AP2’s climate report based on TCFD’s recommendations
In Paris in December 2015, 195 states reached a global agreement on climate in order to reduce emissions that have an impact on climate. The agreement stipulates that the increase in global temperature shall be kept well below two degrees and that efforts be made to limit the rise to 1.5 degrees. The transition to a fossil-free society has begun and the Second Swedish National Pension Fund’s (AP2’s) continued efforts to integrate climate into risk assessments and investment decisions is becoming increasingly important.

As a long-term investor, it is clear that AP2’s asset management both needs to take into account risks and take advantage of opportunities resulting from climate change and the transition to a society with net-zero greenhouse gas emissions. In order to stabilise the climate, net emissions need to be zero in around the year 2050. Because the temperature increase is dependent on the volume of greenhouse gases emitted over time, it is important that emissions are reduced as quickly as possible. One important tool for driving forward the process of reducing emissions is to increase the transparency of reporting concerning climate for both companies and investors.

In April 2015 the Financial Stability Board (FSB) was given the following task by the G20: “convene public and private sector participants to review how the financial sector can take account of climate-related issues”. In December 2015, the FSB appointed the Task Force on Climate-related Financial Disclosures (TCFD), which was tasked with drawing up recommendations for reporting that will help stakeholders in financial markets understand their climate-related risks and opportunities.

In June 2017, the TCFD presented its recommendations concerning climate-related information. This is a general framework for all types of organisation, with supplements for certain sectors and for asset owners and asset managers. In brief, reporting that is compliant with the TCFD shall include the following: 1) how climate-related issues are handled by the organisation’s governing bodies (the board and senior management), 2) what the organisation’s strategy is concerning climate change and the transition to a low-fossil economy, 3) a description of the organisation’s climate-related risks and opportunities and 4) information about the metrics and targets used by the organisation.

One important aspect pertaining to climate-related risks is that these are undiversifiable risks. This means that climate-related risks cannot be eliminated completely. However, it is possible to reduce exposure to climate-related risks by virtue of the fact that different classes of asset, sectors and geographical areas are exposed to different classes of climate-related risks and over different timescales. Identification of climate-related risks and opportunities are thus central to the TCFD framework.

The TCFD divides climate-related risks and opportunities into two groups: transition risks and physical risks. Transition risks are divided up into: policy and legal risks, technology risks, market risks and reputation risks. Physical risks are divided up into acute risks and chronic risks. On the opportunities side there are: resource efficiency, energy source, products/services, markets and resilience.

In terms of AP2, climate-related risks and opportunities may have a financial impact that involves changes to the strategic portfolio, changes to investment strategies for individual classes of asset, divestment from companies/securities and dialogues with companies.

AP2 has a positive attitude to the TCFD framework because it will increase companies’ transparency and will hopefully provide investors with the information they require in order to assess companies’ climate-related risks and opportunities. The framework is also an important tool for AP2’s own work as it provides a framework within which to describe and communicate the fund’s climate change efforts.

In autumn 2017, AP2 began the work of implementing the TCFD recommendations. In the process of analysing its climate change efforts, AP2 has used the proposals contained within the TCFD recommendations, both those pertaining to all sectors and the specific guidance provided to asset owners (Appendix 1).

The aim of the work in 2017 has been to develop information-gathering and to describe ongoing climate change efforts in a manner that is compliant with the framework. This report describes AP2’s climate change efforts on the basis of the framework and examples of what the fund is able to do in order to improve its work concerning climate-related risks and opportunities.

The TCFD’s framework

**Governance**
Governance around climate-related risks and opportunities

**Strategy**
Actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning

**Risk Management**
The processes used to identify, assess, and manage climate-related risks and opportunities

**Metrics and targets**
The metrics and targets used to assess and manage relevant climate-related risks and opportunities
The board's oversight of climate-related risks and opportunities

AP2 is an independent government authority. According to the act that governs the Swedish AP funds’ goals and the overarching frameworks under which they operate are set out by the board in an annual operational plan. The operational plan also includes AP2’s corporate governance policy, which sets out clearly how the fund is to contribute, within the scope of its overall mission, to the favorable development in terms of ethics, the environment and corporate governance of the companies in which it invests. The board decides on the operational plan each year. The Swedish Government appoints the fund’s board members. The board establishes the strategic portfolio at least once per year as part of the fund’s operational plan. AP2 uses a long-term perspective of 30 years in its strategic allocation. The board is informed about and discusses environmental, social and corporate governance (ESG) issues at each meeting.

