

Carbon Footprint

East Sussex Pension Fund



S&P Dow Jones Indices
ESG Analysis



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CREDITS

Yohan Hill Research Manager

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CONTACT

E: Trucostinfo@spglobal.com

T: +44(0)20 7160 9800

T: +1 800 402 8774

www.trucost.com

CONTENTS

<u>EXECUTIVE SUMMARY</u>	4
<u>INTRODUCTION</u>	6
<u>CARBON FOOTPRINT RESULTS</u>	8
CARBON FOOTPRINT – LGIM GLOBAL	8
CARBON FOOTPRINT – LGIM UK	13
CARBON FOOTPRINT – LONGVIEW	18
CARBON FOOTPRINT – SSGA EQUITIES	23
CARBON FOOTPRINT – NEWTON	28
CARBON FOOTPRINT – RUFFER	30
CARBON FOOTPRINT – AGGREGATE PORTFOLIO	32
<u>APPENDICES</u>	35
APPENDIX A	35
APPENDIX B	35
APPENDIX C	37
<u>GLOSSARY</u>	39
CARBON DISCLOSURE CODE EXPLANATION	39
<u>REFERENCES</u>	42
<u>NOTICE</u>	43
<u>DISCLAIMER</u>	43
<u>CONFIDENTIALITY & COPYRIGHT</u>	44

EXECUTIVE SUMMARY

Our analysis shows that three out of four of the relative-return portfolios analysed outperform their respective benchmarks.

- Trucost was commissioned by the East Sussex Pension Fund to conduct a carbon footprint analysis of six listed equity portfolios, as noted below:
 - LGIM Global
 - LGIM UK
 - Longview Partners Global Equity Strategy
 - Newton
 - Ruffer
 - State Street Global Advisers (SSGA)
- Two of these are absolute return portfolios (Newton and Ruffer). The others are relative return and, as such, Trucost compared their carbon footprint performance to their respective benchmarks as follows:

Portfolio	Benchmark
LGIM Global	FTSE World
LGIM UK	FTSE All Share
Longview	MSCI All Country World Index (ACWI)
SSGA	FTSE RAFI All-World 3000

- Based on the revenue method of analysis, we obtained the following results from that comparison:
 - **LGIM Global is 7.47% more carbon intensive** than its benchmark, FTSE World.
 - **LGIM UK is 1.12% more carbon intensive** than its benchmark, FTSE All Share.
 - **Longview is 82.59% less carbon intensive** than its benchmark, MSCI ACWI.
 - **SSGA is 4.08% less carbon intensive** than its benchmark, FTSE RAFI-All World 3000.
- Our assessment of the **aggregate portfolio** shows that the energy generation mix for the aggregate holdings has a **16.6% share of energy coming from renewable power generation**, which is less than half of the 2025 IEA World 2-degree scenario amount of 37.1%.

- **Coal power generation stands at 29.4% of total power generation**, which is above the 24.7% required by 2025, under the IEA World 2-degree scenario.
- In order to meet the more challenging 2030 IEA World target, the aggregate portfolio will need reduce the share of coal power generation to 14.9% of total power generation, and increase the share of renewable energy generation to 46.4%.

Carbon footprints of investment portfolios can be used to identify carbon-related strengths, weaknesses, opportunities and threats from the shift to a low-carbon economy.

INTRODUCTION

Trucost provides data and insight to help its clients understand the economic consequences of natural capital dependency. Our clients include companies and their advisors, the investment community, governments, academics and thought leaders.

Trucost was commissioned by the East Sussex Pension Fund to conduct a carbon footprint analysis of its listed equity portfolios.

Carbon footprints of investment portfolios can be used to identify carbon-related strengths, weaknesses, opportunities and threats from the shift to a low-carbon economy. The carbon footprint analysis helps to identify what the key climate change impacts of an investment portfolio are, and the related risks and opportunities. More information on carbon footprinting is provided in Appendix A.

This analysis assesses the carbon risks inherent in the following equity mandates:

- LGIM Global
- LGIM UK
- Longview
- Newton
- Ruffer
- State Street Global Advisers (SSGA)

Carbon footprint analysis quantifies greenhouse gas emissions (GHG) embedded within each investment portfolio presenting these as tonnes of carbon dioxide equivalents (tCO₂e). Comparing the total GHG emissions of each holding relative to annual revenue, gives a measure of carbon intensity that enables comparison between companies and countries, irrespective of size or geography.

Each holding's contribution to the carbon footprint of the portfolio is calculated on an ownership basis. The carbon footprint of the fund is the sum of these contributions normalised by revenue owned (revenue method) or by per million invested (AUM method). In addition, for comparison, we present the weighted average carbon intensity (WACI) method of analysis of holdings, which aggregates

the individual issuers' carbon footprint weighted by the proportion of portfolio holdings.

Trucost's assessment of the carbon footprint in East Sussex's equity funds includes:

- Measurements of the carbon efficiency of portfolios relative to benchmarks;
- Analysis of sector allocation effects and stock selection effects;
- Assessment of the transparency of carbon disclosure at portfolio and constituent level;
- Identification of key contributors to the carbon footprints of the funds;
- Highlighting of key (active) investees for engagement on carbon risk;
- Determination of the aggregate funds' exposures to the fossil fuel; and,
- Energy generation mix analysis of the aggregate portfolio.

A glossary of terms can be found in the Appendices. Values expressed in percentage terms have been constructed such that a positive number is good news for the fund's carbon risk exposure.

CARBON FOOTPRINT RESULTS

The LGIM Global portfolio is 7.47% more carbon intensive than its benchmark, the FTSE World Index, when compared using the revenue method.

CARBON FOOTPRINT – LGIM GLOBAL

Summary

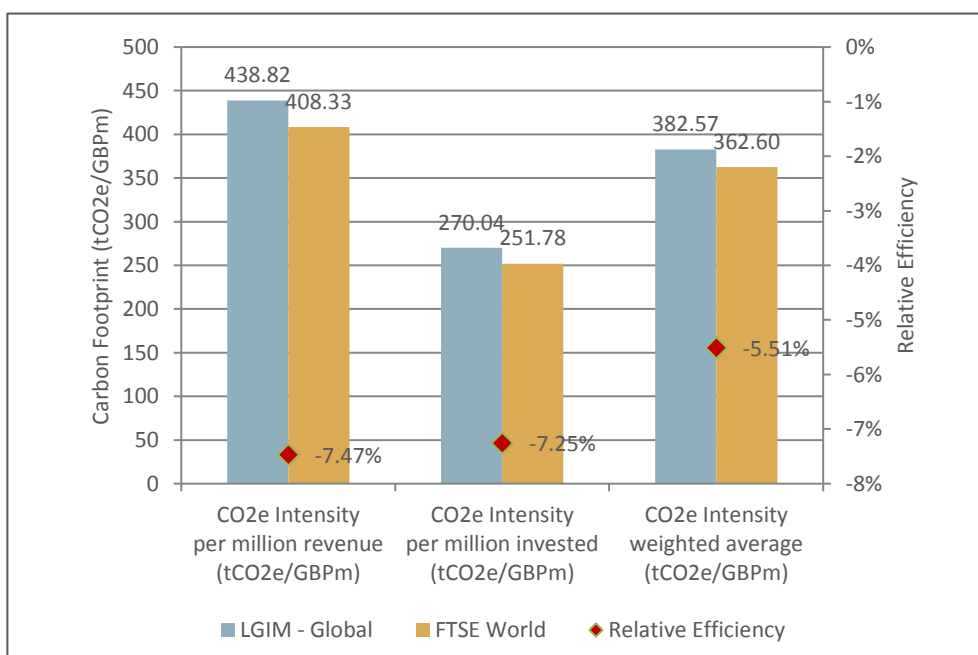
- The carbon footprint analysis of the LGIM Global portfolio was carried out for holdings data as at 30th September 2017.
- The FTSE World Index was used as the benchmark for this analysis.
- Our analysis covers companies of which holdings constitute 99.81% of the value of the portfolio. The equivalent coverage figure for the benchmark is 99.85%.

EXHIBIT 1: LGIM GLOBAL CARBON FOOTPRINT ANALYSIS

	CO2e Intensity per million revenue (tCO2e/GBPm)	CO2e Intensity per million invested (tCO2e/GBPm)	CO2e Intensity weighted average (tCO2e/GBPm)	Total Apportioned CO2e (tonnes)
LGIM - Global	438.82	270.04	382.57	153,654.23
FTSE World	408.33	251.78	362.60	143,263.23
Relative Efficiency	-7.47%	-7.25%	-5.51%	-7.25%

- The LGIM Global portfolio is 7.47% more carbon intensive than its benchmark when compared using the revenue method; 7.25% more carbon intensive when compared using the AUM method; and, 5.51% more carbon intensive when compared using the weighted average method.
- The following chart shows the comparison of the key metrics in graphical representation.

EXHIBIT 2: LGIM GLOBAL CARBON FOOTPRINT CHART



Sector Analysis

- The tables and charts below show how the sector and industry allocation as a proportion of the portfolio differs from that in the benchmark, and the effect of this allocation on the carbon footprint of the portfolio.
- The sectors with the highest levels of carbon intensity within this portfolio are Utilities (3,082.48 tCO₂e/GBPm) and Materials (1,695.29 tCO₂e/GBPm).

EXHIBIT 3: SECTOR WEIGHTS IN THE PORTFOLIO AND THE BENCHMARK

Sector	Sector Weighting		Carbon Intensity (tCO ₂ e/GBPm)	
	Portfolio	Benchmark	Portfolio	Benchmark
Automobiles & Components	2.66%	2.54%	122.94	120.58
Banks	10.63%	10.07%	15.78	16.19
Capital Goods	7.95%	8.10%	198.25	188.52
Commercial & Professional Services	0.87%	0.91%	238.68	223.91
Consumer Durables & Apparel	1.91%	1.97%	129.77	129.19
Consumer Services	1.66%	1.73%	263.79	264.50
Diversified Financials	4.38%	4.45%	161.44	164.34
Energy	6.29%	6.05%	975.70	921.58
Food & Staples Retailing	1.72%	1.77%	75.70	75.89
Food, Beverage & Tobacco	5.15%	5.32%	525.29	522.01
Health Care Equipment & Services	3.31%	3.46%	37.91	37.58
Household & Personal Products	2.01%	2.03%	237.44	233.13
Insurance	4.05%	4.04%	8.50	8.69
Materials	5.48%	5.49%	1,695.29	1564.13
Media	2.42%	2.53%	32.51	32.78
Pharmaceuticals, Biotechnology & Life Sciences	7.63%	7.90%	72.28	70.88
Real Estate	3.06%	2.94%	141.83	153.34
Retailing	3.40%	3.51%	80.48	79.70
Semiconductors & Semiconductor Equipment	2.93%	3.08%	219.66	211.33
Software & Services	9.08%	8.65%	40.28	40.07
Technology Hardware & Equipment	4.85%	5.03%	109.20	109.38
Telecommunication Services	3.15%	3.03%	78.47	77.07
Transportation	2.29%	2.30%	671.27	658.28
Utilities	3.12%	3.09%	3,082.48	2826.47
	100.00%	100.00%	438.82	408.33

