Trucost Portfolio Analytics

Trucost
ESG Analysis

S&P Global

IVO Capital Partners 2020

IVO Global Opportunities UCITS vs JPM CEMBI High Yield Plus

December 15, 2020

About Trucost

Trucost is part of S&P Global. A leader in carbon and environmental data and risk analysis, Trucost assesses risks relating to climate change, natural resource constraints, and broader environmental, social, and governance factors. Companies and financial institutions use Trucost intelligence to understand their ESG exposure to these factors, inform resilience and identify transformative solutions for a more sustainable global economy. S&P Global's commitment to environmental analysis and product innovation allows us to deliver essential ESG investment-related information to the global marketplace. For more information, visit www.trucost.com.

About S&P Global

S&P Global (NYSE: SPGI) is a leading provider of transparent and independent ratings, benchmarks, analytics and data to the capital and commodity markets worldwide. For more information, visit www.spglobal.com.

Contacts

UK: trucostinfo@spglobal.com
North America: trucostnorthamerica@spglobal.com
Europe: trucostemea@spglobal.com
Asia: trucostasiapacific@spglobal.com
South America: trucostsouthamerica@spglobal.com
Telephone (UK): +44 (0) 20 7160 9800
Telephone (North America): +1 800 402 8774
www.trucost.com

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Benefits of Trucost Portfolio Analysis

It is well-documented that overuse of environmental resources and emission of pollutant gases is not only unsustainable for the planet but could also have widespread economic and social consequences. As governments, capital markets and consumers start to challenge the status quo, those companies that use resources less efficiently than peers, or are more carbon intensive, could lose their market share, licences to operate and ability to source from suppliers. This has possible operational and financial implications for revenues, profit, cost of capital and valuations.

Trucost's portfolio analysis provides investors with essential intelligence to appraise large numbers of holdings or investments for potential exposure to carbon and other environmental impacts, regardless of asset class, geography or investment style. This report provides an invaluable tool for investors to understand:

- Exposure to rising carbon costs
- Carbon performance of holdings within a sector
- Materiality of different environmental impacts
- Engagement opportunities
- Exposure to possible stranded assets
- The baseline against which to measure improvement over time

Summary of Coverage

Portfolio: IVO Global Opportunities UCITS

Benchmark: JPM CEMBI High Yield Plus

Analysis Date: December 15, 2020

Holdings Date: October 27, 2020

Asset Classes: Fixed Income

Apportioning Factor: Enterprise value

Largest Contributor Level: Instruments

	VoH Covered EURm	Coverage Rate (% of Starting VOH)	Number of Instruments Analysed	Number of Companies Analysed
Portfolio	6.569	51.31	40/67	34
Benchmark	6.569	65.26	441/676	215

Summary of Results

		Unit	Portfolio	Benchmark	Relative Efficiency
Carbon	Carbon to Revenue	tCO2e/mEUR	1,332.16	814.11	-64%
	Carbon to Value Invested	tCO2e/mEUR	1,045.49	747.09	-40%
	Weighted Average Carbon Intensity	tCO2e/mEUR	1,313.95	844.55	-56%
	Absolute CO2e	tonnes	6,867	4,907	-40%
Environmental	EC to Revenue	%	9.82	9.77	-0%
	EC to Value Invested	%	7.71	8.96	14%
	Weighted Average EC Intensity	%	9.02	9.87	9%
	Absolute Environmental Costs	mEUR	0.506	0.589	14%
Fossil Fuels & Stranded Assets	Extractive Industries Revenue Exposure (apportioned)	%	16.71	4.10	-307%
	Extractive Industries Revenue Exposure (weighted average)	%	18.37	4.26	-331%
	Extractive Industries Revenue Exposure (VOH)	%	39.66	12.63	-214%
	Reserves Exposure (VOH)	%	38.57	11.90	-224%
	Absolute CO2e from Reserves	tonnes	277,689	213,885	-30%
	Absolute Fossil Fuel CAPEX	EUR	170,062	52,481	-224%
	Coal Revenue Exposure (apportioned)	%	0.58	1.66	65%
	Coal Revenue Exposure (weighted average)	%	1.14	1.97	42%
	Coal Revenue Exposure (VOH)	%	12.37	7.46	-66%
Energy Transition	Absolute Fossil Fuel Power Generation	GWh	2.474	0.933	-165%
	Absolute Renewable Power Generation	GWh	0.440	0.361	22%
	Absolute Other Power Generation	GWh	+0.000	0.012	98%
	Fossil Fuel Power Revenue Exposure (apportioned)	%	5.33	2.24	-138%
	Fossil Fuel Power Revenue Exposure (weighted average)	%	5.24	2.89	-81%
	Fossil Fuel Power Revenue Exposure (VOH)	%	20.60	10.99	-88%
	Renewable Power Revenue Exposure (apportioned)	%	1.42	0.69	105%
	Renewable Power Revenue Exposure (weighted average)	%	1.96	1.52	29%
	Renewable Power Revenue Exposure (VOH)	%	19.85	9.27	114%
	Other Power Revenue Exposure (apportioned)	%	+0.00	+0.00	97%
	Other Power Revenue Exposure (weighted average)	%	+0.00	+0.00	96%
	Other Power Revenue Exposure (VOH)	%	4.52	1.13	-298%

Carbon

Introduction

Carbon exposure analysis offers a systematic assessment of the carbon risks and opportunities within a portfolio or index at a point in time. The analysis quantifies greenhouse gas emissions (GHG) embedded within a portfolio presenting these as tonnes of carbon dioxide equivalents (tCO2e). Comparing the total GHG emissions of each holding relative to either revenues generated or capital invested, gives a measure of carbon exposure that enables comparison between companies, irrespective of size or geography.

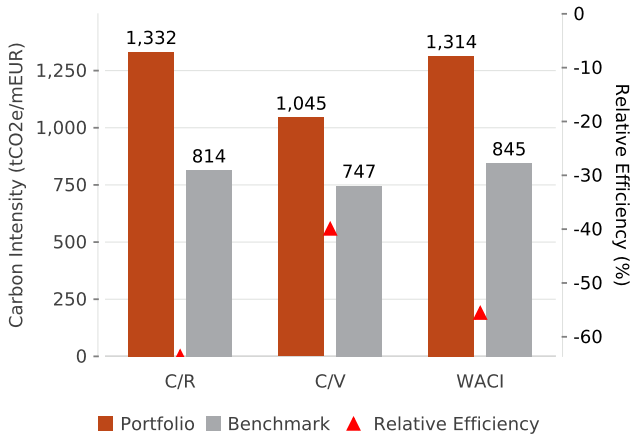
The **Total Carbon Emissions, Carbon to Value Invested (C/V), Carbon to Revenue (C/R),** and **Weighted Average Carbon Intensity (WACI)** are all presented below. For more information on methodological approaches please refer to Appendix 2 and 3.

The scope used in this analysis was Direct Emissions, First Tier Indirect Emissions. For more information on scopes please refer to Appendix 1.

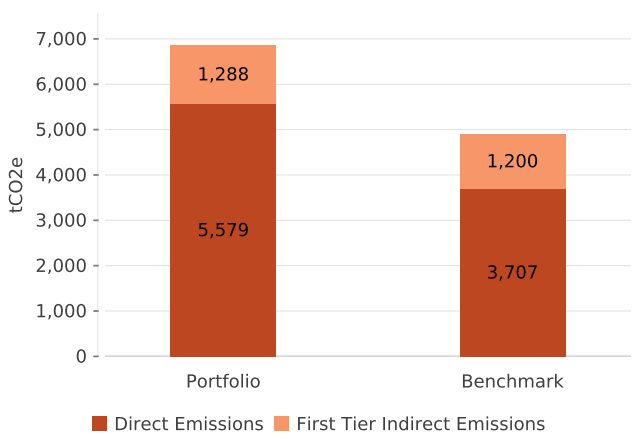
The disclosure rate is measured against the value of holdings (VOH), the share of apportioned GHGs, and number of instruments. For details, please refer to Carbon Appendix 4.

Key Findings

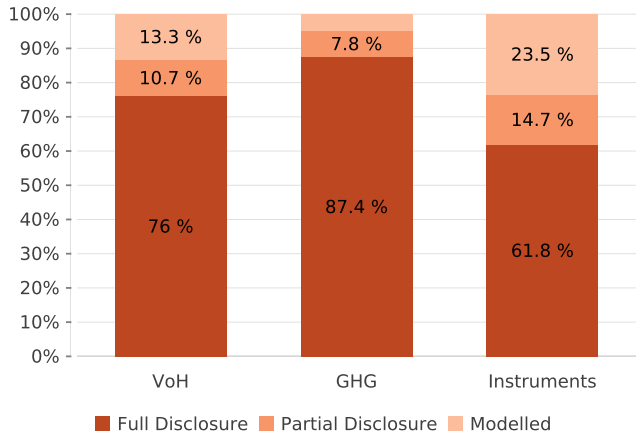
Carbon Intensity by Method



Carbon Apportioned by Scope



Portfolio Disclosure



The portfolio is more carbon intensive than the benchmark across all three of the methodologies used, with the relative efficiency versus the benchmark over -40% for the Carbon to Revenue and Carbon to Value approach. The absolute footprint of the portfolio is around 7k tCO2e, which is nearly 2k higher than that of the benchmark. 81% of the absolute footprint is made up of direct emissions apportioned to the portfolio. Portfolio disclosure rates are highest when measured by GHG emissions, indicating that the largest emitters in the portfolio tend to be better disclosers.

Carbon

Attribution Analysis - Carbon to Revenue

	Carbon to Revenue (tCO2e/mEUR)		Attribution Analysis		
Sector Allocation	**Portfolio**	**Benchmark**	**Sector Allocation**	**Company Selection**	**Total Effect**
Communication Services	48.22	90.63	-0.00%	0.32%	0.31%
Consumer Discretionary	570.44	136.53	-1.42%	-1.77%	-3.19%
Consumer Staples	609.73	845.21	-0.03%	1.97%	1.95%
Energy	918.76	1,121.05	-6.15%	6.99%	0.84%
Financials		30.44	-37.75%		-37.75%
Health Care		85.48	-2.51%		-2.51%
Industrials	537.41	1,007.76	-4.21%	12.55%	8.34%
Information Technology		29.70	-1.93%		-1.93%
Materials	3,260.14	3,092.87	-8.81%	-3.69%	-12.50%
Real Estate	67.23	108.57	-0.10%	0.25%	0.15%
Utilities	2,742.91	3,131.20	-22.63%	5.29%	-17.34%
	1,332.16	814.11	-85.54%	21.90%	-63.63%

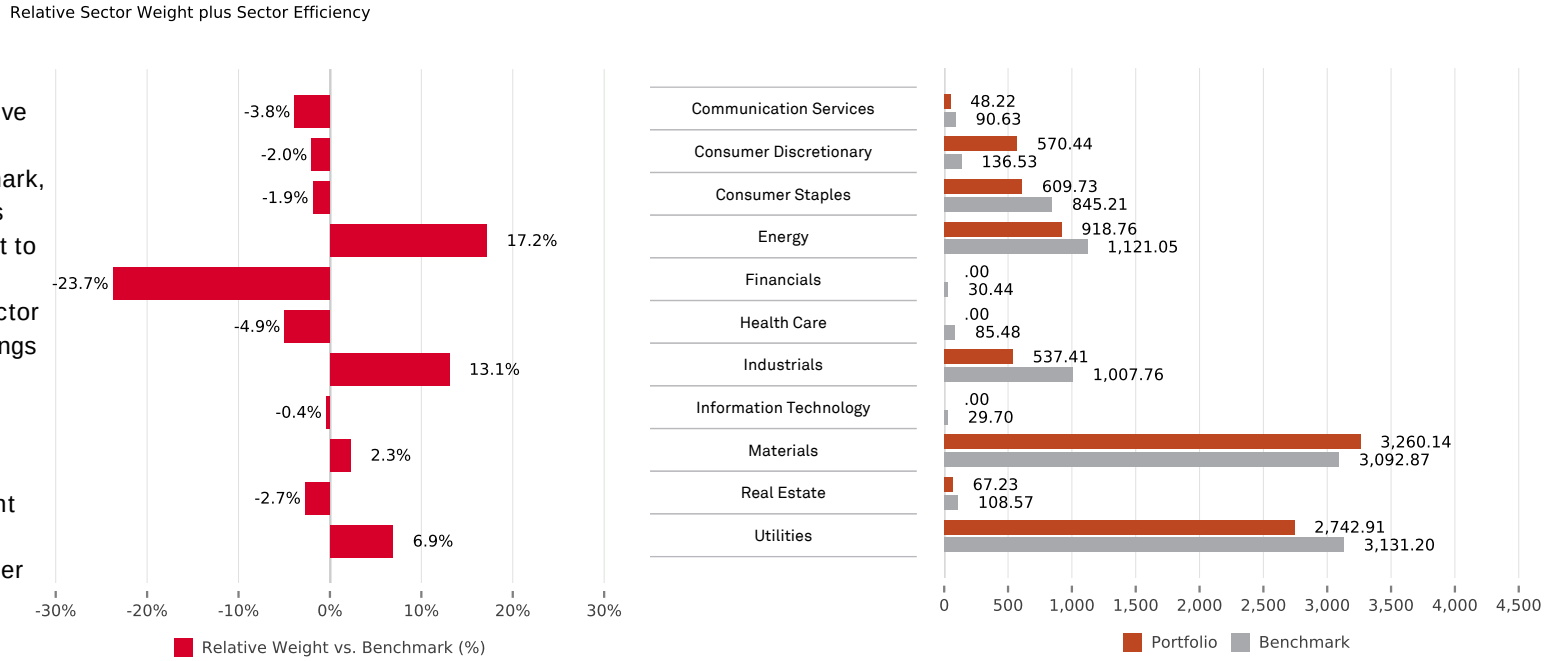
The two principal reasons why the carbon exposure of the portfolio may differ from the benchmark are due to sector allocation decisions and company allocation decisions.

Sector allocation decisions will cause the carbon intensity of the portfolio to diverge markedly from the benchmark where the sector/s are either carbon intensive or low carbon. If the portfolio is overweight in carbon intensive sectors the portfolio is likely to be more carbon intensive than the benchmark.

