

# The Swedish National Pension (AP) Funds' common indicators for reporting the carbon footprint of investment portfolios

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## Climate change is central for the AP Funds as long-term owners

The AP Funds manage the pension capital in the public pension system. The First, Second, Third, Fourth, and Sixth AP Funds are buffer funds in the income pension part, and the Seventh AP Fund is the government alternative in the premium pension part of the pension system.

The AP Funds are long-term owners and managers of Swedish pension capital. The funds have a responsibility to secure the value of the general pension for current and future pensioners by managing the pension capital responsibly in a long-term sustainable manner.

Climate change and its consequential effects are one of the biggest systematic risks for long-term asset values. Limiting climate change is therefore a prerequisite for stable future economic development and thereby for the AP Funds' ability to perform their mission in the long term. To achieve the goals of the Paris Agreement, the absolute emissions of greenhouse gases need to be drastically reduced and be net-zero by 2050 at the latest.

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<sup>1</sup> The term carbon footprint is used as an umbrella term to cover all the below-listed methods for measuring and reporting the carbon emissions of investment portfolios.

This gives rise to both risks and opportunities for the asset portfolios.

Transparency and reporting of climate risks by both companies and investors constitute an important part of the AP Funds' sustainability work. Through reporting with common metrics regarding the carbon footprint<sup>1</sup> of fund assets, the AP Funds aim to demonstrate an aspect of climate risk, the sensitivity of the asset portfolios to, for example, a market price on carbon dioxide. The AP Funds believe that common metrics facilitate understanding and comparability<sup>2</sup>.

## Common indicators for the carbon footprint of investment portfolios

The development of how companies and investors can measure and illustrate climate risks is rapid, a progression that the AP Funds welcome. The funds agreed a set of common indicators showing the carbon footprint of investments. The common indicators were first introduced in 2015 and have since been continually developed.

<sup>2</sup> The AP Funds have different investment strategies and allocate capital in different ways, which means the carbon footprints of the funds' portfolios vary in size.

In 2023, the AP Funds complemented their reporting guidelines to include the portfolio companies' Scope 3 emissions and to calculate emissions based on EVIC (Enterprise Value Including Cash) instead of market value, in line with, among others, the updated guidelines of the TCFD.

The AP Funds' annual carbon footprint is calculated for portfolio holdings as of December 31st, using the most recent available carbon data for companies' direct emissions (Scope 1), indirect emissions from energy (Scope 2), and from 2023, also other indirect emissions in the value chain (Scope 3).

The First, Second, Third, Fourth, and Seventh AP Funds calculate and report the carbon footprint for their listed equity portfolios based on the ownership share of the total company value (defined as Enterprise Value Including Cash - EVIC). The Sixth AP Fund reports these measures for unlisted holdings based on the ownership share of the company value (defined as the value of outstanding shares). The AP Funds also report the proportion of each AP Fund's capital that has been mapped, and the proportion based on reported emission figures versus estimated carbon emissions.

The carbon exposure is reported with the following metrics:

1. **Carbon emissions, Scope 1 & 2**  
Total of owned share of portfolio companies' individual carbon emissions (Scope 1 & 2) based on total company value as defined above.
2. **Carbon emissions, Scope 3**  
Total of owned share of portfolio companies' individual carbon emissions (Scope 3) based on total company value as defined above.
3. **Relative carbon emissions, Scope 1 & 2**  
Total of owned share of portfolio companies' individual carbon emissions in

relation to the portfolio's market value, based on total company value as defined above.

4. **Weighted average carbon intensity (WACI), Scope 1 & 2**

The metric adds together each individual portfolio company's carbon intensity, i.e. a company's carbon emissions in relation to revenue, weighted according to each individual holding's market value share in the portfolio.

**Reporting changes in the carbon emissions of investment portfolios**

The changes in the carbon footprint of the AP Funds' portfolios can primarily be attributed to two factors. Firstly, the change may be due to alterations in portfolio holdings, and secondly, due to the changes in the carbon emissions of the companies.

By adjusting the portfolio, such as by selling companies with high carbon footprints and buying those with lower footprints, the AP Funds can reduce the total carbon footprint of the portfolio. This change means that the portfolio is less exposed to fluctuations such as changes in the price of carbon emissions allowances, thereby reducing the portfolio's climate-related risk. However, these adjustments do not alter the total emissions of carbon dioxide into the atmosphere; the global climate risk remains unaffected by the fund's buying and selling activities.

It is only when companies reduce their actual emissions that there will be a decrease in atmospheric emissions.

The AP Funds report the reasons for changes over time in the metrics "Carbon Emissions, Scope 1 & 2" and/or "Portfolio-Weighted Carbon Intensity (WACI)."

## Challenges and limitations with carbon dioxide reporting

The AP Funds primarily identify three major challenges and limitations regarding emission data.

**Coverage:** The proportion of companies that measure and report their emissions is gradually increasing, especially regarding Scope 1 and 2 emissions. However, there is still limited reporting regarding Scope 3. For those companies that report Scope 3 data, there is variability in which of the 15 Scope 3 categories according to the GHG Protocol are included.

**Quality:** The companies' reported carbon dioxide emissions have a certain time lag and are based on estimation models. In cases where companies do not publish emission data, regardless of Scope, data providers offer estimated data. Estimation models differ both by company and by data provider, and they also evolve over time. This leads to limitations in the comparability between companies and between portfolios, but also in a single company's development over time.

