Investor Workshop on Carbon Foot Printing
Zürich
5 November 2015
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
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
Map of investment solutions

- Strategic review
  - Strategic asset allocation
    - Mitigation investment actions
      - Reduce carbon intensity of existing assets
      - Invest in low carbon, energy efficient assets
    - Adaptation investment actions
      - Reduce climate vulnerability of existing assets
      - Invest in climate adaptation opportunities
Sample portfolio
Sector breakdown

- Global equity portfolio - 100 stocks
- Benchmarked against MSCI ACWI
Sample portfolio
Top overweight and underweight positions

### TOP 10 OVERWEIGHT

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

### TOP 10 UNDERWEIGHT

<table>
<thead>
<tr>
<th>Company name</th>
<th>Portfolio Weight</th>
<th>Benchmark Weight</th>
<th>Under weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple, Inc.</td>
<td>1.7%</td>
<td>-</td>
<td>-1.7%</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>0.8%</td>
<td>-</td>
<td>-0.8%</td>
</tr>
<tr>
<td>Wells Fargo &amp; Co New</td>
<td>0.7%</td>
<td>-</td>
<td>-0.7%</td>
</tr>
<tr>
<td>General Electric Co</td>
<td>0.7%</td>
<td>-</td>
<td>-0.7%</td>
</tr>
<tr>
<td>Nestle SA</td>
<td>0.7%</td>
<td>-</td>
<td>-0.7%</td>
</tr>
<tr>
<td>Jpmorgan Chase &amp; Co</td>
<td>0.6%</td>
<td>-</td>
<td>-0.6%</td>
</tr>
<tr>
<td>Procter &amp; Gamble Co</td>
<td>0.6%</td>
<td>-</td>
<td>-0.6%</td>
</tr>
<tr>
<td>Exxon Mobil Corp</td>
<td>0.5%</td>
<td>1.1%</td>
<td>-0.6%</td>
</tr>
<tr>
<td>Novartis Ag</td>
<td>0.6%</td>
<td>-</td>
<td>-0.6%</td>
</tr>
<tr>
<td>Verizon Communications, Inc.</td>
<td>0.6%</td>
<td>-</td>
<td>-0.6%</td>
</tr>
</tbody>
</table>
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.
<table>
<thead>
<tr>
<th>Description</th>
<th>Use case</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Portfolio Carbon Emissions</strong> (tons of CO2e)</td>
<td>• Report on emissions (Montreal Pledge) • Set reduction targets</td>
</tr>
<tr>
<td><strong>Portfolio Carbon Emissions per dollar of investment</strong> (tons CO2e / $ million invested)</td>
<td>• Report on emissions (Montreal Pledge) • Set reduction targets • Compare to benchmark and between portfolios</td>
</tr>
<tr>
<td><strong>Portfolio Carbon Intensity</strong> (tons CO2e / $ million sales)</td>
<td>• Report on normalized emissions • Compare to benchmark and between portfolios</td>
</tr>
<tr>
<td><strong>Portfolio Carbon Risk Exposure</strong> (tons CO2e / $)</td>
<td>• Tool to measure carbon risks</td>
</tr>
<tr>
<td><strong>Financed Carbon Emissions</strong> (tons CO2e)</td>
<td>• Report on emissions for non-equity and multi asset class portfolios</td>
</tr>
</tbody>
</table>
## Key Statistics

<table>
<thead>
<tr>
<th></th>
<th>Carbon Emissions /$M Invested</th>
<th>Carbon Emissions*</th>
<th>Carbon Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>IIGCC Portfolio</td>
<td>238</td>
<td>238,482</td>
<td>338</td>
</tr>
<tr>
<td>MSCI ACWI</td>
<td>192</td>
<td>191,909</td>
<td>241</td>
</tr>
<tr>
<td>MSCI ACWI Low Carbon Target</td>
<td>57 T CO2e / $M</td>
<td>56,864</td>
<td>78 T CO2e / $M sales</td>
</tr>
</tbody>
</table>

Based on investment of $1bn

### What carbon emissions are my investments responsible for?

- **IIGCC Portfolio**: 238,482 T CO2e
- **MSCI ACWI**: 191,909 T CO2e
- **MSCI ACWI Low Carbon Target**: 56,864 T CO2e

### 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.

Sample portfolio provided by the IIGCC
CARBON FOOTPRINTING & ATTRIBUTION ANALYSIS

What sectors are driving my carbon risk exposure?