However, if the companies within a carbon intensive sector are the most carbon efficient companies, it is possible that the portfolio may still have a lower carbon footprint than the benchmark.

The table above shows the strength of the sector allocation and company selection attribution effects, by GICS sector. A positive number indicates that it is contributing to creating a lower intensity than the benchmark, while a negative number indicates that it is contributing to a higher intensity. The chart to the immediate right shows whether the portfolio is over or under-weight a GICS sector versus the benchmark, on a value-of-holdings basis. The chart on the far right shows the sector specific carbon intensities.

The portfolio has a strong negative sector allocation, due mainly to being underweight in the Financials sector and overweight in the Utilities sectors. These taken together contribute to a negative total effect of -55.09%.



Carbon

Largest Contributors - Carbon to Revenue

The largest contributors to the portfolio's carbon intensity are shown below. Note that a company may appear due to the proportion owned/financed, rather than because it is the most carbon intensive held. The 'C/R Intensity Contribution' is the percentage change in the portfolio's intensity that would be caused by excluding the holding referenced. In other words, it is a measurement of how much a specific holding effects the carbon performance of the portfolio.

Description	Provided Identifier	Holding (mEUR)	Sector	Carbon Apportioned (% of total)	Company C/R Intensity (tCO2e/mEUR)	Rank in Benchmark Sector	C/R Intensity Contribution (%)	Data Source (Scope 1)
Sasol Limited	US80386WAB19	0.414	Materials	35.10	5,920.29	51/53	-29.53	Full Disclosure
The AES Corporation	USP1000CAA29	0.297	Utilities	7.60	5,683.18	17/23	-5.93	Partial Disclosure
Pampa Energia S.A.	USP9308RAZ66	0.146	Utilities	6.13	2,168.59	14/23	-2.46	Full Disclosure
YPF SA	USP989MJBE04	0.222	Energy	8.85	1,785.13	34/43	-2.41	Full Disclosure
Pampa Energia S.A.	USP7464EAB22	0.127	Utilities	5.34	2,168.59	N/A	-2.13	Full Disclosure
Loma Negra Compania Industrial	US54150E1047	0.019	Materials	2.10	6,727.45	N/A	-1.69	Modelled
Pampa Energia S.A.	US6976602077	0.069	Utilities	2.88	2,168.59	N/A	-1.13	Full Disclosure
Methanex Corporation	US59151KAJ79	0.168	Materials	3.31	1,839.14	N/A	-0.93	Full Disclosure
Infraestructura Energetica Nova	USP56145AC23	0.162	Utilities	0.89	2,385.00	N/A	-0.39	Full Disclosure
GMR Infrastructure Limited	USY3004WAA00	0.004	Industrials	0.08	8,769.95	31/34	-0.07	Partial Disclosure

Largest Modelled Contributors - Carbon to Revenue

In order to highlight for engagement purposes, we have identified the largest contributors for which up-to-date disclosures were not available. These are ranked according to the size of their impact on your carbon intensity as estimated by Trucost, using our proprietary environmental profiling model.

Description	Provided Identifier	Holding (mEUR)	Sector	Carbon Apportioned (% of total)	Company C/R Intensity (tCO2e/mEUR)	Rank in Benchmark Sector	C/R Intensity Contribution (%)	Data Source (Scope 1)
Loma Negra Compania Industrial	US54150E1047	0.019	Materials	2.10	6,727.45	N/A	-1.69	Modelled
Adecoagro S.A.	LU0584671464	0.010	Consumer Staples	0.15	1,923.25	N/A	-0.05	Modelled
Global Ports Holding Plc	XS1132825099	0.126	Industrials	0.54	1,388.00	N/A	-0.02	Modelled
Shelf Drilling, Ltd.	KYG236271055	0.007	Energy	0.02	413.10	N/A	0.05	Modelled
Alibaba Group Holding Limited	US01609W1027	0.161	Consumer Discretionary	0.01	67.25	N/A	0.21	Modelled
Shelf Drilling, Ltd.	US822538AE44	0.065	Energy	0.23	413.10	N/A	0.51	Modelled
Damac Properties Dubai Co.	XS1807408486	0.161	Real Estate	0.14	87.21	40/78	2.10	Modelled
Tecnoglass Inc.	USG87264AA81	0.180	Materials	1.50	512.55	N/A	2.50	Modelled
Corporacion America Airports S.	LU1756447840	0.145	Industrials	0.17	78.88	N/A	2.85	Modelled

Carbon

Attribution Analysis - Carbon to Value Invested

	Carbon to Value (tCO2e/mEUR)		Attribution Analysis		
Sector Allocation	**Portfolio**	**Benchmark**	**Sector Allocation**	**Company Selection**	**Total Effect**
Communication Services	38.25	51.46	-3.57%	0.11%	-3.46%
Consumer Discretionary	257.13	81.20	-1.76%	-1.36%	-3.12%
Consumer Staples	1,367.66	1,111.56	0.90%	-0.82%	0.08%
Energy	763.33	1,290.68	-12.48%	18.77%	6.28%
Financials		46.20	-22.25%		-22.25%
Health Care		44.58	-4.63%		-4.63%
Industrials	492.96	674.94	1.26%	4.53%	5.79%
Information Technology		142.37	-0.31%		-0.31%
Materials	2,459.40	2,561.46	-5.51%	2.55%	-2.96%
Real Estate	26.19	39.69	-2.54%	0.18%	-2.36%
Utilities	1,956.78	1,696.47	-8.75%	-4.25%	-13.00%
	1,045.49	747.09	-59.64%	19.70%	-39.94%

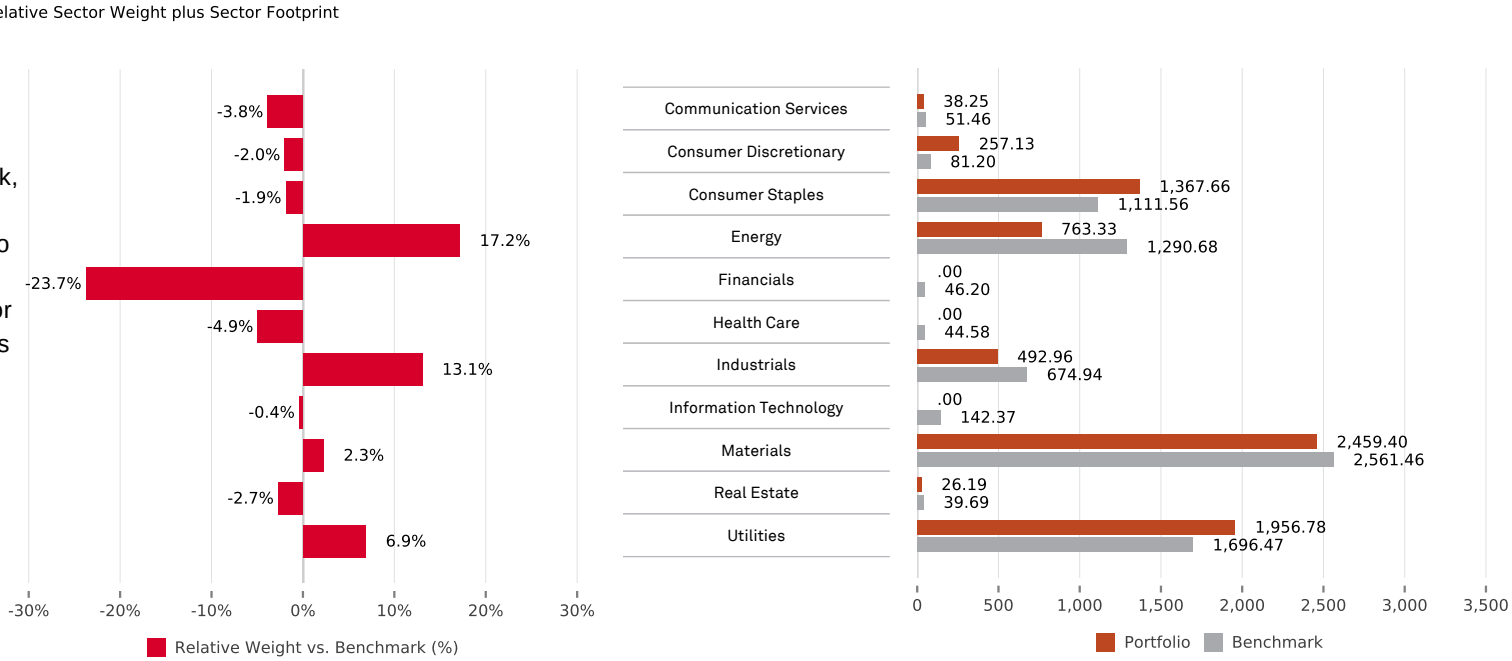
The two principal reasons why the carbon exposure of the portfolio may differ from the benchmark are due to sector allocation decisions and company allocation decisions.

Sector allocation decisions will cause the carbon intensity of the portfolio to diverge markedly from the benchmark where the sector/s are either carbon intensive or low carbon. If the portfolio is overweight in carbon intensive sectors the portfolio is likely to be more carbon intensive than the benchmark.

However, if the companies within a carbon intensive sector are the most carbon efficient companies, it is possible that the portfolio may still have a lower carbon footprint than the benchmark.

The table above shows the strength of the sector allocation and company selection attribution effects, by GICS sector. A positive number indicates that it is contributing to creating a lower intensity than the benchmark, while a negative number indicates that it is contributing to a higher intensity. The chart to the immediate right shows whether the portfolio is over or under-weight a GICS sector versus the benchmark, on a value-of-holdings basis. The chart on the far right shows the sector specific carbon intensities.

The portfolio has a negative sector allocation, due mainly to being underweight in the Financials sector and overweight in the Utilities sectors. These taken together contribute to a negative total effect of -35.25%.



Carbon

Largest Contributors - Carbon to Value Invested

The largest contributors to the portfolio's carbon intensity are shown below. Note that a company may appear due to the proportion owned/financed, rather than because it is the most carbon intensive held. The 'C/V Intensity Contribution' is the percentage change in the portfolio's intensity that would be caused by excluding the holding referenced. In other words, it is a measurement of how much a specific holding effects the carbon performance of the portfolio.

Description	Provided Identifier	Holding (mEUR)	Sector	Carbon Apportioned (% of total)	Company C/V Intensity (tCO2e/mEUR)	Rank in Benchmark Sector	C/V Intensity Contribution (%)	Data Source (Scope 1)
Sasol Limited	US80386WAB19	0.414	Materials	35.10	5,819.83	40/53	-30.73	Full Disclosure
YPF SA	USP989MJBE04	0.222	Energy	8.85	2,735.93	21/43	-5.66	Full Disclosure
Pampa Energia S.A.	USP9308RAZ66	0.146	Utilities	6.13	2,877.25	14/23	-3.99	Full Disclosure
Pampa Energia S.A.	USP7464EAB22	0.127	Utilities	5.34	2,877.25	N/A	-3.47	Full Disclosure
The AES Corporation	USP1000CAA29	0.297	Utilities	7.60	1,759.35	23/23	-3.23	Partial Disclosure
Pampa Energia S.A.	US6976602077	0.069	Utilities	2.88	2,877.25	N/A	-1.85	Full Disclosure
JBS S.A.	US4661101034	0.067	Consumer Staples	2.82	2,879.68	N/A	-1.82	Full Disclosure
Loma Negra Compania Industrial	US54150E1047	0.019	Materials	2.10	7,610.80	N/A	-1.82	Modelled
Alfa, S. A. B. de C. V.	USP0156PAC34	0.200	Industrials	3.81	1,312.12	N/A	-0.80	Full Disclosure
Methanex Corporation	US59151KAJ79	0.168	Materials	3.31	1,348.48	N/A	-0.76	Full Disclosure

Largest Modelled Contributors - Carbon to Value Invested

In order to highlight for engagement purposes, we have identified the largest contributors for which up-to-date disclosures were not available. These are ranked according to the size of their impact on your carbon intensity as estimated by Trucost, using our proprietary environmental profiling model.

Description	Provided Identifier	Holding (mEUR)	Sector	Carbon Apportioned (% of total)	Company C/V Intensity (tCO2e/mEUR)	Rank in Benchmark Sector	C/V Intensity Contribution (%)	Data Source (Scope 1)
Loma Negra Compania Industrial	US54150E1047	0.019	Materials	2.10	7,610.80	N/A	-1.82	Modelled
Adecoagro S.A.	LU0584671464	0.010	Consumer Staples	0.15	996.47	N/A	+0.00	Modelled
Shelf Drilling, Ltd.	KYG236271055	0.007	Energy	0.02	240.97	N/A	0.08	Modelled
Shelf Drilling, Ltd.	US822538AE44	0.065	Energy	0.23	240.97	N/A	0.76	Modelled
Tecnoglass Inc.	USG87264AA81	0.180	Materials	1.50	574.46	N/A	1.27	Modelled
Global Ports Holding Plc	XS1132825099	0.126	Industrials	0.54	292.26	N/A	1.41	Modelled
Corporacion America Airports S.	LU1756447840	0.145	Industrials	0.17	82.33	N/A	2.08	Modelled
Damac Properties Dubai Co.	XS1807408486	0.161	Real Estate	0.14	61.41	16/78	2.36	Modelled
Alibaba Group Holding Limited	US01609W1027	0.161	Consumer Discretionary	0.01	4.68	N/A	2.50	Modelled

Carbon

Attribution Analysis - Weighted Average Carbon Intensity

	WACI (tCO2e/mEUR)		Attribution Analysis		
Sector Allocation	**Portfolio**	**Benchmark**	**Sector Allocation**	**Company Selection**	**Total Effect**
Communication Services	45.70	77.13	-3.48%	0.22%	-3.26%
Consumer Discretionary	378.10	103.97	-1.73%	-1.88%	-3.61%
Consumer Staples	660.99	820.14	-0.05%	0.45%	0.40%
Energy	804.34	1,111.77	-5.43%	9.68%	4.25%
Financials		27.81	-22.93%		-22.93%
Health Care		85.40	-4.43%		-4.43%
Industrials	606.78	1,658.39	-12.58%	23.14%	10.56%
Information Technology		29.70	-0.37%		-0.37%
Materials	2,729.67	2,352.12	-4.05%	-8.36%	-12.41%
Real Estate	80.99	121.61	-2.30%	0.47%	-1.83%
Utilities	3,513.65	3,483.27	-21.51%	-0.44%	-21.94%
	1,313.95	844.55	-78.86%	23.28%	-55.58%

The two principal reasons why the carbon exposure of the portfolio may differ from the benchmark are due to sector allocation decisions and company allocation decisions.

