CLIMATE REPORT 2020

In accordance with the TCFD’s recommendations
Climate report 2020
In accordance with the TCFD’s recommendations

In 2020 Andra AP-fonden continued to integrate climate-related aspects into risk assessments and investment decisions, which is becoming an increasingly important task. During the year, the Fund developed and implemented its internal indices for global equities and corporate bonds to meet the EU Paris-Aligned Benchmark (PAB) criteria. The Fund’s objective is to have a portfolio with net zero emissions by 2045.

The UN’s Intergovernmental Panel on Climate Change’s (IPCC) special report in 2018 on the effects of global warming of 1.5°C underscored the need for a comprehensive and rapid transition. To stabilise the climate, net emissions must be reduced to zero by about 2050. Because the temperature increase depends on the volume of greenhouse gases emitted over time, it is important that emissions are reduced as quickly as possible. Greater transparency and disclosure on climate-related issues are effective means of driving emission improvements, for both companies and investors.

In its asset management activities, AP2 must obviously, as a long-term investor, take risks into account, leverage opportunities offered by climate change and play its part in the transition to a net-zero greenhouse gas emissions economy. AP2 published its approach to the transition to a net-zero economy back in 2016. The report explains that the Fund aims to develop its portfolio in line with the Paris Agreement by integrating climate analysis into investment processes and, based on the Fund’s mission, contributing to the transition.

In April 2015, the Financial Stability Board (FSB) received the following mandate from 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 set up a Task force on Climate-related Financial Disclosures (TCFD), which was commissioned to develop recommendations on disclosures that will help entities operating in the financial market to understand their climate-related risks and opportunities. In June 2017, the TCFD presented its recommendations on climate-related disclosures. They provide a framework for all types of organisations, with additional recommendations for certain sectors and for asset owners and asset managers. In brief, the TCFD recommends that organisations include the following in their financial filings: 1) how climate-related issues are managed by the organisation’s governing bodies (board and management team), 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 of the metrics and targets used by the organisation. In December 2020, more than 1,600 organisations in 70 countries had registered to support the TCFD. More information is available at www.fsb-tcfd.org

One important aspect pertaining to climate-related risks is that they cannot be completely eliminated. In portfolio management, however, it is possible to take into consideration and reduce exposure to climate-related risks because different asset types, sectors and geographies are exposed to different types of climate-related risks and over different time horizons. Identification of climate-related risks and opportunities is therefore central to the TCFD’s framework.

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

Climate-related risks and opportunities can have a financial impact on AP2, involving changes in the strategic portfolio and choice of index, changes in investment strategies for individual asset classes, divestment from companies/securities, and dialogues with companies and decision-makers. AP2 supports the TCFD recommendations, as they increase the companies’ transparency and give investors the information needed to assess the companies’ climate risks and opportunities. They also provide the Fund with an important tool for its own work, enabling the Fund to describe and communicate its climate-related activities.

AP2 began implementing the recommendations in the autumn of 2017. It published its first report in early 2018. In the work of analysing its climate-related activities, the Fund has used the proposals contained in the TCFD recommendations for all sectors and in the specific guidance given to asset owners (Appendix 1). In 2020, the Fund developed and implemented indices for global equities and corporate bonds to meet the EU Paris-Aligned Benchmark (PAB) criteria. This report describes AP2’s climate-related activities based on the recommendations and gives examples of what the Fund can do to develop its work on climate-related risks and opportunities.

---

2. Resilience is the capacity of a system, be it a forest, a city or an economy, to deal with change and continue to develop.
TCFD’s framework

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

**Strategy**
Actual and potential impacts of climate-related risks and opportunities on the organisation's business, strategy and financial planning

**Risk management**
Processes for identifying, assessing and managing climate-related risks and opportunities

**Metrics and targets**
Metrics and targets used to assess and manage relevant climate-related risks and opportunities
Governance

In this section, the organisation describes management’s role in assessing and managing climate-related risks and opportunities, and what knowledge and supervision the board has in these issues.

The Board’s oversight of climate-related risks and opportunities

AP2 is an independent government agency that must manage fund assets in an exemplary manner through responsible investments and responsible ownership. Its asset management activities must provide the greatest possible benefit to the pension system. Asset management operations must focus especially on how sustainable development can be advanced without jeopardising the overall goal concerning return and risk. AP2 is governed by the law and is a government agency under the Swedish Parliament. The Government appoints the Fund’s Board Members. The Swedish Government sends the Swedish Parliament a report each year on the operations of the AP Funds. The report includes an evaluation of the Funds’ sustainability activities.

According to the Act governing the operations of the AP Funds, the Board shall set the objectives for the Fund and the overall frameworks for its operations in an annual business plan, which includes investment convictions, a strategic portfolio and a sustainability policy. The business plan is followed up by the Board and Executive Management and is reported in the annual and half-year reports.

The asset management activities are based on the investment beliefs set by the Board. In 2019, these were reviewed to ensure that the Fund’s approach to sustainability in general, and climate change in particular, is reflected in an accurate manner. The review resulted in two new beliefs: “Sustainability pays off” and “Climate change is a system risk”.

The Board sets the strategic portfolio at least once a year as part of the Fund’s business plan. AP2 has a long-term perspective of 30 years for its strategic asset allocation. The strategic portfolio is based on the Fund’s ALM (Asset and Liability Management) analysis. Since 2019, climate change aspects have been taken into consideration, which has influenced the forward-looking assumptions used in the ALM analysis.

The Board takes decisions on all index changes. An ESG assessment is performed as part of the data set that AP2 prepares for decisions on possible index changes. It includes an analysis of how the change will affect the carbon footprint. Climate-related aspects are thereby included in the Fund’s evaluation of new indices and/or index changes. Several of the indices that the Fund uses have sustainability characteristics. In autumn 2020, the Board decided to implement indices in accordance with the EU’s Paris-Aligned Benchmark for internally-managed global equities and corporate bonds. These account for about half of AP2’s assets under management. Now that the Fund has implemented these indices, the work of analysing financial climate risks for fossil energy companies that it has been doing since 2013 has ended.

AP2 has a process for continuously keeping the Board informed about the Fund’s sustainability work, which includes climate-related issues. The Board has the opportunity to discuss ESG and climate-related issues at each meeting. Each year, the Board receives a climate report with information on the various activities of the Fund in relation to the climate. All Board members have received training in ESG, in which climate was included.

The role of management in assessing and managing climate-related risks and opportunities

AP2’s Executive Management, the Fund’s chief strategist and senior sustainability analyst are responsible for the strategic sustainability work and for implementation and follow-up. They hold regular meetings to discuss and embed the Fund’s sustainability work. Climate is an important sustainability area and one of the Fund’s four focus areas.

All senior executives have a responsibility for taking climate issues into account according to their various roles. Climate-related risks and opportunities for investments are included in the responsibility of the Chief Investment Officer. The Head of Performance and Risk Management is responsible for developing how the Fund should measure its sustainability performance in relation to a base portfolio. It is the responsibility of the senior sustainability analyst to inform and communicate the Fund’s ESG work to the Board and to broaden the Board’s knowledge and expertise in climate issues.

