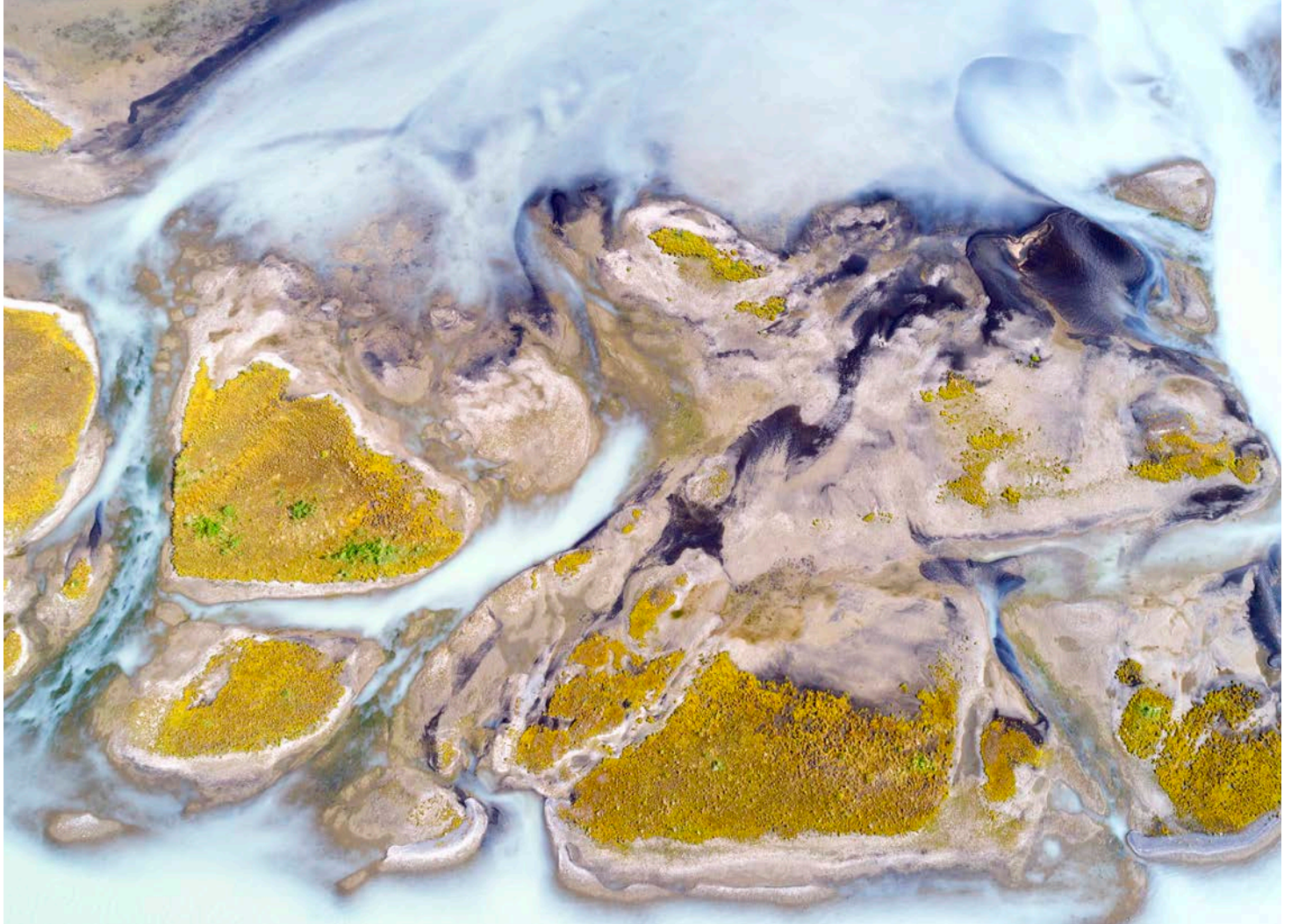


Becoming climate aware

Mobilizing capital to help meet climate change goals:
an investor's perspective

January 2020





A collective responsibility

At UBS, we realize there is an urgent need to create a more cohesive and sustainable world. Climate change and poor economic inclusion are two major challenges towards this objective. They both have a clear framework outlining the extent of the challenge and required action: the Paris Agreement, and the United Nations' Sustainable Development Goals (SDGs).

For the past three years we've presented white papers to the WEF putting forward recommendations for ways in which private capital can achieve the 17 SDGs¹, while also outlining our own actions and pledges in that regard. This year, our focus turns to the aims of the Paris Agreement and the orderly transition toward a lower-carbon world.

The risks of climate change are an integral element of the duty of care that financial institutions have toward their clients and beneficiaries. That's why this year's paper focuses on one of the four global challenges to be discussed at Davos: "How to address the urgent climate and environmental challenges that are harming our ecology and economy".

¹ 2017, *Mobilizing private wealth for public good*; 2018, *Partnership for the goals*; 2019, *Awareness, simplification and contribution*.



As with the SDGs, our aim is to be a leading financial provider in enabling investors to mobilize private and institutional capital targeting climate change mitigation and adaptation while supporting the transition to a low-carbon economy.

We're calling for collaboration across the public sector, business and academia to enhance and deepen the understanding of climate change. We invite the financial community to join us in developing solutions and approaches that help investors make climate-smart investments and close the climate finance gap. By partnering with industry bodies we seek to amplify our message: the time to act on climate is now.

A handwritten signature in black ink, appearing to read 'Axel Weber', written in a cursive style.

Axel A. Weber
Chairman of the Board of Directors

A handwritten signature in black ink, appearing to read 'Sergio P. Ermotti', written in a cursive style.

Sergio P. Ermotti
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How are investors tackling climate change? While many are concerned with climate change, the way they approach it can vary. As one of the world's largest wealth managers, we highlight their differing perspectives.

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Are you climate aware?

How should investors respond? We suggest an investor-led framework for addressing climate change. In this chapter, we outline a three step model that we believe will help investors:

- Lower their investment exposure to climate risk
- Increase their investment exposure to climate-related innovation and solutions
- Align their investments to the requirements of a lower-carbon economy

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Looking to the future

At UBS we're working toward a climate-smart future. That's why we're continuing to develop products and solutions which will help our clients to do the same.



Introduction

The climate challenge

Scientists warn that without urgent action, by 2100 our world will be warmer than at any other time in human history². If we don't act now, the result could be unprecedented and widespread environmental, societal and economic disruption.

Speaking at the opening ceremony of COP 25 in December 2019, Antonio Guterres, Secretary General of the United Nations, said:

"According to the latest Emissions Gap Report from the UN Environment Program, greenhouse gas emissions

have risen 1.5 percent per year over the last decade. At current trends, we're looking at global heating of between 3.4 and 3.9 degrees Celsius by the end of the century. The impact on all life on

1.5% 

Greenhouse gas emissions **have risen 1.5 percent per year** over the last decade

the planet – including ours – will be catastrophic. The only solution is rapid, ambitious, transformative action by all – governments, regions, cities, businesses and civil society, all working together toward a common goal."

As we approach the fifth anniversary of the Paris Agreement, whether or not its targets can be met remains unclear. Implementing current policies and commitments suggests average temperatures will increase 3°C by the end of this century. Do nothing and that figure rises to 4°C. Humans have never lived in a world so warm.

² IPCC, 2018: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. Masson-Delmotte, et al.



Right now, a vast gulf exists between the financial commitment needed and the amount of capital actually deployed.

But as scientific models improve, the predicted outcomes are becoming starker. Demands are growing for global warming to be held, not just at 2°C, but at 1.5°C by 2100³.

Achieving the Paris goals demands unprecedented levels of investment. But right now, a vast gulf exists between the financial commitment needed and the amount of capital actually deployed.

Climate and the business community

As one of the world's largest managers of private and institutional wealth, UBS

is committed to closing that climate finance gap. We believe we can do this in two ways: through our own actions, and by developing products and services that allow our clients to channel their capital toward a climate-smart future.

In 1989, UBS was the first Swiss bank to appoint an environmental officer to help focus on sustainability goals. Four years later we were one of the earliest signatories to the United Nations Environment Programme (UNEP FI), and in 2016 we became a member bank of the Task Force on Climate-related Financial Disclosures (TCFD).

