

Climate Related Portfolio Assessment

In line with TCFD Recommendations



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GENERAL

Portfolio Name	LCIV_Aggregate
Benchmark Name	MSCI World
Original Portfolio Size (millions)	8,816
Portfolio Currency	GBP
Analysis Date	23 February 2021
Holding Date	31 December 2019

COVERAGE

	Portfolio	Benchmark
Carbon Performance	91%	99%
Paris Alignment - Carbon	72%	88%
Scenario Analysis - Carbon Pricing	80%	94%
Scenario Analysis - Physical Risk	88%	98%

INTRODUCTION

The effects of climate change pose considerable and far-reaching risks to the global economy. Among those most directly affecting businesses include physical risks posed by increased climate variability and more frequent extreme weather events, which may result in property damage, challenges linked to business continuity, and the disruption to global supply chains. Businesses also face risks associated with the transition to a low-carbon economy, including policy changes designed to discourage carbon-intensive energy use or favour more resource-efficient industries and operations.

At the request of the G20, the Financial Stability Board (FSB) reviewed how the reporting on climate-related issues in financial reporting could be improved in order to better reflect the risks and opportunities facing financial institutions and non-financial businesses alike. In June 2017, the FSB Taskforce for Climate-Related Financial Disclosure (TCFD) published recommendations on the disclosure of "information needed by investors, lenders, and insurance underwriters to appropriately assess and price climate-related risks and opportunities."

The TCFD provides a voluntary disclosure framework organized around four themes, designed to facilitate better disclosure. These are **governance**, **strategy**, **risk management**, and **metrics and targets**. In order for organizations to disclose in line with TCFD recommendations, they must be able to quantify or qualify the risks and opportunities facing them, linked to climate-related issues, and be able to describe policies, procedures and systems in place to monitor and address climate-related issues on an on-going basis. This report by Trucost provides both forward-looking and historical metrics that may be used by asset owners and/or asset managers to support their climate-related disclosures in line with TCFD recommendations, and inform internal processes for risk management and strategy development within an organization.

Carbon Performance: D+FTI

UNDERSTANDING CARBON PERFORMANCE

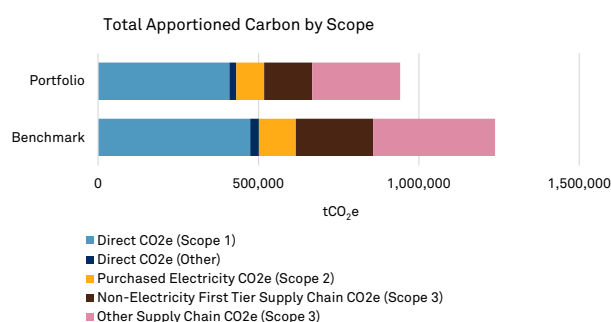
Carbon footprint analysis allows investors to use the latest available data in order to quantify the green greenhouse gas emissions (GHG) embedded within their portfolio, presenting them as tonnes of carbon dioxide equivalents (tCO₂e) apportioned to the investor. These emissions may then be 'normalized' by a financial indicator (either annual revenues or value invested) in order to give a measure of carbon intensity that enables comparison between companies or portfolios, irrespective of size or geography.

The metrics below can be considered the first step towards understanding the climate-related risks and opportunities in a portfolio, and as such may be used for internal or external target setting, as well as for company engagement.

TOTAL CARBON FOOTPRINT

The chart below shows the total tonnes of carbon dioxide equivalents (tCO₂e), broken down by scope, apportioned to the portfolio and benchmark.

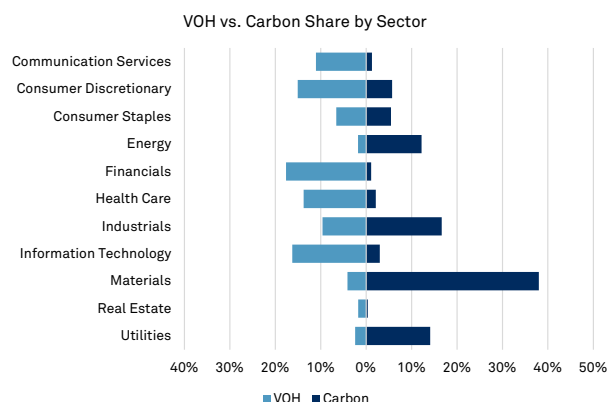
For more information carbon equivalents, scopes and apportioning, please refer to Appendices 1a, b and c.



SECTOR VALUE VERSUS CARBON CONTRIBUTION

The chart below compares each sector's value-based weight in the portfolio to its share of the total apportioned carbon emissions.

The scopes used were **Direct** and **First Tier Indirect** emissions.



ATTRIBUTION ANALYSIS

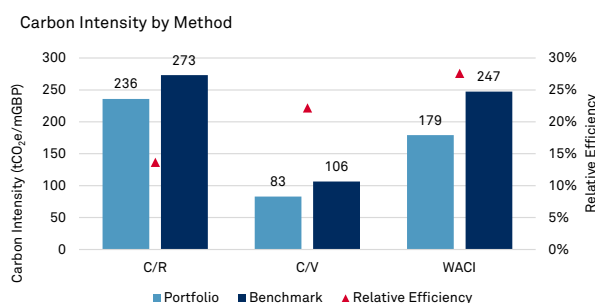
The principal reasons for the carbon intensity of a portfolio to differ from the benchmark are a) sector allocation decisions and b) company selection decisions. Sector allocation decisions can cause the carbon intensity of a portfolio to diverge from its benchmark when it is over or underweight markedly high or markedly low carbon sectors. For example, if a portfolio is overweight a high carbon sector, then it is more likely to have a higher overall intensity than the benchmark. However, if the companies selected within a high carbon sector are the most carbon efficient, then it is still possible that the portfolio may have a lower overall intensity.

The right-hand table shows the relative contribution of sector allocation and company selection effects towards the 'Total Effect' of the portfolio versus the benchmark. Sector allocation effects are determined using the 11 GICS Sector classifications, and the analysis uses the C/R intensity metric.

CARBON INTENSITY

The chart below shows the carbon intensity using the three main methodologies, carbon-to-revenue (C/R), carbon-to-value (C/V) and weighted-average carbon intensity (WACI). For more information on these methodologies please see Appendix 1d.

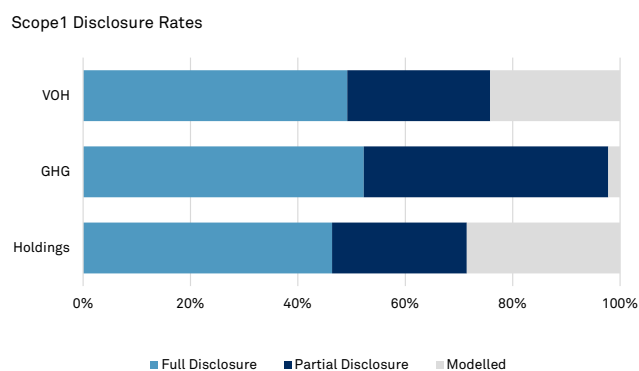
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CARBON DISCLOSURE

The chart below shows the overall level of Scope 1 carbon disclosure, calculated using three alternative methods - by value of holdings, by Scope 1 emissions, and by number of holdings.

For more information please refer to Appendix 1e.



	C/R Intensity		Attribution Effect		
	Portfolio	Bench.	Sector	Investee	Total
Communication Services	43	48	1.37%	0.11%	1.49%
Consumer Discretionary	113	101	-0.66%	-0.50%	-1.16%
Consumer Staples	125	247	0.00%	4.61%	4.61%
Energy	667	718	5.15%	0.82%	5.97%
Financials	10	30	5.19%	1.84%	7.03%
Health Care	43	42	-0.51%	-0.05%	-0.57%
Industrials	300	211	-0.10%	-4.24%	-4.34%
Information Technology	93	73	-1.29%	-0.55%	-1.84%
Materials	1,522	1,173	-0.79%	-7.52%	-8.31%
Real Estate	65	144	0.12%	0.38%	0.50%
Utilities	2,013	2,405	7.88%	2.37%	10.25%
	236	273	16.36%	-2.72%	13.64%

Carbon Performance: SCOPES 1+2+3

UNDERSTANDING CARBON PERFORMANCE

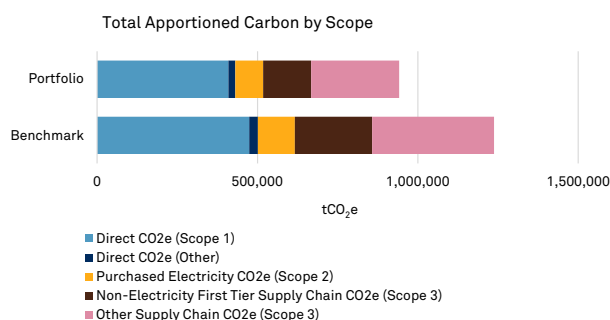
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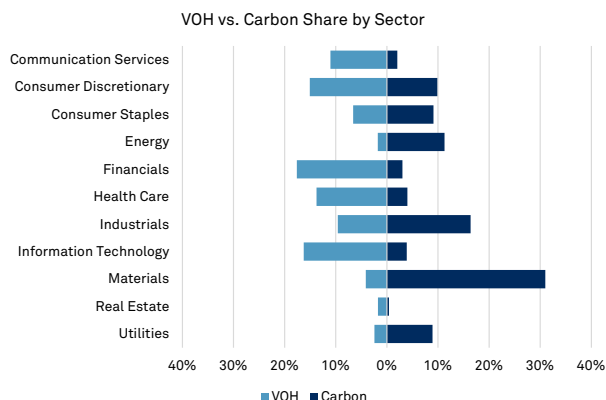
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SECTOR VALUE VERSUS CARBON CONTRIBUTION

The chart below compares each sector's value-based weight in the portfolio to its share of the total apportioned carbon emissions.

The scopes used were **Scopes 1, 2 and 3 (upstream)** emissions.



ATTRIBUTION ANALYSIS

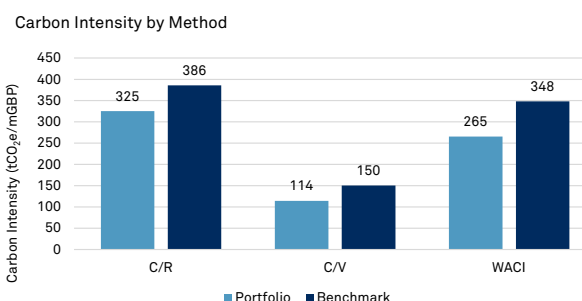
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CARBON INTENSITY

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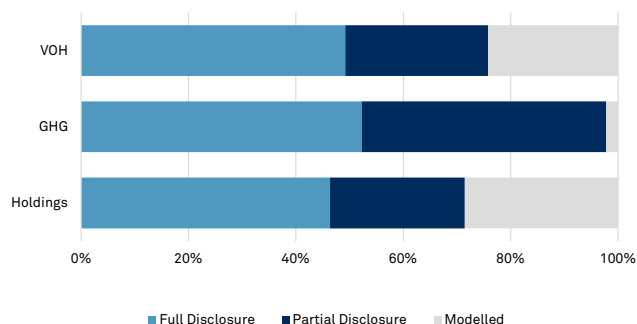


CARBON DISCLOSURE

The chart below shows the overall level of Scope 1 carbon disclosure, calculated using three alternative methods - by value of holdings, by Scope 1 emissions, and by number of holdings.

For more information please refer to Appendix 1e.

