



Clwyd Pension Fund

# Analytics for Climate Transition (ACT) Appendix 2

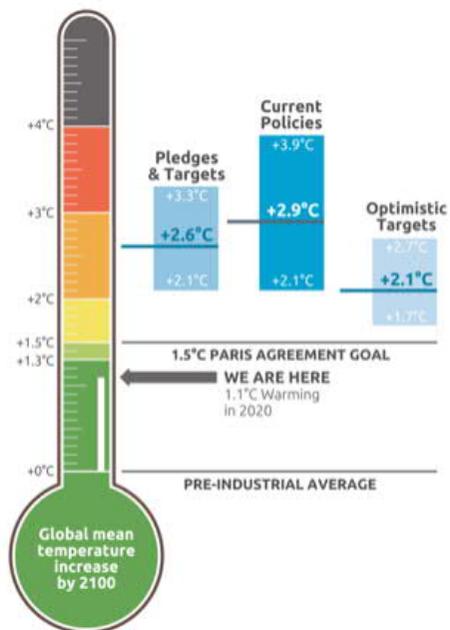
October 2021

welcome to brighter

# Background and Industry developments

# Climate Change Scenarios

## Commitments and the Science



- **Paris Agreement Aim:** “well below 2°C”
- **Global implementation of policies and pledges:** ~2.6°C to ~2.9°C
- **Business as usual (RCP 8.5):** ~2.6°C to ~4.8°C

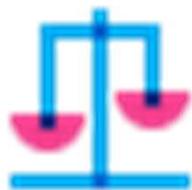
- What the low carbon scenarios mean in practice:
  - For a c.50-67% chance of achieving a **1.5°C scenario:**
    - a 45% emissions reduction is required from 2010 levels to 2030 and the net zero target year is ~2050.
  - For a c.50-66% chance of achieving a **2°C scenario:**
    - a 25% emissions reduction is required from 2010 levels to 2030 and the net zero target year is ~2070.
  - The diagram (right) illustrates the difference **0.5°C** can make



Sources: Climate Action Tracker (December 2020 <http://climateactiontracker.org/>); IPCC - <https://www.ipcc.ch/sr15/>; WRI (2018) “8 Things You Need to Know About the IPCC 1.5°C Report”; IPCC (2018) “Global Warming of 1.5°C”

# Low Carbon Transition targets

## Definitions



### Paris Alignment

**Bringing investments in line with the objectives of the Paris Agreement.**

To hold the mean surface temperature increase to “well below 2<sup>0</sup>C above preindustrial levels and to pursue efforts to limit the increase to 1.5<sup>0</sup>C”.



### Net Zero

**Bringing investments to a carbon neutral target.**

In September 2020, the UN noted that 22 regions, 452 cities, 1,101 businesses, 549 universities and >45 of the biggest investors had net zero commitments.

### The United Nations-Convened Net-Zero Asset Owner Alliance

Aiming to achieve net zero by 2050, representing \$5.5 trillion of AUM and align portfolios with a 1.5<sup>0</sup>C scenario.



“Paris Aligned Investor Initiative - PAII”. Committing to a goal of net zero emissions 2050 or sooner. The framework was developed by 70 investor representing \$16 trillion of AUM.

**Emerging but strong net zero target industry movement, regulatory direction and existing practice make target setting possible and targets achievable.**

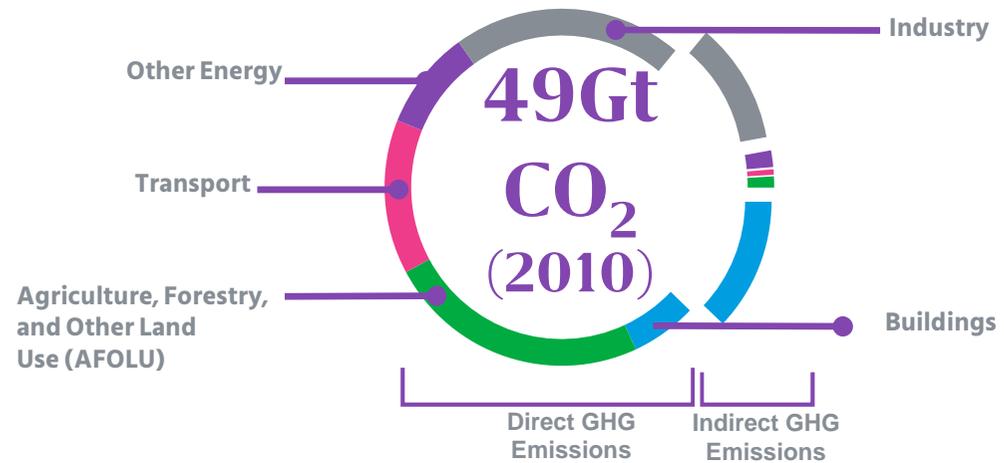
# Carbon Data

## Sources of Greenhouse Gas Emissions

Greenhouse Gas Emissions by Economic Sectors (IPCC):

**55%**  
Energy

**45%**  
Industry / Materials  
Agriculture / Land Use



Note: expressing emissions in carbon dioxide equivalents helps for consistent reporting across GHGs.

Source: IPCC (2018) "Global Warming of 1.5°C"; \*Scope 3 suffers from double counting issues, however the EU \* and UK Regulations suggest this should not prevent investors from beginning to track such data. EU TEG report (2019) focus on Scope 3 as a proxy for risk, with double counting not presenting an issue, given decarbonisation is relative.

**Baseline -  
further information**

# Transition Alignment and Emissions Baseline For Annual Monitoring

	Fund	SAA Weight %	Implied Temperature Rise (°C)
Global Equity	Russell WPP	5.0%	2.5
	BlackRock World ESG	5.0%	2.3
EM Equity	Wellington Core	3.0%	2.7
	Wellington Local	3.0%	2.3
	BlackRock EM	4.0%	2.8

	Fund	SAA Weight %	Coverage	Absolute emissions (tCO2e based on value of investment)	WACI (tCO2e/\$million sales)	Carbon Footprint (tCO2e/\$million investment)
				Scope 1 + 2	Scope 1 + 2	Scope 1 + 2
Global Equity	Russell WPP	5.0%	Good coverage	8,523	133.1	61.2
	BlackRock World ESG	5.0%	Some coverage and/or use of proxies	5,435	97.3	36.2
EM Equity	Wellington Core	3.0%	Good coverage	7,813	164.5	89.2
	Wellington Local	3.0%	Some coverage and/or use of proxies	8,230	238.7	93.1
	BlackRock EM	4.0%	Not measured	15,056	285.2	128.5



Good coverage

Some coverage and/or use of proxies

Not measured

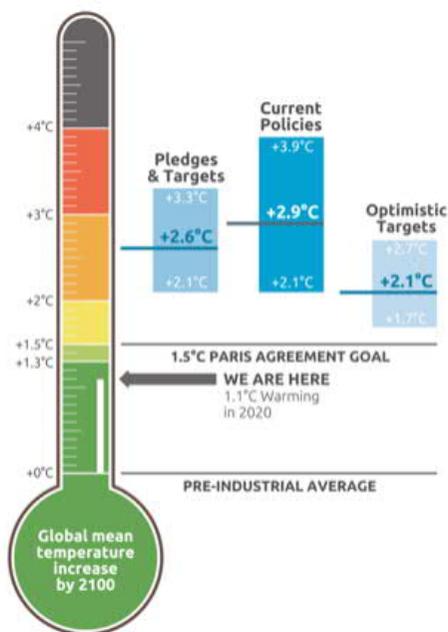
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# Implied Temperature Rise

## Important context

- The listed equity portfolio is currently on a 2.5°C pathway, on a weighted average basis. This compares to a 2.4°C pathway of the investable universe of listed global equities.
- All market stakeholders need to do more to achieve a 2.0°C, or lower, pathway.



- The Implied Temperature Rise, as based on MSCI metrics, analyses the “warming potential” or the contribution of a company’s activities towards climate change.\*
- It provides a temperature value that signifies which warming scenario (e.g., BAU, 3°C, 2°C, 1.5°C etc.) the company’s activities are currently aligned with. Thereafter, a “portfolio warming potential” is calculated as a weighted aggregate of the company-level warming potential.
- Not many companies are currently aligned with a 2050 (or earlier) net zero pathway.
- However this is anticipated to change in the future.

Sources: Climate Action Tracker (December 2020 <http://climateactiontracker.org/>); IPCC - <https://www.ipcc.ch/sr15/>; WRI (2018) “8 Things You Need to Know About the IPCC 1.5°C Report”; IPCC (2018) “Global Warming of 1.5°C” \*Calculating this metric relies on estimated data, models and numerous assumptions. Methodologies and results vary between data providers.