Our Chairman is a signatory to the European Financial Services Round Table's statement in support of a strong, ambitious response to climate change. Also, our Group CEO is a member of the Alliance of CEO Climate Leaders, an informal network of CEOs convened by the World Economic Forum and committed to climate action. Our activities are underpinned by our climate strategy, designed to support our clients and our firm in preparing for an increasingly carbon constrained world.

Many clients share our climate commitment and want to use their capital in ways that can address a warming world. This was a key finding from a global survey of institutional asset owners that we conducted in 2019³. Most European investors said that within five years environmental factors could be playing a more important role in their investment processes than financial factors.

³ IPCC, 2018: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. Masson-Delmotte, et al.

⁴ ESG: Do you or Don't you? Responsible Investor and UBS Asset Management. June 2019.



Addressing the climate challenge

Against that backdrop this paper addresses two key questions:

1. Why are current investment levels so far short of what we need to reach the Paris Agreement goals? Many investors want to direct their capital toward a lower-carbon future. The existence of that shortfall has been widely discussed⁵, yet still it persists.
2. How can asset owners invest in a climate-smart future now? How do they integrate known climate risks within their investment decisions, identify and invest in products and solutions that can contribute to a lower-carbon world, while staying abreast of the regulatory and policy developments that could put the world on track to meet the goals of the Paris Agreement? In short, how do they align their investments to a climate-smart future?

We explore the underlying factors that we believe are hampering investors' ability to invest in a climate-smart way. In response, we propose a pragmatic, investor-led approach: one that goes beyond the de-carbonization of portfolios. One which recognizes that waiting for data to be perfected or legislation to be enacted only prolongs the delay, and placing faith in the emergence of economic growth with net negative CO₂ emissions could prove misplaced. This is an approach that helps investors to be forward-thinking, rather than rely solely on backward-looking data.

As we've shown in previous papers submitted to the WEF⁶, we believe that at the heart of any solution to the climate crisis sits the need for collaboration. That is why we highlight our own collaborations as well as our recommendations, and call for ever greater collective efforts from finance, business, academia and policymakers to secure the transition toward a lower-carbon world.

In this white paper we're recommending a response from investors. One that we believe carries the potential to harness the power of private capital, at scale, to more effectively tackle the challenges of a warming world.

We explore the underlying factors that we believe are hampering investors' ability to invest in a climate-smart way.

⁵ <https://climatepolicyinitiative.org/publication/global-climate-finance-2019/>

⁶ UBS: 2017, *Mobilizing private wealth for public good*; 2018, *Partnership for the goals*; 2019, *Awareness, simplification and contribution*.



Icebergs have two main impacts on climate. Iceberg production affects the mass balance of the parent ice sheets, and melting icebergs can influence both ocean structure and global sea level.



The great divide

The climate finance gap:
How much is enough?

What level of investment would be needed to meet the low-carbon transition?

There's a wide range of answers. As the Climate Policy Initiative (CPI) noted, "While there is no single estimate of the investment required to meet these goals [warming of 1.5°C], indicative, regional, and sectoral estimates show that the gap between existing investment and what is needed represents an order of magnitude. ... incremental increases in climate finance flows will not deliver on these objectives"⁷.

⁷ <https://climatepolicyinitiative.org/publication/global-climate-finance-2019/>



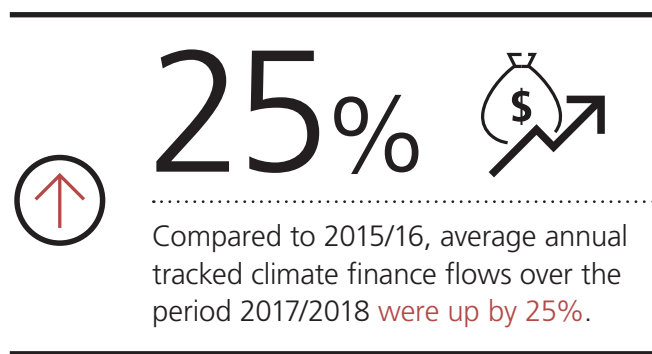
Various bodies have estimated how much expenditure different elements of the low-carbon transition might need.

1. Carbon Tracker, an independent financial think tank, calculated that the renewable energy opportunity could reach USD 1 trillion per annum⁸.
2. CPI estimates suggest that just to transition the supply-side energy systems could take an annual investment of USD 1.6 trillion – USD 3.8 trillion between 2016 and 2050⁹.
3. The International Energy Agency (IEA) Sustainable Development Scenario points to an investment of USD 1.6 trillion every year from 2025 to 2030¹⁰.

To fully de-carbonize, investments may need to be reallocated on an unprecedented scale

Across 2017 and 2018, total climate finance averaged just USD 579 billion¹¹. But just de-carbonizing one element of the mix – supply-side energy systems – means that level of investment needs to increase five-fold.

On the plus side, climate finance flows are rising. Average annual tracked climate finance flows over the period 2017/2018, represented an increase of USD 116 billion (25%) from 2015/2016. The rise reflected steady increases in financing across nearly all investor types¹².



⁸ <https://www.unpri.org/inevitable-policy-response/the-trillion-dollar-energy-windfall/4784.article>

⁹ <https://climatepolicyinitiative.org/publication/global-climate-finance-2019/>

¹⁰ <https://www.iea.org/reports/world-energy-model/sustainable-development-scenario>

¹¹ <https://climatepolicyinitiative.org/publication/global-climate-finance-2019/>

¹² <https://climatepolicyinitiative.org/publication/global-climate-finance-2019/>



In-need sectors project strong returns. But still investment levels are falling short

The fact that a climate finance gap exists seems paradoxical. In 2019, a comprehensive report from consultants Mercer modelled a wide range of outcomes arising from different climate scenarios. They concluded that investing for a 2°C scenario is both an imperative and an opportunity¹³:

- An imperative, since, for nearly all asset classes, regions and timeframes, a 2°C scenario leads to enhanced projected returns versus 3°C or 4°C and therefore a better outcome for investors
- An opportunity, because although incumbent industries can suffer losses in a 2°C scenario, a low-carbon transition still offers many notable investment opportunities.

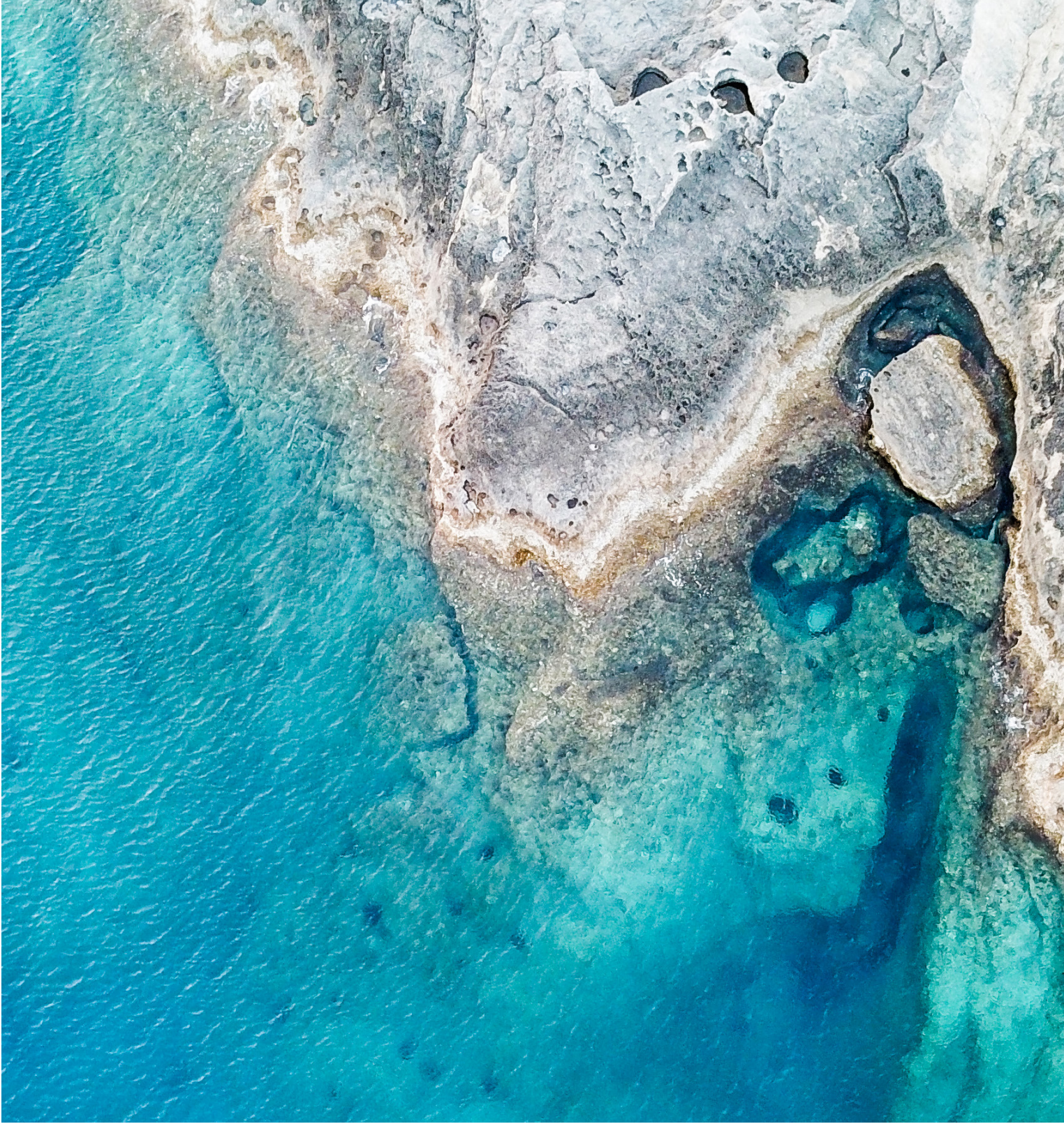
Unsurprisingly, Mercer found that a 2°C scenario would lead to positive returns for renewable energy investment, and negative returns for coal.

