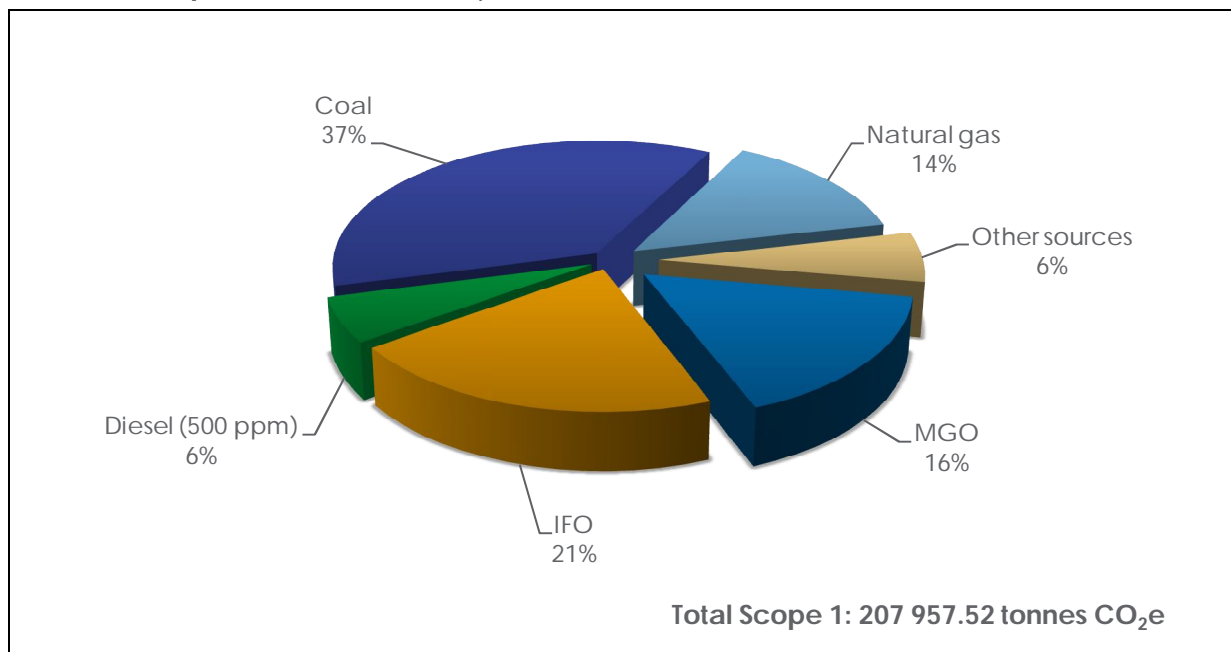


Figure 4: Breakdown of Scope 1 emissions

Scope 2 emissions are indirect emissions from electricity used on-site. All consumption of purchased (grid-connected) electricity at all relevant sites within the operational boundary was recorded.

Indirect Scope 2 emissions from purchased electricity for Oceana:

Table 5: Indirect Scope 2 emissions per operating divisions

	Annual kWh	Annual Emissions - Location-based method (tCO ₂ e)	% Contribution by electricity consumption (kWh)
Lucky Star	18 187 236	18 187.24	20%
CCS Logistics - SA	38 978 879	38 978.88	43%
CCS Logistics - Nam	4 141 434	4 030.86	5%
BCP - SA	3 107 560	3 107.56	3%
BCP - Nam	60 566	58.95	0.1%
OLS	8 112 286	8 112.29	9%
Etosha	4 253 031	4 139.48	5%
Daybrook	12 726 250	6 099.28	14%
Group Corporate	933 073	933.07	1%
TOTAL	90 500 316	83 647.60	100%

Monthly breakdown of electricity consumption:

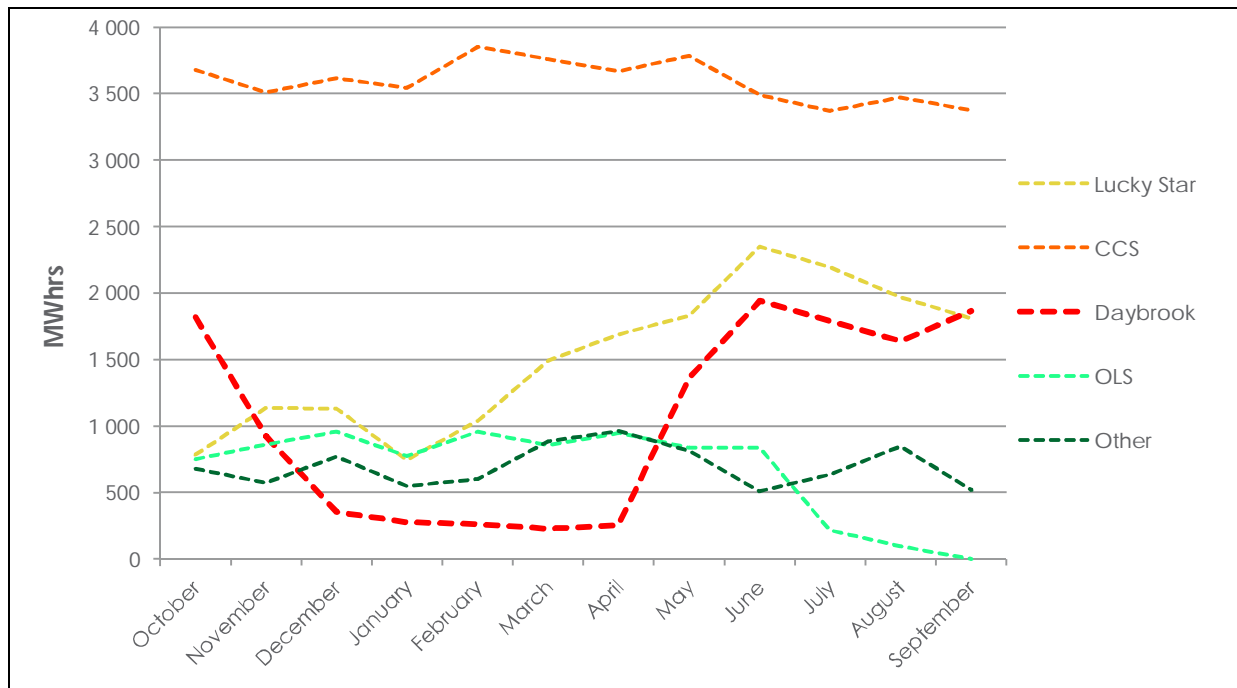


Figure 5: Monthly breakdown of electricity consumption per operating division

Note: "Other" readings in the above graph consists of Etosha, BCP and Oceana Corporate consumption

- Given the energy intensive nature of CCS Logistics operations, it is the highest consumer of electricity across Oceana Group, with CCS Logistics SA contributing 43% to total electricity consumption.
- Electricity consumption at CCS Logistics SA decreased by 3% compared to the previous year, with 9% increase in product storage capacity. There was an 11% increase in electricity consumption from FY14 to FY15, with a 3% increase in cold storage capacity.
- Although negligible, purchased electricity used by Blue Continent Products (BCP) vessels whilst docked was included.
- The 16% increase in total electricity consumption since the previous year can be attributed to the new Daybrook facility included in reporting from October 2015. A 0.54% decrease is observed by excluding Daybrook from total consumption since last year.**

Optional reporting under the GHG Protocol follows:

1.7 Scope 3 & non-Kyoto Protocol gases

Reporting on indirect Scope 3 and non-Kyoto gases is optional under the GHG Protocol. However Oceana chooses to report on some of these emissions.

- Scope 3 emissions were mostly from Lucky Star (including Amawandle Pelagic) (54% of total indirect Scope 3 emissions) due to their intensive use of packaging materials.

Indirect Scope 3 emissions as follows:

Table 6: Breakdown of Scope 3 emissions for various sources per operating division (tCO₂e)

Emission Source		Lucky Star	BCP	CCS Logistics	OLS	Etosha	Daybrook	Group Corporate	Total
Flights	Various	1 173.52	1 206.23	205.24	67.09	65.70		483.44	3 201.23
Rental Vehicles	Various	10.50	0.95	5.08	1.54	0.61		1.72	20.40
Subsidised Travel Claims	Various	236.22	39.03	45.67	80.46	79.80		84.04	565.22
Packaging Materials	Stretchwrap (LDPE)	277.56		171.87		77.93			527.36
	Strapping (PP)		145.13	0.05					145.17
	Timber	21.02		38.44					59.46
	Carton	296.29	1 637.12		1 312.69	128.58			3 374.67
	Plastic	169.00	449.36		324.65				943.01
	Carton rolls	0.43		0.90					1.33
	Metals (steel)	16 343.34				4 066.60			20 409.94
	Fish Meal Bags (PP)	388.67	13.28			25.98			427.94
	Fish Oil/Tomato paste drums (steel)					38.26			38.26
	Fish Oil Bags (LDPE)					15.05			15.05
	Labels	313.10	0.77	1.81		97.15			412.82
	Sub-Total	17 809.40	2 245.65	213.07	1 637.34	4 449.56	0.00	0.00	26 355.02
Paper Consumption	No Of Reams	42.76	15.47	52.87	20.25			48.26	179.61
Waste	Carton	0.37			2.62				2.99
	Carton Recycled	62.20		1.88	2.61	0.03			66.74
	Plastic Shrinkwrap								0.00
	Plastic Shrinkwrap Recycled	0.11		0.65		0.001			0.76
	Paper				47.64				47.64
	Paper Recycled	0.01		1.31		0.01		0.19	1.52
	Plastic Recycled	30.44		0.19	0.56	8.44			39.63
	Plastic				5.21				5.21
	Carton Rolls Recycled			0.15					0.15