# Potential Emissions Baseline – Fossil Fuel for Annual Monitoring

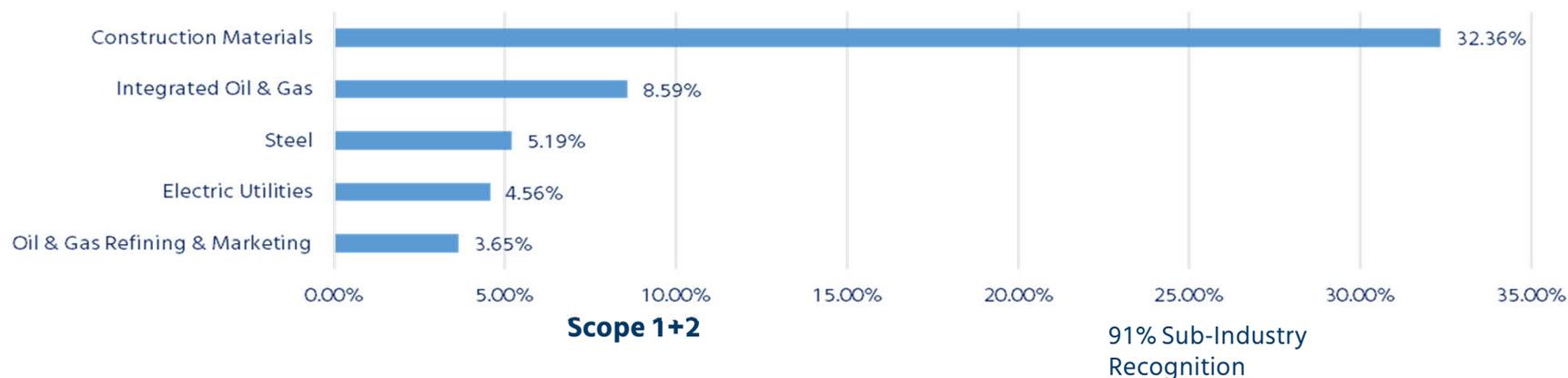
	Fund	SAA Weight %	Potential Emissions (MtCO2e) based on \$ Billion of investment
<b>Global Equity</b>	Russell WPP	5.0%	<b>1,432,090</b>
	BlackRock World ESG	5.0%	<b>656,601</b>
<b>EM Equity</b>	Wellington Core	3.0%	<b>1,540,134</b>
	Wellington Local	3.0%	<b>6,465</b>
	BlackRock EM	4.0%	<b>4,977,629</b>
<b>Listed Equity</b>			<b>1,749,689</b>

**Scope 1+2**

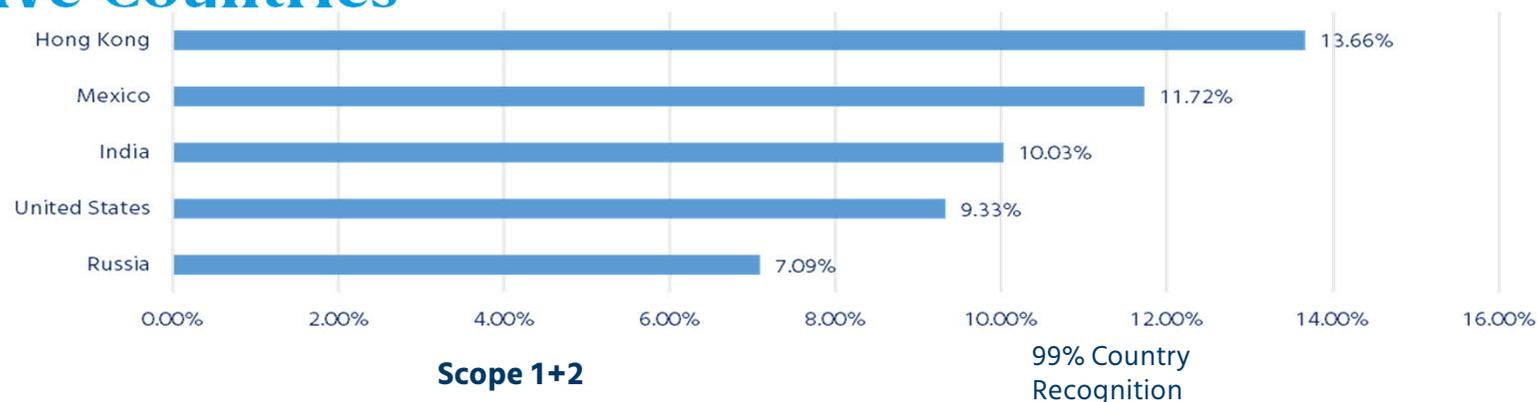
**further analysis**

# Decarbonisation – Absolute Emissions

## Top Five Sub-Industries



## Top Five Countries



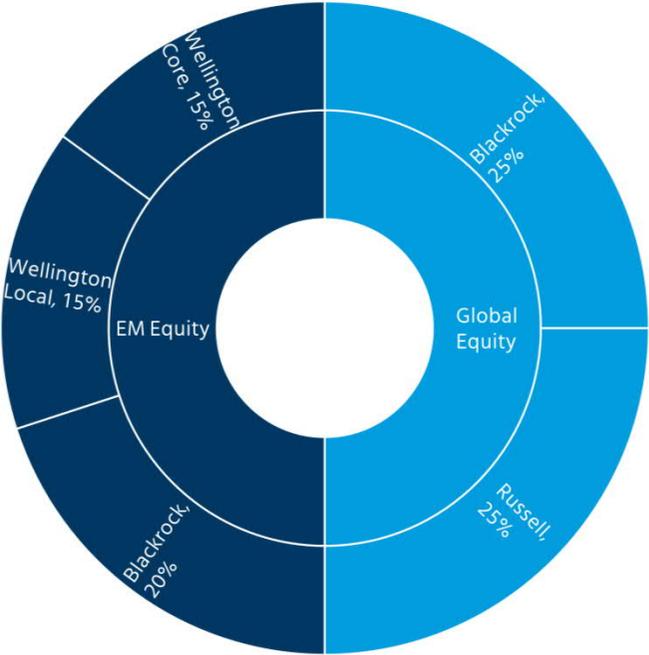
Notes: Figures may not sum due to rounding. Analysis of listed equity allocations only. Analysis captures carbon dioxide equivalent emissions (see Appendix on limitations). Data coverage of c.95%.

# Setting the Baseline

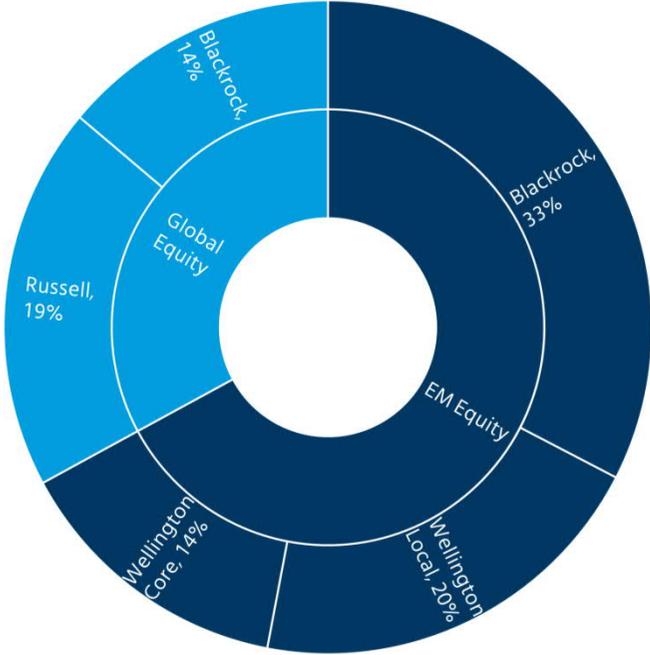
## WACI – Listed Equities

The charts compare the Clwyd Pension Fund strategic asset allocation for listed equities covered in this analysis, with the WACI of the mandates. The BlackRock EM equities account for c.33% of the portfolio’s WACI, while corresponding to 20% of the equities analysed.

**Clwyd’s Strategic Asset Allocation (SAA) (%)**



**WACI contribution by Fund (% Scope 1+2)**

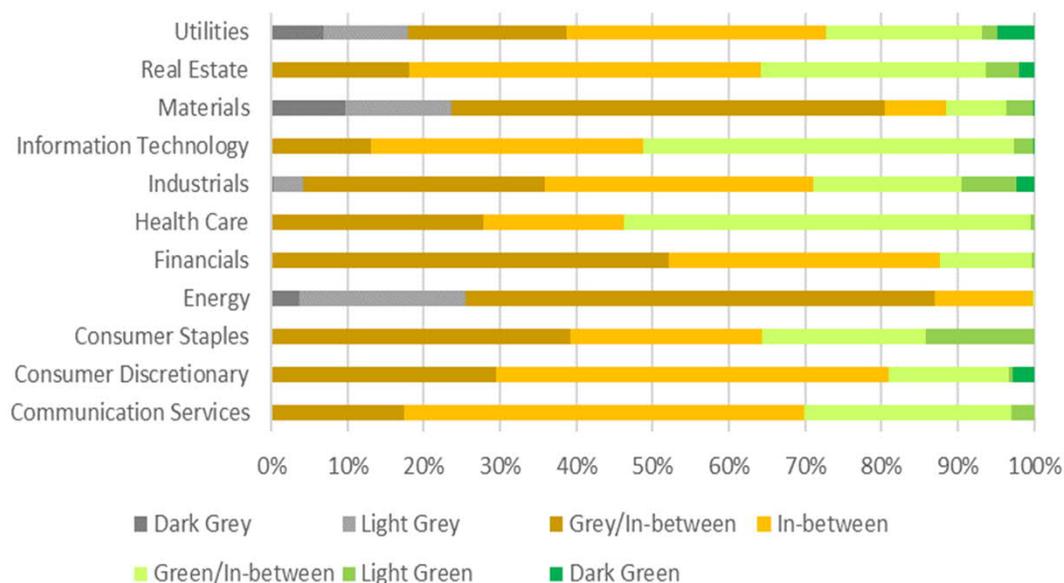


Notes: The asset allocation excludes absolute return and cash, not analysed in this report.

