Climate Review 2022

OP Asset Management

OP

OP Fund Management Company Ltd has outsourced its investment activities mainly to OP Asset Management Ltd. OP cooperative banks distribute mutual funds of OP Fund Management Company Ltd. The portfolio manager for the funds is OP Asset Management Ltd or OP Real Estate Asset Management Ltd. OP Asset Management Ltd and OP Real Estate Asset Management Ltd have committed to carbon neutrality in their investment activities.

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Our commitment to The Paris Agreement

The sixth assessment report of the IPCC (Intergovernmental Panel on Climate Change) shows that achieving the goals of the Paris Climate Agreement requires rapid and significant reductions in greenhouse gas emissions in all areas of society and the economy. The UN Environment Fund estimates that global greenhouse gas emissions should decrease by 7.6% annually for next decade to meet 1.5°C Paris target. The challenge is not easy, given that in 2021 greenhouse gas emissions rose by 4.8% globally and it is estimated that the Earth's carbon budget (how much carbon dioxide can still be released into the atmosphere) will be reached with a high probability already in the next 9.5 years.

Global financial markets play an important role in tackling the climate challenge, as reaching the climate goals requires a long-term and efficient allocation of finance to environmentally friendly projects. The market for sustainable financial products has clearly grown, but the (private and public) flows of finance to fossil fuels still exceed the funding aimed at curbing climate change. When setting goals for the financial sector, it is essential to focus on concrete industry-specific emission reductions and transparency. The risks caused by climate change and their threat to financial market stability are already part of everyday risk management. Our ability to understand and manage these risks supports our investment goals.

OP Asset Management is committed to promoting the Paris climate goals and achieving carbon neutrality of its investments by 2050 at the latest. The concrete interim goal is to halve the aggregate carbon intensity of all OP funds by the end of 2030, compared to 2019 level. In its real estate investment activities, OP Real Estate aims for carbon-neutral energy use in its directly managed properties by 2030, and in addition, in real estate investment activities, the goal is carbon-neutral construction by 2050.

Each year we emit about 50 billion tCO_2e (tons of carbon dioxide equivalent) globally into the atmosphere. The energy sector plays a key role (73%) and breaking away from fossil fuels requires investments and finance. Increasing private and public climate finance and better targeting are prerequisites for fight against climate change and building climate security.

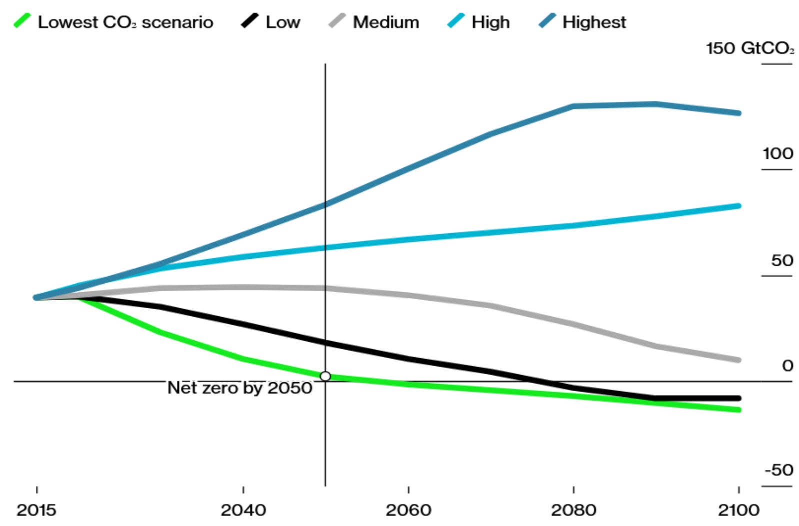
Climate targets, transparency and emission reductions

International initiatives and commitments are a way for different economic actors to reduce their carbon emissions voluntarily and transparently in line with the Paris Agreement. While the metrics and analysis have become more precise and the reporting requirements have increased, stakeholders' expectations for concrete reductions have grown. That is why it is important to be familiar with the right terms, metrics and reporting frameworks.

To implement the Paris Climate Agreement, it is essential to analyze global emission reductions using the definition by the IPCC. Carbon neutrality means that the same amount of CO_2 emissions, i.e. carbon dioxide emissions, are produced as they are sequestered from the atmosphere, in which case fossil carbon dioxide emissions are close to zero, and the remaining emissions are compensated, i.e. removed from the atmosphere by human activities. Carbon neutrality requires substantial investments in carbon sequestration, for example by taking carbon dioxide directly from the air or from the flue gases of energy production.

According to the IPCC's definition, net zero emissions mean that human-caused greenhouse gas emissions are as large as anthropogenic sinks, i.e. humans remove all the carbon dioxide they release from the atmosphere. This means cutting greenhouse gas emissions as close to zero as possible, with all remaining emissions absorbed back from the atmosphere, for example into oceans and forests. Net-zero is therefore also the most ambitious for companies.