EXHIBIT 4: SECTOR WEIGHTS CHART

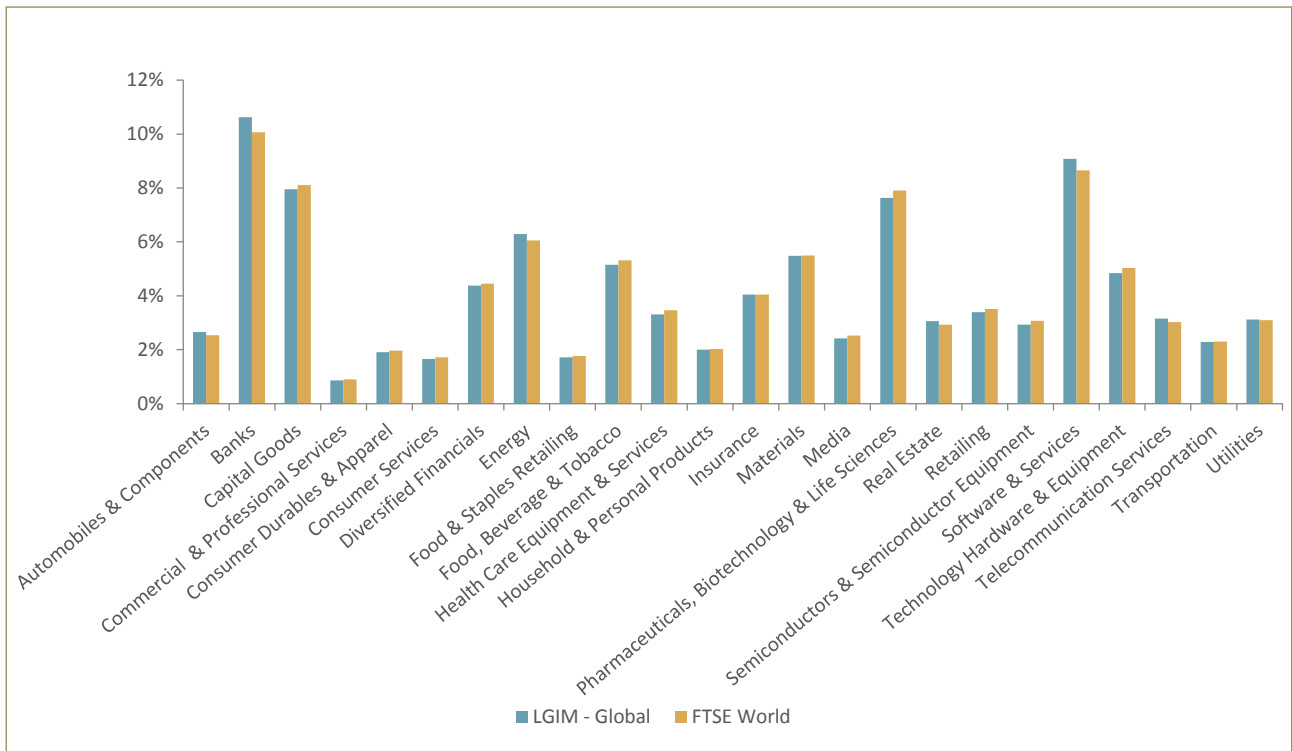
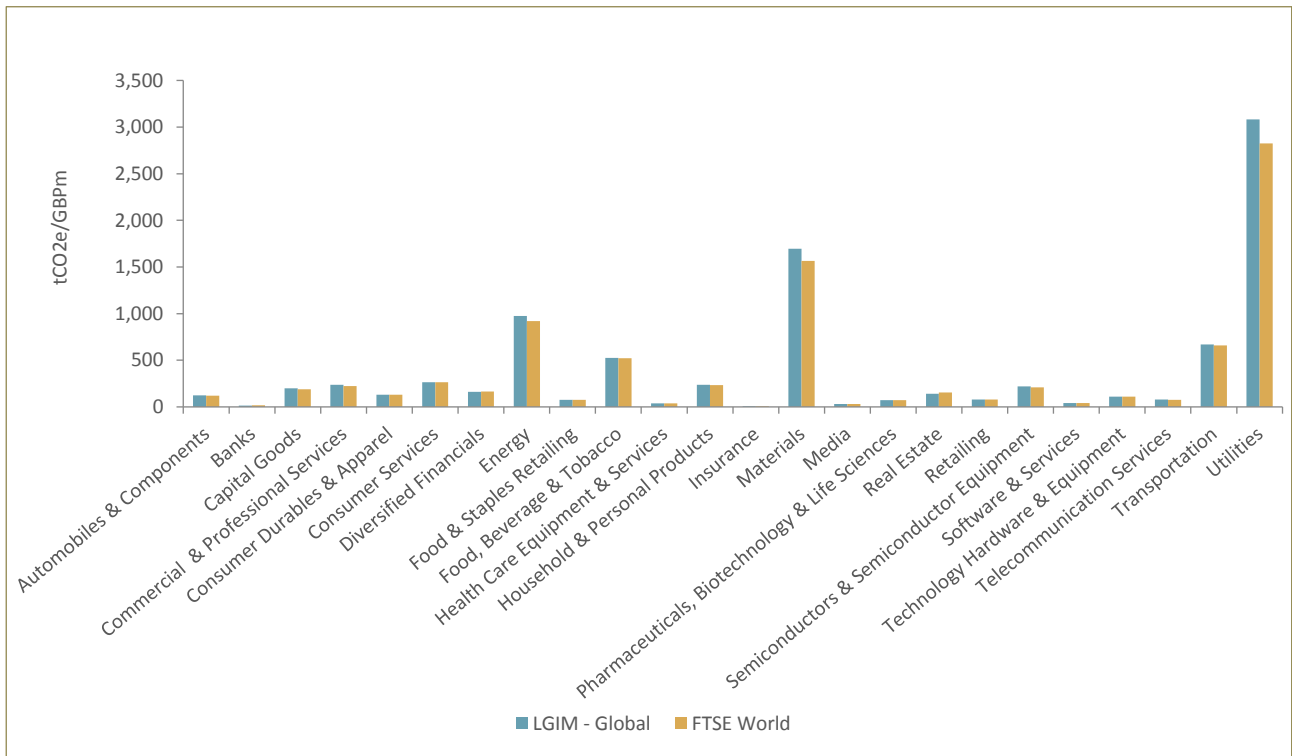


EXHIBIT 5: SECTOR CARBON INTENSITY CHART



Performance Attribution

- Sector allocation effects and stock selection effects are the principal reasons why the carbon intensity of a portfolio may differ from its benchmark. A portfolio that is overweight in carbon intensive sectors, or has holdings of the most carbon intensive stocks within any given sector, is likely to be more carbon intensive than its benchmark, and vice versa.
- The sectors that have the greatest effect on the LGIM Global’s carbon intensity are Utilities, Materials and Energy, which together contribute negatively to the carbon intensity of the portfolio by -6.75%, relative to the benchmark.

EXHIBIT 6: PERFORMANCE ATTRIBUTION TABLE (REVENUE METHOD)

Sector	Footprint Attribution		
	Sector Allocation	Stock Selection	Total Effect
Automobiles & Components	-0.05%	-0.04%	-0.09%
Banks	0.25%	0.01%	0.26%
Capital Goods	-0.07%	-0.24%	-0.31%
Commercial & Professional Services	-0.02%	-0.03%	-0.05%
Consumer Durables & Apparel	-0.01%	0.00%	-0.02%
Consumer Services	-0.02%	0.00%	-0.02%
Diversified Financials	-0.05%	0.02%	-0.02%
Energy	-0.88%	-1.14%	-2.02%
Food & Staples Retailing	-0.15%	0.00%	-0.14%
Food, Beverage & Tobacco	0.03%	-0.03%	0.00%
Health Care Equipment & Services	-0.16%	0.00%	-0.16%
Household & Personal Products	-0.01%	-0.01%	-0.03%
Insurance	0.00%	0.00%	0.01%
Materials	0.03%	-2.06%	-2.03%
Media	-0.08%	0.00%	-0.08%
Pharmaceuticals, Biotechnology & Life Sciences	-0.08%	-0.01%	-0.09%
Real Estate	0.13%	0.04%	0.17%
Retailing	-0.07%	-0.01%	-0.07%
Semiconductors & Semiconductor Equipment	-0.02%	-0.02%	-0.05%
Software & Services	0.02%	0.00%	0.02%
Technology Hardware & Equipment	-0.07%	0.00%	-0.07%
Telecommunication Services	0.12%	-0.01%	0.11%
Transportation	0.01%	-0.08%	-0.06%
Utilities	0.05%	-2.75%	-2.70%
	-1.09%	-6.38%	-7.47%

Top Contributors

- The 10 companies that contribute most to the LGIM Global portfolio's carbon footprint are tabulated below. Note that a company may appear in this list because of the proportion owned, rather than because it is among the 10 most carbon intensive stocks held.
- These companies, belonging to the Utilities, Materials and Energy sectors, contribute negatively to the total carbon intensity of the portfolio by -11.70%, with maximum negative contribution of -1.43% by Exxon Mobil Corp.

EXHIBIT 7: TOP 10 CONTRIBUTORS TO CARBON FOOTPRINT (REVENUE METHOD)

Company Name	Sector	Holding (GBPm)	Carbon Apportioned (tonnes)	Carbon Apportioned (%)	Company CO2e intensity (tonnes/GBPm)	Carbon Footprint Contribution (%)	CO2e Intensity Rank in Benchmark Sector	Data Source (Scope 1)
Exxon Mobil Corp	Energy	4.56	3,549.13	2.31%	1,137.79	-1.43%	78/112	Full Disclosure
RWE AG	Utilities	0.15	2,341.69	1.52%	3,883.66	-1.35%	74/116	Full Disclosure
ArcelorMittal Inc	Materials	0.20	2,180.00	1.42%	4,587.14	-1.28%	222/241	Full Disclosure
American Electric Power	Utilities	0.45	2,053.37	1.34%	8,785.54	-1.27%	110/116	Full Disclosure
LafargeHolcim Ltd	Materials	0.29	1,997.22	1.30%	8,311.30	-1.23%	235/241	Full Disclosure
Southern Co	Utilities	0.64	1,863.20	1.21%	6,593.13	-1.13%	104/116	Full Disclosure
Duke Energy Corp	Utilities	0.77	1,841.54	1.20%	5,674.15	-1.11%	92/116	Full Disclosure
Korea Elec Power Corp	Utilities	0.11	1,721.87	1.12%	5,921.09	-1.04%	97/116	Partial Disclosure
Tokyo Electric Power Co. Holding Inc.	Utilities	0.08	1,736.72	1.13%	2,849.23	-0.96%	68/116	Full Disclosure
Nippon Steel & Sumitomo Metal Corp	Materials	0.23	1,541.74	1.00%	3,753.35	-0.89%	214/241	Partial Disclosure

CARBON FOOTPRINT – LGIM UK

The LGIM UK portfolio is 1% more carbon intensive than its benchmark, FTSE All Share, when compared using the revenue method.

Summary

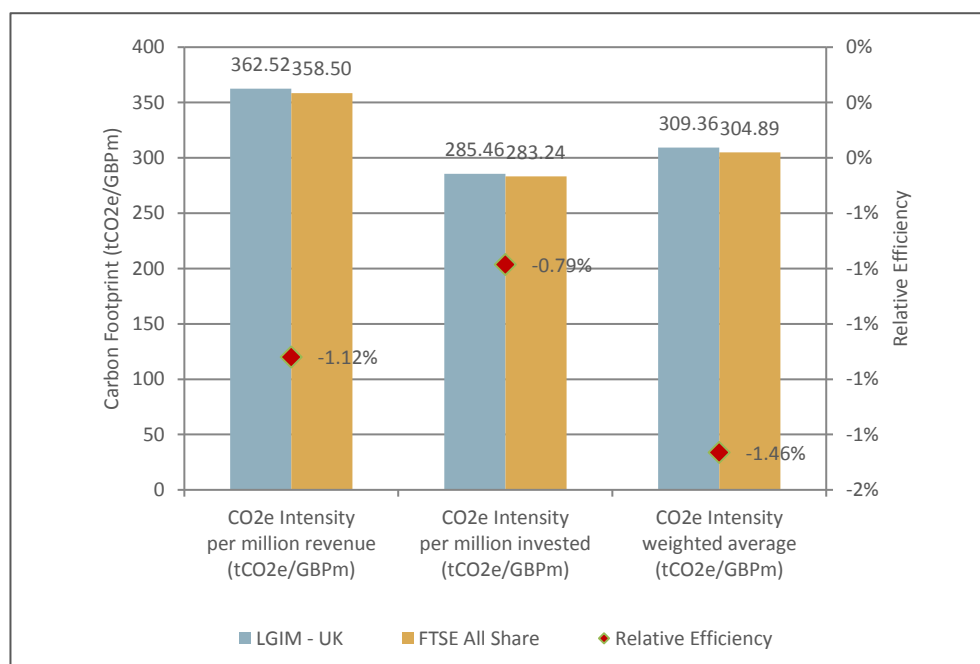
- The carbon footprint analysis of the LGIM - UK portfolio was carried out for holdings data as at 30th September 2017.
- The FTSE All Share Index was used as the benchmark for this analysis.
- Our analysis covers companies of which holdings constitute 95.82% of the value of the portfolio. The equivalent coverage figure for the benchmark is 95.52%.

EXHIBIT 8: LGIM UK CARBON FOOTPRINT ANALYSIS

	CO2e Intensity per million revenue (tCO2e/GBPm)	CO2e Intensity per million invested (tCO2e/GBPm)	CO2e Intensity weighted average (tCO2e/GBPm)	Total Apportioned CO2e (tonnes)
LGIM - UK	362.52	285.46	309.36	89,369.71
FTSE All Share	358.50	283.24	304.89	88,673.13
Relative Efficiency	-1.12%	-0.79%	-1.46%	-0.79%

- The LGIM UK portfolio is 1.12% more carbon intensive than its benchmark when compared using the revenue method; 0.79% more carbon intensive when compared using the AUM method; and, 1.49% more carbon intensive when compared using the weighted average method.
- The following chart shows the comparison of the key metrics in graphical representation.