AP2 has been working to identify companies with climate-related financial risks since 2013. In October 2014, the first analysis that concerned fossil energy companies was presented to the board, which decided at that time to divest from companies on the basis of criteria set by AP2. The board made a corresponding decision that applied to utility companies in 2015. AP2 follows up these decisions each year using an analysis of whether there are further companies to divest from or companies that are to be reinvested in as they are no longer regarded as having a significant climate-related financial risk. At that time, the board is also provided with an analysis of return pertaining to the divestments. One condition in the AP Funds’ Act is that the consideration given to ethical and the environment concerns may be such that the overall goal of providing a high return at as low a risk as possible to the pension system.

The board decides on all index changes. The data put together by AP2 prior to a decision concerning potential index changes taking place contains an ESG analysis that includes an analysis of how the change will affect the carbon footprint. AP2’s overarching ambition in terms of climate is for the portfolio to be compliant with the two-degree target.

Executive management’s role in assess and managing climate-related risks and opportunities

AP2’s Sustainability Group initiates both analysis and follow-up of climate-related financial risks in sectors that are deemed to have significant climate-related financial risks. Fossil energy companies and utility companies are currently being analysed. The Sustainability Group is made up of: the Chief Investment Officer, the Chief Strategist, the Head of Communications & HR and the Senior Sustainability Analysts. AP2’s in-house working group focused in fossil energy and climate-related financial risks conducts market and corporate analyses. This working group is made up of two people from executive management (the Chief Investment Officer and the Head of Communications & HR, who is also responsible for coordinating ESG activities) as well as sustainability analysts and equity analysts. Executive management continually inform the board about the work that is taking place in the field of climate change. There is no single member of executive management who is specifically responsible for climate change, but climate-related risks and opportunities are included in the Chief Investment Officer’s responsibility. This is because AP2’s overall objective is for sustainability to be an integrated part of all analysis and decision-making processes. The fund is working actively to integrate sustainability into its asset management. Analysis of climate-related investment opportunities is initiated by the senior portfolio management. When an investment is identified, it is processed in accordance with the fund’s normal investment process.

Future work

AP2 currently has no formal description of responsibility and processes concerning how the executive management assess and manage climate-related risks and opportunities. Because the fund is a small organisation in which several members of the executive management are directly involved in work relating to climate change, the executive management is considered to have good knowledge of the work that is taking place. The fund therefore has good position to assess and manage climate-related risks and opportunities. AP2 is partly compliant with the recommendation concerning the board’s oversight, but there is scope for clarification of processes and which type of climate-related information is to be included in information and data provided to the board. The fund has a functional process for continually informing the board about the fund’s work on sustainability, of which climate-related issues are a part. Climate aspects are included in the fund’s evaluation of new indexes/index changes. Because the board makes this type of decision, climate is taken into account. As of 2018, the board will be obtaining an annual update of the fund’s various climate-related activities.
Climate-related risks and opportunities
AP2’s basic premise is primarily a very long-term perspective, more specifically 30 years, which is consistent with the fund’s mission and role in the national pension system. The long-term perspective is reflected in the choice of strategic portfolio, which encompasses both the long-term distribution of the capital across various broad asset classes and the strategies that determine the distribution between individual securities within each asset class. The strategic portfolio and its return shall provide as great a benefit to the pension system as possible – a goal that the fund may not disregard.

AP2 considers climate-related risk to be a long-term systematic risk in the fund’s portfolio and thus to the pension system. This applies not just to individual sectors and companies, but also to broad asset classes such as equities and bonds through their potential impact on the global economy. In the short term, the long-term transition, which is in progress, entails investment opportunities in the form of assets that are deemed to benefit from the transition, e.g. companies that are involved in renewable energy, at the same time as assets that are not deemed to be sustainable constitute a risk.

AP2’s conviction is that integrating consideration for climate-related risks – or in a broader perspective, ESG – into its asset management makes it possible to create added value that helps achieve the fund’s targets. The fund’s ambition is to develop a sustainable strategic portfolio that is compliant with the two-degree target (the Paris Agreement). The fund is working both to reduce climate-related financial risk and to actively contribute to the transition.

The impact of climate-related risks and opportunities
Climate change is deemed to have a major impact on long-term return. Consequently, AP2’s climate ambition is to develop its portfolio to be compliant with the two-degree target. This is being achieved by integrating climate analysis into the investment process and by contribution to a transition towards a two-degree society on the basis of the fund’s mission. The fund’s ambition is also to integrate other sustainability areas into the management of all classes of assets, with the structure of the integration being adapted to each asset class and the applicable conditions.