In the graphic below Bloomberg Green has visualized the emission scenarios presented in the 6th assessment report of the International Panel on Climate Change (IPCC), which describes a wide range of alternative development trajectories for greenhouse gases, land use and air pollution. The IPCC report assesses the future climate by looking at five different greenhouse gas emission scenarios. According to the analysis, none of these projections are compatible with the global 1.5°C target, and current global climate action is likely to be in line with the IPCC's medium to high emissions projections, leading to 2.7°C and 3.6°C warming by 2100. According to the IPCC report, channeling funding to low-carbon technology and solutions has been slow, and the global lack of climate finance reflects how both public and private investments in fossil fuels have continued at high levels, despite promising commitments. Current situation is also well illustrated by the fact that the risk-return profile experienced by investors has remained stable

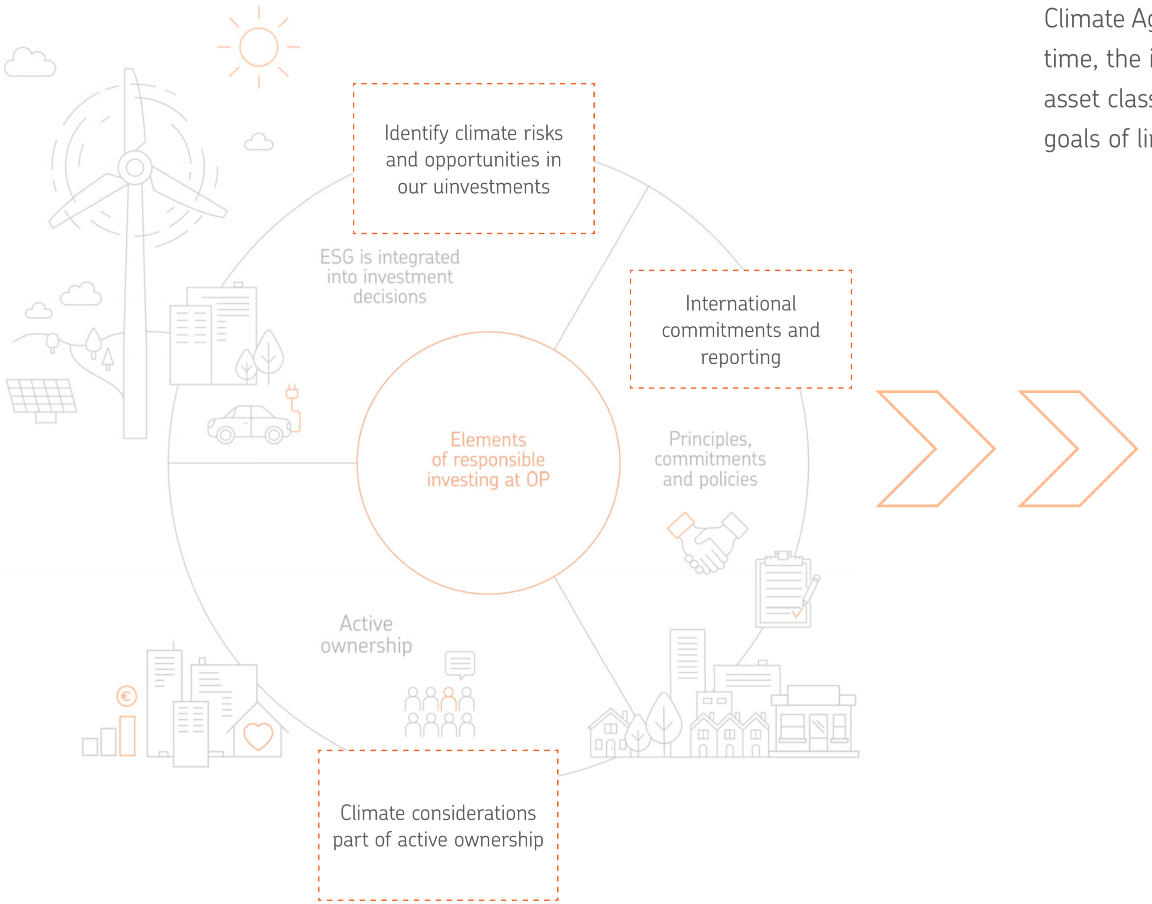


Source: Bloomberg Green (August 9, 2021) ja IPCC (2021)

OP Asset Management's roadmap towards net zero

Climate change is integrated into our Principles for Responsible Investment

Our responsible investment principles include the commitment to adapt our investments in accordance with the Paris Climate Agreement. This means that over time, the investment strategies of different asset classes must be consistent with the goals of limiting global warming below 2 °C, and as close as possible to 1.5 °C. Our goal is to both manage climate-related risks in our investments and to try to identify future opportunities and climate solutions. When choosing methods, it is essential to strive for real emission reductions.



