2019 Report on the Management of Climate-Related Opportunities and Risks

Bern, 30 June 2020
Table of contents

1 Introduction ............................................................................................................................. 3
2 PUBLICA’s sustainability policy ............................................................................................. 3
3 TCFD framework .................................................................................................................... 5
   3.1 Governance: how management deals with climate-related opportunities and risks .... 5
   3.2 Strategy: the influence of climate opportunities and risks on the business model ...... 6
   3.3 Risk Management: process for identifying, assessing and steering climate risks ...... 10
   3.4 Metrics and Targets ...................................................................................................... 12
4 Conclusion ............................................................................................................................. 23
5 Glossary ................................................................................................................................. 24
1 Introduction

Climate change, along with the associated opportunities and risks for the economy and society, has become increasingly prominent in the public consciousness since the Paris Agreement of December 2015. It is now recognised that climate change entails a financial risk that investors cannot afford to ignore. The scientific facts from climate research also leave little room for doubt about the existence of global warming due to greenhouse gas emissions and their potential impact on economic actors.¹ One central issue is that the risks of climate change cannot be diversified, and therefore cannot be completely eliminated from portfolios. However, it is possible to reduce their sensitivity to them, by identifying various impacts of climate risks on asset classes, regions and sectors. Transparent and standardised reporting of climate-related opportunities and risks is essential. PUBLICA therefore bases its reporting on the framework set out by the Task Force on Climate-related Financial Disclosures (TCFD) (see point 3).

Since 2015, the potential impact of climate change on PUBLICA’s assets has been analysed regularly. In view of the breadth and complexity of the potential effects of climate change on investments, PUBLICA has in recent years adopted a series of measures to reduce these risks. For example, the Audit Committee and Investment Committee decided to publish a first report on the climate-related opportunities and risks for the assets in PUBLICA’s portfolio in 2020. The climate compatibility of the equity and corporate bond portfolios is analysed using open-source software from PACTA and climate-specific metrics for equity investments from MSCI. PUBLICA uses its own surveys and measurements for directly held real estate in Switzerland. The reporting is revised every year and expanded when needed.

2 PUBLICA’s sustainability policy

Analysing climate-related opportunities and risks is part of PUBLICA’s sustainability policy, which was adopted by the Board of Directors in May 2019.² The distinguishing features of PUBLICA’s sustainability approach are as follows:

1. It is formulated in a holistic fashion, so that as far as possible all asset classes can be taken into account.
2. It is integrated into and thus forms part of the investment process.
3. It is based on objective criteria.
4. It is transparent and comprehensible.

PUBLICA’s sustainability approach takes account of the sustainability strategies set out in the following diagram:

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¹ For example the publications of the Intergovernmental Panel on Climate Change (IPCC) at https://www.ipcc.ch/reports/
Exercising shareholder rights
PUBLICA assumes its responsibilities as an owner on two different levels. Voting rights in companies listed in Switzerland are exercised, while PUBLICA seeks dialogue (engagement) with selected firms in Switzerland and abroad.

In 2019 PUBLICA exercised its voting rights in line with the long-term interests of the shareholders at 42 annual general meetings. Inrate AG conducted dialogues with various Swiss firms on PUBLICA’s behalf. The main topics discussed included green products and services, presenteeism, human rights, ESG criteria in the remuneration system, and the competencies of the board of directors. The Swiss Association for Responsible Investments (SVVK-ASIR) conducts climate-specific dialogues with foreign steel and construction materials companies on behalf of its members.

Integration into the securities portfolio
Integration into the securities portfolio is effected partly by regularly reviewing the investments on the basis of objective criteria and excluding the companies that do not meet PUBLICA’s normative requirements (negative criteria).

Additionally, each year, difficult-to-quantify environmental, social and governance (ESG) risks are prioritised and subjected to an in-depth analysis, which examines risks that could have a significant financial impact on individual companies or sectors.

At present, positive criteria are chiefly taken into account – directly in the financial analysis – where infrastructure bonds are concerned. For example, investments in the coal industry are avoided and preference is given to investments in renewable energy sources, such as wind farms and photovoltaic installations, where these offer the same risk/return conditions.

Integration into direct real estate investments
Real estate is responsible for around 33% of all CO₂ emissions and around 40% of energy consumption worldwide. PUBLICA’s Swiss real estate portfolio is made up of high-quality, mostly recently built properties (three-quarters were constructed after 2000). As part of institutionalised risk management, environmental
considerations are factored into both strategic and operational decision-making in every phase of the properties’ life cycle. Where economically viable and technically feasible, measures are taken to reduce CO₂ emissions by using energy-efficient heating systems, insulating the building shell or installing alternative energy supply systems. Other aspects, such as power-efficient lighting systems, the use of native flora and raising tenants’ awareness of resource conservation, are also taken into account.³

3 TCFD framework
TCFD was set up in 2015 by the Financial Stability Board (FSB)⁴ with the aim of promoting a standard for climate-related corporate reporting. PUBLICA supports the highest possible degree of transparency in climate-related metrics as a way to improve understanding of financial and physical climate risks for companies and investors. The TCFD recommendations are a useful tool for companies and investors to present climate-specific opportunities and risks in a structured and transparent manner. PUBLICA therefore bases this reporting on the TCFD framework, which covers four areas:
- Governance, section 3.1
- Strategy, section 3.2
- Risk Management, section 3.3
- Metrics and Targets, section Fehler! Verweisquelle konnte nicht gefunden werden.