Since 2013, AP2 has had a working group tasked with identifying policy and legal transition risks and identifying and divesting from companies that have a significant climate-related risk. The working group has been focusing up until now on the asset classes and sectors that are deemed to have the highest risk from a financial perspective; listed equities and corporate bonds in fossil fuel companies and utility companies. The working group has drawn up criteria for assessing climate-related financial risks and analyses assets on the basis of these. At the time of writing, this analysis has resulted in 79 companies having been exclude on financial grounds.

Within the scope of the fund’s internal management of listed global equities, the fund has for some time departed from traditional capitalisation-weighted indexes when choosing comparative indexes. The fund has recently made further developments to the model that is used to construct comparative indexes by introducing new factors related to ESG. This has taken place within the scope of a multi-factor model that combines factors related to ESG with more traditional financial factors.

Since 2008, the fund has been investing in green bonds within the scope of its listed fixed-income portfolio, which is deemed to contribute positively to the climate transition. The fund has also been investing in social bonds in recent years.

The fund can see opportunities to make an active contribution to the climate transition within its unlisted portfolio. Within the scope of the portfolio of conventional properties, energy issues are important in both the short term and the medium and long term. The fund has been conducting a continual effort to reduce the energy use in its properties for a long time. The fund began
broadening its property portfolio to include forestry and agricultural properties. The primary aim of these investments was to achieve increased diversification in the aftermath of the financial crisis, but these investments also have a strong link to climate-related risk. Forestry properties where the regrowth is significantly higher than the logging volume can act as carbon sinks. There is the potential to sell such carbon credits. The role of forests as a carbon sink may come to have a greater significance in the long term, not only as living forests, but also through the use of wooden raw materials increasing within the construction industry, for example.

Within the fund’s portfolio of private equity funds, AP2’s has been investing for several years now in funds that focus on renewable energy and has latterly been focusing on finding opportunities to invest in smaller companies and funds that focus on sustainability.

Resilience of AP2’s strategy taking into consideration different climate-related scenarios
AP2 has still not evaluated its investment strategy on the basis of various climate scenarios. Very few organisations have worked on this, which is a result of factors such as the complexity of such an analysis. In 2018, AP2 will be investigating what opportunities there are to conduct some form of scenario analysis. In 2017, the IIGCC (Institutional Investors Group on Climate Change) started a new programme that focuses on the implementation of the TCFD. AP2 is an active member of the working group that is to focus on analysing scenarios.

Future work
Given that AP2 has a clear climate-related ambition to have a portfolio that is compliant with the two-degree target, the issue of climate change is at the top of the fund’s agenda and part of the fund’s strategy. The implementation of TCFD is a continuation of the work the fund is already involved in. Even though the fund’s asset managers are now working actively in various ways to include climate-related risks in their analyses and to find investment opportunities for various classes of asset, there remains work to be done if the fund is to comply fully with the TCFD’s recommendations. For example, AP2 intends to develop an analysis of how resilient the fund’s strategic portfolio and underlying investment strategies are on the basis of various climate scenarios and also potentially to include climate scenarios in the selection of the overarching strategic allocation of assets. The fund also intends to continue developing its view of what constitutes a significant climate-related risk and of opportunities for further classes of asset/sectors/geographies and what timescale these have.

"Climate-related risk is a non-diversifiable risk that affects nearly all industries, many investors believe it requires special attention." (TCFD)
Risk management

In the section on risk management the organisation shall describe how it identifies, assesses and manages climate-related risks and opportunities and how these are integrated into the organisation’s overall risk management processes. Asset owners shall also describe their engagement activities with companies in their portfolio and how the portfolio as a whole is positioned in relation to the transition to a low-carbon society.

AP2’s process for identifying and assessing climate-related risks

The process AP2 currently uses to identify and assess climate-related risks begins with an analysis of how these risks are priced in the market. Because the fund realised that it was likely that more powerful policy measures would be introduced and that the price of renewable energy is becoming increasingly into parity with that of fossil energy, the fund made the assessment that fossil energy companies and utility companies were sectors with the highest climate-related financial risk. For coal companies, the fund conducted an analysis at the sectoral level and an analysis is conducted at the company level for other companies. If the market has priced the climate-related risk correctly, the climate-related financial risk is small, even if the company has a high climate-related risk. The analyses conducted by AP2 for the purposes of identifying which companies to divest from include an analysis of the equity’s value in relation to the climate-related risk.

The work conducted by AP2 on the TCFD in autumn 2017 has used the TCFD’s categorisations in order to identify climate-related risks that are deemed to be relevant to assessing risks in AP2’s listed equity portfolio. Table 1 shows the risks the TCFD gives as examples, along with their potential impact.

The work conducted by AP2 on the TCFD in autumn 2017 has used the TCFD’s categorisations in order to identify climate-related risks that are deemed to be relevant to assessing risks in AP2’s listed equity portfolio. Table 1 shows the risks the TCFD gives as examples, along with their potential impact.