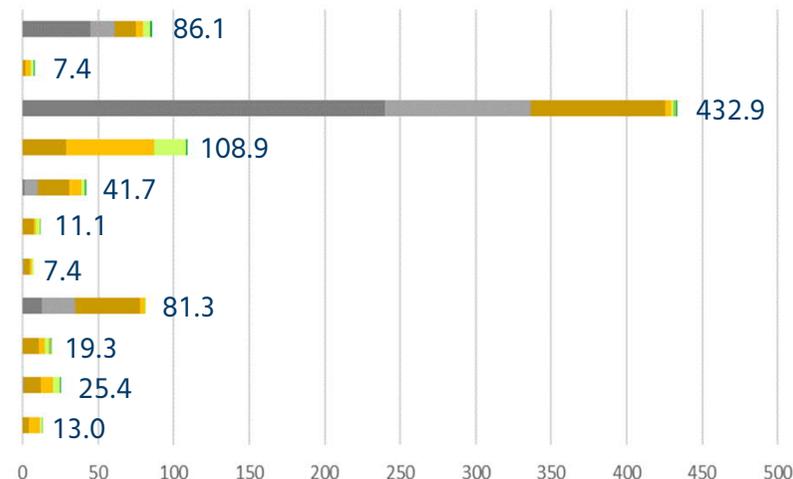
# Clwyd Transition Alignment

## Sector Assessment (Listed Equity Portfolio)

Transition Assessment by sector weight (%)



By contribution to sector carbon intensity



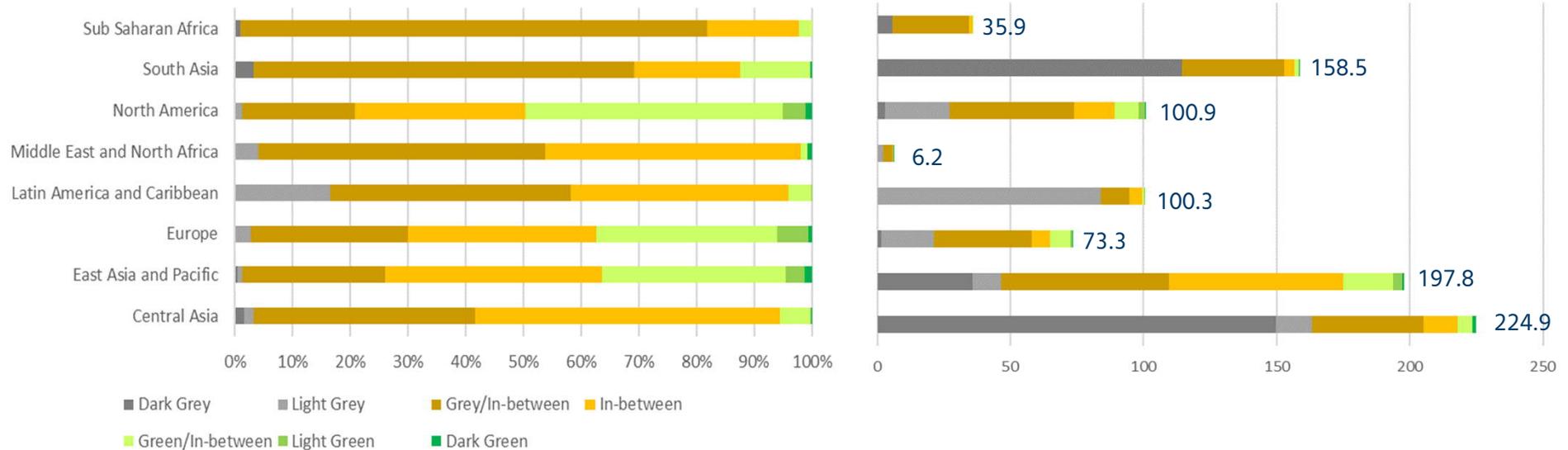
- **Grey assets** are concentrated primarily within **Materials and Energy**.
- The largest proportion of **dark green assets** sit within **Utilities** (Renewable Electricity account for the large proportion of materials exposure by weight), followed by **Consumer Discretionary** (with exposure to electric Automobile Manufacturers).
- **Materials** carbon intensity is mainly driven by Construction Materials. Materials accounts for just c.4.7% of the mandate's exposure, but 47.1% of the carbon intensity. With the greatest contribution coming from **China Resources Cement Holdings Limited**.

# Clwyd Transition Alignment

## Region Assessment (Listed Equity Portfolio)

Transition Assessment by region weight (%)

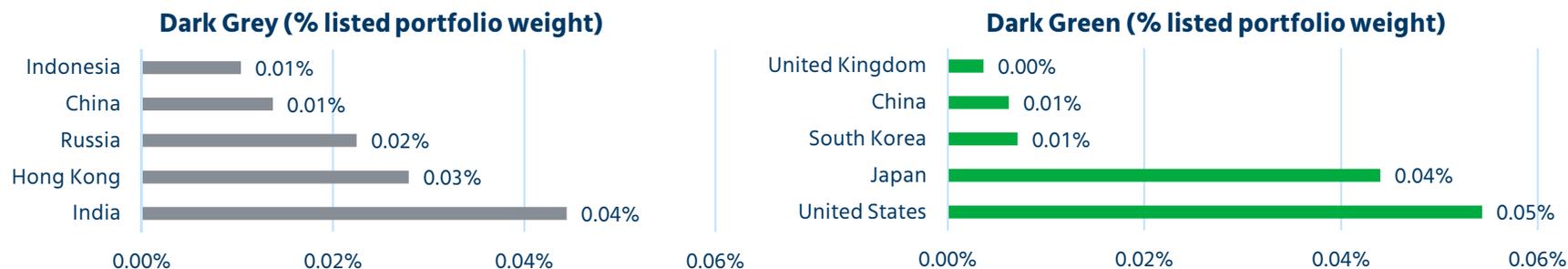
By contribution to regional carbon intensity



- There is some exposure to **Dark grey assets** within **Central Asia and South Asia regions**, the main companies responsible for this are **China Resources Cement Holdings Limited and Ultratech Cement Limited** in each corresponding region.
- The largest proportion of **dark green assets** sits within **North America and East Asia and Pacific**, in terms of region weight, given exposures to Automobile Manufacturers and Consumers Electronics.
- In terms of carbon intensity, the greatest carbon intensity is found for **Central Asia**, as well as **East Asia and Pacific** (driven by exposure to the Constructions Materials and Semiconductors).
- Conversely, emissions intensity is lowest in **Middle East and North Africa and Sub Saharan Africa**.

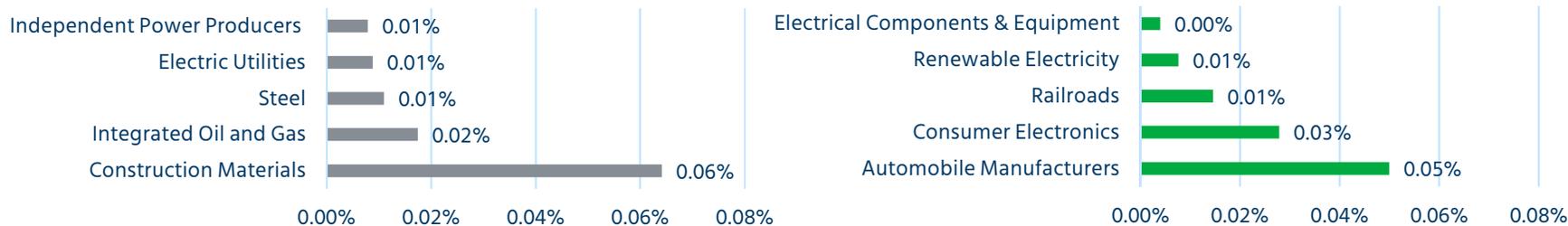
# Clwyd Transition Alignment

## Countries - Top Grey and Green



- In terms of countries, the country with the highest proportion of **dark grey assets** is **India**.
- As for **green assets**, the largest proportion sits within **United States**. This indicates a push towards low carbon solutions and markets within the listed portfolio.

## Sub-Industries - Top Grey and Green



- Within the Sub industry sectors, **dark grey** assets are concentrated primarily within the Construction Materials sub-industry, however these account for a small proportion of the total portfolio.
- As for **green assets**, **Automobile Manufacturers** is the sub-industry leading the path.