The analysis of climate-related investment opportunities is initiated by the asset management team. Since the Fund is a small organisation, where several senior executives are directly engaged in the climate-related work, the executive management have good knowledge of the work that is being done. The Fund therefore has good opportunities to assess and manage climate-related risks and opportunities.

The Fund started working on its business plan for 2021 to 2023 in early 2020 by reconnaissance surveys that it considered important for the development of its activities and about which the Fund needed more
Four main observations about sustainability were made. The first observation was increased physical risks due to insufficient actions to combat climate change. This entails that, the process of understanding and managing the risks posed by climate change to the portfolio must be further developed. It also means that it will continue to be important to make investments, such as sustainable infrastructure, aimed at promoting sustainable development. The second observation was that capital flows to sustainable investments, as well as sustainability regulations, will continue to increase. It will be important to understand these in order to navigate the portfolio over the coming years. The third observation was that there will be a growing focus on biodiversity. Loss of biodiversity is closely linked to climate change and can lead to significant social and economic costs. It is important to improve knowledge of biodiversity and take biodiversity into account in the management activities. The fourth observation was that the focus on social issues will increase. For example, it will be necessary to maintain a strong focus on human rights. The interaction between different areas of sustainability, such as human rights and climate change will be important to take into consideration when integrating sustainability into asset management.

One of the objectives of the Fund’s business plan is to develop a more efficient, sustainable and resilient portfolio by 2023. The business plan sets out who is responsible for the Fund’s various activities.

Future work
AP2 will continue to develop and clarify information and processes regarding the supervision and assessment of climate-related risks and opportunities.
Strategy

The actual and potential impacts of climate-related risks and opportunities on the organisation’s business, strategy and financial planning are disclosed in this section. For Andra AP-fonden as an asset owner, this means identifying and describing risks and opportunities based on the Fund’s investment strategy.

Climate-related risks and opportunities
The consequences of climate change on global economic processes are expected to continue to increase. Climate change is impacting the conditions for all kinds of human life and activities, from forestry and farming, to industry and how cities function. Moreover, the conditions vary across countries and industries in terms of how well they can cope with the changes. Some countries are particularly exposed due to their geographic location. Others have economies dominated by industries that either need to be phased out or severely restricted.

AP2 operates with a long-term, 30-year perspective in line with the Fund’s mission and role in the public pension system. This perspective is reflected in the choice of strategic portfolio, which includes both the long-term allocation of capital over various broad asset classes, and the strategies that determine the allocation within each asset class of individual securities. The strategic portfolio and its return must provide the greatest possible benefit to the pension system – a goal that the Fund must not disregard.

Given AP2’s long-term investment horizon, it is crucial to take climate change aspects into consideration in investment decisions. This must be done all the way from the highest strategic level down to each individual investment. This is also reflected in the Fund’s investment beliefs, one of which is “sustainability pays off”. Climate change is particularly regarded by AP2 as a long-term risk to the Fund’s portfolio and therefore also to the pension system. This applies not only to individual industries and companies but also to broad asset classes such as equities and bonds through their potential impact on the global economy. The investment belief that “climate change is a system risk” also expresses this. The Fund’s ambition is to develop a sustainable strategic portfolio in line with the Paris Agreement. The Fund is committed to addressing and reducing the financial risks from climate change and actively enabling the transition.

Climate-related risks and opportunities also exist over the short and medium term. In the short term, the transition to a low carbon society also means investment opportunities, e.g. in renewable energy, while assets that are not deemed to be sustainable pose a risk. AP2’s sustainability strategy is based on the statutory mission and the Fund’s investment convictions. The strategy also reflects the Fund’s vision and values. The investment beliefs provide the outer framework for the Fund’s approach to sustainability in its asset management activities. In addition, given the beliefs, a number of more specific sustainability principles have been adopted.

AP2’s six sustainability principles are:
1. AP2 integrates sustainability in all investment processes.
2. AP2 actively seeks out investments that contribute to sustainable development.
3. AP2 works on the basis of the focus areas.
4. AP2 uses dialogue as a tool.
5. AP2 takes a scientific approach.
6. AP2 seeks to be a leader in sustainability.

The sustainability strategy is based on these principles and aims to clearly define the activities that are to be implemented in order to achieve the overall goal of a sustainable strategic target portfolio, which is also in line with the Paris Agreement.

The strategy also includes objectives to enable analysis of how the Fund’s work on sustainability affects return and risk and what impact its work has on the real economy.

Impact of climate-related risks and opportunities
Climate change is expected to have a major impact on the long-term returns. AP2’s goal is therefore to develop the portfolio in line with the Paris Agreement. This is achieved by integrating climate analysis into the investment process and, based on the Fund’s mission, enabling the transition to a 1.5°C society. It is also the Fund’s ambition to integrate other areas of sustainability into its management of all asset types, where the integration is tailored to each asset class and the applicable contexts.

In 2019, the Fund incorporated the climate change risks into the ALM analysis, which is the tool the Fund uses to develop the right strategic portfolio. ALM is short for Asset and Liability Management.
Management. The portfolio represents the asset composition assessed as most likely to achieve the goal for AP2’s investment activities over a 30-year horizon. Long-term assumptions about return and risk for the various assets, as well as how these returns relate to the development of the social economy and demography, are very central to the analysis. The ALM analysis is based on the expected negative impact on economic growth in a scenario where sufficient global measures are not taken and the global temperature increase is 3°C instead of being limited to around 1.5°C which is the actual requirement. The assessed negative consequences on expected economic growth in such a scenario, and on the return on financial assets in the long run, is based on academic research in the area. In 2020, a study was carried out to assess the impact that increased extreme weather events in a warmer world would have on economic growth.

In 2013, AP2 appointed a working group to identify policy and legal transition risks and to identify and divest companies with a significant climate risk. The working group has focused on the asset types and sectors that are deemed to pose the most risk from a financial perspective, i.e. listed equities and corporate bonds in fossil companies and power companies. It developed criteria for assessing climate-related financial risks and based its analysis of the assets on these. This resulted in the divestment of 80 companies. In 2020, this was replaced by a process linked to the EU’s framework for climate indices, which specifies criteria for deterring which companies associated with fossil fuels should be excluded from a portfolio aligned with the objectives of the Paris Agreement.

In 2020, AP2 has focused on adapting its internally developed indices for global equities and corporate bonds with the EU framework for climate indices, Paris-Aligned Benchmark (PAB). AP2 recognises that there is significant value in being able to align its indices to the objectives of the Paris Agreement based on a scientifically validated framework established by the EU. Two of the requirements in the PAB framework are that the index’s carbon footprint must be reduced by 50 per cent in relation to an equivalent market-weighted index and annually thereafter by 7 per cent. The adaptation to PAB also requires companies using fossil fuels to be excluded from indices. As a result of this, 250 companies have been excluded from the Fund’s global equity portfolios. More information about AP2’s work with PAB is given on page 8.

