



**IIGCC**  
Institutional Investors Group on Climate Change

 Swiss  
Sustainable  
Finance

**Investor Workshop on Carbon Foot Printing**  
Zürich  
5 November 2015

# Agenda Zurich

- 16:00 – 16:30 **Registration**
- 16:30 – 16:35 **Welcome** by **Sabine Döbeli**, CEO Swiss Sustainable Finance (SSF)
- 16:35 – 16:45 **Introduction** by **Eric Borremans**, Sustainability Expert, Pictet Asset Management, Vice Chair of Board at IIGCC and Board Member of SSF
- 16:45 – 18:00 **Measuring carbon footprint:** Results from service providers  
MSCI ESG, **Antti Savilaakso**  
Inrate, **Tobias Jung**  
Trucost, **Jean-Florent Helfre**  
South Pole Group, **Maximilian Horster**
- 18:00 – 18:15 **Break**
- 18:15 – 19:15 **Panel discussion** moderated by **Stephanie Pfeifer**, CEO of Institutional Investors Group on Climate Change (IIGCC)  
**Christina Olivecrona**, AP2 Fund, Sweden  
**David Engel**, Publica  
**Peter Signer**, Nest Collective Foundation
- 19:15 **Apéro and networking**

# Agenda Geneva

- 09:45 – 10:15 **Registration**
- 10:15 – 10:20 **Welcome** by **Jean Laville**, Deputy CEO Swiss Sustainable Finance (SSF)
- 10:20 – 10:30 **Introduction** by **Eric Borremans**, Sustainability Expert, Pictet Asset Management, Vice Chair of Board at IIGCC and Board Member of SSF
- 10:30 – 11:45 **Measuring carbon footprint:** Results from service providers  
MSCI ESG, **Antti Savilaakso**  
Inrate, **Tobias Jung**  
Trucost, **Jean-Florent Helfre**  
South Pole Group, **Maximilian Horster**
- 11:45 – 12:00 **Break**
- 12:00 – 13:00 **Panel discussion** moderated by **Stephanie Pfeifer**, IIGCC  
**Christina Olivecrona**, AP2 Fund, Sweden  
**Olivier Bonnet**, ERAFP, France  
**Caroline Schum**, Nest Collective Foundation  
**François Vuille**, EPFL
- 13:00 **Networking Lunch**

# IIGCC – the collaborative platform for investors on climate change

- **More than 115 members in 9 countries, representing over €10 trillion in assets**

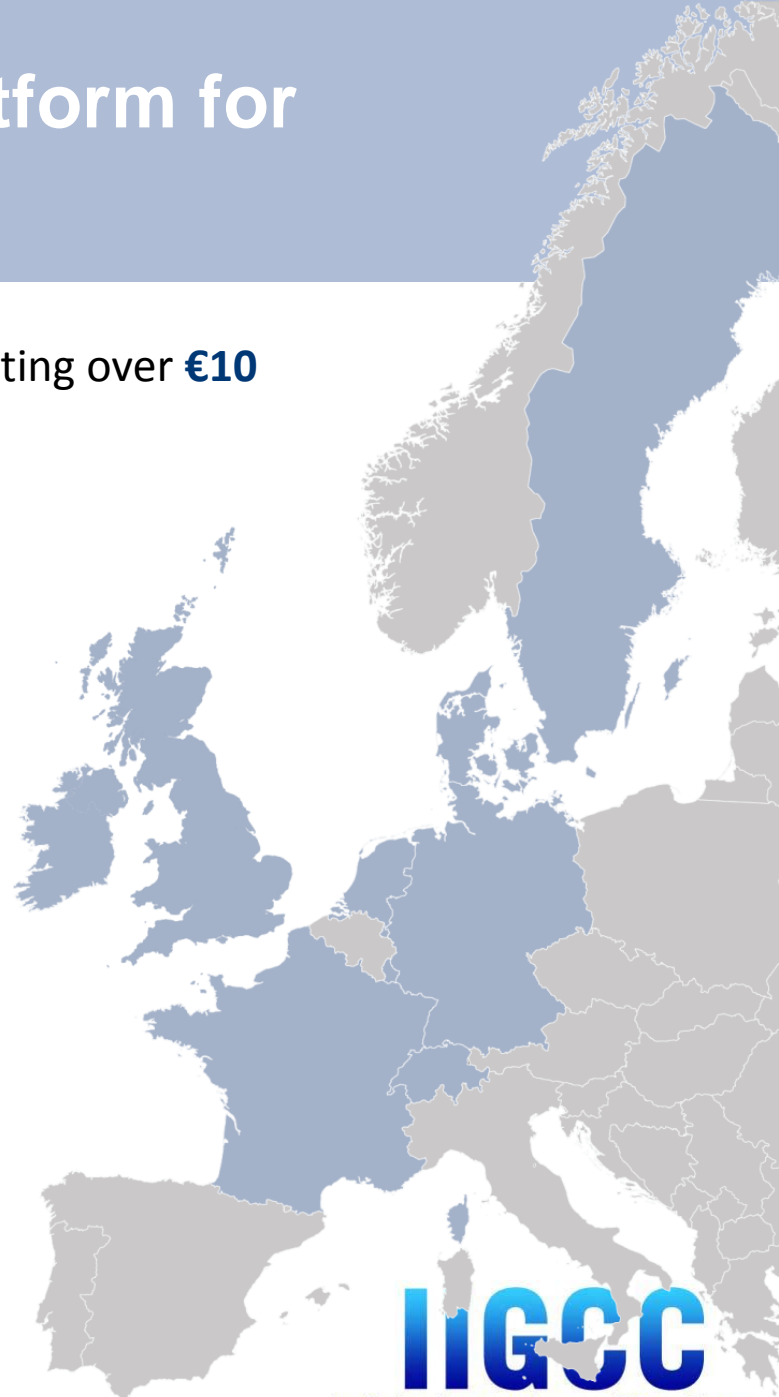
## IIGCC's Objectives

### Inform and showcase investment practices

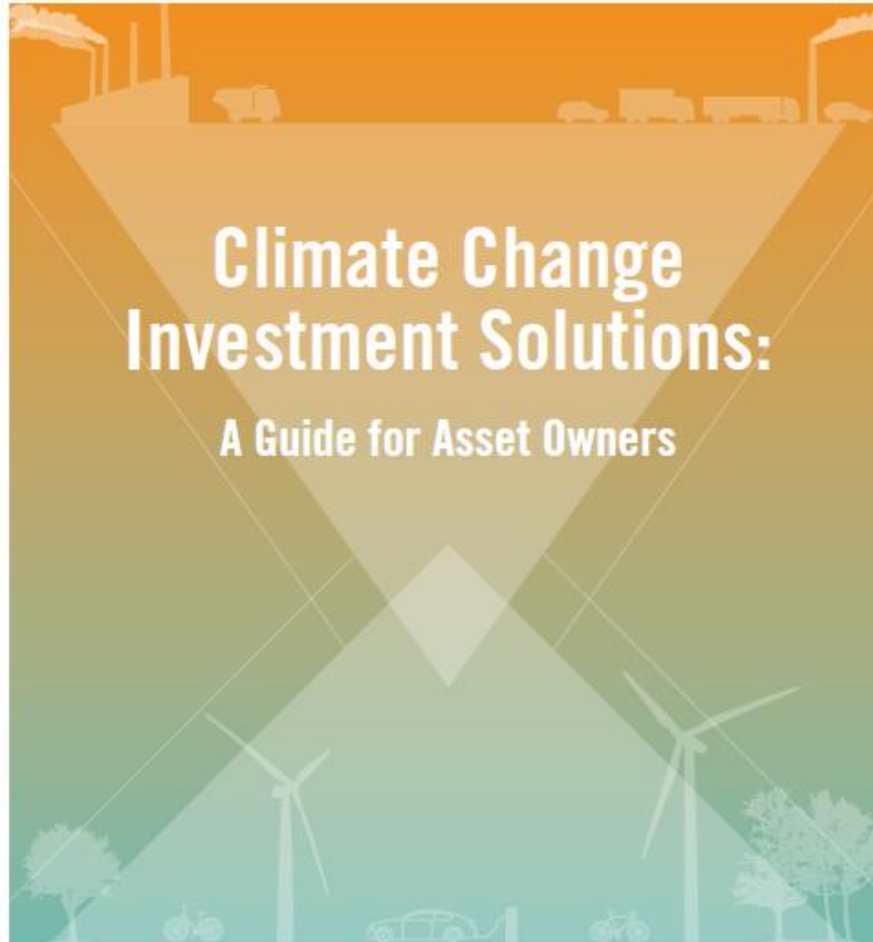
- Improved investor awareness
- Adoption of best practice
- Integration of climate risk and opportunities
- Improved investor reporting

### Engage on policy that supports move to low carbon economy

- Policies and frameworks that support the low carbon transition
- A robust carbon price signal
- Energy efficiency measures
- Removal of perverse incentives



# Climate Change Investment Solutions: A Guide for Asset Owners



GLOBAL INVESTOR COALITION ON CLIMATE CHANGE

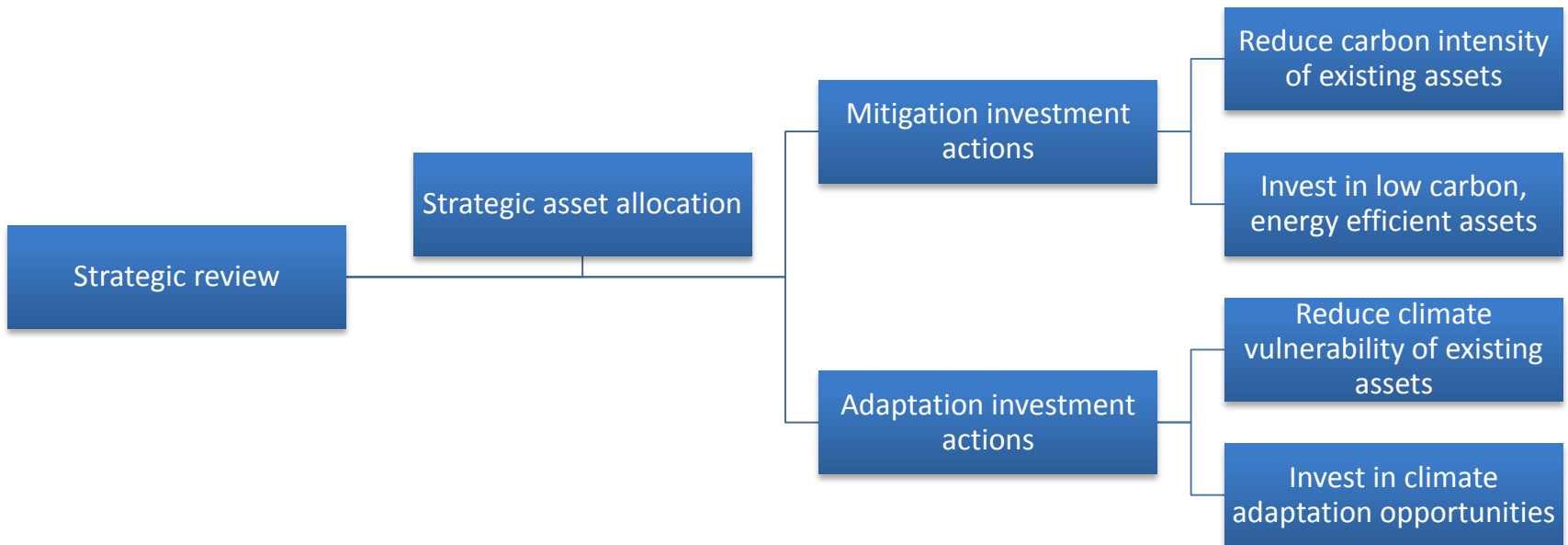
SUPPORTED BY:



# IIGCC

Institutional Investors Group on Climate Change

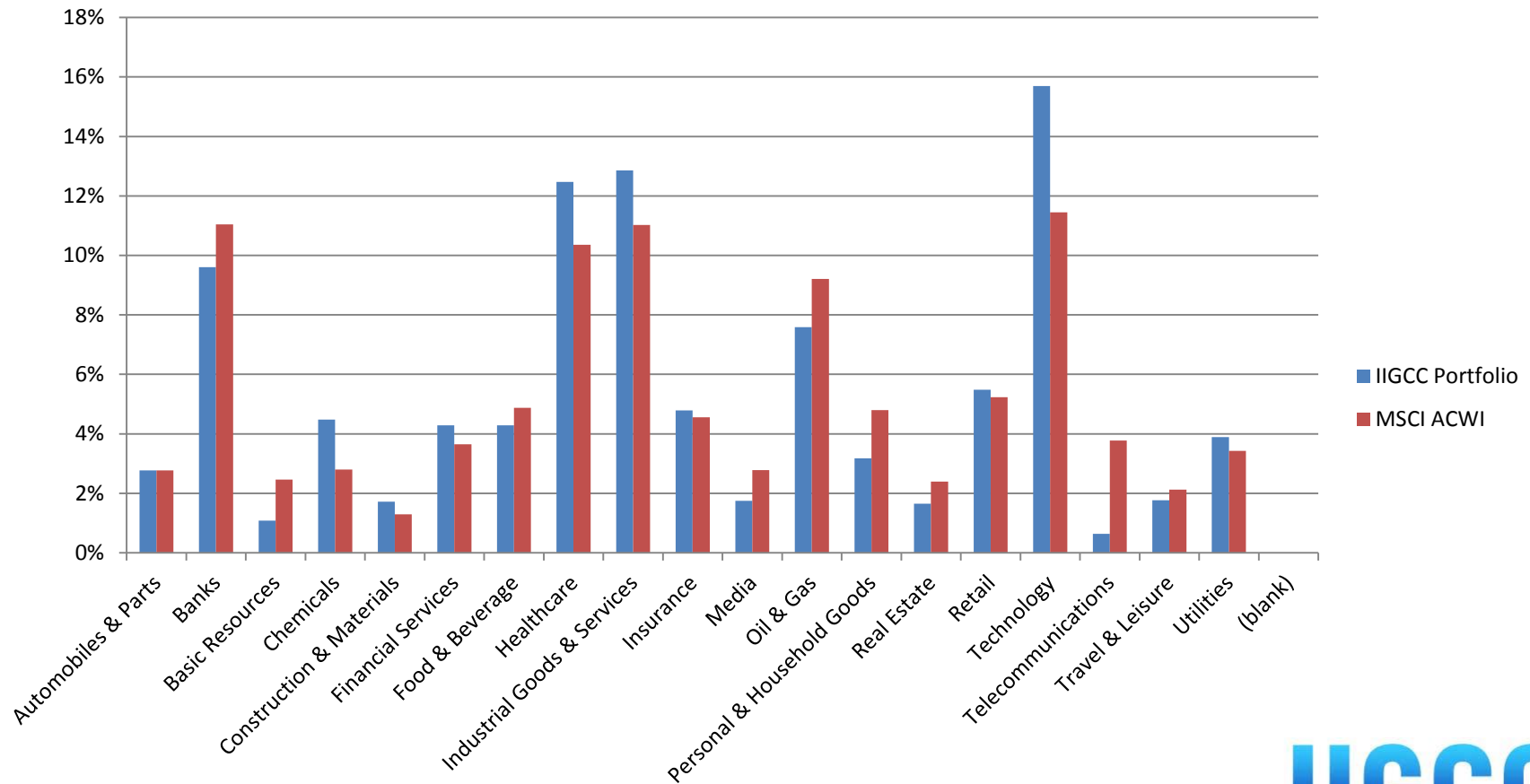
# Map of investment solutions



# Sample portfolio

## Sector breakdown

- Global equity portfolio - 100 stocks
- Benchmarked against MSCI ACWI



# Sample portfolio

## Top overweight and underweight positions

### TOP 10 OVERWEIGHT

Company name	Portfolio Weight	Benchmark Weight	Over weight
SAP SE	4.01%	0.1828%	3.83%
QUALCOMM, Inc.	3.62%	0.3471%	3.28%
Visa, Inc.	2.60%	0.2930%	2.30%
Royal Bk Scot Grp	2.25%	0.0412%	2.21%
Grainger W W Inc	2.05%	0.0426%	2.01%
Axa	2.07%	0.1231%	1.95%
Standard Chartered Plc	2.07%	0.1255%	1.94%
Sumitomo Mitsui Fg	1.96%	0.1426%	1.81%
Hong Kong Exchange	1.69%	0.0656%	1.62%
Bayer Motoren Werk	1.72%	0.1099%	1.61%