In 2019, UBS concluded an eighteen-month research project, *ESG: Do you or Don't you?* with Responsible Investor which surveyed institutional investors globally. One of the most revealing findings was the importance placed on environmental factors: the majority of European respondents believed that within the next five years, these could outstrip financial factors in terms of materiality for their investments.

A similar picture emerges among many wealth management clients. The UBS 2019 Global Family Office report revealed that among a range of investment trends, climate change is the single most supported cause, with 62% of respondents reporting that they have invested in one or more of the following: carbon footprint management, wind or solar energy.

In the next chapter, we explore some of the investment barriers which are contributing to this climate finance gap.

¹³ Source: Mercer "Investing in a time of climate change – the sequel", 2019



Climate change remains the most serious threat to the Great Barrier Reef. Sea temperatures are on the rise and this trend is expected to continue, leading to an increased risk of mass coral bleaching; gradual ocean acidification will increasingly restrict coral growth and survival.



The barriers to investment

What **climate challenges** do investors face?

Where's the risk?

The starting point for any investor thinking about climate change is the risk landscape. Broadly speaking, climate risks are thought of as either:

- **Physical:** the damage to business continuity, asset values and productivity caused by rising temperatures and the associated effects
- **Transitional:** the costs incurred in transitioning to a lower-carbon economy

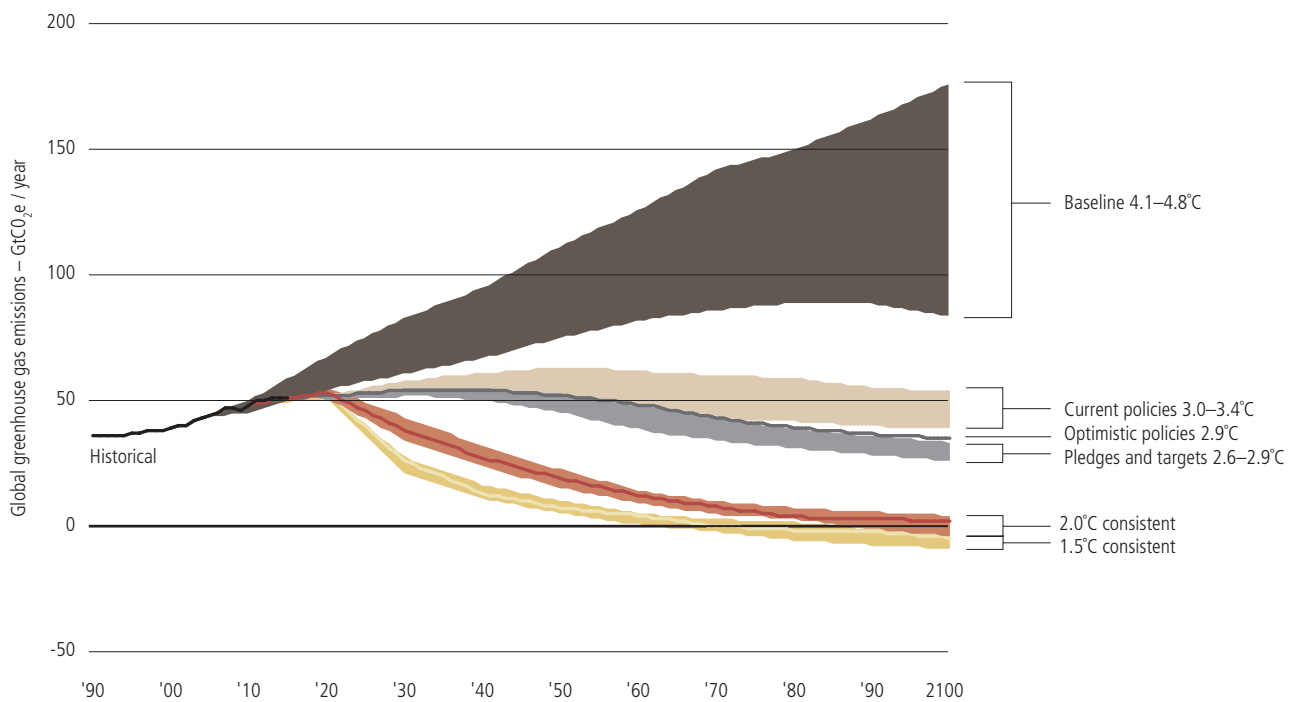
Climate-related risks

	Physical risks		Transition-related risks			
	Acute risks	Chronic risks	Policy and legal risks	Technology risks	Market risks	Reputation risks
Examples of potential risks	Increased risk of extreme weather events	Changes in climate and landscape, e.g. coastal areas or rain forests	Imposition of mitigation policies or regulation and exposure to litigation	Investment and transition costs to a low-carbon technology Uncertainty of investment decisions	Uncertainty regarding consumer behavior, market signals and supply chain	Stigmatization of industry Changes in consumer preferences and stakeholder expectations
Examples of possible financial implications	Reduced revenue from negative impacts on production facilities, sales and workforce Increased operating, capital and insurance costs, as well as asset depreciation due to damages		Increase in operating and/or litigation costs Forced capital depreciation due to policies	Value loss of existing assets Reduced demand for products and services Costs of developing and procuring new technology	Reduced demand Increased costs from unexpected market changes in supply chains	Reduced revenue due to decrease in demand, production, capital availability and employee attractiveness

Source: Adapted and simplified from Taskforce on Climate-related Financial Disclosure (2017a).

All institutional investors have an over-riding fiduciary duty to their beneficiaries: ensuring they promote and safeguard their interests.