The TCFD divides climate-related risks into: 1) transition risks, which are in turn divided up into policy and legal risks, technology risks, market risks and reputation risks, and 2) physical risks, which are divided up into acute risks and chronic risks. AP2 has gone through the metrics and indicators it has access to via MSCI ESG Manager and has seen which of these can be used to assess various risks and opportunities.

In this first analysis of climate-related risks AP2 has, with the help of the TCFD framework, only assessed the listed equity portfolio that is managed internally and on a discretionary basis. The fund is planning to use the TCFD framework for other classes of asset in 2018.

As an asset owner, that which is described as a transition risk, may also be an opportunity. For example, AP2 believes that it would be a positive move to put a price on carbon dioxide that reflects the external costs. This would provide the market with signals that allow it to price assets more accurately. Because the fund has already identified climate change as a financial risk and has, to some extent, mitigated these risks, such a change is expected to have a positive impact on the fund. Tables 1 and 2 set out the climate risks and opportunities that TCFD addresses in its recommendations as well as the potential financial impact described by TCFD and the potential financial impact these may have on AP2.

Engagement with companies

Aside from investing in sustainable strategies, AP2 engages with companies and decision makers in order to influence the transition to a low-carbon society. In recent years, AP2 has, together with other investors, put forward a number of shareholder proposals concerning climate change to several companies within the fossil fuel industry (BP, Shell, Statoil) and the mining sector (Glencore, Rio Tinto, Anglo American). In addition to its own shareholder proposals, the fund also uses its voting rights to support other investors’ proposals concerning climate change. In recent years, the fund has noted that many companies’ boards are committing to improving their climate-related reporting in terms of both emissions and evaluation of the company’s projects/activities pertaining to climate scenarios.

AP2 is an active member of the PRI (Principles for Responsible Investment) and the IIGCC (Institutional Investors Group on Climate Change), both of which work a great deal with corporate engagement. A major international corporate engagement initiative, Climate Action 100+, was launched in December 2017. This is a five-year global initiative involving the 100 (+50) companies that have the highest carbon dioxide emissions. AP2 is responsible, together with one other investor, for one of these corporate engagement programmes. The goal of these programmes is for the companies to reduce their emissions,
<table>
<thead>
<tr>
<th>Transition risks</th>
<th>Potential financial impacts on companies</th>
<th>Potential financial impact for AP2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy and Legal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Increased pricing of GHG emissions</td>
<td>• Increased operating costs (e.g., higher compliance costs, increased insurance premiums)</td>
<td>Higher price for carbon dioxide, climate regulations and reporting is generally speaking financially positive for AP2 as a universal owner. If the cost of carbon dioxide is internalised, this results in a more effective market.</td>
</tr>
<tr>
<td>• Enhanced emissions-reporting obligations</td>
<td>• Write-offs, asset impairment, and early retirement of existing assets due to policy changes</td>
<td>The challenge for AP2 lies in identifying which classes of asset/sectors/companies are winners and losers, respectively, as the regulatory requirements increase.</td>
</tr>
<tr>
<td>• Mandates on and regulation of existing products and services</td>
<td>• Increased costs and/or reduced demand for products and services resulting from fines and judgments</td>
<td></td>
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<tr>
<td>• Exposure to litigation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Substitution of existing products and services with lower emissions options</td>
<td>• Write-offs and early retirement of existing assets</td>
<td>The rate of transition is decisive for the financial valuation of the fossil fuel reserves and the companies that have assets that are dependent on fossil energy for their products/services.</td>
</tr>
<tr>
<td>• Unsuccessful investment in new technologies</td>
<td>• Reduced demand for products and services</td>
<td>The challenge for AP2 lies in assessing which technologies will succeed and at what rate and how new technologies will affect classes of asset, sectors, companies and securities.</td>
</tr>
<tr>
<td>• Costs to transition to lower emissions technology</td>
<td>• Research and development (R&amp;D) expenditures in new and alternative technologies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Capital investments in technology development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Costs to adopt/deploy new practices and processes</td>
<td></td>
</tr>
<tr>
<td><strong>Market</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Changing customer behavior</td>
<td>• Reduced demand for goods and services due to shift in consumer preferences</td>
<td>Technological and market risks and opportunities are linked. The transition will involve changes among consumers and they may both depend on changes in preferences and/or technological changes.</td>
</tr>
<tr>
<td>• Uncertainty in market signals</td>
<td>• Increased production costs due to changing input prices (e.g., energy, water) and output requirements (e.g., waste treatment)</td>
<td>The challenge is the same as for technological risks.</td>
</tr>
<tr>
<td>• Increased cost of raw materials</td>
<td>• Abrupt and unexpected shifts in energy costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Change in revenue mix and sources, resulting in decreased revenues</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Re-pricing of assets (e.g., fossil fuel reserves, land valuations, securities valuations)</td>
<td></td>
</tr>
<tr>
<td><strong>Reputation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Shifts in consumer preferences</td>
<td>Reduced revenue from decreased:</td>
<td>Companies can create increased shareholder value by reinforcing their brand. It is important that companies/funds in the AP2 portfolio do not violate conventions and guidelines that Sweden has signed up to.</td>
</tr>
<tr>
<td>• Stigmatization of sector</td>
<td>• demand for goods/services</td>
<td>For AP2, it is important to manage the pension assets in a way that maintains or reinforces the public's confidence in the pension system.</td>
</tr>
<tr>
<td>• Increased stakeholder concern or negative stakeholder feedback</td>
<td>• production capacity (e.g. delayed planning approvals, supply chain interruptions)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• negative impacts on workforce management and planning (e.g., employee attraction and retention)</td>
<td></td>
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</tbody>
</table>
Table 1B Examples of potential physical climate-related risks (adapted from the TCFD’s Table 1B)