EXHIBIT 9: LGIM UK CARBON FOOTPRINT CHART



Sector Analysis

- The tables and charts below show how the sector and industry allocation as a proportion of the portfolio differs from that in the benchmark, and the effect of this allocation on the carbon footprint of the portfolio.
- The sectors that have the highest levels of carbon intensity within this portfolio are Materials (892.10 tCO₂e/GBPm), Transportation (779.28 tCO₂e/GBPm), Utilities (770.01 tCO₂e/GBPm) and Energy (743.95 tCO₂e/GBPm).

EXHIBIT 10: SECTOR WEIGHTS IN THE PORTFOLIO AND THE BENCHMARK

Sector	Sector Weighting		Carbon Intensity (tCO ₂ e/GBPm)	
	Portfolio	Benchmark	Portfolio	Benchmark
Automobiles & Components	0.26%	0.26%	266.98	266.98
Banks	11.81%	11.78%	19.75	19.74
Capital Goods	5.76%	5.80%	90.83	91.92
Commercial & Professional Services	2.53%	2.52%	73.46	72.17
Consumer Durables & Apparel	2.05%	2.06%	82.95	83.49
Consumer Services	3.74%	3.72%	269.92	270.29
Diversified Financials	2.63%	2.65%	16.74	16.70
Energy	12.86%	12.83%	743.95	743.30
Food & Staples Retailing	1.27%	1.27%	75.37	75.31
Food, Beverage & Tobacco	9.90%	9.42%	349.97	311.15
Health Care Equipment & Services	1.04%	1.05%	88.87	88.88
Household & Personal Products	4.16%	4.14%	159.04	159.02
Insurance	6.27%	6.26%	7.01	7.05
Materials	9.38%	9.36%	892.10	893.17
Media	3.04%	3.05%	29.43	30.90
Pharmaceuticals, Biotechnology & Life Sciences	7.89%	8.38%	70.25	69.77
Real Estate	2.51%	2.55%	74.13	74.04
Retailing	1.87%	1.87%	53.59	53.72
Semiconductors & Semiconductor Equipment	0.02%	0.02%	99.53	111.43
Software & Services	2.31%	2.34%	17.20	17.26
Technology Hardware & Equipment	0.62%	0.60%	90.61	90.98
Telecommunication Services	3.70%	3.69%	71.33	71.35
Transportation	1.18%	1.18%	779.28	775.64
Utilities	3.19%	3.18%	770.01	767.90
	100.00%	100.00%	362.52	358.50

EXHIBIT 11: SECTOR WEIGHTS CHART

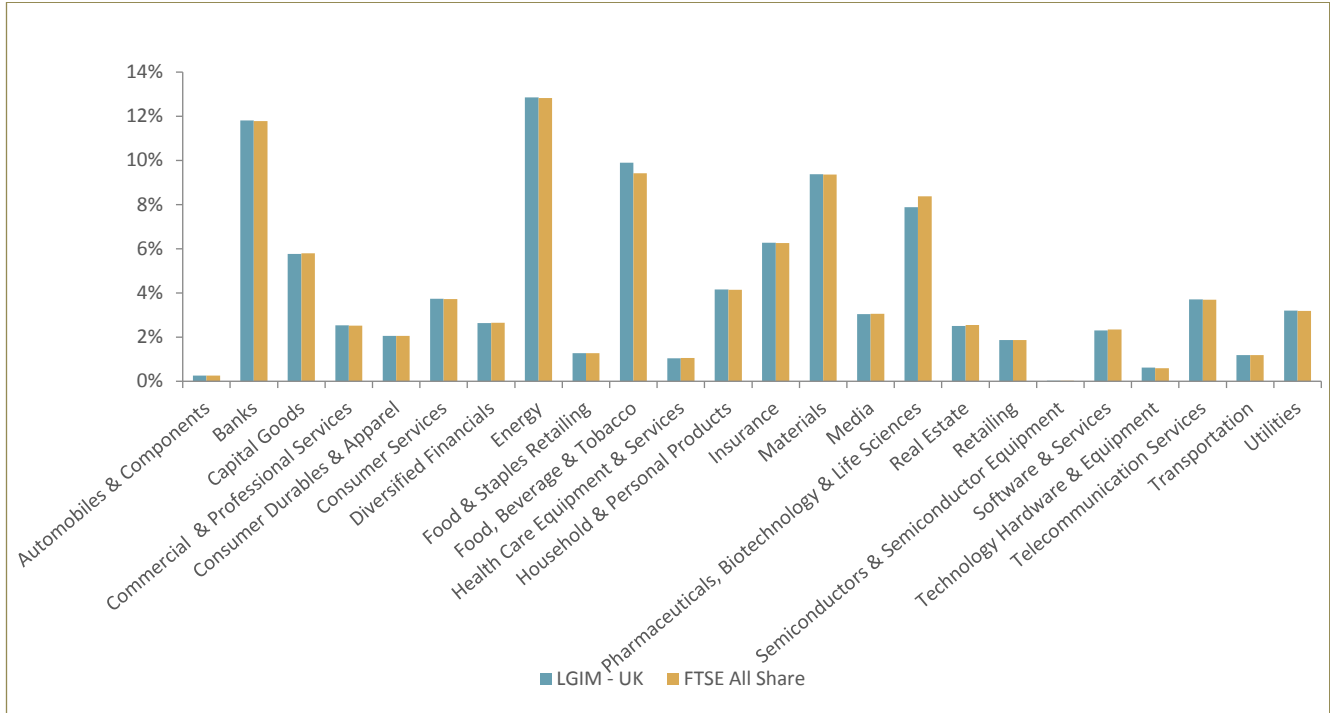
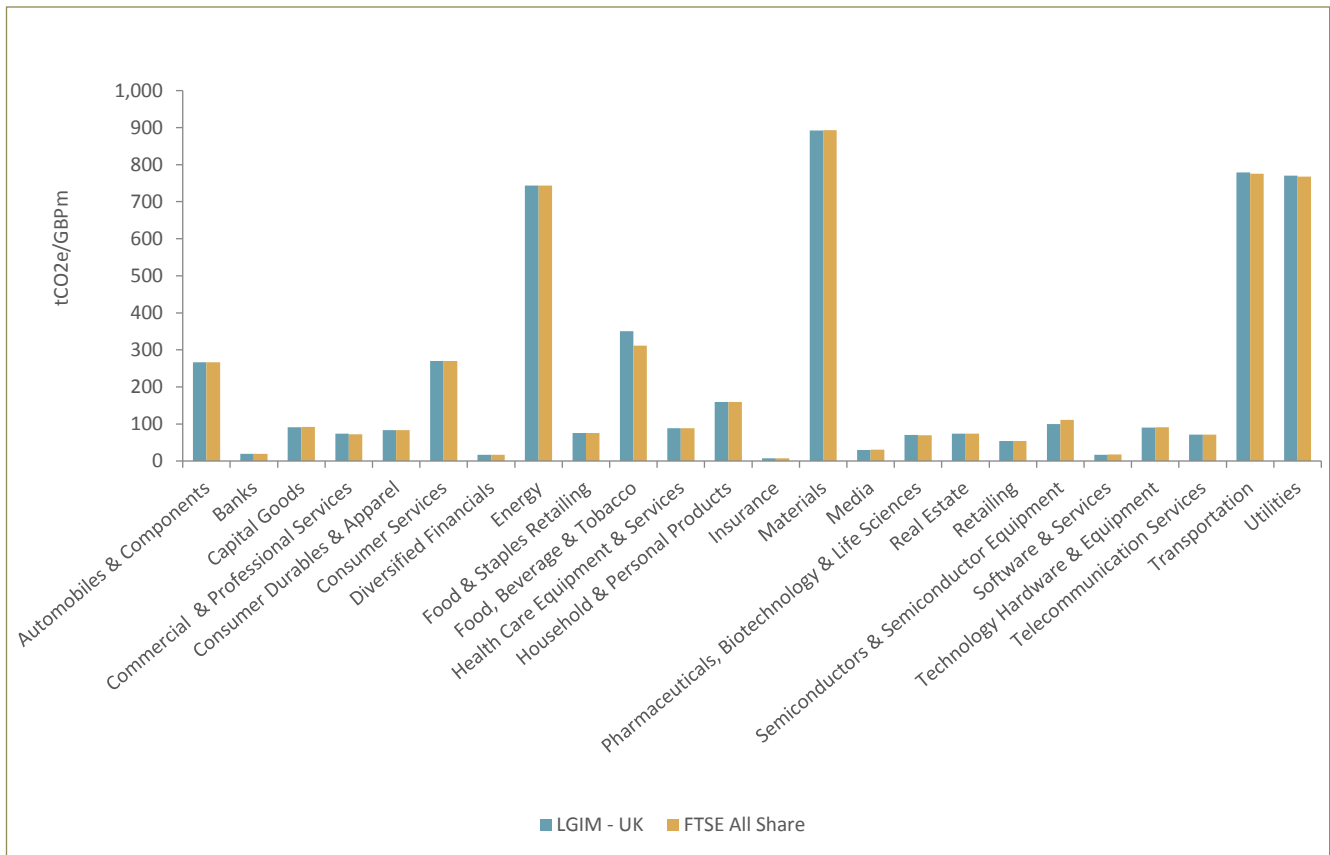


EXHIBIT 12: SECTOR CARBON INTENSITY CHART



Performance Attribution

- Sector allocation effects and stock selection effects are the principal reasons why the carbon intensity of a portfolio may differ from its benchmark. A portfolio that is overweight in carbon intensive sectors, or has holdings of the most carbon intensive stocks within any given sector, is likely to be more carbon intensive than its benchmark, and vice versa.
- The sectors that have the greatest effect on the LGIM UK's carbon intensity are Food, Beverage and Tobacco and Capital Goods, which together contribute negatively to the carbon intensity of the portfolio by -0.67%, relative to the benchmark.

EXHIBIT 13: PERFORMANCE ATTRIBUTION TABLE (REVENUE METHOD)

Sector	Footprint Attribution		
	Sector Allocation	Stock Selection	Total Effect
Automobiles & Components	0.00%	0.00%	0.00%
Banks	0.04%	0.00%	0.04%
Capital Goods	-0.25%	0.02%	-0.22%
Commercial & Professional Services	-0.15%	-0.01%	-0.16%
Consumer Durables & Apparel	0.00%	0.00%	0.00%
Consumer Services	0.01%	0.00%	0.01%
Diversified Financials	0.00%	0.00%	0.00%
Energy	-0.13%	-0.04%	-0.17%
Food & Staples Retailing	0.00%	0.00%	0.00%
Food, Beverage & Tobacco	0.05%	-0.50%	-0.45%
Health Care Equipment & Services	0.00%	0.00%	0.00%
Household & Personal Products	0.01%	0.00%	0.01%
Insurance	0.06%	0.00%	0.06%
Materials	-0.01%	0.03%	0.02%
Media	-0.04%	0.01%	-0.03%
Pharmaceuticals, Biotechnology & Life Sciences	-0.06%	0.00%	-0.06%
Real Estate	-0.05%	0.00%	-0.05%
Retailing	-0.03%	0.00%	-0.02%
Semiconductors & Semiconductor Equipment	0.00%	0.00%	0.00%
Software & Services	-0.01%	0.00%	-0.01%
Technology Hardware & Equipment	0.01%	0.00%	0.01%
Telecommunication Services	0.02%	0.00%	0.02%
Transportation	-0.01%	-0.03%	-0.04%
Utilities	-0.04%	-0.03%	-0.07%
	-0.59%	-0.53%	-1.12%

Top Contributors

- The 10 companies that contribute most to the LGIM UK portfolio's carbon footprint are tabulated below. Note that a company may appear in this list because of the proportion owned, rather than because it is among the 10 most carbon intensive stocks held.
- These companies, belonging to Energy, Materials, Utilities and Transportation sectors, contribute negatively by -39.19% to the total carbon intensity of the portfolio, with maximum negative contribution of -8.50% by BP.

EXHIBIT 14: TOP 10 CONTRIBUTORS TO CARBON FOOTPRINT (REVENUE METHOD)

Company Name	Sector	Holding (GBPm)	Carbon Apportioned (tonnes)	Carbon Apportioned (%)	Company CO2e intensity (tonnes/GBPm)	Carbon Footprint Contribution (%)	CO2e Intensity Rank in Benchmark Sector	Data Source (Scope 1)
BP	Energy	12.68	14,190.86	15.88%	714.23	-8.50%	10/18	Full Disclosure
Royal Dutch Shell PLC	Energy	11.90	9,685.27	10.84%	809.57	-6.29%	13/18	Full Disclosure
Royal Dutch Shell PLC	Energy	10.42	8,475.63	9.48%	809.57	-5.47%	13/18	Full Disclosure
CRH Plc	Materials	3.30	4,900.73	5.48%	1,451.29	-4.17%	32/38	Full Disclosure
International Consolidated Airlines Group SA	Transportation	1.37	3,288.44	3.68%	1,455.29	-2.79%	12/12	Full Disclosure
Drax Group	Utilities	0.18	2,575.01	2.88%	5,725.09	-2.70%	8/8	Full Disclosure
Rio Tinto Plc	Materials	5.69	3,133.21	3.51%	1,280.80	-2.54%	29/38	Full Disclosure
Vedanta Resources Inc	Materials	0.10	2,267.83	2.54%	7,195.34	-2.41%	38/38	Full Disclosure
Evraz Group GDR	Materials	0.21	2,069.48	2.32%	7,021.33	-2.20%	37/38	Full Disclosure
Mondi Ltd	Materials	1.02	2,106.90	2.36%	3,370.66	-2.11%	36/38	Full Disclosure

CARBON FOOTPRINT – LONGVIEW

The Longview portfolio is 82.59% less carbon intensive than its benchmark, MSCI ACWI, when compared using the revenue method.