2100 warming predictions

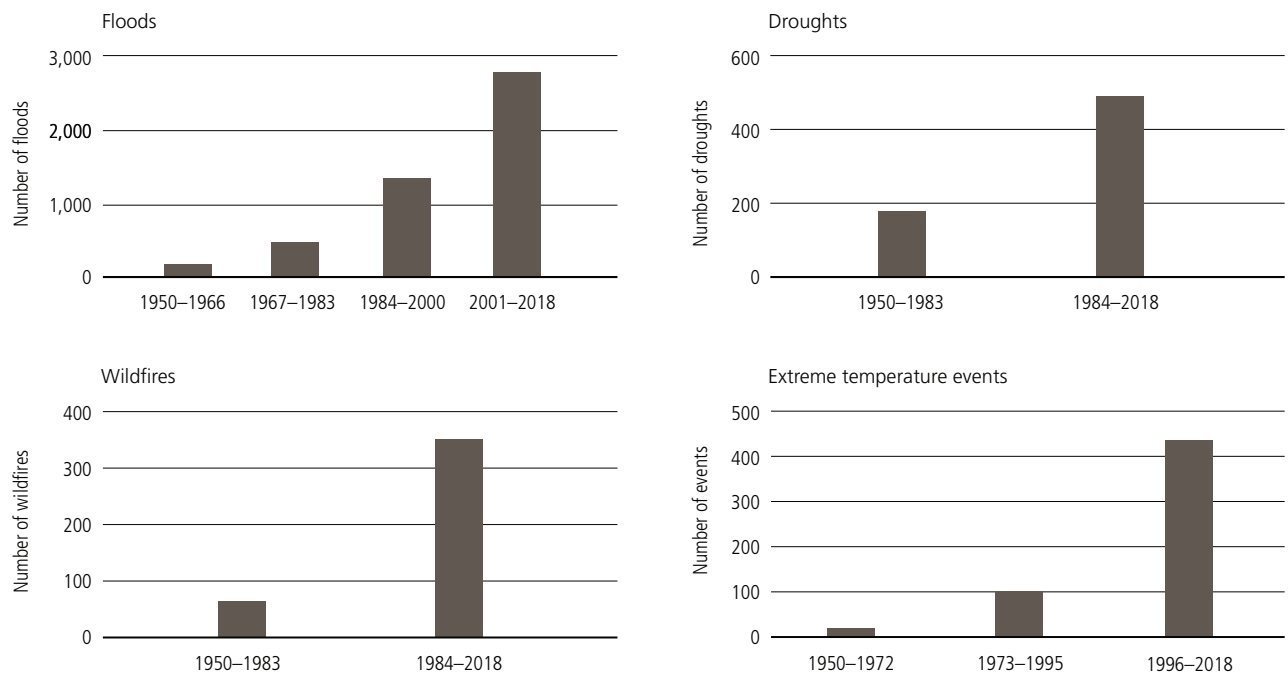


Source: Climate Action Tracker, September 2019.

According to the World Meteorological Association, the four years to 2018 were the hottest on record, due to increasing greenhouse gas emissions¹⁴.

The effects of global warming are already quite clear. According to the World Meteorological Association, the four years to 2018 were the hottest on record, due to increasing greenhouse gas emissions (GHGs)¹⁴. After adjusting for inflation, annual insured losses from catastrophic climate-related events have multiplied by a factor of 20 over the past 30 years, reaching an annual average of USD 65 billion this decade¹⁵.

Global occurrences of extreme weather events



Source: The New Climate Economy, 2018.

¹⁴ World Meteorological Association: The State of the Global Climate in 2018, pub. March 2019.

¹⁵ Swiss Re Institute: Natural catastrophes and man-made disasters in 2018: “secondary” perils on the frontline February 2019.

The future of climate is hard to predict, especially when it comes to risk.

We think we're facing four main challenges that are creating barriers for investors:



1. Regulatory dynamics

It's hard to manage global investments when countries are setting very different climate change regulations, and at varying pace

All institutional investors have an overriding fiduciary duty to their beneficiaries: ensuring they promote and safeguard their interests. Complying with relevant regulation is fundamental but can be hard to achieve when regulatory frameworks are in a state of flux.

Since the Paris Agreement, investors' responsibilities to combat climate change have increased. However, looking at the global regulatory landscape, we see a patchwork of

measures. All of them are loosely working toward meeting the Paris goals, but they're aimed at different areas of the financial markets and carry varying levels of ambition. In particular, the absence of regulation in the US represents a significant weakness in the web of climate-finance-relevant regulation.

Particularly for large-scale institutional investors this presents a problem. They're global in their approach, therefore different regulatory regimes, in different regions, all moving at different speeds, can be hard to manage, especially when trying to develop scalable financial solutions that can channel capital toward addressing climate change.



Recent regulatory examples

It's generally accepted that Northern Europe is the most advanced in terms of climate-related regulatory frameworks, but that's not to say concerns don't exist around the effectiveness, consistency and speed of implementation.

- **France:** The first to legislate in 2015 as part of its "energy transition for green growth" law. France's comply-or-explain green finance order requires investors operating in France to report on integrating environmental, social and governance (ESG) factors into their investment processes, identify the greenhouse gas emissions of their assets and show how they're contributing toward financing a low-carbon economy.
- **The European Union:** In March 2018, the European Commission (EC) adopted a Sustainable Finance Action Plan (the "Action Plan")¹⁶ as part of its strategy to integrate ESG considerations in its financial industry policy framework and mobilize finance for sustainable growth.

The Action Plan's focus is a set of recommendations for greater transparency. Last year the EU updated its non-binding guidelines on non-financial reporting by companies to include climate-related reporting. The guidelines also

covered investment advice, independent low-carbon indices and a green 'taxonomy'. This is a list of business activities considered in line with the transition toward a low-carbon economy. The taxonomy will also act as a disclosure framework. Discussions currently underway include a requirement for institutions selling 'green' labeled funds or other investment products in the EU to disclose how those products align with the taxonomy.

The recommendations are at the final stages of political negotiations but several sticking points still exist. Although the Action Plan has advanced the agenda, critics have suggested it remains too vague in its objectives. Many experts are still unsure how its proposals can be enacted.

Beyond the EU, Canada and China have both passed legislation designed to improve transparency around ESG considerations. Their efforts target investors and companies. Globally, the EU formed the International Platform on Sustainable Finance (IPSF) with China, India, Argentina, Chile, Canada, Kenya and Morocco in October 2019. Collectively, they account for nearly half the world's GDP and carbon emissions. They want to export a green taxonomy to other regions and countries, thereby harmonizing the rules on what constitutes sustainable, or "green", investment. As with similar frameworks, the reception has been mixed.

¹⁶ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/green-finance_en

The Federal Reserve Board and the Federal Reserve Bank of San Francisco have each recently published research highlighting the financial risks of climate change.¹⁷ But right now the appetite for regulation at a national level seems low.

The views of fiduciary duty are changing when it comes to climate change

Regulators are grappling with the change in fiduciary thinking needed to bring a long-term risk into the short-to-medium term investment lenses of pension funds and asset managers. As climate risks start to impact the wider economy, acceptance is growing that investment managers need to incorporate those risks within their investment processes.

The UK introduced new ESG regulations in 2019 requiring pension scheme trustees to update their statements of investment principles and show how they're integrating ESG factors into their long-term strategic investment risks. Its newly-published *Green Finance Strategy*¹⁸ clearly expects greater climate-related disclosure by large asset owners by 2022, in line with the TCFD recommendations.

By contrast, the US Department of Labor issued new guidance in 2018. It targeted private sector employee benefit plans and the integration of ESG factors in the investment process as it relates to their fiduciary duty. The guidance acknowledged that evaluating ESG factors can form one aspect of a fiduciary's duty, but reaffirmed the need to prioritize the economic interests of beneficiaries¹⁹.

This illustrates the scale of the dilemma facing global investors – actions required in one jurisdiction can appear to conflict with actions required in another.

Recognizing this uncertainty, The Principles for Responsible Investment (PRI), the United Nations Environment Programme Finance Initiative (UNEP FI) and The Generation Foundation, have just finalized a three-year project, *Fiduciary Duty in the 21st Century*. One conclusion was that fiduciary duty includes the incorporation of ESG issues into investment analysis and decision-making processes, consistent with investment time horizons²⁰.

¹⁷ <https://www.frbsf.org/economic-research/publications/economic-letter/2019/march/climate-change-and-federal-reserve/> and <https://www.federalreserve.gov/newsevents/speech/brainard20191108a.htm>

¹⁸ <https://www.gov.uk/government/publications/green-finance-strategy>

¹⁹ <https://corpgov.law.harvard.edu/2018/05/02/department-of-labor-cautionary-tone-on-esg-related-activities/>

²⁰ *Fiduciary Duty in the 21st Century*, PRI, 2019 <https://www.unpri.org/fiduciary-duty-in-the-21st-century-final-report/4998.article>



Bank of England smoothing the transition to a low-carbon economy

By Huw van Steenis

Senior Adviser to the CEO and Chair of the Sustainable Finance Committee, UBS AG
Former senior adviser to Governor Carney on the Future of Finance

The transition to a low-carbon economy poses both risks, and opportunities, for the economy and the financial sector. Investors, lenders and insurers don't yet have a clear view of which companies will struggle, endure or prosper as the environment changes, regulations evolve, new technologies emerge and customer behavior shifts. Without this information, financial markets can't price climate-related risks and opportunities effectively.

Moreover, the transition to a low-carbon economy will require large-scale reallocations of capital and investments in infrastructure – on some estimates more than USD 100 trillion globally over the next decade.