Scope1 Disclosure Rates



	C/R Intensity		Attribution Effect		
	Portfolio	Bench.	Sector	Investee	Total
Communication Services	95	102	1.22%	0.13%	1.36%
Consumer Discretionary	268	275	-0.30%	0.21%	-0.09%
Consumer Staples	289	461	-0.01%	4.61%	4.60%
Energy	849	899	4.21%	0.56%	4.77%
Financials	39	63	4.88%	1.56%	6.44%
Health Care	112	111	-0.43%	-0.03%	-0.46%
Industrials	406	349	-0.04%	-1.94%	-1.98%
Information Technology	167	163	-1.02%	-0.07%	-1.09%
Materials	1,713	1,309	-0.58%	-6.16%	-6.74%
Real Estate	100	198	0.12%	0.33%	0.46%
Utilities	1,759	2,459	5.43%	3.00%	8.42%
	325	386	13.48%	2.20%	15.69%

Carbon Performance: D+FTI

TOP C/R CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/R (tCO2e/mGBP)	Portfolio C/R Disclosure Contribution	Climate 100+*
ArcelorMittal	Materials	0.11%	13.08%	3,766	-12.36% Partial Disclosure	Yes
CRH Plc	Materials	0.52%	9.13%	1,987	-8.14% Full Disclosure	Yes
Ryanair Holdings Plc	Industrials	0.95%	8.38%	1,770	-7.34% Partial Disclosure	No
Yara International ASA	Materials	0.12%	2.71%	1,831	-2.37% Full Disclosure	No
RWE Aktiengesellschaft	Utilities	0.04%	2.28%	6,707	-2.20% Full Disclosure	Yes
CEMEX, S.A.B. de C.V.	Materials	0.05%	2.19%	5,029	-2.09% Full Disclosure	Yes
Drax Group plc	Utilities	0.02%	2.15%	3,283	-2.00% Partial Disclosure	No
Royal Dutch Shell PLC	Energy	0.22%	2.82%	614	-1.76% Full Disclosure	Yes
BP p.l.c.	Energy	0.18%	2.47%	525	-1.37% Full Disclosure	Yes
Rio Tinto Group	Materials	0.40%	1.78%	965	-1.35% Partial Disclosure	No

TOP C/R MODELLED CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/R (tCO2e/mGBP)	Portfolio C/R Disclosure Contribution	Climate 100+*
Delek Group Ltd.	Energy	0.04%	0.18%	1,317	-0.15% Modelled	No
Del Monte Pacific Limited	Consumer Staples	0.05%	0.26%	365	-0.09% Modelled	No
Cabot Oil & Gas Corporation	Energy	0.04%	0.07%	556	-0.04% Modelled	No
Japan Petroleum Exploration Co., Ltd.	Energy	0.00%	0.06%	523	-0.03% Modelled	No
Stericycle, Inc.	Industrials	0.23%	0.29%	263	-0.03% Modelled	No

TOP C/V CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/V (tCO2e/mGBP)	Portfolio C/V Disclosure Contribution	Climate 100+*
ArcelorMittal	Materials	0.11%	13.08%	9,880	-12.99% Partial Disclosure	Yes
CRH Plc	Materials	0.52%	9.13%	1,462	-8.66% Full Disclosure	Yes
Ryanair Holdings Plc	Industrials	0.95%	8.38%	732	-7.50% Partial Disclosure	No
Royal Dutch Shell PLC	Energy	0.22%	2.82%	1,057	-2.61% Full Disclosure	Yes
Yara International ASA	Materials	0.12%	2.71%	1,868	-2.60% Full Disclosure	No
BP p.l.c.	Energy	0.18%	2.47%	1,130	-2.29% Full Disclosure	Yes
RWE Aktiengesellschaft	Utilities	0.04%	2.28%	4,895	-2.25% Full Disclosure	Yes
CEMEX, S.A.B. de C.V.	Materials	0.05%	2.19%	3,663	-2.15% Full Disclosure	Yes
Drax Group plc	Utilities	0.02%	2.15%	7,264	-2.13% Partial Disclosure	No
ThyssenKrupp AG	Materials	0.02%	1.85%	10,101	-1.84% Full Disclosure	Yes

TOP C/V MODELLED CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/V (tCO2e/mGBP)	Portfolio C/V Disclosure Contribution	Climate 100+*
Del Monte Pacific Limited	Consumer Staples	0.05%	0.26%	417	-0.21% Modelled	No
Delek Group Ltd.	Energy	0.04%	0.18%	370	-0.14% Modelled	No
Arrow Electronics, Inc.	Information Technology	0.10%	0.23%	181	-0.12% Modelled	No
Midea Group Co., Ltd.	Consumer Discretionary	0.08%	0.16%	170	-0.08% Modelled	No
Stericycle, Inc.	Industrials	0.23%	0.29%	103	-0.06% Modelled	No

TOP WACI CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/R (tCO2e/mGBP)	Portfolio WACI Disclosure Contribution	Climate 100+*
Ryanair Holdings Plc	Industrials	0.95%	8.38%	1,770	-8.51% Partial Disclosure	No
CRH Plc	Materials	0.52%	9.13%	1,987	-5.25% Full Disclosure	Yes
Taiwan Semiconductor Manufacturing (Information Technology)	Information Technology	2.24%	0.91%	407	-2.92% Full Disclosure	No
American Electric Power Company, Inc.	Utilities	0.06%	1.16%	6,885	-2.41% Full Disclosure	Yes
ArcelorMittal	Materials	0.11%	13.08%	3,766	-2.20% Partial Disclosure	Yes
Ameren Corporation	Utilities	0.07%	0.94%	5,685	-2.06% Full Disclosure	No
Rio Tinto Group	Materials	0.40%	1.78%	965	-1.76% Partial Disclosure	No
Orsted	Utilities	0.50%	0.66%	773	-1.66% Partial Disclosure	No
RWE Aktiengesellschaft	Utilities	0.04%	2.28%	6,707	-1.41% Full Disclosure	Yes
Martin Marietta Materials, Inc.	Materials	0.48%	1.01%	689	-1.37% Partial Disclosure	Yes

TOP WACI MODELLED CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/R (tCO2e/mGBP)	Portfolio WACI Disclosure Contribution	Climate 100+*
Delek Group Ltd.	Energy	0.04%	0.18%	1,317	-0.26% Modelled	No
SMC Corporation	Industrials	0.46%	0.17%	241	-0.16% Modelled	No
Stericycle, Inc.	Industrials	0.23%	0.29%	263	-0.11% Modelled	No
Kweichow Moutai Co., Ltd.	Consumer Staples	0.09%	0.01%	363	-0.09% Modelled	No
Cabot Oil & Gas Corporation	Energy	0.04%	0.07%	556	-0.08% Modelled	No

*Climate Action 100+ is an investor initiative to ensure the world's largest corporate greenhouse gas emitters take necessary action on climate change. These include 100 'systemically important emitters', alongside more than 60 others with significant opportunity to drive the clean energy transition. For more information see <http://www.climateaction100.org>.

Carbon Performance: SCOPES 1+2+3

TOP C/R CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/R (tCO2e/mGBP)	Portfolio C/R Disclosure Contribution	Climate 100+*
ArcelorMittal	Materials	0.11%	10.25%	4,066	-9.50% Partial Disclosure	Yes
CRH Plc	Materials	0.52%	7.03%	2,110	-6.01% Full Disclosure	Yes
Ryanair Holdings Plc	Industrials	0.95%	6.47%	1,885	-5.42% Partial Disclosure	No
Yara International ASA	Materials	0.12%	2.06%	1,919	-1.72% Full Disclosure	No
Royal Dutch Shell PLC	Energy	0.22%	2.69%	807	-1.62% Full Disclosure	Yes
RWE Aktiengesellschaft	Utilities	0.04%	1.66%	6,707	-1.58% Full Disclosure	Yes
CEMEX, S.A.B. de C.V.	Materials	0.05%	1.59%	5,037	-1.49% Full Disclosure	Yes
BP p.l.c.	Energy	0.18%	2.48%	729	-1.39% Full Disclosure	Yes
Rio Tinto Group	Materials	0.40%	1.62%	1,209	-1.19% Partial Disclosure	No
ThyssenKrupp AG	Materials	0.02%	1.68%	1,059	-1.17% Full Disclosure	Yes

TOP C/R MODELLED CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/R (tCO2e/mGBP)	Portfolio C/R Disclosure Contribution	Climate 100+*
Del Monte Pacific Limited	Consumer Staples	0.05%	0.39%	748	-0.22% Modelled	No
Delek Group Ltd.	Energy	0.04%	0.14%	1,407	-0.11% Modelled	No
SMC Corporation	Industrials	0.46%	0.23%	463	-0.07% Modelled	No
Midea Group Co., Ltd.	Consumer Discretionary	0.08%	0.25%	438	-0.06% Modelled	No
Hoshizaki Corporation	Industrials	0.16%	0.22%	402	-0.04% Modelled	No

TOP C/V CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/V (tCO2e/mGBP)	Portfolio C/V Disclosure Contribution	Climate 100+*
ArcelorMittal	Materials	0.11%	10.25%	10,666	-10.15% Partial Disclosure	Yes
CRH Plc	Materials	0.52%	7.03%	1,552	-6.55% Full Disclosure	Yes
Ryanair Holdings Plc	Industrials	0.95%	6.47%	780	-5.58% Partial Disclosure	No
Royal Dutch Shell PLC	Energy	0.22%	2.69%	1,389	-2.48% Full Disclosure	Yes
BP p.l.c.	Energy	0.18%	2.48%	1,568	-2.31% Full Disclosure	Yes
Yara International ASA	Materials	0.12%	2.06%	1,957	-1.95% Full Disclosure	No
ThyssenKrupp AG	Materials	0.02%	1.68%	12,580	-1.66% Full Disclosure	Yes
RWE Aktiengesellschaft	Utilities	0.04%	1.66%	4,894	-1.62% Full Disclosure	Yes
CEMEX, S.A.B. de C.V.	Materials	0.05%	1.59%	3,669	-1.55% Full Disclosure	Yes
Reliance Industries Limited	Energy	0.44%	1.68%	435	-1.25% Partial Disclosure	No

TOP C/V MODELLED CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/V (tCO2e/mGBP)	Portfolio C/V Disclosure Contribution	Climate 100+*
Del Monte Pacific Limited	Consumer Staples	0.05%	0.39%	855	-0.33% Modelled	No
Arrow Electronics, Inc.	Information Technology	0.10%	0.28%	305	-0.17% Modelled	No
Midea Group Co., Ltd.	Consumer Discretionary	0.08%	0.25%	352	-0.17% Modelled	No
Lennar Corporation	Consumer Discretionary	0.10%	0.20%	235	-0.10% Modelled	No
Delek Group Ltd.	Energy	0.04%	0.14%	395	-0.10% Modelled	No

TOP WACI CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/R (tCO2e/mGBP)	Portfolio WACI Disclosure Contribution	Climate 100+*
Ryanair Holdings Plc	Industrials	0.95%	6.47%	1,885	-5.85% Partial Disclosure	No
CRH Plc	Materials	0.52%	7.03%	2,110	-3.62% Full Disclosure	Yes
Taiwan Semiconductor Manufacturing (Information Technology)	Information Technology	2.24%	0.85%	522	-2.21% Full Disclosure	No
American Electric Power Company, Inc.	Utilities	0.06%	0.85%	6,979	-1.63% Full Disclosure	Yes
ArcelorMittal	Materials	0.11%	10.25%	4,066	-1.57% Partial Disclosure	Yes
Rio Tinto Group	Materials	0.40%	1.62%	1,209	-1.43% Partial Disclosure	No
Ameren Corporation	Utilities	0.07%	0.69%	5,791	-1.39% Full Disclosure	No
Reliance Industries Limited	Energy	0.44%	1.68%	957	-1.16% Partial Disclosure	No
Martin Marietta Materials, Inc.	Materials	0.48%	0.91%	861	-1.08% Partial Disclosure	Yes
RWE Aktiengesellschaft	Utilities	0.04%	1.66%	6,707	-0.94% Full Disclosure	Yes

TOP WACI MODELLED CONTRIBUTORS

Name	Sector	VOH Weight	Carbon Weight	Company C/R (tCO2e/mGBP)	Portfolio WACI Disclosure Contribution	Climate 100+*
Tesla, Inc.	Consumer Discretionary	0.97%	0.15%	367	-0.38% Modelled	No
SMC Corporation	Industrials	0.46%	0.23%	463	-0.35% Modelled	No
Delek Group Ltd.	Energy	0.04%	0.14%	1,407	-0.18% Modelled	No
Foshan Haitian Flavouring and Food Co	Consumer Staples	0.06%	0.01%	756	-0.11% Modelled	No
Kweichow Moutai Co., Ltd.	Consumer Staples	0.09%	0.02%	584	-0.10% Modelled	No

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Fossil Fuels & Stranded Assets

UNDERSTANDING FOSSIL FUELS AND STRANDED ASSETS

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'.