# Mercer Transition Assessment Category Listed Equity Portfolio – March 2021

## Top 20 worst companies by Mercer Transition Assessment Score

Company	Sector	Portfolio Weight (%)	Investment Value (£)	Mercer Transition Assessment Score	Mercer Transition Assessment Category
NTPC LIMITED	Utilities	0.00%	69,292	-15.2	Dark Grey
SASOL LIMITED	Materials	0.00%	84,109	-13.3	Dark Grey
PT Semen Indonesia (Persero) Tbk	Materials	0.01%	176,231	-13.0	Dark Grey
Saudi Electricity Company SJSC	Utilities	0.00%	51,860	-12.7	Dark Grey
VEDANTA LIMITED	Materials	0.00%	65,806	-12.5	Dark Grey
CHINA RESOURCES CEMENT HOLDINGS LIMITED	Materials	0.00%	563,925	-12.5	Dark Grey
CHINA HONGQIAO GROUP LIMITED	Materials	0.00%	25,059	-12.5	Dark Grey
China Shenhua Energy Company Limited	Materials	0.00%	86,288	-12.0	Dark Grey
COAL INDIA LTD	Energy	0.00%	27,455	-12.0	Dark Grey
ANHUI CONCH CEMENT COMPANY LIMITED	Materials	0.01%	111,317	-11.5	Dark Grey
BBMG Corporation	Materials	0.00%	5,448	-11.5	Dark Grey
SDIC Power Holdings Co., Ltd.	Utilities	0.00%	11,113	-11.3	Dark Grey
KOREA ELECTRIC POWER CORPORATION	Utilities	0.00%	52,514	-11.2	Dark Grey
INTER RAO YEES PAO	Utilities	0.00%	26,584	-11.1	Dark Grey
PT Indocement Tunggul Prakarsa Tbk	Materials	0.00%	17,432	-11.0	Dark Grey
JSW STEEL LIMITED	Materials	0.00%	62,537	-11.0	Dark Grey
NOVOLIPETSK STEEL PAO	Materials	0.00%	38,786	-11.0	Dark Grey
ULTRATECH CEMENT LIMITED	Materials	0.03%	550,198	-11.0	Dark Grey
Saudi Cement Company SJSC	Materials	0.00%	16,125	-10.5	Dark Grey
SHREE CEMENT LIMITED	Materials	0.00%	46,195	-10.5	Dark Grey
<b>Total</b>		<b>0.10%</b>			

# Mercer Transition Assessment Category

## Russell WPP – March 2021

### Top 10 worst companies by Mercer Transition Assessment Score

Company	Sector	Fund Weight (%)	Mercer Transition Assessment Score	Mercer Transition Assessment Category
PT Semen Indonesia (Persero) Tbk	Materials	0.1430%	-13.0	Dark Grey
ULTRATECH CEMENT LIMITED	Materials	0.0091%	-11.0	Dark Grey
NRG ENERGY, INC.	Utilities	0.0408%	-9.7	Dark Grey
CANADIAN NATURAL RESOURCES LIMITED	Energy	0.0211%	-9.6	Dark Grey
APA CORPORATION	Energy	0.1021%	-8.8	Light Grey
EREGLI DEMIR VE CELIK FABRIKALARI TURK ANONIM SIRKETI	Materials	0.1109%	-8.5	Light Grey
PINNACLE WEST CAPITAL CORPORATION	Utilities	0.0911%	-8.2	Light Grey
OCCIDENTAL PETROLEUM CORPORATION	Energy	0.1309%	-7.5	Light Grey
Japan Airlines Co., Ltd.	Industrials	0.3910%	-7.5	Light Grey
WEC ENERGY GROUP, INC.	Utilities	0.1031%	-7.5	Light Grey
<b>Total</b>		<b>1.14%</b>		

# Mercer Transition Assessment Category

## BlackRock World ESG – March 2021

### Top 10 worst companies by Mercer Transition Assessment Score

Company	Sector	Fund Weight (%)	Mercer Transition Assessment Score	Mercer Transition Assessment Category
CF INDUSTRIES HOLDINGS, INC.	Materials	0.02%	-10.5	Dark Grey
EVRAZ PLC	Materials	0.01%	-10.0	Dark Grey
CENTERPOINT ENERGY, INC.	Utilities	0.02%	-8.5	Light Grey
HeidelbergCement AG	Materials	0.03%	-8.0	Light Grey
ArcelorMittal SA	Materials	0.04%	-8.0	Light Grey
SOUTHWEST AIRLINES CO.	Industrials	0.02%	-8.0	Light Grey
INPEX CORPORATION	Energy	0.01%	-7.8	Light Grey
PUBLIC SERVICE ENTERPRISE GROUP INCORPORATED	Utilities	0.06%	-7.5	Light Grey
OCCIDENTAL PETROLEUM CORPORATION	Energy	0.05%	-7.5	Light Grey
Japan Airlines Co., Ltd.	Industrials	0.01%	-7.5	Light Grey
<b>Total</b>		<b>0.26%</b>		

# Mercer Transition Assessment Category

## Wellington Core – March 2021

### Top 10 worst companies by Mercer Transition Assessment Score

Company	Sector	Fund Weight (%)	Mercer Transition Assessment Score	Mercer Transition Assessment Category
GRUPA LOTOS SPOLKA AKCYJNA	Energy	0.95%	-8.0	Light Grey
CEMEX, Sociedad Anonima Bursatil de Capital Variable	Materials	1.52%	-7.3	Light Grey
NK LUKOIL PAO	Energy	0.96%	-7.0	Light Grey
PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED	Energy	0.46%	-5.5	Grey/In-between
PAREX RESOURCES INC.	Energy	0.90%	-5.5	Grey/In-between
ALPEK, S.A.B. DE C.V.	Materials	0.52%	-5.0	Grey/In-between
HARMONY GOLD MINING COMPANY LIMITED	Materials	0.61%	-5.0	Grey/In-between
TURK TELEKOMUNIKASYON ANONIM SIRKETI	Communication Services	0.46%	-4.8	Grey/In-between
Gold Fields Limited	Materials	0.60%	-4.5	Grey/In-between
TAL EDUCATION GROUP	Consumer Discretionary	0.38%	-4.5	Grey/In-between
<b>Total</b>		<b>7.35%</b>		

# Mercer Transition Assessment Category

## Wellington Local – March 2021

### Top 10 worst companies by Mercer Transition Assessment Score

Company	Sector	Fund Weight (%)	Mercer Transition Assessment Score	Mercer Transition Assessment Category
CHINA RESOURCES CEMENT HOLDINGS LIMITED	Materials	0.81%	-12.5	Dark Grey
ULTRATECH CEMENT LIMITED	Materials	0.67%	-11.0	Dark Grey
CEMEX, Sociedad Anonima Bursatil de Capital Variable	Materials	0.25%	-7.3	Light Grey
RELIANCE INDUSTRIES LIMITED	Energy	0.80%	-5.2	Grey/In-between
CP All Public Company Limited	Consumer Staples	0.39%	-5.0	Grey/In-between
MINTH GROUP LIMITED	Consumer Discretionary	0.63%	-5.0	Grey/In-between
YDUQS Participacoes S.A.	Consumer Discretionary	0.51%	-4.5	Grey/In-between
NEW ORIENTAL EDUCATION & TECHNOLOGY GROUP INC.	Consumer Discretionary	1.02%	-4.5	Grey/In-between
TAL EDUCATION GROUP	Consumer Discretionary	0.25%	-4.5	Grey/In-between
TUBE INVESTMENTS OF INDIA LIMITED	Materials	1.84%	-4.5	Grey/In-between
<b>Total</b>		<b>7.18%</b>		

# Mercer Transition Assessment Category

## BlackRock EM – March 2021

### Top 10 worst companies by Mercer Transition Assessment Score

Company	Sector	Fund Weight (%)	Mercer Transition Assessment Score	Mercer Transition Assessment Category
NTPC LIMITED	Utilities	0.08%	-15.2	Dark Grey
SASOL LIMITED	Materials	0.10%	-13.3	Dark Grey
PT Semen Indonesia (Persero) Tbk	Materials	0.03%	-13.0	Dark Grey
Saudi Electricity Company SJSC	Utilities	0.06%	-12.7	Dark Grey
VEDANTA LIMITED	Materials	0.07%	-12.5	Dark Grey
CHINA RESOURCES CEMENT HOLDINGS LIMITED	Materials	0.04%	-12.5	Dark Grey
CHINA HONGQIAO GROUP LIMITED	Materials	0.03%	-12.5	Dark Grey
China Shenhua Energy Company Limited	Materials	0.09%	-12.0	Dark Grey
COAL INDIA LTD	Energy	0.03%	-12.0	Dark Grey
ANHUI CONCH CEMENT COMPANY LIMITED	Materials	0.12%	-11.5	Dark Grey
<b>Total</b>		<b>0.66%</b>		

# Potential Emissions – Fossil Fuel

## Russell WPP – March 2021

### Top companies by Thermal Coal Potential Emissions

Company	Sector	Fund Weight (%)	Thermal Coal Potential Emissions (MtCO2e)
BHP GROUP PLC	Materials	0.51%	1,302
BHP GROUP LIMITED	Materials	0.02%	1,302
VALE S.A.	Materials	0.48%	390
MITSUI & CO., LTD.	Industrials	0.39%	125
No more contributors			
<b>Total</b>		<b>1.40%</b>	