3.1 Governance:⁵ how management deals with climate-related opportunities and risks
The Swiss Federal Pension Fund PUBLICA is an independent, public-law pension institution. Its supreme management body is the Board of Directors, which supervises and oversees PUBLICA’s operations and is also responsible for, inter alia, issuing and amending the Investment Guidelines and determining the strategic asset allocation. The Investment Committee advises the Board of Directors on investment-related issues and monitors compliance with the Investment Guidelines and strategic asset allocation, while the Audit Committee deals mainly with issues of finance, accounting and risk management. The Executive Board is responsible for the operational strategy and management of PUBLICA. It strives to ensure that the strategic objectives are met and that PUBLICA is successful. This section describes the ways in which these management levels deal with climate-related opportunities and risks.

Board of Directors
PUBLICA invests exclusively in the interest of its active members and pension recipients. Using appropriate risk limitation strategies, it aims to generate a market return that safeguards benefits in the long term. The Investment Guidelines stipulate that ecological, ethical and social aspects should be factored in, as long as they do not impede fulfilment of the pension objectives.

The Board of Directors adopted the Responsible Investment Policy in 2015 and also approved the foundation of the Swiss Association for Responsible Investments, SVVK-ASIR. Under its Articles of Association,

⁴ This organisation was set up in 2009 as a successor to the Financial Stability Forum, which was itself established by the G7 finance ministers in 1999. The FSB’s mandate is to promote financial stability in the global economy. Switzerland is a member of the FSB.
⁵ PUBLICA’s organisational chart can be downloaded at https://publica.ch/_file/5040/organigramm-sammeleinrichtung-e.pdf
SVVK-ASIR provides “services to its members that enable them to take full account of environmental, social and economic responsibilities when making their investment decisions.” These also include climate-related opportunities and risks for investors. In March 2019, SVVK-ASIR published a position paper on the Paris Agreement containing recommended actions for its members. During a two-day closed meeting in January 2019, the Board of Directors addressed the topic of sustainability in depth, and instructed Asset Management to revise the Responsible Investment Policy. The new version was approved by the Board of Directors in May 2019. Beginning in 2020, regular reporting on detailed climate-specific metrics for equity portfolios is carried out.

Investment Committee

The Investment Committee discusses and prioritises difficult-to-quantify ESG risks on an annual basis. Climate-related risks were prioritised for the first time in 2015 and most recently identified as a significant financial risk for PUBLICA’s portfolio in 2019. In December 2019, following in-depth discussions, the Committee decided to develop and implement a climate-efficient equity index for all the equity portfolios. The members of the Board of Directors were updated on this project in a timely manner and at the appropriate level by the Chair of the Investment Committee.

Audit Committee

In September 2019 the Audit Committee decided to expand the sustainability reporting. It now provides for regular analysis of the equity and corporate bond portfolios using the PACTA open-source software and metrics from MSCI for the newly developed climate-efficient indices.

Executive Board

The Executive Board is responsible for sustainability in PUBLICA’s operations and is regularly updated about the prioritisation of ESG risks among the investments. During 2019 it presented and discussed the ESG risk analysis as well as the reporting on climate risks and the development of climate-efficient equity indices. A detailed operational sustainability report, which also addresses climate-related issues, is compiled once a year for approval by the Executive Board.

3.2 Strategy: the influence of climate opportunities and risks on the business model

PUBLICA distinguishes between responsible action in operations and responsible investment of assets.

PUBLICA’s operations

The fundamental principles of responsible action in PUBLICA’s operations are as follows:

1. PUBLICA promotes awareness of social, ecological and economic responsibility within the company and among partners.
2. PUBLICA acts in a considered and prudent way, managing social, natural and financial resources in a responsible manner.
3. PUBLICA assumes responsibility for actions taken and actions not taken.
4. PUBLICA ensures transparency with regard to its responsible actions.

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The Executive Board has defined the following four main areas: education, health, natural resources and energy (efficiency). The last of these includes actions to measure and reduce energy consumption and obtain power from renewable energy sources. The defined actions are monitored and summarised in PUBLICA’s annual, internal sustainability report.

PUBLICA’s investments
PUBLICA incorporates sustainability into its investment activities through what it terms a “responsible investment” approach. PUBLICA invests responsibly by integrating ESG criteria into its investment process, meaning that it explicitly takes account of environmental, social and governance issues when implementing its strategic asset allocations. Climate-related opportunities and risks are a central component of these ESG criteria. The various measures in connection with PUBLICA’s investment activities are described below.