Summary

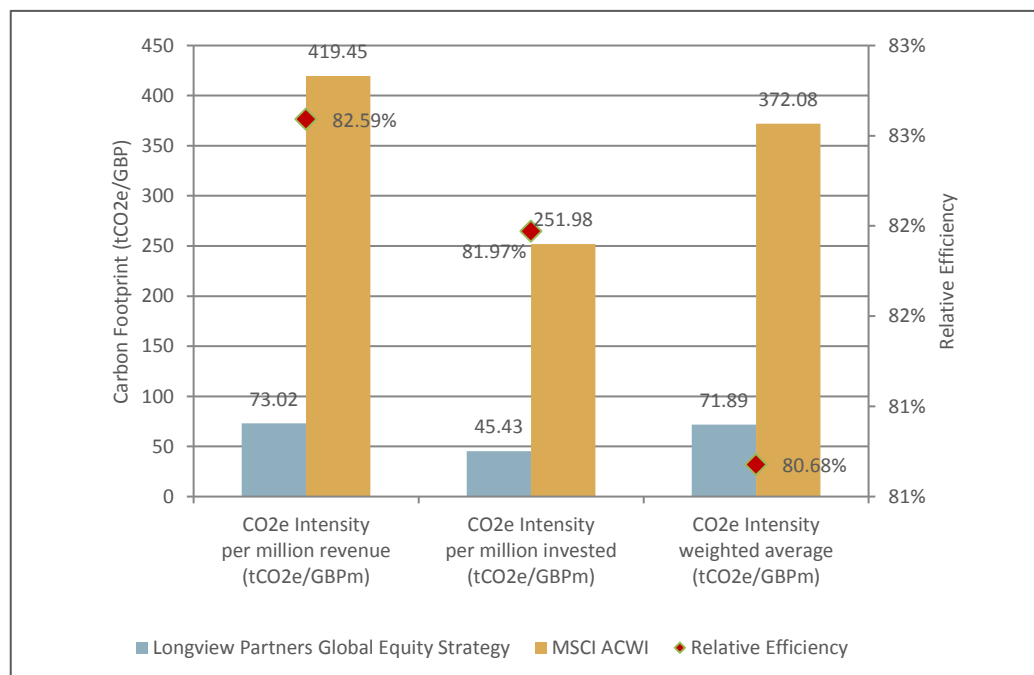
- The carbon footprint analysis of the Longview portfolio was carried out for holdings data as at 30th September 2017.
- The MSCI ACWI was used as the benchmark for this analysis.
- Our analysis covers companies of which holdings constitute 100% of the value of the portfolio. The equivalent coverage figure for the benchmark is 99.92%.

EXHIBIT 15: LONGVIEW CARBON FOOTPRINT ANALYSIS

	CO2e Intensity per million revenue (tCO2e/GBPm)	CO2e Intensity per million invested (tCO2e/GBPm)	CO2e Intensity weighted average (tCO2e/GBPm)	Total Apportioned CO2e (tonnes)
Longview Partners Global Equity Strategy	73.02	45.43	71.89	8,028.73
MSCI ACWI	419.45	251.98	372.08	44,531.97
Relative Efficiency	82.59%	81.97%	80.68%	81.97%

- The Longview portfolio is 82.59% less carbon intensive than its benchmark when compared using the revenue method; 81.97% less carbon intensive when compared using the AUM method; and, 80.68% less carbon intensive when compared using the weighted average method.
- The following chart shows the comparison of the key metrics in graphical representation.

EXHIBIT 16: LONGVIEW CARBON FOOTPRINT CHART



Sector Analysis

- The tables and charts below show how the sector and industry allocation as a proportion of the portfolio differs from that in the benchmark, and the effect of this allocation on the carbon footprint of the portfolio.
- The two sectors that have the highest levels of carbon intensity within this portfolio are Automobiles and Components (189.37 tCO₂e/GBPm) and Capital Goods (132.58 tCO₂e/GBPm).

EXHIBIT 17: SECTOR WEIGHTS IN THE PORTFOLIO AND THE BENCHMARK

Sector	Sector Weighting		Carbon Intensity (tCO ₂ e/GBPm)	
	Portfolio	Benchmark	Portfolio	Benchmark
Automobiles & Components	7.99%	2.58%	189.37	117.50
Banks	7.31%	10.57%	11.99	15.86
Capital Goods	11.30%	7.94%	132.58	192.66
Commercial & Professional Services	1.31%	0.79%	28.07	259.60
Consumer Durables & Apparel		1.90%		131.31
Consumer Services	8.54%	1.68%	69.60	268.65
Diversified Financials	7.20%	4.09%	18.71	132.30
Energy		6.37%		976.16
Food & Staples Retailing		1.69%		76.83
Food, Beverage & Tobacco		5.10%		515.18
Health Care Equipment & Services	11.83%	3.34%	61.46	37.49
Household & Personal Products		2.02%		218.41
Insurance	9.27%	4.08%	23.14	8.01
Materials		5.31%		1640.41
Media	5.57%	2.39%	27.68	32.25
Pharmaceuticals, Biotechnology & Life Sciences	14.55%	7.61%	69.20	72.26
Real Estate		3.07%		135.09
Retailing	3.77%	3.47%	99.17	86.47
Semiconductors & Semiconductor Equipment		2.95%		219.57
Software & Services	10.42%	9.77%	32.41	39.89
Technology Hardware & Equipment	0.93%	4.81%	50.07	107.09
Telecommunication Services		3.21%		78.91
Transportation		2.18%		633.02
Utilities		3.08%		3001.62
	100.00%	100.00%	73.02	419.45

EXHIBIT 18: SECTOR WEIGHTS CHART

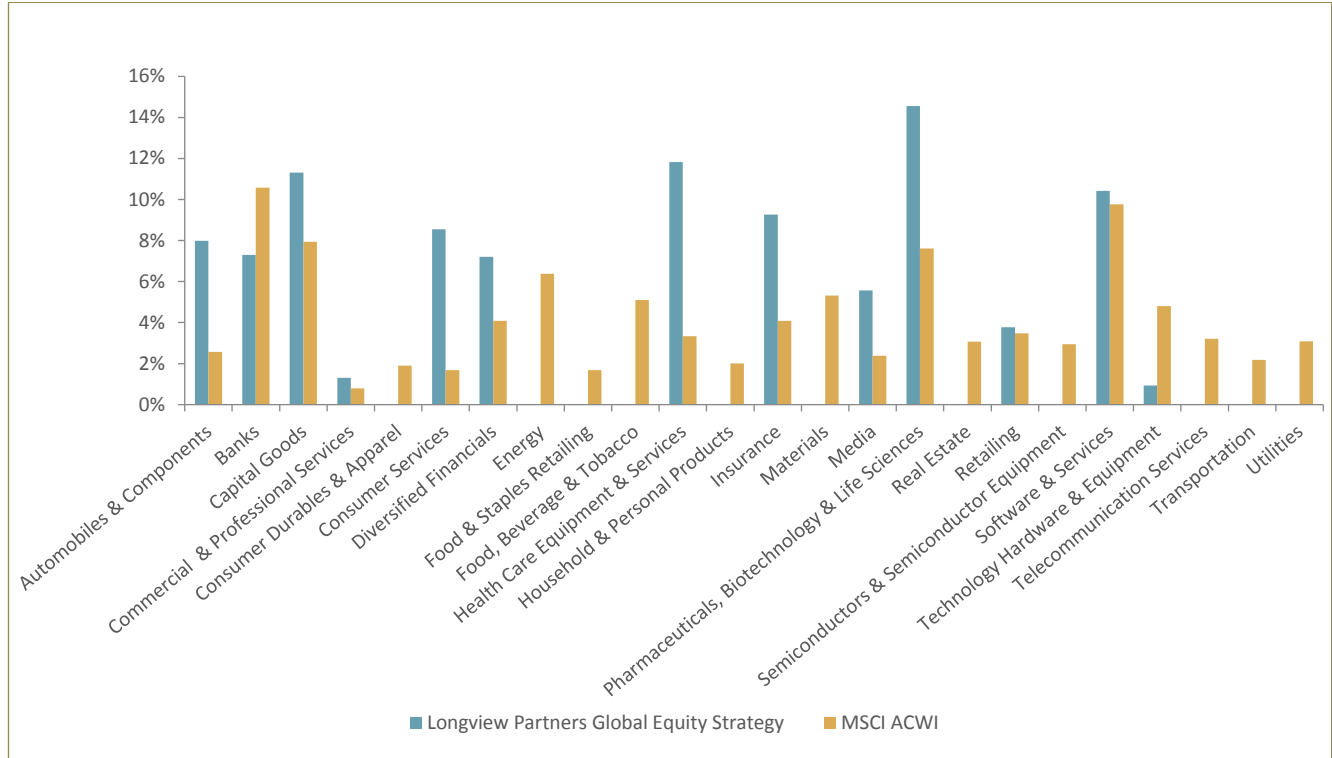
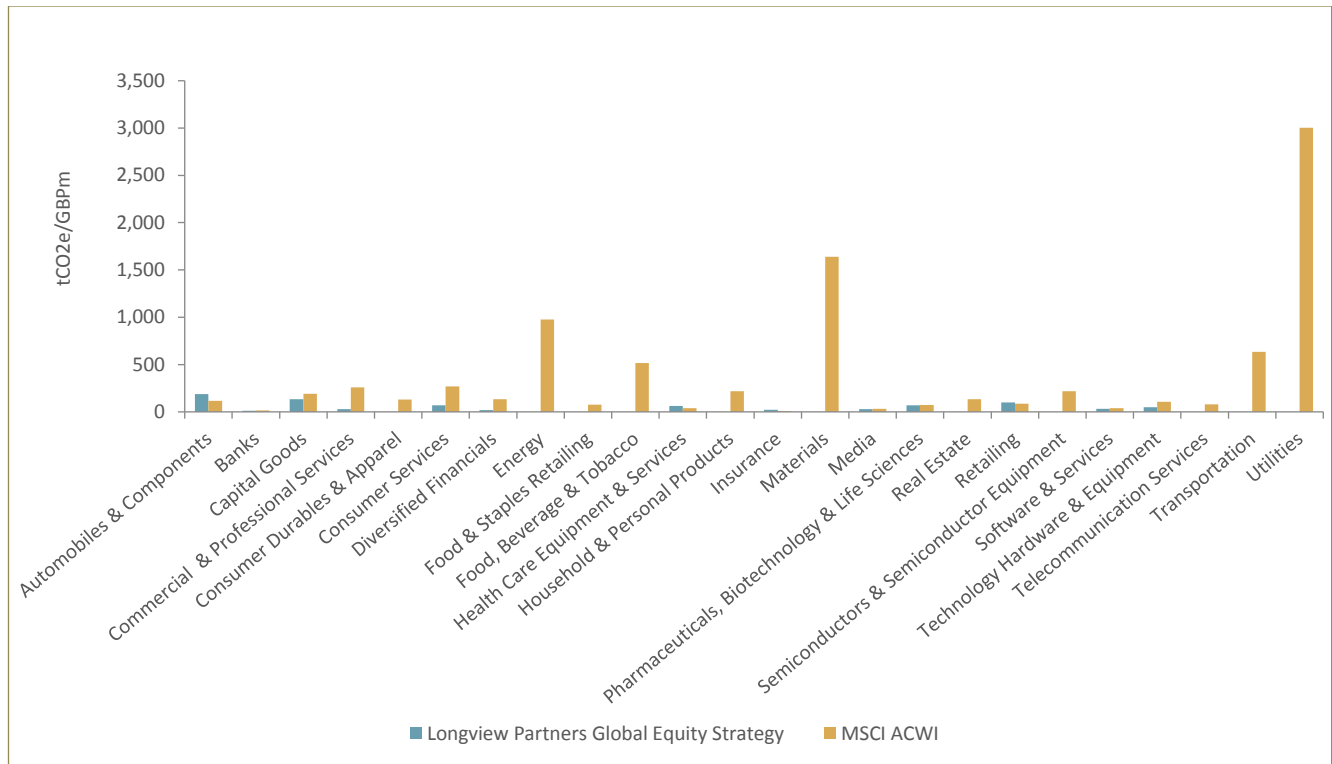


EXHIBIT 19: SECTOR CARBON INTENSITY CHART



Performance Attribution

- Sector allocation effects and stock selection effects are the principal reasons why the carbon intensity of a portfolio may differ from its benchmark. A portfolio that is overweight in carbon intensive sectors, or has holdings of the most carbon intensive stocks within any given sector, is likely to be more carbon intensive than its benchmark, and vice versa.
- The two sectors with the greatest total effect on the portfolio are Utilities and Materials, which together reduce the carbon intensity of the portfolio relative to the benchmark by 43.98%.