Sector allocation decisions will cause the carbon intensity of the portfolio to diverge markedly from the benchmark where the sector/s are either carbon intensive or low carbon. If the portfolio is overweight in carbon intensive sectors the portfolio is likely to be more carbon intensive than the benchmark.

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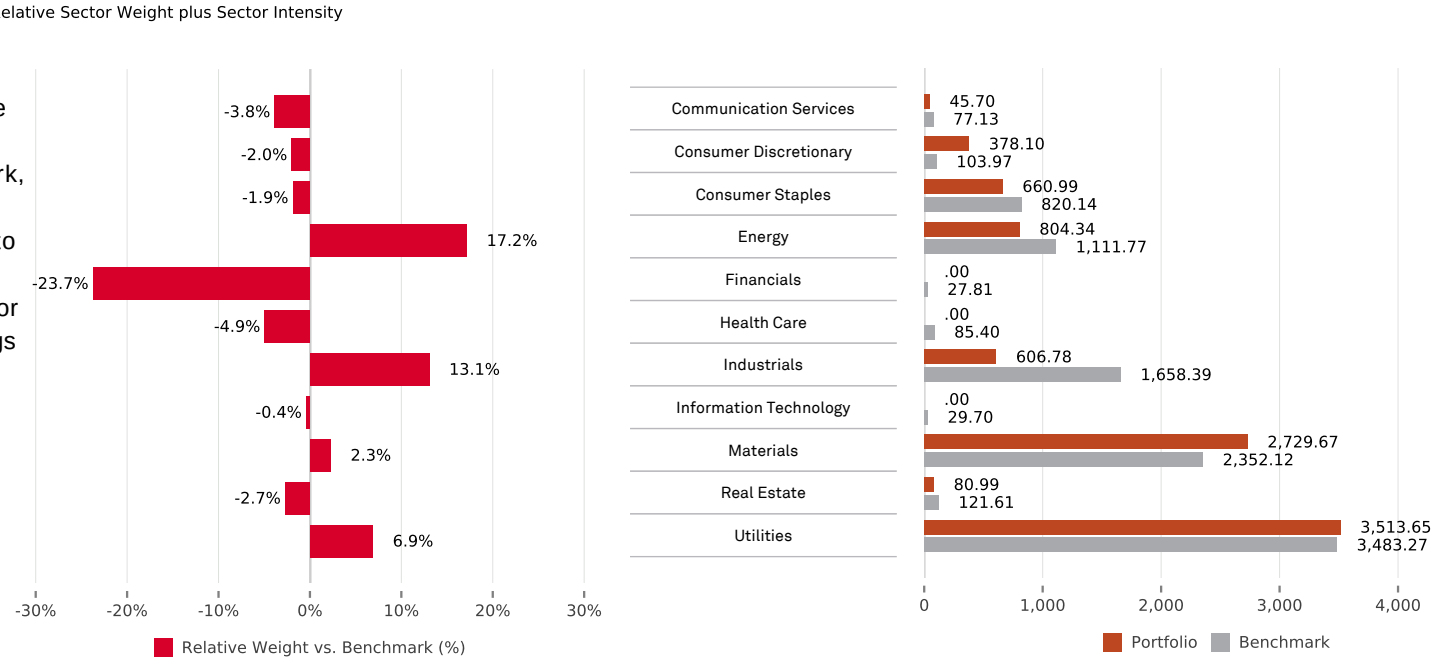
The portfolio has a strong negative sector allocation, due mainly to being underweight in the Financials and Utilities sectors and overweight in the Utilities sectors. These taken together contribute to a negative total effect of -44.87%.



Carbon

Largest Contributors - Weighted Average Carbon Intensity

The largest contributors to the portfolio's carbon intensity are shown below. The 'WACI Contribution' is the percentage change in the portfolio's intensity that would be caused by excluding the holding referenced. In other words, it is a measurement of how much a specific holding effects the carbon performance of the portfolio

Description	Provided Identifier	Holding (mEUR)	Sector	Carbon Apportioned (% of total)	Company C/R Intensity (tCO2e/mEUR)	Rank in Benchmark Sector	WACI Contribution (%)	Data Source (Scope 1)
Sasol Limited	US80386WAB19	0.414	Materials	35.10	5,920.29	51/53	-28.41	Full Disclosure
The AES Corporation	USP1000CAA29	0.297	Utilities	7.60	5,683.18	17/23	-19.54	Partial Disclosure
Petrobras SA	US71647NBD03	0.492	Energy	5.64	894.69	15/43	-5.10	Full Disclosure
YPF SA	USP989MJBE04	0.222	Energy	8.85	1,785.13	34/43	-4.60	Full Disclosure
Infraestructura Energetica Nova	USP56145AC23	0.162	Utilities	0.89	2,385.00	N/A	-4.48	Full Disclosure
Pampa Energia S.A.	USP9308RAZ66	0.146	Utilities	6.13	2,168.59	14/23	-3.67	Full Disclosure
Methanex Corporation	US59151KAJ79	0.168	Materials	3.31	1,839.14	N/A	-3.59	Full Disclosure
Pampa Energia S.A.	USP7464EAB22	0.127	Utilities	5.34	2,168.59	N/A	-3.20	Full Disclosure
DNO ASA	NO0010852643	0.381	Energy	2.85	656.69	N/A	-2.90	Full Disclosure
Tullow Oil plc	USG91235AB05	0.272	Energy	1.03	681.53	11/43	-2.15	Full Disclosure

Largest Modelled Contributors - Weighted Average Carbon Intensity

In order to highlight for engagement purposes, we have identified the largest contributors for which up-to-date disclosures were not available. These are ranked according to the size of their impact on your carbon intensity as estimated by Trucost, using our proprietary environmental profiling model.

Description	Provided Identifier	Holding (mEUR)	Sector	Carbon Apportioned (% of total)	Company C/R Intensity (tCO2e/mEUR)	Rank in Benchmark Sector	WACI Contribution (%)	Data Source (Scope 1)
Global Ports Holding Plc	XS1132825099	0.126	Industrials	0.54	1,388.00	N/A	-2.03	Modelled
Loma Negra Compania Industrial	US54150E1047	0.019	Materials	2.10	6,727.45	N/A	-1.48	Modelled
Tecnoglass Inc.	USG87264AA81	0.180	Materials	1.50	512.55	N/A	-1.07	Modelled
Shelf Drilling, Ltd.	US822538AE44	0.065	Energy	0.23	413.10	N/A	-0.31	Modelled
Adecoagro S.A.	LU0584671464	0.010	Consumer Staples	0.15	1,923.25	N/A	-0.23	Modelled
Damac Properties Dubai Co.	XS1807408486	0.161	Real Estate	0.14	87.21	40/78	-0.16	Modelled
Corporacion America Airports S.	LU1756447840	0.145	Industrials	0.17	78.88	N/A	-0.13	Modelled
Alibaba Group Holding Limited	US01609W1027	0.161	Consumer Discretionary	0.01	67.25	N/A	-0.13	Modelled
Shelf Drilling, Ltd.	KYG236271055	0.007	Energy	0.02	413.10	N/A	-0.03	Modelled

Environment

Introduction

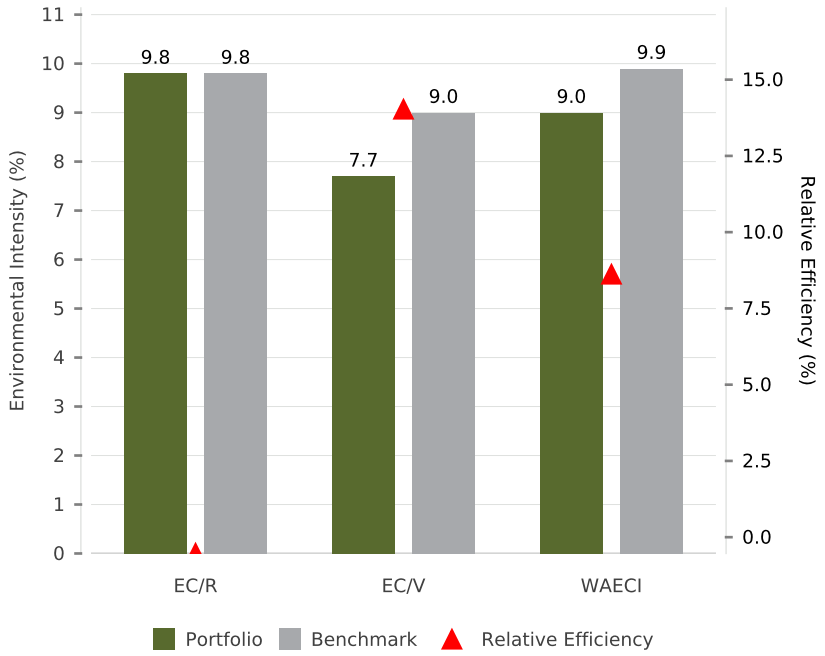
Environmental footprint analysis measures the environmental risks and opportunities not captured by standard portfolio analysis and presents a systematic assessment of environmental impacts. The footprint quantifies the greenhouse gas (GHG) emissions, water, waste, land & water pollutants, air pollutants, and natural resource use associated with your portfolio. To enable comparison between different environmental impacts, Trucost assigns an environmental cost to each resource and pollutant. Environmental costs are set by Trucost's academic panel and are derived from environmental economics literature. They reflect the wider costs borne by society of resource usage or pollutants released. For more information please refer to Appendix 7.

The **Total Environmental Costs (EC), EC to Value Invested (EC/V), EC to Revenue (EC/R)**, and **Weighted Average EC Intensity (WAECI)** are all presented below. For more information on methodological approaches please refer to Appendix 2 and 3.

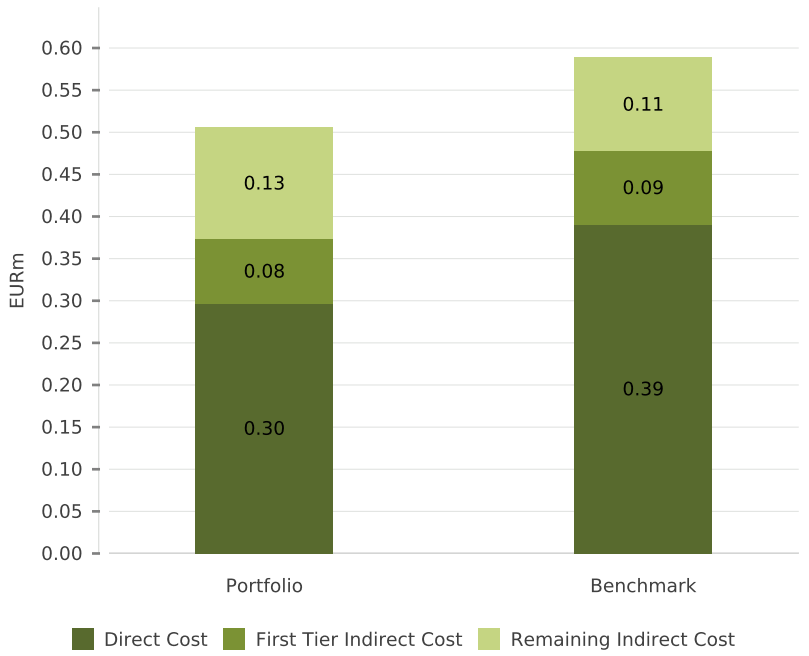
The scope used in this analysis was Direct Cost, First Tier Indirect Cost and Remaining Indirect Cost. For more information on scopes please refer to Appendix 1.

Key Findings

Environmental Performance by Method



Apportioned Environmental Costs by Scope



Environment

Attribution Analysis - Environmental Costs to Revenue

	EC to Revenue (%)		Attribution Analysis		
Sector Allocation	**Portfolio**	**Benchmark**	**Sector Allocation**	**Company Selection**	**Total Effect**
Communication Services	0.68	0.92	-0.00%	0.15%	0.14%
Consumer Discretionary	4.56	2.21	-1.32%	-0.80%	-2.12%
Consumer Staples	17.25	37.39	-2.12%	14.07%	11.94%
Energy	5.18	23.10	-22.27%	51.65%	29.37%
Financials		0.56	-36.97%		-36.97%
Health Care		1.65	-2.33%		-2.33%
Industrials	7.35	9.84	-0.14%	5.54%	5.40%
Information Technology		1.08	-1.78%		-1.78%
Materials	21.14	21.21	-3.69%	0.12%	-3.56%
Real Estate	1.35	1.70	-0.09%	0.17%	0.08%
Utilities	13.80	21.78	-9.78%	9.07%	-0.71%
	9.82	9.77	-80.51%	79.97%	-0.53%

The two principal reasons why the environmental exposure of the portfolio may differ from the benchmark are due to sector allocation decisions and company selection decisions.