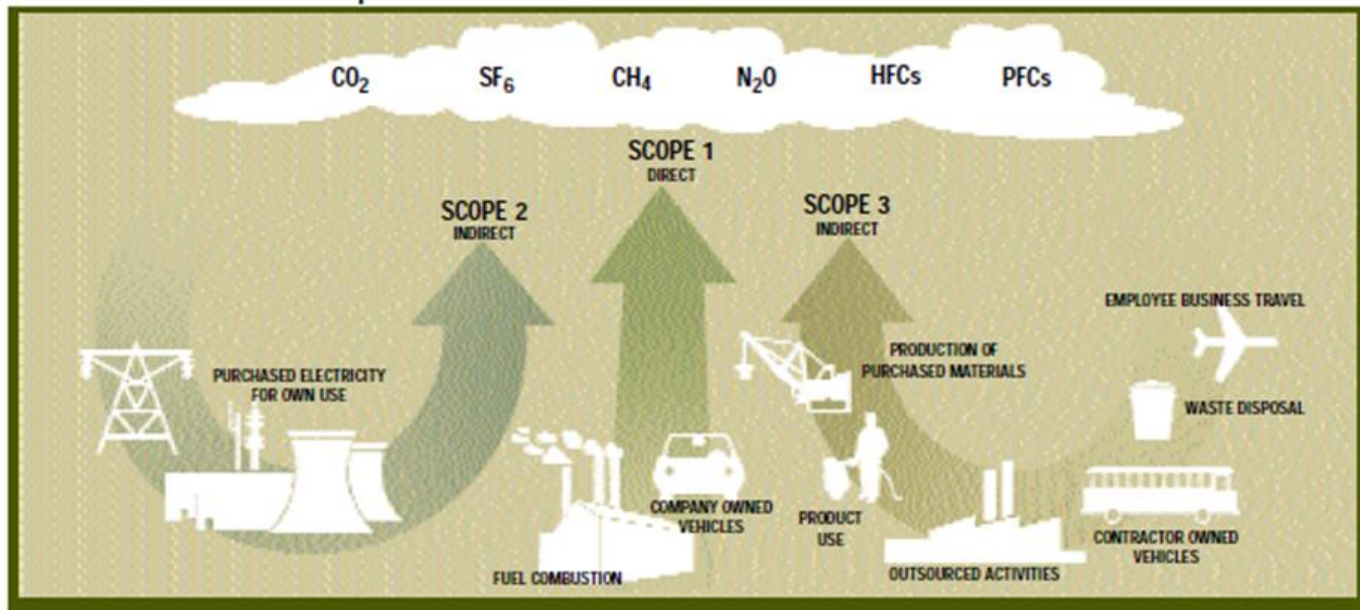
### TOP 10 UNDERWEIGHT

Company name	Portfolio Weight	Benchmark Weight	Under weight
Apple, Inc.		1.7%	-1.7%
Johnson & Johnson		0.8%	-0.8%
Wells Fargo & Co New		0.7%	-0.7%
General Electric Co		0.7%	-0.7%
Nestle SA		0.7%	-0.7%
Jpmorgan Chase & Co		0.6%	-0.6%
Procter & Gamble Co		0.6%	-0.6%
Exxon Mobil Corp	0.5%	1.1%	-0.6%
Novartis Ag		0.6%	-0.6%
Verizon Communications, Inc.		0.6%	-0.6%



# Greenhouse Gas Protocol

- Direct emissions (Scope 1)
- Indirect emission from purchased electricity (Scope 2)
- Indirect emissions from supply chain, product use etc (Scope 3)



Source: GHG Protocol

# Key questions for service providers

1. How do you measure carbon intensity / footprint?
2. Is the IIGCC portfolio more or less carbon intensive than its benchmark?
3. How do you explain key differences?
4. What is your view on
  - Choice of metrics
  - Product-related emissions
  - Measurements v. estimates
  - Performance attribution
  - Applicability to other asset classes

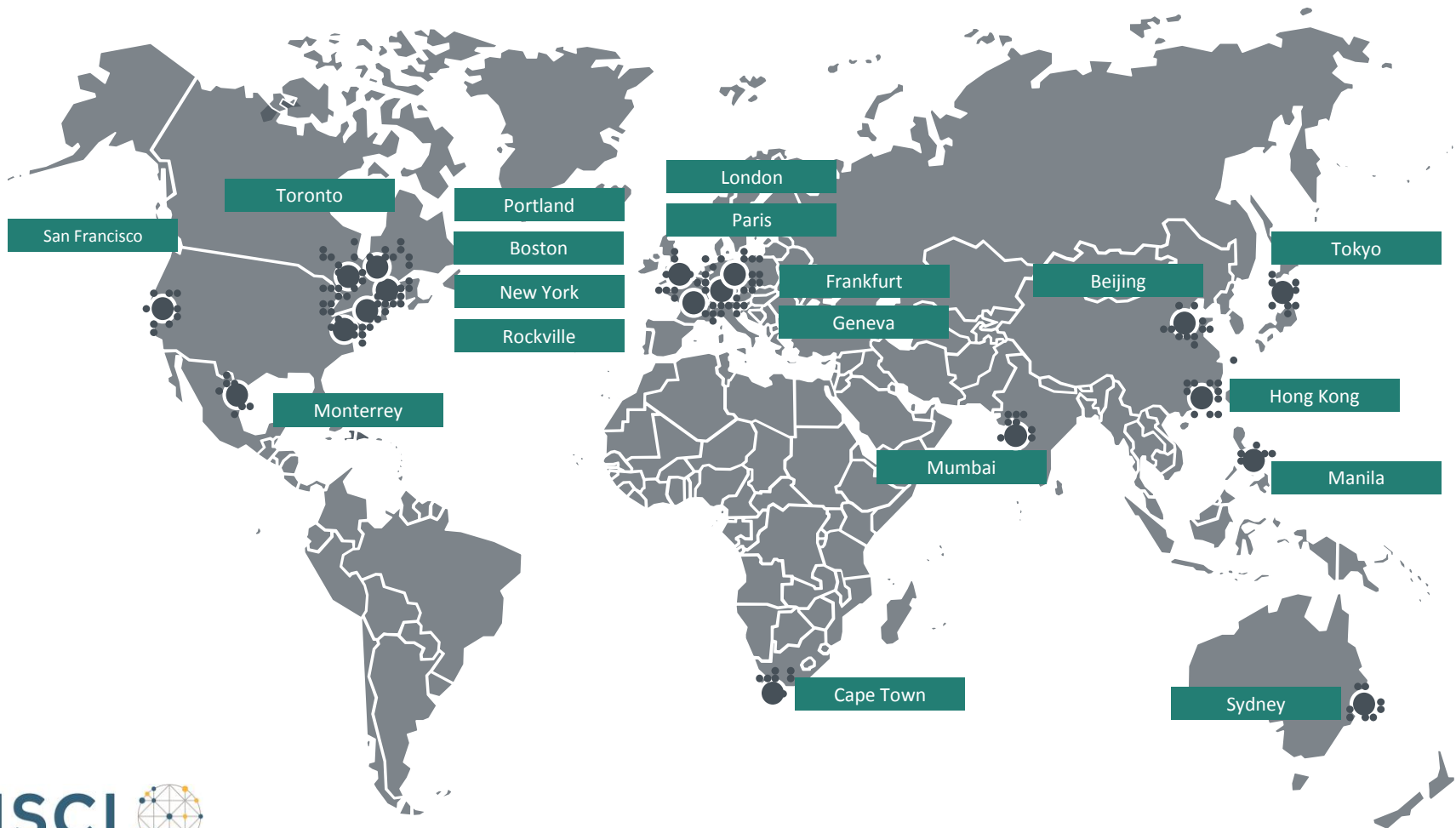
# UNDERSTANDING AND MANAGING CARBON RISK IN INSTITUTIONAL PORTFOLIOS

IIGCC Event

November 2015

# MSCI'S GLOBAL ESG TEAM

- Global staff of over 200 dedicated full time to ESG business, including 120+ ESG research analysts
- Over 800 clients with more than \$15 trillion in assets globally
- Over 40 years experience in ESG (IRRC, KLD, Innovest, GMI Ratings)



# REQUEST FOR FEEDBACK: KEY FINDINGS

## No consensus on which metric is the Carbon Footprint

- Consultees split as to the best way to measure the carbon footprint

## Presenting Multiple Metrics Makes Sense

- Broad consensus that presenting multiple metrics for emissions and intensity is useful because different use cases may warrant different measurements

## Simplicity is Key

- Being able to explain the metric is important, as is the ability to use one metric for all portfolios (i.e. ideally not one for equity and another for Fixed Income/Multi-Asset Class)

## Incorporating Fixed Income is on the Horizon

- Equity portfolios are currently the focus but there is broad interest in expanding to Fixed Income, albeit with an acknowledgement that FI is more challenging

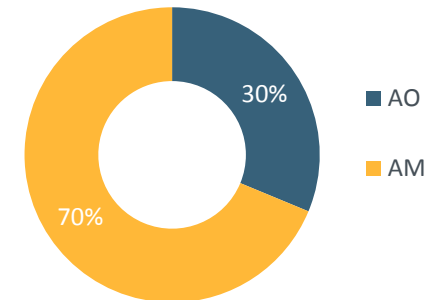
## Data Quality is Key

- Several consultees made a point of saying that any footprint measure is only as good as the underlying carbon emissions data.

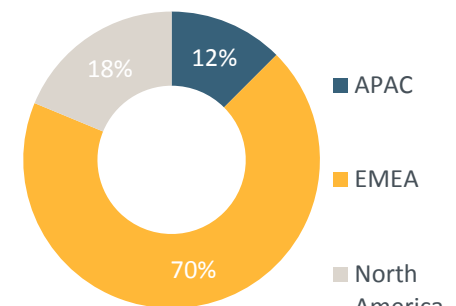
## Carbon Portfolio Analysis should go beyond Footprint

- Measuring footprint is useful but is limited in what it can tell you about a portfolio's exposure to carbon risks.

## By Client type



## By region

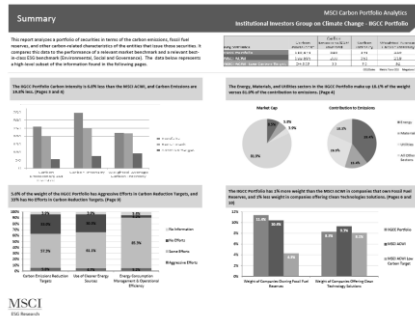


# CARBON FOOTPRINT KEY METRICS USED IN THE REQUEST FOR FEEDBACK

	1	2	3	4	5
	<b>Portfolio Carbon Emissions</b> <i>(tons of CO2e)</i>	<b>Portfolio Carbon Emissions per dollar of investment</b> <i>(tons CO2e / \$ million invested)</i>	<b>Portfolio Carbon Intensity</b> <i>(tons CO2e / \$ million sales)</i>	<b>Portfolio Carbon Risk Exposure</b> <i>(tons CO2e / \$)</i>	<b>Financed Carbon Emissions</b> <i>(tons CO2e )</i>
<b>Description</b>	Sum of the emissions for all the positions in the portfolio based on the investor's ownership share (i.e. market cap)	Sum of the emissions for all the positions in the portfolio based on the investor's ownership share <b>per million dollar invested</b>	Ratio of portfolio carbon emissions normalized by the investor's claims on sales	Weighted average of the issuers' carbon intensity in a portfolio	Sum of the emissions for all the positions in the portfolio using enterprise value to attribute investor's share of emissions
<b>Use case</b>	<ul style="list-style-type: none"> <li>Report on emissions (Montreal Pledge)</li> <li>Set reduction targets</li> </ul>	<ul style="list-style-type: none"> <li>Report on emissions (Montreal Pledge)</li> <li>Set reduction targets</li> <li>Compare to benchmark and between portfolios</li> </ul>	<ul style="list-style-type: none"> <li>Report on normalized emissions</li> <li>Compare to benchmark and between portfolios</li> </ul>	<ul style="list-style-type: none"> <li>Tool to measure carbon risks</li> </ul>	<ul style="list-style-type: none"> <li>Report on emissions for non-equity and multi asset class portfolios</li> </ul>

# CARBON FOOTPRINTING & COMPARISON TO A BENCHMARK

*What carbon emissions are my investments responsible for?*

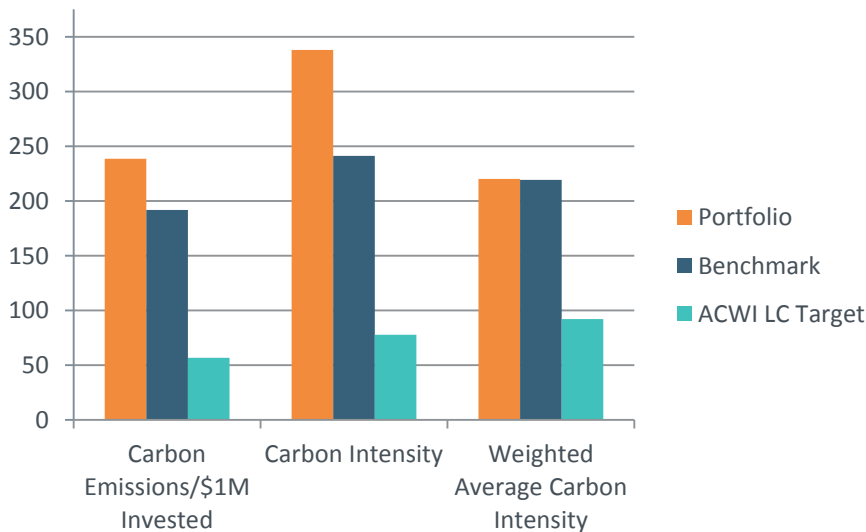


## Key Statistics

	Carbon Emissions /\$M Invested	Carbon Emissions*	Carbon Intensity	Portfolio Carbon Risk exposure
<b>IIGCC Portfolio</b>	<b>238</b>	<b>238,482</b>	<b>338</b>	<b>220</b>
<b>MSCI ACWI</b>	<b>192</b>	191,909	241	219
<b>MSCI ACWI Low Carbon Target</b>	<b>57</b>	56,864	78	92
	T CO2e / \$M	T CO2e	T CO2e / \$M sales	

Based on investment of \$1bn

*What is my portfolio's exposure to carbon intensive companies relative to my benchmark?*



The sample portfolio is **40% more carbon intensive** than the standard benchmark and **335% more carbon intensive** than the low carbon benchmark

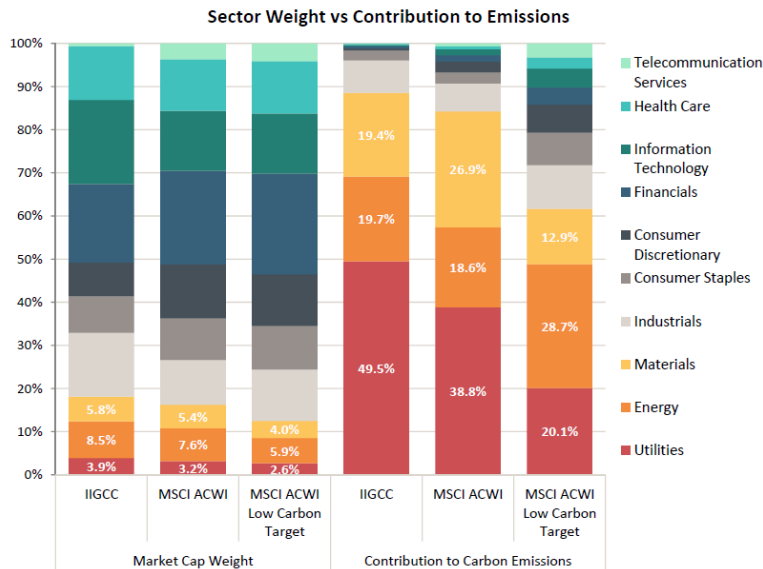
# CARBON FOOTPRINTING & ATTRIBUTION ANALYSIS



*What sectors are driving my carbon risk exposure?*

IIGCC vs MSCI ACWI	Portfolio Weight	Active Weight*	Portfolio Carbon Emissions	Benchmark Carbon Emissions
Utilities	3.9%	0.7%	3,268.6	2,214.4
Energy	8.5%	0.8%	595.4	441.8
Consumer Discretionary	7.8%	-4.6%	16.9	36.6
Financials	18.2%	-3.5%	6.8	12.4
Telecommunication Services	0.6%	-3.0%	36.0	34.7
Consumer Staples	8.4%	-1.2%	69.1	48.2
Materials	5.8%	0.4%	867.1	905.4
Industrials	14.8%	4.4%	130.0	112.0
Health Care	12.5%	0.5%	5.3	9.9
Information Technology	19.5%	5.6%	4.6	18.2

Absolute Attribution				Percentage Attribution					
Sector	Stock Allocation	Stock Selection	Interaction	Total	Sector	Stock Allocation	Stock Selection	Interaction	Total
Utilities	14.4	33.5	7.5	55.5	Utilities	8.0%	18.5%	4.1%	30.5%
Energy	2.2	11.8	1.3	15.2	Energy	1.2%	6.5%	0.7%	8.4%
Consumer Discretionary	6.7	-2.4	0.9	5.2	Consumer Discretionary	3.7%	-1.3%	0.5%	2.8%
Financials	5.9	-1.2	0.2	4.9	Financials	3.3%	-0.7%	0.1%	2.7%
Telecommunication Services	4.5	0.0	0.0	4.5	Telecommunication Services	2.5%	0.0%	0.0%	2.5%
Consumer Staples	1.6	2.0	-0.2	3.3	Consumer Staples	0.9%	1.1%	-0.1%	1.8%
Materials	2.6	-2.1	-0.1	0.4	Materials	1.4%	-1.1%	-0.1%	0.2%
Industrials	-3.0	1.9	0.8	-0.4	Industrials	-1.7%	1.0%	0.4%	-0.2%
Health Care	-0.8	-0.6	0.0	-1.4	Health Care	-0.5%	-0.3%	0.0%	-0.8%
Information Technology	-9.1	-1.9	-0.8	-11.8	Information Technology	-5.0%	-1.0%	-0.4%	-6.5%



*How does security selection within each sector affect my carbon risk exposure?*

Carbon Footprint Carbon Emissions/\$M Invested Attribution Analysis and Key Holdings

Company	Weight	Carbon Emissions/\$M Invested	Contribution to Carbon Emissions
Enbridge Inc	1.0%	3,268.6	49.5%
NextEra Energy Inc	0.8%	595.4	18.6%
Energy Transfer LP	0.8%	595.4	18.6%
Constellation Energy Corp	0.8%	595.4	18.6%





# FORWARD-LOOKING ASSESSMENT: LARGEST CONTRIBUTORS TO EMISSIONS ASSESSED ON CARBON RISK MANAGEMENT PRACTICES



Lafarge contributed 12% to portfolio emissions but demonstrated strong commitment to carbon risk management, with aggressive reduction targets

Canadian Oil Sands is among the largest contributors and is considered a laggard in its industry in terms of carbon risk management