Strategic asset allocation
The Board of Directors has decided to exclude from PUBLICA’s portfolio any companies that develop, produce, distribute or store products that violate current international conventions ratified by Switzerland or Swiss law. To this end, a product-based screening is carried out semi-annually by SVVK-ASIR to identify companies with undesirable products. PUBLICA attaches importance to the most precise possible interpretation of these “negative criteria” and is guided by the practice of comparable institutional investors in Switzerland and abroad. At the end of 2019, 17 listed and 81 non-listed companies were on SVVK-ASIR’s exclusion list.

The Investment Committee decided in 2015 to exclude coal-producing companies from all the equity and corporate bond portfolios. This move was prompted by the financial risks of investments in coal companies, which have less scope to adapt their business models and could therefore be more heavily impacted by the potential taxation of carbon emissions.

The strategic allocation of 3.5% to infrastructure bonds serves partly to secure greater risk diversification, and partly to make the portfolio more robust in respect of climate risks by, for example, directly funding renewable energy projects. The portfolio includes wind farms, photovoltaic installations and hydroelectric power stations (projects).

Example 1: Solar farm in the UK with a total output of 39 MW AC, supplying electricity to around 14,000 households.
Example 2: Offshore wind farm in the UK with a total output of 1,200 MW AC. It is still under construction, but once complete will be the world’s largest offshore wind farm, supplying electricity to around a million households.

Engagement
For many years now, PUBLICA’s voting rights consultant for Swiss shares has also been mandated to conduct a dialogue with the largest Swiss companies, during which relevant ESG issues are addressed. In 2019, the following climate-risk-related areas were prioritised:

- Scope 3: Scope 3 emissions are more difficult to measure (especially in the supply chain and product utilisation) than scope 1 and scope 2 emissions. In some sectors they are also much higher than scope 1 and scope 2 emissions.
- Green products and services: adapting the business model and making the products and services offered more sustainable in order to drive new market potentials/innovations and avoid ecological and financial risks.

SVVK-ASIR conducts climate-specific dialogues with 20 companies from the steel and construction materials sectors on behalf of its members. The two industries have received less attention in the climate debate than others, even though they cause around 13% of greenhouse gas emissions worldwide. They face major challenges in managing emission reduction. In view of population growth and rapid urbanisation, however, it is imperative that these sectors ensure sustainable development. The engagement extends over a period of three years, during which the companies are expected to demonstrate how they plan to adapt to international disclosure standards and the 2°C climate goal, and how they will take account of the transition and physical risks of climate change using scientifically based objectives. The dialogue process takes place in five clearly defined steps and is monitored. Companies where there has been no progress after a certain time are placed on the exclusion list, after a final appeal from SVVK-ASIR.

Real estate strategy
The real estate strategy adopted by the Investment Committee in August 2018 contains a separate chapter on sustainability. It states that “in the case of acquisitions, developments, new builds and major cyclical renovations, future-oriented environmental technologies and systems should be considered”. Where economically viable and technically feasible, they should be implemented.

7 A definition of scopes 1–3 can be found in the glossary.
Example 1: In St-Légier (canton of Vaud), a residential development comprising 152 apartments is to be completed by mid-2020. The properties are heated using borehole heat exchangers. Solar panels are also installed to generate electricity.

Example 2: The façade of a mixed-use property in Thun (canton of Bern) needed to be replaced. The option of installing a photovoltaic façade was considered. Because the façade surface was too small and the solution was not economically viable, it was decided not to proceed.

Other measures
The following additional measures were implemented:

- In the first half of 2016, the 2% allocation to commodity investments in the energy sector was disposed of in its entirety.
- To integrate ESG criteria into its traditional financial analysis, PUBLICA has for some years invested in green bonds in its corporate bond portfolios.
- PUBLICA took part in the initiatives supported by the Federal Office for the Environment to measure its CO2 footprint, and in the climate compatibility test conducted by the 2°C Investing Initiative. The results and measures were discussed in the Investment Committee and published in summary form on the PUBLICA website.
- PUBLICA took part in the WWF pension fund ratings in 2015 and 2018.

Planned measures
Until now, climate-related opportunities and risks have not flowed directly into the review of PUBLICA’s strategic asset allocations but have only – as described above – been included in their implementation. This will change when the regular ALM study is conducted in 2022. Climate scenarios in the form of sensitivity analyses will then be used when defining the strategic asset allocations.
In 2020, PUBLICA will take part in the climate compatibility analysis run by the FOEN. This will be conducted using a further development of the PACTA software, with Swiss real estate being taken into account as an asset class alongside equities and corporate bonds.

3.3 Risk Management: process for identifying, assessing and steering climate risks

Risk policy
The aim of the Regulations governing PUBLICA’s Risk Policy and Internal Control System approved by the Board of Directors is, according to Article 1:

a) to define the risk policy and the principles for its implementation;

b) to lay down the principles of the internal control system and its monitoring by the bodies responsible.