EXHIBIT 20: PERFORMANCE ATTRIBUTION TABLE (REVENUE METHOD)

Sector	Footprint Attribution		
	Sector Allocation	Stock Selection	Total Effect
Automobiles & Components	2.92%	-1.87%	1.05%
Banks	2.08%	0.08%	2.16%
Capital Goods	0.48%	1.58%	2.06%
Commercial & Professional Services	-0.12%	0.30%	0.18%
Consumer Durables & Apparel	-1.48%		-1.48%
Consumer Services	3.38%	4.97%	8.35%
Diversified Financials	0.25%	0.93%	1.18%
Energy	11.60%		11.60%
Food & Staples Retailing	-4.72%		-4.72%
Food, Beverage & Tobacco	0.95%		0.95%
Health Care Equipment & Services	11.25%	-1.02%	10.23%
Household & Personal Products	-0.53%		-0.53%
Insurance	-1.57%	-0.23%	-1.80%
Materials	18.19%		18.19%
Media	7.16%	0.11%	7.27%
Pharmaceuticals, Biotechnology & Life Sciences	2.89%	0.05%	2.93%
Real Estate	-0.81%		-0.81%
Retailing	1.17%	-0.15%	1.02%
Semiconductors & Semiconductor Equipment	-0.54%		-0.54%
Software & Services	0.87%	0.07%	0.94%
Technology Hardware & Equipment	-0.19%	0.70%	0.52%
Telecommunication Services	-3.08%		-3.08%
Transportation	1.15%		1.15%
Utilities	25.79%		25.79%
	77.07%	5.52%	82.59%

Top Contributors

- The 10 companies that contribute most to the Longview portfolio's carbon footprint are tabulated below. Note that a company may appear in this list because of the proportion owned, rather than because it is among the 10 most carbon intensive stocks held.
- These companies contribute negatively by -37.14% to the total carbon intensity of the portfolio, with maximum negative contribution of -16.13% by Continental AG.

EXHIBIT 21: TOP 10 CONTRIBUTORS TO CARBON FOOTPRINT (REVENUE METHOD)

Company Name	Sector	Holding (GBPm)	Carbon Apportioned (tonnes)	Carbon Apportioned (%)	Company CO2e intensity (tonnes/GBPm)	Carbon Footprint Contribution (%)*	CO2e Intensity Rank in Benchmark Sector**	Data Source (Scope 1)
Continental AG	Automobiles & Components	7.37	1,728.12	21.52%	244.51	-16.13%	55/79	Full Disclosure
Parker-Hannifin Corp	Capital Goods	6.80	926.24	11.54%	278.61	-8.78%	188/237	Full Disclosure
Emerson Electric Co	Capital Goods	6.04	445.88	5.55%	197.84	-3.58%	154/237	Partial Disclosure
Aptiv plc	Automobiles & Components	7.18	547.38	6.82%	110.61	-2.43%	39/79	Full Disclosure
HCA Healthcare Inc	Health Care Equipment & Services	6.32	885.22	11.03%	89.43	-2.22%	57/77	Modelled
Dollar General Corp	Retailing	6.34	545.39	6.79%	99.17	-1.88%	60/84	Modelled
Whitbread	Consumer Services	7.26	380.03	4.73%	116.32	-1.82%	25/56	Full Disclosure
Zimmer Biomet Holdings Inc	Health Care Equipment & Services	6.35	173.77	2.16%	77.71	-0.13%	46/77	Full Disclosure
Pfizer Inc	Pharmaceuticals, Biotechnology & Life Sciences	6.32	132.85	1.65%	77.76	-0.10%	65/93	Full Disclosure
IQVIA Holdings Inc	Pharmaceuticals, Biotechnology & Life Sciences	6.30	136.01	1.69%	75.79	-0.06%	59/93	Partial Disclosure

CARBON FOOTPRINT – SSGA EQUITIES

The SSGA portfolio is 4.08% less carbon intensive than its benchmark, FTSE RAFI-All World 3000, when compared using the revenue method.

Summary

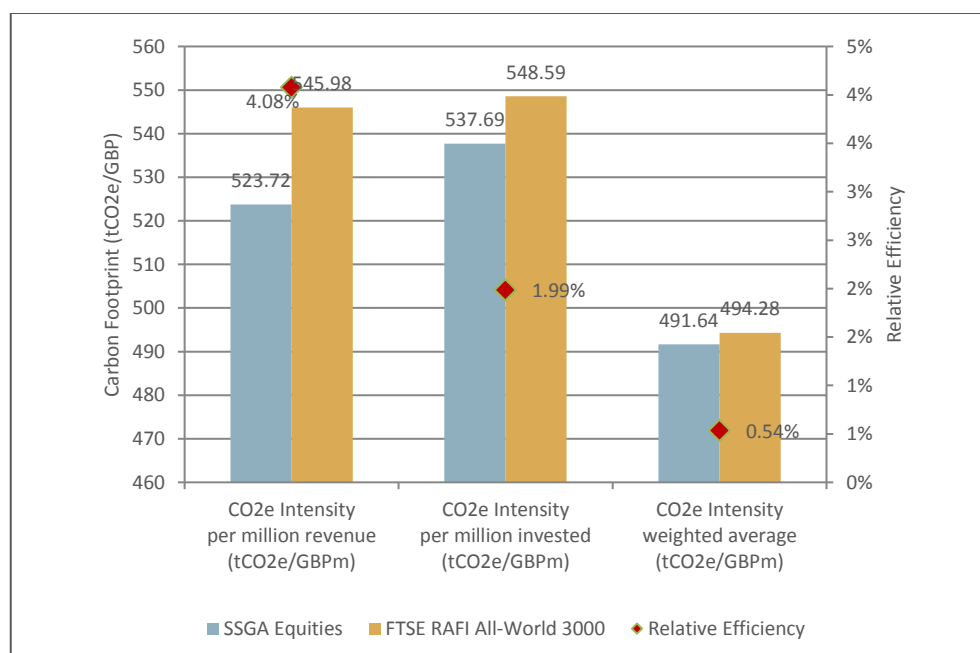
- The carbon footprint analysis of the SSGA portfolio was carried out for holdings data as at 30th September 2017.
- The FTSE RAFI-All World 3000 was the benchmark for this analysis.
- Our analysis covers companies of which holdings constitute 99.74% of the value of the portfolio. The equivalent coverage figure for the benchmark is 99.81%.

EXHIBIT 22: SSGA CARBON FOOTPRINT ANALYSIS

	CO2e Intensity per million revenue (tCO2e/GBPm)	CO2e Intensity per million invested (tCO2e/GBPm)	CO2e Intensity weighted average (tCO2e/GBPm)	Total Apportioned CO2e (tonnes)
SSGA Equities	523.72	537.69	491.64	352,207.12
FTSE RAFI All-World 3000	545.98	548.59	494.28	359,347.55
Relative Efficiency	4.08%	1.99%	0.54%	1.99%

- The SSGA portfolio is 4.08% less carbon intensive than its benchmark when compared using the revenue method; 1.99% less carbon intensive when compared using the AUM method; and, 0.54% less carbon intensive when compared using the weighted average method.
- The following chart shows the comparison of the key metrics in graphical representation.

EXHIBIT 23: SSGA EQUITIES CARBON FOOTPRINT CHART



Sector Analysis

- The tables and charts below show how the sector and industry allocation as a proportion of the portfolio differs from that in the benchmark, and the effect of this allocation on the carbon footprint of the portfolio.
- The two sectors that have the highest levels of carbon intensity within this portfolio are Utilities (2,882.08 tCO₂e/GBPm) and Materials (1,722.72 tCO₂e/GBPm).

EXHIBIT 24: SECTOR WEIGHTS IN THE PORTFOLIO AND THE BENCHMARK

Sector	Sector Weighting		Carbon Intensity (tCO ₂ e/GBPm)	
	Portfolio	Benchmark	Portfolio	Benchmark
Automobiles & Components	4.10%	4.10%	110.93	112.86
Banks	14.43%	13.96%	15.49	15.13
Capital Goods	8.43%	8.38%	192.73	217.60
Commercial & Professional Services	0.73%	0.79%	235.97	191.75
Consumer Durables & Apparel	1.63%	1.72%	129.68	125.35
Consumer Services	1.15%	1.20%	284.65	271.14
Diversified Financials	4.02%	3.97%	134.54	137.82
Energy	11.09%	10.58%	961.55	1004.07
Food & Staples Retailing	2.39%	2.43%	82.67	82.80
Food, Beverage & Tobacco	3.83%	3.91%	650.02	657.21
Health Care Equipment & Services	2.38%	2.46%	44.57	43.22
Household & Personal Products	1.26%	1.31%	220.88	225.63
Insurance	6.03%	6.00%	7.35	7.34
Materials	6.99%	6.56%	1,722.72	1770.22
Media	1.73%	1.75%	34.73	35.52
Pharmaceuticals, Biotechnology & Life Sciences	4.62%	4.84%	73.76	75.99
Real Estate	2.73%	2.87%	130.56	133.28
Retailing	2.09%	2.12%	85.69	84.73
Semiconductors & Semiconductor Equipment	1.62%	1.64%	251.54	243.82
Software & Services	3.10%	3.27%	42.51	42.98
Technology Hardware & Equipment	4.15%	4.18%	113.53	119.39
Telecommunication Services	4.43%	4.46%	76.97	77.95
Transportation	2.28%	2.34%	804.88	813.74
Utilities	4.81%	5.16%	2,882.08	2825.81
	100.00%	100.00%	523.72	545.98