➤ *Engagement opportunity?*

## Largest Contributors to Portfolio Emissions

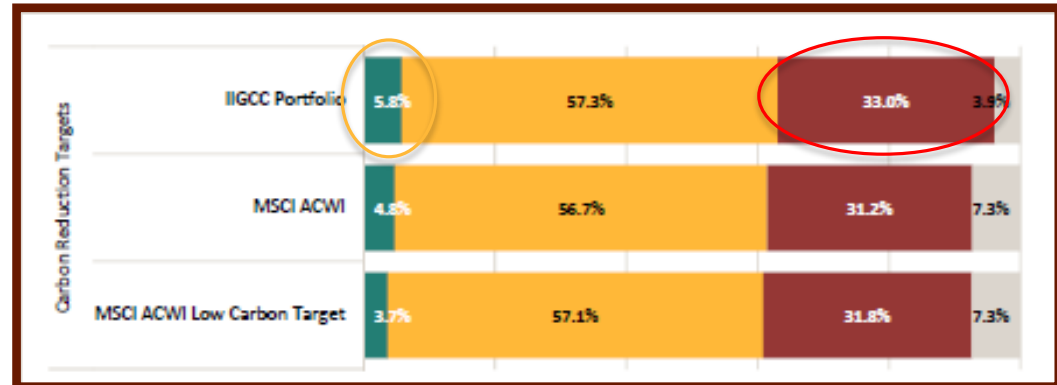
Company	Sector	Country	Portfolio Weight	Active Weight	Carbon Emissions	Contribution to Portfolio Emissions	Carbon Emissions Source	Carbon Risk Mgmt Relative to Industry
1 RWE AKTIENGESELLSCHAFT	Utilities	Germany	0.87%	0.84%	167,200,000	41.22%	Reported	Average
2 LAFARGE S.A.	Materials	France	0.64%	0.61%	101,990,000	12.17%	Reported	Leader
3 PETROLEO BRASILEIRO S.A. - PETROBRAS	Energy	Brazil	0.70%	0.62%	73,374,700	17.72%	Reported	Average
4 CANADIAN OIL SANDS LIMITED	Energy	Canada	1.00%	0.99%	4,577,800	6.27%	Reported	Laggard
5 EASTMAN CHEMICAL COMPANY	Materials	United States of America	1.57%	1.54%	6,950,000	4.30%	Reported	Leader
6 A.P. MOELLER - MAERSK A/S	Industrials	Denmark	1.12%	1.06%	32,784,000	3.72%	Reported	Average
7 ENERGY CORPORATION	Utilities	United States of America	0.30%	0.26%	35,106,164	2.98%	Reported	Average
8 PRAXAIR, INC.	Materials	United States of America	1.18%	1.09%	18,035,000	2.34%	Reported	Average
9 JAPAN AIRLINES CO., LTD.	Industrials	Japan	0.86%	0.85%	8,599,050	2.33%	Derived from Reported Data	Average
10 EXELON CORPORATION	Utilities	United States of America	0.65%	0.57%	24,966,571	2.16%	Reported	Leader
<b>Top 10 Contributors</b>			<b>8.89%</b>			<b>80.94%</b>		

Energy Initiatives

MSCI Carbon Portfolio Analytics  
Institutional Investors Group on Climate Change - MSCI Portfolio

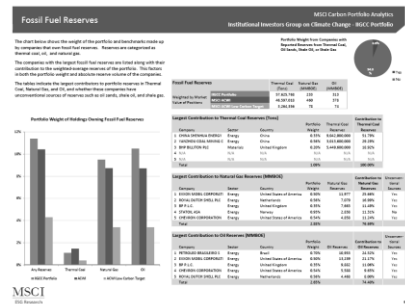
Companies have a variety of strategies to reduce emissions, including setting targets for reduction, using cleaner energy sources and managing energy consumption. While these efforts are increasingly being reported, the majority focus on the Scope 1, Scope 2, and Scope 3 (GHG) to make their own operations. The greatest contribution to the portfolio and benchmark, as well as the target 1 portfolio position with aggressive action and the target 2 portfolio position with no effort.

Company	Scope 1	Scope 2	Scope 3	Total
1. RWE AKTIENGESELLSCHAFT	100%	100%	100%	100%
2. LAFARGE S.A.	100%	100%	100%	100%
3. PETROLEO BRASILEIRO S.A. - PETROBRAS	100%	100%	100%	100%
4. CANADIAN OIL SANDS LIMITED	100%	100%	100%	100%
5. EASTMAN CHEMICAL COMPANY	100%	100%	100%	100%
6. A.P. MOELLER - MAERSK A/S	100%	100%	100%	100%
7. ENERGY CORPORATION	100%	100%	100%	100%
8. PRAXAIR, INC.	100%	100%	100%	100%
9. JAPAN AIRLINES CO., LTD.	100%	100%	100%	100%
10. EXELON CORPORATION	100%	100%	100%	100%

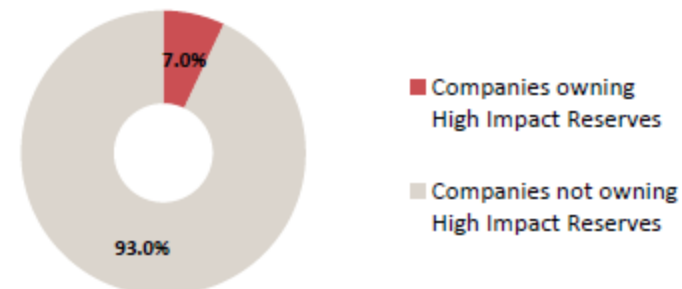


\*as of 31 October 2014. Past performance is not indicative of future returns or performance.

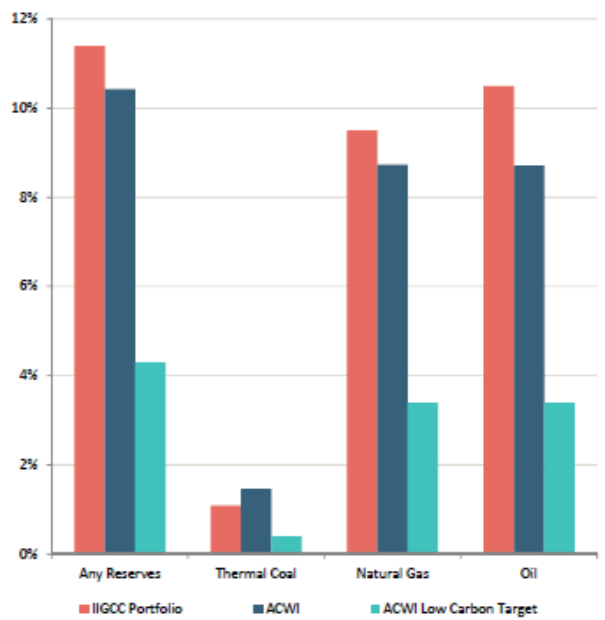
# EXPOSURE TO STRANDED ASSETS: 7% OF THE SAMPLE PORTFOLIO EXPOSED TO COAL & UNCONVENTIONAL RESERVES, CONTRIBUTED 75% TO THE PORTFOLIO'S *POTENTIAL EMISSIONS*



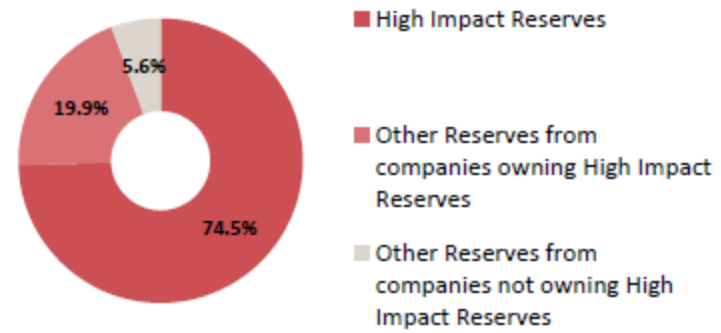
Portfolio Weight from Companies Owning High Impact Reserves



Portfolio Weight of Holdings Owning Fossil Fuel Reserves



Contribution to Portfolio Potential Emissions from Companies Owning High Impact Reserves



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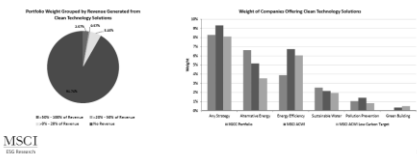
# CLEAN TECH SOLUTIONS: 8% OF THE PORTFOLIO OFFERS CLEAN TECH SOLUTIONS BUT ONLY 2% ARE "PURE PLAY"



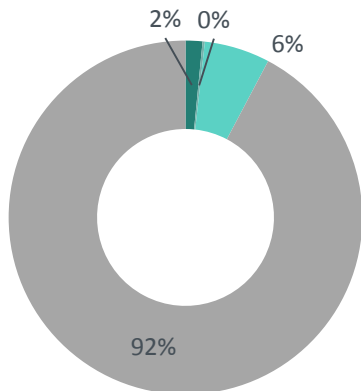
**Clean Technology Solutions** MSCI Carbon Portfolio Analytics  
Institutional Investors Group on Climate Change - World Portfolio

The below companies included in clean technology solutions based on their sales in the following categories: Alternative Energy, Energy Efficiency, Green Building, Pollution Prevention, and Sustainable Water. The table and donut chart show the percent of the portfolio and clean tech, that are represented by companies with sales from these activities. The table shows the top 10 holdings of the portfolio based on percent of revenue from clean activities.

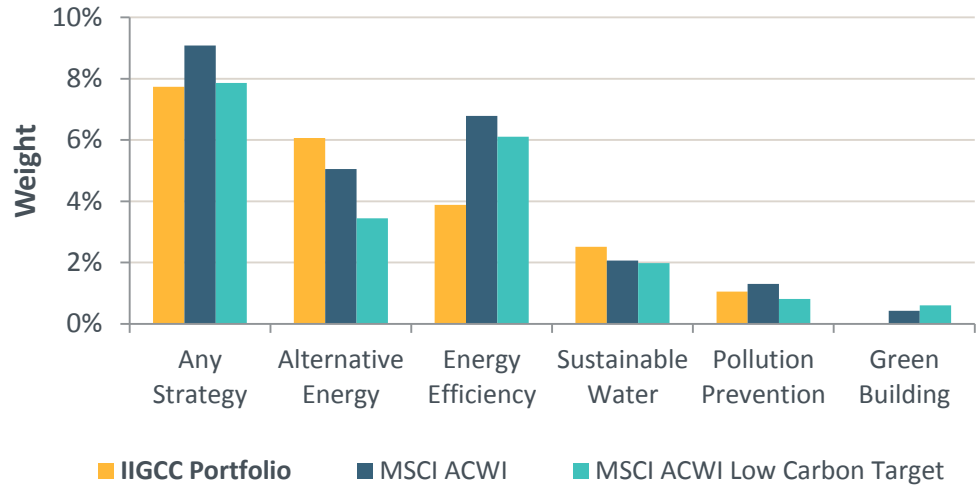
Company	Revenue	Weight	Revenue	Weight
International Energy	0.00%	0.00%	0.00%	0.00%
Energy Efficiency	0.00%	0.00%	0.00%	0.00%
Green Building	0.00%	0.00%	0.00%	0.00%
Pollution Prevention	0.00%	0.00%	0.00%	0.00%
Sustainable Water	0.00%	0.00%	0.00%	0.00%
Any Strategy	0.00%	0.00%	0.00%	0.00%
Any Sector	0.00%	0.00%	0.00%	0.00%
Any Revenue	0.00%	0.00%	0.00%	0.00%



Portfolio Weight Grouped by Revenue Generated from Clean Technology Solutions



Weight of Companies Offering Clean Technology Solutions



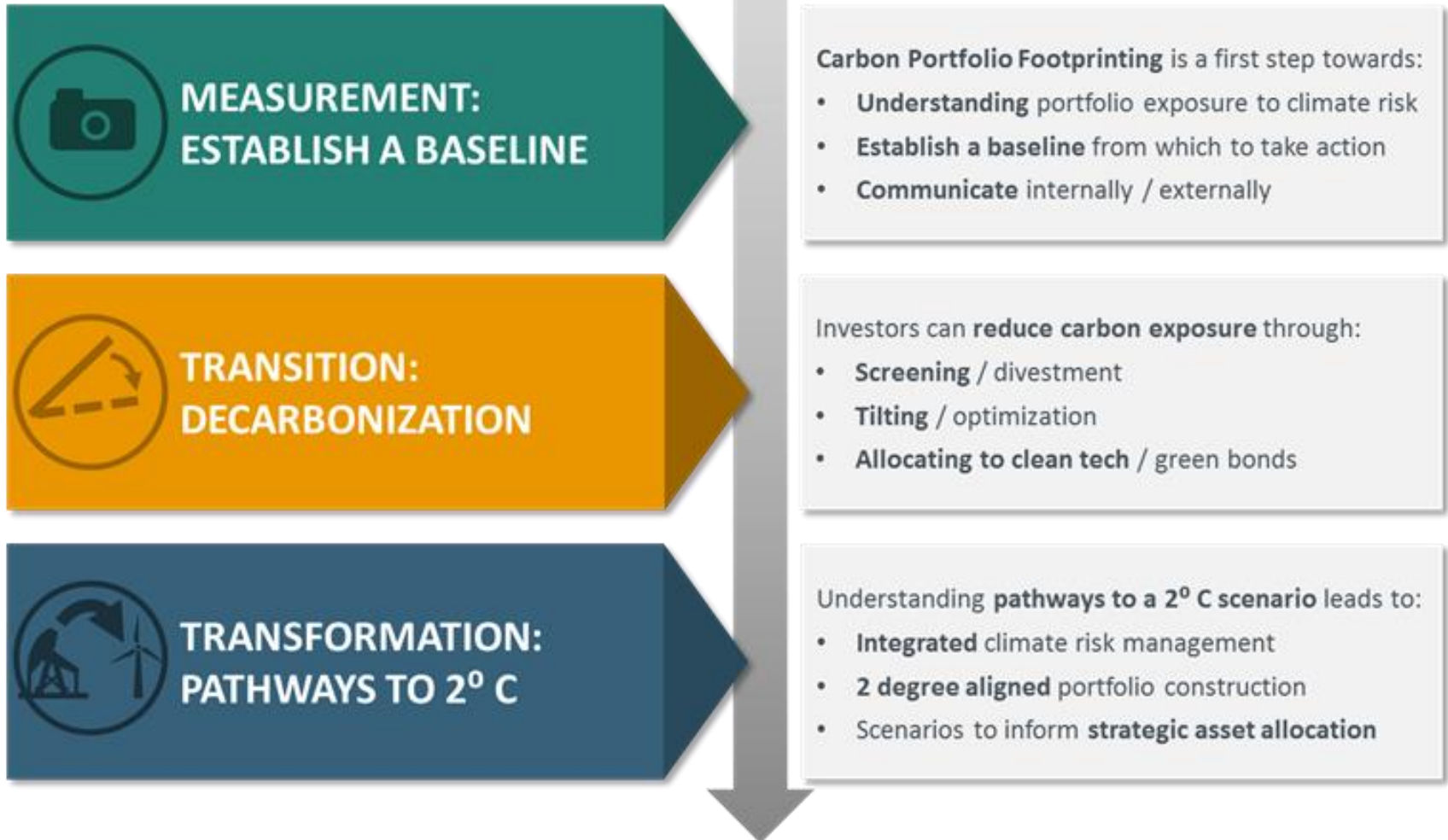
Top 10 by Estimated Percent of Revenue Generated from Clean Technology Solutions

Company	Sector	Country	Portfolio Weight	Clean Technology Solution	Estimated Revenue from Clean Tech
1 SCHNEIDER ELECTRIC SE	Industrials	France	1.01%	Energy Efficiency	75%
2 CHINA LONGYUAN POWER GROUP	Utilities	China	0.30%	Alternative Energy	60%
3 NEXTERA ENERGY, INC.	Utilities	United States of America	0.23%	Alternative Energy	59%



\*as of 31 October 2014. Past performance is not indicative of future returns or performance.

# CARBON FRAMEWORK



# ABOUT MSCI

For more than 40 years, MSCI's research-based indexes and analytics have helped the world's leading investors build and manage better portfolios. Clients rely on our offerings for deeper insights into the drivers of performance and risk in their portfolios, broad asset class coverage and innovative research.

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# Carbon Footprinting of Portfolios

## Inrate Portfolio Carbon Screenings

Zurich/Geneva – November 5<sup>th</sup>/6<sup>th</sup>, 2015

Inrate Sustainability Research, Tobias Jung, Head of Research





## Inrate

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### We are...



an **independent consulting and rating agency** based in Switzerland, with more than 20 years experience, **20 in-house specialists** and a total team of **30 employees**.



an innovative provider with a sophisticated scientific approach to measure the **sustainability impact of companies over their entire value chain**.



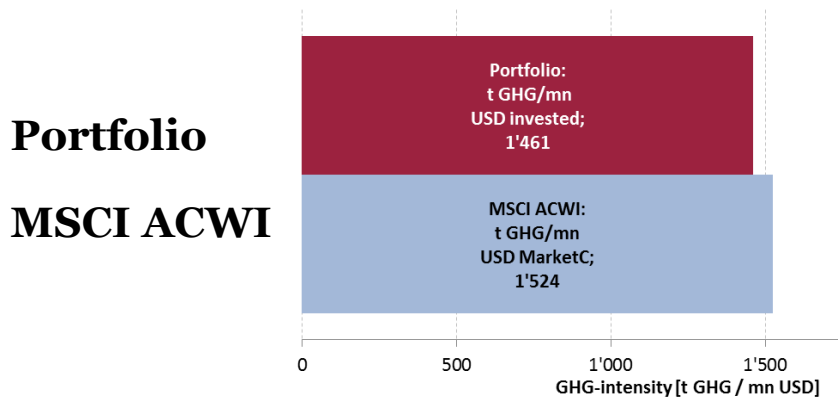
striving to make available knowledge about sustainability, allowing invested capital to be **directed towards a sustainable economy**.