Emission Source		Lucky Star	BCP	CCS Logistics	OLS	Etosha	Daybrook	Group Corporate	Total
	Carton Rolls				0.09				0.09
	Metals	1.53			0.81				2.34
	Metals Recycled	57.60	1 036.13	22.02		3.61			1 119.35
	Glass Recycled			0.002					0.00
	Fishmeal Bags	0.04							0.04
	Fishmeal Bags Recycled	0.03							0.03
	Timber Recycled		0.08	0.50					0.58
	Organic Waste			0.06	283.73				283.79
	General Waste	1 182.52	230.41	237.09		1.04		11.20	1 662.26
	General Waste Recycled	0.29							0.29
	Hazardous Waste	92.98	231.75		11.43	2.72			338.88
	Sub-Total	1 428.13	1 498.36	263.85	354.71	15.85	0.00	11.40	3 572.30
Fuel & Energy Related Activities	Transmission & Distribution Losses from purchased electricity	1 708.69	297.52	4 042.70	762.15	390.90	376.91	87.66	7 666.54
Water Consumption	Municipal consumption Kilolitres	681.74	24.54	117.50	16.54	86.79	37.03	0.79	964.93
Total Scope 3		21 382.26	3 531.88	903.29	2 177.92	4 698.31	37.03	629.65	42 525.24
Percent contribution		50.28%	8.31%	2.12%	5.12%	11.05%	0.09%	1.48%	

- Emissions from packaging consumption were the highest source of Scope 3 emissions, making up 62% of these emissions, and 6.5% of total emissions.
- Whilst Oceana currently collects accurate data on packaging consumption, the associated emissions are not necessarily accurate as localised emission factors are not available. The accuracy of these emission sources will be improved as emission factors from local studies become available in coming years.
- Scope 3 emissions from fuel usage by 3rd party transport contractors were excluded due to data complexity, while emissions from Transmission & Distribution Losses from purchased electricity were included for the first time.

Emissions associated with use of packaging materials:

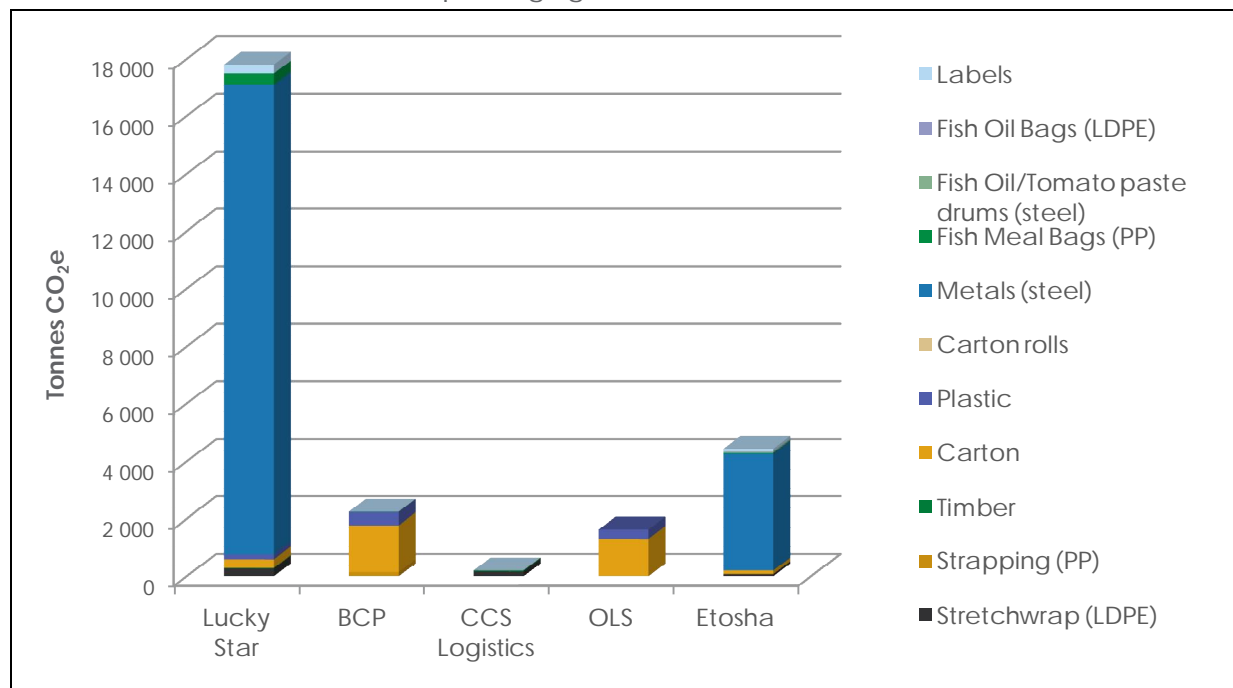


Figure 6: Emissions associate with packaging material

The GHG Protocol Corporate Standard states that fugitive emissions from top ups of refrigerants not listed in the Kyoto Protocol should be reported separately from the scopes.

- BCP remains by far the largest user of R22 gas, accounting for 80% (down from 99.6%) of emissions associated with non-Kyoto gas consumption.
- Oceana has undertaken significant cooling gas replacement interventions over the last few years and has generally shown a decrease in Freon use across most divisions, particularly CCS Logistics and OLS.
- Freon consumption doubled from the FY13 baseline, (13% decrease from last year).

Emissions and consumption from non-Kyoto gases:

Table 7: Emissions and consumptions of non-Kyoto gases

Source	OLS	BCP	CCS Logistics	Total Emissions tCO ₂ e
Ammonia (kg)	4 492.49		4 858.00	0
Nitrogen (kg)		11 692.10		0
Freon (R22) (kg)	1 303.00	38 565.00	245.90	72 606.16
TOTAL Emissions from R22	2 358.43	69 802.65	445.08	72 606.16
Percentage contribution	3.25%	96.14%	0.61%	

Note: Etosha, OLS, Daybrook & Oceana Corporate did not consume non-Kyoto listed refrigerant gases in the reporting period.

1.8 FY16 Findings

For the financial reporting period 1 October 2015 to 30 September 2016, using the *operational control approach* for consolidating GHG emissions according to the GHG Protocol Corporate Standard:

- Scope 1 and 2 emissions only, totalled **291 605.12 tonnes of carbon dioxide equivalent** (tCO₂e) or **72%** of total measured GHG emissions¹.
- Indirect Scope 3 emissions amounted to **42 525.22 tonnes of carbon dioxide equivalent**, or **10.5%** of the total measured GHG emissions.
- Product use emissions from refrigerant gases are direct emissions but from non-Kyoto Protocol gases (such as Freon/R22), and accounted for **72 606.16 tonnes of carbon dioxide equivalent**, or **18%** of total measured emissions within the reporting year.

2 ANNUAL COMPARISON & TRENDS

2.1 Comparison of absolute emissions 2009-2016

A comparative summary of Scope 1, Scope 2 and out of scope Product Use (non-Kyoto Protocol gases) absolute emissions is shown in the table below, using the **FY13 baseline** for comparison to current reporting year:

Table 8: Summary of Scope 1, 2 and non-Kyoto emissions per operating divisions

Division	Total Scope 1, 2 & Outside of Scopes (Other Direct emissions) (tCO ₂ e)								% Change from 2013 to 2016
	2009	2010	2011	2012	2013 Base Year *	2014	2015	2016	
Lucky Star	59 840.69	65 532.13	51 298.60	59 701.69	59 111.91	69 468.43	78 458.65	108 039.74	83%
CCS Logistics	42 656.42	39 250.03	34 205.90	32 128.56	36 269.32	41 718.98	44 606.99	43 489.37	20%
BCP	101 367.15	123 195.24	104 782.80	101 114.12	143 490.42	130 581.58	174 920.48	146 155.43	2%
OLS	23 424.41	20 014.15	23 741.00	23 735.13	24 811.14	23 218.62	22 035.29	18 019.70	-27%
Etosha	-	10 678.93	9 173.69	10 791.28	11 470.89	13 069.18	16 263.54	12 125.81	6%
Group Corporate	-	-	-	1 177.98	891.50	981.04	916.61	959.39	8%
Oceana (Excl Daybrook)	227 288.67	258 670.48	223 201.99	228 648.76	276 045.18	279 037.83	337 201.56	328 789.44	19%
Daybrook	-	-	-	-	-	-	-	35 421.84	-
Oceana (Total)	227 288.67	258 670.48	223 201.99	228 648.76	276 045.18	279 037.83	337 201.56	364 211.28	32%

Note: The FY13 baseline was recalculated December 2015
 Scope 2 emissions were calculated using the location-based method
 Group Corporate is included to account for emissions from Oceana House

¹ Total measured GHG emissions include outside of scopes emissions from non-Kyoto refrigerant gases.