### Top companies by Natural Gas Potential Emissions

Company	Sector	Fund Weight (%)	Natural Gas Potential Emissions (MtCO2e)
BP P.L.C.	Energy	0.48%	2,369
TotalEnergies SE	Energy	0.52%	2,160
ROYAL DUTCH SHELL PLC	Energy	0.03%	1,457
NK LUKOIL PAO	Energy	0.05%	1,195
GMK NORIL'SKIY NIKEL' PAO	Materials	0.26%	466
<b>Total</b>		<b>1.34%</b>	

### Top companies by Oil Potential Emissions

Company	Sector	Fund Weight (%)	Oil Potential Emissions (MtCO2e)
NK LUKOIL PAO	Energy	0.05%	4,946
CANADIAN NATURAL RESOURCES LIMITED	Energy	0.02%	4,929
BP P.L.C.	Energy	0.48%	4,559
Petroleo Brasileiro S.A. (Petrobras)	Energy	0.32%	3,197
TotalEnergies SE	Energy	0.52%	2,696
<b>Total</b>		<b>1.39%</b>	

# Potential Emissions – Fossil Fuel

## BlackRock World ESG – March 2021

### Top companies by Thermal Coal Potential Emissions

Company	Sector	Fund Weight (%)	Thermal Coal Potential Emissions (MtCO2e)
GLENCORE PLC	Materials	0.08%	2,971
ITOCHU Corporation	Industrials	0.09%	570
MITSUI & CO., LTD.	Industrials	0.07%	125
Mitsubishi Corporation	Industrials	0.07%	64
BERKSHIRE HATHAWAY INC.	Financials	0.69%	32
<b>Total</b>		<b>0.99%</b>	

### Top companies by Natural Gas Potential Emissions

Company	Sector	Fund Weight (%)	Natural Gas Potential Emissions (MtCO2e)
BP P.L.C.	Energy	0.17%	2,369
TotalEnergies SE	Energy	0.23%	2,160
CHEVRON CORPORATION	Energy	0.39%	2,053
EXXON MOBIL CORPORATION	Energy	0.47%	2,047
ENI S.P.A.	Energy	0.06%	1,097
<b>Total</b>		<b>1.32%</b>	

### Top companies by Oil Potential Emissions

Company	Sector	Fund Weight (%)	Oil Potential Emissions (MtCO2e)
BP P.L.C.	Energy	0.17%	4,559
EXXON MOBIL CORPORATION	Energy	0.47%	3,859
CHEVRON CORPORATION	Energy	0.39%	3,007
TotalEnergies SE	Energy	0.23%	2,696
ENI S.P.A.	Energy	0.06%	1,487
<b>Total</b>		<b>1.32%</b>	

# Potential Emissions – Fossil Fuel

## Wellington Core – March 2021

**Top companies by Thermal Coal Potential Emissions**

Company	Sector	Fund Weight (%)	Thermal Coal Potential Emissions (MtCO2e)
ANGLO AMERICAN PLC	Materials	2.29%	467
No more contributors			
<b>Total</b>		<b>2.29%</b>	

**Top companies by Natural Gas Potential Emissions**

Company	Sector	Fund Weight (%)	Natural Gas Potential Emissions (MtCO2e)
NK LUKOIL PAO	Energy	0.96%	1,195
PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED	Energy	0.46%	252
GRUPA LOTOS SPOLKA AKCYJNA	Energy	0.95%	4
PAREX RESOURCES INC.	Energy	0.90%	2
No more contributors			
<b>Total</b>		<b>3.27%</b>	

**Top companies by Oil Potential Emissions**

Company	Sector	Fund Weight (%)	Oil Potential Emissions (MtCO2e)
NK LUKOIL PAO	Energy	0.96%	4,946
PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED	Energy	0.46%	125
PAREX RESOURCES INC.	Energy	0.90%	46
GRUPA LOTOS SPOLKA AKCYJNA	Energy	0.95%	26
No more contributors			
<b>Total</b>		<b>3.27%</b>	

# Potential Emissions – Fossil Fuel

## Wellington Local – March 2021

### Top companies by Thermal Coal Potential Emissions

Company	Sector	Fund Weight (%)	Thermal Coal Potential Emissions (MtCO2e)
No more contributors			
<b>Total</b>		<b>0.00%</b>	

### Top companies by Natural Gas Potential Emissions

Company	Sector	Fund Weight (%)	Natural Gas Potential Emissions (MtCO2e)
RELIANCE INDUSTRIES LIMITED	Energy	0.80%	144
No more contributors			
<b>Total</b>		<b>0.80%</b>	

### Top companies by Oil Potential Emissions

Company	Sector	Fund Weight (%)	Oil Potential Emissions (MtCO2e)
RELIANCE INDUSTRIES LIMITED	Energy	0.80%	27
No more contributors			
<b>Total</b>		<b>0.80%</b>	

# Potential Emissions – Fossil Fuel

## BlackRock EM – March 2021

### Top companies by Thermal Coal Potential Emissions

Company	Sector	Fund Weight (%)	Thermal Coal Potential Emissions (MtCO2e)
COAL INDIA LTD	Energy	0.03%	21,980
Shaanxi Coal Industry Company Limited	Energy	0.01%	15,002
China Shenhua Energy Company Limited	Materials	0.10%	11,013
NTPC LIMITED	Utilities	0.08%	7,306
Yanzhou Coal Mining Company Limited	Materials	0.02%	5,002
<b>Total</b>		<b>0.24%</b>	

### Top companies by Natural Gas Potential Emissions

Company	Sector	Fund Weight (%)	Natural Gas Potential Emissions (MtCO2e)
GAZPROM PAO	Energy	0.44%	36,701
Saudi Arabian Oil Company	Energy	0.26%	10,059
NOVATEK PAO	Energy	0.22%	4,749
NK ROSNEFT' PAO	Energy	0.11%	4,150
PetroChina Company Limited	Energy	0.10%	4,122
<b>Total</b>		<b>1.13%</b>	

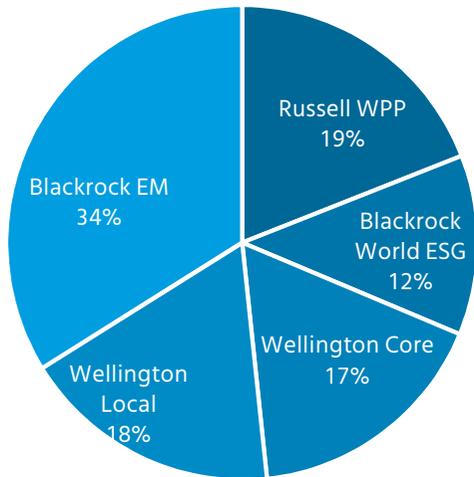
### Top companies by Oil Potential Emissions

Company	Sector	Fund Weight (%)	Oil Potential Emissions (MtCO2e)
Saudi Arabian Oil Company	Energy	0.26%	94,781
NK ROSNEFT' PAO	Energy	0.11%	10,920
NK LUKOIL PAO	Energy	0.42%	4,946
GAZPROM PAO	Energy	0.44%	4,773
Petroleo Brasileiro S.A. (Petrobras)	Energy	0.43%	3,197
<b>Total</b>		<b>1.66%</b>	

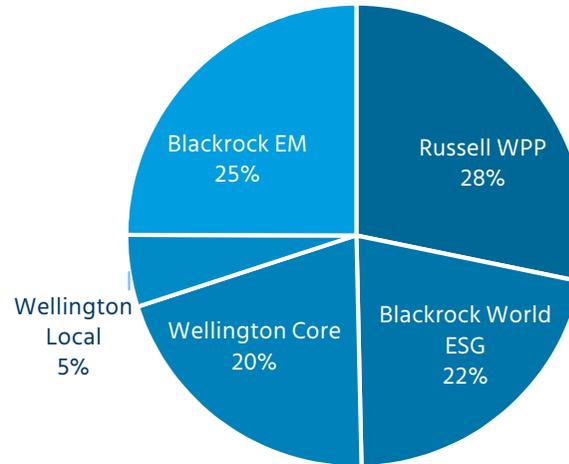
**Scope 1, 2+3**

**further analysis**

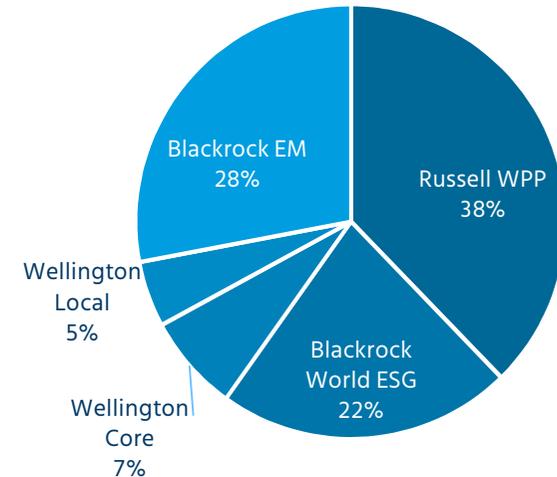
# Decarbonisation – Absolute Emissions Fund Assessment (Listed Equity Portfolio)