## Example Portfolio: Results

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Portfolio with 99 Holdings, 1'000 mn USD invested  
Benchmark MSCI ACWI (2'340 holdings)

### Greenhouse Gas Intensity Invested



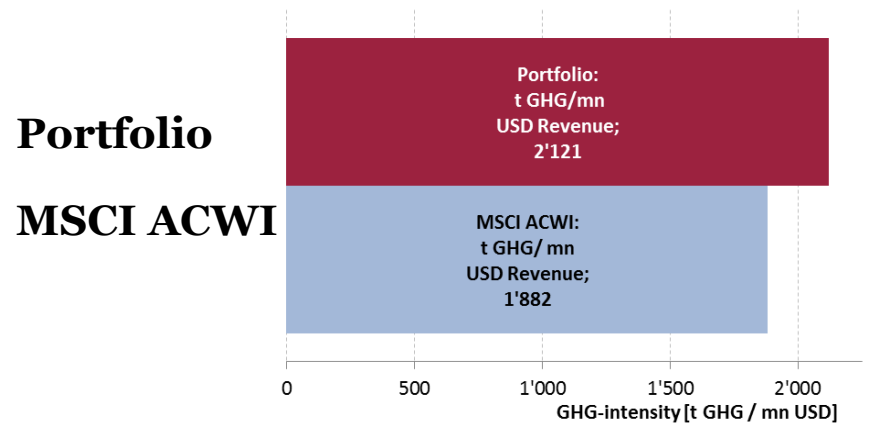
**Portfolio**

**MSCI ACWI**

**Portfolio 1'461** t GHG /mn USD invested  
➔ **-4.1% less carbon-intensive**

MSCI ACWI 1'524 t GHG / mn USD MarketCap

### Greenhouse Gas Intensity per Turnover



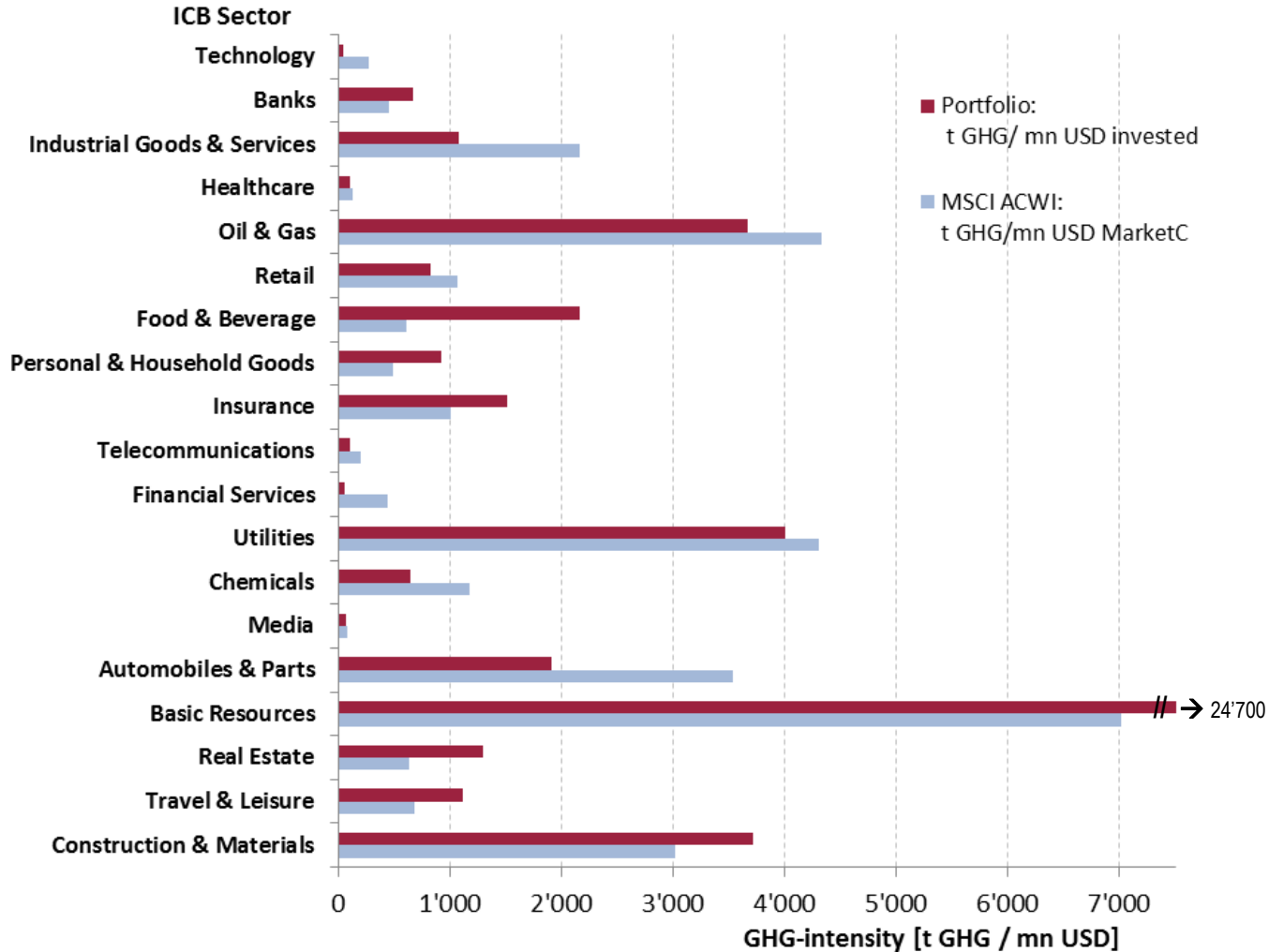
**Portfolio**

**MSCI ACWI**

**Portfolio 2'121** t GHG /mn USD Revenue  
➔ **12.7% more carbon-intensive**

MSCI ACWI 1'882 t GHG / mn USD Revenue

# Analyses of Sector Allocation of Portfolio



## Analyses of 10 Highest Carbon Holdings

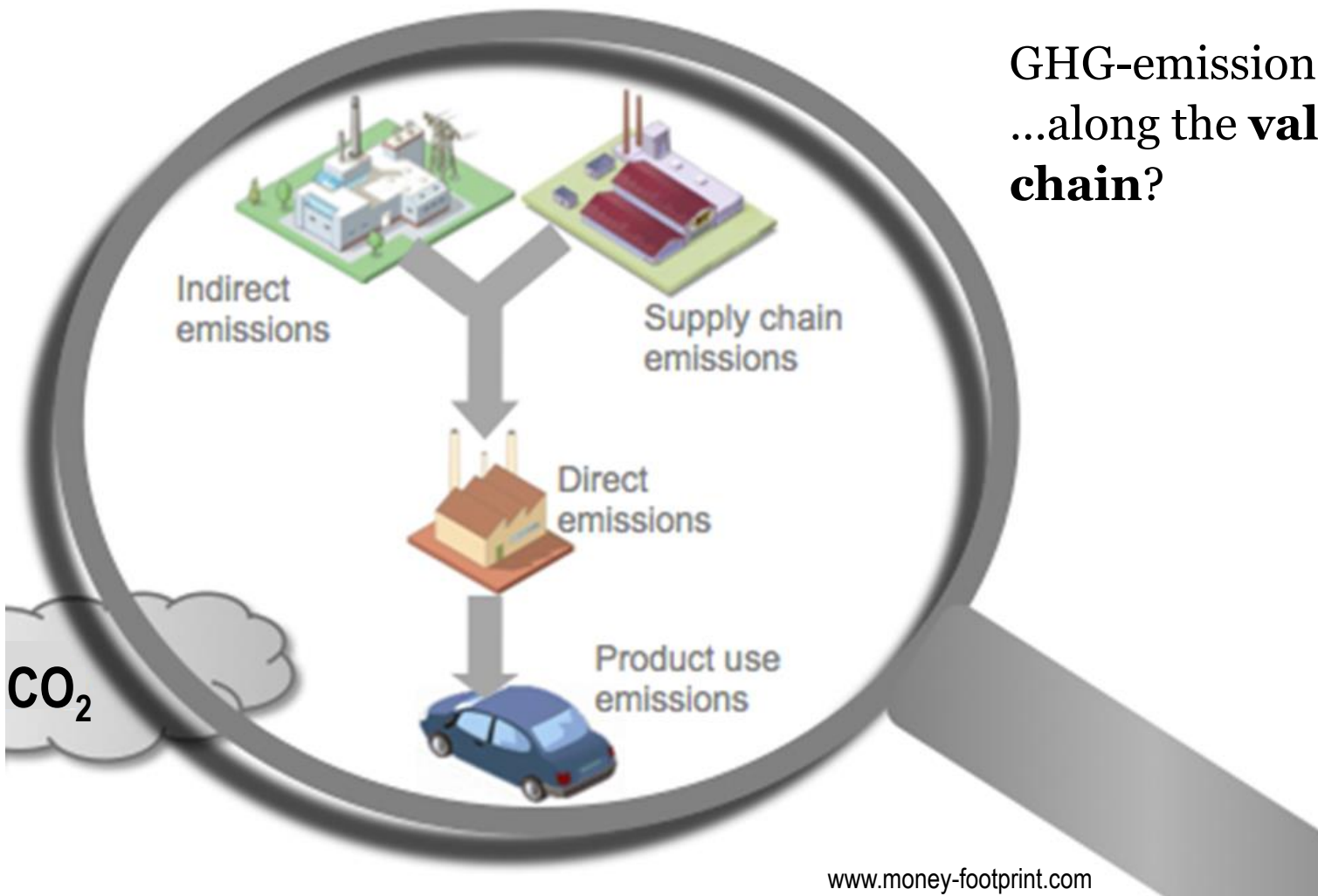
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Company	Sector	Share of GHG in Portfolio	Share of Investment	GHG per Invested (t/m USD)	GHG per Market Cap Sector Average (t/m USD)	GHG per turnover Invested (t/m USD)	GHG per turnover sector average
Yanzhou Coal Mining	Basic Resources	20.1%	0.6%	52'368	7'021	27'485	5'845
Rwe AG	Utilities	8.1%	0.9%	13'577	4'305	4'922	4'174
JBS SA	Food & Beverage	5.6%	0.6%	12'584	615	2'296	1'002
China Shenhua Energy	Basic Resources	4.7%	0.3%	20'996	7'021	22'252	5'845
Axa	Insurance	3.1%	2.1%	2'166	1'010	720	803
Statoil Asa	Oil & Gas	3.1%	0.9%	4'801	4'333	4'755	3'590
Bayer Motoren Werke	Automobiles & Parts	3.0%	1.7%	2'581	3'541	1'989	2'162
Petroleo Brasileiro SA	Oil & Gas	2.9%	0.7%	6'008	4'333	4'195	3'590
Komatsu	Industrial Goods & Services	2.6%	0.9%	4'094	2'169	3'812	2'323
Cenovus Energy, Inc.	Oil & Gas	2.2%	1.0%	3'287	4'333	4'325	3'590
<b>Total</b>		<b>55.2%</b>	<b>9.7%</b>	<b>8'314</b>	<b>1'524</b>	<b>4'152</b>	<b>1'882</b>

➤ Titels with high carbon emissions versus sector average selected

## What we quantify: Carbon emissions/GHG impact

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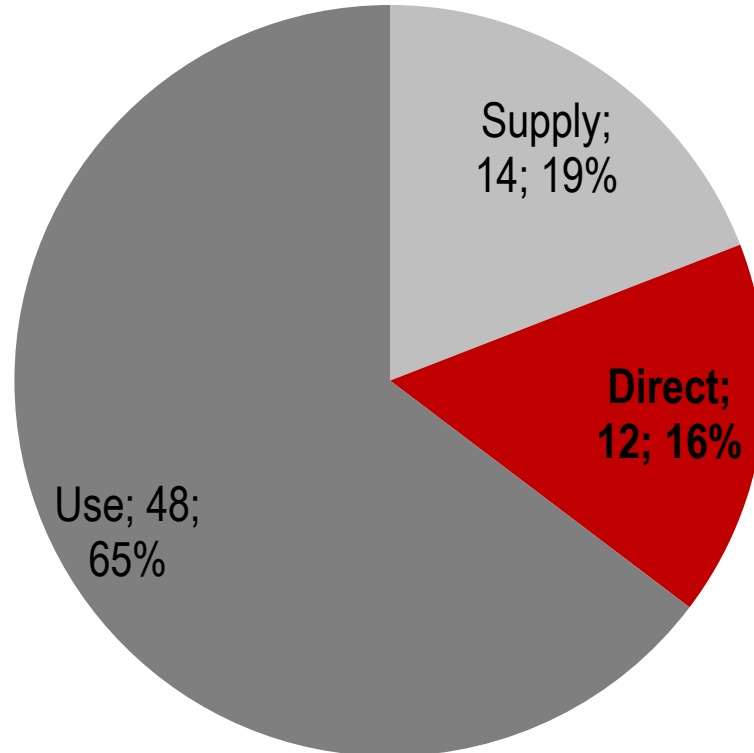
## The data on GHG emissions (example MSCI ACWI)

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### MSCI ACWI

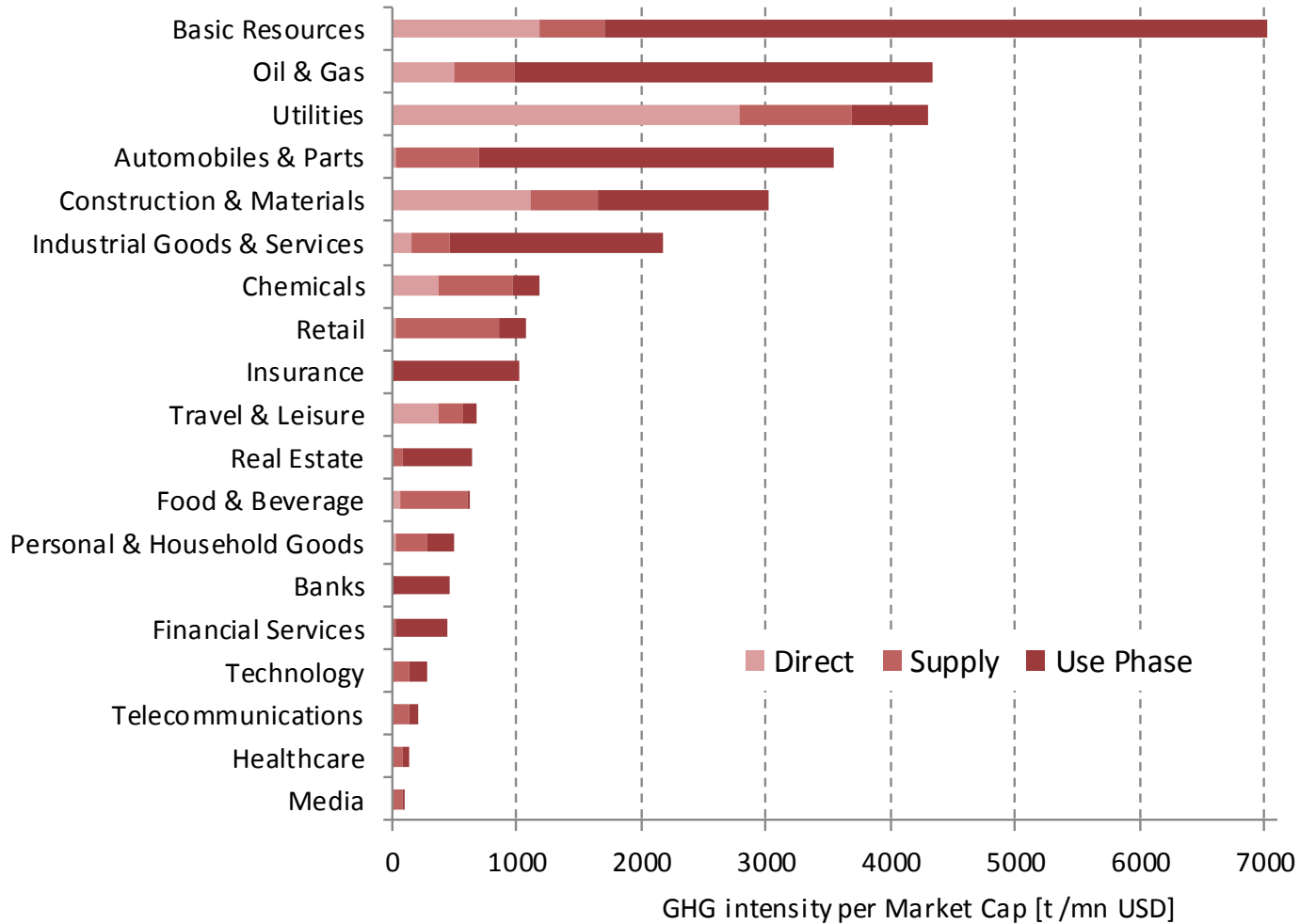
Total GHG: 73.5 Gt

GHG emissions [Gt CO<sub>2eq</sub>]; Percentage of Total



data includes «double counting»

## GHG intensity – Contribution of Scope 3 (up- and downstream)



## Corporate GHG Emissions - Reported Data vs. Estimates

---

- Number of reporting companies → increasing, but still blanks to fill
- Scope of reporting → mainly Scope 1 and 2
- Value chain differences → vertical integration of one reporting company differ
- Relevance of Scopes → Scope 3 matters (!), but reported figures not consistent



## **Conclusions: Scope 3, 2, 1 ....go!**

---

- Scope 3 is relevant for a company's overall Carbon Exposure
- Consider the Purpose of a company's portfolio of Products and Services
- Financed emissions matter (beyond direct operations)
- Overall Carbon emission metrics to identify the biggest contributors
- There is no catch-all variable

## Contact

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Head of Research

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**Inrate** | Binzstrasse 23 | CH-8045 Zurich | [www.inrate.com](http://www.inrate.com)



# Carbon Footprint Workshop

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Trucost presentation for  
**IIGCC**