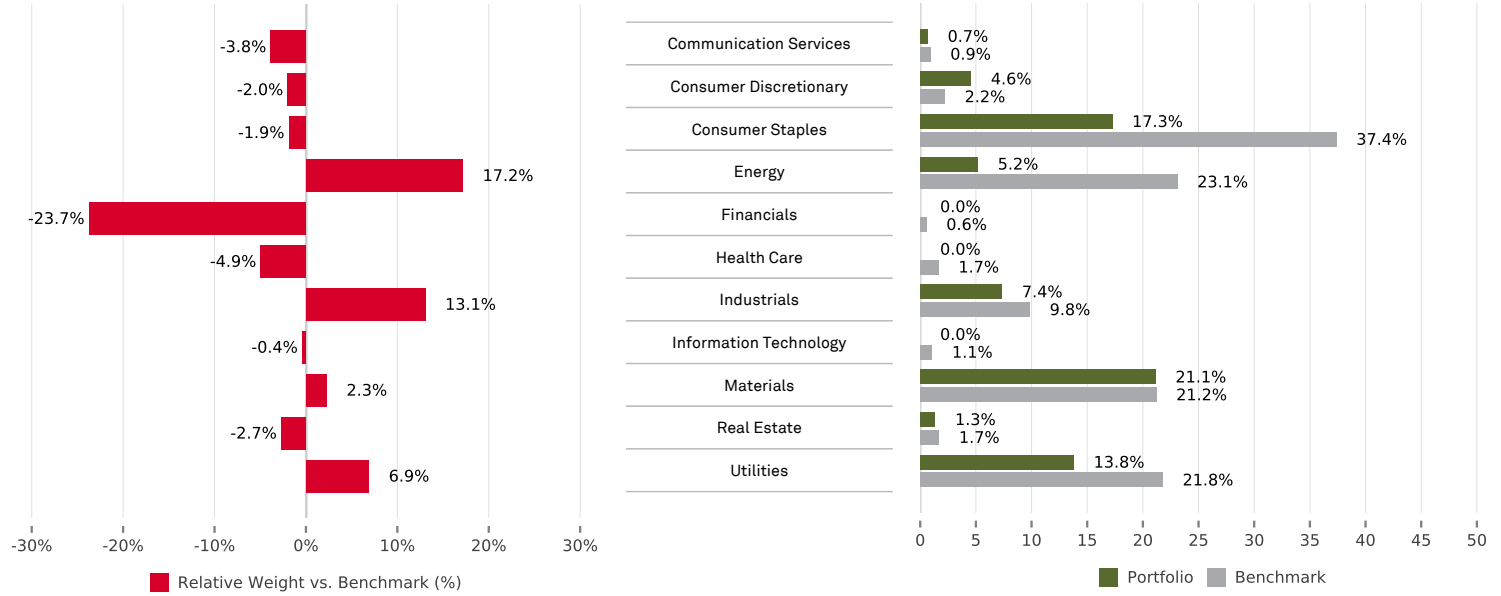
Sector allocation decisions can cause the exposure of the portfolio to diverge markedly from the benchmark where the sector/s are either environmentally high or low impact. If the portfolio is overweight high impact sectors it is likely to be more environmentally intensive than the benchmark.

However, if the companies held within a high impact sector are the most efficient companies, it is possible that the portfolio may still be more efficient than the benchmark.

Overall, the portfolio is 0.53% less efficient than the benchmark when measured using the EC to Revenue approach. There is a negative sector allocation affect of -81%, meaning that the portfolio derives a greater share of its apportioned revenues from sectors with a higher intensity than the overall benchmark intensity.

There is also a positive company selection effect of 80%. This means that - assuming constant sector revenue weighting between the portfolio and benchmark - the sector intensities of the portfolio are on average lower than those of the benchmark.

Relative Sector Weight plus Sector Efficiency



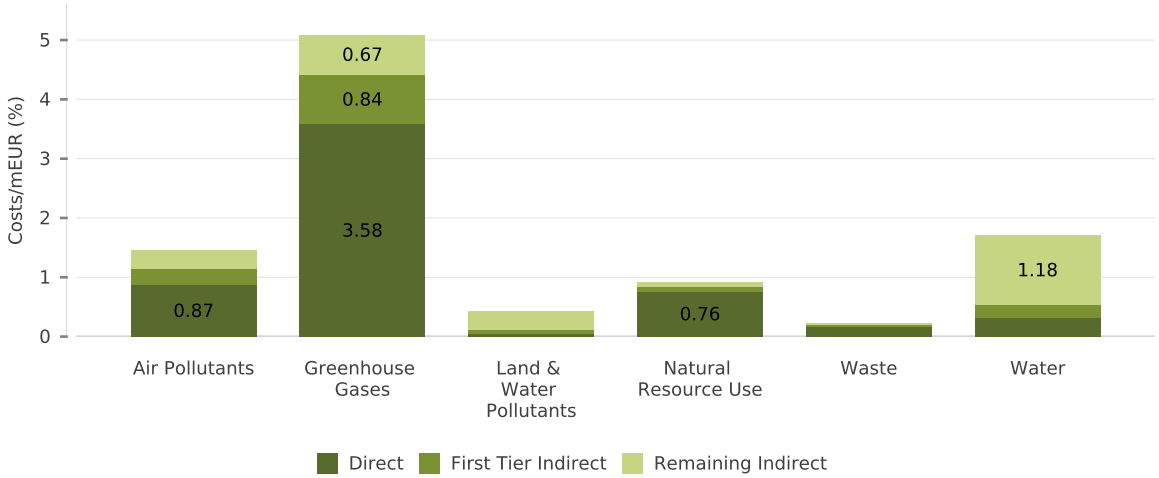
Environment

Largest Contributors - Environmental Costs to Revenue

The largest contributors to the portfolio's environmental intensity are shown below. Note that a company may appear due to the proportion owned/financed, rather than because it is the most intensive held. The 'EC/R Intensity Contribution' is the percentage change in the portfolio's efficiency that would be caused by excluding the holding referenced. In other words, it is a measurement of how much a specific holding effects the environmental performance of the portfolio.

Description	Provided Identifier	Holding (mEUR)	Sector	Company EC/R Intensity	Rank In Benchmark Sector	EC/R Intensity Contribution
Sasol Limited	US80386WAB19	0.414	Materials	35.38%	49/53	-22.32
JBS S.A.	US4661101034	0.067	Consumer Staples	31.70%	N/A	-7.32
Alfa, S. A. B. de C. V.	USP0156PAC34	0.200	Industrials	15.27%	N/A	-4.58
The AES Corporation	USP1000CAA29	0.297	Utilities	31.35%	15/23	-3.98
Methanex Corporation	US59151KAJ79	0.168	Materials	13.98%	N/A	-1.04
Loma Negra Compania Industrial	US54150E1047	0.019	Materials	28.15%	N/A	-0.78
Adecoagro S.A.	LU0584671464	0.010	Consumer Staples	81.33%	N/A	-0.74
Infraestructura Energetica Nova S.A.B.	USP56145AC23	0.162	Utilities	14.18%	N/A	-0.22
Vale S.A.	US91912E1055	0.102	Materials	11.37%	N/A	-0.18
Global Ports Holding Plc	XS1132825099	0.126	Industrials	13.01%	N/A	-0.17

Environmental Intensity Broken Down by Issue



The chart to the left shows which environmental 'issue', and within those which scope, contributes most towards the final intensity metric.

Direct GHG emissions are contributing the most towards the portfolio's apportioned environmental damage costs. This is being driven by companies in the Materials sector, such as Sasol Limited - an integrated chemicals and energy company - as well as Energy and Industrials companies.

When considering the entire supply chain, GHG emissions are followed by Water Use as the most impactful environmental issue of the six analyzed.

Environment

Attribution Analysis - Environmental Costs to Value Invested

	EC to Value Invested (%)		Attribution Analysis		
Sector Allocation	**Portfolio**	**Benchmark**	**Sector Allocation**	**Company Selection**	**Total Effect**
Communication Services	0.54	0.52	-3.61%	-0.01%	-3.62%
Consumer Discretionary	2.06	1.31	-1.69%	-0.48%	-2.17%
Consumer Staples	38.70	49.17	8.30%	2.79%	11.09%
Energy	4.30	26.60	-33.75%	66.13%	32.38%
Financials		0.85	-21.47%		-21.47%
Health Care		0.86	-4.45%		-4.45%
Industrials	6.74	6.59	3.45%	-0.31%	3.14%
Information Technology		5.16	-0.16%		-0.16%
Materials	15.95	17.57	-2.18%	3.37%	1.19%
Real Estate	0.53	0.62	-2.50%	0.10%	-2.39%
Utilities	9.84	11.80	-2.18%	2.67%	0.49%
	7.71	8.96	-60.24%	74.26%	14.02%

The two principal reasons why the environmental exposure of the portfolio may differ from the benchmark are due to sector allocation decisions and company selection decisions.

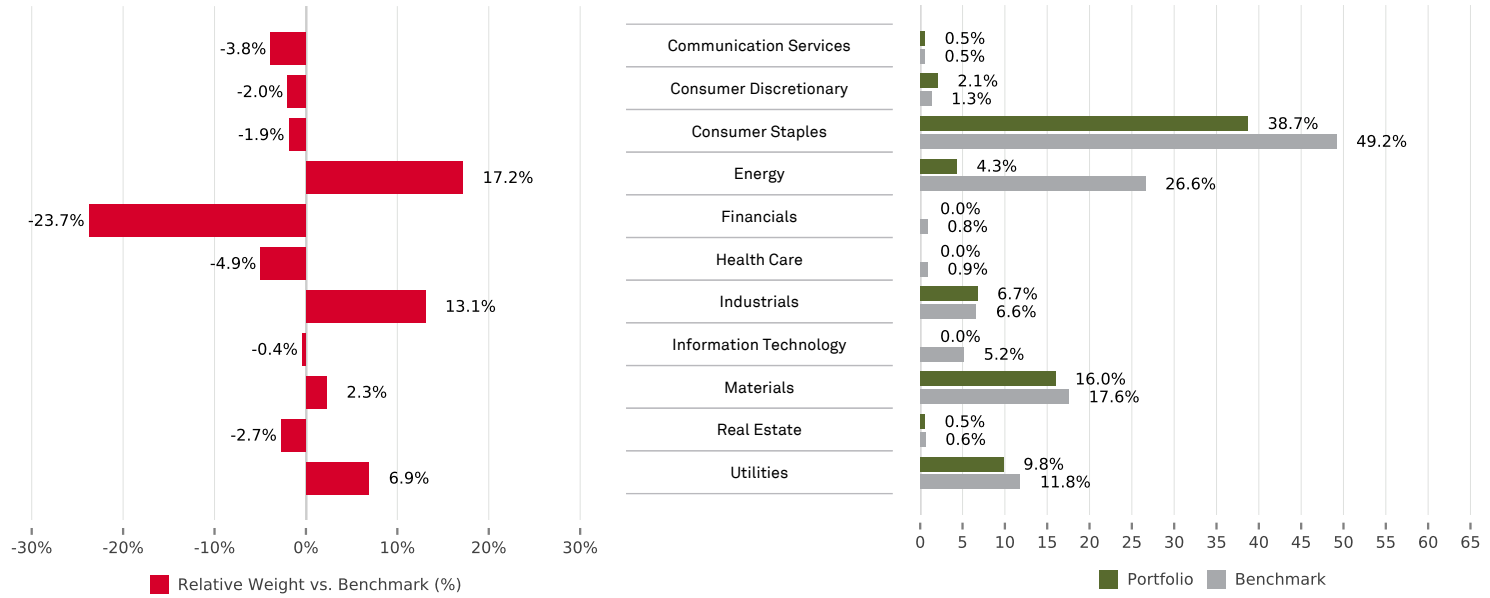
Sector allocation decisions can cause the exposure of the portfolio to diverge markedly from the benchmark where the sector/s are either environmentally high or low impact. If the portfolio is overweight high impact sectors it is likely to be more environmentally intensive than the benchmark.

However, if the companies held within a high impact sector are the most efficient companies, it is possible that the portfolio may still be more efficient than the benchmark.

Overall, the portfolio is 14% more efficient than the benchmark when measured using the EC to Value Invested approach. There is a negative sector allocation affect of -60%, meaning that the portfolio derives a greater share of its apportioned revenues from sectors with a higher intensity than the overall benchmark intensity.

There is also a positive company selection effect of 74%. This means that - assuming constant sector revenue weighting between the portfolio and benchmark - the sector intensities of the portfolio are on average lower than those of the benchmark.

Relative Sector Weight plus Sector Footprint



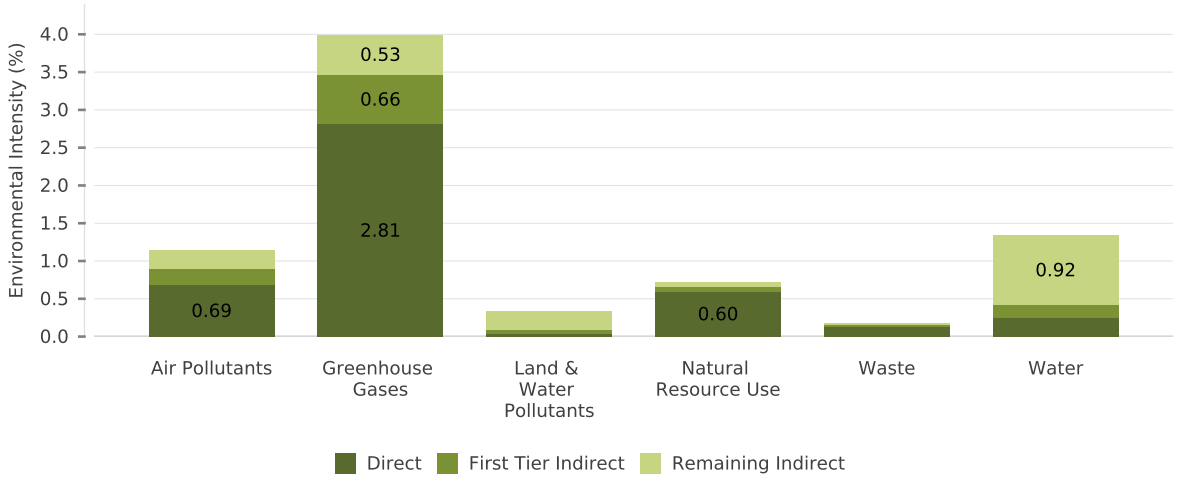
Environment

Largest Contributors - Environmental Costs to Value Invested

The largest contributors to the portfolio's environmental footprint are shown below. Note that a company may appear due to the proportion owned/financed, rather than because it is has the highest footprint. The 'EC/V Intensity Contribution' is the percentage change in the portfolio's footprint that would be caused by excluding the holding referenced. In other words, it is a measurement of how much a specific holding effects the environmental performance of the portfolio.