It was with this context in mind that Governor Carney asked me to explore how the Bank of England (the Bank) could “promote the smooth transition to a low-carbon economy” in the Future of Finance report²¹. Governor Carney, both through his leadership of the Financial Services Board and at the Bank of England, had catalyzed a number of world leading initiatives.

It is worth understanding the Bank’s ideas, as these are being rapidly copied by other central banks and policy makers, and are likely to shape market and investment opportunities for investors.

Mainstream climate change related disclosures

The Task Force on Climate-related Financial Disclosures (TCFD) has made important progress in creating a standard for decision useful climate-related information. For me it is increasingly the gold standard upon which so much is being built, and which all investors need to understand to make better informed decisions.

Catalyzed by the G20 and fashioned by the private sector, the TCFD has established a comprehensive and flexible framework for corporate disclosure of climate-related risks and opportunities. Current supporters control balance sheets totaling USD 120 trillion. They include the world’s top banks, asset

managers, pension funds, insurers, credit rating agencies, accounting firms and shareholder advisory services.

So far there has been enormous success through voluntary reporting. In the past year, almost 200 Japanese firms have joined the TCFD, bringing Japan to the top of the TCFD league table²².

But there are stragglers. That’s why I agree with Sir Chris Hohn, Managing Partner of The Children’s Investment Fund: all companies should look to disclose on a TCFD basis. Hence I recommended the Bank should champion mainstream financial reporting in the next few years, as well as enhanced disclosures across the real estate sector. Consideration of the appropriate base line and disclosure of firms’ strategies will be the priority. The Bank plans to lead by example and become the first central bank to publish its exposure on a TCFD basis.

Embed climate risk management

The financial sector can play a decisive role in mobilizing capital – if it understands the risks and develops the tools to manage them. TCFD is foundational but additional risk management tools and practices need to be developed. According to a recent survey from the Bank of England, almost three-quarters of UK banks are starting to treat climate risks like other financial risks.

So the Bank intends to undertake a ground-breaking exploratory stress test of the largest UK banks and insurers for climate risks in 2021. The firms will be asked to model their exposures to three climate scenarios: the catastrophic business-as-usual scenario

where no further climate action is taken, a scenario where early policy action delivers an orderly transition to the targets set in Paris, and a third where late policy action leads to a disorderly and disruptive transition.

This way the Bank can help understand if firms are “transition ready” for a lower-carbon economy. The exercise should be likely to spur firms to develop additional risk management techniques for climate risks.

The overall results of the sector’s resilience to climate-related risks will be published and are highly likely to impact how banks and insurers think about the cost of capital to different projects in future – which will in turn be a factor that investors will likely need to weigh up over the coming years²³.

Since these measures have been announced several other central banks have said they are looking to copy them or team up to build momentum. I expect 2020 will be pivotal in terms of many other central banks launching similar initiatives – under the Network for Greening the Financial System.

Bottom line

The global energy sector and numerous others are being reshaped as governments look to shape movement to a lower-carbon system. For long-term investors, these present both investment risks and opportunities. How central bank actions may influence the cost and availability of capital will be one critical factor to understand in the next few years as investors look to make their portfolios more resilient to climate change risk.

Huw van Steenis

²¹ <https://www.bankofengland.co.uk/-/media/boe/files/report/2019/future-of-finance-report.pdf?la=en&hash=59CEFAEF01C71AA551E7182262E-933A699E952FC>

²² <https://www.bankofengland.co.uk/-/media/boe/files/speech/2019/tcfd-strengthening-the-foundations-of-sustainable-finance-speech-by-mark-carney.pdf?la=en&hash=D28F6D67BC4B97DDCCDE91AF8111283A39950563>

²³ <https://www.bankofengland.co.uk/research/future-finance>

2. Investment horizons

Investment frameworks don't currently address long-term climate change trends

Thinking about climate change in terms of time frame raises two clear challenges. The first relates to the fact that while climate change is generally accepted to be a long-term risk, the actions needed to tackle it are short-term. For investors this poses a fundamental problem. Put simply, existing short-term investment frameworks aren't designed to capture long-term risks.

On the one hand, many analysts' investment targets only extend across one to three years, often based on historic data. A lack of meaningful forward-looking company data is frequently blamed for compounding this short-term analysis²⁴ – something we discuss later in this paper. Consequently, only risks that are expected to materialize within that one to three year timeframe are likely to be assessed.

On the other hand, even though institutional investors often carry obligations which extend across generations, evidence suggests some equity managers hold assets for an average of just 1.7 years²⁵. That offers analysts little incentive to extend their projections.

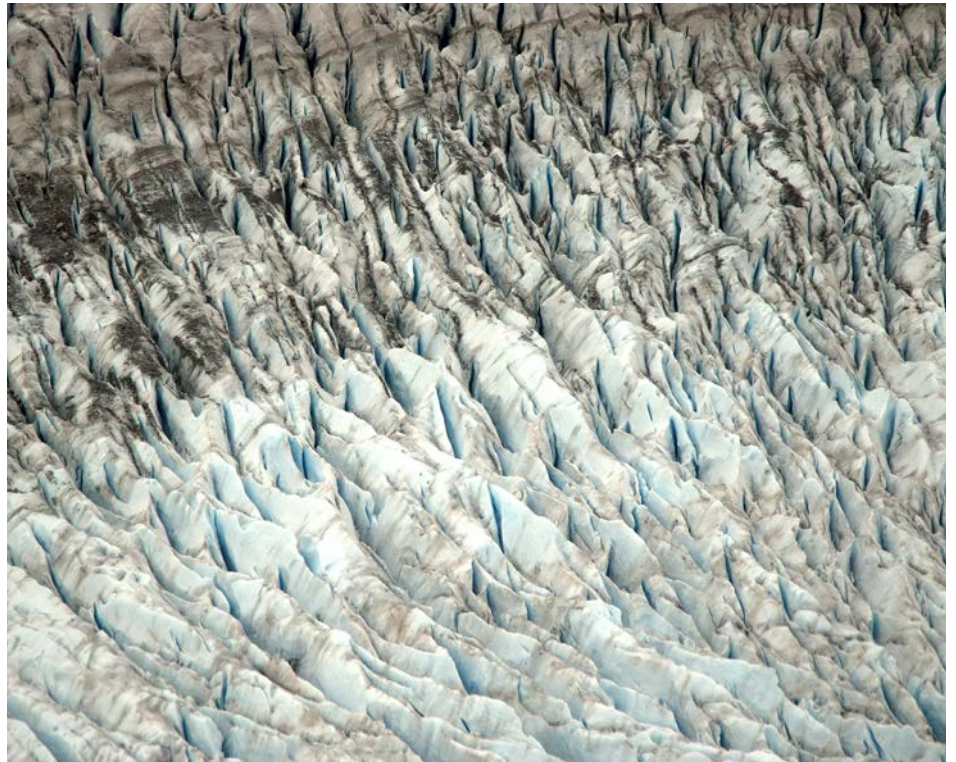
The second challenge relates to the relative infancy of technologies being designed to capture climate change. Many are at a very early stage of development with a high degree of uncertainty around future positive cash flows, which can prove a disincentive for many investors.

Until this self-perpetuating loop is addressed the danger remains that climate risk cannot be accurately priced and effectively captured within the investment process – a dilemma famously summed up by Mark Carney, Governor of the Bank of England, in his 2015 *"Tragedy of the Horizons"* speech²⁶.

²⁴ All swans are black in the dark. How the short-term focus of financial analysis does not shed light on long-term risks. The Generation Foundation February 2017, <http://www.tragedyofthehorizon.com/>.

²⁵ All swans are black in the dark. How the short-term focus of financial analysis does not shed light on long-term risks. The Generation Foundation February 2017, <http://www.tragedyofthehorizon.com/>.

²⁶ Carney, M. 2015. Breaking the tragedy of the horizon—Climate change and financial stability. Accessed October 16, 2017. <http://www.bankofengland.co.uk/publications/Documents/speeches/2015/speech844.pdf>.



3. Data imperfections

It can be hard to assess investments because climate data is often complex, incomplete and fragmented

Private clients and institutional investors are both challenged by the lack of standardized sustainability data. Ultimately, any framework is only as good as its data inputs. But, a lack of well-founded quantitative risk metrics and forward-looking indicators from companies, makes it difficult to generate meaningful outputs.