Since 2008, the Fund has invested in green bonds, as part of the listed fixed-income portfolio, which are expected to contribute positively to the transition to a net-zero economy. Green bonds have been a separate asset class in the strategic portfolio since 2015. In 2019, the Fund decided to increase its strategic allocation from 1.0 to 3.0 per cent. In recent years, AP2 has also invested in social bonds. Sustainability risks are becoming increasingly important for the management of government bonds in emerging markets. As an initial step, AP2 has decided to change to indices constructed by J.P. Morgan which integrate sustainability factors.

In the non-listed portfolio, the Fund sees opportunities to actively support the transition to a net-zero economy. For the portfolio of traditional real estate, energy issues are important in the short, medium, and long term. The Fund’s holdings have long been committed to reducing energy consumption in their real estate. In 2010, the Fund began to expand its real-estate portfolio to timberland and farmland. The main aim of the investments was to achieve greater diversification in the wake of the financial crisis, but they are also closely linked to climate change protection.

Timberland, where the expected regrowth is significantly higher than the felling volume, can act as carbon sinks. There are opportunities for selling such carbon credits. The role of forests as carbon sinks may be more important in the long term, both as living forests and through increased use of wood as a raw material in, for example, construction.

In its private equity funds portfolio, AP2 has been investing for many years in funds that focus on renewable energy. The Fund has recently been looking for opportunities to invest in smaller companies and funds with a focus on sustainability. In 2019, AP2 also decided to make an allocation to sustainable infrastructure, i.e. infrastructure assets that support sustainable development in line with the Paris Agreement. In 2020, three investments were made in this asset class.

Resilience to different climate-related scenarios

In 2019, AP2 investigated how different climate-related scenarios could be included in the choice of the overall strategic asset allocation. The aim of the Fund’s current strategic roadmap is to have a more effective, sustainable and resilient portfolio in place by 2023.

AP2's investment beliefs

1. Thorough analysis of the pension system is key to choice of strategy.
2. Systematic risk-taking is required.
3. Diversification reduces risk.
4. Active management creates added value.
5. Sustainability pays off.
6. Climate change is a system risk.
7. Long-term mandate presents special opportunities.
8. People and culture are critical success factors.
9. Stable processes are essential for good results.
10. High level of cost-effectiveness leads to improved results.
In 2020, the Fund adapted its indices for global equities and corporate bonds to meet the EU Paris-Aligned Benchmark (PAB) criteria. The mandates managed against these indices have also been adapted in accordance with these criteria. In 2019, the EU defined rules and criteria for the climate index within the framework of the “Action Plan on Financing Sustainable Growth”. The aim of the Action Plan launched by the European Commission is to:

• Reorient capital flows towards sustainable investments in order to achieve sustainable growth.
• Manage financial risks stemming from climate change, environmental impact and social injustice.
• Foster transparency and long-termism in financial and economic activities.

One of the key areas of the Action Plan concerns rules and criteria for so-called climate indices. The Technical Expert Group (TEG) appointed by the EU developed this set of rules to complement the existing regulation for commercial index providers. The regulatory framework contains two climate index versions, the EU Climate Transition Benchmark (CTB) and the EU Paris-Aligned Benchmark (PAB), with PAB being the more ambitious of the two. An index that meets PAB requirements must be constructed in such a way that its carbon dioxide emissions are consistent with the Paris Agreement’s goal to limit global warming to well below 2°C, based on the recommendations and the scientific evidence compiled by the UN’s Intergovernmental Panel on Climate Change (IPCC).

The purpose of these indices is to:
• Encourage a high degree of comparability for methods of construction of different climate indices.
• Allow investors to more easily find indices that are in line with their investment convictions and strategies.
• Increase the transparency of impacts of investments, particularly with regard to climate impact and energy transition.
• Prevent greenwashing.

If an index provider wants to market its index as a climate index in general, and the EU Climate Transition Benchmark or the EU Paris-Aligned Benchmark in particular, the provider must ensure that the rules and criteria are met, and apply for approval from the supervisory authority concerned. AP2 is not an index provider and is therefore not subject to the regulation governing an index provider’s operations. In the opinion of the Fund, however, this regulatory framework is so important and useful that the Fund has chosen to adapt its indices and portfolios in accordance with its criteria.

The Fund has adapted indices and portfolios for global equities and corporate bonds to meet the requirements of the more ambitious climate index, PAB. This change affects about half of the Fund’s capital.

The regulations for PAB set far-reaching requirements for fossil fuel divestment and reduction of greenhouse gases. The advantages of adapting the Fund’s indices and portfolios to the requirements defined by PAB are that this regulation has been adopted by the EU on clear scientific evidence and will be updated over time based on future developments in emissions, research and results from the IPCC and others, and increased access to data. This regulatory framework aims not only to reduce greenhouse gas emissions, but also to benefit companies that contribute to the transition to a net-zero economy. In AP2’s view, it is advantageous to adapt to a well-designed regulatory framework established by a third party, in this case the EU.

For an index to be a PAB, it must, among other things, meet the following requirements:
• At the time of implementation, the carbon intensity of the index must be maximum 50 per cent of the carbon intensity of the corresponding market-weighted index.
• Thereafter, the carbon intensity must be reduced by at least 7 per cent per annum to achieve zero greenhouse gas emissions by 2050.
• It must not contain companies that have a certain percentage of sales from coal, oil and/or natural gas, or that produce too dirty electricity.
• It has at least the same total exposure to sectors with high climate risk, such as electricity production and transport, as a market-weighted index.
• “Do no harm” principles shall apply, i.e. reduction of fossil fuels and greenhouse gases must not be at the expense of other important principles within the framework of responsible management. This means, for example, exclusion of companies that are involved in controversial weapons or have systematically violated global standards (such as the UN Global Compact Principles).
A strategic portfolio that is sustainable integrates sustainability into underlying decisions, making it better equipped to achieve the overall goal to provide the greatest possible benefit to the pension system in the long term. Integration of sustainability is necessary for achieving that goal. A sustainable strategic portfolio, without compromising the overall goal, also promotes sustainable development. With a resilient portfolio, it is possible to further analyse the impacts of climate change on the portfolio and adapt it so that it remains robust in the face of different possible scenarios.

In 2019, the Institutional Investor Group on Climate Change (IIGCC) initiated the “Paris-Aligned Investment Initiative” to show how investors can develop their portfolios to be in line with the Paris Agreement. In total, 70 of IIGCC’s members participate in this initiative.

The purpose of the initiative is to:
1. Create definitions for key terms related to development of portfolios in line with the Paris Agreement and create a consensus on these among investors.
2. Analyse potential methods that can be used to assess different asset classes.
3. Give investors an understanding of the implications of developing portfolios in accordance with the Paris Agreement by testing approaches and methodologies for real portfolios, and analyse financial characteristics, risks and opportunities associated with developing portfolios in accordance with the Paris Agreement.

The initiative has four working categories; government bonds, listed equities and corporate bonds, real estate and strategic asset allocation. AP2 has representatives in the steering group and in the working groups for government bonds and real estate. In 2020, the steering group developed a ‘Net Zero Investment Framework’, which has been out for consultation. The final framework will be presented in early 2021. More information is available on the IIGCC website www.iigcc.org

Future work
Climate issues remain high on AP2’s agenda and the Fund is working on the implementation of the TCFD recommendations. In 2021, it will concentrate on implementing the sustainability strategy which is strongly focused on climate. The Fund is planning to adapt more indices so that they meet the EU Paris-Aligned Benchmark criteria.