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

Sample portfolio provided by the IIGCC
### 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.  

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#### Table: Largest Contributors to Portfolio Emissions

<table>
<thead>
<tr>
<th>Company</th>
<th>Sector</th>
<th>Country</th>
<th>Portfolio Weight</th>
<th>Active Weight</th>
<th>Carbon Emissions</th>
<th>Carbon Emissions Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RWE AKTIENGESELLSCHAFT</td>
<td>Germany</td>
<td>0.87%</td>
<td>0.84%</td>
<td>169,000</td>
<td>Reported</td>
</tr>
<tr>
<td>2</td>
<td>LAFARGE S.A.</td>
<td>France</td>
<td>0.64%</td>
<td>0.61%</td>
<td>101,990</td>
<td>Reported</td>
</tr>
<tr>
<td>3</td>
<td>PETROLEO BRAZILEIRO S.A. - PETROBRAS</td>
<td>Brazil</td>
<td>0.70%</td>
<td>0.62%</td>
<td>73,374</td>
<td>Reported</td>
</tr>
<tr>
<td>4</td>
<td>CANADIAN OIL SANDS LIMITED</td>
<td>Canada</td>
<td>1.00%</td>
<td>0.99%</td>
<td>4,577,829</td>
<td>Reported</td>
</tr>
<tr>
<td>5</td>
<td>EASTMAN CHEMICAL COMPANY</td>
<td>United States of America</td>
<td>1.57%</td>
<td>1.54%</td>
<td>6,950,076</td>
<td>Reported</td>
</tr>
<tr>
<td>6</td>
<td>A.P. MOELLER - MAERSK A/S</td>
<td>Denmark</td>
<td>1.12%</td>
<td>1.06%</td>
<td>32,784</td>
<td>Reported</td>
</tr>
<tr>
<td>7</td>
<td>ENTERGY CORPORATION</td>
<td>United States of America</td>
<td>0.30%</td>
<td>0.26%</td>
<td>35,108,164</td>
<td>Reported</td>
</tr>
<tr>
<td>8</td>
<td>PRAXAIR, INC.</td>
<td>United States of America</td>
<td>1.18%</td>
<td>1.09%</td>
<td>18,035,000</td>
<td>Reported</td>
</tr>
<tr>
<td>9</td>
<td>JAPAN AIRLINES CO., LTD.</td>
<td>Japan</td>
<td>0.86%</td>
<td>0.85%</td>
<td>8,599,050</td>
<td>Derived from Reported Data</td>
</tr>
<tr>
<td>10</td>
<td>EKELON CORPORATION</td>
<td>United States of America</td>
<td>0.65%</td>
<td>0.57%</td>
<td>24,966,571</td>
<td>Reported</td>
</tr>
</tbody>
</table>

#### Contribution to Portfolio Emissions

<table>
<thead>
<tr>
<th>Company</th>
<th>Contribution to Portfolio Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>41.22%</td>
</tr>
<tr>
<td>2</td>
<td>12.17%</td>
</tr>
<tr>
<td>3</td>
<td>6.27%</td>
</tr>
<tr>
<td>4</td>
<td>4.30%</td>
</tr>
<tr>
<td>5</td>
<td>3.70%</td>
</tr>
<tr>
<td>6</td>
<td>2.67%</td>
</tr>
<tr>
<td>7</td>
<td>2.98%</td>
</tr>
<tr>
<td>8</td>
<td>2.34%</td>
</tr>
<tr>
<td>9</td>
<td>2.33%</td>
</tr>
<tr>
<td>10</td>
<td>2.16%</td>
</tr>
</tbody>
</table>

*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

*as of 31 October 2014. Past performance is not indicative of future returns or performance.
CLEAN TECH SOLUTIONS: 8% OF THE PORTFOLIO OFFERS CLEAN TECH SOLUTIONS BUT ONLY 2% ARE “PURE PLAY”