How do we achieve carbon neutrality in our investments?

Commitments

We have joined the international Net Zero Asset Managers initiative, which reinforces our public commitment to aim for carbon neutrality by 2050 or sooner. As of June 2022, there are already 273 signatories with more than $61.3 trillion in assets under management. The goal is to increase transparency by reporting on the progress of the signatories' net zero goal and updating the goals regularly.

OP Financial Group has joined the financial industry's Partnership for Carbon Accounting Financials (PCAF). The partnership aims to develop and implement a harmonised approach to assessing and disclosing greenhouse gas emissions associated with partners' loans and investments.

Climate considerations in investment decisions

Improving the coverage of our analysis

Climate analysis in investment activities requires high-quality and comprehensive data. We have added climate indicators and key metrics, which enables, for example, modeling of the Paris Climate Agreement warming targets in the investment portfolio, using climate scenarios.

Our goal is to increase the coverage of the data, utilize scenario modeling for our funds, and initiate the work of extending the analysis to our unlisted and indirect investments.

In addition, we will set minimum targets for EU taxonomy compliance of investments.

Exclusions

We have currently excluded all direct, active investments in companies whose revenue depend on coal or coal-based energy for more than 20% of their turnover. In thematic and SFDR Article 8 funds, we apply stricter exclusions.

We are gradually phasing out coal by 2030 and will also update our guidance for other fossil fuels.

Climate engagement

We will update our active ownership policy to support voting with a stronger climate perspective. We will require that by the end of 2025, all investment with a high climate risk are subject to concrete engagement measures. These include either voting general meetings, direct dialogue, or a joint engagement initiative where we are actively involved for the company in question.

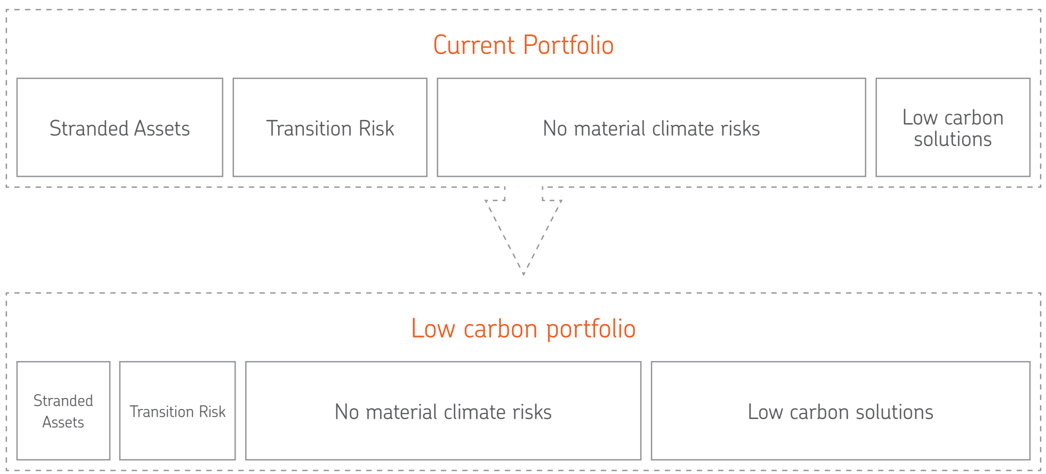
The goal of our engagement is that these high climate risk investments will have an emission reduction plan in line with the Paris Agreement.

Climate Risks in investment portfolios

Climate change has direct and indirect impacts on investments. The physical impacts of climate change cause risks that directly affect investments in both the short and long term (for example, floods caused by frequent heavy rains and erosion of coastal areas on the one hand). On the other hand, climate change causes indirect transition risks when the operating environment of companies changes as legislation and technology develop and climate change awareness increases in the activities of consumers and investors.

The climate effects and risks of investments can be measured with various indicators that describe e.g. companies' exposure to the physical risks of climate change and transition risks. The portfolio's climate risk can be influenced, for example, by emphasizing companies or industries whose carbon footprint or carbon intensity is small in relation to the industry. At the same time, for example, a company's ability to produce climate benefits and solutions tells about the company's goal to reduce its carbon footprint and thus its ability to manage long-term risks. In the low-carbon investment portfolio, the risks caused by climate change have been taken into account in the long term. In terms of calculations, the easiest way to get a carbon-neutral investment portfolio is to remove the most polluting companies. However, this does not lead to real emission reductions, and it is essential to be involved in making an impact so that the target companies in the portfolio commit to the emission reduction targets according to their industry.

In OP Asset Management, our portfolio manager have access to the most essential carbon metrics for identifying climate risks.



Climate as thematic investment

Investments in low-carbon solutions enable, through global value chains, real emission reductions even in industries where the transition to low-carbon technology is expensive and requires large investments, such as in the cement, steel, chemical industry and the transport industry. Value chains and circular economy solutions play a key role in emission reduction goals.