Asset management is actively working in various ways to include climate risks and opportunities in its analyses and find investment opportunities for different asset classes.

Development of the integration of the climate risk analysis will continue. The Fund intends to further develop its approach to what are significant climate risks and opportunities for more asset classes/sectors/geographies and what time horizon they have.
Scenario analysis

A scientific basis is important. One of Andra AP-fonden's sustainability principles is to take a scientific approach. The starting point for the Fund's work with climate-related scenarios is therefore the reports of the UN's Intergovernmental Panel on Climate Change (IPCC). The IPCC is tasked with compiling scientific knowledge about climate change, consequences and possible solutions and presenting this data to the world's governments.

The IPCC's special report on the consequences of 1.5°C global warming, presented in October 2018, was prepared at the request of the United Nations Framework Convention on Climate Change (UNFCCC). This request is written into the Paris Agreement. The report describes the effects of 1.5°C global warming and related emissions of greenhouse gases, with the aim of strengthening the global ability to respond to the threat of climate change and set sustainable development goals and efforts to eradicate poverty.

The report indicates major differences between 1.5°C and 2.0°C global warming. The main message is that a global rise in temperature of 1.5°C will have serious consequences for many people, the environment and the ecosystems. A high ambition to reduce emissions in the near future is crucial to addressing the climate change crisis and increasing the likelihood of achieving the UN Global Sustainability Goals. The IPCC notes that there are different options to limit the global rise in temperature of 1.5°C, but that prompt action is required. One significant difference between various scenarios is whether or not a temporary overshoot of the warming level is permitted. In 1.5°C scenarios with no or limited overshoot, global net anthropogenic emissions of carbon dioxide (human-caused emissions) decrease by approximately 45 percent from 2010 levels up until 2030 and reach net zero emission around 2050. In scenarios where a high overshoot is permitted, it is possible to wait with emission reductions until 2030, but then a strong decrease in emissions and a sizeable uptake of carbon dioxide (negative emissions) will be necessary. The report presents four examples of 1.5°C scenarios with different strategies for reducing emissions and different technologies for removing carbon dioxide from the atmosphere, from planting new forests to technical capture and storage of carbon dioxide.

In 2016, AP2 published its policy on the transition to a net-zero economy, in which the Fund states that the ambition is to develop the portfolio in line with the Paris Agreement. For AP2, this means that a climate risk analysis is integrated into investment processes and that the Fund actively seeks investments that support the transition to a sustainable future.

Threshold effects

Here the term “threshold” refers to a critical point at which a major change suddenly occurs that could have a considerable adverse effect on the climate. For example, melting of the polar ice caps or thawing of the permafrost. Once a threshold is crossed there is a risk of a domino effect, as the various threshold effects are interlinked. This would create a risk of a “hot-house earth”, when the earth goes from being a carbon sink to a carbon source.

In its 2019 report, the Fund reported on the performance of the portfolio against the most conservative of the IPCC’s 1.5°C scenarios (P1 in the figure below) due to the uncertainty surrounding threshold effects and the potential to achieve carbon capture on a large scale in the near future (10 years). In this scenario, greenhouse gas emissions must be reduced by 50 per cent from 2010 levels by 2030, and by 82 per cent by 2050. In 2020, the Fund decided to implement indices that comply with the EU Paris-Aligned Benchmark (PAB) criteria and will therefore continue to report its performance in line with the Paris Agreement in accordance with this framework. The EU has chosen to follow a conservative 1.5°C scenario with no or low overshoot. In the PAB criteria, the carbon footprint must be at least 50 per cent lower than for the corresponding market-weighted index in the first year and must thereafter be reduced by 7 per cent annually until 2050. This means that the carbon footprint will be 24 per cent by 2030, and 6 per cent by 2050, compared with the market-weighted index for 2020. Further information about the follow-up of AP2’s indices for global equities and corporate bonds in relation to the PAB criteria can be found on page 8.
Risk management

The organisation describes its processes for identifying, assessing and managing climate-related risks and opportunities and how the processes are integrated into the organisation’s overall risk management. Asset owners must also describe dialogue activities with portfolio companies and how the total portfolio is positioned relative to a transition path to a low carbon economy.

In 2020, the TCFD issued a report to give further guidance on integration and reporting of risk management, as many organisations feel its recommendations in this area are difficult to implement. Characteristics of climate-related risks:

- There will be effects at local, regional and global levels and many different sectors will be affected.
- Longer time horizons and lasting effects.
- Climate change is dynamic and many unknown factors are involved.
- The climate system is complex and sudden changes can occur, which may, in turn, lead to irreversible effects.
- Climate risks affect socio-economic and financial systems.

In a review of its investment beliefs in 2019, AP2 added the belief ‘Climate change is a system risk’, as climate risks have a special position with their potential to threaten financial stability.

The organisation’s processes for identifying and assessing climate-related risks

In 2013, AP2 began to identify and assess transition risks for sectors in fossil energy. The Fund concluded that these risks were not fully priced in by the market. In the view of the Fund, it was likely that stronger policy measures would be introduced and that the price of renewable energy would increasingly be on a par with fossil energy prices. It therefore concluded that fossil energy companies and power companies were sectors with the highest climate-related financial risk. This led to divestments of 80 companies. In 2020, the Fund accelerated portfolio development by implementing its own indices for global equities and corporate bonds that meet the EU Paris-Aligned Benchmark criteria, which have been developed within the EU Sustainable Finance.

The financial sector is focusing increasingly on climate-related issues, partly in response to the work within the EU Sustainable Finance Action Plan. It is hoped that this work will facilitate and increase opportunities for asset owners and asset managers to identify and assess climate-related risks. The Swedish equity team at AP2 has started to analyse what impacts the EU taxonomy and the Paris-Aligned Benchmark criteria might have on the investment universe.

The TCFD divides climate-related risks into 1) transition risks, which are subdivided into policy and legal risks, technology risks, market risks and reputation risks, and 2) physical risks, which are subdivided into acute risks and chronic risks. AP2 has used the TCFD categorisation to identify climate-related risks and opportunities that are deemed relevant. Tables 1 and 2 on pages 14-16 show the climate-related risks and opportunities addressed in the TCFD recommendations, plus the potential financial impact described by the TCFD, and the potential financial impact these may have for AP2.

As an asset owner, what is described as a transition risk can also be an opportunity. For example, AP2 believes that it would be positive to have a market price for carbon dioxide that reflects the external costs. This would send signals to the market that would allow it to price the assets more accurately. Since the Fund has already identified that climate-related impacts can affect market pricing and has, to some extent, managed this risk, such a change is expected to be financially positive for the Fund and to reduce the risk to a certain degree.