<table>
<thead>
<tr>
<th>Physical climate risks</th>
<th>Potential financial impacts on companies</th>
<th>Potential financial impacts for AP2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Increased severity of extreme weather events such as cyclones and floods</td>
<td>• Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions)</td>
<td>Physical climate-related risks may have a potential impact on all classes of asset, but the asset class in which physical climate-related risks (both acute and chronic) are greatest is property: conventional property and forestry and agricultural property.</td>
</tr>
<tr>
<td>• Changes in precipitation patterns and extreme variability in weather patterns</td>
<td>• Reduced revenue and higher costs from negative impacts on workforce (e.g., health, safety, absenteeism)</td>
<td></td>
</tr>
<tr>
<td>• Rising mean temperatures</td>
<td>• Write-offs and early retirement of existing assets (e.g., damage to property and assets in “high-risk” locations)</td>
<td></td>
</tr>
<tr>
<td>• Rising sea levels</td>
<td>• Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased capital costs (e.g., damage to facilities)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduced revenues from lower sales/output</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increased insurance premiums and potential for reduced availability of insurance on assets in “high-risk” locations</td>
<td></td>
</tr>
</tbody>
</table>

Physical climate-related risks are important to AP2’s investments in CatBonds.

improve their climate-related disclosure (in accordance with the TCFD) and for the companies’ boards to have clear accountability and oversight of climate-related matters. AP2’s engagement with companies takes place at various levels, depending on the aim. Major initiatives are initiated with a letter to the chair of the board and CEO, but the process then continues with people who work directly with the pertinent issues. Using voting rights at annual general meetings (AGMs) is one way to communicate with a company. In 2017, the fund voted at 794 foreign AGMs (769 companies) in 29 countries. At these, 37 of a total of 424 shareholder proposals were related to climate change or renewable energy.

**AP2’s processes for managing climate-related risks**

AP2 has an established process for climate-related financial risks for listed equities. The fund’s Sustainability Group makes decisions concerning new projects and initiates follow-ups of climate analyses of sectors that have already been identified. Sustainability is integrated into the fund’s business plan.

AP2 is working to make ESG information more easily available. As part of the work to implement the TCFD recommendations, AP2 has developed a business intelligence tool that makes climate data available to the internal portfolio managers of listed equity mandates. The climate data that are used in this tool are various indicators and metrics from MSCI ESG. These have been selected on the basis of the climate-related risks and opportunities described in Tables 1 and 2 above (which are based on those in Tables A1 and A2 in the TCFD recommendations).

**Integration of processes for identifying, assessing and managing risks in AP2’s overall risk management process**

At present, climate-related risks are not integrated into the organisation’s overall risk management process. In autumn 2017, a process of investigating whether sustainability should become a separate risk area was started.

**Future work**

In this project, AP2 has identified and assessed climate-related risks and opportunities for listed equities. The fund intends to expand the analysis to other classes of assets. In addition to this, the fund will be evaluating the interactive BI tool that has been produced internally and will also be assessing the relevance of the metrics and indicators selected from MSCI ESG Manager. Work with sustainability as a separate risk area will continue in 2018. AP2’s engagement processes with companies will also continue in 2018, including those taking place as part of Climate Action 100+. 
Table 2: Examples of potential climate-related opportunities (adapted from the TCFD’s Table 2)