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

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

**Measurement:** Establish a Baseline

- Carbon Portfolio Footprinting is a first step towards:
  - Understanding portfolio exposure to climate risk
  - Establish a baseline from which to take action
  - Communicate internally / externally

**Transition:** Decarbonization

- Investors can reduce carbon exposure through:
  - Screening / divestment
  - Tilting / optimization
  - Allocating to clean tech / green bonds

**Transformation:** Pathways to 2°C

- Understanding pathways to a 2°C scenario leads to:
  - Integrated climate risk management
  - 2 degree aligned portfolio construction
  - Scenarios to inform strategic asset allocation
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<th>Location</th>
<th>Phone Number</th>
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<tbody>
<tr>
<td>Americas</td>
<td>1 888 588 4567 *</td>
</tr>
<tr>
<td>Atlanta</td>
<td>+ 1 404 551 3212</td>
</tr>
<tr>
<td>Boston</td>
<td>+ 1 617 532 0920</td>
</tr>
<tr>
<td>Chicago</td>
<td>+ 1 312 675 0545</td>
</tr>
<tr>
<td>Monterrey</td>
<td>+ 52 81 1253 4020</td>
</tr>
<tr>
<td>New York</td>
<td>+ 1 212 804 3901</td>
</tr>
<tr>
<td>San Francisco</td>
<td>+ 1 415 836 8800</td>
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<tr>
<td>Sao Paulo</td>
<td>+ 55 11 3706 1360</td>
</tr>
<tr>
<td>Toronto</td>
<td>+ 1 416 628 1007</td>
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### EUROPE, MIDDLE EAST & AFRICA

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<th>Location</th>
<th>Phone Number</th>
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<tbody>
<tr>
<td>Cape Town</td>
<td>+ 27 21 673 0100</td>
</tr>
<tr>
<td>Frankfurt</td>
<td>+ 49 69 133 859 00</td>
</tr>
<tr>
<td>Geneva</td>
<td>+ 41 22 817 9777</td>
</tr>
<tr>
<td>London</td>
<td>+ 44 20 7618 2222</td>
</tr>
<tr>
<td>Milan</td>
<td>+ 39 02 5849 0415</td>
</tr>
<tr>
<td>Paris</td>
<td>0800 91 59 17 *</td>
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### ASIA PACIFIC

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<tbody>
<tr>
<td>China North</td>
<td>10800 852 1032 *</td>
</tr>
<tr>
<td>China South</td>
<td>10800 152 1032 *</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>+ 852 2844 9333</td>
</tr>
<tr>
<td>Mumbai</td>
<td>+ 91 22 6784 9160</td>
</tr>
<tr>
<td>Seoul</td>
<td>00798 8521 3392 *</td>
</tr>
<tr>
<td>Singapore</td>
<td>800 852 3749 *</td>
</tr>
<tr>
<td>Sydney</td>
<td>+ 61 2 9033 9333</td>
</tr>
<tr>
<td>Taipei</td>
<td>008 0112 7513 *</td>
</tr>
<tr>
<td>Tokyo</td>
<td>81 3 5290 1555</td>
</tr>
</tbody>
</table>

* = toll free

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[clientservice@msci.com](mailto:clientservice@msci.com)
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Carbon Footprinting of Portfolios

Inrate Portfolio Carbon Screenings

Zurich/Geneva – November 5\textsuperscript{th}/6\textsuperscript{th}, 2015

Inrate Sustainability Research, Tobias Jung, Head of Research
Inrate

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

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

Greenhouse Gas Intensity Invested

Portfolio
MSCI ACWI

MSCI ACWI: t GHG/mn USD invested; 1’461

GREENHOUSE GAS INTENSITY [t GHG / mn USD]

Portfolio
MSCI ACWI

MSCI ACWI: t GHG/mn USD MarketCap; 1’524

Portfolio
MSCI ACWI

MSCI ACWI: t GHG/mn USD Revenue; 2’121

GREENHOUSE GAS INTENSITY [t GHG / mn USD]