OP-Low Carbon World

OP-Low Carbon World offers an investment solution that is already low in carbon emission. In September 2022, the carbon intensity of the fund was only about 12% of the emissions of the global MSCI World index. The fund commits to keep the average carbon intensity below 50% compared to the average level of the global index. Those companies are selected for the fund, whose position is more attractive when legislation or market mechanisms encourage the reduction of greenhouse gas emissions. The fund avoids companies whose production results in high emissions relative to profits. Companies with exposure to fossil fuel and tobacco are completely excluded from the fund. The benchmark index of the fund is the MSCI ACWI Low Carbon Leaders Net index, whose carbon dioxide emissions are half that of the MSCI ACWI index.

OP-Climate

The fund belongs to group of the so-called responsible thematic funds, whose demand and the long-term commitment of our customers have increased in recent years. The benchmark index of the fund is the MSCI World Climate Paris Aligned index, which is committed to the greenhouse gas emission reduction goals in accordance with the Paris Climate Agreement.

OP-Climate invests its funds in innovative growth companies whose products and services offer solutions to curb global warming. Renewable energy, energy efficiency, energy storage and infrastructure, electrification, circular economy and technologies that optimize the use of natural resources are examples of climate solutions for investment opportunities. Many technology companies and renewable energy solutions, such as green vehicles, are already low-emission activities. On the other hand, other industries, such as multi-purpose energy companies and waste processing, have the potential to significantly reduce emissions, and we see that change as a positive investment opportunity. The fund does not invest in companies whose fossil business accounts for 50% or more of turnover.

Investing in energy transition is an essential part of OP-Climate's investment portfolio. For example, the German RWE AG is both fund's highest-emitting company and one of the most interesting investment targets. The company has significant and growing wind power production in Europe, low exposure to coal power and the company is not expensive like many other renewable energy companies. The company is committed to science-based climate goals according to the Paris Agreement, which are also in line with OP's 2030 intermediate climate goals. We engage with the company to monitor and ensure the commitment of the climate goals. Many of the fund's companies developing hydrogen energy, such as Linde and Air Liquide, also produce industrial gases and have relatively high emissions for the time being. In the future, hydrogen energy is expected to be of great importance as a substitute for fossil energy, for example in the high-emitting steel and other metal industries and in air traffic.

OP Finland Infra*

The fund invests broadly in domestic infrastructure, energy, environment, and telecommunications sectors. Energy transition, in particular creates new investment opportunities and traditional players are looking for new financing solutions. Analyzing and managing sustainability risks is part of the defining suitability criteria for each investment. Analysis focuses on stakeholder relations and quality of services, health and safety, carbon emissions and its targets, as well as pollution and waste management. In addition, energy sector investments consider also the future tightening of emissions permits and analyze the effects of climate change.

OP-Rental income

The fund invests its assets in rental apartments, offices and their construction in Finland. About half of the fund's investment portfolio is residential buildings. Using wood instead of concrete in structures is one of our ways to reduce emissions from construction. In wood construction, the material acts as a carbon store, as the carbon held by the wood remains in structures and furniture for a long time. In addition, wooden construction significantly reduces the consumption of non-renewable natural resources in the production of building materials. The fund has built wooden residential buildings, and in addition, many properties in the portfolio produce renewable energy.

*Only for professional investors.

Real estate and forests are part of the solution

The built environment accelerates climate change both through consuming energy and the extraction of natural raw materials. Real estate accounts for about 40 percent of Finland's energy consumption, and this causes more than 30 percent of our emissions. Up to half of the extraction of nature's virgin raw materials is used for construction and it has a significant impact on the loss of biodiversity. In addition, disrupting the natural ecosystem weakens nature's ability to regulate greenhouse gas emissions and protect against extreme weather conditions.

The challenge of real estate as part of the built environment is to try to imitate nature's carbon cycle, so that the carbon balance of the built environment is maintained in a similar way to that in nature. In nature, vegetation absorbs carbon from the atmosphere with the help of photosynthesis and stores it both in plants and in the soil. Vegetation, on the other hand, releases carbon into the atmosphere through respiration and decomposition.

A well-managed forest hold carbon dioxide, so the forest acts as a carbon storage. When forests grow more than the realized harvesting for forests, they act as growing carbon sinks. Forests play a key role in achieving Finland's carbon neutrality goals.

In the urban environment, carbon emissions originate from energy consumption, the use of raw materials and waste. Carbon can be sequestered by both natural and industrial processes. Natural processes mean securing vegetation and sequestering carbon in the soil. By holding carbon to structures, we are able to store it for a long time.

Investments in direct real estate and forest funds enable concrete actions to curb climate change. Continuing efforts for low-carbon solutions, circular economy and biodiversity aim for a steady return in forest investments, which comes from the growth of standing trees and the change in the value of the wood stock. In real estate investments, the corresponding environmental work aims to improve the value of real estate and the development of rental income from apartments and offices.