<table>
<thead>
<tr>
<th>Climate-related opportunities</th>
<th>Potential financial impacts on companies</th>
<th>Potential financial impacts for AP2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resource Efficiency</strong></td>
<td></td>
<td>It is beneficial to AP2 for companies to work with climate-related opportunities in a way that increases shareholder value. By integrating ESG factors into investment analyses and processes, the fund is able to identify companies that are resource efficient.</td>
</tr>
<tr>
<td>• Use of more efficient modes of transport</td>
<td>• Reduced operating costs (e.g., through efficiency gains and cost reductions)</td>
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<tr>
<td>• Use of more efficient production and distribution processes</td>
<td>• Increased production capacity, resulting in increased revenues</td>
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<tr>
<td>• Use of recycling</td>
<td>• Increased value of fixed assets (e.g., highly rated energy-efficient buildings)</td>
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<tr>
<td>• Move to more efficient buildings</td>
<td>• Benefits to workforce management and planning (e.g., improved health and safety, employee satisfaction) resulting in lower costs</td>
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<tr>
<td>• Reduced water usage and consumption</td>
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<tr>
<td><strong>Energy source</strong></td>
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<tr>
<td>• Use of lower-emission sources of energy</td>
<td>• Reduced operational costs (e.g., through use of lowest cost abatement)</td>
<td></td>
</tr>
<tr>
<td>• Use of supportive policy incentives</td>
<td>• Reduced exposure to future fossil fuel price increases</td>
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<tr>
<td>• Use of new technologies</td>
<td>• Reduced exposure to GHG emissions and therefore less sensitivity to changes in cost of carbon</td>
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<tr>
<td>• Participation in carbon market</td>
<td>• Returns on investment in low-emission technology</td>
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<tr>
<td>• Shift toward decentralized energy generation</td>
<td>• Increased capital availability (e.g., as more investors favor lower-emissions producers)</td>
<td></td>
</tr>
<tr>
<td>•</td>
<td>• Reputational benefits resulting in increased demand for goods/services</td>
<td></td>
</tr>
<tr>
<td><strong>Products and services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Development and/or expansion of low emission goods and services</td>
<td>• Increased revenue through demand for lower emissions products and services</td>
<td></td>
</tr>
<tr>
<td>• Development of climate adaptation and insurance risk solutions</td>
<td>• Increased revenue through new solutions to adaptation needs (e.g., insurance risk transfer products and services)</td>
<td></td>
</tr>
<tr>
<td>• Development of new products or services through R&amp;D and innovation</td>
<td>• Better competitive position to reflect shifting consumer preferences, resulting in increased revenues</td>
<td></td>
</tr>
<tr>
<td>• Ability to diversify business activities</td>
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<td></td>
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<tr>
<td>• Shift in consumer preferences</td>
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<td></td>
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<tr>
<td><strong>Markets</strong></td>
<td></td>
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<tr>
<td>• Access to new markets</td>
<td>• Increased revenues through access to new and emerging markets (e.g., partnerships with governments, development banks)</td>
<td></td>
</tr>
<tr>
<td>• Use of public-sector incentives</td>
<td>• Increased diversification of financial assets (e.g., green bonds and infrastructure)</td>
<td></td>
</tr>
<tr>
<td>• Access to new assets and locations needing insurance coverage</td>
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<td></td>
</tr>
<tr>
<td><strong>Resilience</strong></td>
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<tr>
<td>• Participation in renewable energy programs and adoption of energy efficiency measures</td>
<td>• Increased market valuation through resilience planning (e.g., infrastructure, land, buildings)</td>
<td></td>
</tr>
<tr>
<td>• Resource substitutes/diversification</td>
<td>• Increased reliability of supply chain and ability to operate under various conditions</td>
<td></td>
</tr>
<tr>
<td>•</td>
<td>• Increased revenue through new products and services related to ensuring resiliency</td>
<td></td>
</tr>
</tbody>
</table>
Metrics and targets

The organisation shall use the metrics and targets section to report on metrics and targets that are used to assess and manage relevant climate-related risks and opportunities, when such information is significant. Because AP2 has focused on climate-related risks and opportunities in the listed equity portfolio, only metrics related to this class of asset are included in this section.

**Metrics used by AP2 to assess climate-related risks and opportunities in line with its strategy and risk management process**

AP2 has begun identifying metrics for climate-related risk and opportunities for the listed equity portfolio, which is managed internally and on a discretionary basis. This portfolio constitutes more than 90 per cent of the listed equity portfolio and almost half of the fund’s total assets. Aside from the fact that this class of asset constitutes a significant portion of the fund’s portfolio, it is also the class of asset in which the data is most readily available.