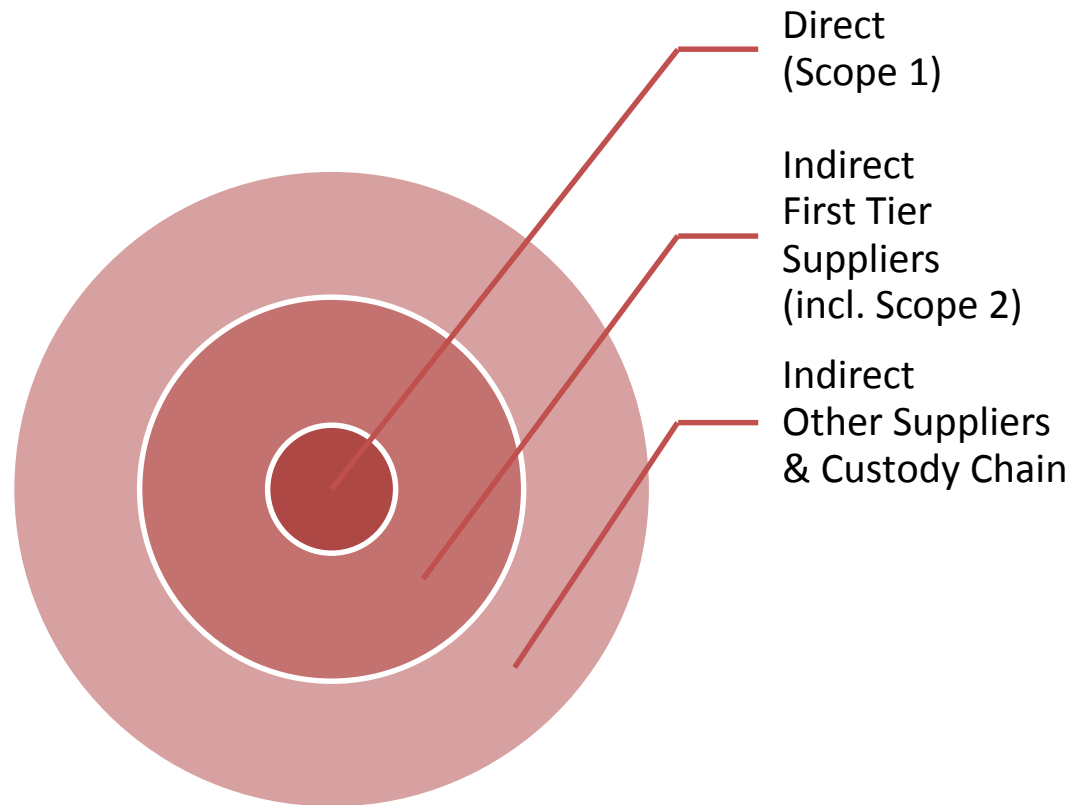
Jean-Florent Helfre,  
Head of Business Development - Switzerland

November 2015

# DIRECT VS INDIRECT EMISSIONS

- Companies have most power/influence on:
  - operational emissions (Scope 1)
  - emissions of their direct suppliers (also called First tier suppliers)
- In line with the GHG Protocol categorisations (Scope 1 + Scope 2 + Scope 3 first tier supply chain)

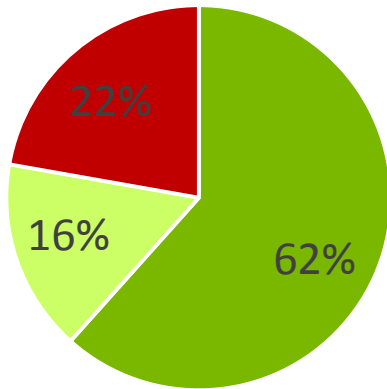
## Company Accountability & Scope



# IIGCC PORTFOLIO VS MSCI WORLD



## Portfolio Disclosure Rate\*

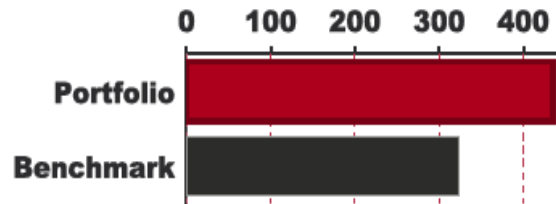


- Exact Value from Annual/Env Report/CDP
- Partial Value from Company Adjusted/Scaled-Up by Trucost
- Estimated data

\* Scope 1 – CO2  
By Number of companies

## Portfolio Analysis

	Total GHG emissions (tCO2-eq)	“Investment Ratio” tCO2-eq per USD million invested	“Revenue Ratio” tCO2-eq per per USD million revenue
Portfolio	300,641	300	434
Benchmark	245,464	245	322



The portfolio is 34.76% more carbon intensive than its benchmark, MSCI All Country World Index.

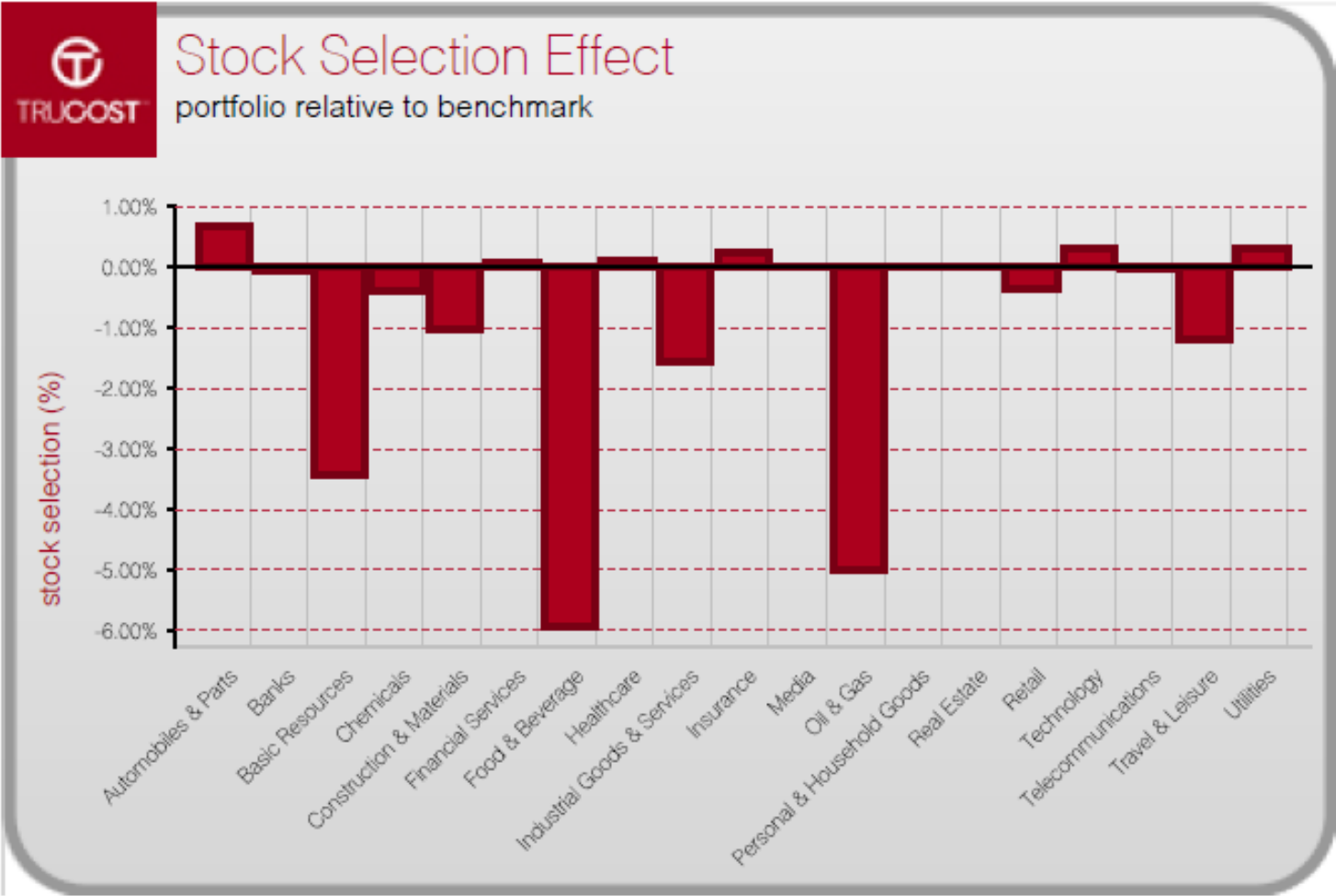
# IIGCC PORTFOLIO STOCK SELECTION



This graph shows the effect of stock selection within sectors on the carbon footprint of the portfolio relative to the benchmark.

If the bar is positive, you are invested in companies that are less carbon intensive relative to peers within their benchmark sector.

If the bar is negative, you are invested in more carbon intensive companies within sectors.



# IIGCC PORTFOLIO TOP 10 CONTRIBUTORS



Company Name	Holding (\$ mn)	Carbon Apportioned Tonnes	(%)	Carbon Intensity (tCO2e/\$mn)	Carbon Footprint Contribution (%)*	Footprint Rank in Benchmark Sector**	Data Source***
RWE AG	8.732	86,420	28.75%	2,494	-24.99 %	70 / 127	CDP
Lafarge SA	6.446	34,548	11.49%	5,200	-10.63 %	65 / 80	AR*
China Shenhua Energy Co. Ltd.	3.290	17,484	5.82%	7,164	-5.48 %	97 / 98	AR*
JBS SA	6.446	23,389	7.78%	1,135	-4.95 %	108 / 114	CDP
Canadian Oil Sands Ltd.	10.012	11,213	3.73%	1,248	-2.46 %	145 / 155	OTH
Entergy Corp.	3.043	6,845	2.28%	3,206	-1.97 %	89 / 127	CDP
Eastman Chemical Co.	15.737	11,323	3.77%	875	-1.93 %	68 / 88	CDP
Petróleo Brasileiro SA	6.961	14,550	4.84%	707	-1.92 %	128 / 155	CDP*
Praxair, Inc.	11.763	5,826	1.94%	1,589	-1.42 %	85 / 88	CDP
A.P. Møller-Mærsk A/S	11.167	9,109	3.03%	721	-1.22 %	306 / 329	CDP
<b>Total</b>	<b>83.597</b>	<b>220,708</b>	<b>73.41%</b>		<b>-56.97 %</b>		

\* The Carbon Footprint Contribution is the percentage decrease in performance between what the Carbon Footprint of the portfolio would be without the holding and what the Carbon Footprint is currently. This is a measurement of how much a specific holding reduces the carbon performance of the portfolio.

\*\* Footprint Rank in Benchmark Sector - A ranking of one indicates that the stock has the lowest carbon footprint among the stocks in the benchmark sector. An entry of N/A indicates that the stock is not a member of the benchmark.

\*\*\* CDP: Exact Value from Carbon Disclosure Project / AR\*: Value derived from Annual Report / OTH: Exact Value from Direct Communication with Trucost

# IIGCC GREEN & BROWN SHARES

9 companies have exposure to coal (either mining or energy production)  
 But.... 4 of those provide exposure to renewables

Stock Name	Renewables	Coal Mining & Coal Power	Nuclear
Yanzhou Coal Minin		99%	
China Shenhua Ener		96%	
China Longyuan Pow	48%	48%	
Rwe Ag	2%	19%	4%
Bhp Billiton Plc		16%	
Entergy Corp New		7%	17%
Nextera Energy Inc	11%	3%	19%
Hongkong&China Gas		3%	
Exelon Corp	2%	1%	57%
Pg&E Corp	25%		14%
Companhia Energetica de Minas Gerais SA	24%		

Part of the “problem” or part of the solution?

Am I interested in positive impact or risk...or both?

6 companies provide exposure to clean energy.... 5 of those also have exposure to fossil fuels

Stock Name	Hydroelectric Power Generation	Wind Power Generation	Solar Power Generation	Biomass Power Generation	Geothermal Power Generation	Natural Gas Power Generation	Nuclear Electric Power Generation	Renewables	Coal Mining & Coal Power
	China Longyuan Pow	0%	48%	0%	0%	0%	0%	0%	48%
Pg&E Corp	25%	0%	1%	0%	0%	9%	14%	25%	
Companhia Energetica de Minas Gerais SA	24%	0%	0%	0%	0%	0%	0%	24%	
Nextera Energy Inc	1%	10%	0%	0%	0%	60%	19%	11%	3%
Exelon Corp	1%	1%	0%	0%	0%	9%	57%	2%	1%
Rwe Ag	0%	2%	0%	0%	0%	6%	4%	2%	19%



# GREEN BONDS: ISSUER VS PROJECT CARBON FOOTPRINT



## Two levels of analyses

Issuer  
(group level)



Project/  
Bond

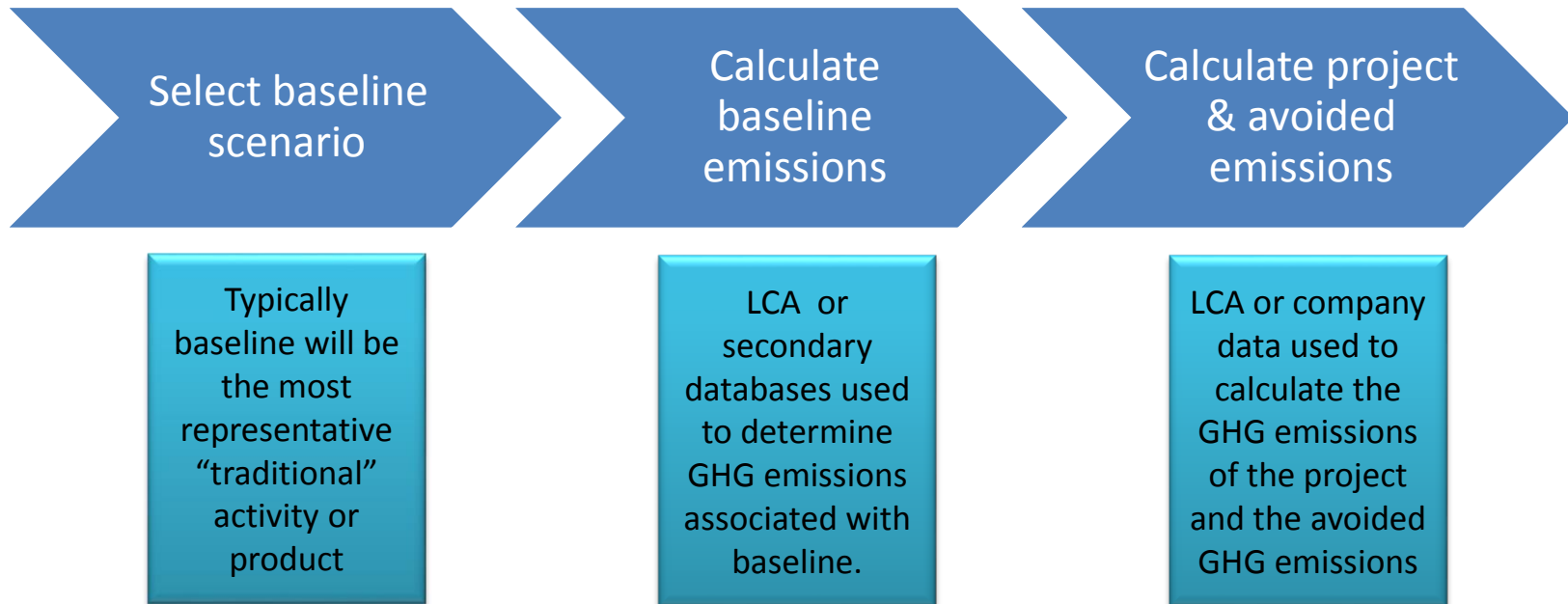
## Key performance indicators

- Direct emissions (Scope 1)
  - Indirect emissions from suppliers (Scope 2 & 3 upstream)
  - Indirect emissions from the use of products/services
  - Share of revenues from green/brown activities
  - Share of production from green/brown activities
  - Total Carbon Footprint (Direct + First Tier Indirect)
  - Impact Ratio (Damage Costs relative to Revenue)
  - etc.
- 
- Upstream project emissions  
(e.g. from the construction of a rail infrastructure by the company or suppliers)
  - Operational project emissions (e.g. from the maintenance of a wind farm)
  - Carbon Net Benefit Indicator
  - Carbon Avoided/Generated Emissions Ratio
  - etc.

# GREEN BONDS: METHODOLOGY



Project net benefit (or avoided emissions)  
= baseline emissions – project emissions

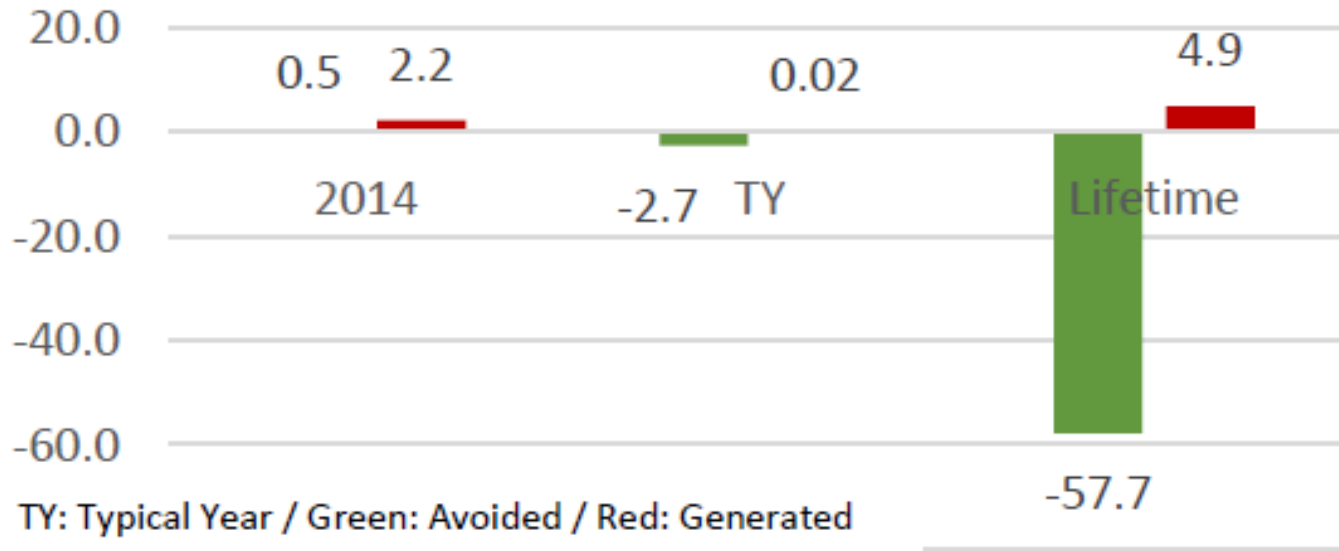


- A methodology used by multi-lateral development banks already for years
- Reliable sources (EIA, EPA, DEFRA etc.) are used.