Portfolio 1’461 t GHG /mn USD invested
⇒ -4.1% less carbon-intensive

MSCI ACWI 1’524 t GHG / mn USD MarketCap

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

ICB Sector
- Technology
- Banks
- Industrial Goods & Services
- Healthcare
- Oil & Gas
- Retail
- Food & Beverage
- Personal & Household Goods
- Insurance
- Telecommunications
- Financial Services
- Utilities
- Chemicals
- Media
- Automobiles & Parts
- Basic Resources
- Real Estate
- Travel & Leisure
- Construction & Materials

GHG-intensity [t GHG / mn USD]

- Portfolio: t GHG/ mn USD invested
- MSCI ACWI: t GHG/mn USD MarketC

24'700
# Analyses of 10 Highest Carbon Holdings

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

- Titels with high carbon emissions versus sector average selected
What we quantify: Carbon emissions/GHG impact

GHG-emissions ...along the value chain?

www.money-footprint.com
The data on GHG emissions (example MSCI ACWI)

MSCI ACWI

Total GHG: 73.5 Gt

GHG emissions [Gt CO$_{2eq}$]: Percentage of Total

Supply; 14; 19%

Direct; 12; 16%

Use; 48; 65%

Data includes «double counting»

Data source: Inrate, envIMPACT
GHG intensity – Contribution of Scope 3 (up- and downstream)

GHG intensity per Market Cap [t /mn USD]

- Basic Resources
- Oil & Gas
- Utilities
- Automobiles & Parts
- Construction & Materials
- Industrial Goods & Services
- Chemicals
- Retail
- Insurance
- Travel & Leisure
- Real Estate
- Food & Beverage
- Personal & Household Goods
- Banks
- Financial Services
- Technology
- Telecommunications
- Healthcare
- Media

Direct | Supply | Use Phase
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
T +41 58 344 00 25
tobias.jung@inrate.com
Carbon Footprint Workshop

Trucost presentation for

IIGCC

Jean-Florent Helfre,
Head of Business Development - Switzerland

November 2015
• 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)
### 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

<table>
<thead>
<tr>
<th></th>
<th>Total GHG emissions (tCO2-eq)</th>
<th>&quot;Investment Ratio&quot; tCO2-eq per USD million invested</th>
<th>&quot;Revenue Ratio&quot; tCO2-eq per per USD million revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Portfolio</strong></td>
<td>300,641</td>
<td>300</td>
<td>434</td>
</tr>
<tr>
<td><strong>Benchmark</strong></td>
<td>245,464</td>
<td>245</td>
<td>322</td>
</tr>
</tbody>
</table>

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

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

**Total**                        | 83.597         | 220,708                   | 73.41%                 | -56.97%                      |                                   |                                      |               |

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

<table>
<thead>
<tr>
<th>Stock Name</th>
<th>Renewables</th>
<th>Coal Mining &amp; Coal Power</th>
<th>Nuclear</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yanzhou Coal Mining</td>
<td>99%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>China Shenhua Ener</td>
<td>96%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>China Longyuan Pow</td>
<td>48%</td>
<td>48%</td>
<td></td>
</tr>
<tr>
<td>Rwe AG</td>
<td>2%</td>
<td>19%</td>
<td>4%</td>
</tr>
<tr>
<td>Bhp Billiton Plc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entergy Corp New</td>
<td>3%</td>
<td>3%</td>
<td>19%</td>
</tr>
<tr>
<td>Nextera Energy Inc</td>
<td>11%</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>Hongkong&amp;China Gas</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exelon Corp</td>
<td>2%</td>
<td>1%</td>
<td>57%</td>
</tr>
<tr>
<td>Pg&amp;E Corp</td>
<td>25%</td>
<td></td>
<td>14%</td>
</tr>
<tr>
<td>Companhia Energetica de Minas Gerais SA</td>
<td>24%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>China Longyuan Pow</td>
<td>25%</td>
<td>48%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>9%</td>
<td>0%</td>
<td>0%</td>
<td>48%</td>
</tr>
<tr>
<td>Pg&amp;E Corp</td>
<td>24%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>25%</td>
</tr>
<tr>
<td>Companhia Energetica de Minas Gerais SA</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>60%</td>
<td>48%</td>
</tr>
<tr>
<td>Nextera Energy Inc</td>
<td>1%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>9%</td>
<td>9%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Exelon Corp</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>9%</td>
<td>57%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Rwe AG</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>6%</td>
<td>4%</td>
<td>2%</td>
<td>19%</td>
</tr>
</tbody>
</table>
GREEN BONDS: ISSUER VS PROJECT CARBON FOOTPRINT