According to Article 12 of the Regulations, the potential consequences of ESG risks are assessed periodically. An annual report from the Executive Board to the Audit Committee documents the operational implementation of the risk policy and internal control system. The risk steering report mentions the associated risks where they are financially relevant to PUBLICA. PUBLICA’s risk management system is described in the Annual Report.

Annual ESG risk analysis
The annual ESG risk analysis process, which is first discussed in PUBLICA’s Executive Board and subsequently in the Investment Committee, consists of seven steps:

Step 1: Overview of ESG risks
A survey of the most important ESG risks is conducted once a year on the basis of various publications, such as the World Economic Forum’s Global Risks Report.

Step 2: Prioritising ESG risks
The general risks that are most severe in terms of their potential macroeconomic, social, geopolitical, ecological and technological impact are identified.

Step 3: Categorisation from PUBLICA’s perspective
The general risks identified are analysed in terms of their specific impact on PUBLICA’s portfolio and then prioritised.

Step 4: ESG issue recommendation
Asset Management proposes an in-depth analysis of one of the ESG risks that have emerged from this process.

Step 5: ESG issue analysis
Asset Management subjects the ESG risk defined by the Investment Committee to an in-depth analysis of its financial consequences for the portfolio. This also includes the formulation of recommendations for the Investment Committee.

Step 6: Decision on measures
Asset Management’s recommendations include potential measures. A decision on their implementation is taken by the Investment Committee.


Step 7: Implementation of measures

The measures adopted are implemented and reviewed periodically.

Diagram: ESG risk analysis 2019 – risks involving the greatest need for action from PUBLICA’s perspective

The issue analysed in 2015 was stranded assets. This analysis led in February 2016 to the exclusion of coal-producing companies from all the equity and corporate bond portfolios. This made PUBLICA the first public-law pension fund in Switzerland to exclude coal companies from its portfolios on grounds of risk. The in-depth analysis in 2017 focused on the prioritised topic of cyber risks while in 2018 the theme was once again climate change. The latter led to the development of a climate-efficient equity index that was approved at the end of 2019 and given the go-ahead for implementation at the start of 2020.

PUBLICA’s ESG risk analysis process is published on the website publica.ch. The measures implemented so far in connection with the analysis and identification of climate-related opportunities and risks are illustrated in the “Climate change” section.10

Real estate: object strategy

Climate efficiency is an integral part of the object analysis and strategy. The strategy is reviewed annually for every property. An institutionalised analysis is employed to assess the structural and technical condition of the buildings and define potential improvement measures. This potential is analysed in greater depth as part

10 See https://publica.ch/en/investments/responsible-investment/climate-change
of a multi-year planning process. Where the assumptions are confirmed and the investments are economically viable and technically feasible, they are implemented.

**Right of veto over infrastructure bonds**

The investment process for infrastructure bonds includes a right of veto for PUBLICA, allowing it to halt funding for infrastructure projects that involve undesired risks, including climate risks. The veto in respect of climate risks has already been exercised in the past. In the North America region, for example, PUBLICA decided not to finance a pipeline intended to transport bitumen. The key factors driving this decision were the adverse impact on the natural and human environment and the associated financial risks. The adverse impact is a consequence of large-scale forest clearance and the vast consumption of energy and water needed to extract and process oil.

**3.4 Metrics and Targets**

**PUBLICA’s operations**

PUBLICA measures relevant operational consumption variables and publishes the results in detail in an internal sustainability report. An overview of the estimated CO₂ emissions per full-time equivalent position shows the following trend:

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Energy consumption</td>
<td>kg CO₂/FTE</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Paper consumption</td>
<td>kg CO₂/FTE</td>
<td>63</td>
<td>60</td>
</tr>
<tr>
<td>Business flights</td>
<td>kg CO₂/FTE</td>
<td>530</td>
<td>465</td>
</tr>
<tr>
<td>District heating</td>
<td>kg CO₂/FTE</td>
<td>469</td>
<td>502</td>
</tr>
<tr>
<td>Commuter travel (estimate based on FSO surveys)</td>
<td>kg CO₂/FTE</td>
<td>659</td>
<td>661</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>kg CO₂/FTE</td>
<td><strong>1,745</strong></td>
<td><strong>1,711</strong></td>
</tr>
</tbody>
</table>

Source: PUBLICA Operations sustainability report, Federal Statistical Office (information on commuter travel)

The table shows that the figures have fallen slightly overall. The reason for the increase in district heating is the higher number of frost days, of which there were far fewer in winter 2018 (34) than in winter 2019 (63).