# GREEN BONDS: CARBON FOOTPRINT EXAMPLE



## AVOIDED & GENERATED EMISSIONS (m. tCO2-eq)



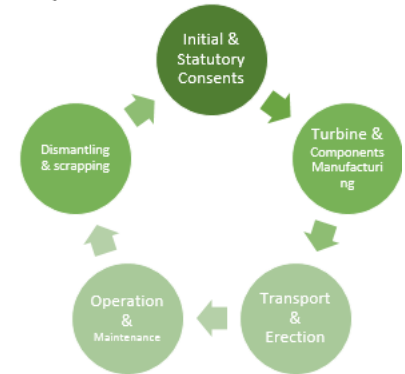
- In this example (wind & solar power generation projects), the green bond has helped save 2.7 million tons of CO2-eq in 2015 (a Typical Year of Operations)
- The avoided emissions of a green bond are calculated by aggregating the avoided emissions of each project financed by the green bond (specific use of proceeds)

### SEGMENT 1 WIND POWER GENERATION TRUCOST GREEN SEGMENT? YES

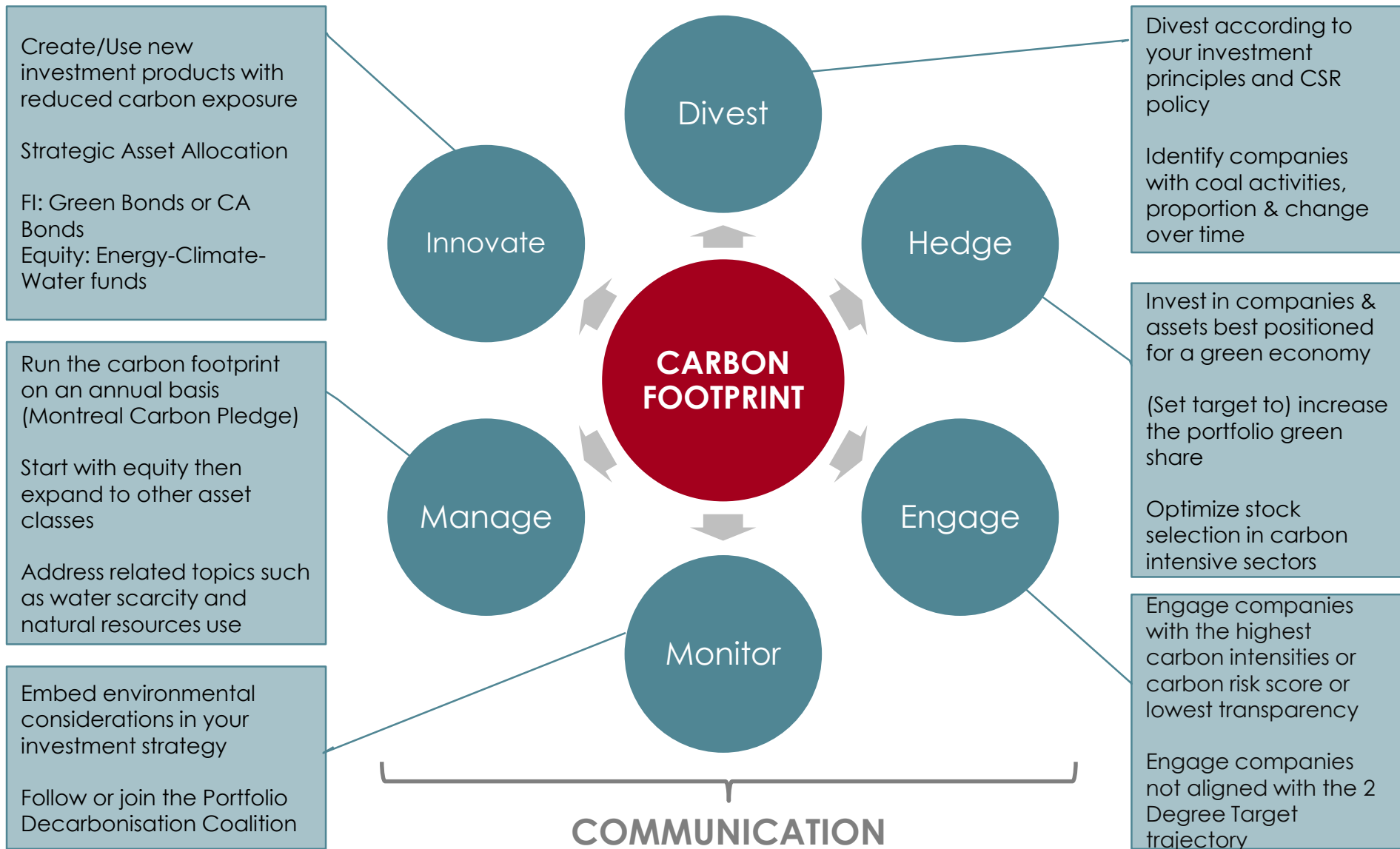
#### Description

The segment lifecycle is displayed in the chart on the right. The segment is made of on-shore wind power projects. Once the project is approved, the turbines and other components (e.g. cables) are manufactured. A wind turbine has four distinct parts: foundation, tower, nacelle and rotor. Once manufactured these parts and other components are then transported to the location and the wind turbine is then erected. This entire process from turbine manufacturing to the erection of the turbine is called the construction phase. The immediate next phase is the operation & maintenance phase. The average lifetime of a wind power plant is usually 20 years. Finally, the decommissioning (dismantling + possibly scrapping) phase takes place.

#### Life Cycle Chart



# WHAT'S NEXT?



# QUESTIONS?



**Jean-Florent Helfre**  
**Head of Business Development**  
**France-Belgium-Switzerland**



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# The Climate Impact of Investments Widening, Deepening & Outlook

*Dr. Maximilian Horster – Partner*

# About South Pole Group

We measure and reduce environmental and social impact for 1'000+ clients.

We enable our customers to create value from sustainability-related activities.

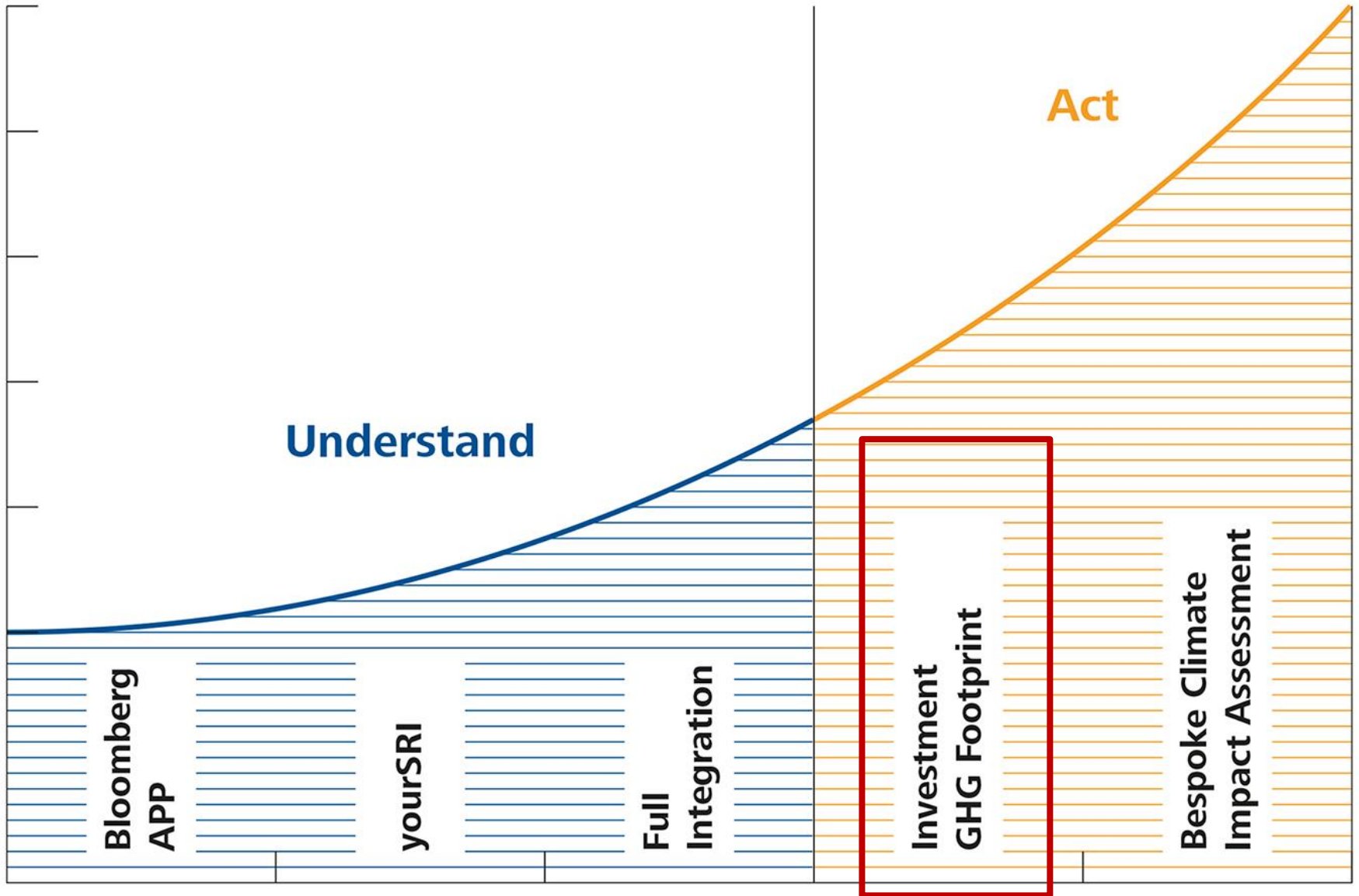
Our staff of 130 employees in 17 offices worldwide are passionate to fight climate change.

# Financial industry reference





# It's a journey...



# Comparison IIGCC Example Portfolio vs Benchmark

	%	IIGCC Example Portfolio	%	IIGCC Benchmark	Difference
Total Emissions Scope 1&2 (tCO <sub>2</sub> e)		237,426		212,282	-25,144
Total Emissions Scope 1,2 & 3 (tCO <sub>2</sub> e)		739,108		619,084	-120,024
Total Emissions Scope 1,2 & 3 (tCO <sub>2</sub> e) Minus Double Counting		436,074		365,260	-70,814
<b>Total Offsetting Cost (USD)</b>	0.32%	3,181,503	0.28%	2,844,574	
<b>Percentage of Disclosing Companies</b>		85%		64%	21%
<b>Emissions (tCO<sub>2</sub>e) per USD 1 Million Invested</b>		237		212	11%
<b>Emissions (tCO<sub>2</sub>e) per USD Millions of Revenue</b>		340		264	22%
<b>Weighted Emission / Weighted Sales</b>		173		152	12%

USD 1bn invested into  
the **IIGCC Example  
Portfolio** and the  
**Benchmark**.

<u>Index</u>	tCO <sub>2</sub> e per USD 1m invested
SMI Index	160
<b>IIGCC Benchmark</b>	<b>212</b>
<b>IIGCC Portfolio</b>	<b>237</b>
MSCI UK All Cap	240
S&P 500	270
OSEBX	300
MSCI Europe	320
Stoxx 50	570
Dax	750

# Carbon Footprint: Only one aspect of climate impact

## Company Trend

Climate Resilience  
(forward looking)

Three  
dimensions of  
investment  
climate impact

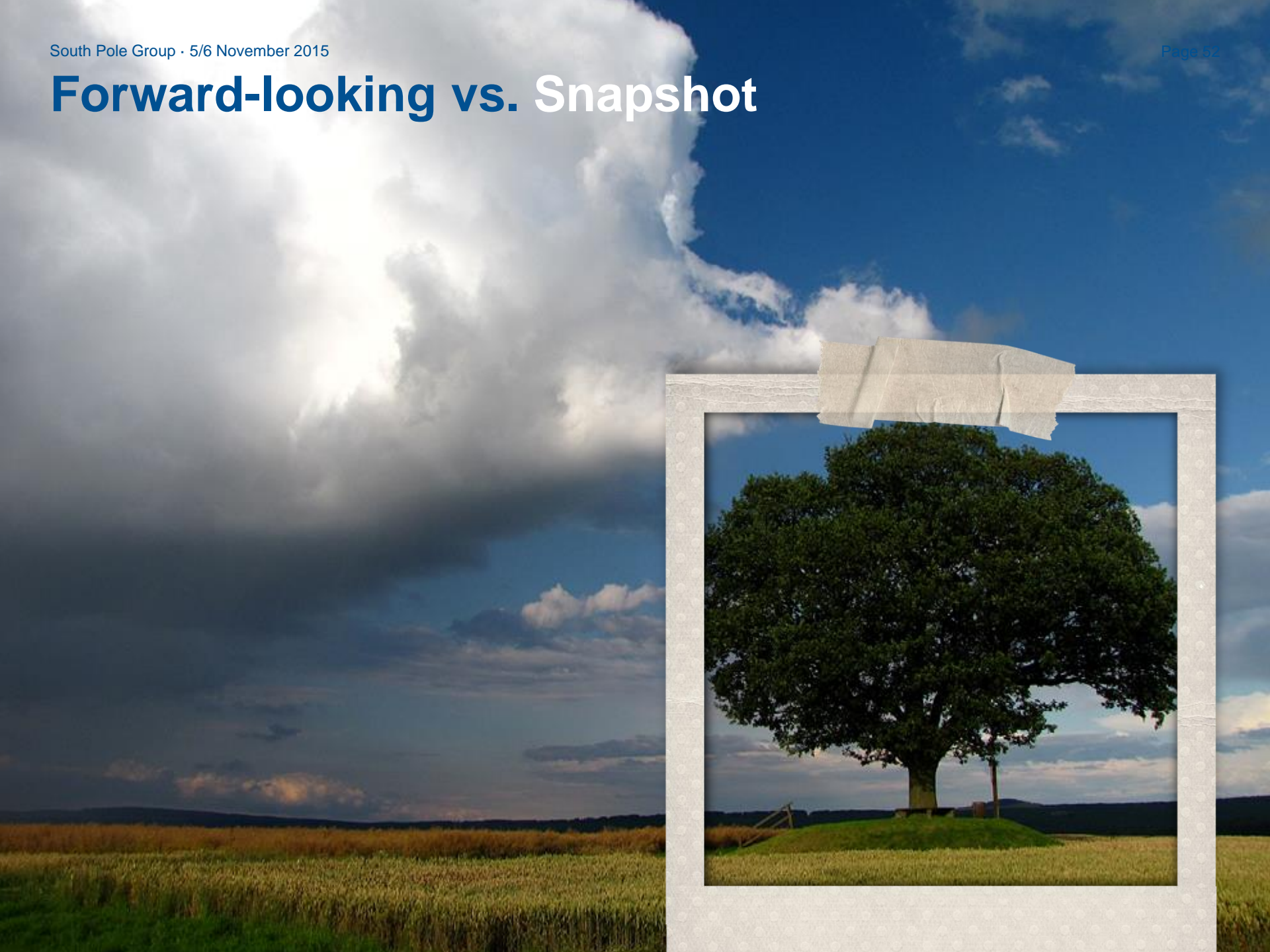
Fossil Reserves  
(stranded assets)

Portfolio Footprint  
(current GHG exposure)