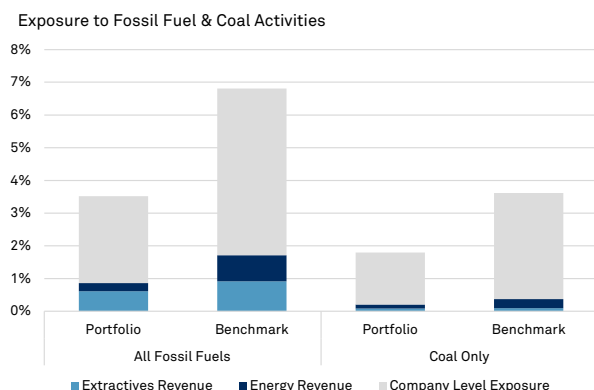
Part of the TCFD Recommendations for asset owners and managers involves reporting on exposure to 'carbon-related assets'. Trucost assesses exposure to such assets by highlighting holdings with business activities in extractive industries, as well as holdings in companies that have disclosed proven and probable fossil fuel reserves. This helps to identify potentially stranded assets that would become apparent as economies move towards a 2 degree alignment.

For more information on the exposure calculations please see Appendix 9, or for more on reserves and embedded emissions please see Appendix 10.

FINANCIAL EXPOSURE TO FOSSIL FUEL ACTIVITIES

The chart below gives an indication of exposure to companies engaged in any fossil fuel activities (left-hand side), as well as coal only (right-hand side).

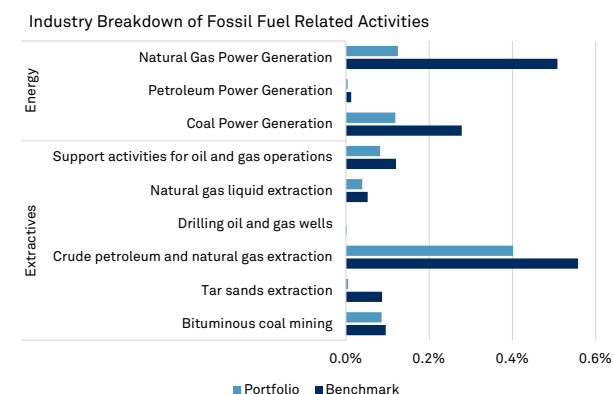
The height of each bar represents the combined weight in the portfolio or benchmark of companies deriving any revenues from fossil fuel related activities, while the blue segments indicate the weighted average exposure to the revenues themselves.



FOSSIL FUEL ACTIVITIES REVENUE BREAKDOWN

The chart below breaks down the 'extractives' and 'energy' revenue exposure in the left-hand chart into specific industry exposures.

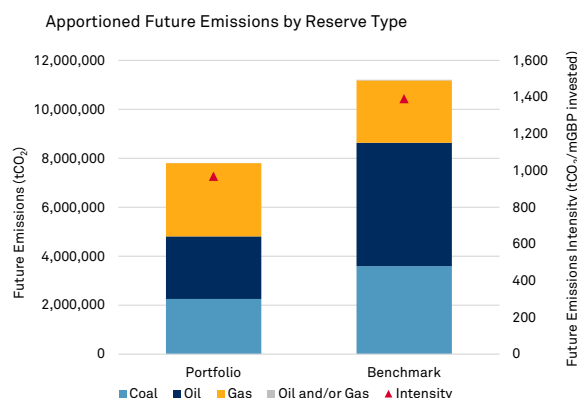
Given coal's status as a highly substitutable energy source, while also a major contributor global GHG emissions, investors may see divestment from these companies as a 'quick-win' on the path to meeting the goals of the Paris Agreement.



FUTURE EMISSIONS FROM RESERVES

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.

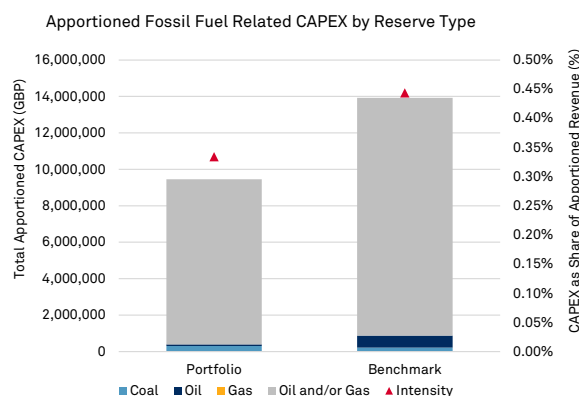
The chart below shows the total tonnes of apportioned CO₂ from reserves, broken down by reserve type. It also shows the reserves 'intensity' by normalizing the apportioned embedded emissions by the VOH.



FOSSIL FUEL RELATED 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.



Fossil Fuels & Stranded Assets

TOP CONTRIBUTORS TO FOSSIL FUEL REVENUES

Name	Sector	VOH Weight	Company Level Fossil Fuel Extractives Rev.	Company Level Fossil Fuel Energy Rev.	Company Level Total Fossil Fuel Rev.	Portfolio Level Weighted Avg. Fossil Fuel Rev.	Climate 100+*
EOG Resources, Inc.	Energy	0.23%	100.00%		100.00%	0.234%	No
BHP Group	Materials	0.40%	33.81%		33.81%	0.136%	No
Cabot Oil & Gas Corporation	Energy	0.04%	100.00%		100.00%	0.039%	No
Woodside Petroleum Ltd	Energy	0.04%	95.38%		95.38%	0.037%	Yes
Royal Dutch Shell PLC	Energy	0.22%	14.87%		14.87%	0.033%	Yes
BP p.l.c.	Energy	0.18%	17.74%		17.74%	0.032%	Yes
American Electric Power Company, Inc.	Utilities	0.06%		43.16%	43.16%	0.028%	Yes
Ameren Corporation	Utilities	0.07%		33.64%	33.64%	0.023%	No
Entergy Corporation	Utilities	0.03%		60.20%	60.20%	0.021%	No
Delek Group Ltd.	Energy	0.04%	32.31%	12.83%	45.14%	0.019%	No
Duke Energy Corporation	Utilities	0.03%		49.67%	49.67%	0.017%	Yes
CMS Energy Corporation	Utilities	0.05%		32.46%	32.46%	0.016%	No
RWE Aktiengesellschaft	Utilities	0.04%		39.59%	39.59%	0.015%	Yes
Orsted	Utilities	0.50%		2.42%	2.42%	0.012%	No
Aker BP ASA	Energy	0.01%	100.00%		100.00%	0.012%	No

TOP CONTRIBUTORS TO COAL REVENUES

Name	Sector	VOH Weight	Company Level Coal Extractives Rev.	Company Level Coal Energy Rev.	Company Level Total Coal Rev.	Portfolio Level Weighted Avg. Coal Rev.	Climate 100+*
BHP Group	Materials	0.40%	20.59%		20.59%	0.083%	No
Ameren Corporation	Utilities	0.07%		33.38%	33.38%	0.022%	No
American Electric Power Company, Inc.	Utilities	0.06%		33.66%	33.66%	0.022%	Yes
DTE Energy Company	Utilities	0.04%		21.22%	21.22%	0.009%	No
CMS Energy Corporation	Utilities	0.05%		17.90%	17.90%	0.009%	No
RWE Aktiengesellschaft	Utilities	0.04%		21.84%	21.84%	0.008%	Yes
Orsted	Utilities	0.50%		1.57%	1.57%	0.008%	No
Duke Energy Corporation	Utilities	0.03%		21.30%	21.30%	0.007%	Yes
WEC Energy Group, Inc.	Utilities	0.03%		20.22%	20.22%	0.006%	Yes
Eversource Energy	Utilities	0.01%		32.11%	32.11%	0.005%	No
Alliant Energy Corporation	Utilities	0.02%		22.52%	22.52%	0.003%	No
Entergy Corporation	Utilities	0.03%		8.01%	8.01%	0.003%	No
Enel SpA	Utilities	0.07%		3.52%	3.52%	0.002%	Yes
Dominion Energy, Inc.	Utilities	0.03%		7.43%	7.43%	0.002%	Yes
Anglo American Plc	Materials	0.01%	19.26%		19.26%	0.002%	Yes

TOP CONTRIBUTORS TO FUTURE EMISSIONS FROM RESERVES

Name	Sector	VOH Weight	Company Level Future Emissions Coal Reserves (m tonnes CO ₂)	Company Level Future Emissions Oil&Gas Reserves (m tonnes CO ₂)	Company Level Future Emissions Total Reserves (m tonnes CO ₂)	Portfolio Level Apportioned CO ₂ from Reserves	Climate 100+*
BHP Group	Materials	0.40%	6,391	312	6,704	1.914	No
Public Joint Stock Company Gazprom	Energy	0.03%		56,958	56,958	1.550	Yes
BP p.l.c.	Energy	0.18%		7,334	7,334	1.058	Yes
EOG Resources, Inc.	Energy	0.23%		1,231	1,231	1.022	No
Royal Dutch Shell PLC	Energy	0.22%		4,095	4,095	0.465	Yes
Cabot Oil & Gas Corporation	Energy	0.04%		741	741	0.383	No
ArcelorMittal	Materials	0.11%	615	0	615	0.258	Yes
Aker BP ASA	Energy	0.01%		1,528	1,528	0.156	No
TOTAL SE	Energy	0.04%		4,582	4,582	0.125	Yes
Imperial Oil Limited	Energy	0.01%		1,455	1,455	0.112	Yes
Glencore Plc	Materials	0.01%	11,091	56	11,147	0.099	Yes
Public Joint Stock Company Gazprom N	Energy	0.01%		4,148	4,148	0.097	No
Woodside Petroleum Ltd	Energy	0.04%		409	409	0.087	Yes
Japan Petroleum Exploration Co., Ltd.	Energy	0.00%		146	146	0.061	No
Exxon Mobil Corporation	Energy	0.01%		8,418	8,418	0.049	Yes

*Climate Action 100+ is an investor initiative to ensure the world's largest corporate greenhouse gas emitters take necessary action on climate change. These include 100 'systemically important emitters', alongside more than 60 others with significant opportunity to drive the clean energy transition. For more information see <http://www.climateaction100.org>.

Paris Alignment

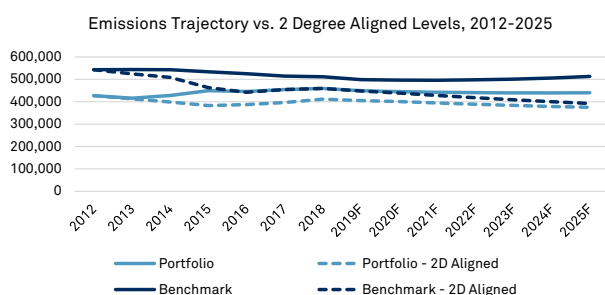
UNDERSTANDING PARIS ALIGNMENT

Trucost's 'Transition Pathway Assessment' enables investors to track their portfolios against the goal of limiting global warming to 2°C above pre-industrial levels. The assessment examines the adequacy of emissions reductions made over time, by investees, in meeting these targets. It incorporates both historical performance as well as forward-looking indicators (over a medium-term time horizon). This avoids the uncertainties of using only forward-looking data, and is of a sufficient time horizon to make the effect of any year-on-year volatility less significant. Historical data on greenhouse gas emissions and company activity levels is incorporated from a base year of 2012. Forward-looking data sources are used to track likely future transition pathways from the most recent year of disclosed data through to 2025.

Trucost's approach is adapted from two methodologies highlighted by the Science Based Targets Initiative (SBTi), these being the Sectoral Decarbonization Approach (SDA) and the Greenhouse gas Emissions per unit of Value Added (GEVA) approach. The SDA is applied to companies with high-emitting, homogeneous business activities, while GEVA is applied to those with lower emitting, heterogeneous business activities. For more information on the methodology please refer to Appendix 3.

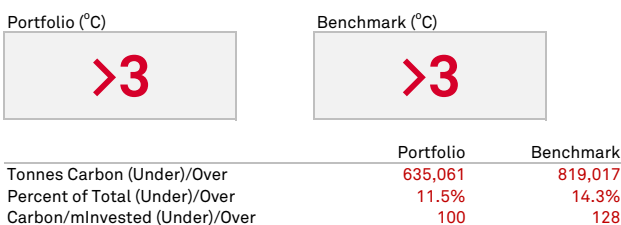
EMISSIONS TRAJECTORY

The chart shows the portfolio and benchmark's 2012-2025 trajectory and compares that to its own 2 degree aligned trajectory.