Dialogues with companies and decision-makers

As well as investing in sustainable strategies, conducting dialogues with companies and decision-makers is a key component of AP2’s work of driving the transition to a net zero economy. AP2 is an active member of PRI (Principles for Responsible Investment) and IIGCC (Institutional Investor Group on Climate Change), both of which use dialogue extensively with companies and decision-makers.

One example of IIGCC’s work is the production of various investor expectations statements for companies. Published in October 2020, “Paris-aligned accounts: investor expectations” urges companies to include climate data in their financial reports. In conjunction with the publication, the audit committees of 36 European companies were listed on the document via a letter signed by AP2 and a further 37 investors.

AP2 conducts dialogues with companies at different levels, depending on the purpose of the dialogue. Major initiatives are initiated with a letter to the chair and CEO. The dialogue then continues with those who work directly with the issues that concern.

AP2 actively participates in Climate Action 100+, a five-year international dialogue initiative launched in December 2017. More than 450 investors from 32 countries are working collaboratively on dialogues with 167 companies. These companies account for a significant share, an estimated 80 per cent, of global industrial greenhouse gas emissions.
the Paris Agreement, which means that it has set scientific goals in line with 2020, the company communicated that companies in Climate Action 100+. In AB Volvo, which is one of the climateaction100.org report for the initiative at www. In 2020 can be found in the annual report for the initiative at www. Action 100+ and the work carried out in spring 2021. More about Climate company results will be published in Benchmark. The first individual Action 100+ Net Zero Company progress was developed, Climate measuring companies’ relative Scope 3 emissions.

In 2020, a new framework for measuring companies’ relative progress was developed, Climate Action 100+ Net Zero Company Benchmark. The first individual company results will be published in spring 2021. More about Climate Action 100+ and the work carried out in 2020 can be found in the annual report for the initiative at www. climateaction100.org

AP2 and Ohman are in dialogue with AB Volvo, which is one of the companies in Climate Action 100+. In 2020, the company communicated that it has set scientific goals in line with the Paris Agreement, which means that the Group will be emission-free by 2050 at the latest. Volvo now supports the TCFD and will develop its disclosure and reporting in accordance with its recommendations.

Exercising voting rights at annual general meetings is another way of communicating with companies. In 2020, the Fund voted at 1 006 (865) foreign general meetings in 965 (842) companies in 35 (22) countries. Out of a total of 423 (309) shareholder proposals, 107 (57) were related to sustainability, 25 (18) per cent. In the area of sustainability, 24 (27) proposals were related to climate (climate-related disclosures, proposals for climate action or renewable energy). Political measures are required to keep the global temperature increase in line with the requirements of the Paris Agreement. Many of the dialogues that AP2 participates in with climate decision-makers are conducted in collaboration with other investors through the Institutional Investor Group on Climate Change (IIGCC).

The organisation is working to make investor engagement in climate-related issues clear for decision-makers and to communicate investors’ demands for policy measures. Among other things, the IIGCC and a number of other investor organisations have jointly published Global Investor Statement to Governments on Climate Change, which describes how investors can contribute and what investors expect of governments. More than 630 investors have signed this document.

In May, AP2 and 176 other investors signed an open letter to EU leaders with recommendations aimed at supporting a sustainable economic recovery after COVID-19. They call for the EU to create a recovery that prioritises climate action critical to meeting the Paris Agreement’s net zero emissions goal by 2050.

Another example of a dialogue with decision-makers is an initiative led by Storebrand. At the end of June, AP2 and just over 30 other investors wrote an open letter to the Brazilian embassies in the investors’ home countries expressing concern about the increasing deforestation of the Amazon and its negative effects on the climate, biodiversity and the rights of the indigenous population. The initiative has attracted considerable attention, not least in Brazil. In July, the investors, including AP2, met with parts of the Brazilian government, the vice-president, and the spokesperson and representatives of the Congress. At these meetings, the investors presented five issues that they want addressed and significantly improved: 1) a radical reduction in the rate of deforestation, 2) that existing protection legislation is actually applied, 3) that the authorities in Brazil that monitor environmental issues and human rights are given funds and the opportunity to promote their mandate, 4) that measures are taken to reduce the risk of a recurrence of the major forest fires in 2019, and 5) improved access to transparent data on deforestation and supply chains, which makes it possible to monitor developments. This initiative has now been formalised as a project within PRI, Investors Policy Dialogue on Deforestation in Brazil.

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

The Fund Executive Management, together with the head of the strategy department and the Fund’s senior sustainability analyst, are responsible for the strategic sustainability work and for implementation and follow-up. The day-to-day work is handled by the Fund’s various departments. Sustainability aspects are integrated in the Fund’s business plans.

AP2 works to make ESG information more accessible. The Fund has developed a tool (through Power Business Intelligence) to make climate-related risks into the organisation’s overall risk management. ESG data are now available in the Fund’s risk system to enable analyses of the sustainability performance of the Fund’s portfolio. Carbon footprint data have also been available since 2019 on a daily basis for the internally listed equity mandates.

The Fund is in the process of developing metrics that will enable the sustainability performance of the Fund’s strategic portfolio to be evaluated against the base portfolio, which is the benchmark index for the Fund’s strategic portfolio’s financial evaluation.

**Future work**

The Risk Management department’s priority goal in 2021 is to develop its analysis of sustainability risks. The Fund plans to work on scenario analysis to identify climate-related risks and opportunities, and continue to seek relevant ways of identifying, assessing and managing climate-related risks in the organisation’s overall risk management. AP2’s dialogues with companies will be continuing throughout 2021, including through the Climate Action 100+ initiative.
### TABLE 1A EXAMPLES OF POTENTIAL TRANSITION RISKS (ADAPTED FROM THE TCFD)

<table>
<thead>
<tr>
<th>Transition risks</th>
<th>Potential financial impacts on companies</th>
<th>Potential financial impact on 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 prices for greenhouse gas emissions.</td>
<td></td>
</tr>
<tr>
<td>• Enhanced emissions-reporting obligations</td>
<td>• Greater requirements for emissions reporting.</td>
<td>Higher price for carbon, climate regulations and reporting is generally speaking financially positive for AP2 as a universal owner. If the cost of carbon is internalised, this results in a more effective market.</td>
</tr>
<tr>
<td>• Mandates on and regulation of existing products and services</td>
<td>• Higher requirements/regulations for existing products and services.</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>• Exposure to litigation</td>
<td>• Exposure to legal processes (lawsuits).</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></td>
</tr>
<tr>
<td>• Unsuccessful investment in new technologies</td>
<td>• Reduced demand for products and services.</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>• Costs to transition to lower emissions technology</td>
<td>• Research and development (R&amp;D) expenditures in new and alternative technologies.</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><strong>Market</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Changing customer behavior</td>
<td>• Capital investments in technology development.</td>
<td></td>
</tr>
<tr>
<td>• Uncertainty in market signals</td>
<td>• Costs to adopt/deploy new practices and processes.</td>
<td></td>
</tr>
<tr>
<td>• Increased cost of raw materials</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></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></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></td>
</tr>
<tr>
<td>• Stigmatization of sector</td>
<td>• Demand for goods/services.</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>• Increased stakeholder concern or negative stakeholder feedback</td>
<td>• Production capacity (e.g. delayed planning approvals, supply chain interruptions).</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>PHYSICAL CLIMATE RISKS</td>
<td>Potential financial impacts on companies</td>
<td>Potential financial impacts on AP2</td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td>• Increased severity of extreme weather events such as cyclones and floods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduced revenue and higher costs from negative impacts on workforce (e.g., health, safety, absenteeism).</td>
<td></td>
</tr>
<tr>
<td></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></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>
<tr>
<td><strong>Chronic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Changes in precipitation patterns and extreme variability in weather patterns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Rising mean temperatures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Rising sea levels</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physical climate-related risks may have a potential impact on all classes of asset, but the asset classes in which physical climate-related risks (both acute and systematic) are greatest are traditional real estate, timberland and farmland.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physical climate-related risks are important to AP2’s investments in CatBonds.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physical climate risks for companies in which AP2 has invested.</td>
<td></td>
</tr>
</tbody>
</table>
## TABLE 2 EXAMPLES OF POTENTIAL CLIMATE-RELATED OPPORTUNITIES (ADAPTED FROM THE TCFD)