EXHIBIT 25: SECTOR WEIGHTS CHART

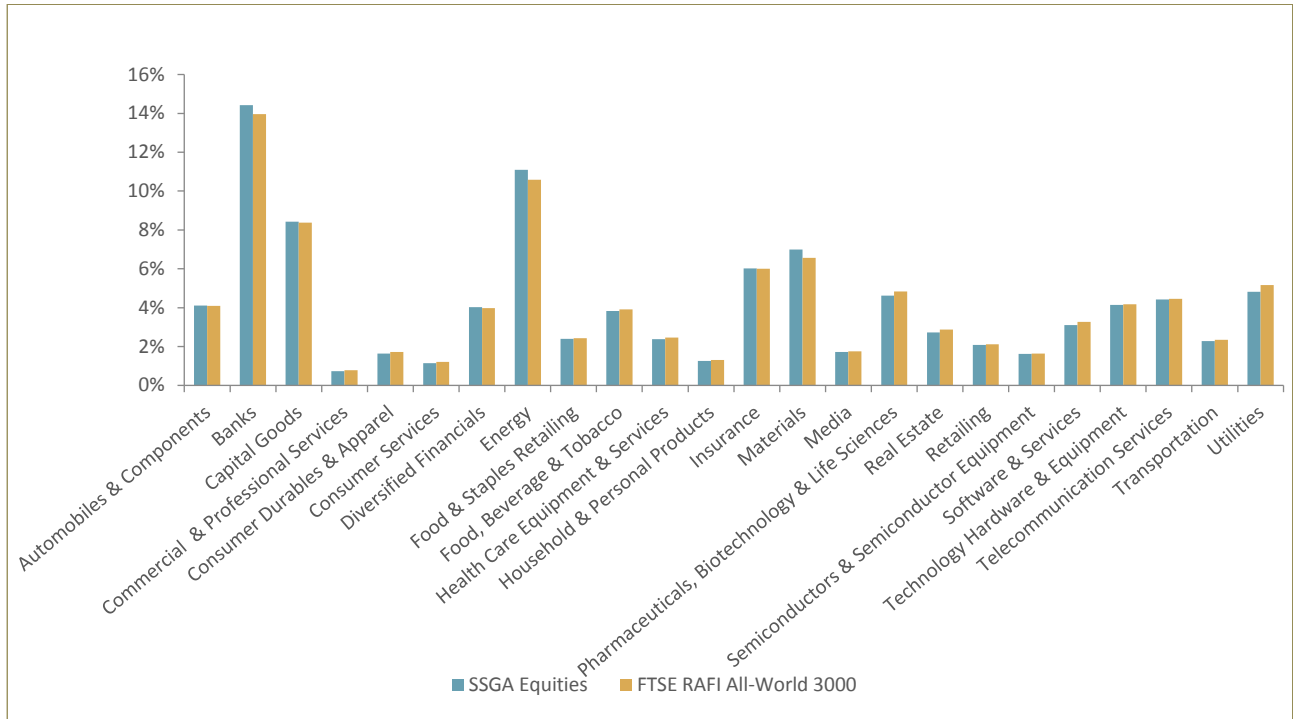
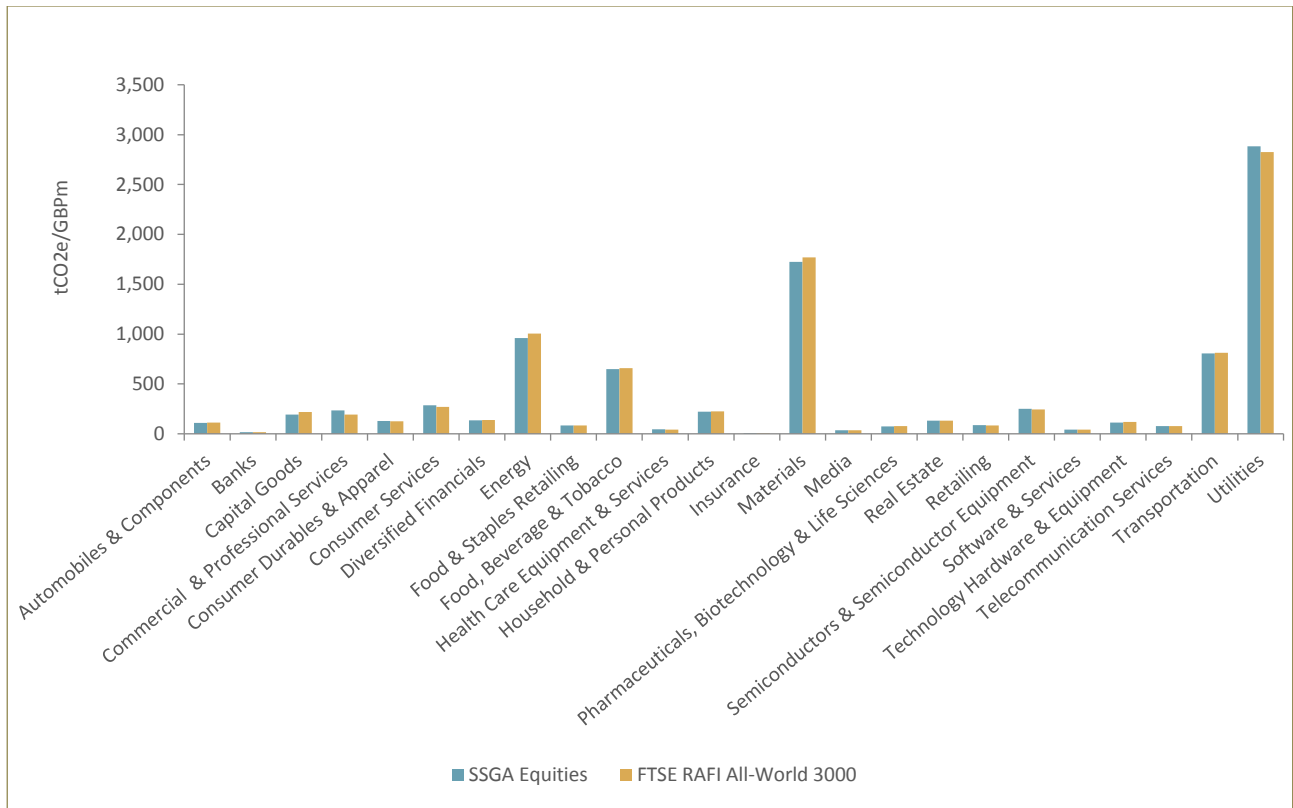


EXHIBIT 26: SECTOR CARBON INTENSITY CHART



Performance Attribution

- Sector allocation effects and stock selection effects are the principal reasons why the carbon intensity of a portfolio may differ from its benchmark. A portfolio that is overweight in carbon intensive sectors, or has holdings of the most carbon intensive stocks within any given sector, is likely to be more carbon intensive than its benchmark, and vice versa.
- The two sectors with the greatest total effect on the portfolio are Utilities and Capital Goods, which together reduce the carbon intensity of the portfolio relative to the benchmark by 3.67%.

EXHIBIT 27: PERFORMANCE ATTRIBUTION TABLE (REVENUE METHOD)

Sector	Footprint Attribution		
	Sector Allocation	Stock Selection	Total Effect
Automobiles & Components	-0.05%	0.03%	-0.02%
Banks	0.13%	0.00%	0.13%
Capital Goods	0.75%	0.53%	1.28%
Commercial & Professional Services	-0.08%	-0.07%	-0.15%
Consumer Durables & Apparel	-0.10%	-0.01%	-0.11%
Consumer Services	-0.02%	-0.02%	-0.03%
Diversified Financials	0.02%	0.01%	0.03%
Energy	-0.01%	0.91%	0.90%
Food & Staples Retailing	0.07%	0.00%	0.08%
Food, Beverage & Tobacco	0.01%	0.04%	0.05%
Health Care Equipment & Services	-0.05%	-0.01%	-0.06%
Household & Personal Products	0.00%	0.00%	0.00%
Insurance	-0.14%	0.00%	-0.14%
Materials	-0.80%	0.61%	-0.19%
Media	-0.02%	0.00%	-0.02%
Pharmaceuticals, Biotechnology & Life Sciences	-0.07%	0.01%	-0.07%
Real Estate	-0.07%	0.00%	-0.07%
Retailing	-0.13%	-0.01%	-0.14%
Semiconductors & Semiconductor Equipment	-0.01%	-0.01%	-0.01%
Software & Services	-0.06%	0.00%	-0.06%
Technology Hardware & Equipment	0.08%	0.06%	0.13%
Telecommunication Services	0.00%	0.01%	0.00%
Transportation	0.10%	0.04%	0.14%
Utilities	3.05%	-0.66%	2.39%
	2.62%	1.46%	4.08%

Top Contributors

- The 10 companies that contribute most to the Longview portfolio's carbon footprint are tabulated below. Note that a company may appear in this list because of the proportion owned, rather than because it is among the 10 most carbon intensive stocks held.
- These companies, made up of Utilities, Materials and Energy sector companies, contribute negatively by -17.42% to the total carbon intensity of the portfolio, with maximum negative contribution of -3.77% by RWE AG.

EXHIBIT 28: TOP 10 CONTRIBUTORS TO CARBON FOOTPRINT (REVENUE METHOD)

Company Name	Sector	Holding (GBPm)	Carbon Apportioned (tonnes)	Carbon Apportioned (%)	Company CO2e intensity (tonnes/GBPm)	Carbon Footprint Contribution (%)*	CO2e Intensity Rank in Benchmark Sector**	Data Source (Scope 1)
RWE AG	Utilities	0.98	15,271.55	4.34%	3,883.66	-3.77%	105/162	Full Disclosure
Tokyo Electric Power Co. Holding Inc.	Utilities	0.55	11,368.42	3.23%	2,849.23	-2.65%	93/162	Full Disclosure
ArcelorMittal Inc	Materials	0.74	7,959.19	2.26%	4,587.14	-2.01%	264/290	Full Disclosure
Gazprom PJSC	Energy	1.19	8,185.62	2.32%	3,202.14	-1.95%	177/187	Full Disclosure
Korea Elec Power Corp	Utilities	0.43	6,615.66	1.88%	5,921.09	-1.72%	131/162	Partial Disclosure
Engie	Utilities	1.48	6,512.92	1.85%	2,268.98	-1.43%	88/162	Full Disclosure
Dynegy Inc	Utilities	0.05	3,680.50	1.04%	19,008.27	-1.02%	156/162	Full Disclosure
Enel SpA	Utilities	1.87	4,802.60	1.36%	1,913.54	-0.99%	82/162	Full Disclosure
Nippon Steel & Sumitomo Metal Corp	Materials	0.59	3,890.95	1.10%	3,753.35	-0.95%	254/290	Partial Disclosure
China National Building Material Co. Ltd. - H Shares	Materials	0.12	3,569.52	1.01%	6,519.75	-0.93%	276/290	Modelled

CARBON FOOTPRINT – NEWTON

Summary

The Newton portfolio has a carbon intensity of 377.68 tCO₂e per million GBP, when analysed using the revenue method.

- The carbon footprint analysis of the Newton portfolio was carried out for holdings data as at 30th September 2017.
- No benchmark was used for this analysis (as the portfolio was one of the two absolute return funds analysed).
- Our analysis covers companies of which holdings constitute 90.60% of the value of the portfolio.

EXHIBIT 29: NEWTON CARBON FOOTPRINT ANALYSIS

	CO ₂ e Intensity per million revenue (tCO ₂ e/GBPm)	CO ₂ e Intensity per million invested (tCO ₂ e/GBPm)	CO ₂ e Intensity weighted average (tCO ₂ e/GBPm)	Total Apportioned CO ₂ e (tonnes)
Newton Equities	377.68	191.88	402.20	31,418.77

- The Newton portfolio has a carbon intensity of 377.68 tCO₂e per million GBP, when analysed using the revenue method.

Top Contributors

- The 10 companies that contribute most to the Newton portfolio's carbon footprint are tabulated below. Note that a company may appear in this list because of the proportion owned, rather than because it is among the 10 most carbon intensive stocks held.
- These companies contribute negatively by -48.14% to the total carbon intensity of the portfolio, with maximum negative contribution of -17.76% by CMS Energy Corp.

EXHIBIT 30: TOP 10 CONTRIBUTORS TO CARBON FOOTPRINT (REVENUE METHOD)

Company Name	Sector	Holding (GBPm)	Carbon Apportioned (tonnes)	Carbon Apportioned (%)	Company CO2e intensity (tonnes/GBPm)	Carbon Footprint Contribution (%)*	CO2e Intensity Rank in Benchmark Sector**	Data Source (Scope 1)
CMS Energy Corp	Utilities	4.15	6,266.57	19.95%	2,837.75	-17.76%	5/5	Full Disclosure
Albemarle Corp	Materials	3.65	3,431.06	10.92%	4,865.99	-10.16%	18/18	Full Disclosure
CRH Plc	Materials	1.85	2,740.29	8.72%	1,451.29	-6.60%	17/18	Full Disclosure
Royal Dutch Shell PLC	Energy	2.97	2,414.16	7.68%	809.57	-4.25%	3/3	Full Disclosure
Total S.A.	Energy	3.00	2,030.26	6.46%	559.53	-2.20%	2/3	Full Disclosure
Associated British Foods	Food, Beverage & Tobacco	2.41	1,171.94	3.73%	846.26	-2.10%	7/7	Full Disclosure
Orsted	Utilities	3.15	1,095.98	3.49%	904.14	-2.06%	4/5	Full Disclosure
Eversource Energy	Utilities	5.10	1,426.85	4.54%	646.24	-1.94%	3/5	Full Disclosure
Gold Fields Ltd	Materials	0.47	352.45	1.12%	904.90	-0.66%	14/18	Full Disclosure
Newcrest Mining Ltd	Materials	0.85	215.08	0.68%	962.66	-0.42%	15/18	Full Disclosure

CARBON FOOTPRINT – RUFFER

Summary

The Ruffer portfolio has a carbon intensity of 196.91 tCO₂e per million GBP, when analysed using the revenue method.

- The carbon footprint analysis of the Ruffer portfolio was carried out for holdings data as at 30th September 2017.
- No benchmark was used for this analysis (as the portfolio was one of the two absolute return funds analysed).
- Our analysis covers companies of which holdings constitute 72.29% of the value of the portfolio.

EXHIBIT 31: RUFFER CARBON FOOTPRINT ANALYSIS

	CO ₂ e Intensity per million revenue (tCO ₂ e/GBPm)	CO ₂ e Intensity per million invested (tCO ₂ e/GBPm)	CO ₂ e Intensity weighted average (tCO ₂ e/GBPm)	Total Apportioned CO ₂ e (tonnes)
Ruffer Equities	196.91	247.76	255.34	24,156.15

- The Ruffer portfolio has a carbon intensity of 196.91 tCO₂e per million GBP, when analysed using the revenue method.

Top Contributors

- The 10 companies that contribute most to the Ruffer portfolio's carbon footprint are tabulated below. Note that a company may appear in this list because of the proportion owned, rather than because it is among the 10 most carbon intensive stocks held.
- These companies contribute negatively by -61.65% to the total carbon intensity of the portfolio, with maximum negative contribution of -32.64% by HeidelbergCement AG.