Climate commitments in Real Estate and Forestry portfolios

Commitments

OP Real Estate aims for carbon-neutral energy use in directly managed properties by 2030 and carbon-neutral construction by 2050. We have joined the World Green Building Council's zero carbon commitment "Net Zero Carbon Buildings" as well as the Net Zero Asset Managers Initiative. We are also committed to the Finnish Green Building Council's #Building Life -goal and prepared our action plan, which guides our carbon neutral business development.

We have joined RAKLI's energy saving target for 2017-2025, which aims to reduce the consumption by 7.5% compared to 2015. We already achieved this goal in December 2018 and the long-term work towards energy saving has been continued.

In 2020, we signed the Green Deal demolition mapping agreement between the Ministry of the Environment and RAKLI as one of the first companies in Finland.

We have prepared responsibility program for our forest investments, and our goal is to increase carbon sequestration in our forests and to protect and promote biodiversity. We are committed to afforesting wasteland, for example in agricultural lands where there is no more farming.

Concrete examples

Starting in 2020, the purchased electricity for all real estate investments is based on renewable energy. If it is possible to generate renewable energy directly at the investment site, it will be implemented. By the end of 2021, we had implemented 25 geothermal power plants and 40 solar power plants.

We monitor the carbon footprint of projects and promote low-carbon construction. We conduct an active dialogue with energy and construction companies about possible new solutions for energy production and low-carbon construction. By the end of 2021, we had implemented 42 wooden structures where the structures store carbon.

We promote the circular economy in both construction and in our procurements. We carry out conversion projects, where existing structures are used to develop the site for a new purpose, requiring significantly less new raw materials.

To improve forest growth, they are fertilized with wood ash, which does not cause water pollution. We restore wetlands to improve the biodiversity. We do not participate in the establishment of new peat production areas.

We have a positive attitude towards local nature conservation projects, such as water protection and the restoration of migratory fish habitats. In addition, we lease our forests for wind turbine use, thus promoting fossil free electricity production.

Climate metrics

The following section analyses the carbon metrics of OP funds over time and compares their development to globally diversified stock markets. Only those funds with data coverage of at least 50% are included in the analysis.

A portfolio's Weighted Average Carbon Intensity is estimated by calculating the carbon intensity (Scope 1 + 2 Emissions / $M Sales) for each portfolio company and calculating the weighted average by portfolio weight. The carbon intensity of the portfolio indicates how efficient the company is in regard to scope 1 and 2 CO_2e emissions in relation to its sales. The carbon intensity of OP Asset Management's investments has declined by 25% from the 2019 level. It is important to note that although the intensity of individual funds may decrease or increase from month to month and year to year, at the level of the entire portfolio, the long-term trend has been strongly downward, as we have developed our investment strategies focusing and using new ESG methods.

Transition risk estimates the financial impact of future carbon pricing scenarios. Earnings at risk is the weighted average Unpriced Carbon Costs as percent of EBITDA when the price of carbon rises in the Paris agreement scenario. OP's investments have a lower transition risk than the globally diversified reference portfolio. The physical risk of climate change helps investors understand the exposure of investments to the physical impacts of climate change, such as heat waves, cold spells, droughts, hurricanes, forest fires, and flooding of rivers and in coastal areas. OP's funds in total are slightly exposed to physical climate risks, in line with the reference portfolio.

With company-specific scenario modeling, it is possible to assess how companies' decisions and choices affect the development of their future emissions. The metric "investments in line with the Paris Climate Agreement" (%) describes the share of portfolio companies that are in line with the goals of the Paris Climate Agreement.