<table>
<thead>
<tr>
<th>CLIMATE-RELATED OPPORTUNITIES</th>
<th>Potential financial impacts on companies</th>
<th>Potential financial impacts on AP2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resource efficiency</strong></td>
<td></td>
<td></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>
<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 production and distribution processes</td>
<td>• Increased production capacity, resulting in increased revenues.</td>
<td></td>
</tr>
<tr>
<td>Use of recycling</td>
<td>• Increased value of fixed assets (e.g., highly rated energy-efficient buildings).</td>
<td></td>
</tr>
<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>
<td></td>
</tr>
<tr>
<td>Reduced water usage and consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Energy source</strong></td>
<td></td>
<td></td>
</tr>
<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>
<td></td>
</tr>
<tr>
<td>Use of new technologies</td>
<td>• Reduced exposure to GHG emissions and therefore less sensitivity to changes in cost of carbon.</td>
<td></td>
</tr>
<tr>
<td>Participation in carbon market</td>
<td>• Returns on investment in low-emission technology.</td>
<td></td>
</tr>
<tr>
<td>Shift toward decentralized energy generation</td>
<td>• Increased capital availability (e.g., as more investors favour 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>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift in consumer preferences</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Markets</strong></td>
<td></td>
<td></td>
</tr>
<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>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Resilience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation in renewable energy programs and adoption of energy-efficient 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 discloses the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

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

AP2 is developing its portfolio in line with the Paris Agreement with the aim of having a net zero portfolio by 2045. The Fund has also implemented indices for global equities and corporate bonds in accordance with the EU Paris-Aligned Benchmark (PAB) criteria, which are based on the UN’s Intergovernmental Panel on Climate Change’s 1.5°C scenario with limited overshoot.

In order to meet the requirements of the Paris Agreement, the companies must reduce their total emissions and become less carbon intensive. The Fund helps increase transparency by measuring and disclosing the companies’ contributions to the change in the investment portfolios’ carbon footprint. If more investors start to disclose this, it will hopefully exert more pressure on the companies to report carbon dioxide data and to reduce their emissions.

EU Paris-Aligned Benchmark

Now that AP2 has implemented its own indices in accordance with the EU’s framework for Paris-Aligned Benchmark (PAB), where the companies’ carbon intensity is normalised using a debt-adjusted market value (EVIC, Enterprise Value Including Cash), AP2 will use carbon footprint based on this intensity to ensure that the portfolio is developing in line with the Paris Agreement. In addition to Scope 1 and Scope 2, Scope 3 is also included in the calculation of this carbon footprint. Scope 3 is included for the sectors where it is prescribed, currently companies in the energy, chemicals and mining sectors.

A company’s carbon intensity is the number of carbon dioxide equivalents produced in tonnes normalised using a financial metric (e.g. market value, sales, assets, etc.). The aim is to reflect the company’s (in)efficiency in terms of emissions. The PAB framework advocates using a debt-adjusted market value (EVIC, Enterprise Value Including Cash) as a financial metric, which means that the carbon intensity is emissions in relation to total financing (equities and loans). This can be seen as both shareholders and lenders assuming responsibility for the emissions generated by the company.

An investor’s carbon footprint is obtained by multiplying the carbon intensity by the amount invested in the company (equities plus bonds).

Graph 1 on page 18 shows the carbon footprint for the portfolios which are adapted to the framework and for the corresponding market-weighted index. The curve shows an annual decrease of seven percent. The portfolios must be below this curve to meet EU PAB requirements.

Graph 2 shows the total carbon footprint for the adapted portfolios in 2020, what the corresponding portfolios had at the end of 2019, and what footprint an investment of the
same amount would have produced in a market-weighted index. Here, the carbon footprint is calculated on Scope 1-3 and it can be seen that the footprint has fallen significantly.

Graph 3 shows a attribution of the causes of the change in carbon footprint between 2019 and 2020 for the portfolios for global equities and corporate bonds in accordance with PAB’s metrics. This also includes equity mandates that have not implemented PAB’s framework, such as Swedish equities. The graph shows that the majority of the reduction is due to changes in the Fund’s holdings.

The companies’ are also contributing to the reduction.

**Fossil reserves**

AP2 has compiled the Fund’s exposure to the companies’ reserves in coal, oil and gas, from 31 December 2018 to 31 December 2020, based on the following metrics for the listed equity portfolio:
- Number of companies with fossil reserves
- AP2’s share of the companies’ fossil reserves
- AP2’s share of the reserves’ potential carbon emissions.

In this context, it is important to know that the term ‘resources’ is used for how much coal/oil/gas is estimated to be in the ground. Reserves are how much is expected to be economically possible to extract given the prevailing economic and technological conditions. Reserves are usually classified into three levels: proved, probable and possible reserves. Proved reserves are expected to be commercially viable, and the probability is 90 per cent that the quantities will be equal to or greater than the estimate. Probable reserves are less likely to be developed commercially, and the probability is 50 per cent that the quantities will be equal to or greater than the estimate. Possible reserves are assets that are least likely to be recovered, and the probability is 10 per cent that the quantities will be equal to or greater than the estimate.

AP2 has used data from MSCI ESG Manager. For coal, there is data for proved and probable reserves, including both thermal and metallurgical coal. (Thermal coal is primarily used as fuel to produce electricity and metallurgical coal is used as an input in the manufacture of steel.) For oil and gas, there is data for proved and probable reserves, including both thermal and metallurgical coal.

AP2 has compiled the Fund’s exposure to the companies’ reserves in coal, oil and gas, from 31 December 2018 to 31 December 2020, based on the following metrics for the listed equity portfolio:
- Number of companies with fossil reserves
- AP2’s share of the companies’ fossil reserves
- AP2’s share of the reserves’ potential carbon emissions.