Two levels of analyses

Issuer (group level)

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

1. Select baseline scenario
   - Typically, baseline will be the most representative “traditional” activity or product

2. Calculate baseline emissions
   - LCA or secondary databases used to determine GHG emissions associated with baseline.

3. Calculate project & avoided emissions
   - LCA or company data used to calculate the GHG emissions of the project and the avoided GHG emissions

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

- **Divest**
  - Divest according to your investment principles and CSR policy
  - Identify companies with coal activities, proportion & change over time
  - Invest in companies & assets best positioned for a green economy
  - (Set target to) increase the portfolio green share
  - Optimize stock selection in carbon intensive sectors
  - Engage companies with the highest carbon intensities or carbon risk score or lowest transparency
  - Engage companies not aligned with the 2 Degree Target trajectory

- **Innovate**
- **Hedge**
- **Engage**
- **Manage**
- **Monitor**

**COMMUNICATION**

- Embed environmental considerations in your investment strategy
- Follow or join the Portfolio Decarbonisation Coalition
- Create/Use new investment products with reduced carbon exposure
- Strategic Asset Allocation
  - FI: Green Bonds or CA Bonds
  - Equity: Energy-Climate-Water funds
- Run the carbon footprint on an annual basis (Montreal Carbon Pledge)
- Start with equity then expand to other asset classes
- Address related topics such as water scarcity and natural resources use
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.
It’s a journey…

Understand

Act

Investment
GHG Footprint

Bespoke Climate Impact Assessment

Bloomberg
APP
yourSRI
Full Integration
USD 1bn invested into the IIGCC Example Portfolio and the Benchmark.
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?

Kg CO$_2$e per USD 100

- Portfolio
- Benchmark
- 2 Degree Scenario
Widening and Deepening
Climate Impact Assessment

Understand

Act

Bespoke Climate Impact Assessment

Investment

GHG Footprint

Full Integration

yourSRI

APP

Bloomberg
Widening and Deepening

Multi-asset class approaches
- Fixed Income
- Private equity
- Infrastructure
- Forestry/Agriculture
- Real Estate

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

Other natural capital factors
- Water
- Deforestation
- Biodiversity
- Waste
- Agriculture

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

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.

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...
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 CO₂ 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 CO₂ 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)

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

Climate Score
Forward-looking Analysis

<table>
<thead>
<tr>
<th>Category</th>
<th>Portfolio</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disclosure to CDP</td>
<td>84%</td>
<td>79%</td>
</tr>
<tr>
<td>Board or senior management responsibility for climate change</td>
<td>77%</td>
<td>75%</td>
</tr>
<tr>
<td>Climate change integrated into business strategy</td>
<td>74%</td>
<td>71%</td>
</tr>
<tr>
<td>Have GHG target</td>
<td>65%</td>
<td>65%</td>
</tr>
<tr>
<td>Emission reduction initiatives ongoing in the reporting year</td>
<td>63%</td>
<td>63%</td>
</tr>
<tr>
<td>Scope 1 and 2 decreased in 2013 due to ERAs</td>
<td>45%</td>
<td>44%</td>
</tr>
</tbody>
</table>
Risk/ Opportunity Management

Explanation and management of opportunities (100 best score) vs. Explanation and management of risks (100 best score)
# Engagement List