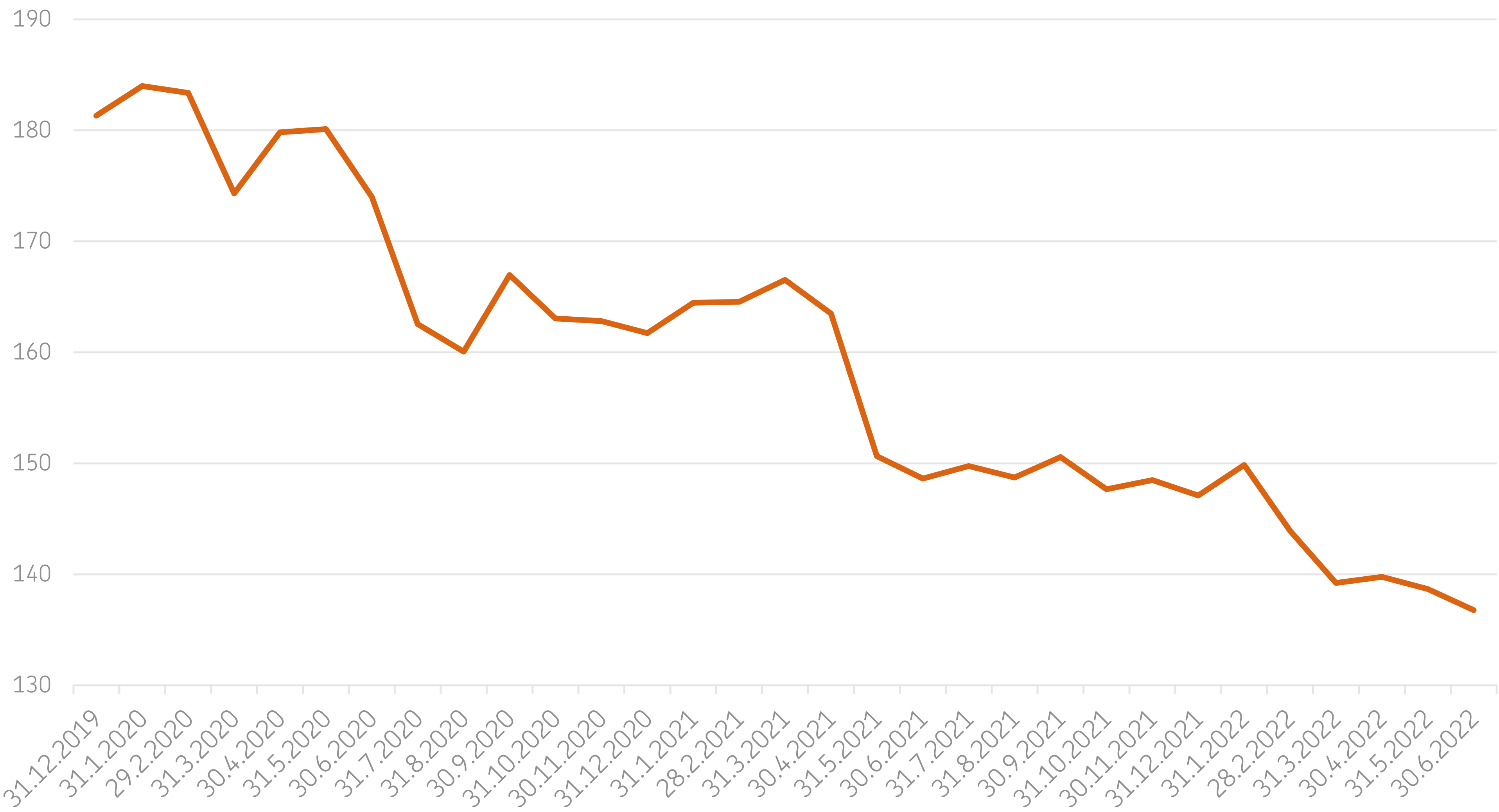
The analysis is forward-looking (2030) and uses company-specific scenario modeling (depending on the industry, the scenarios use the Sectoral Decarbonization Approach or the Greenhouse Gas Emissions per Value Added model). In general terms, by focusing portfolio's investments on companies that have set emission reduction targets in accordance with the Paris Agreement, we can manage fund's exposure to climate risks. At OP, the proportion of these investments is about 12% lower compared with globally diversified indices. The low-carbon transition score is a combination of the company's current low-carbon transition-related risks (carbon intensity) and its efforts to manage the risks and take advantage of the opportunities offered by the low-carbon transition. Result 6.2 shows that our funds are, on average, neutral with regard to the low-carbon transition.

When looking at the carbon metrics of an investment portfolio, it is important to analyze different metrics that together describe both the current and future risks of the portfolio companies (e.g. carbon intensity, physical risks, operating cost risks) as well as their opportunities to combat climate change (e.g. low-carbon transition plan). To put it simply, sometimes you invest in carbon intensive technologies to be able to reduce more carbon in the future. This can apply to e.g. wind power and electric vehicles, which are essential parts of the green transition but have employed energy-intensive technologies. Achieving net zero goals at the level of entire society depends on how well we increase funding for low-carbon solutions in areas with high carbon dioxide emissions, and at the same time direct funding away from activities that do not support the Paris climate goal.

	OP funds 2022 (H1)	Benchmark 2022
Carbon intensity*	137	174
Share of the investments in line with the Paris Climate Agreement (<2C) (%)**	43	48
Earnings at Risk (%)**	7,6	10,1
Physical Climate risks (score 1-100) **	25,0	26,9
Fossil Fuel Revenue (%)*	1,6	2,6
Low carbon transition score (score 1-10)*	6,1	6,0
Renewable energy revenue (%)*	1,3	0,8