LEVEL OF WARMING

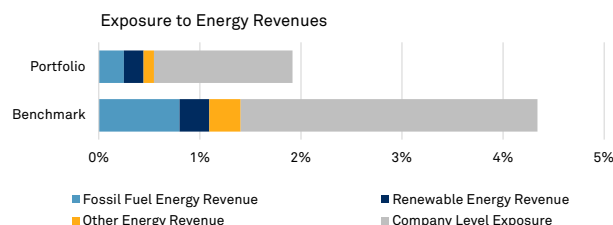
The boxes below show the level of warming associated with the portfolio and benchmark, based on performance over the period assessed.



ENERGY TRANSITION 2 DEGREE ALIGNMENT

In addition to the emissions alignment analysis above, Trucost is also able to assess the portfolio's energy mix alignment to a 2 degree scenario. The right-hand chart shows the share, by energy type, of the total GWh apportioned to the portfolio and benchmark. This can be compared to the energy mix required at different reference years for the low carbon economy of the future, as suggested by the International Energy Agency's (IEA) 2 degree scenario.

As not all energy companies disclose GWh produced, it is also useful to determine exposure to energy 'aggravators' and 'mitigators' based on sources of revenue. The chart below shows total exposure to companies with any energy revenues (total bar size), while the light blue, dark blue and yellow segments represent the weighted-average revenue exposure to fossil fuel, renewable, and other energy revenues respectively.



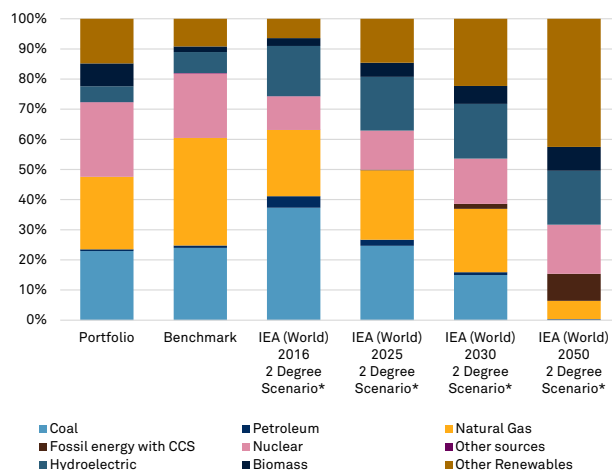
SECTOR CONTRIBUTIONS

Companies with predominantly homogenous business activities that fall into one of the 5 sectors in the table below were assessed using the SDA approach. This means that the required carbon intensity reductions were calculated in sector specific units of production (for example tonnes of steel produced, or number passenger miles flown), and each company's share of the overall sector budget is calculated relative to its market share.

Companies with low emitting or heterogeneous business activities were assessed using the GEVA approach. This means that required carbon intensity reductions were calculated in carbon-per-dollar of value added (gross profit), and each company's share of the overall sector budget is calculated using its progress against required reduction rates.

Method	Sector	Contribution (tCO ₂ e)	Pathway (°C)
SDA	Power Generation	-145,493	<1.75
	Cement	98,752	>2.7
	Steel	121,450	>2.7
	Airlines	6,474	2 to 2.7
	Aluminum	0	
GEVA	Communication Services	7,854	3 to 4
	Consumer Discretionary	44,141	>5
	Consumer Staples	30,887	>5
	Energy	123,869	>5
	Financials	-4,911	1.5 to 2
	Health Care	12,195	3 to 4
	Industrials	35,937	2 to 3
	Information Technology	24,924	4 to 5
	Materials	197,190	>5
	Real Estate	65	2 to 3
	Utilities	81,726	>5

Energy Generation Mix - % of Total Portfolio GWh



* 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. ©OECD/IEA 2017. The content within the table above does not necessarily reflect the views of the International Energy Agency.

Paris Alignment

UNDERSTANDING PARIS ALIGNMENT

The tables below show the best (those emitting less than their 2 degree aligned carbon budget) and worst (those emitting more than their 2 degree aligned carbon budget).

BEST PERFORMERS

Name	Sub-Industry	2012 tCO ₂ e Intensity	2025E tCO ₂ e Unit Intensity	Forecast Source	Total Carbon (tCO ₂ e)	App'd Carbon (tCO ₂ e)	Pathway
RWE Aktiengesellschaft	Utilities	0.792	0.401 MWh	Company target	-447,371,097	-66,074	<1.75°C
Ryanair Holdings Plc	Industrials	4,962	2664 m\$ VA	Sub-Industry trend	-9,933,500	-46,218	1.5-2°C
Orsted	Utilities	0.443	0.009 MWh	Company target	-49,021,111	-33,808	<1.75°C
American Electric Power Com	Utilities	0.763	0.734 MWh	Asset level data	-279,074,883	-25,689	<1.75°C
Ameren Corporation	Utilities	0.731	0.686 MWh	Asset level data	-73,633,976	-17,540	<1.75°C
Electricite de France	Utilities	0.117	0.047 MWh	Company target	-301,374,748	-10,231	<1.75°C
Enel SpA	Utilities	0.418	0.257 MWh	Company target	-190,110,408	-7,393	<1.75°C
Reliance Industries Limited	Energy	2,804	1665 m\$ VA	Sub-Industry trend	-26,166,578	-6,684	1.5-2°C
Alliant Energy Corporation	Utilities	27,514	11760 m\$ VA	Company target	-73,372,474	-6,026	<1.5°C
Eversource Energy	Utilities	945	216 m\$ VA	Sub-Industry trend	-16,875,930	-5,222	<1.5°C
Iberdrola, S.A.	Utilities	0.264	0.130 MWh	Company target	-104,127,971	-5,216	<1.75°C
CEMEX, S.A.B. de C.V.	Materials	0.612	0.593 t cement	Company target	-17,634,709	-4,991	1.75-2°C
Alphabet Inc.	Communication Services	42	1 m\$ VA	Company target	-18,900,608	-4,632	<1.5°C
Exelon Corporation	Utilities	0.129	0.053 MWh	Asset level data	-118,613,186	-3,853	<1.75°C
Gold Fields Limited	Materials	5,288	1324 m\$ VA	Sub-Industry trend	-8,298,193	-3,087	<1.5°C
Henry Schein, Inc.	Health Care	139	47 m\$ VA	Sub-Industry trend	-933,630	-3,060	1.5-2°C
Bayer Aktiengesellschaft	Health Care	318	85 m\$ VA	Sub-Industry trend	-26,419,402	-2,967	<1.5°C
Weyerhaeuser Company	Real Estate	2,231	659 m\$ VA	Company target	-23,276,529	-2,630	<1.5°C
Albemarle Corporation	Materials	1,289	790 m\$ VA	Sub-Industry trend	-1,010,726	-2,609	1.5-2°C
DTE Energy Company	Utilities	0.860	0.502 MWh	Company target	-24,308,037	-2,451	<1.75°C
Neste Oyj	Energy	2,037	1144 m\$ VA	Company target	-5,305,544	-2,429	1.5-2°C
Edison International	Utilities	1,830	383 m\$ VA	Sub-Industry trend	-62,048,852	-2,357	<1.5°C
Facebook, Inc.	Communication Services	87	18 m\$ VA	Sub-Industry trend	-30,034,702	-2,193	<1.5°C
MS&AD Insurance Group Holc	Financials	17	3 m\$ VA	Company target	-692,604	-1,691	<1.5°C
Ferguson PLC	Industrials	115	53 m\$ VA	Sub-Industry trend	-2,252,931	-1,680	<1.5°C

WORST PERFORMERS

Name	Sub-Industry	2012 tCO ₂ e Intensity	2025E tCO ₂ e Unit Intensity	Forecast Source	Total Carbon (tCO ₂ e)	App'd Carbon (tCO ₂ e)	Pathway
ArcelorMittal	Materials	2.130	2.115 t steel	Company target	287,801,296	120,578	>2.7°C
CRH Plc	Materials	0.637	0.539 t cement	Company target	75,544,427	105,086	>2.7°C
Yara International ASA	Materials	3,680	5910 m\$ VA	Sub-Industry trend	85,122,397	83,564	>5°C
Korea Electric Power Corpora	Utilities	2,276	173629 m\$ VA	Sub-Industry trend	2,937,544,999	66,961	>5°C
Orica Limited	Materials	791	1613 m\$ VA	Sub-Industry trend	18,432,972	40,065	>5°C
Royal Dutch Shell PLC	Energy	1,181	1229 m\$ VA	Sub-Industry trend	326,807,837	37,097	>5°C
Woodside Petroleum Ltd	Energy	1,075	3340 m\$ VA	Sub-Industry trend	108,718,024	23,209	>5°C
Martin Marietta Materials, Inc	Materials	1,937	1357 m\$ VA	Sub-Industry trend	8,708,323	22,926	>5°C
Public Joint Stock Company C	Energy	618	6023 m\$ VA	Sub-Industry trend	803,269,228	18,812	>5°C
InterContinental Hotels Group	Consumer Discretionary	2,205	2169 m\$ VA	Sub-Industry trend	7,787,430	18,098	>5°C
Deutsche Post AG	Industrials	812	779 m\$ VA	Sub-Industry trend	18,523,852	16,827	>5°C
Taiwan Semiconductor Manu	Information Technology	548	515 m\$ VA	Sub-Industry trend	26,310,189	14,497	>5°C
HCA Healthcare, Inc.	Health Care	110	185 m\$ VA	Sub-Industry trend	20,476,772	13,629	>5°C
Hyundai Glovis Co., Ltd.	Industrials	531	3412 m\$ VA	Company target	35,554,216	12,822	>5°C
CMS Energy Corporation	Utilities	0.860	0.783 MWh	Asset level data	71,183,785	11,168	>2.7°C
WEC Energy Group, Inc.	Utilities	0.860	0.612 MWh	Company target	154,290,303	10,918	>2.7°C
Nutrien Ltd.	Materials	2,861	2674 m\$ VA	Sub-Industry trend	50,229,291	10,706	>5°C
ComfortDelGro Corporation L	Industrials	557	1021 m\$ VA	Company target	9,058,697	10,618	>5°C
BHP Group	Materials	731	469 m\$ VA	Sub-Industry trend	35,446,637	10,120	>5°C
Imperial Oil Limited	Energy	1,705	4392 m\$ VA	Sub-Industry trend	123,993,160	9,532	>5°C
Kinross Gold Corporation	Materials	526	591 m\$ VA	Sub-Industry trend	8,987,917	8,604	>5°C
BP p.l.c.	Energy	1,569	1164 m\$ VA	Sub-Industry trend	58,629,748	8,461	2-3°C
Entergy Corporation	Utilities	0.268	0.285 MWh	Asset level data	96,568,710	8,455	2-2.7°C
Air France-KLM SA	Industrials	4,832	3216 m\$ VA	Sub-Industry trend	51,377,664	8,013	3-4°C
SoftBank Group Corp.	Communication Services	31	87 m\$ VA	Sub-Industry trend	14,751,106	6,915	>5°C

Scenario Analysis - Carbon Pricing

UNDERSTANDING CARBON PRICING

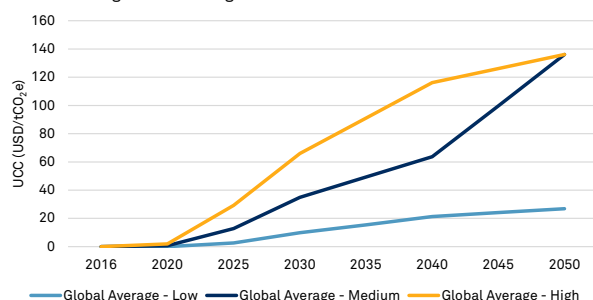
Carbon pricing mechanisms are an essential policy tool to reduce GHG emissions and direct capital towards cleaner energy and lower-carbon solutions. There are currently 52 carbon pricing schemes either in operation or scheduled for implementation at a regional, national, or sub-national level, covering about 20% of global GHG emissions. More schemes are likely to appear in order to achieve the Nationally Determined Contributions (NDCs) made by countries that ratified the 2015 Paris Agreement.