In this context, it is important to know that the term ‘resources’ is used for how much coal/oil/gas is estimated to be in the ground. Reserves are how much is expected to be economically possible to extract given the prevailing economic and technological conditions. Reserves are usually classified into three levels: proved, probable and possible reserves. Proved reserves are expected to be commercially viable, and the probability is 90 per cent that the quantities will be equal to or greater than the estimate. Probable reserves are less likely to be developed commercially, and the probability is 50 per cent that the quantities will be equal to or greater than the estimate. Possible reserves are assets that are least likely to be recovered, and the probability is 10 per cent that the quantities will be equal to or greater than the estimate.

AP2 has used data from MSCI ESG Manager. For coal, there is data for proved and probable reserves, including both thermal and metallurgical coal. (Thermal coal is primarily used as fuel to produce electricity and metallurgical coal is used as an input in the manufacture of steel.) For oil and gas, there is data for proved and probable reserves.
### AP2’s Exposure to Fossil Reserves

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2019</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of companies with coal reserves</td>
<td>6</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>Number of companies with oil and gas reserves</td>
<td>10</td>
<td>61</td>
<td>65</td>
</tr>
<tr>
<td>AP2’s share of the holdings’ reserves in coal (million tonnes)</td>
<td>0.3</td>
<td>1.8</td>
<td>4.4</td>
</tr>
<tr>
<td>AP2’s share of the holdings’ reserves in oil and gas (mmboe)</td>
<td>0.6</td>
<td>15.7</td>
<td>17.8</td>
</tr>
<tr>
<td>AP2’s share of the holdings’ potential CO2 emissions from reserves in coal, oil and gas (MtCO2)</td>
<td>0.9</td>
<td>10.0</td>
<td>15.8</td>
</tr>
</tbody>
</table>

### COVID-19 has no impact on the carbon footprint for the year

Emissions of carbon dioxide have decreased significantly during the COVID-19 pandemic. According to the International Energy Agency, global carbon emissions decreased by five per cent in the first quarter of 2020, and emissions are expected to fall by around eight per cent for the whole of 2020 compared to 2019. However, this decrease will not appear in the Fund’s carbon footprint reporting until the 2021 Annual Report. Since companies report their carbon dioxide emissions annually, there is a delay before changes in emissions are seen in the portfolios’ carbon footprint.

### Disclosure Regarding Greenhouse Gas (GHG) Emissions: Scope 1, Scope 2 and, if Appropriate, Scope 3 and the Related Risks

AP2’s annual carbon footprint for portfolio holdings as of 31 December is calculated using the latest available carbon dioxide data for the companies’ direct emissions (Scope 1) and indirect emissions from energy (Scope 2). AP2 calculates and reports the carbon footprint for its listed equity portfolios on the basis of ownership share for metrics 1, 2 and 3. Portfolio weighting is used for metric 4. Exposure to carbon risk is reported using four metrics:

1. **Total carbon emissions**
   - Total of owned share of the portfolio companies’ respective carbon dioxide emissions.

2. **Relative carbon emissions**
   - Total of owned share of the portfolio companies’ respective carbon emissions in relation to the portfolio’s market value.

3. **Carbon intensity**
   - Total of owned share of the portfolio companies’ respective carbon emissions in relation to the total of owned share of the portfolio companies’ turnover.

4. **Portfolio-weighted carbon intensity (TCFD)**
   - The metric adds together the portfolio companies’ respective carbon intensity, i.e., a company’s carbon emissions in relation to its turnover, weighted according to each individual company’s share of the portfolio.

In 2019, the AP Funds agreed to also report the change in the carbon emissions of the equity portfolios. Changes in the carbon footprint of the AP Funds’ portfolios can be caused by two factors: changes to the portfolio holdings and a change in the companies’ carbon emissions. It has not previously been possible to discern the causes of change in the carbon footprint. The AP Funds have now expanded their disclosure and reported in 2019, for the first time, changes over time for Total carbon emissions and Portfolio-weighted carbon intensity. These are calculated using the formulas given on AP2’s website. More information about carbon footprints and formulae for other metrics are also available on the website.

### Listed Equities

AP2 has been reporting the carbon footprint of the listed equity portfolio each year since 2014. The AP Funds all agreed in 2015 to use the same methodology and metrics and then selected three metrics for carbon footprints that are all based on the funds’ ownership share.

To be in line with the TCFD recommendations, the AP Funds’ 2017 reporting also included carbon intensity as a weighted average, as this is the metric recommended by the TCFD. The carbon footprint in AP2’s equity portfolio continues to shrink. Total carbon emissions fell by 23 per cent between 2019 and 2020. The change in holdings led to a 24 percentage point decrease, while the companies contributed a one percentage point increase. The portfolio-weighted carbon intensity decreased by 7 per cent and changes in holdings contributed to the entire change.

Overall, the four metrics for the listed equity portfolio in 2020 show that AP2 is continuing to reduce its carbon footprint and exposure to carbon-intensive companies. The new metrics that show change in carbon emissions clearly demonstrate that the reduction is caused by changes in the Fund’s holdings, not by actual reductions in emissions from the companies’ activities. When the Fund calculated the carbon footprint for the year, it reported a decrease of 10 per cent compared to the previous year.
change with the metric used in the PAB framework, the companies contributed to the reduction, which is shown in graph 3 on page 18.

**Other asset classes**

AP2's ambition is to be able eventually to present a carbon footprint that includes all asset classes. For 2020, the Fund has calculated the carbon footprint from listed equities, global corporate bonds, part of timberland and farmland real estates, and traditional real estate. This means that 66 (56) per cent of AP2's fund capital is measured according to a carbon dioxide indicator.

AP2's non-listed real estate companies have a carbon intensity of 0.6 tCO₂e/SEK million based on market value. The reduction in carbon intensity is primarily due to the increase in market valuation. The carbon intensity is 0.04 tonnes/m². The energy intensity is 149 kWh/m².

The Fund and its timberland managers are in dialogue on calculation of carbon storage and carbon emissions. Two of the Fund's managers, New Forests and Nuveen, have calculated the total carbon sequestration in their forests. AP2's share of the carbon sequestration is 12.3 (10.5) million tonnes of CO₂e.

During the year, AP2's farmland managers have calculated the investments' carbon footprint. This type of calculation is complex and the choice of method is subject to academic debate. Following discussions with leading industry experts and academic institutions, a method has been developed. This is based on direct inflows and outflows (e.g. fuel, fertilizer, chemicals and harvest) for the land and includes 70 different factors.