**PUBLICA’s investments**

**Climate compatibility of equities and corporate bonds, PACTA analyses**

Climate compatibility analysis is a future-oriented method of assessing the equity and corporate bond portfolios in terms of their compatibility with the goal of limiting greenhouse gas emissions in accordance with the Paris Agreement. This aims to achieve a maximum increase in average global temperature of less than 2 degrees Celsius compared with pre-industrial levels. To achieve this goal, the 187 states that have ratified the Agreement have undertaken to adopt and implement measures to reduce greenhouse gas emissions. These are based on the calculations of international organisations such as the International Energy Agency IEA, which forecasts the future capacities of fossil and renewable energy sources under various scenarios.
Report on the Management of Climate-Related Opportunities and Risks

Chart: Trends in greenhouse gas emissions under various scenarios and drivers of the emission reductions required to achieve them (savings due to more efficient technologies such as LED lighting), rising proportion of renewable energies (wind, solar) and switching the energy mix for power generation from coal to gas, nuclear, etc. The Sustainable Development Scenario (SDS) corresponds to the goal of the Paris Agreement.


The IEA projections thus reveal how the various energy sources will be distributed across the energy, basic goods (mining companies) and utility (power generating companies) sectors in future. This, for example, allows the future energy mix to be replicated and compared with an existing portfolio of investments in utility companies.

Chart: Illustrative example of the future shares of various energy sources in a portfolio compared with the economy as a whole, the Paris Agreement (SDS-compatible Economy) and various companies (A–D).

Source: 2° Investing Initiative, PACTA 2020
These projections enable investors to assess how far their portfolio diverges from the energy mix necessary to achieve the goals of the Paris Agreement and where action is most needed. The example in the chart shows that the share of renewable energy sources in the current portfolio would need to be raised at the expense of other energy sources in order to be compatible with the Paris climate goal.

These analyses can be carried out using open-source software made freely available to all investors by the 2° Investing Initiative think tank (PACTA analysis, available from www.transitionmonitor.com). The project receives financial support from the Federal Office for the Environment (FOEN), the European Commission LIFE action grants, and the ClimateWorks Foundation. PUBLICA’s Investment Controller carries out this analysis annually for all equity and corporate bond portfolios, and offers an appraisal of the results in a report to the relevant bodies.

Climate compatibility analysis using the PACTA software
The report based on the PACTA analysis at the end of 2019 compares the orientation of PUBLICA’s portfolio with various scenarios. It is geared to the TCFD recommendations and subdivided into four areas:

Area 1: Current exposure of the overall portfolio at the end of December 2019

The charts below show the value of the investments in PUBLICA’s portfolio, broken down into sectors that, according to the PACTA analysis, are particularly exposed to the transition risks of climate change (fossil fuels, power, automotive, aviation and shipping, and cement and steel):

![chart showing sector exposure]

Source: PACTA 2° Scenario Analysis Report, June 2020

According to the PACTA analysis, the exposure of PUBLICA’s overall portfolio to sectors involving a transition risk is around 5% of total assets, and comes from the bonds and equities. Among the bonds, the largest exposure is to the fossil fuel, power and automotive sectors, while among the equities it is to fossil fuel, power, and the cement and steel sectors.

Area 2: Comparison of PUBLICA’s current exposure with global standard indices from MSCI for equities (MSCI ACWI) and bonds (Bloomberg Barclays Global Bond Index) at the end of December 2019 (where “portfolio” refers to PUBLICA’s corporate bond and equity portfolio)
The charts below show the allocation of the bond and equity portfolios to the three most important sectors with transition risks (fossil fuels, power, automotive). These sectors are responsible for between 70% and 90% of carbon emissions in a conventional portfolio. This percentage is broken down into sectors with lower carbon emissions (lighter colours) and higher carbon emissions (darker colours).  

According to PACTA, with the exception of the automotive sector in the equity segment, both PUBLICA’s corporate bond portfolio and its equity portfolio are less exposed to climate-relevant sectors than the market as a whole.

Area 3: Expected orientation of the corporate bond portfolios in five years’ time compared with various scenarios at the end of 2019

The following analyses simulate the trend over the next five years in relation to the International Energy Agency (IEA) climate scenarios. The solid blue line shows the trend in the installed capacity of the companies in the portfolio for each of the two fossil fuels – oil and gas – while the broken line represents the trend in global standard indices. In both cases, the simulated development is shown on the basis of the production plans published by the companies for the next five years. The green, yellow and red areas represent the various IEA climate change scenarios, with the green corresponding to the goals of the

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11 In accordance with PACTA, the charts on pages 15 and 16 are not based on the same sector classification. On page 15, the chart shows all companies in a “sector”, and on page 16, the production exposure charts only show the companies that actually produce.
Paris Agreement. In its analysis, PACTA concentrates on the fossil fuels, power and automotive sectors. The charts can be used to establish whether, according to their plans, the companies held in the portfolio have the production capacities over the next five years to meet the goals of the Paris Agreement (green area) or remain above them (red area). The trend of the portfolio (solid line) can be compared with that of the standard index (broken line).  