**Scope 1+2**



**Scope 3 Downstream**

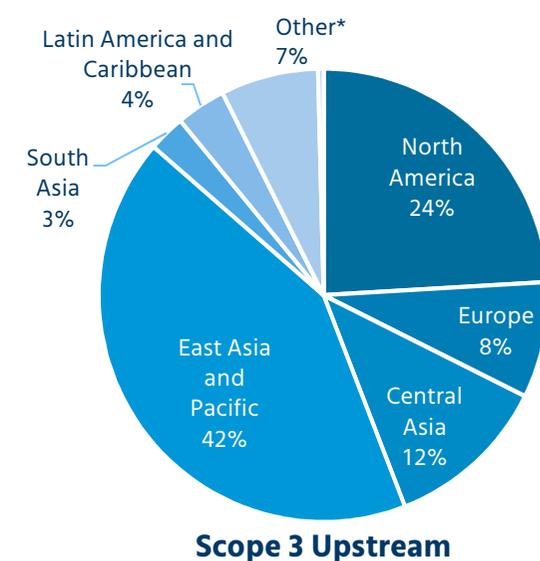
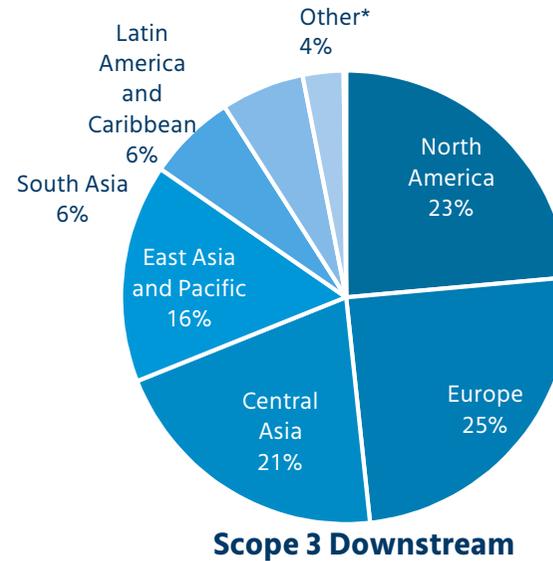
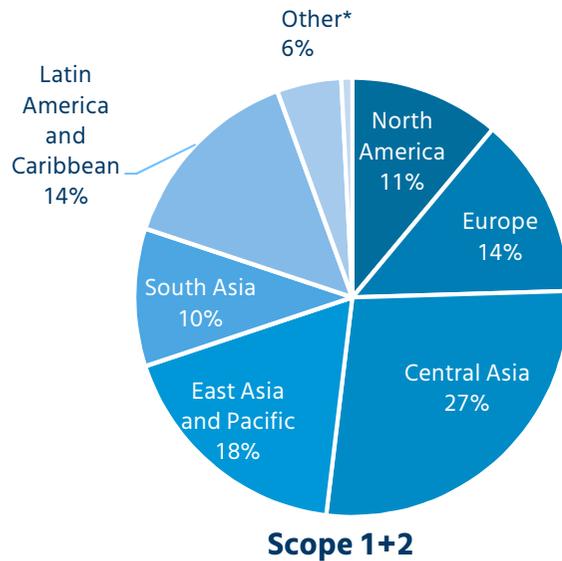


**Scope 3 Upstream**

- BlackRock EM fund is the source of the majority of Scope 1+2 Emissions (c.34%).
- The value of investments has an impact on absolute emissions attribution (i.e. relative ownership of assets). However the listed equity fund with the second lowest investment value - BlackRock EM - accounts for a high proportion of absolute emissions (c.34%) for Scope 1+2 emissions .

Notes: Figures may not sum due to rounding. Analysis of listed equity allocations only. Analysis captures carbon dioxide equivalent emissions (see Appendix on limitations). Data coverage of c.95%.

# Decarbonisation – Absolute Emissions Region Assessment (Listed Equity Portfolio)



- The three key regions most responsible for absolute emissions, across all scopes, are Central Asia, North America, and East Asia and Pacific (c.56-78% of emissions across scopes), suggesting the presence of regional value chains.

Notes: Figures may not sum due to rounding. Analysis of listed equity allocations only. Analysis captures carbon dioxide equivalent emissions (see Appendix on limitations). Data coverage of c.95%. \*includes Sub Saharan Africa and Middle East and North Africa regions.

# Transition Alignment and Emissions Baseline for Annual Monitoring

	Fund	SAA Weight %	Implied Temperature Rise (°C)
Global Equity	Russell WPP	5.0%	<b>2.5</b>
	BlackRock World ESG	5.0%	<b>2.3</b>
EM Equity	Wellington Core	3.0%	<b>2.7</b>
	Wellington Local	3.0%	<b>2.3</b>
	BlackRock EM	4.0%	<b>2.8</b>

	Fund	SAA Weight %	Coverage	Absolute emissions (tCO2e based on value of investment)			WACI (tCO2e/\$million sales)			Carbon Footprint (tCO2e/\$million investment)		
				Scope 1 + 2	Scope 3 upstream	Scope 3 downstream	Scope 1 + 2	Scope 3 upstream	Scope 3 downstream	Scope 1 + 2	Scope 3 upstream	Scope 3 downstream
Global Equity	Russell WPP	5.0%		<b>8,522.8</b>	27,592.3	40,132.8	<b>133.1</b>	263.1	399.8	<b>61.2</b>	134.3	208.4
	BlackRock World ESG	5.0%		<b>5,434.7</b>	16,014.5	30,200.6	<b>97.3</b>	208.1	304.8	<b>36.2</b>	80.1	151.3
EM Equity	Wellington Core	3.0%		<b>7,812.9</b>	5,431.3	29,729.0	<b>164.5</b>	191.3	475.4	<b>89.2</b>	96.2	326.8
	Wellington Local	3.0%		<b>8,229.5</b>	3,707.4	7,377.3	<b>238.7</b>	186.0	392.6	<b>93.1</b>	53.6	83.5
	BlackRock EM	4.0%		<b>15,055.6</b>	20,315.8	35,270.4	<b>285.2</b>	393.0	563.2	<b>128.5</b>	108.2	326.8



Good coverage



Some coverage and/or use of proxies



Not measured

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# Methodology

# Low Carbon Transition

## Potential Emissions in Detail

### Measure of possible 'future' emissions

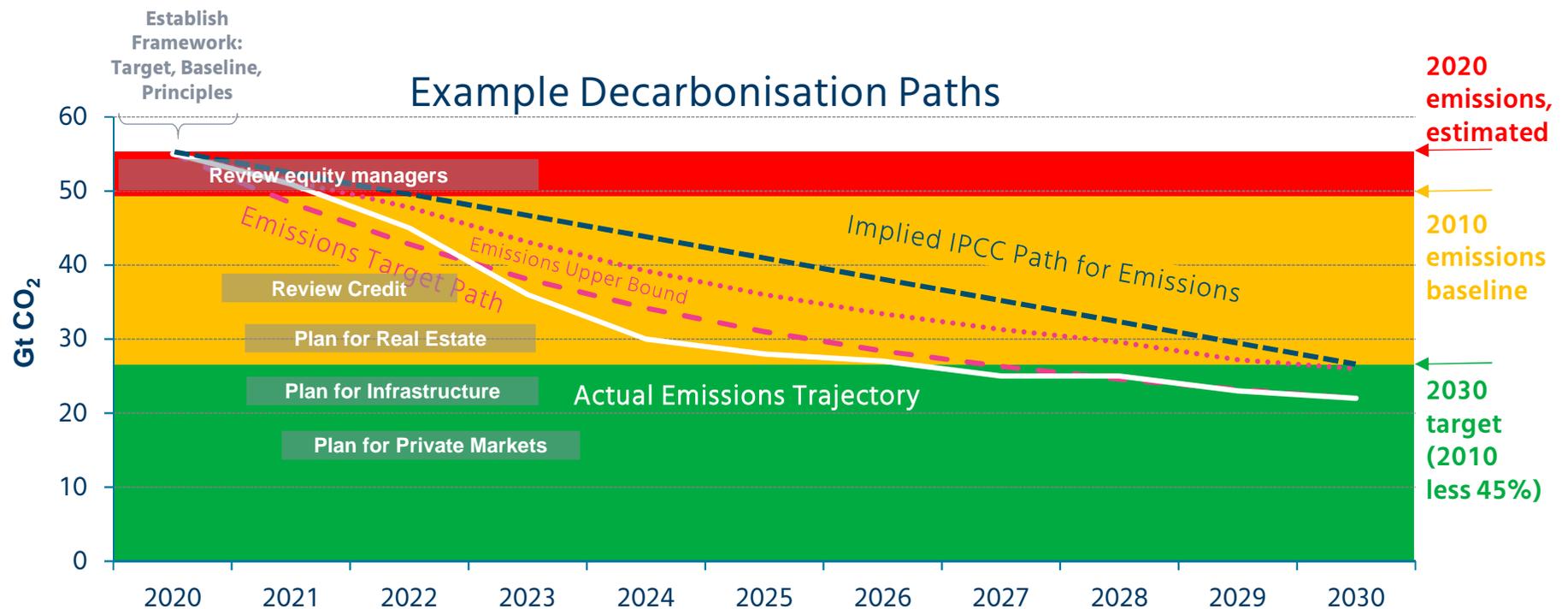
#### Potential Emissions from Fossil Fuel Reserves

- Potential emissions from fossil fuel reserves
- **Carbon emissions (Metric tons), based on \$ Billion of investment**
- Measures the portfolio's exposure to fossil fuel reserves, as a proxy for stranded asset risk

# Planning the Path

## Total Portfolio Decarbonisation Target Setting

- **Markets anticipate change; the portfolio should decarbonise before the planet does**  
There is evidence that markets are already recognising climate change considerations.
- **Prioritise 'easy wins': high emitting, liquid strategies, with investable alternatives**  
It is pragmatic to prioritise areas of the portfolio where change is feasible.
- **Decarbonisation-at-the-Right-Price; build dynamism into the strategic plan**  
Market trends create excesses, which may inform the timing of transitions away from high emission stocks.