EXHIBIT 32: TOP 10 CONTRIBUTORS TO CARBON FOOTPRINT (REVENUE METHOD)

Company Name	Sector	Holding (GBPm)	Carbon Apportioned (tonnes)	Carbon Apportioned (%)	Company CO2e intensity (tonnes/GBPm)	Carbon Footprint Contribution (%)*	CO2e Intensity Rank in Benchmark Sector**	Data Source (Scope 1)
HeidelbergCement AG	Materials	1.58	8,070.76	33.41%	5,725.59	-32.64%	3/3	Full Disclosure
Leucadia National Corp (NY)	Diversified Financials	2.78	2,532.00	10.48%	756.79	-7.97%	6/6	Modelled
Imperial Oil Ltd	Energy	2.12	1,886.48	7.81%	1,167.40	-6.58%	4/4	Full Disclosure
Exxon Mobil Corp	Energy	1.94	1,509.29	6.25%	1,137.79	-5.22%	3/4	Full Disclosure
BP	Energy	0.95	1,068.60	4.42%	714.52	-3.24%	2/4	Full Disclosure
Phillips 66	Energy	0.94	1,111.36	4.60%	606.25	-3.15%	1/4	Partial Disclosure
Newcrest Mining Ltd	Materials	2.43	612.62	2.54%	962.66	-2.03%	2/3	Full Disclosure
Groupe Bruxelles Lambert	Diversified Financials	2.31	496.98	2.06%	297.36	-0.70%	5/6	Modelled
TP ICAP Plc	Diversified Financials	0.46	2.32	0.01%	15.13	0.12%	2/6	Full Disclosure

CARBON FOOTPRINT – AGGREGATE PORTFOLIO**Companies for Engagement**

- Trucost has identified 10 companies of the aggregated portfolio that do not fully disclose up-to-date data, while contributing negatively to the aggregated portfolio's carbon footprint.
- These companies are ranked according to the size of their impact on the footprint as estimated, using Trucost's proprietary environmental profiling model.
- Transparency is key to monitor company's performance and strategy and commitments regarding the environment. The companies in the aggregate portfolio where engagement may be beneficial are listed in the table below.

EXHIBIT 33: TOP 10 CONTRIBUTORS FOR ENGAGEMENT

Company Name	Bond Name	Sector	Holding (mGBP)	Carbon Apportioned (tonnes)	Carbon Apportioned (%)	Company CO2e intensity (tonnes/mGBP)	Carbon Footprint Contribution (%)	CO2e Intensity Rank in Benchmark Sector	Data Source (Scope 1)
Korea Elec Power Corp		Utilities	0.43	6,615.66	1.00%	5,921.09	-0.93%	241/303	Partial Disclosure
Nippon Steel & Sumitomo Metal Corp		Materials	0.59	3,890.95	0.59%	3,753.35	-0.53%	513/597	Partial Disclosure
China National Building Material Co. Ltd. - H Shares		Materials	0.12	3,569.52	0.54%	6,519.75	-0.51%	562/597	Modelled
AES Corp		Utilities	0.26	3,473.21	0.53%	6,645.42	-0.49%	259/303	Partial Disclosure
Metalurgica Gerdau		Materials	0.10	2,912.52	0.44%	4,184.18	-0.40%	527/597	Modelled
Huaneng Power International Inc		Utilities	0.10	2,437.60	0.37%	19,066.81	-0.36%	288/303	Partial Disclosure
China Resources Power Holdings Co. Ltd.		Utilities	0.11	2,429.83	0.37%	21,188.81	-0.36%	294/303	Partial Disclosure
Cemex SA		Materials	0.41	2,369.32	0.36%	5,280.73	-0.33%	551/597	Partial Disclosure
Chubu Electric Power Co		Utilities	0.25	2,399.17	0.36%	4,031.42	-0.33%	199/303	Partial Disclosure
Kobe Steel		Materials	0.25	2,138.40	0.32%	2,532.79	-0.27%	470/597	Partial Disclosure

Fossil Fuel Analysis

- As of 30th September 2017, East Sussex has invested in 216 companies that derive at least some revenue from fossil fuel extraction (accounting for 10.02% of total value of holdings).
- The aggregate portfolio’s exposure to companies with fossil fuel reserves equates to 9.08% of total value of holdings.
- Total financed future emissions from fossil fuel reserves is approximately 13,613,122 tCO₂e or 6,892 tCO₂e per million GBP invested.

EXHIBIT 34: EXPOSURE TO EXTRACTIVE INDUSTRIES CHART

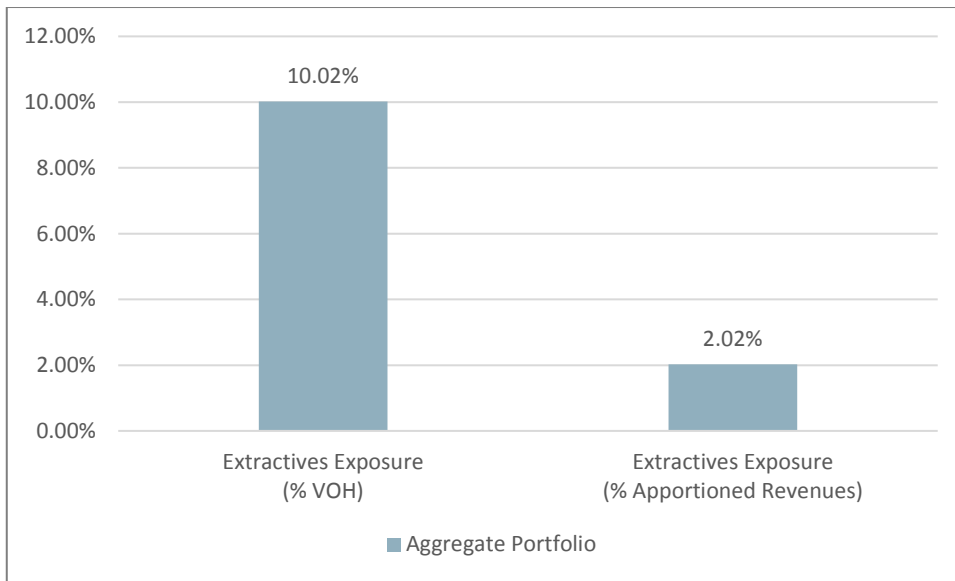
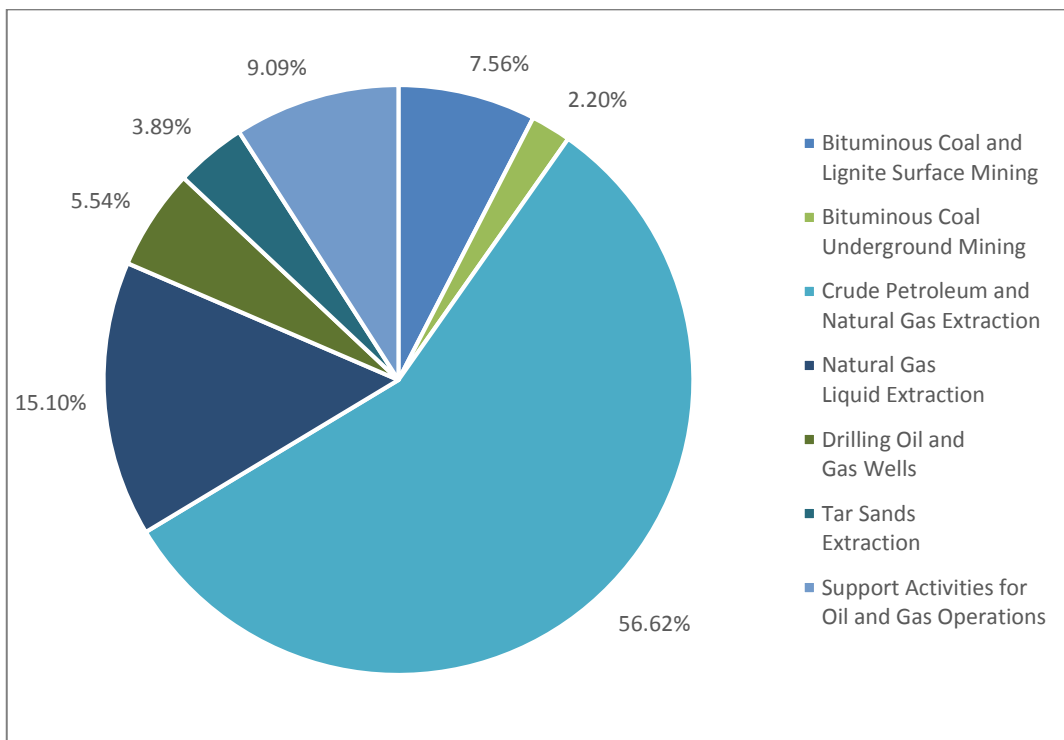


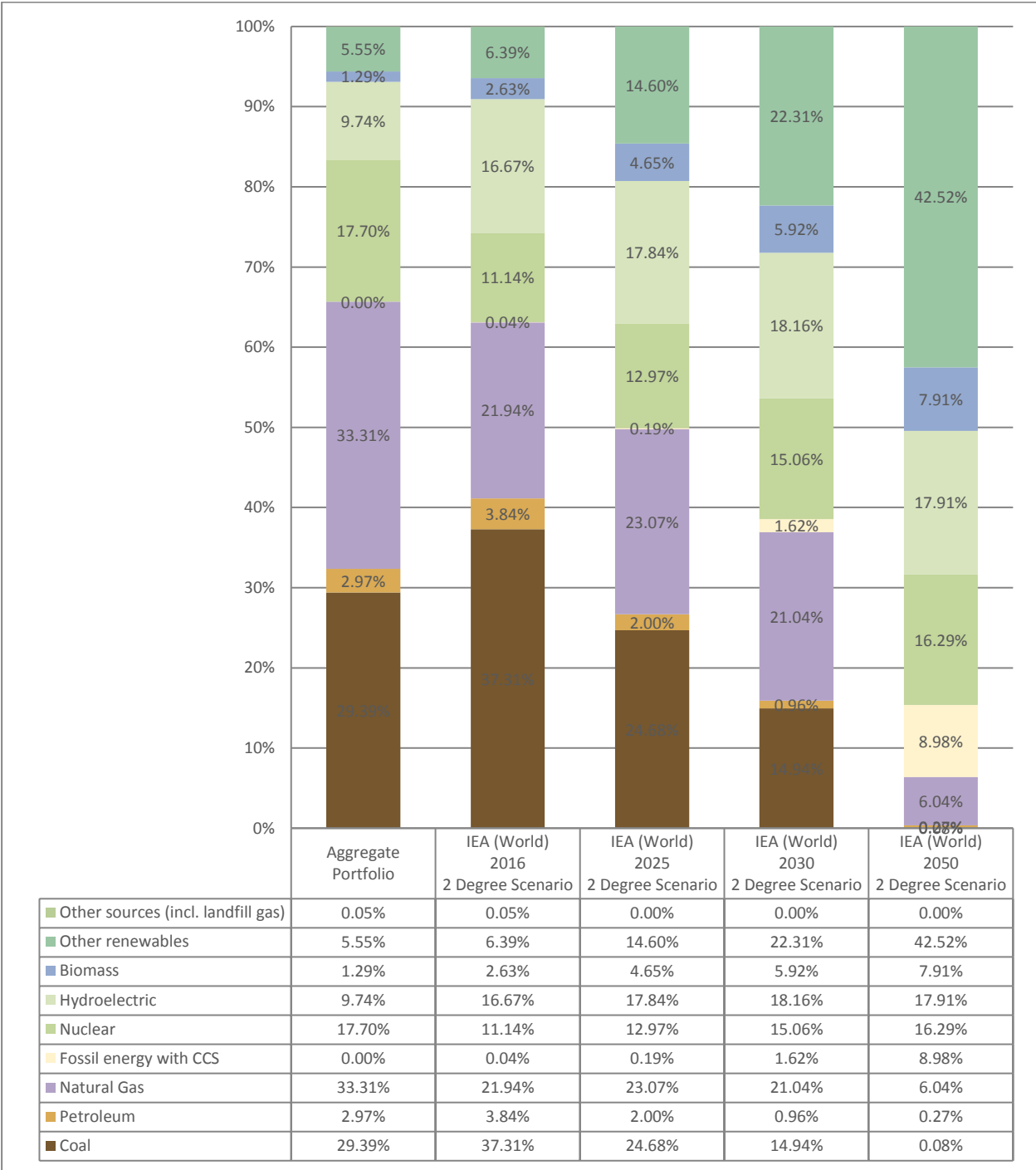
EXHIBIT 35: REVENUE BREAKDOWN OF EXTRACTIVES EXPOSURE BY ACTIVITY TYPE



Energy Generation Mix Analysis

- The table below shows the key energy generation mix analysis of the aggregated portfolio and those of the aggregated benchmark.
- The energy generation mix assessment is for holdings data as of 30th September 2017.
- The proportion of the aggregated holdings covered in the analysis is 96.62%.