AP2 has used the metrics and indicators that it has access to via MSCI ESG Manager. The risks and opportunities that the TCFD list in its recommendations are described in Tables 1 and 2, along with the financial impact these may have and the possible financial impact on AP2. AP2 has chosen a number of metrics/indicators from MSCI ESG that reflect these risks and opportunities.

AP2 is developing an interactive business intelligence (BI) tool that is intended to provide portfolio managers and analysts with these metrics/indicators in real time for both the portfolio as a whole and for each mandate. Data in this tool is divided up into climate-related risks, transition risks, physical climate-related risks and opportunities.

**Reports concerning greenhouse gas (GHG) emissions, Scope 1, Scope 2, if appropriate, Scope 3 and the related risks**

AP2 has been reporting annually on its listed equity portfolio’s carbon footprint since 2014. In 2015, all of the Swedish AP funds agreed to use the same methodology and metrics and selected at that time three measures of carbon dioxide footprint that are all based on the fund’s shareholding. In order to comply with the TCFD recommendations, the Swedish AP funds are also including weighted average carbon intensity in their reporting for 2017 as this is the measure recommended by the TCFD. AP2 reports carbon footprint on the basis of data concerning Scope 1 and 2, where there is relatively good coverage.

The equity portfolio’s carbon footprint for 2017 was around the same level as it was in 2016. The fact that the proportion of the equity portfolio for which there is data has decreased for 2017 is primarily due to AP2 having increased its allocation to Chinese A shares and the fact that few Chinese companies report climate-related data. Chinese A shares will be included in the MSCI Emerging Markets Index, which means that MSCI will be estimating carbon data for these companies next year.

More information about the advantages and disadvantages of carbon footprint and the formulae for the various measures can be found on AP2’s website.

**AP2’s targets to manage climate-related risks and opportunities and performance against targets**

AP2’s vision is “World-class Investment Management”. To achieve this vision, the investment managers work actively to integrate sustainability into analysis and investment processes. The fund’s ambition is to have a portfolio that is compliant with the two-degree target. The TCFD recommendations are seen as a tool in the fund’s efforts to put its climate-related ambition into practice.

AP2 is continually working to improve information about risk at the mandate, asset class and fund levels. A method for monitoring the financial impact of divestment decisions has been developed by the Performance Department.

**Future work**

AP2 has focused in this first stage on metrics for listed equities. In future efforts, metrics will be identified for other classes of asset. The fund intends to continue developing the method used to analyse the return on divestments. AP2 will also be working on how to make its climate-related ambition, to develop the portfolio in line with the two-degree target, more tangible for the fund’s various mandates.
AP2 has been working to take into account climate-related risks in its investment management process for many years and has begun working to develop its portfolio in accordance with the Paris Agreement and the TCFD recommendations are helping to structure this work. Nonetheless, complying entirely with the recommendations and producing a portfolio that is entirely in accordance with the two-degree target is a long-term project that will take several years.

The fund will continue using the framework in its own climate-related efforts, but will also be encouraging portfolio companies and managers to use it. One strength of this framework is that this can be used by all types of organisations.

It is AP2’s hope that companies and investment managers will develop their analysis and climate reporting on the basis of the TCFD recommendations, which will make it possible to know more about the fund’s total climate-related risks and how the fund’s investments are contributing to the transition.

Conclusion

AP2 has been working to take into account climate-related risks in its investment management process for many years and has begun working to develop its portfolio in accordance with the Paris Agreement and the TCFD recommendations are helping to structure this work. Nonetheless, complying entirely with the recommendations and producing a portfolio that is entirely in accordance with the two-degree target is a long-term project that will take several years.

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Annex I

AP2 has in its implementation of TCFD’s recommendations used the suggestions presented both for all sectors and the specific guidance to asset owners.¹

Governance

Disclose the organization’s governance around climate-related risks and opportunities.

a) Describe the board’s oversight of climate-related risks and opportunities.
   1. Processes and frequency by which the board and/or board committees (e.g., audit, risk, or other committees) are informed about climate-related issues,
   2. Whether the board and/or board committees consider climate-related issues when reviewing and guiding strategy, major plans of action, risk management policies, annual budgets, and business plans as well as setting the organization’s performance objectives, monitoring implementation and performance, and overseeing major capital expenditures, acquisitions, and divestitures, and
   3. How the board monitors and oversees progress against goals and targets for addressing climate-related issues

b) Describe management’s role in assessing and managing climate-related risks and opportunities.
   1. Whether the organization has assigned climate-related responsibilities to management-level positions or committees; and, if so, whether such management positions or committees report to the board or a committee of the board and whether those responsibilities include assessing and/or managing climate-related issues.
   2. Description of the associated organizational structure(s),
   3. Processes by which management is informed about climate-related issues.
   4. How management (through specific positions and/or management committees) monitors climate-related issues.