# Clwyd Pension Fund

## Manager engagement guidance 2021-2022

- **Example questions when engaging with managers:**

Which are the priority managers to engage with – further analysis to uncover the exact approach .

- Do the managers agree with the Clwyd’s decarbonisation conclusions?
- Do the managers’ decarbonisation ambitions align with those of the Fund? Has the manager made a 2050 net zero commitment? Does the manager have decarbonisation ambition and decarbonisation targets for the next 5 years and 10 years, respectively? If not, why not? If so, are the 2025 and 2030 targets sufficiently ambitious?
- In line with the latest UK Regulatory Guidance “Taking Action on Climate Risk”, does the manager analyse absolute emissions, emissions intensity and additional metrics, regularly, to inform fund decision-making?
- Does the manager regularly provide reporting to the Fund on emissions and low carbon transition alignment?
- Does it also provide a summary on those companies that are leading or lagging on decarbonisation efforts? Does it set out stewardship action plans for engaging those companies on the low carbon transition?
- Where grey/carbon intensive exposures remain, can the manager justify these as the only option for delivering the stated investment objective?

# Decarbonisation Curve

## European Policy

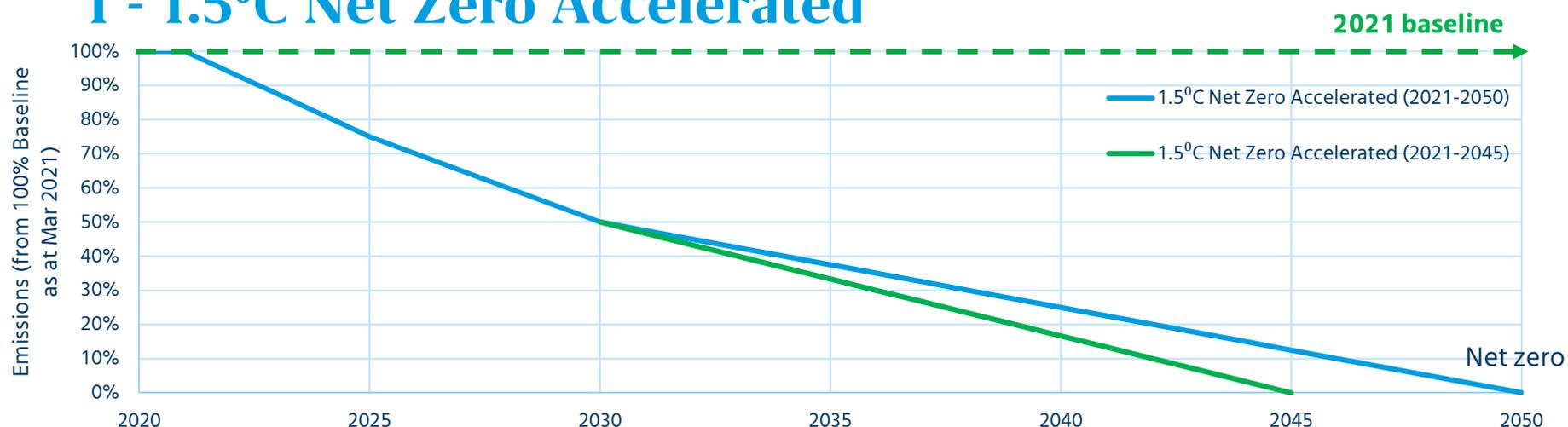
Using a 2021 baseline:	Emissions reduction to 2030 (%)	Emissions reduction to 2050 (%)
Policy scenario	-60%	Net zero

- In this approach, we focus on the policy ambitions of the European Union. The European Parliament has voted in favour of achieving a -60% emissions reduction to 2030, based on 1990 levels, towards achieving climate neutrality by 2050. Note: this differs, and is more ambitious than, the European Commission's target of a -55% emissions reduction to 2030 based on 1990 levels.
- We integrate the -60% emissions reduction assumption to 2030 into the listed equity portfolio emissions trajectory to develop decarbonisation targets, founded within European policy.
- **Advantage:** The European rhetoric on decarbonisation ambition is likely to centre on European policy, with this approach helping to tie the Fund into the wider policy landscape, including regulations (e.g. SFDR), and best practice (e.g. European Union Paris Aligned Benchmark).
- **Disadvantage:** The European policy landscape adopts a 1990 baseline, whilst Mercer adopts a 2021 baseline given the lack of data availability for 1990. The European data shows that the European Union has decarbonised by c.-23% over the past three decades (1990-2018).

Source: Europa website; [https://ec.europa.eu/clima/news/eu-greenhouse-gas-emissions-down\\_en](https://ec.europa.eu/clima/news/eu-greenhouse-gas-emissions-down_en)

# Decarbonisation Targets (Scope 1+2)

## 1 - 1.5°C Net Zero Accelerated



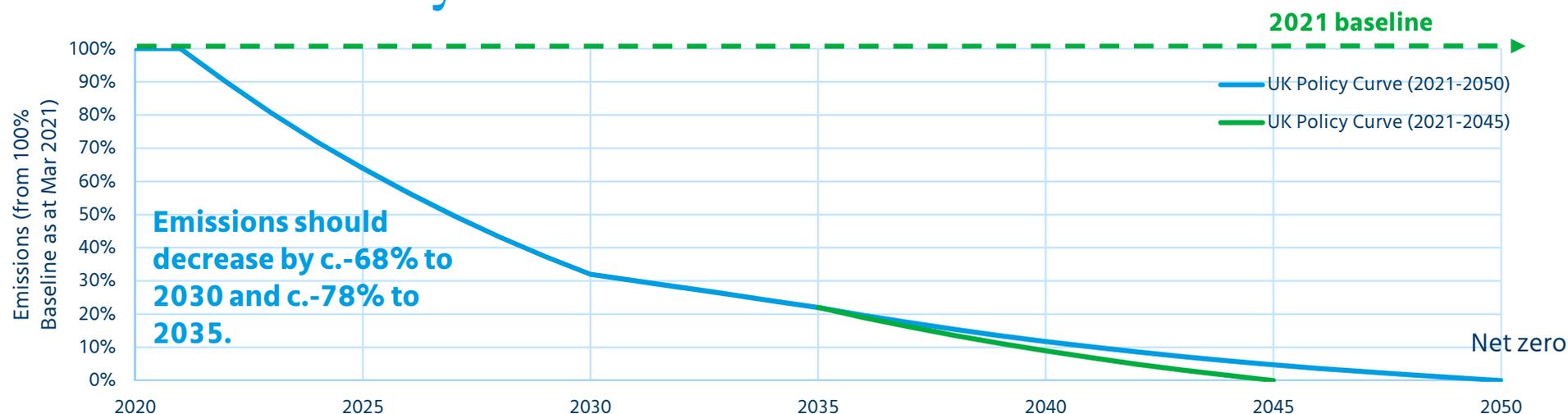
	2045 Net Zero		2050 Net Zero	
	Absolute emissions (tCO <sub>2</sub> e), Scope 1 and Scope 2	Percentage reduction from 2021 baseline (%)	Absolute emissions (tCO <sub>2</sub> e), Scope 1 and Scope 2	Percentage reduction from 2021 baseline (%)
2021	46,126	-	46,126	-
2025	34,595	-25.0%	34,595	-25.0%
2030	23,063	-50.0%	23,063	-50.0%
2035	15,375	-66.7%	17,297	-62.5%
2045	Net zero		5,766	-87.5%
2050	-	-	Net zero	

- We do not analyse net negative assumptions in this report, however the complete decarbonisation of the listed portfolio may require net negative approaches and technologies, in the future, by companies and/or investment managers.
- We assume the 2021 carbon emission value as the baseline, accounting Listed Equity.
- For the decarbonisation required to achieve net zero, the Fund's listed portfolio needs to **reduce emissions by c.-5.6% a year from 2022-2030**. From 2030, and towards a net zero target by 2050, emissions reductions would be equivalent to c.-2.5% p.a., as compared with c.-3.3% p.a. for a 2045 net zero target.

Notes: The coverage is c.95%, we therefore assume companies not covered by the analysis are represented *within* the range of companies that have been covered in the analysis. Analysis captures carbon dioxide equivalent emissions (see Appendix on limitations).