<table>
<thead>
<tr>
<th>Ticker</th>
<th>Company</th>
<th>Severity</th>
<th>Subject for engagement/dialogue</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNR US</td>
<td>Pentair Plc</td>
<td></td>
<td>Does not disclose to CDP</td>
</tr>
<tr>
<td>V US</td>
<td>Visa, Inc.</td>
<td><img src="image" alt="Red Circle" /></td>
<td>Company does not integrate climate change in the overall business strategy</td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image" alt="Yellow Circle" /></td>
<td>No board of senior executive oversight of climate change as an issue</td>
</tr>
<tr>
<td>SAP GR Equity</td>
<td>SAP SE</td>
<td><img src="image" alt="Green Check" /></td>
<td>Excellent disclosure and strong performance in reporting on climate change (CDP score 100 A)</td>
</tr>
</tbody>
</table>
## Integrating climate impact aspects

<table>
<thead>
<tr>
<th>Company</th>
<th>CO₂e in portfolio (t)</th>
<th>% of Total</th>
<th>Source</th>
<th>Climate Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWE AG</td>
<td>7'611</td>
<td>15%</td>
<td>Disclosed</td>
<td>2.0</td>
</tr>
<tr>
<td>VEOLIA ENVIRONNEMENT</td>
<td>4'858</td>
<td>9%</td>
<td>Disclosed</td>
<td>3.0</td>
</tr>
<tr>
<td>NIPPON YUSEN</td>
<td>4'561</td>
<td>9%</td>
<td>Disclosed</td>
<td>1.6</td>
</tr>
<tr>
<td>E.ON AG</td>
<td>3'483</td>
<td>7%</td>
<td>Disclosed</td>
<td>2.4</td>
</tr>
<tr>
<td>ENEL SPA</td>
<td>2'864</td>
<td>6%</td>
<td>Disclosed</td>
<td>2.8</td>
</tr>
<tr>
<td>ENGIE</td>
<td>2'599</td>
<td>5%</td>
<td>Disclosed</td>
<td>2.5</td>
</tr>
<tr>
<td>SASOL LTD</td>
<td>2'198</td>
<td>4%</td>
<td>Disclosed</td>
<td>1.4</td>
</tr>
<tr>
<td>CATHAY PACIFIC AIRWAYS</td>
<td>1'954</td>
<td>4%</td>
<td>Disclosed</td>
<td>1.4</td>
</tr>
<tr>
<td>ISRAEL CORP LIMITED/THE</td>
<td>1'606</td>
<td>3%</td>
<td>Approx</td>
<td>1.3</td>
</tr>
<tr>
<td>EDP-ENERGIAS DE PORTUGAL SA</td>
<td>1'437</td>
<td>3%</td>
<td>Disclosed</td>
<td>2.7</td>
</tr>
</tbody>
</table>

In cooperation with oekom research
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.
2 degree compatibility portfolio check
CLIMPAX – a game changer for retail investors

Investing without climate transparency

Investing with climate transparency

[Diagram showing the flow of investments with and without climate transparency, with funds labeled A, B, C, and D, and positive outcomes indicated by stars.]
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 footprinting and other climate solutions

• What was the driver for footprinting 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

• 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?
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 (tCO2e)
  - Portfolio carbon emission per Swedish krona of investment (tCO2e/SEK million invested)
  - Portfolio carbon intensity in relation to companies sales (tCO2e/$ 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

<table>
<thead>
<tr>
<th>Companies’ emissions of greenhouse gases (Scope 1 and 2)</th>
<th>Carbon intensity in relation to companies’ turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>(tCO₂e)¹</td>
<td>Adjusted for companies’ debt² (tCO₂e)</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>AP2 portfolio of listed equities</td>
<td>3,621,000</td>
</tr>
<tr>
<td>MSCI All Country World Index</td>
<td>3,621,000</td>
</tr>
</tbody>
</table>

¹ CO₂e (carbon equivalent) is a unit of measure that enables a comparison between the climate impact of different greenhouse gases.
² The company’s emissions multiplied by the ratio ‘market value/enterprise value’.
³ The sum of portfolio weightings multiplied by the ratio ‘corporate carbon emissions/turnover’.
⁴ The sum of the Fund’s share of portfolio-company emissions, divided by the sum of the Fund’s share of these companies’ turnover.
⁵ 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 CO2-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!