**Scope 3:** Includes emissions throughout the company's value chain, from the procurement of purchased materials to emissions during the use of the company's product and any end-of-life product emissions. Also included are the company's emissions such as business travel and other emissions that the company causes but does not directly own or control.

The calculation of Scope 3 emissions is partly based on assumptions, for example, about the lifespan and frequency of use of a company's product by customers. This means that Scope 3 emission figures for each company involve relatively high uncertainty. Additionally, double counting occurs when Scope 3 figures are summed across an investment portfolio. The AP Funds will continue to monitor the development and market practices in the reporting of carbon footprints going forward.

## Appendix 1: Formulas for carbon footprint indicators

### Definitions

$MV_i$  Market value of portfolio holding in company  $i$  (MSEK)

$PV$  Portfolio value of AP Fund's total holdings (MSEK)

$$PV = \sum_{i=1}^n (MV_i)$$

$PA_i$  Portfolio share in AP Funds' portfolio for company  $i$  (%)

$$PA_i = \frac{MV_i}{PV}$$

$BV_i$  Company value (company value according to below based on asset class) for company  $i$  (MSEK)

$AV_i$  Company value for unlisted holdings is defined as the equity value (sum of the value of all outstanding shares in an unlisted company) for company  $i$  (MSEK)

$EVIC_i$  Company value for listed holdings is defined as the Enterprise Value Including Cash (sum of the value of all outstanding shares in an unlisted company, book value of total outstanding debt including cash) for company  $i$  (MSEK)

$t_0$  Base year for evaluation over time period

$t_1$  End year for evaluation over time period

$Turnover_i$  Revenue of company  $i$  (MSEK)

$Emissions_i$  Scope 1 and Scope 2 emissions by company  $i$  (mtCO<sub>2</sub>e)

$Emissions\ Scope\ 3_i$  Scope 3 emissions by company  $i$  (mtCO<sub>2</sub>e)

### 1. Carbon emissions, Scope 1 & 2 (mtCO<sub>2</sub>e)

Total of owned share of individual portfolio companies' carbon emissions. Measured in tonnes of CO<sub>2</sub> equivalents (tCO<sub>2</sub>e). The common international term is "Total Carbon Emissions".

This metric is used for measuring the total emissions of carbon equivalents that a portfolio's underlying holdings give rise to. On the other hand, this metric is not suitable for comparing portfolios of varying size.

$$\sum_{i=1}^n \frac{MV_i}{BV_i} * Emissions_i$$

Effect due to changes in the portfolio's holdings:

$$\sum_{i=1}^n \left( \frac{MV_{i,t_1}}{BV_{i,t_1}} - \frac{MV_{i,t_0}}{BV_{i,t_0}} \right) * Emissions_{i,t_0}$$

Effect due to changes in the companies' emissions:

$$\sum_{i=1}^n \frac{MV_{i,t_1}}{BV_{i,t_1}} * (Emissions_{i,t_1} - Emissions_{i,t_0})$$

## 2. Carbon emissions, Scope 3 ( mtCO<sub>2</sub>e)

$$\sum_{i=1}^n \frac{MV_i}{BV_i} * Emissions_{Scope\ 3\ i}$$

## 3. Relative carbon emissions, Scope 1 & 2 ( tCO<sub>2</sub>e/MSEK)

Total of owned share of individual portfolio companies' carbon emissions in relation to the portfolio's market value. Measured in tonnes of CO<sub>2</sub> equivalents per MSEK (tCO<sub>2</sub>e/MSEK). The common international term is "Carbon Footprint".

The metric enables comparisons of carbon emissions between portfolios of varying size. This metric, however, is sensitive to stock market trends as carbon emissions are measured in relation to the portfolio's market value.

$$\frac{\sum_{i=1}^n \frac{MV_i}{BV_i} * Emissions_i}{PV}$$

## 4. Weighted average carbon intensity (WACI)(tCO<sub>2</sub>e/MSEK)

The metric adds together the individual portfolio companies' carbon intensity, i.e. a company's carbon emissions in relation to their revenue, weighted according to each company's share of the portfolio, the Arithmetic Mean. Measured in tonnes of CO<sub>2</sub> equivalents per MSEK ( tCO<sub>2</sub>e /MSEK). The common international term is "Weighted Average Carbon Intensity".

This metric is suitable to use in conjunction with portfolio structuring and to understand the portfolio's risk exposure. It is, however, sensitive to market trends for individual portfolio companies and sectors.

$$\sum_{i=1}^n PA_i * \frac{Emissions_i}{Turnover_i}$$

Change in portfolio-weighted carbon intensity over time due to changes in portfolio holdings:

$$\sum_{i=1}^n (PA_{i,t_1} - PA_{i,t_0}) * \frac{Emissions_{i,t_0}}{Turnover_{i,t_0}}$$

Change in portfolio-weighted carbon intensity over time due to change in company's emissions:

$$\sum_{i=1}^n PA_{i,t_1} * \left( \frac{Emissions_{i,t_1}}{Turnover_{i,t_1}} - \frac{Emissions_{i,t_0}}{Turnover_{i,t_0}} \right)$$