Emissions profile and comparison analysis to previous reporting periods and trends is shown in the below graph:

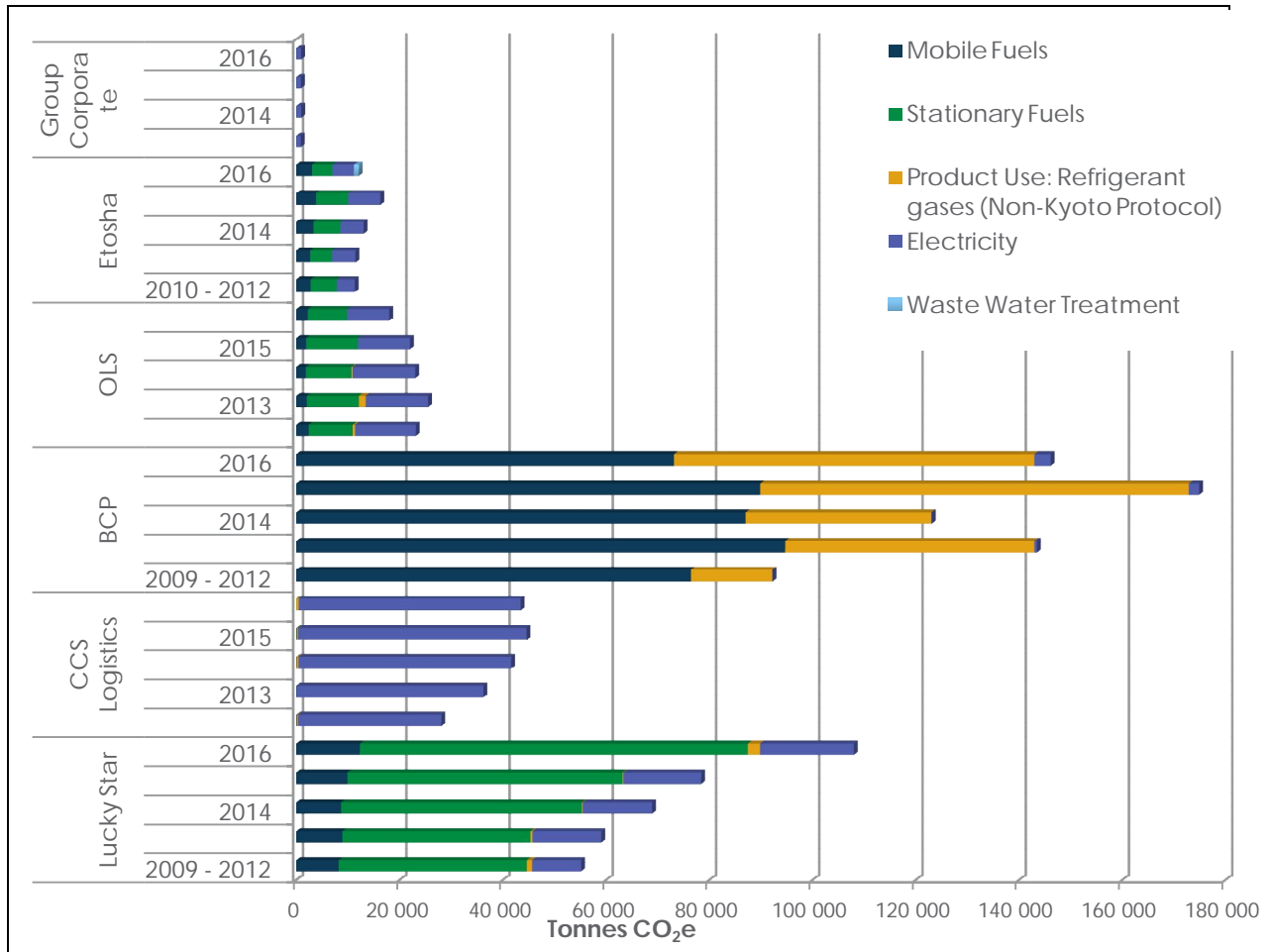


Figure 7: Comparison of various emission sources

Note: 2009 to 2012 emissions were averaged over that time period

2.2 Intensity comparison 2013 – 2016

Intensity reporting makes it possible to accurately compare one year with another in spite of changes over time. It is therefore a crucial tool for benchmarking, and for comparing business divisions to each other, and against other similar companies.