**Future Production**

**Current Consumption**

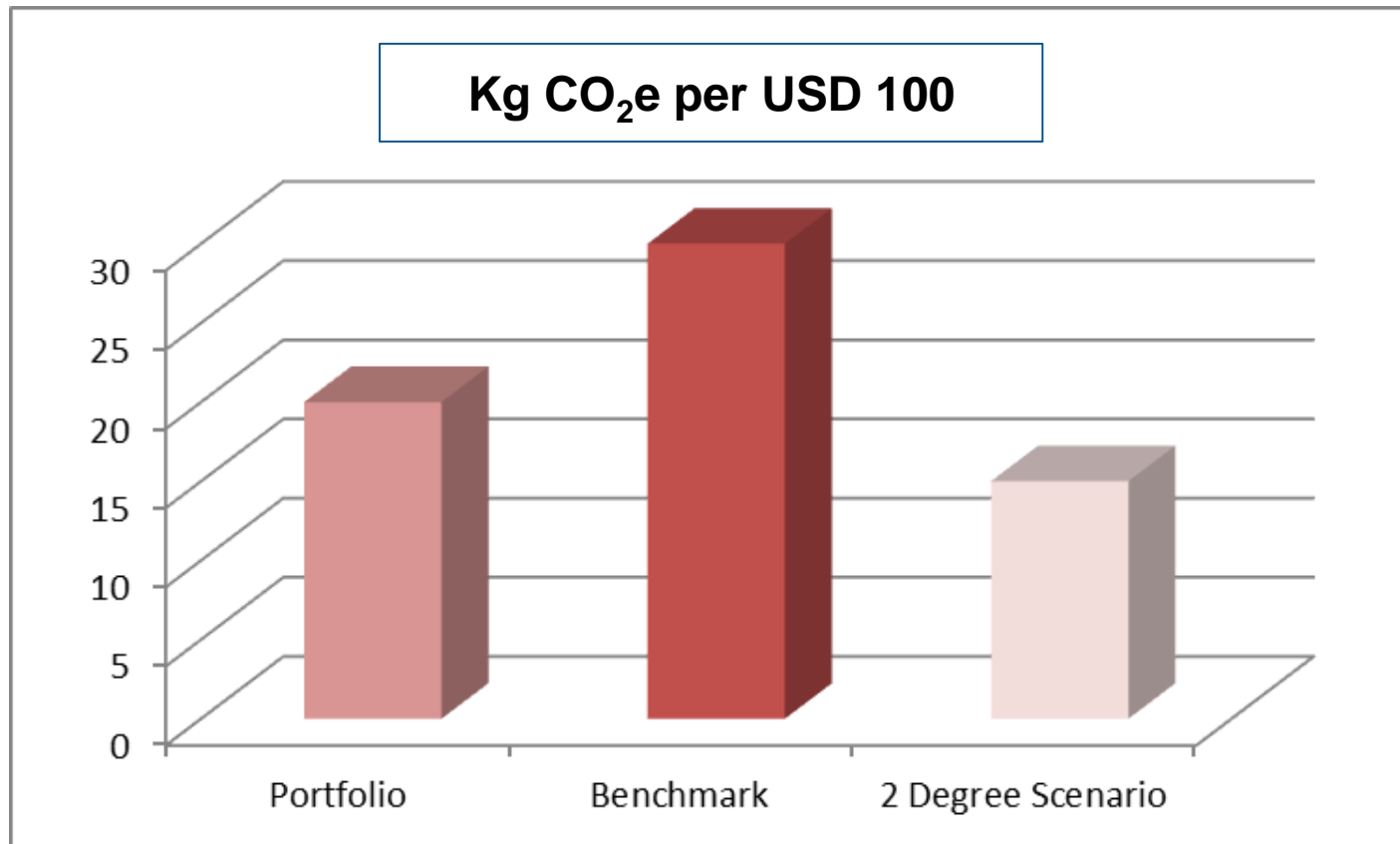
# Forward-looking vs. Snapshot



# Footprinting versus Saved Emissions



# Beating the benchmark or Climate Change?

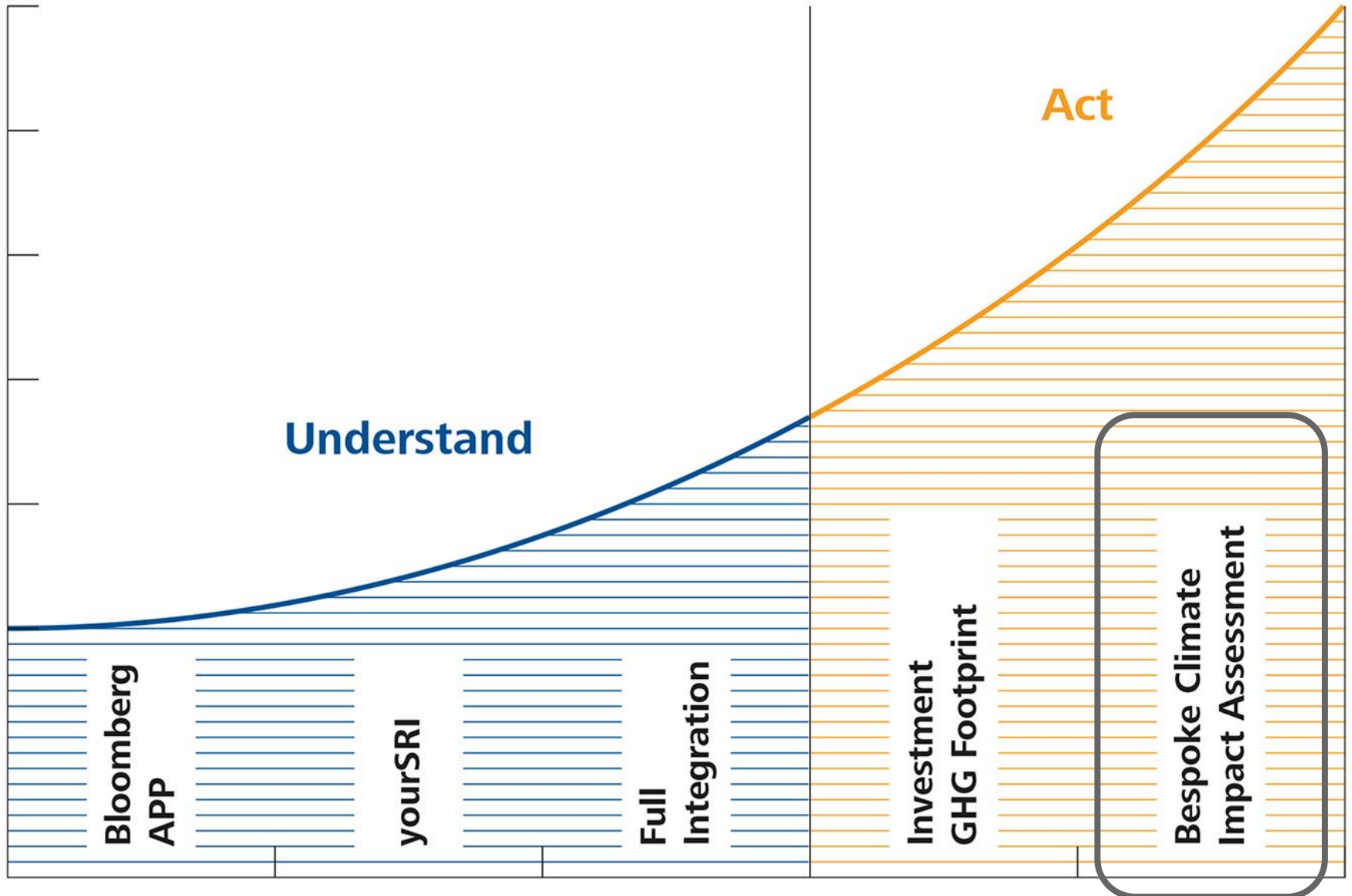




# Widening and Deepening



# Climate Impact Assessment





# Widening and Deepening

## Multi-asset class approaches

- Fixed Income
- Private equity
- Infrastructure
- Forestry/ Agriculture
- Real Estate

## Other natural capital factors

- Water
- Deforestation
- Biodiversity
- Waste
- Agriculture

## Sector deep-dives

- Carbon Underground 200™
- Tar Sand 20™
- Reserve analysis
- Energy production mix
- Transition pathways

## Net-impact assessments

- Forward-looking analysis
- Quantifying positives
- Netting Impact
- Engagement Lists
- 2 degree compliance checks

# AP6 drives PE investments to climate resilience

## Swedish pension fund leads the way for carbon screening of private equity investments



Sjätte AP-fonden

### The Brief

#### Who is the client?

The Sixth Swedish National Fund (AP6) is one out of six Swedish National Pension Funds. It manages a portfolio worth SEK 23.6 billion (almost USD 3 billion). AP6's mission is to create high long-term returns to the benefit of Swedish pensioners by investing in unlisted companies through a risk-balanced approach. The investments are made either directly in the companies or indirectly through funds. The majority of investments are made mainly in mature companies in the Nordic region. AP6 is an active owner and has an integrated approach to sustainability, which is expressed through ownership control.

create a return for Swedish pensioners by investing in a sustainable and responsible manner. This means that their holdings should grow and create returns through efficient use of resources, minimum environmental impact, and by promoting social development and fair working conditions.

#### What was the challenge?

Within the private equity sphere, few companies measure and report their carbon emissions. Intuitively, AP6 assumed that only a limited amount of companies they invest in have carbon footprint data readily available. Another challenge was that as a private equity investor, AP6 could not share information about the value of their holdings.

#### How did AP6 proceed?

AP6 conducted a market research of carbon footprinting providers and selected a handful for further probing. The selected providers



to AP6's ownership. In order to perform an investment carbon footprint, the underlying carbon footprint of each investee needed to be established, both for direct and fund investments. Then, the greenhouse gas emissions were allocated in relation to the respective ownership of AP6. For the underlying greenhouse gas information, a bottom-up and a top-down analysis approach were combined, in order to establish a trustworthy output at a reasonable effort. South Pole Group used the carbon data provided by the companies in the portfolio who measure and report their



**Climate  
transparent  
investment**

Certified by south pole group

# CS launches climate neutral Real Estate fund

## CS (Lux) European Climate Value Property Fund

[Information](#)[Fund Manager](#)

The Credit Suisse (Lux) European Climate Value Property Fund pursues a conservative real estate strategy (Core/Core Plus) by acquiring existing commercial properties that have leased well in promising European markets. A key aspect of the investment concept is based on a system for controlling, measuring, and monitoring energy consumption in cooperation with the Siemens technology group.

All properties in the portfolio are continually upgraded in terms of their energy efficiency on the basis of this measurement data in order to systematically reduce overall energy consumption as well as CO<sub>2</sub> emissions. This ensures that alongside the sustainability of the investment, the earnings potential for the fund's investors is also strengthened. The remaining portfolio share for which the energy consumption cannot be reduced in a cost-effective manner is made completely "carbon-neutral" once a year through the purchase of CO<sub>2</sub> certificates. The innovative fund



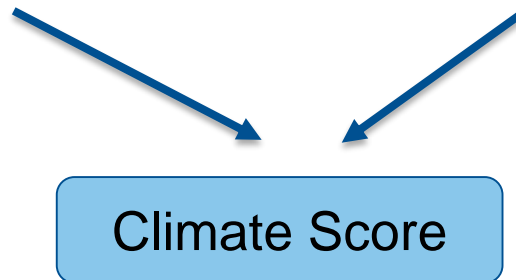
# Focus on trends

## Cross-Sector Indicators (yes/no, scale)

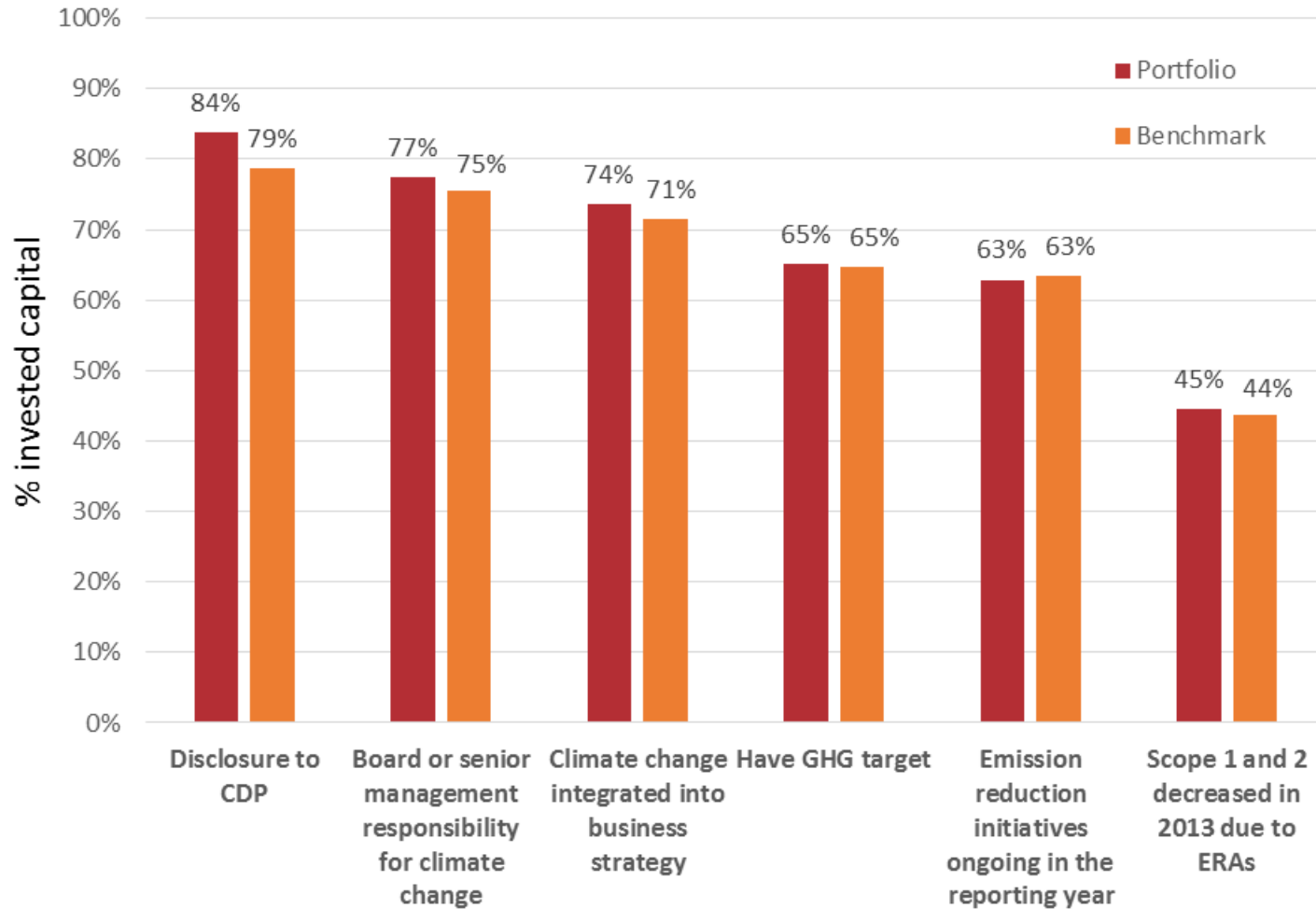
Climate Strategy
Reduction target
C-level responsibility
Monetary Incentive
Supply Chain engagement
Emission reduction activities
Emission reduction achievements
Performance Score
Management of Climate Risk
Management of Climate Opportunities

## Sector Specific Indicators (score)

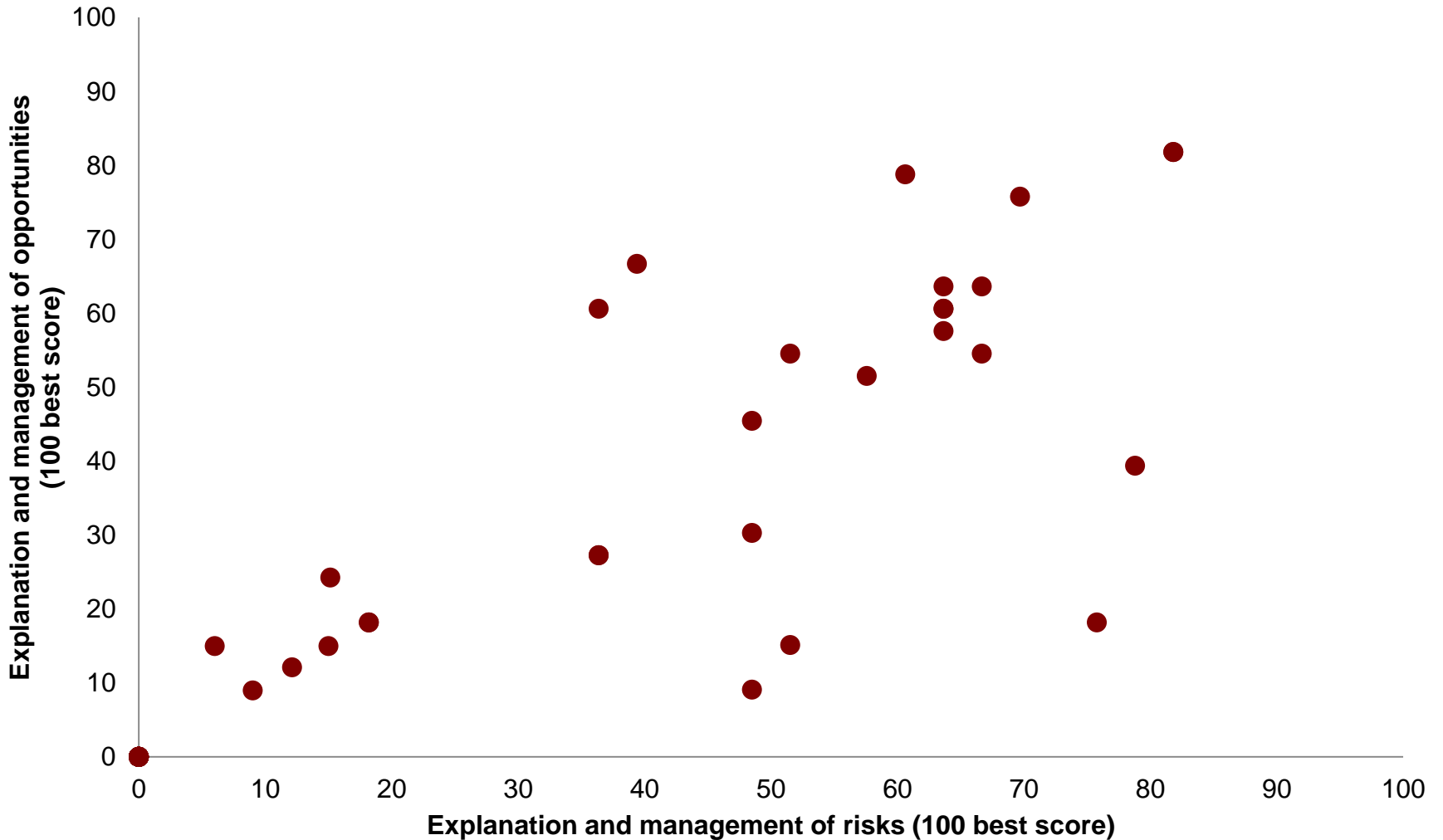
Example Sector	Example Indicator
Automobile	Emission/ car, altern. fuels, energy efficiency
Electronic Devices & Appliances	Energy consumption, Energy Star
Food and Beverages	Sustainable agriculture, water stewardship
Oil, Gas & Consumable Fuels	Share oil/coal/gas, renewables and alternatives
Real Estate	Renewable energy, energy efficiency, labels
Software and IT Services	Energy efficiency, renewable energy
Transport and Logistics	Modal mix, transport efficiency per unit
Utilities	Intensity, renewables exposure



# Forward - looking Analysis



# Risk/ Opportunity Management



# Engagement List

Ticker	Company	Severity	Subject for engagement/dialogue
PNR US	Pentair Plc	●	Does not disclose to CDP
V US	Visa, Inc.	● ●	Company does not integrate climate change in the overall business strategy  No board of senior executive oversight of climate change as an issue
SAP GR Equity	SAP SE	✓	Excellent disclosure and strong performance in reporting on climate change (CDP score 100 A)
Etc.	Etc.	Etc.	Etc.