Fossil fuels and power generators, corporate bond portfolios, December 2019

![Graphs showing trajectories of oil, gas, and coal power capacity production](image)

Source: PACTA 2° Scenario Analysis Report, June 2020

In relation to oil production, the bond portfolio is aligned with the ≥ 3.2°C scenario, while in relation to gas production, it is aligned with the B2DS (≤ 1.75°C) scenario over the long term. In the case of power generating companies, PUBLICA’s bond portfolio in the gas and coal segment is aligned with the B2DS (≤ 1.75°C) scenario over the long term, and would already meet the climate goal today. According to the PACTA analysis, the trajectories in renewable energies and nuclear power, which are not shown in the charts above, equate to a degree of global warming that represents a deterioration of the current situation (≥ 3.2°C).

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12 These charts do not take account of the fact that, with the exception of the automotive sector, PUBLICA’s equity exposure to the climate-relevant sectors is lower. The starting point of the chart in each case is the current portfolio.
In relation to oil production, the equity portfolio is aligned with the ≥ 3.2°C scenario, while in relation to gas production, it is aligned with the ≥ 3.2°C scenario over the short term, but with the SDS scenario (≤ 2.0°C) in the long term. In both sectors, the equity portfolio is aligned with a comparable scenario to the market portfolio. According to the PACTA analysis, as regards power generating companies, the trends of the equity investments in renewable energies and nuclear power, which are not shown in the charts above, equate to a degree of global warming that represents a deterioration of the current situation (≥ 3.2°C). In relation to gas, the equity portfolio is aligned with the B2DS (≤ 1.75°C) scenario in the long term and would meet the climate goal. In relation to coal, it is aligned with the New Policies Scenario (NPS, ≤ 2.7°C).

PUBLICA’s investments in private infrastructure projects are not taken into account in the PACTA analysis. PUBLICA’s allocation to renewable energies (solar, wind and water) among the private investments is approximately 66 MW at the end of 2019 compared with 39 MW in the prior year.
Area 4: Expected orientation of the portfolio in five years – on the basis of the strategies published by the companies – compared with the situation at the end of 2019

The following charts show the expected future technology mix for the relevant CO₂-intensive sectors (fossil fuels production, power capacity and automotive production) at the end of 2024. The portfolio is compared with a corresponding portfolio (aligned with the Paris Agreement) and the market at the end of 2024.

### PUBLICA’s investments in private infrastructure debt

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</tr>
</thead>
<tbody>
<tr>
<td>Photovoltaic installations</td>
<td>MW</td>
<td>15</td>
<td>15</td>
<td>0%</td>
</tr>
<tr>
<td>Wind farms</td>
<td>MW</td>
<td>24</td>
<td>41</td>
<td>71%</td>
</tr>
<tr>
<td>Hydropower plants</td>
<td>MW</td>
<td>0</td>
<td>10</td>
<td>NA</td>
</tr>
<tr>
<td>Total renewable energies</td>
<td>MW</td>
<td>39</td>
<td>66</td>
<td>69%</td>
</tr>
<tr>
<td>Market value of renewable energy investments</td>
<td>CHF million</td>
<td>84</td>
<td>154</td>
<td>83%</td>
</tr>
</tbody>
</table>

Source: PUBLICA

### Source: PACTA 2° Scenario Analysis Report, June 2020

Aligned Port/Market = energy mix according to an SDS-compatible economy in 2024
As regards fossil fuel production in PUBLICA’s bond portfolio (chart top left), the gas sector is weighted lower than the climate-compatible (“aligned”) portfolio. On the assumption that PUBLICA’s overall portfolio remains unchanged, the bond portfolio will, at the end of 2024, have a slightly higher exposure to coal and lower exposure to renewable energies than the expected technology mix of the aligned portfolio within the power generating companies (chart top middle). As regards production of vehicles with internal combustion engines (chart top right), PUBLICA’s bond portfolio has a higher share than the aligned portfolio. Conversely, the expected production of electric motors is higher in PUBLICA’s portfolio than in its aligned counterpart.

PUBLICA’s equity portfolio roughly matches the aligned portfolio in terms of fossil fuels (chart bottom left), with the oil sector somewhat higher and the gas sector lower. As regards power generating companies, PUBLICA’s equity portfolio (chart bottom middle) has a slightly higher weighting of coal and a lower allocation to renewable energies in the forecast energy mix, compared with an aligned portfolio. The forecast weighting of hydropower is slightly above that of the aligned portfolio. As regards production of vehicles with internal combustion engines (chart bottom right), PUBLICA’s equity portfolio has a higher share than the aligned and market portfolios.

Overall assessment of the PACTA analysis
According to PACTA, with the exception of the automotive sector in the equity segment, PUBLICA’s corporate bond portfolio and equity portfolio are both less exposed to the climate-relevant sectors than the respective standard indices (MSCI ACWI for equities and Bloomberg Barclays Global Bond Index for bonds). The results of the PACTA analyses also reveal the sectors in which there are higher sensitivities to climate-related opportunities and risks. For example, the share of conventional internal combustion engines is too high in the transport sector, with automotive companies that do not have plans for electric and hybrid models the most affected.