* Data and analysis MSCI
** Data and analysis Trucost / S&P Global

Weighted average carbon intensity of all OP funds 31.12.2019-30.6.2022



Fund	Carbon intensity (tCO_2e/M USD)	Share of the investments in line with the Paris Climate Agreement (< 2°C) (%)	Earnings at Risk (%)	Low carbon transition score (1-10)	Physical Climate risks (1-100)	Fossil Fuel Revenue (%)	Renewable energy revenue (%)
OP-Asia Index	120,1	43,6	7,5	6,0	25,1	2,1	0,3
OP-America Value	122,6	59,7	6,6	6,0	26,7	4,0	0,2
OP-America Index	164,1	55,8	6,9	6,1	26,5	2,9	0,6
OP-America Growth	45,2	57,2	2,8	6,3	24,9	0,0	0,7
OP-America Quality	75,0	61,0	3,8	6,2	28,2	1,9	0,1
OP-America Small Cap	97,4	34,8	11,0	5,8	33,1	2,0	0,4
OP-America Low Volatility	231,0	58,1	9,3	6,1	29,7	1,7	0,7
OP-EMD Hard Currency Corporate IG	567,6			5,4		6,5	0,9
OP-Euro	81,9	37,7	6,7	6,2	20,3	0,8	1,1
OP-Europe Value	196,9	43,7	14,0	5,9	24,0	2,1	0,8
OP-Europe Index	97,7	57,3	6,3	6,1	22,1	1,3	1,5
OP-Europe Quality	141,3	49,5	8,1	6,0	24,8	1,0	1,7
OP- Rising Stars	128,9	51,6	11,0	6,1	25,3	1,8	1,1
OP-Dividend Company	116,1	54,7	8,2	6,0	24,7	1,9	0,7
OP-Europe Low Volatility	117,9	53,6	5,6	6,1	26,5	0,9	1,7
OP-High Yield	175,0			5,9		1,9	0,4
OP-High Yield America	260,0			5,1		4,0	1,6
OP-Climate	295,1	54,3	15,1	6,8	39,2	0,2	8,8
OP-India	456,9	47,2	8,3	6,1	29,1	0,0	0,0
OP-Japan	53,8		3,2	6,2	25,0	0,0	0,2
OP-Japan Stars	63,1		5,2	6,3	31,1	0,1	0,3
OP-Emerging Asia	247,8	19,6	9,3	6,1	28,0	5,2	0,3
OP-Emerging Markets Equity	392,0	41,1	11,9	6,0	30,0	1,9	0,9
OP-Sustainable World	53,7	59,3	3,4	6,4	20,0	0,0	0,2
OP-China	107,5	25,1	6,8	6,4	33,6	0,1	3,8
OP-Fixed Income Portfolio	320,3			5,8		3,9	0,6
OP-Yield	108,8	35,4	8,5	6,3	20,0	0,3	0,7
OP-Latin America	315,4	27,4	11,4	5,6	34,3	2,6	0,6
OP-World	127,4	53,1	17,3	6,1	25,5	1,9	0,7

Fund	Carbon intensity (tCO_2e/M USD)	Share of the investments in line with the Paris Climate Agreement (< 2°C) (%)	Earnings at Risk (%)	Low carbon transition score (1-10)	Physical Climate risks (1-100)	Fossil Fuel Revenue (%)	Renewable energy revenue (%)
OP-World Index	141,6	53,5	6,6	6,1	25,0	2,3	0,7
OP-Moderate	134,5	40,4	6,4	6,1	24,5	1,7	1,1
OP-Nordic Index	77,4	63,3	4,4	6,1	23,5	2,2	4,5
OP-Private Fixed Income Strategy	156,7			6,2		1,7	0,7
OP-Private Equity Strategy	127,4	51,7	6,3	6,1	26,1	1,9	1,2
OP-Private Strategy 25	145,0	31,8	5,7	6,1	23,0	1,8	0,9
OP-Private Strategy 50	137,3	39,0	6,1	6,1	24,8	1,9	1,0
OP-Private Strategy 75	130,7	46,4	6,3	6,1	25,8	1,9	1,2
OP-Clean Water	199,3	59,3	12,0	6,1	37,8	0,4	1,3
OP-Real Asset Companies	131,8	56,5	2,5	6,0	21,8	1,0	4,5
OP-Brave	133,5	47,7	6,9	6,1	25,8	1,9	1,3
OP-Finland	135,8	59,7	22,4	5,9	24,0	0,6	3,2
OP-Finland Index	107,6	55,5	15,0	6,1	23,3	0,3	2,1
OP-Finland Small Cap	69,1	59,6	7,0	6,2	27,6	0,0	3,0
OP-Tactical	135,2	45,2	18,6	6,1	24,1	1,8	1,0
OP-Target 2	77,8	31,9	11,6	6,3	17,8	0,4	1,1
OP-Target 3	73,9	47,0	3,1	6,3	22,6	0,6	1,9
OP-Target 4	115,3	53,3	5,0	6,2	23,0	1,2	0,8
OP-Conservative	135,6	32,0	5,5	6,1	22,1	1,5	0,9
OP-Emerging Middle Class	42,8	29,4	4,0	6,3	28,5	0,0	0,0
OP-Low Carbon World	25,4		2,3	6,3	24,5	0,0	0,0
OP-Corporate Bond	99,6	44,6	3,5	6,2	19,8	0,6	0,7
OP-US Corporate Bond	96,1	54,9	4,3	6,3	21,2	0,5	0,7