Description	Provided Identifier	Holding (mEUR)	Sector	Company EC/V Intensity	Rank In Benchmark Sector	EC/V Intensity Contribution
Sasol Limited	US80386WAB19	0.414	Materials	28.45%	38/53	-23.64
JBS S.A.	US4661101034	0.067	Consumer Staples	10.27%	N/A	-9.34
Alfa, S. A. B. de C. V.	USP0156PAC34	0.200	Industrials	11.85%	N/A	-9.08
YPF SA	USP989MJBE04	0.222	Energy	6.29%	15/43	-3.01
Pampa Energia S.A.	USP9308RAZ66	0.146	Utilities	3.92%	11/23	-1.73
Pampa Energia S.A.	USP7464EAB22	0.127	Utilities	3.42%	N/A	-1.50
The AES Corporation	USP1000CAA29	0.297	Utilities	5.69%	23/23	-1.23
Loma Negra Compania Industrial	US54150E1047	0.019	Materials	1.19%	N/A	-0.91
Methanex Corporation	US59151KAJ79	0.168	Materials	3.41%	N/A	-0.87
Pampa Energia S.A.	US6976602077	0.069	Utilities	1.84%	N/A	-0.80

Environmental Intensity Broken Down by Issue



The chart to the left shows which environmental 'issue', and within those which scope, contributes most towards the final intensity metric.

Direct GHG emissions are contributing the most towards the portfolio's apportioned environmental damage costs. This is being driven by companies in the Materials sector, such as Sasol Limited - an integrated chemicals and energy company - as well as Energy and Industrials companies.

When considering the entire supply chain, GHG emissions are followed by Water Use as the most impactful environmental issue of the six analyzed.

Environment

Attribution Analysis - Weighted Average Environmental Costs Intensity

	WAECI (%)		Attribution Analysis		
Sector Allocation	**Portfolio**	**Benchmark**	**Sector Allocation**	**Company Selection**	**Total Effect**
Communication Services	0.66	0.86	-3.50%	0.12%	-3.38%
Consumer Discretionary	3.29	1.78	-1.62%	-0.88%	-2.50%
Consumer Staples	20.09	37.41	5.16%	4.19%	9.35%
Energy	4.70	22.90	-22.64%	49.01%	26.38%
Financials		0.63	-22.21%		-22.21%
Health Care		1.65	-4.10%		-4.10%
Industrials	6.01	14.12	-5.62%	15.26%	9.64%
Information Technology		1.08	-0.34%		-0.34%
Materials	18.71	19.06	-2.11%	0.66%	-1.45%
Real Estate	1.53	1.80	-2.19%	0.26%	-1.94%
Utilities	18.85	28.90	-13.26%	12.42%	-0.84%
	9.02	9.87	-72.44%	81.05%	8.61%

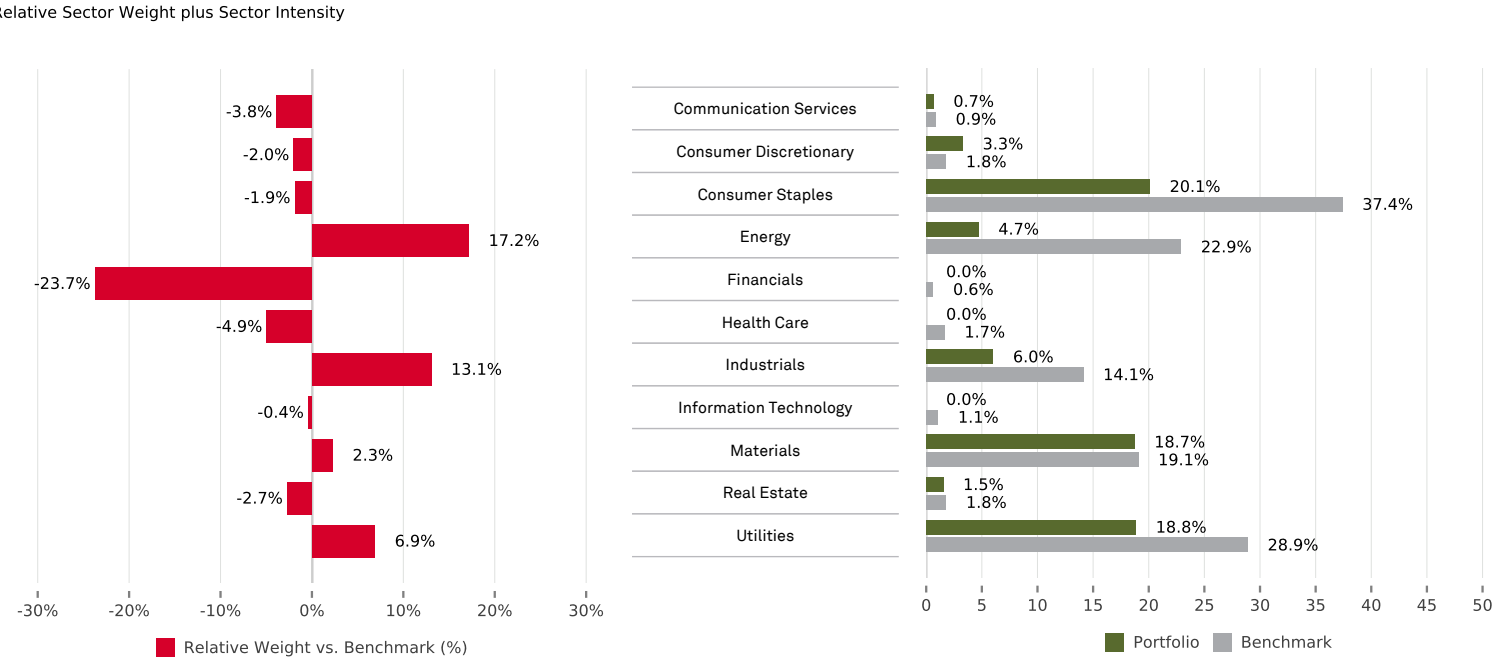
The two principal reasons why the environmental exposure of the portfolio may differ from the benchmark are due to sector allocation decisions and company selection decisions.

Sector allocation decisions can cause the exposure of the portfolio to diverge markedly from the benchmark where the sector/s are either environmentally high or low impact. If the portfolio is overweight high impact sectors it is likely to be more environmentally intensive than the benchmark.

However, if the companies held within a high impact sector are the most efficient companies, it is possible that the portfolio may still be more efficient than the benchmark.

Overall, the portfolio is 8.61% more efficient than the benchmark when measured using the EC to Revenue approach. There is a negative sector allocation affect of -73%, meaning that the portfolio derives a greater share of its apportioned revenues from sectors with a higher intensity than the overall benchmark intensity.

There is also a positive company selection effect of 81%. This means that - assuming constant sector revenue weighting between the portfolio and benchmark - the sector intensities of the portfolio are on average lower than those of the benchmark.



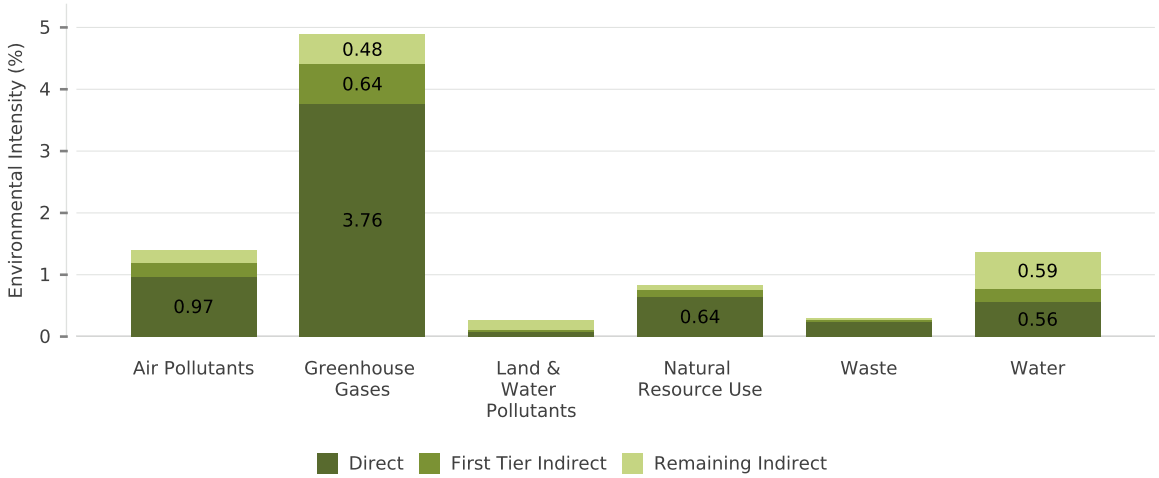
Environment

Largest Contributors - Weighted Average Environmental Costs Intensity

The largest contributors to the portfolio's environmental intensity are shown below. The 'WAECI Contribution' is the percentage change in the portfolio's intensity that would be caused by excluding the holding referenced. In other words, it is a measurement of how much a specific holding effects the environmental performance of the portfolio.

Description	Provided Identifier	Holding (mEUR)	Sector	Company EC/R Intensity	Rank In Benchmark Sector	WAECI Contribution (%)
Sasol Limited	US80386WAB19	0.414	Materials	35.38%	49/53	-24.72
The AES Corporation	USP1000CAA29	0.297	Utilities	31.35%	15/23	-15.70
Alfa, S. A. B. de C. V.	USP0156PAC34	0.200	Industrials	15.27%	N/A	-5.14
Petrobras SA	US71647NBD03	0.492	Energy	4.90%	11/43	-4.07
Methanex Corporation	US59151KAJ79	0.168	Materials	13.98%	N/A	-3.97
Infraestructura Energetica Nova S.A.B.	USP56145AC23	0.162	Utilities	14.18%	N/A	-3.88
JBS S.A.	US4661101034	0.067	Consumer Staples	31.70%	N/A	-3.60
YPF SA	USP989MJBE04	0.222	Energy	9.35%	32/43	-3.51
First Quantum Minerals Ltd.	US335934AT24	0.169	Materials	11.19%	N/A	-3.18
Global Ports Holding Plc	XS1132825099	0.126	Industrials	13.01%	N/A	-2.77

Environmental Intensity Broken Down by Issue



The chart to the left shows which environmental 'issue', and within those which scope, contributes most towards the final intensity metric.

Direct GHG emissions are contributing the most towards the portfolio's apportioned environmental damage costs. This is being driven by companies in the Materials sector, such as Sasol Limited - an integrated chemicals and energy company - as well as Energy and Industrials companies.

When considering the entire supply chain, GHG emissions are followed by Water as the most impactful environmental issue of the six analyzed.

Fossil Fuels & Stranded Assets

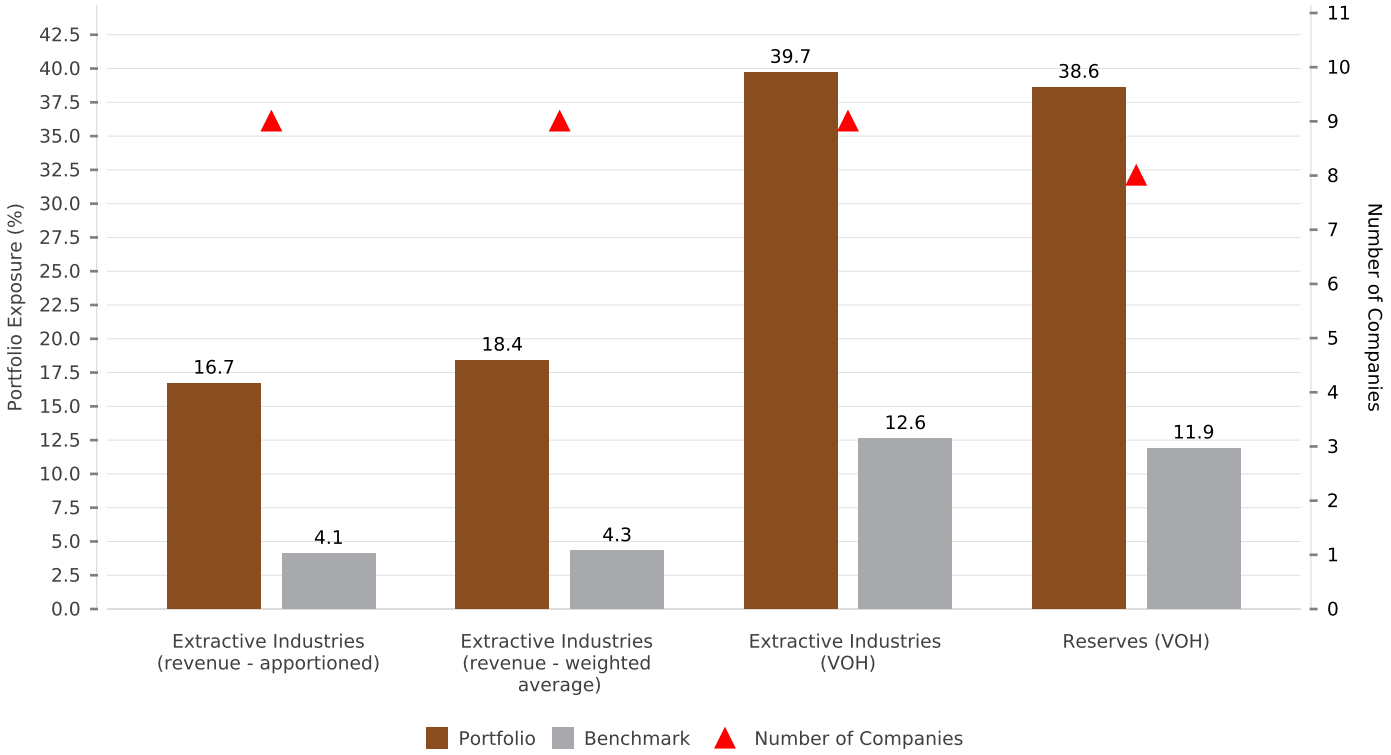
Introduction

Future emissions from fossil fuel reserves far outweigh the allowable carbon budget that will limit global warming to 2 degrees Celsius above pre-industrial levels. Industry experts refer to assets that may suffer from unanticipated or premature write-downs, devaluations or conversion to liabilities as 'stranded assets'. Trucost assesses exposure to such assets by highlighting holdings with business activities in extractive industries, as well as holdings in companies that have disclosed proven and probable fossil fuel reserves in the portfolio. This helps to identify potentially stranded assets that would become apparent as economies move towards a 2 degree alignment.