PUBLICA’s new climate-efficient equity index, which is to be implemented by 2021, will reduce the sensitivity to CO₂-intensive companies. It is intended to improve climate efficiency by up to 50% over the equity portfolio as a whole without any expected deterioration in the risk/return ratio compared with the original equity index. Detailed information is available at publica.ch.

CO₂ footprint – equity investments
The climate metrics calculated by MSCI for PUBLICA’s equity investments are a snapshot of the greenhouse gas emissions for which the companies are responsible each year. The scope 1 and scope 2 emissions published by those companies are taken into account. These include those caused directly by the company (scope 1), for example the CO₂ emissions created in the production of consumer goods, and those caused indirectly (scope 2) by using the energy required to manufacture the goods, for example electricity or heat. Scope 3 emissions – those caused by the use of the consumer goods, such as CO₂ emissions by cars or aeroplanes – are not included in the MSCI metrics.

On the basis of the parameters recommended by TCFD, the following figures are calculated and published for PUBLICA.
**Weighted average CO2 intensity**

This metric is preferred by TCFD. It measures the average CO₂ intensity of the equity portfolio. A company’s emissions are calculated in relation to its revenue and then multiplied by the weighting in the equity portfolio. The advantages and disadvantages of this measurement method are:  
+ Because the stocks are weighted in relation to the overall portfolio, this metric can be applied across various asset classes.
+ The calculation is transparent and easy to communicate to investors.
+ The metric can also be used for portfolio analyses such as a company’s contribution to the CO₂ emissions of the overall portfolio.
- Outliers (very high values for a company) distort the metric.
- Because the metric is normalised using revenue rather than a physical metric, it tends to favour companies with high margins (and therefore high pricing levels) relative to their peers.

**Average CO₂ footprint**

This metric provides information on the CO₂ emissions of all the companies in the portfolio compared with the market value of the portfolio. It measures the total CO₂ emissions – weighted with the proportion of the company’s equities held by the investor – and normalises by the market value of the equity portfolio. The advantages and disadvantages of this measurement method are:  
+ Because it is normalised by the value of the overall portfolio, this metric can be used to compare with other portfolios or a benchmark.
+ Using the portfolio market value to normalise data is transparent and intuitive to investors.
+ The metric can also be used for portfolio analyses such as a company’s contribution to the CO₂ emissions of the overall portfolio.
- Various corporate data are not factored into the metric, in other words, no distinction is made between efficient and less efficient companies in terms of CO₂ emissions.
- The metric depends on changes in market capitalisation.
Assessment of the metrics
The CO₂ emissions of the equity investments have declined slightly year-on-year. These reductions are attributable to different weightings of companies and countries, as well as lower CO₂ intensities among the companies.

Climate-efficient equity index
With the progressive introduction of a climate-efficient equity index, PUBLICA has an effective steering tool for reducing the CO₂ sensitivities of the equity portfolio described above. This allows investments in companies with negative exposure to be underweighted while overweighting investments in companies that are best prepared for climate risks or have technologies and business models to reduce greenhouse gas emissions.¹⁶

PUBLICA’s climate-efficient index is based on three parameters:
- Parameter 1: The expected costs of taxation of CO₂ emissions over a 30-year period are compared with the company’s market capitalisation. This ratio acts as a risk measure for potential regulation to achieve the goals of the Paris Agreement.
- Parameter 2: This is based on an innovative patent analysis covering almost 100 million patents registered worldwide in more than 400 categories to reduce greenhouse gas emissions. The potential earnings over a 30-year period are simulated in relation to the company’s market capitalisation. This captures the opportunities that regulation opens up for innovative and adaptable companies.
- Parameter 3: Changes in climate increasingly lead to interruptions to business as well as damage to production facilities and office premises. Parameter 3 contains the expected costs consequent on this. Climate-related advantages such as higher crop yields due to milder temperatures are also taken into account. All a company’s locations are included when calculating parameter 3.

¹⁶ For more information on the index see publica.ch
The introduction of a climate-efficient equity index aims to achieve an improvement of up to 50% in each of the above parameters over the equity portfolio as a whole by the end of 2021, without any expected deterioration in the risk/return ratio compared with the original equity index.

**Real estate Switzerland**

PUBLICA holds a young and modern real estate portfolio in Switzerland. Major cyclical renovations are not required until the long term. However, PUBLICA aims to measure the CO₂ footprint of its buildings in order to implement an integrated sustainability strategy in its direct real estate investments in Switzerland as well. To this end, a project to gather energy consumption data is currently under way. The data (including CO₂ emissions) are now available for 90% of the properties. Full data will be collated in 2020 and compiled into a report. A reduction path will also be defined in 2020.