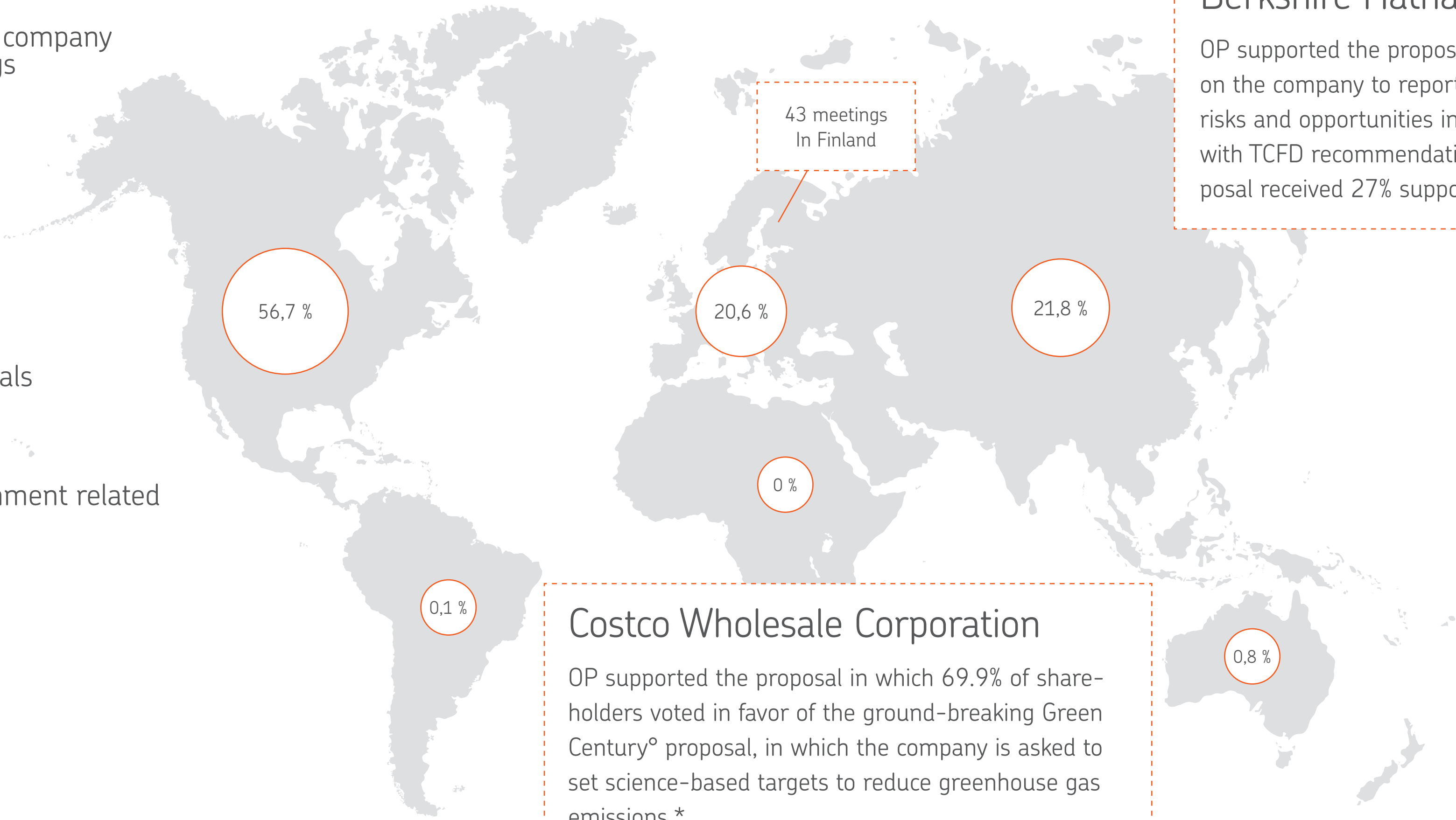
In the 2022 annual meeting season OP-funds supported climate considerations in 95 meetings

Foreign company meetings

1117
meetings

14 868
Shareholder proposals

111
Climate and environment related proposals



Berkshire Hathaway

OP supported the proposal, which called on the company to report on climate risks and opportunities in accordance with TCFD recommendations. The proposal received 27% support.*

Costco Wholesale Corporation

OP supported the proposal in which 69.9% of shareholders voted in favor of the ground-breaking Green Century° proposal, in which the company is asked to set science-based targets to reduce greenhouse gas emissions.*

*Proposals usually require at least 50% support in order to demand action from the company. However, even smaller numbers of support bring the message forward to the management and the board.