The portfolio's exposure to potentially stranded assets has been assessed on both a value of holdings (VOH) basis and a revenue basis. For the revenue exposure metric, both the apportioning and weighted average approach are presented. For the VOH exposure metric, the revenue threshold for inclusion was 0%. For more details on the methodology please refer to Appendix 5.

Key Findings

Exposure to Extractive Industries and Reserves



Extraction-related activities include the following sectors

- **Crude petroleum and natural gas extraction**
- **Tar sands extraction**
- **Natural gas liquid extraction**
- **Bituminous coal underground mining**
- **Bituminous coal and lignite surface mining**
- **Drilling oil and gas wells**
- **Support activities for oil and gas operations**

Fossil fuel reserves may include the following types:

- **Coal (metallurgical, thermal or other)**
- **Oil (conventional or unconventional)**
- **Gas (natural and shale)**
- **Oil and/or gas (where no specification has been provided)**

On a VoH basis, the portfolio is 224% more exposed to companies disclosing fossil fuel reserves, and around 214% more exposed to companies deriving revenues from extractive activities than the benchmark. As a share of total revenues by apportioning the portfolio derives 307% more from extractive activities than the benchmark and around 331% more by weighted average.

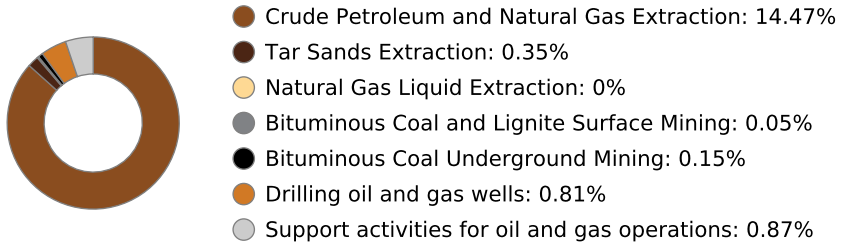
Fossil Fuels & Stranded Assets

Extractives Revenue Exposure by Sector

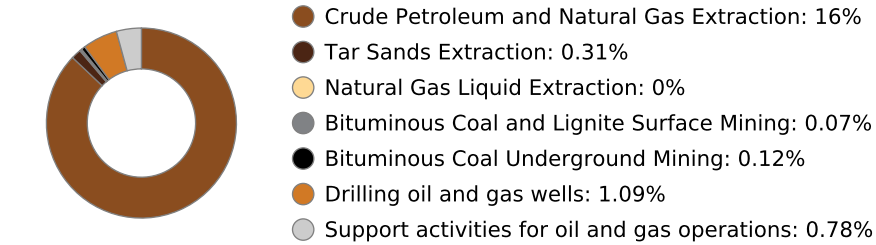
Below is a breakdown of the portfolio's extractive revenue exposure by sector, as a share of total revenue. Both the apportioning and the weighted average methods are displayed.

	Bituminous Coal and Lignite Surface Mining	Bituminous Coal Underground Mining	Crude Petroleum and Natural Gas Extraction	Natural Gas Liquid Extraction	Drilling oil and gas wells	Tar Sands Extraction	Support activities for oil and gas operations	Total Extractives Exposure
Portfolio - apportioned	0.05	0.15	14.47	+0.00	0.81	0.35	0.87	16.71
Benchmark - apportioned	1.04	0.19	2.22	+0.00	0.13	0.14	0.37	4.10
Portfolio - weighted	0.07	0.12	16.00	+0.00	1.09	0.31	0.78	18.37
Benchmark - weighted	0.89	0.16	2.46	+0.00	0.21	0.15	0.39	4.26

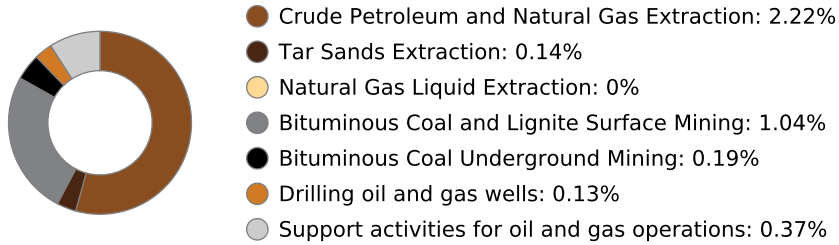
Portfolio - Apportioning Method



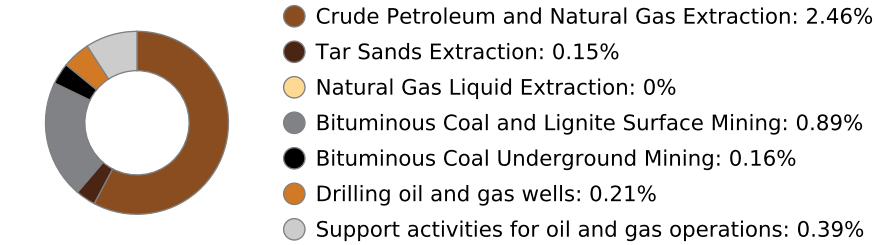
Portfolio - Weighted Average Method



Benchmark - Apportioning Method



Benchmark - Weighted Average Method



Fossil Fuels & Stranded Assets

Embedded Emissions

Trucost is able to analyse the carbon emissions embedded within the fossil fuel reserves which have been disclosed by companies in the portfolio or benchmark. Companies may disclose both 1P and 2P reserves (1P refers to those held with 90% confidence, 2P are those held with 50% confidence). Both 1P and 2P are used when assigning embedded emissions to a company.

The chart below shows the total tonnes of apportioned CO2 from reserves, broken down by reserve type. It also shows the reserves 'intensity' by normalizing the apportioned embedded emissions by the VOH.

The total embedded CO2 emissions from reserves is 0.278 m tonnes.

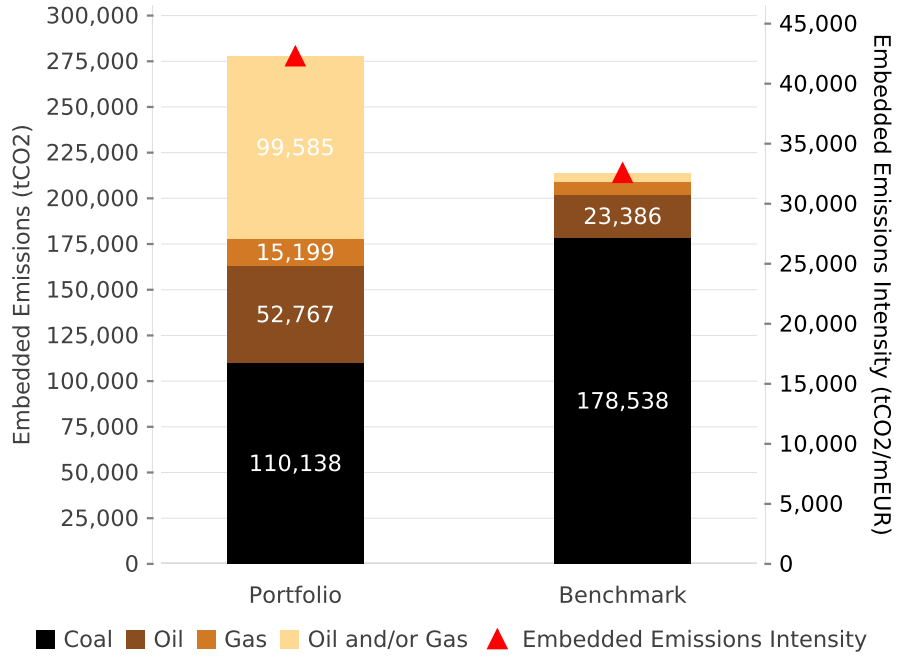
Fossil Fuel CAPEX

In addition to reserves, Trucost collects data on the capital expenditure set aside for fossil fuel related activities such as further exploration and extraction in order to provide additional quantitative insights on stranded asset risk.

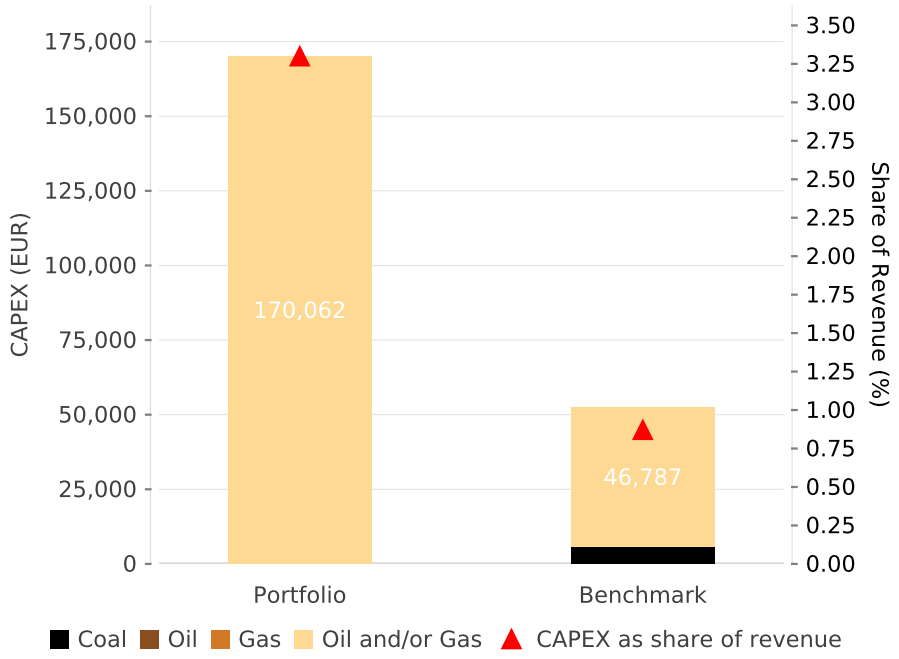
The chart below shows the total apportioned capital expenditure on fossil fuel related activities by reserve type. It also normalizes the CAPEX by showing it as a share of apportioned revenue.

The total apportioned fossil fuel CAPEX is 0.170 mEUR.

Apportioned Future Emissions by Reserve Type



Apportioned CAPEX by Reserve Type



Fossil Fuels & Stranded Assets

Largest Contributors - Extractives Revenue & Embedded Emissions

The table below shows the largest contributors towards the portfolio's apportioned **extractives** revenue. It is displayed as a percentage of the portfolio's total apportioned revenue. The degree to which the company's own revenues are derived from extractive activities is also shown in the adjacent column.

Description	Provided Identifier	Holding (mEUR)	Sector	Portfolio level extractives revenue exposure (% of total)	Company level extractives revenue exposure (% of total)	Portfolio Level Future Emissions From Reserves (MtCO2)	Company Level Future Emissions From Reserves (MtCO2)
DNO ASA	NO0010852643	0.381	Energy	5.78%	100.00%	0.067	157.520
Genel Energy Plc	NO0010894330	0.165	Energy	3.15%	100.00%	0.025	51.930
Tullow Oil plc	USG91235AB05	0.272	Energy	2.01%	100.00%	0.008	115.620
Petrobras SA	US71647NBD03	0.492	Energy	1.60%	19.09%	0.021	3,888.590
Shelf Drilling, Ltd.	US822538AE44	0.065	Energy	0.73%	100.00%		
DNO ASA	NO0003921009	0.045	Energy	0.68%	100.00%	0.008	157.520
Tullow Oil plc	USG91237AA87	0.092	Energy	0.67%	100.00%	0.003	115.620
Pampa Energia S.A.	USP9308RAZ66	0.146	Utilities	0.59%	15.68%	0.003	46.310
Pampa Energia S.A.	USP7464EAB22	0.127	Utilities	0.51%	15.68%	0.002	46.310
YPF SA	USP989MJBE04	0.222	Energy	0.31%	4.67%	0.011	410.710

The table below shows the largest contributors towards the portfolio's apportioned **embedded emissions**. The absolute contributions are shown in the second to last column, while final column shows the company's total level of emissions from reserves.