# Integrating climate impact aspects

Company	CO <sub>2</sub> e In portfolio (t)	% of Total	Source	Climate Score
RWE AG	7'611	15%	Disclosed	2.0
VEOLIA ENVIRONNEMENT	4'858	9%	Disclosed	3.0
NIPPON YUSEN	4'561	9%	Disclosed	1.6
E.ON AG	3'483	7%	Disclosed	2.4
ENEL SPA	2'864	6%	Disclosed	2.8
ENGIE	2'599	5%	Disclosed	2.5
SASOL LTD	2'198	4%	Disclosed	1.4
CATHAY PACIFIC AIRWAYS	1'954	4%	Disclosed	1.4
ISRAEL CORP LIMITED/THE	1'606	3%	Approx	1.3
EDP-ENERGIAS DE PORTUGAL SA	1'437	3%	Disclosed	2.7

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 The logo for oekom research, featuring the word "oekom" in a bold, dark blue font, followed by "research" in a lighter blue font. The letters in "research" are separated by vertical lines, giving it a segmented appearance.



# Climate Friendly Index 3.0

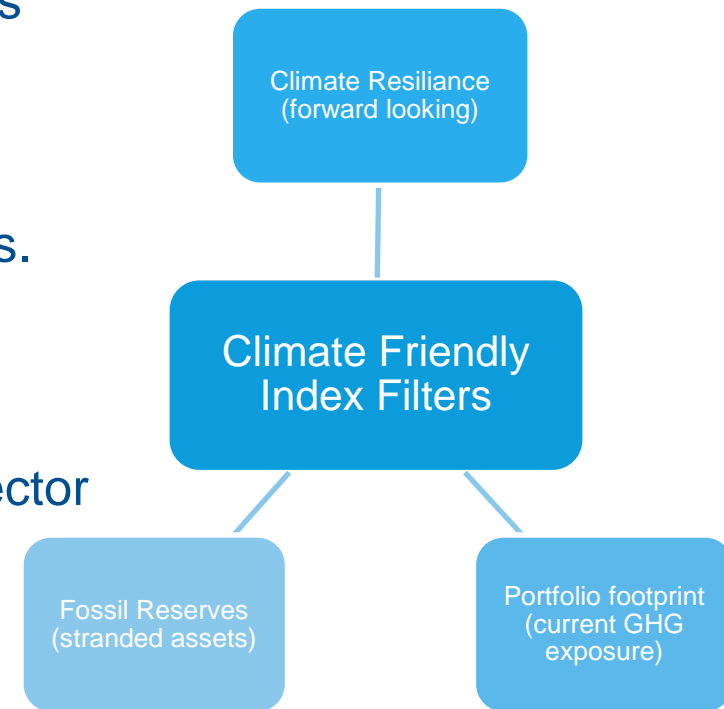
## Potential climate features

A carbon friendly index that reduces an investor's climate impact

- Reduced direct greenhouse gas exposure
- Limited exposure to future emissions
- Favouring climate change resilient companies.

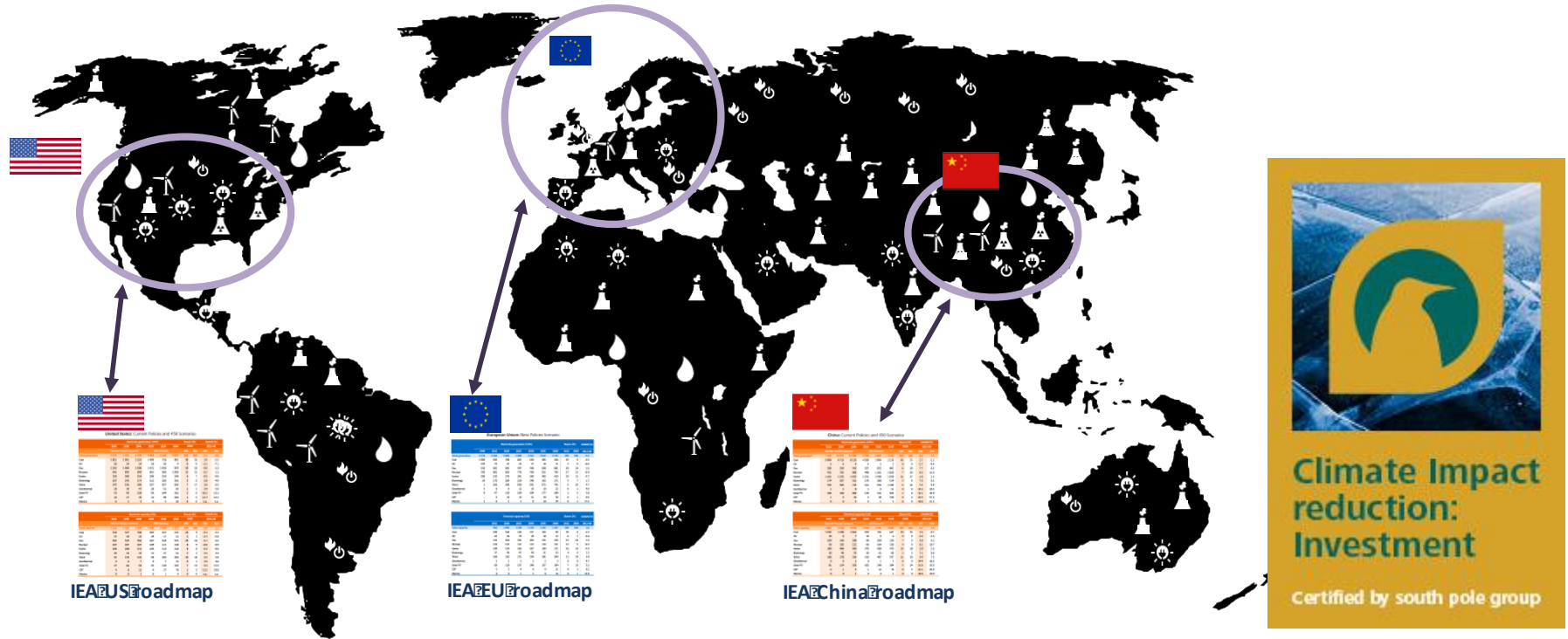
## Potential index features

- High dividends, low volatility, best in class, sector neutral, exclusions, applicable globally to all universes, countries and regions;
- Applicable to stock and bond indices.



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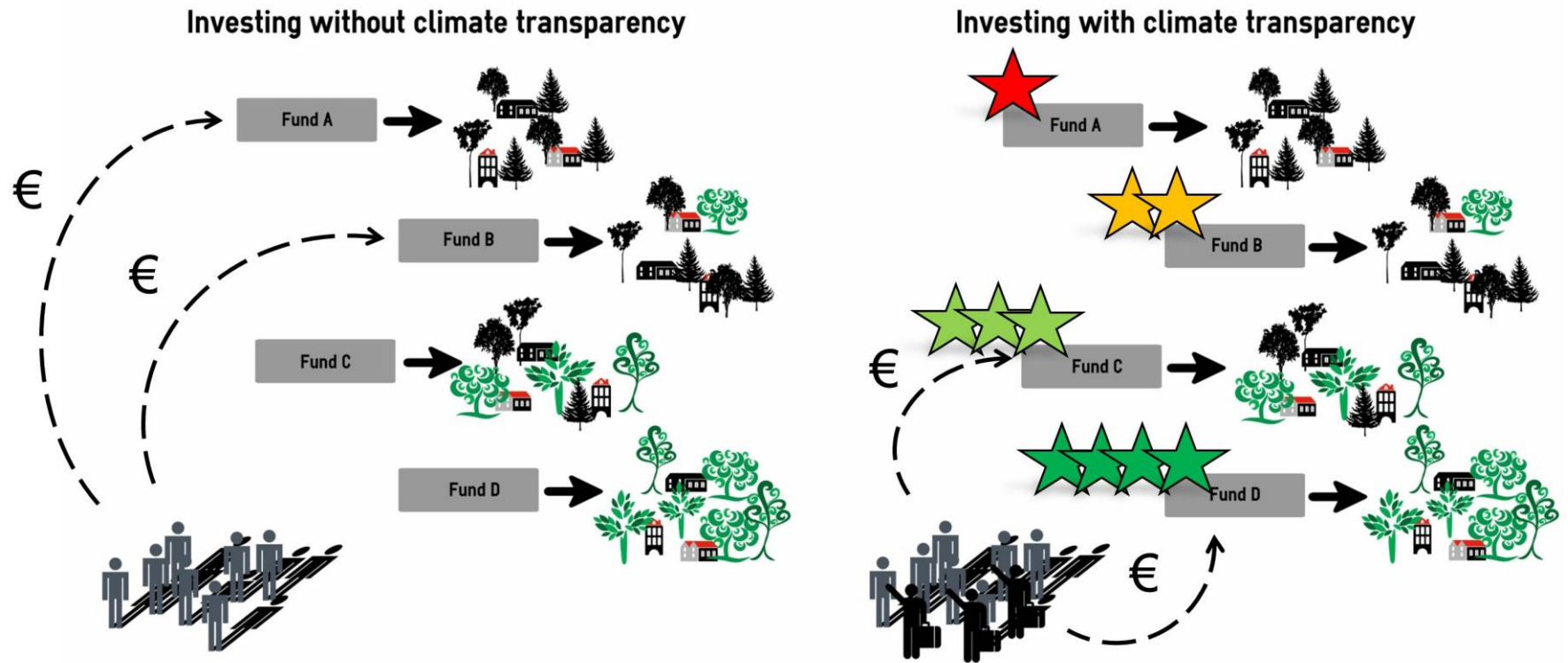
# 2 degree compatability portfolio check



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# CLIMPAX – a game changer for retail investors



# What's next?





# Thank you

**Maximilian Horster**  
M.Horster@southpolecarbon.com



# Q & A session with service providers

**Break**  
**15 minutes**

# Panel discussion with investors

**Panel discussion** moderated by **Stephanie Pfeifer**, CEO IIGCC

**Christina Olivecrona**, Sustainability Analyst, AP2 Fund, Sweden

**David Engel**, Portfolio Manager, Publica

**Peter Signer**, Head Investments, Nest Collective Foundation

Sharing experiences of carbon foot printing and other climate solutions

- What was the driver for foot printing your portfolio?
- What difficulties did you encounter?
- How did you use the results?
  - for internal awareness ?
  - for external communication?
  - for investment decision-making?
  - for engagement with companies?
- Do you plan to set reduction targets?
- What other strategies are you employing to address carbon risk and invest in climate solutions?



# Panel discussion with investors

**Panel discussion** moderated by **Stephanie Pfeifer**, CEO, IIGCC

**Olivier Bonnet**, Head of SRI, ERAFP, France

**Christina Olivecrona**, Sustainability Analyst, AP2 Fund, Sweden

**Carloline Schum**, Representative for Romandie, Nest Collective Foundation

**François Vuille**, Directeur de Développement, Centre de l'Énergie, EPFL

Sharing experiences of carbon foot printing and other climate solutions

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# *Carbon Footprints of Portfolios*

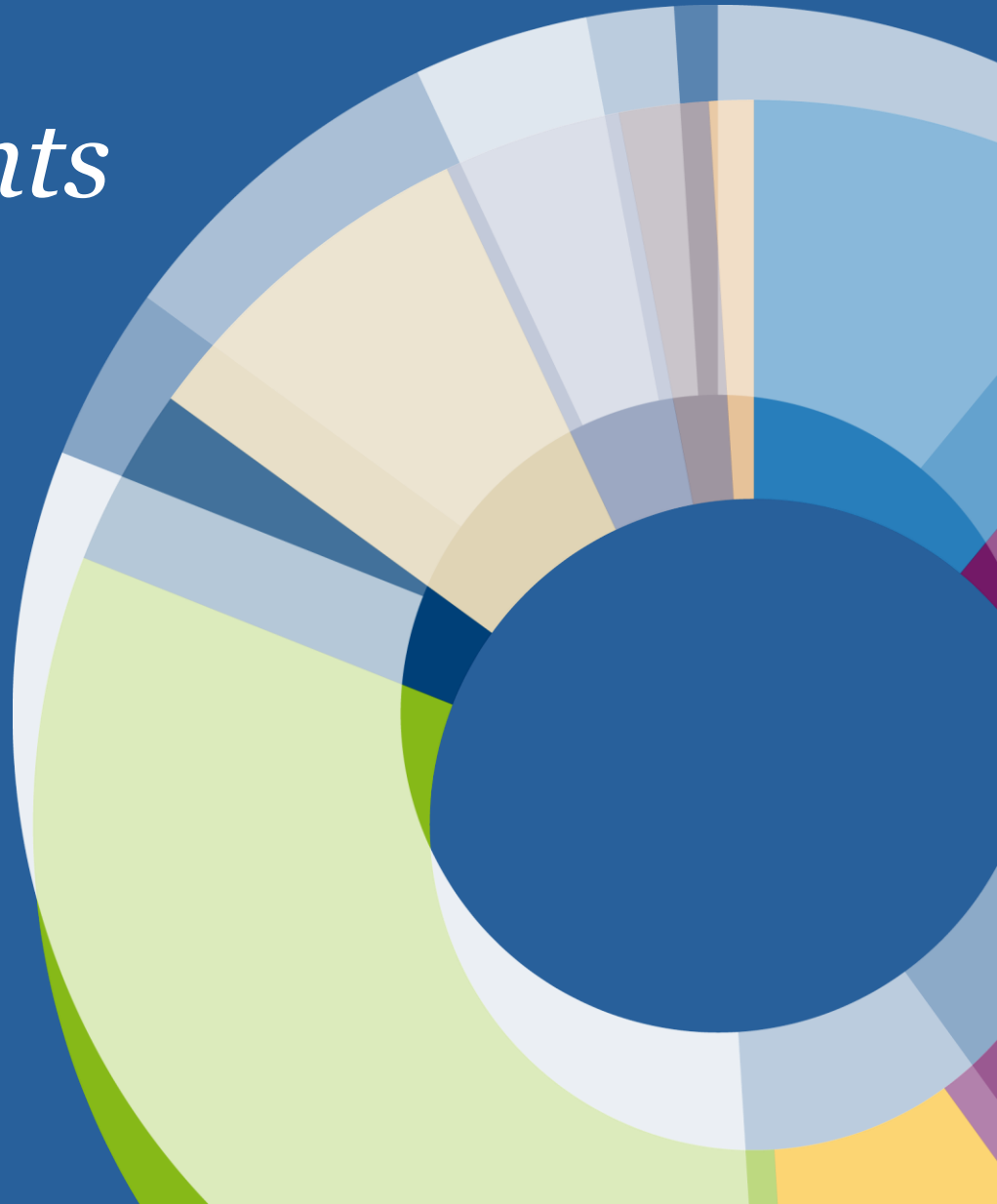
*SSF & IIGCC*

*Investor Workshop in Carbon  
Foot Printing*

*Zürich, Nov 5 2015*

*Geneva, Nov 6 2015*

*Christina Olivecrona, AP2*



# The Swedish AP Funds

- All AP Funds will report their carbon footprints (Scope 1 and 2) according to the three ownership approach metrics.
  - Portfolio carbon emission (tCO<sub>2</sub>e)
  - Portfolio carbon emission per Swedish krona of investment (tCO<sub>2</sub>e/SEK million invested)
  - Portfolio carbon intensity in relation to companies sales (tCO<sub>2</sub>e/\$ million sales)
- The AP Funds will also disclose:
  - the level of reported, estimated and missing data
- The AP Fund's carbon footprints will not be fully comparable due to:
  - Different data providers
  - Different investment strategies

# AP2's Carbon Footprint

## Second AP Fund's carbon footprint as of December 31, 2014

	Companies' emissions of greenhouse gases (Scope 1 and 2)		Carbon intensity in relation to companies' turnover					
	(tCO <sub>2</sub> e) <sup>1</sup>	Adjusted for companies' debt <sup>2</sup> (tCO <sub>2</sub> e)	Amount of capital for which data is available (%)	Market value of Fund portfolio for which CO <sub>2</sub> e data is available (SEK m, Dec 31, 2014)	Based on portfolio weight (tCO <sub>2</sub> e/USD m) <sup>3</sup>	Based on Fund's participation right (tCO <sub>2</sub> e/USD m) <sup>4</sup>	Based on Fund's participation right, debt-adjusted emissions (tCO <sub>2</sub> e/USD m) <sup>4</sup>	Carbon intensity in relation to the Fund's investment based on participation right, debt-adjusted emissions (tCO <sub>2</sub> e/SEK m) <sup>5</sup>
AP2 portfolio of listed equities	3 621 000	2 204 000	92.82	127 562	226	243	199	17.28
MSCI All Country World Index					208	237	198	14.86

<sup>1</sup> CO<sub>2</sub>e (carbon equivalent) is a unit of measure that enables a comparison between the climate impact of different greenhouse gases.

<sup>2</sup> The company's emissions multiplied by the ratio 'market value/enterprise value'.

<sup>3</sup> The sum of portfolio weightings multiplied by the ratio 'corporate carbon emissions/turnover'.

<sup>4</sup> The sum of the Fund's share of portfolio-company emissions, divided by the sum of the Fund's share of these companies' turnover.

<sup>5</sup> The sum of the Fund's share of its portfolio-company emissions, divided by the total market value of the Fund's holdings in listed equities.

Source: MSCI ESG Research/The Second AP Fund

### Reported:

- Total emissions
- Several carbon intensity measures: ownership approach and portfolio approach
- Debt-adjusted emissions
- Corresponding measures for MSCI All Country World Index
- Amount of capital for which data is available

# How can investors use carbon footprints?

## **Carbon footprints are useful:**

- To start discussion and increase investors knowledge about climate
- To fulfill demand from stakeholders
- As a follow-up metric for investment strategies directly linked to CO<sub>2</sub>-emissions (Scope 1 and 2)
- To evaluate financial risks linked to a price on carbon (sector and company level)
- In company dialogues
- To increase transparency and data quality for company emissions

## **A carbon footprint is not a metric:**

- On the total climate risks and/or opportunities for a portfolio
- Of a portfolio's total climate impact
- On how well a portfolio is positioned towards a low-carbon society

**Apéro and networking**  
Thanks for coming!