---

### CARBON FOOTPRINT OF THE LISTED EQUITY PORTFOLIO, SCOPE 1 AND 2

<table>
<thead>
<tr>
<th>Metrics</th>
<th>2020</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Total carbon emissions (million tCO₂e)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>1.35</td>
<td>1.74</td>
</tr>
<tr>
<td>Developed markets</td>
<td>0.08</td>
<td>0.13</td>
</tr>
<tr>
<td>Emerging markets</td>
<td>0.53</td>
<td>0.66</td>
</tr>
<tr>
<td>Change in the portfolio’s total carbon emissions from the previous year (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– of which the change related to changes in the portfolio’s holdings (% units)</td>
<td>–23</td>
<td></td>
</tr>
<tr>
<td>– of which the change related to changes in the companies’ emissions (% units)</td>
<td>–24</td>
<td></td>
</tr>
<tr>
<td><strong>2. Relative carbon emissions (tCO₂e/MSEK)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>8.20</td>
<td>11.52</td>
</tr>
<tr>
<td>Developed markets</td>
<td>2.28</td>
<td>3.93</td>
</tr>
<tr>
<td>Emerging markets</td>
<td>6.92</td>
<td>9.34</td>
</tr>
<tr>
<td><strong>3. Carbon intensity (tCO₂e/MSEK)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>11.50</td>
<td>13.25</td>
</tr>
<tr>
<td>Developed markets</td>
<td>5.45</td>
<td>7.21</td>
</tr>
<tr>
<td>Emerging markets</td>
<td>10.21</td>
<td>11.55</td>
</tr>
<tr>
<td><strong>4. Portfolio-weighted carbon intensity (TCFD)(tCO₂e/MSEK)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>17.38</td>
<td>20.21</td>
</tr>
<tr>
<td>Developed markets</td>
<td>13.78</td>
<td>15.20</td>
</tr>
<tr>
<td>Emerging markets</td>
<td>20.35</td>
<td>23.13</td>
</tr>
<tr>
<td>Change in the portfolio’s carbon intensity (TCFD) from the previous year (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– of which the change related to changes in the portfolio’s holdings (% units)</td>
<td>–15</td>
<td></td>
</tr>
<tr>
<td>– of which the change related to changes in the companies’ emissions (% units)</td>
<td>–15</td>
<td></td>
</tr>
<tr>
<td>Market value of the Fund’s portfolio covered by CO₂e data (SEK billion)</td>
<td>164</td>
<td>151</td>
</tr>
<tr>
<td>Proportion of the share capital for which data is available (%)</td>
<td>96</td>
<td>94</td>
</tr>
</tbody>
</table>

Carbon dioxide measurements as from and including 2020 are based on a broader universe of carbon dioxide data and a refined method of estimating carbon emissions for non-reporting companies. The carbon dioxide measurements for 2019 presented here have been recalculated to facilitate comparison with 2020. Carbon dioxide data reported for previous years is not directly comparable.

1. Total carbon emissions. Total of owned share of the portfolio companies’ individual carbon emissions.
2. Relative carbon emissions. Total of owned share of portfolio companies’ individual carbon emissions in relation to the portfolio’s market value.
3. Carbon intensity. Total of owned share of portfolio companies’ individual carbon emissions in relation to the total of owned share of the portfolio companies’ turnover.
4. Portfolio-weighted carbon intensity (TCFD). The metric adds together the individual carbon intensity of each portfolio company, i.e. a company’s carbon emissions in relation to turnover, weighted according to each individual company’s share of the portfolio.

The formulae for the above indicators are available on the Fund’s website.

CO₂e (carbon dioxide equivalent) is a unit of measurement that makes it possible to compare the climate impact of different greenhouse gases.
production systems with combinations of region, type of crop and production method. Emissions are then calculated for each production system and added up to a total figure for the portfolio.

The farmlands’ carbon sequestration is also calculated, but only for the Brazilian farmlands and the large areas set aside for conservation purposes, i.e. Permanent Protection Areas (PPA) and Legal Reserves (LR). AP2’s share of carbon emissions amounts to 69 000 tonnes of CO₂e annually and AP2’s share of carbon sequestration is 6.6 million tonnes of CO₂e.

The targets used by the organisation to manage climate-related risks and opportunities and performance against targets
AP2’s vision is World-class management. To foster the achievement of this vision, asset management is working actively to integrate sustainability into analysis and investment processes. The Fund’s objective is to have a portfolio in line with the Paris Agreement and reach net zero emissions by 2045. The TCFD recommendations are seen as a tool for supporting the Fund’s operationalisation of its climate ambition.

AP2 is committed to improving risk disclosure at mandate, asset class and fund level. To enable the financial impact of divestment decisions to be monitored, AP2’s performance department has developed a methodology for comparing the return for MSCI World Developed Markets and MSCI Emerging Markets, excluding and including the divested companies. As AP2 has implemented Paris-Aligned Benchmark, this yield analysis ends.

The contribution to returns from the divested companies that are included in MSCI World DM was, following their exclusion from index, positive at 3.78 per cent from autumn 2014 until 1 December 2020. At this date, these divestments represented 0.96 per cent of MSCI World DM.

The contribution to returns from the divested companies that are included in MSCI EM was, following their exclusion from index, positive at 1.13 per cent from autumn 2014 until 1 December 2020. The divestments represented 0.89 per cent of MSCI EM.

The graphs below illustrate the contribution to returns from coal, oil, gas and coal-based electricity production. The divestments from oil and gas companies in developed markets (MSCI World DM) have contributed most to return. In emerging markets (MSCI EM), divestments from power companies delivered the largest contribution to returns.

Financial contributions of the divestments

To monitor the financial contributions of the divestments, AP2 has developed a methodology for comparing the returns for MSCI World Developed Markets and MSCI Emerging Markets, excluding and including the divested companies. As AP2 has implemented Paris-Aligned Benchmark, this yield analysis ends.

The contribution to returns from the divested companies that are included in MSCI World DM was, following their exclusion from index, positive at 3.78 per cent from autumn 2014 until 1 December 2020. At this date, these divestments represented 0.96 per cent of MSCI World DM.

The graphs below illustrate the contribution to returns from coal, oil, gas and coal-based electricity production. The divestments from oil and gas companies in developed markets (MSCI World DM) have contributed most to return. In emerging markets (MSCI EM), divestments from power companies delivered the largest contribution to returns.
Annex 1

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

**Governance**

Disclose the organisation'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.
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. For AP2 as an asset owner it means that risks and opportunities shall be identified and described based on the Fund’s investment strategy.

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.

2. Organizations should consider providing a description of their risks and opportunities by sector and/or geography, as appropriate. 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.

c) **Describe the resilience of the organization’s strategy, taking into consideration different climate related scenarios, including a 2°C or lower scenario.**

1. Organizations should describe how resilient their strategies are to climate-related risks and opportunities, taking into consideration a transition to a lower-carbon economy consistent with a 2°C or lower scenario and, where relevant to the organization, scenarios consistent with increased physical climate-related risks.
2. Organizations should consider discussing:
   i) Where they believe their strategies may be affected by climate-related risks and opportunities.
   ii) How their strategies might change to address such potential risks and opportunities.
   iii) The climate-related scenarios and associated time horizon(s) considered.
3. Asset owners that perform scenario analysis should consider providing a discussion of how climate-related scenarios are used, such as to inform investments in specific assets.

**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. 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 invested 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.
4. Where relevant, organizations should provide their internal carbon prices as well as climate-related opportunity metrics such as revenue from products and services designed for a lower-carbon economy. 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 climate-related metrics.
5. Asset owners should describe metrics used to assess climate-related risks and opportunities in each fund or investment strategy. Where relevant, asset owners should consider describing whether and how related, generally accepted industry-specific GHG efficiency ratios.

b) Greenhouse gas (GHG) emissions reporting: Scope 1, Scope 2 and, if appropriate, Scope 3 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.

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.