Description	Provided Identifier	Holding (mEUR)	Sector	Portfolio level extractives revenue exposure (% of total)	Company level extractives revenue exposure (% of total)	Portfolio Level Future Emissions From Reserves (MtCO2)	Company Level Future Emissions From Reserves (MtCO2)
Sasol Limited	US80386WAB19	0.414	Materials	0.22%	2.79%	0.126	3,660.250
DNO ASA	NO0010852643	0.381	Energy	5.78%	100.00%	0.067	157.520
Genel Energy Plc	NO0010894330	0.165	Energy	3.15%	100.00%	0.025	51.930
Petrobras SA	US71647NBD03	0.492	Energy	1.60%	19.09%	0.021	3,888.590
YPF SA	USP989MJBE04	0.222	Energy	0.31%	4.67%	0.011	410.710
DNO ASA	NO0003921009	0.045	Energy	0.68%	100.00%	0.008	157.520
Tullow Oil plc	USG91235AB05	0.272	Energy	2.01%	100.00%	0.008	115.620
Vale S.A.	US91912E1055	0.102	Materials	0.05%	4.49%	0.004	2,125.660
Pampa Energia S.A.	USP9308RAZ66	0.146	Utilities	0.59%	15.68%	0.003	46.310
Tullow Oil plc	USG91237AA87	0.092	Energy	0.67%	100.00%	0.003	115.620

Fossil Fuels & Stranded Assets

Coal Exposure

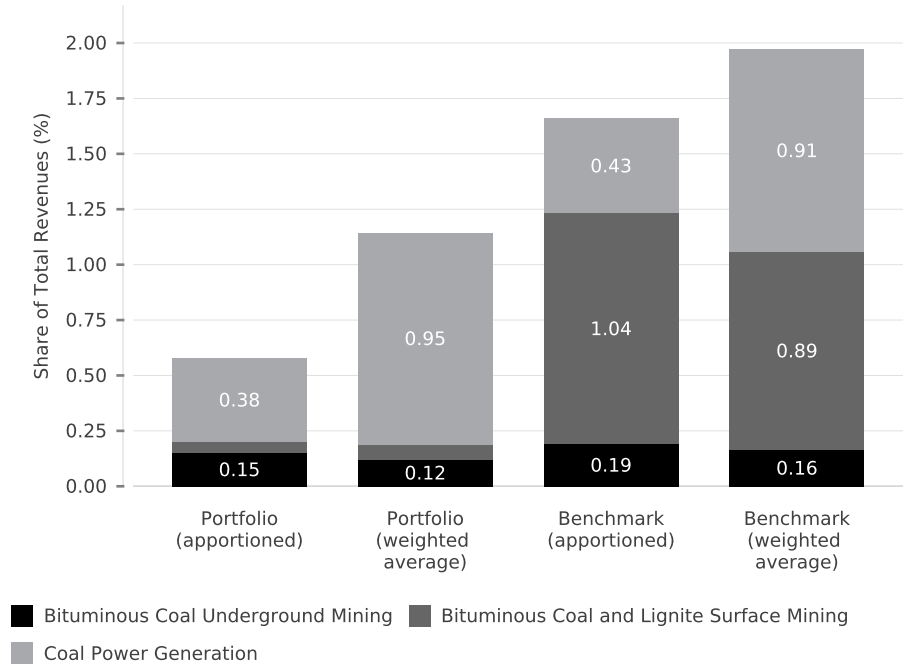
Coal related activities are widely understood to be among the largest contributors to anthropogenic carbon emissions. As such, an increasing number of investors are strategizing around coal exposure and positioning for a transition to a low carbon economy. This may include strategies such as implementing reduction targets for exposure to the embedded emissions, or adopting an assess-engage-monitor-divest approach to individual holdings involved in coal mining or coal power activities.

Trucost has assessed both the VOH and revenue exposure at the portfolio level to the following activities:

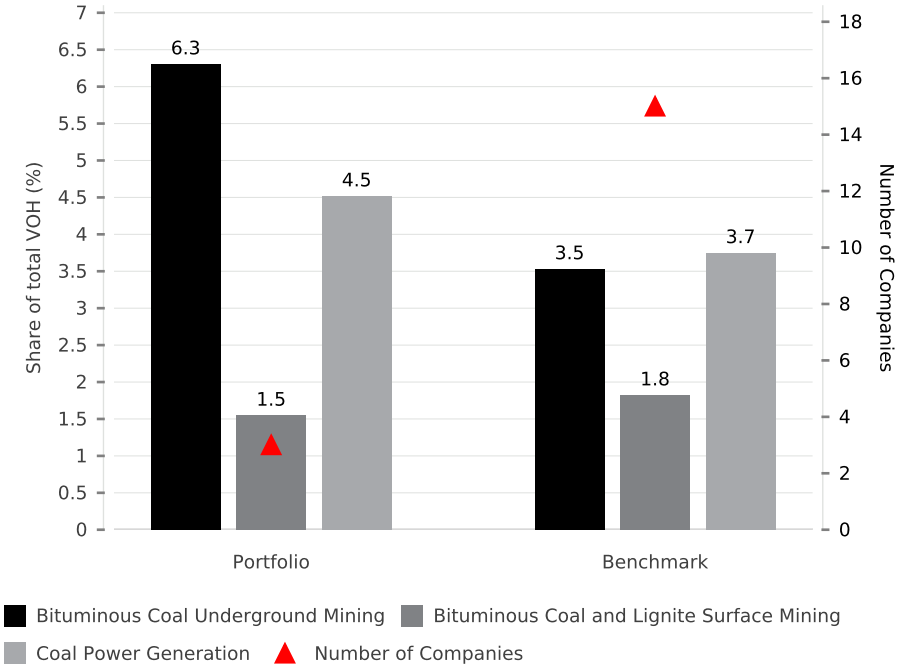
- **Bituminous coal underground mining**
- **Bituminous coal and lignite surface mining**
- **Coal power generation**

For the revenue exposure metric, both the apportioning and weighted average approach are presented. For the VOH exposure metric, the revenue threshold for inclusion was 0%. For more details on the methodology please refer to Appendix 5.

Coal Revenue Exposure by Sector



Coal VOH Exposure by Sector



Fossil Fuels & Stranded Assets

Largest Contributors - Coal Revenue

The table below shows the largest contributors towards the portfolio's apportioned coal revenue. The absolute contributions are shown in the final column, while the second to last column shows the degree to which the company's own revenues are derived from coal mining and/or power generation.

Description	Provided Identifier	Holding (mEUR)	Company Level Coal Extracted (m tonnes)	Company Level Coal Surface Mining Exposure (% of revenues)	Company Level Coal Underground Mining (% of revenues)	Company Level Coal Power Generation Exposure (% of revenues)	Company Level Total Coal Exposure (% of revenues)	Portfolio Level Apportioned Revenues From Coal (EURm)
The AES Corporation	USP1000CAA29	0.297				21.12%	21.12%	0.019
Sasol Limited	US80386WAB19	0.414	38.800		1.90%		1.90%	0.008
Vale S.A.	US91912E1055	0.102	9.371	4.49%			4.49%	0.003

Approximately 66% of the portfolio's coal related revenue exposure, and 83% of the VoH exposure is derived from coal power generation. The largest contributor to the portfolio's coal revenues is The AES Corporation, a company engaged in electricity generation and transmission, including a coal power generation. Other contributors include Sasol Limited, which derives some revenues from underground coal mining activities and Vale S.A., which derives some revenues from surface coal mining.

Overall, the portfolio is less exposed to coal-related revenues versus the benchmark, with the share of total revenues sitting at around 0.6% versus 1.7%.

Energy Transition

Introduction

While carbon footprints can help to identify the most carbon efficient companies within a portfolio, they do not recognise those companies that are contributing positively to the low carbon economy by offering climate-mitigation or adaptation solutions. As the energy generating sectors are critical to this transition, Trucost has analysed physical units of power production embedded within the portfolio to highlight aggravators (fossil fuels) vs. mitigators (renewables). The generation types within each category are as follows:

- **Renewable Energy Generation:** solar, wind, wave & tidal, geothermal, hydroelectric, biomass
- **Fossil Fuel Energy Generation:** coal, petroleum, natural gas
- **Other Energy Generation:** nuclear, landfill gas, any other unclassified power generation

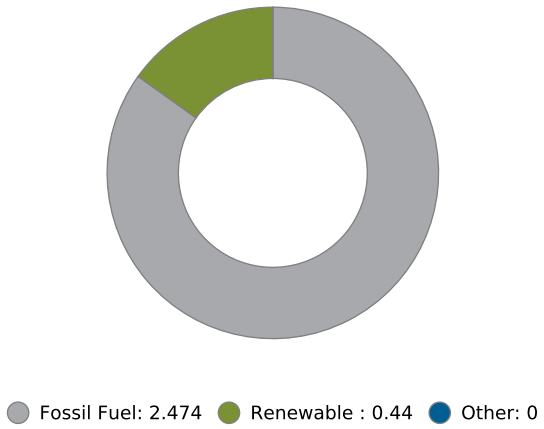
For more details on the apportioning methodology please refer to Appendix 2.

Generation Mix

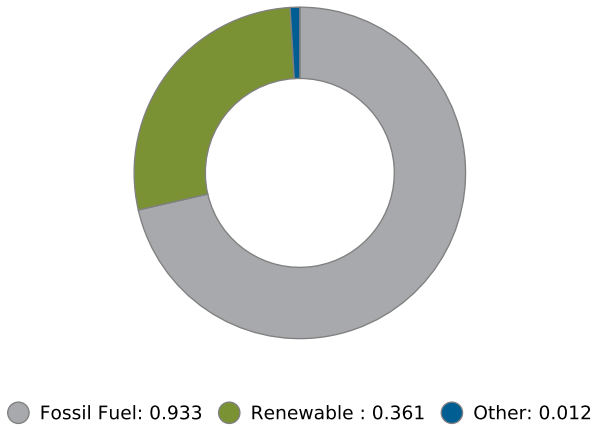
The table below breaks out the apportioned Gigawatt hours (GWh) by generation type. Hydroelectric and biomass have been separated from the 'Other renewables' due to their potential for controversy relating to implementation or sourcing, which can bring in to question their 'sustainability' credentials.

	Fossil Fuels			Renewable			Other	
	Coal (GWh)	Petroleum (GWh)	Natural Gas (GWh)	Hydroelectric (GWh)	BioMass (GWh)	Other Renewables (GWh)	Nuclear (GWh)	Other Sources (GWh)
Portfolio	0.332	0.122	2.020	0.354	0.006	0.080		+0.000
Benchmark	0.370	0.025	0.538	0.314	0.003	0.044	0.012	+0.000

Portfolio - Apportioned GWh



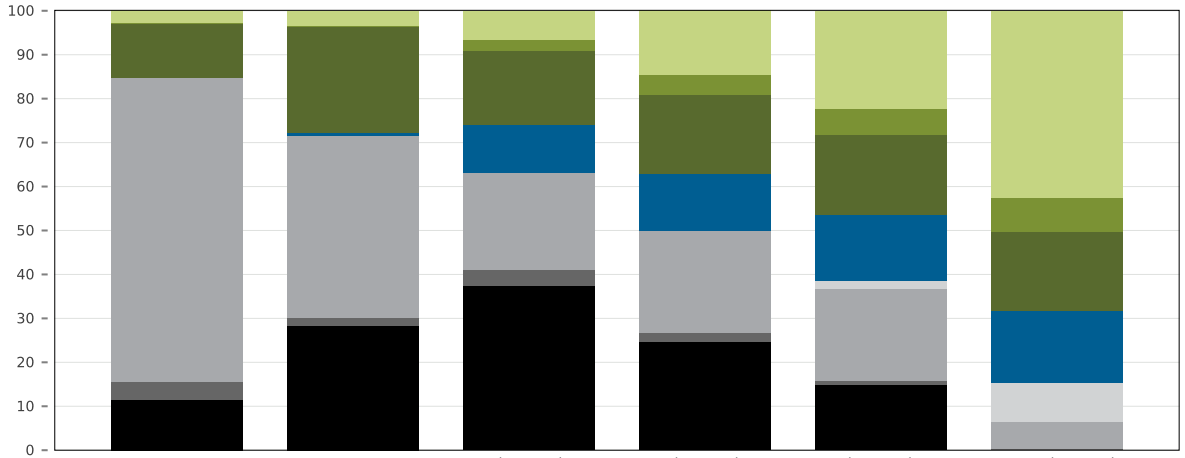
Benchmark - Apportioned GWh



Energy Transition

2 Degree Alignment

Investors are increasingly asking how they can align their portfolio with globally agreed forward-looking targets to mitigate climate change - so called two degree targets. Historically, portfolios have been measured against traditional financial benchmarks which generally reflect the economy today rather than the low carbon economy - as suggested by the International Energy Agency (IEA) - we need for tomorrow. This over-represents traditional fossil fuel energy sectors and under-represents greener energy providers. To overcome this issue, Trucost compares the current energy mix of a portfolio to the IEA's two degree scenarios, showing investors how to work toward an energy transition goal. This allows them to redirect capital to have the highest "transition" impact and help to finance the low carbon economy.



	Portfolio	Benchmark	IEA (World) 2016 2 Degree Scenario	IEA (World) 2025 2 Degree Scenario *	IEA (World) 2030 2 Degree Scenario *	IEA (World) 2050 2 Degree Scenario *
Other renewables	2.76%	3.39%	6.39%	14.60%	22.31%	42.52%
Biomass	0.19%	0.20%	2.63%	4.65%	5.92%	7.91%
Hydroelectric	12.14%	24.07%	16.67%	17.84%	18.16%	17.91%
Other sources (incl. landfill gas)	+0.00%	+0.00%	0.05%			
Nuclear		0.93%	11.14%	12.97%	15.06%	16.29%
Fossil energy with CCS			0.04%	0.19%	1.62%	8.98%
Natural Gas	69.32%	41.15%	21.94%	23.07%	21.04%	6.04%
Petroleum	4.18%	1.91%	3.84%	2.00%	0.96%	0.27%
Coal	11.39%	28.35%	37.31%	24.68%	14.94%	0.08%

The portfolio has a much lower share of energy generation based on coal power than the benchmark and the IEA's 2016, 2025 and 2030 2 Degree aligned scenarios. Furthermore, it has a lower share based on hydroelectricity. The portfolio's largest hydroelectricity generator is The AES Corporation.

It is worth noting that the portfolio and benchmark generation mixes are based only on disclosed energy production data. Companies operating in the energy sector but not disclosing units of energy produced are not included in the grid mix presented here. Such companies will, however, be captured in the revenue exposure analysis below.

* The content within table above was prepared by S&P Trucost Limited, with data derived from the 2 Degree Scenarios developed by the International Energy Agency. ©OECDIEA 2017. The content within the table above does not necessarily reflect the views of the International Energy Agency.