Investors have found it hard to accurately compare different sustainable investment instruments and single out the one best matched to their needs. And where sustainability measurement is more complex (such as assessing climate change risk and carbon footprints), the problem of data comparability is even harder for investors to overcome.

Private clients and institutional investors are both challenged by the lack of standardized sustainability data.

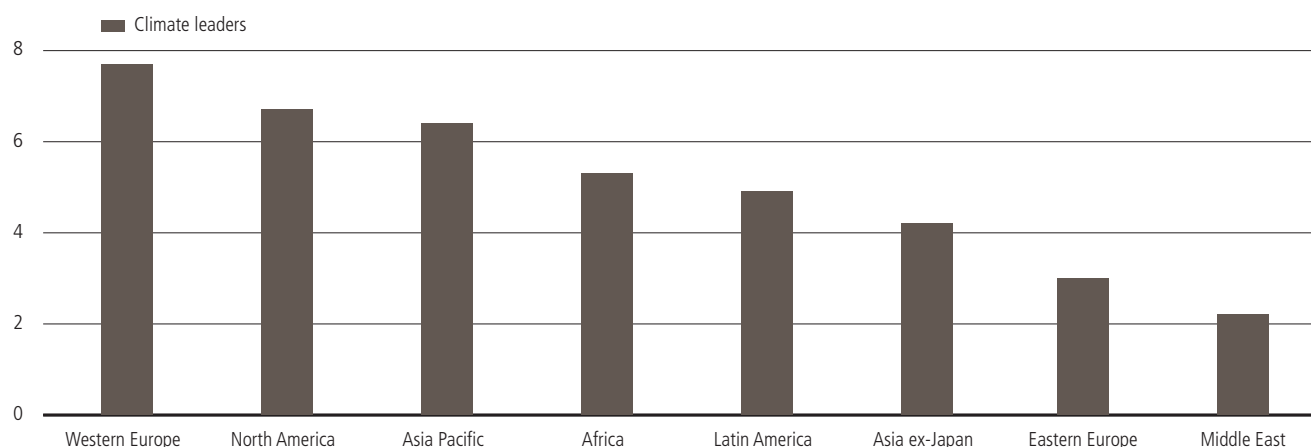
To mitigate this, we have developed a multi-vendor database for sustainable investment data, aggregating and filtering information to provide greater comparability between sectors and regions. At the top of the list come Food and Beverage, as well as Health Care firms. Laggards, unsurprisingly, include Infrastructure firms and Extractive and Minerals Processing companies.

Data around climate-related risk in particular is far from perfect. We've already seen how incomplete and inconsistent data sets can represent a major barrier for investors.

Just 55% of companies in the MSCI ACWI index currently report on CO₂ data²⁷.

According to findings from the Corporate Reporting Dialogue (CRD)²⁸, most users of financial statements believe existing disclosures lack information across all of the TCFD recommendations. The Bank of England commented that the growth in potentially piecemeal disclosure schemes may slow adoption²⁹. Additional information about frameworks and standards, and better alignment between them, could help investors make more useful investment decisions.

European companies are climate leaders, while Middle Eastern companies lag



Source: UBS, SASB, Sustainalytics, Trucost, CDP, 2019. Notes: MSCI ACWI constituents, weighted by share in index, SICS Sectors.

²⁷ MSCI: Carbon Emissions Estimation. November 2019.

²⁸ Corporate Reporting Dialogue "Driving Alignment in Climate-related Reporting", 2019.

²⁹ Future of Finance: Review on the outlook for the UK financial system (June 2019).



Sectoral variations: thinking about the impact of climate on different businesses

Another way that investors can think about the impact of climate change is to look at the ways it could affect different parts of the investment valuation. The Sustainability Accounting Standards Board's (SASB's) Materiality Map® can be helpful as it also recognizes how adaptable different sectors are likely to be. It categorizes risks across:

- Business models
- Product design and lifecycle management
- Transition risk measures
- Physical risk measures
- Risk metrics
- Forward-looking indicators

For example, business model risks could emerge for fossil fuel producers (coal, oil and gas exploration and production), agricultural products, electric utilities, home builders, waste management and water utilities.

Even with the benefit of such frameworks and guidance, investors can still find it challenging to include such considerations within their asset allocation process. Our Investment Solutions team is producing a white paper on the practical aspects of strategic asset allocation within an ESG framework. It will investigate the implications of factors such as climate change on investment returns. Are the expected returns of asset classes with ESG overlays different from those of the comparable traditional asset classes; what other risks and opportunities could an ESG focus highlight?

4. Practical constraints on financial innovation

Currently, larger institutional investors wanting to invest in clean energy are frustrated by a lack of financial products suited to their asset allocation approach. In general, they'd rather allocate larger sums per transaction than the typical clean energy investment opportunity presently allows. Solving that conundrum means developing more low-carbon opportunities as well as a broader set of capital market instruments.

New wind and solar projects have become more cost-competitive than coal in most of the world, over quite a short period of time. Yet despite this investment model, renewables still represent a modest share of global energy supply – in 2018, only 6% could be attributed to wind and solar³⁰.

Practical barriers to scaling-up include the absence of local legislative and regulatory frameworks. The timelines of corporate finance agreements put in place to fund new energy construction projects, and the 10-20 year concession contracts

commonly awarded by governments, aren't always aligned. Other factors, like a lack of qualified labor, shortages of available land and excessive bureaucracy compound the problem further still.

In terms of the regional need to abate carbon emissions, emerging markets represent the largest share of projected emissions growth³¹. However, levels of project-specific risks in these locations, and the need to manage those risks, can be magnified in ways that may exceed investors' risk tolerance.

Other barriers to structuring of appropriate investable instruments can be:

- **Decision-useful data:** even if it's available, it can be difficult to integrate and standardize across risk management, strategy, and client engagement functions
- **Methodologies:** they don't always resolve fundamental questions such as how to attribute emissions in financial portfolios or how to set emissions reduction pathways for sectors

³⁰ IRENA, Renewable Energy Statistics 2018, International Renewable Energy Agency, 2018.

³¹ Climate Investment Opportunities in Emerging Markets An IFC Analysis 2016 https://www.ifc.org/wps/wcm/connect/59260145-ec2e-40de-97e6-3aa78b82b3c9/3503-IFC-Climate_Investment_Opportunity-Report-Dec-FINAL.pdf?MOD=AJPERES&CVID=IBLd6Xq

Our aim is to be a leading financial provider in enabling investors to mobilize private and institutional capital targeting climate change mitigation and adaptation while supporting the transition to a low-carbon economy.



Current practice

The investors' perspective

How are investors tackling climate change?



Rooftop gardens are a way of bringing greenery into a sterile space. They can be places where plants and vegetables can be grown to support a sustainable lifestyle.

Given the barriers we've described, how are investors responding? Specifically, how is the impact of climate change already playing out, and what are institutional and private wealth investors doing to allocate their capital toward the transition to a lower-carbon future?

We take a closer look at five distinct investor types and their current responses to the challenges of climate change:



Pension funds



Central banks



Sovereign wealth funds



Private wealth investors



Philanthropy solutions



Pension funds

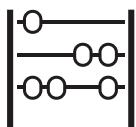
Many pension funds and asset owners recognize climate change as one of the largest systemic risks in their investment portfolios. But the lack of formalized methodologies means integrating climate risk into the investment process can be challenging.

The following investor snapshots illustrate how varied current pension approaches are.

CALPERS (US) the Californian State retirement plan, is completing a carbon foot-printing of its public and private asset classes. CALPERS has a substantial engagement and advocacy program

focusing on climate change. To comply with local regulation, it will publish a TCFD aligned climate-related risk report in January 2020. It is working on several quantitative models designed to improve the analysis and understanding of how and where climate change could impact global capital markets. CALPERS is one of the founders and steering committee members of the Climate Action 100+ engagement program.

HESTA (Australia) The fund's Climate Change Policy objectives are designed to protect it from assets believed to be at the highest risk of becoming stranded assets, notably fossil fuels. Climate change risks and opportunities are embedded within its investment and decision-making process. The fund regards itself as a universal and long-term owner. It does not support an exclusion or divestment approach based on climate change risks.



Central banks

The climate concerns of central banks are similar to those of other large-scale institutional investors, but their perspective is unique.

Climate change could pose a risk to economic and inflation outlooks: both core central bank responsibilities. Those risks could be the physical impact of extreme weather events, or the economic disruption that transitioning toward a low-carbon business model might cause in the financial and corporate sector.