To help investors navigate carbon price risk, Trucost has compiled a dataset of possible future carbon prices that can be used to stress test each investee's current ability to absorb future costs. Integral to this analysis is the quantification of a Unpriced Carbon Cost (UCC) – the difference between what a company pays for emitting carbon today and what it may pay in the future. The UCC will vary depending on both the sector a company operates in and the regions in which they emit. It also depends on the scenario and reference year chosen. High and Moderate scenarios both arrive, by 2050, at a price deemed to be sufficient to keep global warming to within 2°C above pre-industrial levels (in the latter action is delayed in the short-term). The Low scenario is not 2°C aligned, but assumes the implementation of the NDCs. For more information on the UCC methodology please refer to Appendix 3.

CARBON PRICE TRAJECTORY

The chart below illustrates how the UCC varies depending on the reference year and scenario.

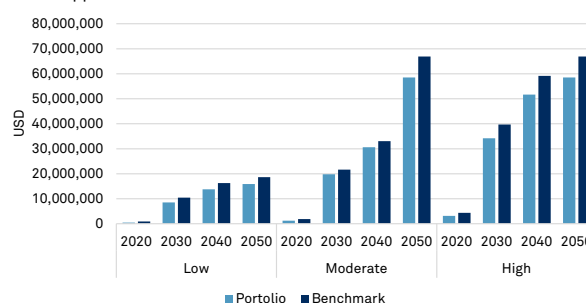
Global Average UCC - Average of all Sectors



CARBON COSTS - ALL SCENARIOS & YEARS

The chart below shows the total UCC apportioned to the portfolio and benchmark under all scenarios and reference years.

Total Apportioned UCC



UCC BY SECTOR

The chart below breaks out the UCC by GICS sector.

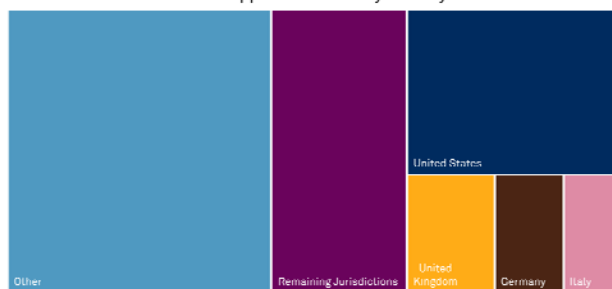
Total Apportioned UCC by Sector



UCC BY COUNTRY

The chart below breaks out the UCC by the top 10 countries. All other countries are aggregated under 'Remaining Jurisdictions'.

Total Apportioned UCC by Country



FINANCIAL IMPACTS

In the right-hand table, the 'Earnings at Risk' is shown for the portfolio and benchmark alongside a number of additional metrics that are commonly used for assessing a company's financial health.

The calculations have used the 2030 high scenario prices.

For more information on these metrics please refer to Appendix 7.

Metric	Unit	Portfolio	Benchmark
Apportioned UCC	EUR	34,205,487	39,724,716
EBITDA at Risk	%	4.95%	6.29%
EBITDA Margin Reduction	% points	-1.06%	-1.53%
EV/EBITDA Change due to UCC	%	6.87%	9.64%
Weight with >10% EBITDA at Risk	%	7.65%	10.87%
Weight with Negative Margins	%	1.12%	1.14%

COMPANY RANKING BY EBITDA AT RISK

Name	Sector	Portfolio Weight	Apportioned UCC	EBITDA at Risk	Change in EBITDA Margin
LafargeHolcim Ltd	Materials	0.00%	52,644	317%	-48.8%
NRG Energy, Inc.	Utilities	0.00%	112,673	273%	-46.3%
ArcelorMittal	Materials	0.13%	6,169,966	267%	-26.6%
Korea Electric Power Corporation	Utilities	0.02%	447,413	249%	-48.6%
SunCoke Energy, Inc.	Materials	0.00%	47,068	218%	-36.9%
Evergy, Inc.	Utilities	0.02%	184,068	212%	-84.5%
The Chugoku Electric Power Co., Inc.	Utilities	0.00%	23,803	203%	-21.8%
ThyssenKrupp AG	Materials	0.02%	703,381	199%	-5.2%
CEMEX, S.A.B. de C.V.	Materials	0.06%	964,171	191%	-32.6%
Hindalco Industries Limited	Materials	0.00%	14,692	184%	-22.5%

Scenario Analysis - Physical Risk

UNDERSTANDING PHYSICAL RISK

Physical risks resulting from climate change can be acute (driven by an event such as a flood or storm) or chronic (arising from longer term shifts in climate patterns) and may have financial implications for organizations such as damage to assets, interruption of operations and disruption to supply chains.

To better understand these risks, Trucost has developed a physical risk assessment framework and dataset. S&P Market Intelligence, S&P Platts, and existing Trucost data has been leveraged to link over 500,000+ built assets to 15,000+ companies in Trucost's CorePlus universe. Assets are then assessed on their exposure and sensitivity to seven key hazard types - water stress, wildfire, flood, heatwave, coldwave, hurricane, and coastal flood. Assessments are made across three climate change scenarios (high, moderate and low) and three future reference years (2020 or other base year, 2030 and 2050).

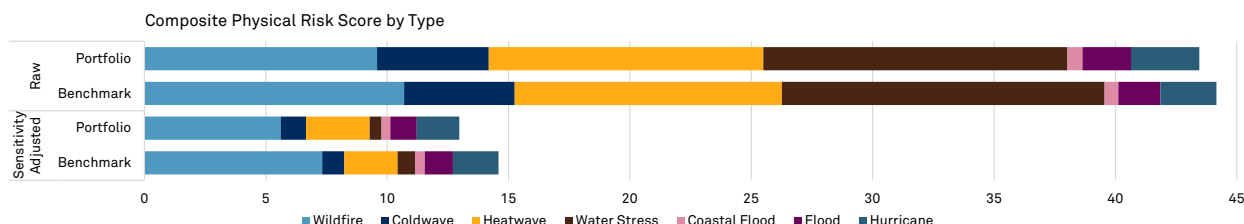
Companies are scored 1-100 for each of the seven risk types, and spanning all scenarios and years. 100 indicates the highest possible exposure and sensitivity to a given risk, while 1 indicates the lowest. The seven scores are then averaged to arrive at a company-level 'composite' physical risk score. For more information on the physical risk assessment framework's methodology, please see Appendix 4.

ASSET COVERAGE & COMPOSITE PHYSICAL RISK SCORES

The table to the right outlines the extend of asset level data coverage of the portfolio and benchmark. Where asset level data was not available, companies were analysed based on their headquarters location, geographic revenue share and average physical risk levels in each country.

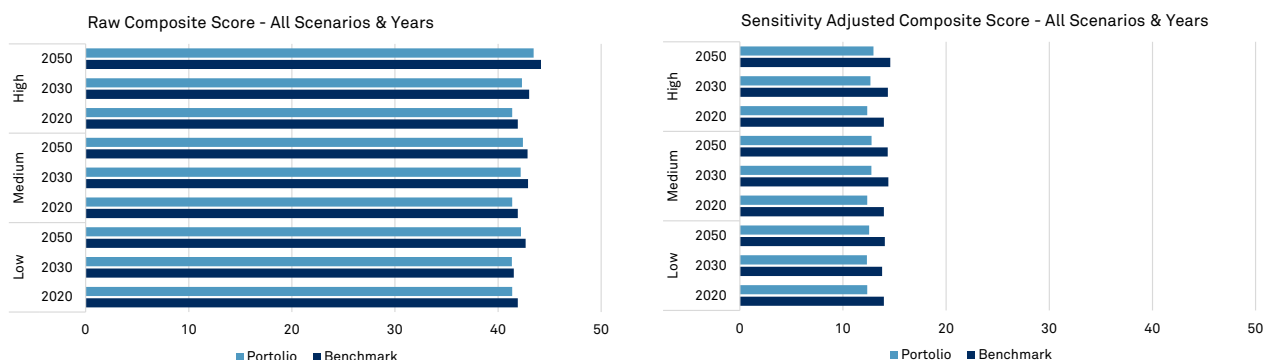
The chart below shows the overall portfolio and benchmark-level physical risk score, broken down by the contribution of each risk type. The score is calculated using the high scenario, with 2050 as the reference year.

	Total Weight Analysed	Share of Which Analysed with Asset Data	Number of Assets Analysed
Portfolio	88%	84%	64,261
Benchmark	98%	92%	101,250



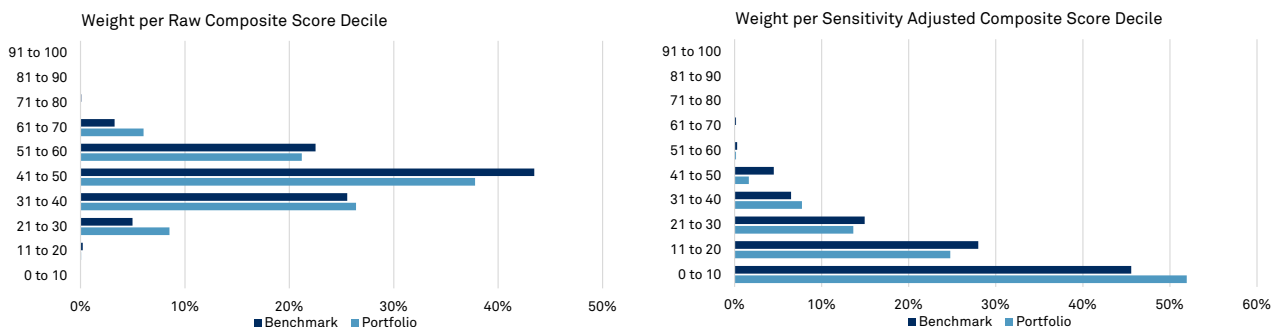
COMPOSITE SCORES - ALL SCENARIOS & YEARS

The charts below present changes in the portfolio and benchmark climate change physical risk exposure (left-hand) and sensitivity weighted exposure (right-hand) scores by scenario and year.



EXPOSURE PER COMPOSITE DECILE

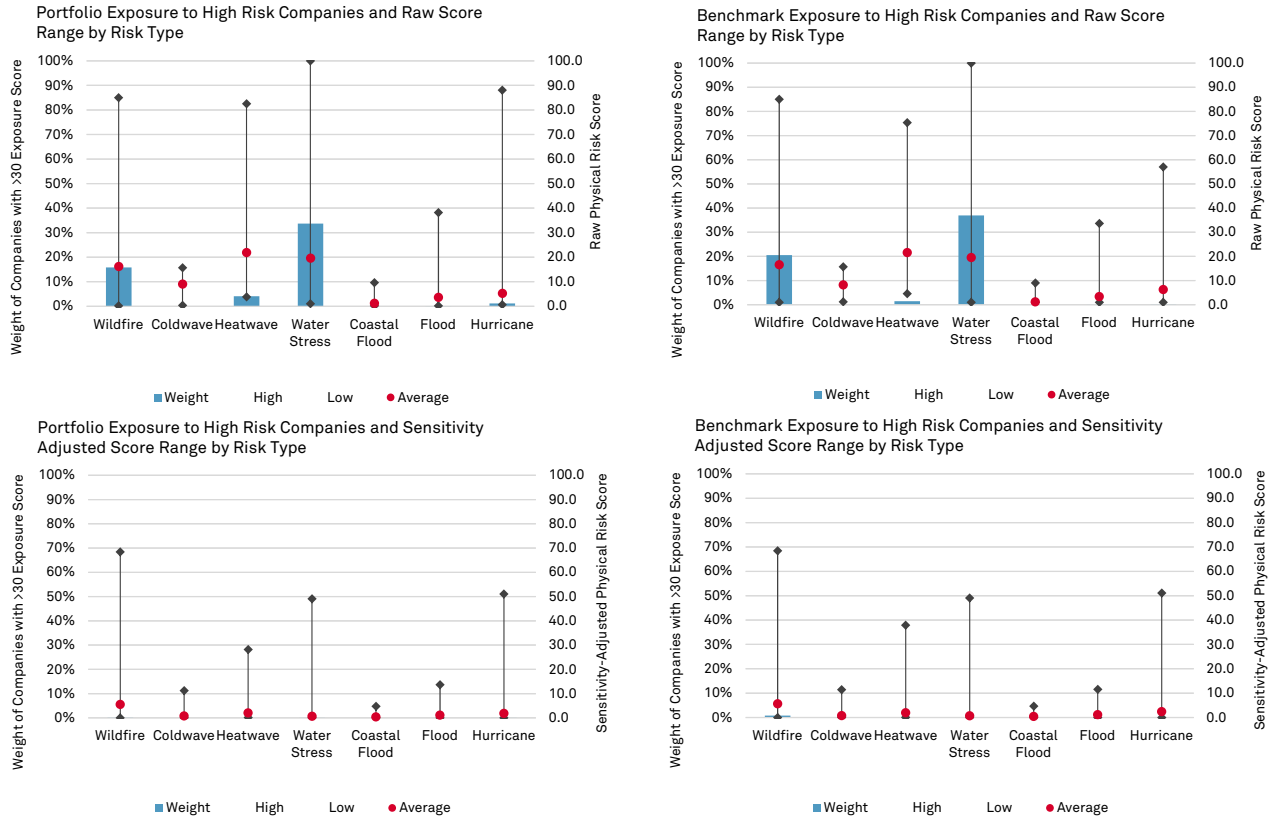
The charts below show the portfolio or benchmark weight exposed to companies with a composite risk score in each decile. The left-hand chart uses the raw physical risk scores, while the right-hand chart uses the sensitivity adjusted scores. Sensitivity adjustments may increase or decrease the final score depending on whether high exposures coincide with high sensitivity on any given indicator. See the Appendix 4 for more information.