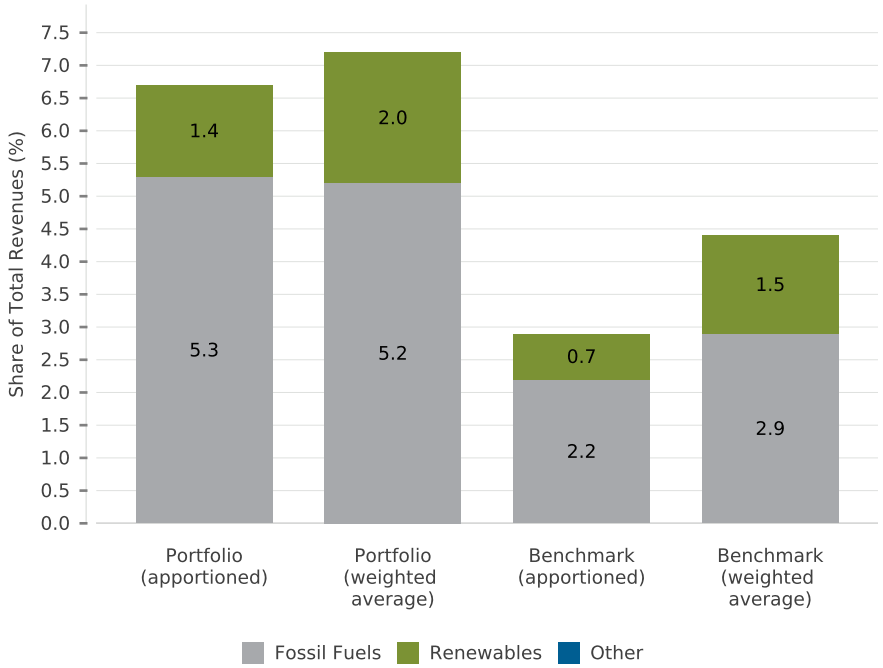
Energy Transition

Energy Generation Revenue Exposure

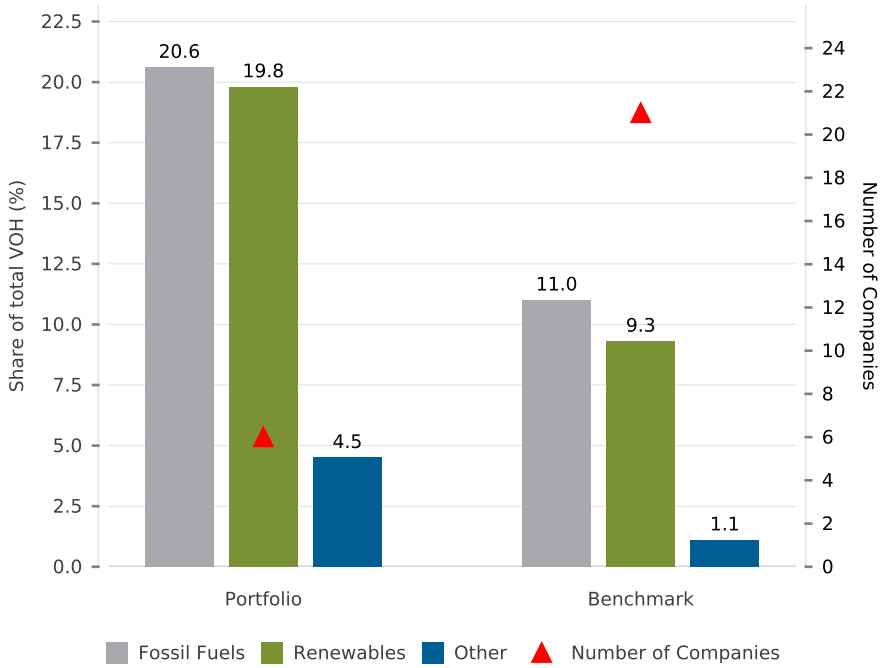
The analysis above has focused on the physical units of power generated by companies within the portfolio. As not all energy companies disclose this information, it is also useful to determine exposure to 'aggravators' and 'mitigators' based on sources of revenue. Trucost has assessed both the value of holding (VOH) and revenue exposure to fossil fuel, renewable, other power generation for the portfolio and benchmark.

For the revenue exposure metric, both the apportioning and weighted average approach are presented. For the VOH exposure metric, the revenue threshold for inclusion was 0%. For more details on the methodology please refer to Appendix 5.

Revenue Exposure to Energy Generation



VOH Exposure to Energy Generation



Energy Transition

Largest Contributors - Renewable & Fossil Fuel Energy Revenue

The table below shows the largest contributors towards the portfolio's apportioned renewable energy revenue. The absolute contributions are shown in the final column, while the second to last column shows the degree to which the company's own energy revenues are derived from renewable generation.

Description	Provided Identifier	Holding (mEUR)	Company Level Renewables Revenue (% of total)	Company Level Fossil Fuels Revenue (% of total)	Company Level Other Revenue (% of total)	Company Level Total Energy Revenue (% of total)	Renewables Share (% of total energy revenue)	Portfolio Level Total Apportioned Renewables Revenue (EURm)
Petrobras SA	US71647NBD03	0.492	8.59%	21.92%		30.51%	0.28%	0.037
The AES Corporation	USP1000CAA29	0.297	23.03%	46.82%	+0.00%	69.87%	0.33%	0.021
Pampa Energia S.A.	USP9308RAZ66	0.146	2.93%	17.75%		20.68%	0.14%	0.006
Pampa Energia S.A.	USP7464EAB22	0.127	2.93%	17.75%		20.68%	0.14%	0.005
Pampa Energia S.A.	US6976602077	0.069	2.93%	17.75%		20.68%	0.14%	0.003
Infraestructura Energetica	USP56145AC23	0.162	4.42%			4.42%	1.00%	0.001
Adecoagro S.A.	LU0584671464	0.010	6.21%			6.21%	1.00%	+0.000

The table below shows the largest contributors towards the portfolio's apportioned fossil fuel energy revenue. The absolute contributions are shown in the final column, while the second to last column shows the degree to which the company's own energy revenues are derived from fossil fuel generation.

Description	Provided Identifier	Holding (mEUR)	Company Level Renewables Revenue (% of total)	Company Level Fossil Fuels Revenue (% of total)	Company Level Other Revenue (% of total)	Company Level Total Energy Revenue (% of total)	Fossil Fuel Share (% of total energy revenue)	Portfolio Level Total Apportioned Fossil Fuel Revenue (EURm)
Petrobras SA	US71647NBD03	0.492	8.59%	21.92%		30.51%	0.72%	0.095
YPF SA	USP989MJBE04	0.222		16.55%		16.55%	1.00%	0.056
The AES Corporation	USP1000CAA29	0.297	23.03%	46.82%	+0.00%	69.87%	0.67%	0.043
Pampa Energia S.A.	USP9308RAZ66	0.146	2.93%	17.75%		20.68%	0.86%	0.034
Pampa Energia S.A.	USP7464EAB22	0.127	2.93%	17.75%		20.68%	0.86%	0.030
Pampa Energia S.A.	US6976602077	0.069	2.93%	17.75%		20.68%	0.86%	0.016

APPENDIX

1. Scopes

Before beginning a carbon or environmental audit, an investor must decide on what scopes to include in their analysis. Some believe that only operational impacts/emissions should be considered when calculating a company's exposure, i.e. the resources/pollutants owned or controlled by the reporting entity. This casts the net around impacts that the investee (and, to a lesser extent, the investor) has a direct sphere of influence over. It also avoids the possibility of double counting. However, as risks may be passed on through the supply chain in the form of higher prices, it may sometimes be more pragmatic to include emissions originating from suppliers.

CARBON: Trucost collects greenhouse gas data covering Scopes 1, 2 and 3 upstream emissions, as well as additional data relating to non-Kyoto Protocol greenhouse gases. Definitions of the available scopes are shown below:

- **Scope 1** = CO2e emissions based on the Kyoto Protocol greenhouse gases generated by direct company operations.
- **Scope 2** = CO2e emissions generated by purchased electricity, heat or steam.
- **Scope 3** (upstream) = CO2e emissions generated by a company's non-electricity supply chain.
- **Direct** = Scope 1 plus CO2e emissions from four additional sources, CCl4, C2H3Cl3, CBrF3, and CO2 from Biomass.
- **First Tier Indirect** = Scope 2 plus emissions from direct (or "Tier 1") upstream Scope 3 emissions.
- **Remaining Indirect** = Tier 2 and onward upstream Scope 3 emissions.

ENVIRONMENT: As with carbon analysis, the scopes available for an environmental audit are Direct, First Tier Indirect, and Remaining Indirect impacts. Direct impacts result from a company's own operations and include emissions from fuel combustion (boilers and company owned vehicles), pollution from water abstracted, natural resource use, and waste generated from industrial production. Indirect impacts from supply chains occur because of the goods or services a company procures. Indirect impacts are broken down between those in the first tier of the supply chain and those in the remaining tiers.

2. Apportioning

Many of the exposure metrics calculated by Trucost rely on the apportioning of company owned resources/pollutants to the portfolio or benchmark. Apportioning, as an approach, is built on the principle of ownership. That is, if an investor owns - or in the case of debt holdings, finances - 1% of a company, then they also 'own' 1% of the company's resources/pollutants.

For equity only portfolios the apportioning factor is usually obtained by dividing the value of holding by the company's market capitalisation on the date of analysis. For debt only, or mixed portfolios, enterprise value usually replaces market capitalization as the denominator. The company level resources/pollutants are then multiplied by the apportioning factor to arrive at resource/pollutant quantities specific to each holding. The portfolio level resources/pollutants is the sum of all of these quantities.

APPENDIX

3. Carbon & Environmental Intensity Calculation

Portfolios with larger assets under management will typically have a higher amount of total apportioned resources/pollutants than smaller portfolios because of their size. As most portfolios have a remit to grow assets under management, it is important to normalise these absolute quantities to allow for fair comparison year on year against other portfolios or benchmarks. The three most common approaches to normalizing emissions/impacts are:

1. Dividing the apportioned emissions/impacts by the amount invested.
2. Dividing the apportioned emissions/impacts by the apportioned annual revenues.
3. Summing the product of each holding's weight in the portfolio with the company level carbon/environmental revenue intensity.

For ease of reference, Trucost has defined these as **Carbon to Value Invested, Carbon to Revenue,** and **Weighted Average Carbon Intensity** respectively.

The first gives an indication of carbon or environmental 'efficiency' with respect to shareholder value creation. The second gives an indication of 'efficiency' with respect to output (as revenues are closely linked to productivity). The third approach circumvents the need for apportioning ownership of carbon, revenue or environmental impacts to individual holdings. Whilst the first two methods act as indicators of an investor's contribution to climate change or ecosystem damage, the weighted average method seeks to show an investor's exposure to carbon/environmentally intensive companies, i.e. is not an additive in terms of carbon budgets.

4. Carbon Disclosure

The level of carbon disclosure is based on each company's Scope 1 emissions, and can be classified as fully disclosed, partially disclosed, or modelled.
- **Full Disclosure** refers to when exact figures have been extracted from annual reports, 10Ks, financial account disclosures, CDP disclosures, environmental/CSR reports, or from personal communication with a company.
- **Partial Disclosure** refers to when Trucost has needed to derive, adjust, or scale any of the data acquired from the sources described above.
- **Modelled** refers to when Trucost has calculated estimates using its proprietary environmentally enhanced input-output model, due to the unavailability or unreliability of up-to-date disclosures.

The overall level of disclosure in the portfolio is assessed using the following three approaches:

- **Value of Holdings**: This is the sum of the weights of each holding within each of the three disclosure categories.
- **GHG**: This is the sum of the portfolio's apportioned Scope 1 CO2e within each of the three disclosure categories.
- **Number of companies/instruments**: This is the number of companies/instruments within each of the three disclosure categories.

APPENDIX

5. Revenue & Reserves Exposure

When assessing exposure to extractive industries, coal, or energy generation revenues, three approaches are used.

1. Apportioned Revenue Exposure
2. Weighted Average Revenue Exposure
3. VOH Exposure

The first represents the share of apportioned revenues from the sectors in question as a percentage of the total apportioned revenues from any sector (for more information on apportioning please refer to Appendix 2). The second is calculated by summing the product of each holding's weight in the portfolio with the company level revenue dependency on the sector in question. The third is calculated by summing the weights of any holdings in companies that have a revenue dependency on the sectors in question above a predefined threshold. The reason for the threshold is to allow users to exclude companies whose revenue dependency on the sectors in question may not be considered material.

In the case of reserves, holdings in any company disclosing any amount of reserves is included in the VOH exposure metric. Companies that have reserves, but do not disclose them, will not be captured by the analysis.

6. 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 Trucost analysis are:

Carbon Dioxide - 1
Methane - 21
Nitrous Oxide - 310
Sulphur Hexaflouride - 23,900
Per Fluoro Carbons - 7,850
Hydro Flouro Carbons - 5,920

These conversion figures are taken from the publically available 2006 Intergovernmental Panel on Climate Change's (IPCC) 'Guidelines for National Greenhouse Gas Inventories'.

APPENDIX

7. Environmental Valuation

Why apply valuations to environmental impacts? Traditional approaches to environmental impact measurement provide a variety of different metrics. For example, carbon and other pollutants are measured in tonnes, for water it is cubic meters. This makes it difficult to compare the relative contribution of each impact and therefore prioritise risks. Trucost addresses this problem by applying monetary valuations to each impact, thereby providing an overarching common metric to assess risk and opportunity across companies and portfolios.

The analysis applies the chosen valuations to the impacts associated with a company's own business activities and those of its upstream suppliers, all the way back to raw material extraction. Environmental impacts are often concealed within global supply chains, therefore we use environmentally extended input output (EEIO) modelling to reveal liabilities at each tier of the value chain for holistic risk and opportunity analysis.

ENVIRONMENTAL KPIs:

Greenhouse Gases:
The categories included in the environmental footprint are carbon dioxide, methane, nitrous oxide, sulphur hexaflouride, per fluoro carbons as well as hydro flouro carbons and nitrogen trifluoride.

Water Abstraction:
The categories included in the environmental footprint are direct cooling and direct process water, as well as purchased water (i.e. the water acquired from utility companies).

Waste Generation:
The categories included in the environmental footprint are waste incineration, landfill waste, nuclear waste (e.g. from the manufacture of products, the combustion of nuclear fuel or other industrial and medical processes) and recycled waste.

Air Pollutants:
The categories included in the environmental footprint are all emissions released to air by the consumption of fossil fuels and production processes which are owned or controlled by the company. This includes acid rain precursors (e.g. nitrogen oxide, sulphur dioxide, sulphuric acid, ammonia), ozone depleting substances (HFCs and CFCs), dust and particles, metal emissions, smog precursors and VOCs. Each has a set of impacts on human health, buildings and/or crop and forest yields.

Land & Water Pollutants:
The categories included in the environmental footprint are pollutants from fertiliser and pesticides, metal emissions to land and water, acid emissions to water, and nutrient and acids pollutant.

Natural Resource Use:
The categories included in the environmental footprint are extraction of minerals, metals, natural gas, oil, coal, forestry, agriculture and aggregates.

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