Several climate-related policy initiatives exist. The most important is the Central Banks and Supervisors Network for Greening the Financial System (NGFS).

Member institutions account for almost half of global GDP and two-thirds of systemically important banks and insurers, currently not including the US. The focus is two-fold:

- Supervisory and macro-prudential tasks relating to financial and systemic risk caused by climate change
- Better disclosure standards

The NGFS encourages its members to lead by example, urging them to integrate climate-related criteria in their own operations.



Sovereign wealth funds

Collectively, sovereign institutions manage approximately USD 20 trillion. Their fiduciary duty covers many stakeholders, including the general public. Not surprisingly, because their activities are often closely scrutinized many are starting to incorporate climate risk into their mandates and investment frameworks.

The clearest argument for integrating ESG and the materiality of climate risks lies with the commodity-based sovereign wealth funds, which account for roughly half of all sovereign assets globally. A rational economic case could be made for these countries to extract as many resources as possible from the ground while global demand remains solid. But the global need to transition to a low-carbon economy poses a fundamental challenge that will determine their future prosperity. This is where the principles of sustainable investing meet prudent, long-term risk management: both aim to ensure

national wealth is invested over the long-term and diversified across investment strategies grounded in sound economic, social, environmental and governance factors.

Norges and Japan's Government Pension Investment Fund (GPIF) each illustrate ways that sovereign wealth funds are addressing climate change.

Norges Bank Investment Management (Norway) manages the assets of the Norwegian Government Pension Fund Global (GPFG). Since 2014 it has clearly set out its expectations of the ways in which companies should approach the risks and opportunities associated with climate change, as well as the role of fossil fuel investments within its fund.

GPIF (Japan) the world's largest pension fund recently carried out a study on the impact of climate change on its assets, which it published in September 2019 – Analysis of Climate Change Impacts on Portfolios. It also published climate-related information for its first ESG report, structured in line with the recommendations of the TCFD. In October 2019, GPIF announced it would join the Climate Action 100+ engagement program.



Private wealth investors

Private clients undoubtedly regard climate change as important. But our own research and experience tell us it is one among a number of sustainability topics which matter to them. They have deeply personal views on what is sustainable and their own sustainability interests vary considerably.

A UBS Investor Watch Survey of over 5,000 high-net-worth investors revealed fifty-eight percent of ultra high net worth investors think that sustainable investing will be the norm within 10 years. In aggregate, our data shows that they're most interested in tackling environmental topics, including water, pollution and waste, and climate change³².

Family offices reflected that sentiment. 62% believe most of their peers will invest sustainably by 2022. They expressed a level of frustration though with the challenge of accessing offerings with direct impact. Like institutional investors, the lack of scalable solutions is a problem. According to the 2019 UBS / Campden Wealth Global Family Office survey, 36% of respondents say there are "not enough opportunities to invest in green technology."

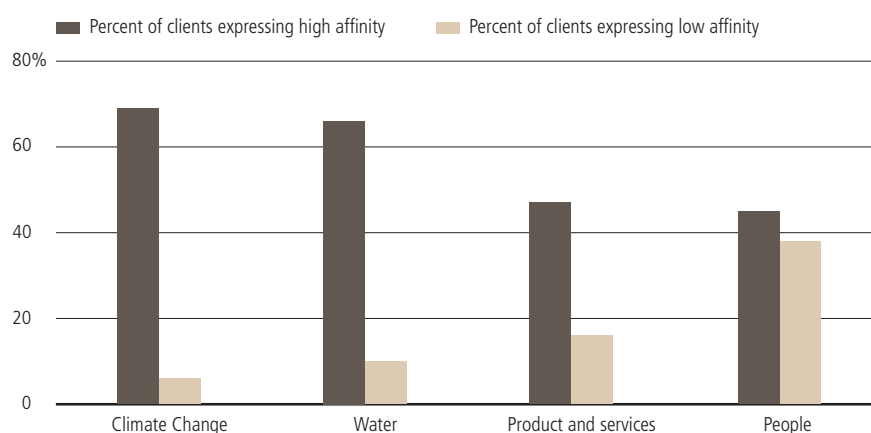
In its 2019 WEF Whitepaper, *Awareness, simplification, and contribution*³³, UBS announced a pilot program to deliver personalized

sustainable investment advice based on each private client's individual affinities. We have enhanced transparency on six key sustainability topics to power this initiative. Attracting more than USD 800m of client assets, the pilot has proved a major success that justifies the rollout of a full and permanent personalized sustainability investment advisory offering.

The first phase of its launch across our global wealth management business will begin in early 2020. Personalization

of sustainable investment content is important. A recent private client survey that we conducted found that private wealth clients often have divergent views of what matters most to them, what they deem to be a sustainable business activity, and that they often hold differing personal values. For example, while 45% of surveyed clients express a high affinity to 'people' topics, not every client agrees. 38% expressed a low interest in aligning their investments to this topic.

Private wealth clients have diverging views on what matters to them



Source: UBS Global Wealth Management, Client Based Insights 2019.

³² <https://www.ubs.com/global/en/wealth-management/our-approach/investor-watch/2018/return-on-values.html>

³³ <https://www.ubs.com/microsites/wma/insights/en/investing/2019/tackling-worlds-urgent-challenges.html>



Philanthropy solutions

By developing three principles for effective climate philanthropy, we can help clients use their capital to address climate change

Clients don't just want investment solutions, they're eager to use risk capital to address climate change through their philanthropic efforts. UBS Optimus Foundation and the Climate Leadership Initiative (CLI) have developed three principles for effective climate philanthropy. In fact, CLI was created by six of the top climate donors this year with the goal of making it easier for new philanthropists to learn, become connected to like-minded people and experts and collectively tackle the issue.

Understanding how experts view opportunities to solve the climate crisis is helpful as a frame for new donors. They generally think of solutions through the lens of three 'dials' to turn: sector, geographic region and enabling levers. By understanding how and

where resources can do the most good, our clients can give with more confidence and make their philanthropic journey more rewarding.

Several sectors of the economy provide feasible opportunities for philanthropy to act as a vital catalyst to accelerate the transitions needed to tackle climate change. The key sectors are:

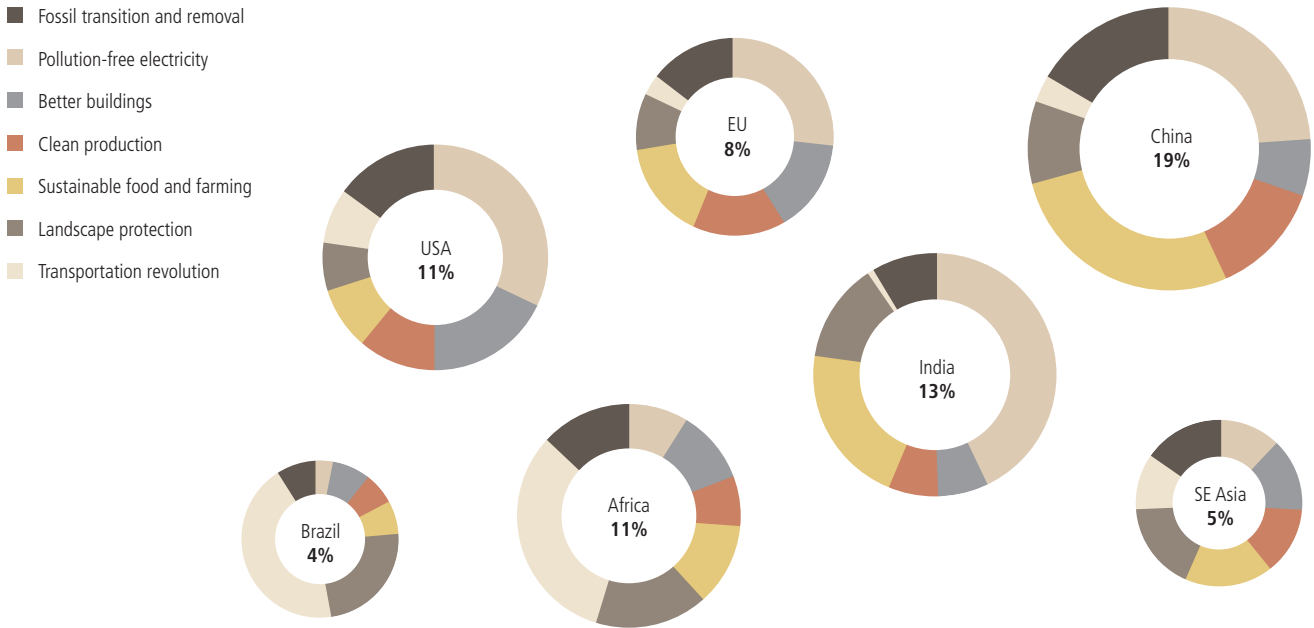
- Pollution free electricity/energy
- Transport
- Buildings
- Industry/production
- Food/farming
- Natural landscapes/forests

Necessary changes include transitioning to renewable energy sources; investing in regenerative farming practices to ensure the global demand for food is met sustainably; protecting forests and grasslands; stopping powerful methane from escaping into the atmosphere; and

the all-important ways to remove carbon dioxide from the atmosphere: carbon capture and carbon dioxide removal.