# Decarbonisation Targets (Scope 1+2)

## 2 – UK Policy Curve



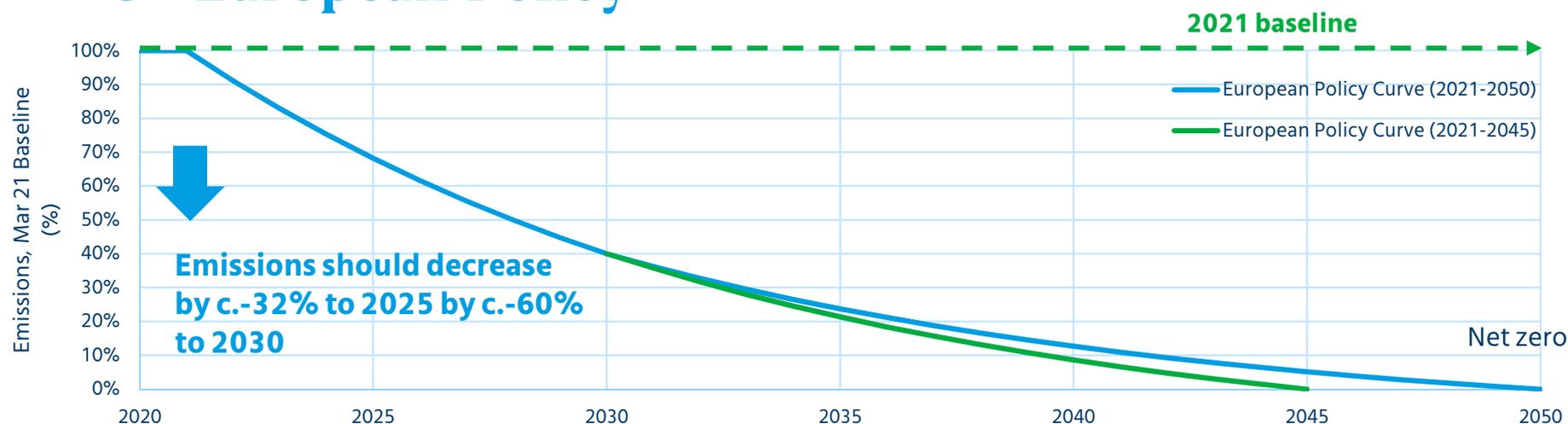
	Listed Equity (2050 Net zero)		Listed Equity (2045 Net zero)	
	Absolute emissions (tCO <sub>2</sub> e), Scope 1 and Scope 2	Percentage reduction from 2021 baseline (%)	Absolute emissions (tCO <sub>2</sub> e), Scope 1 and Scope 2	Percentage reduction from 2021 baseline (%)
2021	46,126	-	46,126	-
2025	29,494	-36.1%	29,494	-36.1%
2030	14,760	-68.0%	14,760	-68.0%
2035	10,148	-78.0%	10,148	-78.0%
2045	2,192	-95.2%	Net Zero	
2050	Net Zero		-	

- As with all targets analysed, the focus is on strong upfront action in the easier to mitigate sectors and asset classes. The UK Policy Curve targets a c-68.0% reduction by 2030.
- For the decarbonisation required to achieve net zero, the Fund's listed portfolio needs to **reduce emissions by c.-7.6% a year from 2022-2030**. From 2035, and towards a net zero target by 2050, emissions reductions would be equivalent to c.-1.5% p.a., as compared with c.-2.2% p.a. for a 2045 net zero target.
- Net negative assumptions are not analysed, however the carbon neutrality may require net negative approaches, by companies and/or investment managers.

Notes: The coverage is c.95%, we therefore assume companies not covered by the analysis are represented *within* the range of companies that have been covered in the analysis. Analysis captures carbon dioxide equivalent emissions (see Appendix on limitations). Source data: [UK enshrines new target in law to slash emissions by 78% by 2035 - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

# Decarbonisation Targets (Scope 1+2)

## 3 - European Policy



	Listed Equity (2050 Net zero)		Listed Equity (2045 Net zero)	
	Absolute emissions (tCO <sub>2</sub> e), Scope 1 and Scope 2	Percentage reduction from 2021 baseline (%)	Absolute emissions (tCO <sub>2</sub> e), Scope 1 and Scope 2	Percentage reduction from 2021 baseline (%)
2021	46,126	-	46,126	-
2025	31,451	-31.8%	31,451	-31.8%
2030	18,450	-60.0%	18,450	-60.0%
2035	10,945	-76.3%	9,842	-78.7%
2045	2,364	-94.9%	Net zero	
2050	Net zero		-	

- Adopting the European policy pathway recommends for a **c.-8.0% p.a. reduction to 2025, c.-6.7% p.a. to 2030 and c.-5.5% p.a. reduction to 2035**. We adopt accelerated action to the 2030 -60% target, followed by accelerated action post-2035, equivalent to a c.-1.6% p.a. reduction towards a 2050 net zero target, this compares to c.-2.1% p.a. in an accelerated path to net zero by 2045.
- As with the previous targets analysed, net negative assumptions are not analysed, however the carbon neutrality may require net negative approaches, by companies and/or investment managers.

Notes: The coverage is c.87%, we therefore assume companies not covered by the analysis are represented *within* the range of companies that have been covered in the analysis. Analysis captures carbon dioxide equivalent emissions (see Appendix on limitations).

# Recommended Pathways

## Decarbonisation Curves

Year	UK Policy Curve (%)	Year-on-year emissions reduction (%)
Mar 2021	100.0	-10.1
2022	89.9	-9.3
2023	80.6	-8.6
2024	71.9	-8.0
2025	63.9	-7.4
2026	56.5	-6.9
2027	49.7	-6.4
2028	43.3	-5.9
2029	37.4	-5.4
2030	32.0	-2.0
2031	30.0	-2.0
2032	28.0	-2.0
2033	26.0	-2.0
2034	24.0	-2.0
2035	22.0	-3.0
2036	19.0	-2.8
2037	16.2	-2.6
2038	13.5	-2.4
2039	11.1	-2.2
2040	8.9	-2.1
2041	6.8	-1.9
2042	4.9	-1.8
2043	3.2	-1.6
2044	1.5	-1.5
2045	0.0	0.0

- **Annual decarbonisation targets for the listed portfolio.**
- Potential basis for annual reporting aligned with the latest UK regulation (TCFD), manager engagement and forthcoming UK implementation of sustainability disclosures regulation.
- The accelerated action in early years focus on the easier to mitigate assets, followed by e.g. property and infrastructure, with action in the later years in the harder to mitigate asset (e.g. private debt).
- Commit to continuing to monitor Scope 3 emissions, and consider targets once data is deemed to be robust.

# Decarbonisation – Absolute Emissions

## Notes on the Analysis

- The analysis focuses on the listed portfolio, including listed equity, showing contributions to Fund emissions. Data coverage for the analysis was c.95% of the listed portfolio allocations.
- Caution should be exercised in interpreting individual data points, as in reality, emissions may differ, given the data coverage in the analysis is less than 100%. We assume companies not covered by the analysis are represented *within* the range of companies that have been covered in the analysis.
- Emissions are likely underestimated as Scope 3 emissions are not included in the portfolio level targets. Though we do present an overview of the attribution of Scope 3 emissions by fund, sector and region.
- The IPCC climate science cites just a c.50-67% likelihood of achieving 1.5<sup>0</sup>C based on their modelled scenarios (with their assumptions integrated in both the IPCC and SBTi Decarbonisation Curves). The IPCC is set to release a new synthesis report in 2022, which may shift the climate change science understanding underpinning these decarbonisation curves.
- The European Policy curve is not necessarily aligned with a specific scientific target, but the region does set out to align with the Paris Agreement in their decarbonisation ambitions. The 2050 net zero target is also compatible with a 1.5<sup>0</sup>C scenario under the IPCC. The interim decarbonisation targets are however more stringent than the science-based targets which is prudent given these set out just a c.50-67% chance of meeting a 1.5<sup>0</sup>C scenario.

# Decarbonisation – Absolute Emissions

## Understanding the Limitations

- We assess carbon dioxide “equivalent” curves. This means we do not take account of how other GHG emissions, such as methane, may behave differently from a climatic warming perspective, and which may be particularly important in sectors such as agriculture. Other GHG emissions will therefore have different net zero assumptions which are not assessed in the current Mercer approach.
- Many of the IPCC’s scenarios are reliant on net zero (or net negative) assumptions later this century. This can include the deployment of mitigation technologies, such as carbon capture and storage, as well as ecosystem approaches, such as land and forest conservation and restoration. There has been some scepticism as to whether such technologies and approaches are viable, at the required scale. Mercer will look to integrate further assumptions around net zero emissions in due course, as science and technology evolves. The decarbonisation curves will, in the meantime, put clients on aggressive emissions reduction pathways.
- The focus of these decarbonisation curves is currently on Scope 1 and Scope 2 emissions. Mercer will however seek to integrate such considerations, as methodologies improve towards incorporating Scope 3 emissions.
- The approach to weighted average carbon intensity (WACI) calculation can lead to relatively large swings in the data results over time. For example, the WACI statistic is easily impacted by shifting sales trends over time, with sales acting as the denominator of the WACI calculation. The WACI statistic may therefore fluctuate regardless of emissions. It is possible to integrate assumptions around growth in sales, for example of 3% on an annual basis in line with long-run economic growth prospects. Given these WACI limitations, however, Mercer has developed an approach to the decarbonisation curves using absolute emissions. The approach will try to understand an individual’s investor’s contribution (or value of £ investment) in a company, and allocate responsibility for emissions based on the proportion of debt and/or equity owned. This measure is impacted by the scale of investments.

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