Scenario Analysis - Physical Risk

SCORE RANGE BY RISK TYPE + EXPOSURE TO HIGH RISK COMPANIES

The charts below show the maximum, minimum and average climate change physical risk scores (2050 - High Scenario) for the portfolio and benchmark, disaggregated by risk indicator. Also shown is the portfolio weight exposed to companies scoring greater than 30 out of 100 for each risk indicator. The top charts are based on raw climate change physical risk scores while the bottom charts are based on sensitivity adjusted scores.



SECTOR BREAKDOWN

The tables below show the raw, and sensitivity-adjusted scores for each risk type at the GICS sector level. Scores above 30 have been highlighted in red.

RAW PHYSICAL RISK SCORE BY TYPE - 2050 HIGH SCENARIO

	Composite	Wildfire	Coldwave	Heatwave	Water Stress	Coastal Flood	Flood	Hurricane
Communication Services	49.4	23.7	8.4	22.0	32.4	1.4	4.9	6.5
Consumer Discretionary	39.5	14.2	9.2	21.3	17.7	1.3	3.9	4.9
Consumer Staples	41.5	19.0	8.8	20.5	22.7	1.1	3.1	4.1
Energy	43.1	16.7	9.0	20.5	25.2	1.1	5.0	3.6
Financials	47.0	17.6	8.2	24.2	29.4	1.3	4.9	6.7
Health Care	43.7	21.5	8.9	20.2	23.2	1.1	3.1	4.9
Industrials	38.1	15.0	9.4	21.3	13.7	1.1	3.1	5.2
Information Technology	45.5	20.2	8.5	21.0	27.8	1.0	3.8	5.6
Materials	41.1	15.9	9.1	21.9	20.2	1.0	2.7	4.5
Real Estate	36.7	12.3	9.5	20.6	16.9	1.1	2.7	3.5
Utilities	35.1	12.7	9.3	19.7	13.8	1.0	2.7	3.0

SENSITIVITY-ADJUSTED PHYSICAL RISK SCORE BY TYPE - 2050 HIGH SCENARIO

	Composite	Wildfire	Coldwave	Heatwave	Water Stress	Coastal Flood	Flood	Hurricane
Communication Services	12.7	4.6	0.6	2.0	0.3	0.2	0.7	0.8
Consumer Discretionary	17.2	5.5	1.5	3.3	0.2	0.4	1.3	1.7
Consumer Staples	15.8	6.2	0.9	2.4	0.3	0.3	0.9	1.4
Energy	24.5	11.4	0.3	0.7	0.5	0.8	3.4	2.6
Financials	3.5	0.4	0.2	0.7	0.3	0.0	0.1	0.1
Health Care	11.0	3.7	0.6	1.5	0.3	0.2	0.6	1.1
Industrials	16.0	4.4	1.4	3.2	0.2	0.4	1.0	1.6
Information Technology	13.6	4.0	0.9	2.5	0.3	0.2	0.7	2.1
Materials	20.5	9.0	0.6	1.3	0.5	0.6	1.6	2.6
Real Estate	15.2	5.9	0.5	1.2	0.2	0.6	1.4	2.1
Utilities	22.7	9.4	0.2	0.4	4.3	0.7	1.8	2.2

Scenario Analysis - Physical Risk

TOP CONTRIBUTORS

The tables below show the top contributors to each sensitivity-adjusted risk score, including the composite, under the High-2050 scenario.

TOP CONTRIBUTORS - COMPOSITE

Name	Sector	Rebalanced Portfolio Weight	Composite Raw	Composite Sensitivity-Adj.	Sensitivity-Adj. Data Score Contribution Quality	Asset Count
Taiwan Semiconductor Manufacturing (	Information Technology	2.3%	51	37	-4.40% A	3
Tesla, Inc.	Consumer Discretionary	1.0%	53	40	-2.12% A	4
Amazon.com, Inc.	Consumer Discretionary	2.2%	42	23	-1.78% A	45
Estee Lauder Cos.	Consumer Staples	0.9%	65	30	-1.20% A	30
Sea Limited	Communication Services	1.0%	61	24	-0.86% B	1

TOP CONTRIBUTORS - WILDFIRE

Name	Sector	Rebalanced Portfolio Weight	Wildfire Raw	Wildfire Sensitivity-Adj.	Sensitivity-Adj. Data Score Contribution Quality	Asset Count
Tesla, Inc.	Consumer Discretionary	1.0%	34	27	-5.47% A	4
Taiwan Semiconductor Manufacturing (	Information Technology	2.3%	23	14	-5.32% A	3
Estee Lauder Cos.	Consumer Staples	0.9%	59	19	-3.13% A	30
Alphabet Inc.	Communication Services	2.8%	33	8	-2.18% A	27
Amazon.com, Inc.	Consumer Discretionary	2.2%	15	8	-1.81% A	45

TOP CONTRIBUTORS - COLDWAVE

Name	Sector	Rebalanced Portfolio Weight	Coldwave Raw	Coldwave Sensitivity-Adj.	Sensitivity-Adj. Data Score Contribution Quality	Asset Count
Compass Group PLC	Consumer Discretionary	0.3%	9	9	-3.35% A	6
Accenture plc	Information Technology	0.5%	8	5	-3.01% A	49
Deutsche Post AG	Industrials	0.7%	10	4	-2.94% A	12
The TJX Companies, Inc.	Consumer Discretionary	0.6%	7	5	-2.71% A	13
Sea Limited	Communication Services	1.0%	9	3	-2.34% B	1

TOP CONTRIBUTORS - HEATWAVE

Name	Sector	Rebalanced Portfolio Weight	Heatwave Raw	Heatwave Sensitivity-Adj.	Sensitivity-Adj. Data Score Contribution Quality	Asset Count
Sea Limited	Communication Services	1.0%	43	13	-5.41% B	1
Accenture plc	Information Technology	0.5%	23	16	-3.69% A	49
The TJX Companies, Inc.	Consumer Discretionary	0.6%	20	14	-3.28% A	13
Compass Group PLC	Consumer Discretionary	0.3%	20	20	-2.93% A	6
Deutsche Post AG	Industrials	0.7%	20	8	-2.16% A	12

TOP CONTRIBUTORS - WATER STRESS

Name	Sector	Rebalanced Portfolio Weight	Water Stress Raw	Water Stress Sensitivity-Adj.	Sensitivity-Adj. Data Score Contribution Quality	Asset Count
American Water Works Company, Inc.	Utilities	0.4%	8	5	-4.46% A	5
American Electric Power Company, Inc.	Utilities	0.1%	25	15	-2.57% A	188
Enel SpA	Utilities	0.1%	30	14	-2.55% A	887
Dominion Energy, Inc.	Utilities	0.0%	18	18	-1.57% A	197
Exelon Corporation	Utilities	0.0%	23	23	-1.54% A	242

TOP CONTRIBUTORS - COASTAL FLOOD

Name	Sector	Rebalanced Portfolio Weight	Coastal Flood Raw	Coastal Flood Sensitivity-Adj.	Sensitivity-Adj. Data Score Contribution Quality	Asset Count
Taiwan Semiconductor Manufacturing (	Information Technology	2.3%	1	1	-2.79% A	3
Sands China Ltd.	Consumer Discretionary	0.2%	6	4	-2.71% B	1
Amazon.com, Inc.	Consumer Discretionary	2.2%	1	1	-2.06% A	45
Tesla, Inc.	Consumer Discretionary	1.0%	1	1	-2.02% A	4
Ryanair Holdings Plc	Industrials	1.0%	1	1	-1.64% B	1

TOP CONTRIBUTORS - FLOOD

Name	Sector	Rebalanced Portfolio Weight	Flood Raw	Flood Sensitivity-Adj.	Sensitivity-Adj. Data Score Contribution Quality	Asset Count
Taiwan Semiconductor Manufacturing (	Information Technology	2.3%	4	2	-3.85% A	3
Tesla, Inc.	Consumer Discretionary	1.0%	4	3	-3.22% A	4
Ryanair Holdings Plc	Industrials	1.0%	5	3	-2.48% B	1
Reliance Industries Limited	Energy	0.5%	8	5	-2.44% A	6
Amazon.com, Inc.	Consumer Discretionary	2.2%	3	1	-1.84% A	45

TOP CONTRIBUTORS - HURRICANE

Name	Sector	Rebalanced Portfolio Weight	Hurricane Raw	Hurricane Sensitivity-Adj.	Sensitivity-Adj. Data Score Contribution Quality	Asset Count
Taiwan Semiconductor Manufacturing (	Information Technology	2.3%	19	11	-18.12% A	3
Amazon.com, Inc.	Consumer Discretionary	2.2%	6	3	-3.41% A	45
Sysmex Corporation	Health Care	0.5%	22	8	-2.69% A	2
W.W. Grainger, Inc.	Industrials	0.5%	12	6	-2.00% A	8
President Chain Store Corporation	Consumer Staples	0.1%	88	31	-1.49% B	1

Appendices

APPENDIX 1a: CARBON DIOXIDE EQUIVALENT

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 Hexafluoride - 23,900
Per Fluoro Carbons - 7,850
Hydro Fluoro 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 1c: APPORTIONING

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 emissions.

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, the larger of enterprise value and market capitalization on the date of holding is used as the denominator. This approach is used to minimize the risk of apportioning 'spikes' when an enterprise value approaches zero (or is negative).

The company level emissions are then multiplied by the apportioning factor to arrive at emissions quantities specific to each holding. The portfolio level emissions are the sum of all of these quantities.

APPENDIX 1e: DATA COLLECTION & CARBON DISCLOSURE

Trucost's unique approach to environmental data collection and modelling enables near complete coverage of most investment universes, despite often low levels of reporting among investees. A four step process is used as part of our data gathering exercise.

- Analyse Financial and Sector Data** - A company's financials are analysed, collecting consolidated revenues for all companies and specifying their reporting scopes and operational boundaries.
- Map Activities to Trucost's Environmentally Extended Input-Output (EE-IO) Model** - Trucost's EE-IO model uses 450+ business activities (broadly aligned to the NAICS, with some additional sectors included to distinguish key activities with materially different physical impacts) to model a company's environmental impacts by assigning portions of each company's revenues to one or more of these activities. The EE-IO model then estimates the pollutant emissions and resource use associated with each business activity, both directly (for a company's own operations) and across the supply chain, using the revenue sector breakdown.
- Incorporate Disclosures and Public Registry Data** - Trucost searches all publically disclosed data sources of companies to find usable environmental data that will be used to overwrite Trucost's modelled estimates. Trucost ensures the scope and time horizon of any environmental data found matches that of its financials.
- Company Engagement and Data Verification** - Trucost analysts quality check the entire research process internally, then share the results with each company directly via a secure online portal. Companies are given one month to respond to Trucost to verify its data or directly engage to provide either refined, additional or non-public information. If appropriate and applicable data is provided, Trucost will integrate this into its analysis before publishing the data to our subscribers.

All data collected as part of the process described above will be assigned a 'disclosure flag', indicating the source of each specific data-point. These flags will fall into one of three possible 'disclosure categories', Full Disclosure, Partial Disclosure or Modelled.