Strategy

Disclose the actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning where such information is material.

a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.
   1. Organizations should provide the following information:
      i) A description of what they consider to be the relevant short-, medium-, and long-term horizons, taking into consideration the useful life of the organization’s assets or infrastructure and the fact that climate-related issues often manifest themselves over the medium and longer terms.
      ii) Specific climate-related issues for each time horizon (short, medium, and long term) that could have a material financial impact on the organization and distinguish whether the climate-related risks are transition or physical risks.
      iii) A description of the process(es) used to determine which risks and opportunities could have a material financial impact on the organization. Organizations should consider providing a description of their risks and opportunities by sector and/or geography, as appropriate.
   2. In describing climate-related issues, organizations should refer to Tables A1 and A2 (Example on climate-related risks and opportunities and their potential financial impact).

b) Describe the impact of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning.
   1. Asset owners should describe how climate-related risks and opportunities are factored into relevant investment strategies. This could be described from the perspective of the total fund or investment strategy or individual investment strategies for various asset classes.

Risk Management

Disclose how the organization identifies, assesses, and manages climate-related risks. Asset owners should also describe dialogues with portfolio companies and how the total portfolio is positioned towards a transition towards a low-carbon economy.

a) Describe the organization’s processes for identifying and assessing climate related risks.
   An important aspect of this description is how organizations determine the relative significance of climate-related risks in relation to other risks.

¹ More information about the recommendations on TCFD’s website www.fsb-tcfd.org/
1. Organizations should describe whether they consider existing and emerging regulatory requirements related to climate change (e.g., limits on emissions) as well as other relevant factors considered.

2. Organizations should also consider disclosing the following:
   i) Processes for assessing the potential size and scope of identified climate-related risks.
   ii) Definitions of risk terminology used or references to existing risk classification frameworks used.

3. Asset owners should describe, where appropriate, engagement activity with investee companies to encourage better disclosure and practices related to climate-related risks to improve data availability and asset owners’ ability to assess climate-related risks.

b) Describe the organization’s processes for managing climate-related risks.

1. Organizations should describe their processes for managing climate-related risks, including how they make decisions to mitigate, transfer, accept, or control those risks.

2. In addition, organizations should describe their processes for prioritizing climate-related risks, including how materiality determinations are made within their organizations.

3. In describing their processes for managing climate-related risks, organizations should address the risks included in Tables A1 and A2, as appropriate.

4. Asset owners should describe how they consider the positioning of their total portfolio with respect to the transition to a lower-carbon energy supply, production, and use. This could include explaining how asset owners actively manage their portfolios’ positioning in relation to this transition.

c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization’s overall risk management.

1. Organizations should describe how their processes for identifying, assessing, and managing climate-related risks are integrated into their overall risk management.

Metrics and targets

Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.

1. Organizations should provide the key metrics used to measure and manage climate-related risks and opportunities, as described in Tables A1 and A2.

2. Organizations should consider including metrics on climate-related risks associated with water, energy, land use, and waste management where relevant and applicable.

3. Where climate-related issues are material, organizations should consider describing whether and how related performance metrics are incorporated into remuneration policies.

b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.

1. Organizations should provide their Scope 1 and Scope 2 GHG emissions and, if appropriate, Scope 3 GHG emissions and the related risks. GHG emissions should be calculated in line with the GHG Protocol methodology to allow for aggregation and comparability across organizations and jurisdictions. As appropriate, organizations should consider providing related, generally accepted industry-specific GHG efficiency ratios.

2. GHG emissions and associated metrics should be provided for historical periods to allow for trend analysis. In addition, where not apparent, organizations should provide a description of the methodologies used to calculate or estimate the metrics.

3. Asset owners should provide the weighted average carbon intensity, where data are available or can be reasonably estimated, for each fund or investment strategy. In addition, asset owners should provide other metrics they believe are useful for decision making along with a description of the methodology used. See Table 2 (p. 43) for common carbon footprinting and exposure metrics, including weighted average carbon intensity.

c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

1. Organizations should describe their key climate-related targets such as those related to GHG emissions, water usage, energy usage, etc., in line with anticipated regulatory requirements or market constraints or other goals. Other goals may include efficiency or financial goals, financial loss tolerances, avoided GHG emissions through the entire product life cycle, or net revenue goals for products and services designed for a lower-carbon economy.

2. In describing their targets, organizations should consider including the following:
   i) Whether the target is absolute or intensity based,
   ii) Time frames over which the target applies, base year from which progress is measured.
   iii) Key performance indicators used to assess progress against targets.

Where not apparent, organizations should provide a description of the methodologies used to calculate targets and measures.