A detailed breakdown of all emissions per **activity** type and **product** type (in tCO₂e) is shown in the following two tables below:

Table 9: Emissions per activity, 2013-2016 (tCO₂e)

Division	2013	2014	2015	2016	Performance against FY13	2013	2014	2015	2016	Performance against FY13
	Vessels					Land based facilities				
Lucky Star	391.54	278.57	338.14	292.34	-25%	1 690.03	1 379.75	1 384.97	1 107.12	-34%
LS Amawandle Pelagic	-	-	188.89	220.78	-	-	-	968.84	1 113.28	-
CCS Logistics SA	-	-	-	-	-	60.76	69.82	65.78	57.77	-5%
CCS Logistics non-SA	-	-	-	-	-	66.11	71.59	62.42	65.96	-0.2%
BCP SA	2 314.14	3 658.70	3 043.92	4 087.77	77%	-	-	-	1 164.14	-
BCP Nam	734.15	721.64	950.39	849.99	16%	-	-	-	-	-
Lobster	2 004.38	2 126.26	1 359.98	2 809.93	40%	5 403.43	4 975.38	4 439.93	6 611.55	22%
Squid	2 177.82	2 043.55	1 514.36	2 879.95	32%	-	-	-	-	-
Fries	-	-	-	-	-	1 038.43	938.85	984.50	1 109.64	7%
Etosha	97.82	83.91	236.97	70.19	-28%	613.61	383.94	692.52	720.77	17%
Oceana Group (excl CCS& Daybrook)	924.91	902.23	1 141.55	946.59	2%	1 280.72	1 020.35	1 109.25	1 083.49	-15%
Daybrook	-	-	-	-	-	-	-	-	451.02	-
Oceana Group Total (excl CCS)	924.91	902.23	1 141.55	946.59	2%	1 280.72	1 020.35	1 109.25	826.73	-35%

Note:

- The above intensity ratios include Product Use: Refrigerant gases from non-Kyoto Protocol emissions and exclude Scope 3 Packaging emissions (emissions from packaging were included in product intensities in Table 10 below)
- CCS Logistics SA & non-SA intensity CCS intensities are reported in tCO₂e/m³ of refrigerated space at CCS facilities
- The total intensities exclude CCS Logistics due to all other intensity metrics being measured in tons of product and not m³.

A detailed breakdown of all emissions per product type (in tCO₂e) is shown in the table below.

Table 10: Oceana Group absolute emissions per product type (tCO₂e)

	Fishmeal & Oil	Canned Product	Hake	Horse Mackerel **	Lobster	Squid	French Fries	Handled & Stored product	Total
Mobile fuels	8 236	6 349	24 632	49 847	1 085	1 063	103	35	91 350
Stationary fuels	68 730	36 126	-	3 054	-	-	7 656	62	115 629
Waste Water Treatment	43	167	-	734	-	-	-	8	953
Product Use: Refrigerant gases (Non-Kyoto Protocol)	2 102	1 112	39 628	29 320	-	-	-	445	72 606
Electricity	15 936	9 300	2 127	4 193	1 912	24	6 177	43 046	82 715
Packaging	9 650	9 176	579	5 060	0.17	28.07	1 609.1	252	26 355
Total Emissions	104 697.18	62 230.46	66 964.95	92 208.34	2 997.47	1 114.53	15 545.04	43 848.93	389 606.90
Tonnes of product	151 789	71 603	17 665	** 107 179	621	377	12 559	744 582	* 1 106 374
Emissions per tonne of product	0.69	0.87	3.79	0.86	4.83	2.95	1.24	0.06	0.35

* Total product also includes other minor catches not disaggregated per product type.

** Includes mackerel and sardinella catches.

Note: Where activity data could not be allocated to a specific catch, a proportion of the data was allocated to the relevant catch based on catch volume.

- The table above shows GHG emissions per product type and includes scope 1, scope 2, non-Kyoto refrigerant gas and scope 3 packaging materials emissions.
- Fishmeal & oil processing contributed the largest share to absolute emissions (27%). This is partially due to the inclusion of Daybrook operations from FY16. For FY15 horse mackerel was the largest contributor, but it now ranks second.
- Lobster remains the most carbon intensive catch per tonne of product across the company, followed by Hake and then Squid.
- **Across the Oceana Group, the average carbon intensity for one tonne of product caught or processed was 0.35 tonnes CO₂e, a 8% decrease from FY15. This is skewed downwards by the lower carbon intensity of product handled and stored by CCS Logistics.**

2.3 Comparison Findings

For Scope 1, Scope 2 and out of scope refrigerant gas emissions:

- **Absolute emissions increased by 32% compared to FY13. Excluding Daybrook the increase was 19%.**
- **Fishmeal & oil processing contributed the largest share to absolute GHG emissions.**
- **Lobster is the most carbon intensive catch per tonne of product, although the carbon intensity decreased by 12% since last year.**
- **OLS was the only operational division to reduce absolute emissions (by 27%) from FY13.**

2.4 Key Recommendations

GCX recommends that Oceana embark on an emissions reduction programme, by undertaking the following:

- **Continue to explore all viable GHG reduction opportunities and sign-off on a plan of action for such initiatives**

- Investigate setting absolute GHG reduction targets for each business division and/or the company
- Address electricity consumption by implementing energy efficiency audits at some of the more energy-intensive facilities
- Investigate and invest in the optimisation of fuel efficiency of the shipping vessels

3 FURTHER REQUIRED INFORMATION

3.1 Methodology

The carbon emissions were measured in accordance with the GHG Protocol Corporate Standard (WRI & WBCSD, 2004).

As per the GHG Protocol, all Scope 1 and Scope 2 emissions were included in the report. Emissions from non-Kyoto gases (such as Freon/R22) were measured and classified as out of scope Product Use Emissions. Although optional, Scope 3 emissions were also included where data was available and measurable.

- All emissions were expressed as CO₂ equivalents (CO₂e), and account for carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).
- All emission factors used were from DEFRA (2016) using IPCC AR4 (2007) GWPs, unless stated otherwise.

Scope 1

- Emission factors for the following fuels were sourced from Oceana suppliers and are specific to Oceana:
 - IFO
 - MGO
 - HFO
 - Diesel (500 ppm)
 - LPG
 - Recycled HFO
- The coal emission factor was calculated using IPCC default factors.
- Emissions from the treatment of waste water at Etosha's facility were assessed. The emission factor used was calculated based on Vol 5 Ch6 2006 IPCC Guidelines GHG Inventories 6.2.3.
- The emission factor for natural gas consumed at Daybrook's facility was taken from EPA factors (Nov 2015 v2).

Scope 2

- Electricity grid emission factor for South Africa of 1.00 kg CO₂e/kWh was applied, Eskom (2016). Scope 2 emissions were calculated using the location-based method for South African grid-connected electricity.
- Electricity grid emission factor for Namibia of 0.9733kg CO₂e/kWh was applied, based on data from Nampower (2008 - 2010). Scope 2 emissions were calculated using the location-based method.

- Electricity grid emission factor for Daybrook, located in Louisiana, USA, was calculated using the location-based method. A factor of 0.47927 kg CO₂e/kWh was applied. (Source: EPA eGRID2012 - SRMV SERC Mississippi Valley).
- Scope 2 emissions were calculated and reported using both the location-based and market-based methods. This is in accordance with *GHG Protocol Corporate Standard's "Scope 2 Guidance"* (January 2015). No contractual instruments were purchased in FY2016 and therefore both totals are the same.
- The following conversion was used to calculate the emission factor used for Daybrook: 1pound = 0.453592 kgs.

Scope 3

- The emissions from indirect Scope 3 Transmission & Distribution Losses from purchased electricity were measured. The emission factors and sources applied were: South Africa - 0.09395 kg CO₂e/kWh (Defra 2016, "South Africa"); Namibia - 0.09191 kg CO₂e/kWh (Defra 2016, "Africa average"); USA - 0.0296 kg CO₂e/kWh (EPA eGRID2012).
- Emission factors for packaging were cradle-to-gate emission factors from DEFRA 2016, except for the production of paper labels which was from Sappi (2013).
- Emission factor for embedded emissions from the use of water in South Africa were from Friedrich, Pillay & Buckley 2007, Water SA, Vol. 33. This South African LCA emission factor was also used for Namibia.
- The South African water emission factor was used for Namibian operations as no reliable Namibian factor was available.
- For Daybrook water consumption, a conversion factor of 0.0037854 gallons to 1 kilolitre was used.
- For water consumption at Daybrook, USA, the factor was taken from DEFRA (2016), supply and treatment.
- Emission factors for waste decomposition at landfill and recycling processes come from DEFRA 2016, except for the following recycling waste sources: carton, paper, plastic, metals and glass. These factors were applied from Friedrich, E. & Trois, C. GHG emission factors developed for recycling and composting of municipal waste in South African municipalities, 2013.

The emission factor for hazardous waste was from the Australian National Greenhouse Accounts, July 2014. The South African municipal landfill waste factor was from Friedrich, Trois Waste Management 33 (2013). This South African emission factor was also used for Namibia.