**Planned measures**

Over the next few years, PUBLICA will add additional climate-specific metrics to the data basis, which can then be used as a foundation for decision-making.
4 Conclusion

For some years now, PUBLICA has been working to factor climate risks into its asset management, with a view to reducing financial risks and increasing earnings. The TCFD recommendations are an aid to structuring this work. However, achieving full compliance with the TCFD recommendations and creating a portfolio that is fully in line with the Paris Agreement is a long-term project that will probably take a number of years to complete. PUBLICA aims to use the experience gained and findings obtained to advance all its sustainability strategies. It will work constantly to promote transparency, standardisation of data, processes and analytical methods, to enable climate-related risks and opportunities to be appraised better in future.
## 5 Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>ALM study</td>
<td>An analysis of the development of assets and liabilities over medium- to long-term time horizons of 4 to 10 years.</td>
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<td>Climate scenarios</td>
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<tr>
<td>• B2DS</td>
<td>• Beyond 2°C Scenario: A scenario corresponding to global warming of less than 2°C.</td>
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<tr>
<td>• SDS</td>
<td>• Sustainable Development Scenario: A scenario that assumes global warming of between 1.75°C and 2°C and takes account of other sustainability factors in addition to global warming.</td>
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<tr>
<td>• NPS</td>
<td>• New Policies Scenario: This scenario reflects the measures currently announced by the states in the Paris Agreement to reduce greenhouse gas emissions, and corresponds to global warming of 2.7°C by 2100.</td>
</tr>
<tr>
<td>• CPS</td>
<td>• Current Policies Scenario: This scenario comprises the measures taken to date to reduce greenhouse gas emissions, and assumes average global warming of between 3°C and 3.5°C.</td>
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<tr>
<td>CO₂ emissions</td>
<td>Emissions that are generated when burning fossil fuels such as coal, oil and gas and enter the atmosphere; also known as greenhouse gases.</td>
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<tr>
<td>CO₂ footprint</td>
<td>A measure of the CO₂ emissions generated by a person, company or investor.</td>
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<tr>
<td>Green bonds</td>
<td>Bonds issued for specific investments in renewable energies or other environmental projects, which also have to document this fact.</td>
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<tr>
<td>Greenhouse gas emissions</td>
<td>See CO₂ emissions.</td>
</tr>
<tr>
<td>Intergovernmental Panel on Climate Change, IPCC</td>
<td>An organisation set up by the UN in 1988 to publish objective, broadly based information backed by science on the global warming caused by human beings, in the form of regular reports.</td>
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<tr>
<td>International Energy Agency IEA</td>
<td>Founded in 1974 by 16 industrialised nations, this international organisation aims to promote research, development and use of energy technologies with the goal of reducing dependency on oil.</td>
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<tr>
<td>Market portfolio</td>
<td>Portfolio of equities or corporate bonds that corresponds to the average investments held by all market participants. In respect of the PACTA analysis this means:</td>
</tr>
<tr>
<td></td>
<td>• Equities: MSCI Global Index</td>
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<td></td>
<td>• Corporate bonds: based on the universe of Bloomberg / Barclays indices</td>
</tr>
<tr>
<td>MSCI</td>
<td>Leading provider of equity indices.</td>
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<tr>
<td>Nationally Determined Contributions, NDC</td>
<td>The measures announced by governments at the Paris Agreement to reduce greenhouse gas emissions.</td>
</tr>
<tr>
<td>PACTA open-source software</td>
<td>Web-based application for calculating the climate compatibility of equity and corporate bond portfolios. It was developed by an independent think-tank and is available to investors free of charge.</td>
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<tr>
<td>Paris Agreement</td>
<td>An international agreement signed by 186 states in Paris in December 2015 by which they undertake to implement measures to reduce greenhouse gases, with the aim of limiting global warming to less than 1.5 degrees Celsius by 2050.</td>
</tr>
<tr>
<td>Scope 1–3 emissions</td>
<td>Scope 1 emissions CO₂ emissions caused directly by a company, for example through the production of consumer goods.</td>
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</tbody>
</table>
### Scope 2 emissions
- **CO₂ emissions** caused indirectly by a company, by using energy such as electricity and heat needed to manufacture a product.

### Scope 3 emissions
- **CO₂ emissions** caused by the use of consumer goods, for example by cars or aeroplanes.

### Swiss Association for Responsible Investments, SVVK-ASIR
- Established by seven large institutional investors in December 2015, this body aims to support its members in implementing their sustainability strategy.

### Task Force on Climate-related Financial Disclosures, TCFD
- A body set up in 2015 by the Financial Stability Board, which has a mandate to promote the financial stability of the global economy. Its recommendations are intended to encourage companies to voluntarily incorporate climate-specific data on a standardised basis in their financial reporting.

### Transition opportunities and risks
- Opportunities and risks created by regulations, incentives such as taxes, or subsidies.

### 2° Investing Initiative
- A think tank financially supported by the EU and Switzerland which has developed a method of measuring the climate compatibility of financial investments and makes it available as free software (see “PACTA open-source software”).

### 2° objective
- A goal set by the international community of limiting global warming to less than 2°C by 2100.