EXHIBIT 36: ENERGY GENERATION MIX CHART



APPENDICES

APPENDIX A

Trucost's approach to calculating carbon footprints of portfolios

The carbon footprint is a measure of the greenhouse gas emissions (GHGs) associated with each portfolio. This is calculated by allocating GHGs from each constituent company held in the portfolio in proportion to the client's equity ownership of that company. The GHGs measured are converted into their carbon dioxide equivalents (CO₂e). The carbon footprint is expressed as metric tons of GHGs emitted by the companies within the portfolio, per million US Dollars (mUSD) of revenue from holdings. This normalized measure of carbon performance enables comparison of portfolios and benchmarks, irrespective of the type and size of the portfolios. The GHGs and revenue allocated to each holding are summed to calculate the overall carbon footprint of the client's listed equity holdings.

GHG emissions data for companies analysed are the latest available in Trucost's database (the Trucost Environmental Register) – the world's largest and most comprehensive database of corporate natural capital impact data covering 93% of global markets by market capitalization. Where companies do not provide usable data on GHG emissions, Trucost uses its environmentally extended input-output (EEIO) model to calculate likely emissions based on business activities in 464 sectors.

APPENDIX B

Company Analysis

Trucost maintains the world's largest database of standardised corporate natural capital impact data. Trucost's comprehensive coverage of more than 5,000 companies since 2000 ensures that virtually all companies in a portfolio or Index are included, not just those that disclose environmental information.

To calculate the carbon emissions of companies included in the study, Trucost reviewed company annual reports and accounts, environmental/sustainability reports, public disclosures and corporate websites. However, Trucost might standardise or normalise disclosed data where necessary. Where a company only discloses data for part of its overall activities, analysts may standardise or normalise quantities in order to calculate the carbon impacts of the business's entire operations in line with the Greenhouse Gas Protocol. Where companies only disclose resource use, such as fuel consumption, this information is used to derive emissions data where possible.

Trucost uses its environmental profiling model to calculate the environmental impacts of companies that do not disclose adequate data, as well as the upstream impacts from supply chains. These include GHG emissions from the production of purchased goods and services, under Scope 3 of the Greenhouse Gas Protocol. The input-output model examines interactions between 464 sectors to calculate each company's likely direct and supply chain environmental impacts. These calculations combine quantitative government census and survey data on natural resource use through economic interactions between sectors with information on pollutant releases from national emissions registries. Information on company revenues in different industries is used to map environmental impacts from business activities.

Environmental profiling using an input-output model, overseen by an academic advisory panel, is a “best efforts” attempt to understand environmental impacts in the current absence of sufficient and comparable company disclosures on the environmental impacts of operations and supply chains.

Calculations incorporate disclosed quantitative data on industrial facilities' actual pollutant releases where available. Trucost engages with companies so that they have the opportunity to verify their environmental profiles and provide more information. Analysts quality check any further disclosures made, which are exclusive to Trucost and further augment the database.

GHG emissions for each company analysed are measured in tonnes of carbon dioxide equivalents (CO₂e). The analysis includes the six GHGs covered by the UN Kyoto Protocol. Each GHG has a different capacity to cause global warming. Trucost's conversion of GHGs to CO₂e is based on the Global Warming Potential (GWP) index published by the Intergovernmental Panel on Climate Change, which assesses the effect of the emissions of different gases over a 100-year time period relative to the emission of an equal mass of CO₂.

Where reported, data on GHG emissions from operations and purchased electricity, under Scopes 1 and 2 of the Greenhouse Gas Protocol corporate accounting standard, are included in Trucost's database.

To limit any issues associated with double counting greenhouse gas emissions, Trucost analysed only the direct and first-tier indirect emissions for each company. First-tier emissions are emissions purchased upstream from the company's direct suppliers. These included purchased electricity and business air travel. Most companies are not major emitters of direct greenhouse gases and adopting this method ensures that the study assesses the carbon impacts of business activities – such as extraction, production, transport and logistics – outsourced to companies excluded from this analysis. In many sectors, indirect greenhouse gas emissions are greater than their direct emissions. It is important to take into account indirect exposure to carbon costs as suppliers may pass these on down the value chain.

Company carbon intensity is calculated throughout this report as total direct and first-tier indirect greenhouse gas emissions per GBP million of revenue, unless stated otherwise. This quantitative approach enables businesses of different sizes within different industries to be compared.

APPENDIX C

Interpretation of sector allocation & stock selection effects

Attribution analysis identifies drivers of carbon performance relative to a benchmark. Trucost conducts attribution analysis to identify the effects of sector allocation (based on the GICS sector breakdown) and stock selection decisions on portfolio carbon footprints relative to the relevant indices selected as their benchmarks. The sum of these stock and sector allocation effects results in either a positive or negative overall portfolio carbon efficiency relative to a benchmark.

Where the percentage difference in the carbon efficiency of the portfolio against its benchmark is positive (indicated by a “+” sign), the portfolio is more carbon efficient than its benchmark. This indicates that the portfolio has a smaller carbon footprint than this benchmark. Conversely, where the percentage difference in the carbon efficiency of the portfolio against its benchmark is negative (indicated by a “-” symbol), the portfolio is more carbon intensive than its benchmark. The portfolio therefore has a larger carbon footprint than the benchmark index.

Sector allocation effects are based on a combination of the amount of the portfolio’s assets allocated to a sector relative to the benchmark allocation to that sector in apportioned revenue terms, and the average carbon intensity of the sector compared to the benchmark’s total footprint. For example, a portfolio derives 1.92% of its total apportioned turnover from the Oil & Gas sector, whereas the benchmark derives 24.64% of its total apportioned revenue from the oil & gas sector. The benchmark’s total footprint is 664.66 metric tons of CO₂e/mUSD, whereas the benchmark’s Oil & Gas sector carbon footprint is 1,382.5 metric tons of CO₂e/mUSD. The Oil & Gas sector allocation effect would therefore be +24.54%:

$$\begin{array}{ccc}
 \text{Portfolio is} & & \text{The sector is less} \\
 \text{underweight the Oil \& } & \left(\frac{1.92\% - 24.64\%}{664.66} \right) * (664.66 - 1,382.51) & \text{carbon efficient than} \\
 \text{Gas sector in revenue} & & \text{the benchmark}
 \end{array}$$

Stock selection effects are based on the average carbon intensity of the companies held in the portfolio, combined with the holdings per company, compared with the companies present in their sector and their allocation in the benchmark. Stock selection effects indicate the potential to reduce carbon risk in the holdings without adjusting sector weightings. The carbon performance of companies directly contributes to the carbon embedded within portfolio holdings. For example, a portfolio derives 1.92% of its total turnover from the Oil & Gas sector. The portfolio’s sector carbon footprint is 4,443.62CO₂e/ mUSD. The benchmark’s total footprint is 664.66 metric tons of CO₂e/ mUSD and the benchmark’s Oil & Gas sector carbon footprint is 1,382.5 metric tons of CO₂e/ mUSD. The Oil & Gas stock allocation effect would be -8.84%.

Portfolio derives
1.92% of total
turnover from the Oil

$$1.92\% \times \frac{(1,382.51 - 4,443.62)}{664.66}$$

The portfolio invests in *less* carbon
efficient Oil & Gas companies than
the benchmark

GLOSSARY

CARBON DISCLOSURE CODE EXPLANATION

Year: All Trucost environmental data is concurrent with the company's financial information and covers the same reporting period as the accounts. The accounting year given is the balance sheet date.

Benchmark: Standalone or composite index against which a portfolio is compared.

Carbon Disclosure: The source of direct carbon emissions is identified and divided into Trucost estimates and company disclosures. The flag details the source of data disclosure and whether Trucost had to perform an adjustment to convert the data into a standardized figure is captured and stated.

Carbon Scope 1 and Direct Emissions (tonnes CO₂e): Greenhouse gas emissions generated from burning fossil fuels and production processes which are owned or controlled by the company (reference: GHG Protocol).

Carbon First Tier Indirect Emissions (tonnes CO₂e): CO₂ and other greenhouse gases emitted by the direct suppliers to a company. The most significant sources are typically purchased electricity (Scope 2 of the GHG Protocol) and employees' business air travel (reference: GHG Protocol).

Carbon Footprint (tonnes CO₂e/GBPm): The direct and first tier indirect GHG emissions apportioned to the portfolio per million GBP revenue generated by the portfolio. Each holding's contribution to the carbon footprint of the portfolio is calculated on an equity ownership basis. The carbon footprint of the fund is the sum of these contributions, normalised by revenue owned.

Carbon Intensity - Direct + First Tier indirect (tonnes CO₂e/GBPm): Direct + first tier indirect CO₂e emissions/GBPm for selected company against peer companies and peer group (carbon footprint).

CO₂ Equivalent (CO₂e): Each greenhouse gas differs in its ability to absorb heat in the atmosphere. HFCs and PFCs are the most heat-absorbent. Calculations of greenhouse gas emissions are presented in units of millions of metric tons of carbon equivalents (MMTCE), which weights each gas by its GWP value, or Global Warming Potential. The Global Warming Potentials used in this analysis are:

Greenhouse Gas	CO ₂ Equivalent
Carbon Dioxide	1
Methane	21
Nitrous Oxide	310

Sulphur Hexafluoride	23,900
Per Fluoro Carbons	7,850
Hydro Fluoro Carbons	5,920

See www.unfccc.org for more information about global warming.

Fossil Fuel Reserves: Quantity of fossil fuel not yet extracted.

Financial institutions' revenue: Trucost's approach for calculating the revenue for financial institution companies is as follows: Revenue is based on the sum of 1) net interest income and 2) non-interest income reported by the company in a given period. Net interest income is broadly calculated as interest receivable on loans and advances less interest payable on customer deposits. Non-interest income includes, but is not limited to, gross fees and commission income, income from trading activities and other operating income such as share of profit and dividend received from associated companies, and profit or loss on the sale of non-current assets held for sale. This revenue calculation is intended to reflect the inflow of economic benefits from the operating activities of a financial institution which could result in environmental damages.

Financed Emissions per GBPM Invested (tonnes CO₂e/GBPM): The direct and first tier indirect GHG emissions apportioned to the portfolio per million GBP invested in the portfolio. Each holding's contribution to the apportioned carbon emissions of the portfolio is calculated on an equity ownership basis. The value for Financed Emissions per GBP m Invested is the sum of these contributions, normalised by the total AUM of the fund.

GHG: Abbreviation for Greenhouse Gases. Emissions to air that contribute to the greenhouse effect and global warming. Each greenhouse gas differs in its ability to absorb heat in the atmosphere. HFCs and PFCs are the most heat-absorbent. Methane traps over 21 times more heat per molecule than carbon dioxide, and nitrous oxide absorbs 270 times more heat per molecule than carbon dioxide. Often, estimates of greenhouse gas emissions are presented in units of millions of metric tons of carbon equivalents (MMTCE), which weights each gas by its GWP value, or Global Warming Potential.

GICS Sector: The Global Industry Classification Standard (GICS®) was developed by MSCI and Standard & Poor's (S&P) to enhance the investment research and asset management process for financial professionals worldwide. The GICS structure consists of 10 sectors, 24 industry groups, 67 industries and 156 sub-industries.

Input-Output Model: In economics, a model used to capture how each business sector inter-dependes on its own and other sectors for the flow of goods and services

ISIN: International Securities Identification Number (ISIN) is a 12 character alpha-numerical code that uniquely identifies a security listed on a stock exchange.

Sector Carbon Footprint Attribution: Effects of sector allocation and stock allocation in the carbon footprint attribution of the portfolio relative to its benchmark. The sector allocation effect expresses the impact of sector weighting on the carbon footprint i.e. whether portfolio under/over performance from a carbon perspective is due to a higher/lower weight in relative high/low carbon sector with respect to the benchmark. Stock selection effect expresses the extent to which the portfolio's carbon performance is due to picking more or less carbon intensive companies within a sector compared to the benchmark. Total effect is the sum of the stock and sector allocation effects.

Sector Carbon intensity Chart/Table: Analysis of the weighted average carbon intensity (tCO₂e/GBPm) in each sector within the portfolio and the benchmark.

Sector Weighting Chart/Table: Analysis of the relative holdings in each sector within the portfolio and the benchmark. The benchmark is market capitalisation weighted as per the market capitalisation as of the end of the month.

REFERENCES

1. International Energy Agency Technology Perspectives 2015 report:
<https://www.iea.org/etp/etp2015/>.

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