- Full Disclosure** - Trucost has used data disclosed by a company in an un-edited form as it matches the reporting scope and accuracy required by the research process.
- Partial Disclosure** - Trucost has used data disclosed by a company but has made adjustments to match the reporting scope required by its research process (e.g. where a company discloses its emissions deriving from 85% of its operational sites, this data is used to model 100% of its emissions). Values may also be derived from a previous year's disclosed data using changes in business activities and consolidated revenues.
- Modelled** - In the absence of usable disclosures, the data has been modelled using Trucost's EE-IO model.

At the portfolio level, disclosure may be evaluated using the the following three methods:

- VOH:** The sum of the weights of each holding within each of the three disclosure categories.
- GHG:** The sum of each holding's share of the total apportioned Scope 1 CO2e within each of the three disclosure categories.
- Holdings:** The number of holdings, shown as a percent of all holdings analysed, within each of the three disclosure categories.

APPENDIX 1b: CARBON SCOPES

- Direct (Scope 1):** CO₂e emissions based on the Kyoto Protocol greenhouse gases generated by direct company operations.
- Direct (Other):** Additional direct emissions, including those from CCl₄, C₂H₂Cl₃, CBrF₃, and CO₂ from Biomass.
- Purchased Electricity (Scope 2):** CO₂e emissions generated by purchased electricity, heat or steam.
- Non-Electricity First Tier Supply Chain (Scope 3):** CO₂e emissions generated by companies providing goods and services in the first tier of the supply chain.
- Other Supply Chain (Scope 3):** CO₂e emissions generated by companies providing goods and services in the second to final tier of the supply chain.

APPENDIX 1d: CARBON INTENSITY

Portfolios with larger assets under management will typically also have larger absolute carbon footprints than smaller portfolios due to their size. In order to facilitate fair comparison between portfolios, benchmarks and across years, it is therefore important to normalize the totals, either by revenues or by value invested. The three most common approaches to normalization are:

- Carbon to Revenue (C/R):** Dividing the apportioned CO₂e by the apportioned annual revenues.
- Carbon to Value Invested (C/V):** Dividing the apportioned CO₂e by the value invested.
- Weighted Average Carbon Intensity (WACI):** Summing the product of each holding's weight in the portfolio with the company level C/R intensity (no apportioning).

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

Appendices

APPENDIX 2: PARIS ALIGNMENT

Trucost's transition pathway analysis adapts two approaches prominent in literature produced and referenced by the Science-Based Targets Initiative (SBTi). These are the Sectoral Decarbonization Approach (SDA), and the Greenhouse Gas Emissions per unit of Value Added (GEVA) approach.

SDA Approach

The SDA is applied to companies with high-emitting, homogeneous business activities. Its core principle is that companies in each industry must converge toward emissions intensities consistent with a 2°C scenario by 2050 from their unique starting points. It uses industry-specific 2°C scenario pathways, with companies measured using industry-specific emissions intensities and physical production levels (eg. tCO2e per GWh or per tonne of steel). Industry-specific transition pathways may be faster (eg. power), or slower (eg. cement) depending on an industry's available technologies, specific mitigation potential and costs of mitigation. Within a given industry, companies with low base year emissions and low production growth can reduce emissions at a gradual rate. Companies with high emissions or high production growth must make faster reductions.

The scenarios used in SDA assessments are International Energy Agency (IEA) scenarios from Energy Technology Perspectives (ETP) 2017. These provide SDA assessment parameters consistent with 1.75°, 2°, and 2.7°C of warming.

GEVA Approach

GEVA is applied to companies with lower emitting or heterogeneous business activities. It recognizes that many companies have diverse business activities, most of which do not have distinct transition pathways defined in climate scenarios. For these companies, GEVA entails applying a contraction of carbon intensity principle under which a company should make emissions reductions consistent with rates required for the overall economy, from each company's unique base year emissions intensity. It uses a non-industry specific, economy-wide 2°C scenario, and emissions intensities with a financial, not physical or production denominator. Each company's transition pathway is measured as its GHG per unit of inflation-adjusted gross profit, representing its contribution to total global emissions and emissions intensity. This is compared with a global economy-wide emissions intensity pathway required for achieving below 2°C of warming.

The scenarios used in GEVA assessments are Representative Concentration Pathway (RCP) scenarios used in the AR5 report from the IPCC. These provide GEVA assessment parameters consistent with 2°, 3°, 4°, and 5°C of warming.

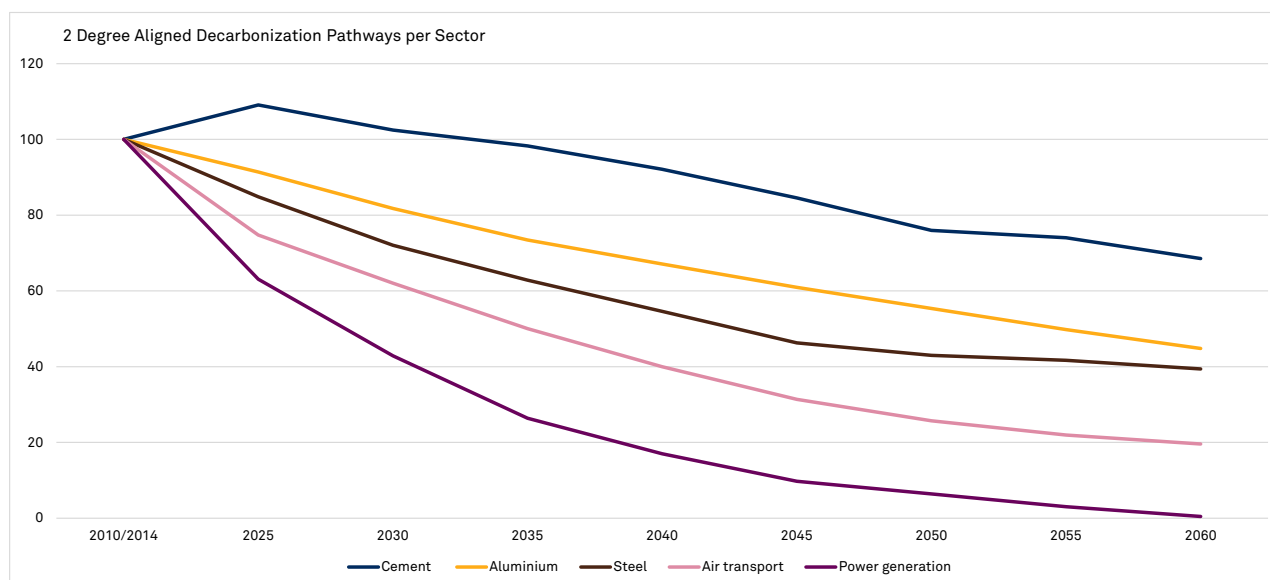
Assessment horizon and data sources

Transition pathways assessed incorporate both historical and forward-looking data in order to provide an assessment that has a medium term outlook. This minimizes the uncertainties involved in using only forward-looking data, and is of a sufficient time horizon to make the effect of any year-to-year volatility less significant. Historical data on greenhouse gas emissions and company activity levels is incorporated from a base year of 2012. Forward-looking data sources are used to track likely future transition pathways beyond the most recent year of disclosed data through to 2023. Forward-looking data is incorporated based on an established data hierarchy made up of the following sources:

1. Disclosed emissions reduction targets.
2. Asset-level data sources that provide signals of potential future changes in production from high-emitting sources.
3. Company-specific historical emissions trends for companies assessed on the basis of homogeneous business activities.
4. Subindustry-specific average historical emissions trends for companies assessed on the basis of heterogeneous business activities.
5. No change in emissions intensity beyond the latest year.

The portfolio assessments use combined Scope 1 and Scope 2 emissions as the assessment boundary.

The chart below illustrates the different decarbonization pathways for the five sectors covered in the SDA approach, as well as that used for the remaining sectors in the GEVA approach ('Global Economy' in the legend). Each sector's unique intensity unit has been indexed to 100 to allow for easy comparison. Sectors in which carbon saving technologies and/or processes are most cost effective are expected to decarbonize more rapidly, and terminate on a lower overall intensity, than sectors where such measures are not. For example, carbon intensity reductions are expected to be greater in the field of power generation than cement production.



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APPENDIX 3: UNPRICED CARBON COSTS

Trucost has assembled a database of publically available information on current carbon prices across over 43 jurisdictions as of January 2017. The Unpriced Cost of Carbon (UCC) is the estimated additional financial cost per tonne of greenhouse gas emissions in a future year. It is the difference between current carbon prices and possible future carbon prices for a given sector, geography and year.

Rising carbon prices entail direct financial implications for businesses where regulations impose a higher price on greenhouse gas emissions from the direct operations of the business. Companies also face indirect financial risks associated with the pass-through of rising carbon prices applied to the emissions of suppliers who in-turn seek to recover the additional regulatory costs in part or in full through increased prices. Pass-through factors are used to estimate the proportion of the increased carbon prices on scope 2 emissions that are passed through from suppliers to companies.

The Carbon Price Risk Premium varies by geography due to government policy differences, and by sector due to the differential treatment of sectors in many climate change policies. The sectors are based on OECD's research and include:

1. Agriculture and Fisheries
2. Electricity
3. Industry
4. Air Transportation
5. Offroad Transport
6. Residential and Commercial Real Estate
7. Road Transport

Each of Trucost's 464 business activities have been mapped to one of these seven categories.

SCENARIOS

High Carbon Price Scenario:

This scenario represents the implementation of policies that are considered sufficient to reduce greenhouse gas emissions in line with the goal of limiting climate change to 2°C by 2100 (the Paris Agreement). This scenario is based on research by OECD and IEA.

Moderate Carbon Price Scenario:

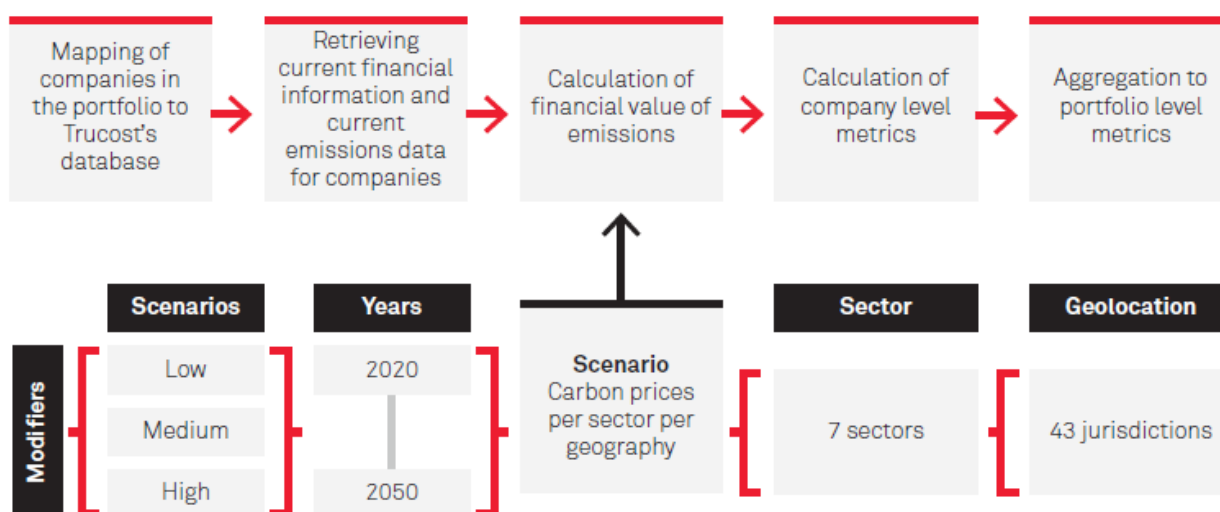
This scenario assumes that policies will be implemented to reduce greenhouse gas emissions and limit climate change to 2 degrees Celsius in the long term, but with action delayed in the short term. This scenario draws on research by OECD and IEA along with assessments of the sufficiency of country Nationally Determined Contributions by Climate Action Tracker by Ecofys, Climate Analytics and New Climate Team. Countries with Nationally Determined Contributions that are not aligned to the 2°C goal in the short term are assumed to increase their climate mitigation efforts in the medium and long term.

Low Carbon Price Scenario:

This scenario represents the full implementation of country Nationally Determined Contributions under the Paris Agreement, based on research by OECD and IEA.