- General and Solid waste that was reported in m³ was converted to tonnes using the Victoria Government Waste converter.
- Paper production emission factors for various office paper types were from Sappi 80gsm (2016).
- The standard weight of 2.4948kg for one ream of office paper was used to calculate total weight of office paper.
- Some A3 paper was reported and converted accordingly into the correct weight.
- For paper purchased by Namibian operations the South African emission factor from Sappi was used as the paper was assumed to have been produced in South Africa.
- A DEFRA-recommended uplift factor of 8% was used for all flights. The uplift factor comes from the IPCC Aviation and the global Atmosphere 8.2.2.3, which states that 8% should be added to take into account non-direct routes.

- A radiative forcing factor was applied to all flights.
- Except for BCP, data was not submitted for FY16, and so car rental emissions were estimated using FY15 data.
- For BCP emissions were calculated by the service providers using the distances travelled and vehicle-specific CO₂ emission factors.

3.2 Base Year

For the current reporting period, FY13 remains the base year as FY13 was the target achievement year for Oceana's previous base year (FY09).

Reduction targets are linked to both resource consumption and intensity ratios using total land-based product and total vessel-based product, which more accurately reflects Oceana's operations. GHG reduction goals are based on the location-based method total.

3.3 Base Year Emissions Recalculation Policy

Oceana's base year emissions recalculation policy gives a significance threshold for historic emissions recalculations and details the appropriate context for any significant changes that shall trigger base year emissions recalculation.

Oceana's base year emissions shall be recalculated and restated under the following circumstances:

- ***Where significant changes in the accuracy of published emission factors occur. In such cases, Oceana will utilise the most accurate factor. Any emission factor change that results in a 5% variance in emissions for that emission source shall trigger recalculation and restating of published emissions.***
- ***A methodological change to either the organisational boundary or operational boundary shall require a recalculation.***
- ***In the situation where Oceana has performed or undertaken any of the following, recalculation will occur dependent on data availability within the new entity:***
 - ***Mergers or acquisitions***
 - ***Divestitures***
 - ***Insourcing/outourcing of emitting activities***

3.4 Base Year Recalculation

A baseline recalculation should have been undertaken in the current year in accordance with the above base year emissions recalculation policy. However this was not performed due to the inability to obtain historical data from Daybrook and Etosha's waste water activity for the periods FY13 to FY15.

A previous recalculation was carried out after completing the FY15 GHG inventory quantification in December 2015.

This assessment, FY16, is expected to be the base year going forward. This will be recalculated next year to exclude the emissions from Fries.

3.5 Assumptions & Limitations

It was assumed that all data submitted by Oceana was accurate, precise and complete unless stated otherwise.

It is often necessary to make assumptions and extrapolations based on the available data. Please take note of some of the key assumptions, extrapolations and limitations listed below:

Company-Owned Transport, Mobile and Stationary Equipment:

- According to the guidelines of the GHG Protocol Corporate Standard, the quantity-based approach was used (i.e. using fuel volumes) for all mobile and stationary emission sources where data was given in quantity of fuel.
- Where the data given was in weight it was preferable to use an emission factor that corresponds to fuel weight (i.e. kg CO₂e/ tonne fuel) rather than converting the fuel weight to volume (litres) using an estimated average fuel density.
- All travel in employee-owned vehicles where Oceana pay a monthly allowance was included in Scope 3 emissions, and the quantity-based approach was used.
- All lubricants were assumed to have been disposed of and not consumed in combustion process for stationary equipment. However in mobile equipment 20% of all lubricating oils used were assumed to have been combusted.
- It was assumed that the recycled fuel oil used by Etosha was HFO/LFO.
- For natural gas use at Daybrook, a conversion of 0.000293 Btu to 1 kWh was used.

Product Use Emissions:

- The only product use emissions reported were for Freon (R-22), a non-Kyoto greenhouse gas.
- Ammonia and Nitrogen were also used extensively and was assumed to have a global warming potential (GWP) of zero.

Business Travel

Flights:

- For Lucky Star, BCP, CCS Logistics, Group Corporate and OLS, emissions were initially calculated by the travel agents (Carlson Wagonlit and Travel Magic), however the emission factors and conversion to carbon emissions were found to be incorrect or unclear and so was updated and corrected by GCX.
- No flights were booked under Amawandle Pelagic (Lucky Star) or Daybrook.

Packaging Materials

- It was assumed that the material composition of stretchwrap and fish oil bags' was LDPE; strapping and fishmeal bags were polypropylene (PP); for labels the paper emission factor was used; the steel emission factor was used for fish oil/tomato paste drums.
- The recycled content in materials was assumed to be zero.

Waste

- Waste to landfill from damaged imported canned product continues to be excluded.
- Waste oil was collected and reused as furnace fuel by the service provider, and so there were no emissions for Lucky Star.