Which Carbon Price Risk Premium is applicable for individual companies will depend on the choice of scenario, companies' sector of operations as well as their geographical exposure. The analysis covers Trucost's standard 464 sectors used for classification of companies that were mapped to the sectors based on OECD's classification for carbon pricing. The geographical exposure to different Carbon Price Risk Premiums is derived based on companies' geographical emissions as reported through the Carbon Disclosure Project (CDP). In case companies do not report to the CDP, Trucost uses the geographical breakdown of companies' revenues as a proxy for emissions' distribution. Together the sector exposure and country level emissions profiles allow for a very granular level bottom up calculation of carbon price risk exposure.

Below is a schema for the application off UCC to a portfolio:



Appendices

APPENDIX 4: PHYSICAL RISK ASSESSMENT FRAMEWORK

The release of the TCFD recommendations highlighted the importance of climate change as a driver of material financial risks for companies and investors that should be assessed, disclosed and managed. The Taskforce divided these risks into two major categories, the first being Transitional Risks (including policy and legal risk, technology risk, market risk and reputational risk), and the second being Physical Risk. In response, Trucost has developed physical risk assessment datasets and analytics to complement the existing suite of transition-focused products. Key features include:

- A robust and science-based climate change physical hazard characterization methodology drawing on both public and private datasets.
- Coverage of seven key indicators including: water stress, wildfire, flood, coastal flood, heatwave, coldwave, and hurricanes.
- Coverage of three climate change scenarios (high, moderate, low) and three reference years (2020 (baseline), 2030 and 2050).
- Built upon a proprietary database of almost 500,000 built assets linked to corporate entities and ultimate parent entities – based on S&P Market Intelligence, and Trucost assembled datasets.
- An estimation methodology for companies without asset level information, enabling coverage of Trucost's CorePlus Universe of over 15,000 companies.

Companies are scored 1-100 across all individual risk types, as well as for a composite score which provides an evaluation as to each company's overall level of risk. The scoring framework is based on four key analytical steps:

1. Climate Hazard Mapping
2. Assets Locations Overlay and Risk Assessment
3. Physical Risk Exposure Scoring
4. Sensitivity Adjustment

Details of each of these steps is outlined below.

1. CLIMATE HAZARD MAPPING

Trucost has assembled models and datasets representing the forecasted absolute risk of seven discrete climate change hazards globally across three climate change scenarios and three time periods, to produce global hazard maps specific to each issue. These maps form the foundation of the Trucost physical risk assessment framework and draw on climate change models from leading research groups, data providers, academic research papers and Trucost datasets. The three scenarios used are based on IPCC Representative Concentration Pathways (RCP) and informed by the TCFD technical guidelines. They include:

- **High (RCP 8.5):** Continuation of business as usual with emissions at current rates. This scenario is expected to result in warming in excess of 4 degrees Celsius by 2100.
- **Moderate (RCP 4.5):** Strong mitigation actions to reduce emissions to half of current levels by 2080. This scenario is likely to result in warming of over 2 degrees Celsius by 2100.
- **Low (RCP 2.6):** Aggressive mitigation actions to halve emissions by 2050. This scenario is likely to result in warming of less than 2 degree Celsius by 2100.

Input data for all indicators under all scenarios and years was not always available. The table below highlights the current state of data availability:

Indicator	Low: RCP 2.6			Moderate: RCP 4.5			High: RCP 8.5			No Scenario Historical Only	Note
	Base	2030	2050	Base	2030	2050	Base	2030	2050		
Water Stress											Base Year = 2020. 2040 replaces 2050.
Flood											
Heatwave											Base Year = 2010-2020 Average
Coldwave											Base Year = 2010-2020 Average
Hurricane											
Wildfire											Base Year = 2010-2020 Average
Coastal Flood											Base Year = 2020

Data used in the assessment framework was taken from general circulation models (GCMs) from the CMIP5 project. The table below presents the sources and models used by Trucost for each of the individual risk types.

Risk Type	Risk Description	Hazard Indicator	Indicator Description	Model Provider	Model Name	Spatial Resolution
Water Stress	Expected future ratio of water withdrawals to total renewable water supply in a given area.	Baseline Water Stress Index	Baseline water stress is the ratio of total water extraction within an area to the surface and ground water available. The analysis covers water consumptive and non-consumptive withdrawals for domestic, industrial, irrigation and livestock use. Higher values indicate more competition among users for available water resources.	World Resource Institute	WRI Aqueduct	River Basin
Flood	Index representing the population weighted exposure to flooding from rivers in river basin.	Riverine Flood Risk	Riverine flood risk indicates the proportion of the population in each river basin that are expected to be affected by riverine flooding in an average year. The metric is focused on inundation caused by river overflow and accounts for existing flood protection measures.	World Resource Institute	WRI Aqueduct	River Basin

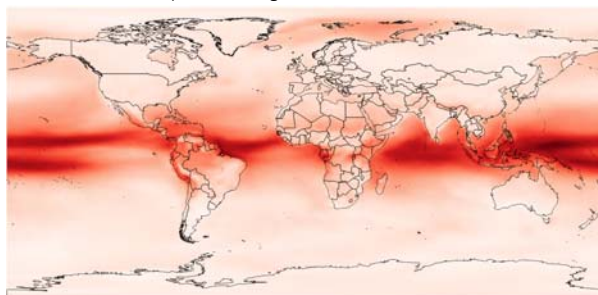
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APPENDIX 4: PHYSICAL RISK ASSESSMENT FRAMEWORK

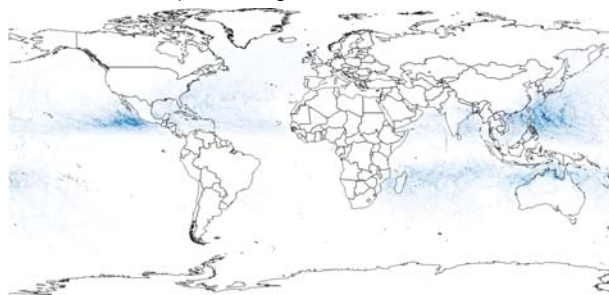
Heatwave	The occurrence and severity of periods of extreme heat relative to local climatic conditions, measured based on the Excess Heat Factor.	Excess Heat Factor (EHF)	The EHF index measures heatwave occurrence and intensity based on two factors: 1) if the daily mean temperature over a three day period is higher than the historical 95th percentile, and 2) how hot the daily mean temperature is with respect to the previous 30 days.	1. NOAA 2. Met Office 3. Hadley Centre 4. Institut Pierre-Simon Laplace 5. Max Planck Institute for Meteorology 6. Meteorological Research Institute	1. GFDL-ESM2M 2. HadGEM-ES 3. IPSL-CM5A-LR 4. MPI-ESM-MR 5. MRI CGCM3 Multi-model average.	100x100km to 200x200km
Coldwave	The occurrence and severity of extreme cold relative to local climatic conditions, measured based on the Excess Cold Factor.	Excess Cold Factor (ECF)	The ECF index measures heatwave occurrence and intensity based on two factors: 1) if the daily mean temperature over a three day period is lower than the historical 5th percentile and 2) how cold the daily mean temperature is with respect to the previous 30 days.	1. NOAA 2. Met Office 3. Hadley Centre 4. Institut Pierre-Simon Laplace 5. Max Planck Institute for Meteorology 6. Meteorological Research Institute	1. GFDL-ESM2M 2. HadGEM-ES 3. IPSL-CM5A-LR 4. MPI-ESM-MR 5. MRI CGCM3 Multi-model average.	100x100km to 200x200km
Hurricane	Composite index representing the historical incidence and severity / strength of hurricane, typhoon or cyclone activity at a given location.	Hurricane Index	The index is based on historical hurricane data compiled by NOAA between 2000 and 2019. It is calculated by multiplying the number of hurricanes transiting a given point on the globe by the intensity (category) of each hurricane. A weight-adjustment based on date of occurrence is also applied in order to overweight the importance of more recent hurricanes.	Trucost	Trucost Model	Approx. 110x110km
Wildfire	Risk of wildfire occurrence by location based modelled area of burnt vegetation.	Burnt Area	The fraction of entire grid cells that is covered by burnt vegetation.	Max Planck Institute for Meteorology	CMIP5 - MPI-ESM-LR	100x100km to 200x200km
Coastal Flood	Index representing the population weighted exposure to flooding from the coast	Coastal Flood Risk	Coastal flood risk indicates the proportion of the population in each river basin that are expected to be affected by coastal flooding in an average year.	World Resources In	WRI Aqueduct	River Basin

The result is a set of climate hazard maps such as those shown below.

Heatwave hazard map under a 'High' scenario in 2050.



Hurricane hazard map under a 'High' scenario in 2050.



Appendicies

APPENDIX 4: PHYSICAL RISK ASSESSMENT FRAMEWORK

2. ASSET LOCATIONS OVERLAY

Trucost has established a database of almost 500,000 physical asset locations - including asset descriptions - which have been mapped to a universe of over 15,000 listed and private corporate entities. Assets are overlaid on the climate hazard maps to characterise the level of risk in each time period under each scenario. Data sources used include S&P MI Real Estate, S&P MI Metals & Mining, S&P MI Power Plants, S&P MI Bank Branches, as well as data compiled by Trucost from government regulatory databases.

The tables below shows the total number of assets available by sector, as well as the sources used. The right-hand chart shows the asset data coverage for a selection of S&P indices.

Data Source	Approximate Asset Count	Percent of Total	Asset Coverage for Major S&P Indices
Consumer Staples	13,000	3%	
Utilities	27,000	6%	
Materials	21,000	5%	
Industrials	44,000	11%	
Other	47,000	11%	
Health Care	7,000	2%	
Consumer Discretionary	20,000	5%	
Energy	11,000	3%	
Real Estate	95,000	23%	
Financials	128,000	31%	
Information Technology	6,000	1%	

3. PHYSICAL RISK EXPOSURE SCORING

- Asset Level:** Each asset in the database is assigned a physical risk score from 1 (lowest risk) to 100 (highest risk), for each of the seven risk categories, based on their location on the climate hazard maps. The score is intended to represent the relative level of risk for each indicator at each location relative to global conditions across all scenarios and time periods.
- Company Level:** If asset data is available for the company, then the company-level score for each risk type represents the average of the asset-level scores. If only HQ location is available then the company-level score is a combination of the physical risk score for the company headquarters and a revenue weighted average of the average physical risk score in the countries in which the company generates revenue. The latter is calculated by multiplying the company's revenue share by country (as a percent of total revenues) with the average physical risk score for each country. The HQ physical risk score is weighted at 20% and the revenue share based score is weighted at 80% of the final company score.
- Portfolio Level:** Portfolio-level scores are calculated on a weighted-average basis. This is calculated by summing each company's physical risk score multiplied by their weight in the portfolio.

4. SENSITIVITY ADJUSTMENT

The 'raw' Physical Risk Exposure Score described above speaks to the relative exposure of an asset, company or portfolio to each risk indicator relative to global conditions, but it does not speak to the degree to which the manifestation of each risk may be consequential to the operation of the asset or company. Alongside these scores, Trucost also provides a 'sensitivity adjusted' physical risk score in order to adjust for the potential materiality of the events to the asset owners' business.

Raw scores were adjusted using 'sensitivity factors' calculated by Trucost by linking each physical risk indicator to a set of tangible business impacts and a metric that can be measured at the company level to reflect the relative sensitivity of each company to each risk indicator and its impacts. The table below describes the three company-level sensitivity factors included in the sensitivity weighted physical risk score calculation.

Sensitivity Indicator	Risk Type	Business Impact	Rationale
Water Intensity (Direct or Indirect)	Drought	Input Scarcity Increased Operating Expenses Stranded Assets	Businesses with high water dependency are more likely to be impacted by water scarcity.
Capital Intensity	Flood Coastal Flood Wildfire Hurricane	Asset Impairment Lost Inventory Production Disruption Critical Infrastructure Damage	Businesses with high capital intensity are more likely to be impacted by risk types that cause physical damage.
Labour Intensity	Heatwave Coldwave	Productivity Losses	Businesses with high labour intensity are more likely to be impacted by the impairment of optimal working conditions.

In addition to the individual risk scores, Trucost provides company-level composite risk scores which are intended to provide a combined measure of exposure to all seven risk indicators. The final composite score is calculated based on a logarithmic curve, designed to highlight companies with high exposure or sensitivity on any single indicator, which might otherwise be hidden when averaging across the seven physical risk indicators. In practice, this means that high exposure and sensitivity to each additional indicator diminishes in importance when calculating the final composite score.

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