The scope and scale of impact for each of these sectors vary in every region of the world. It's essential to consider local contexts, priorities and opportunities to strategically fund projects that stand to drive the most change. In China and India, for example, it's critical to transition to clean fuels and power to meet rising energy demands. In Brazil and Indonesia, forest protection requires urgent philanthropic support and resources. And in the global effort to phase out coal, Southeast Asia is the last frontier for coal power plant demand and development.

Regions: Seven are key to the solutions



Source: CWF Analysis using Global Change Assessment Model (GCAM) v. 5.1.3, October 2019.



Salt marshes are coastal wetlands that are flooded and drained by salt water brought in by the tides. A healthy salt marsh is a complex ecosystem delicately balanced between the marine and terrestrial environments.



Are you climate aware?

A climate-smart framework for investors

An investor-oriented approach

We've seen the extent of the challenges faced by all investors. How do they position their investments or capital to make the transition toward a lower-carbon future? Given the inherent uncertainties of climate change, can they be sure they've properly captured the investment risks and opportunities? And how do they adjust to an inconsistent and fluid regulatory environment?



While a lot is being done to invest for a lower-carbon world, investors are signaling the need to be more ambitious and move faster. Our own research has shown that allocators want to use their capital in a climate-smart way and help close the climate gap.

De-carbonizing existing portfolios won't be enough. Waiting for data to be perfected or legislation to be put in place only prolongs the delay, while placing faith in the ingenuity needed to support economic growth with net negative CO₂ emissions could prove misplaced.

Investors need actionable tools and techniques: methodologies that guide them in a changing and uncertain world, providing greater certainties so they can allocate their capital in ways that drive the low-carbon transition. And most importantly, they need to be able to act today, not wait for tomorrow.

We recognize these shortcomings which is why we are proposing a methodology to help investors become fully 'climate aware'. Moving away from a dependence on backward-looking data and toward a forward-looking model can help them to position their portfolio for a climate-smart future.

Our methodology contains three key elements:

- **Portfolio mitigation:** Lowering investment exposures to carbon risks
- **Portfolio adaptation:** Increasing investment exposures to climate-related innovation and solutions
- **Portfolio transition:** Aligning investments to the requirements of a lower-carbon economy

It is a pragmatic, flexible, investor-led approach. Minimizing allocations to companies most negatively affected by climate change should help to mitigate the downside risk, while increasing exposure to companies with climate-smart business models and offerings may maximize the upside opportunity. By balancing each of these three elements investors can:

- Achieve a holistic, forward-looking approach to tackling the uncertainties and challenges of climate change
- Adjust one or more of the individual elements as circumstances change
- Have an opportunity to make better informed investment decisions and use their weight of capital to influence change

At any given point in time, investors can dial up or dial down one or all of the three elements, to better balance their climate risks and objectives.

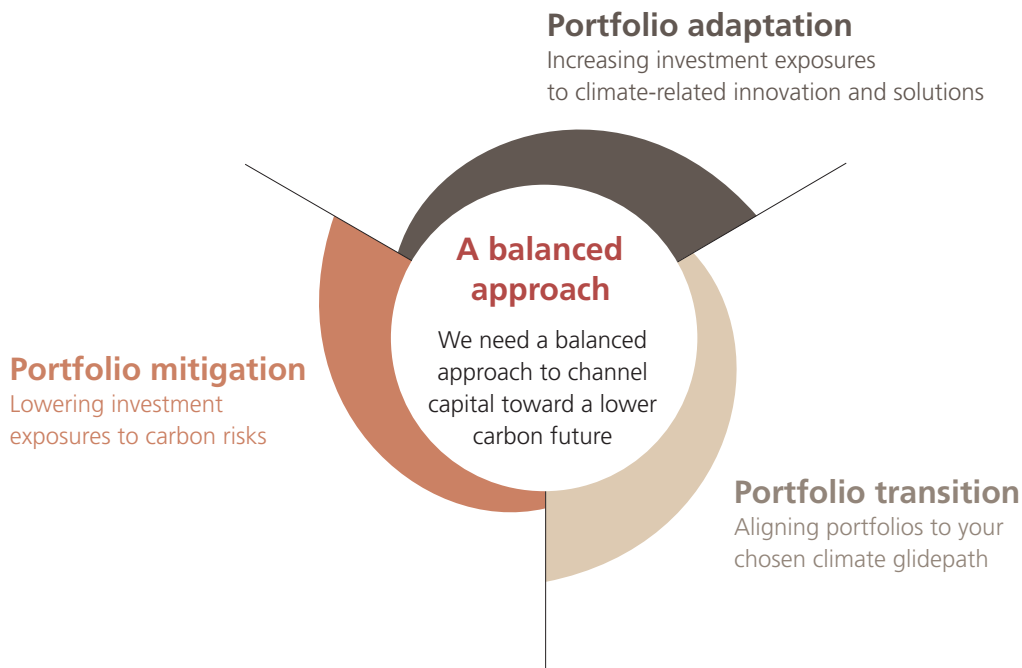
A program of active engagement underpins the methodology, which is essential. It looks to provide deeper insights to the actions and progress which companies are making toward a



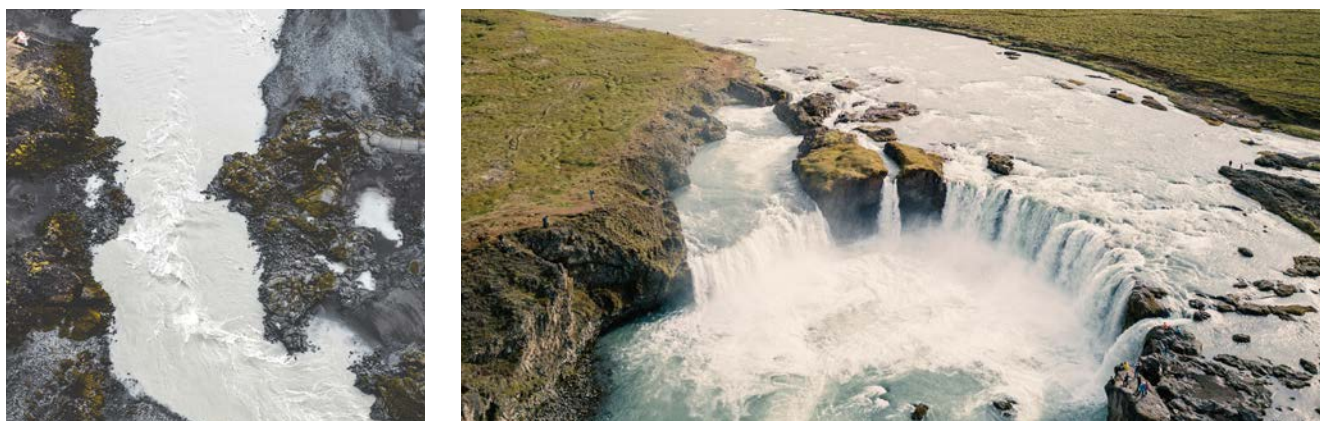
climate-smart future. Those insights mean that investors can directly link the adjustments they make to investments in their portfolios to actions that investee companies are taking to address climate change. Through this combination of portfolio strategy and collaborative engagement, investors may have a significant impact on efforts to tackle climate change.

We call this combination of portfolio adjustment and active engagement the 'Climate Aware' framework. It can serve as a blueprint for investors to address the historic challenges presented by climate change.

A climate aware framework for investors

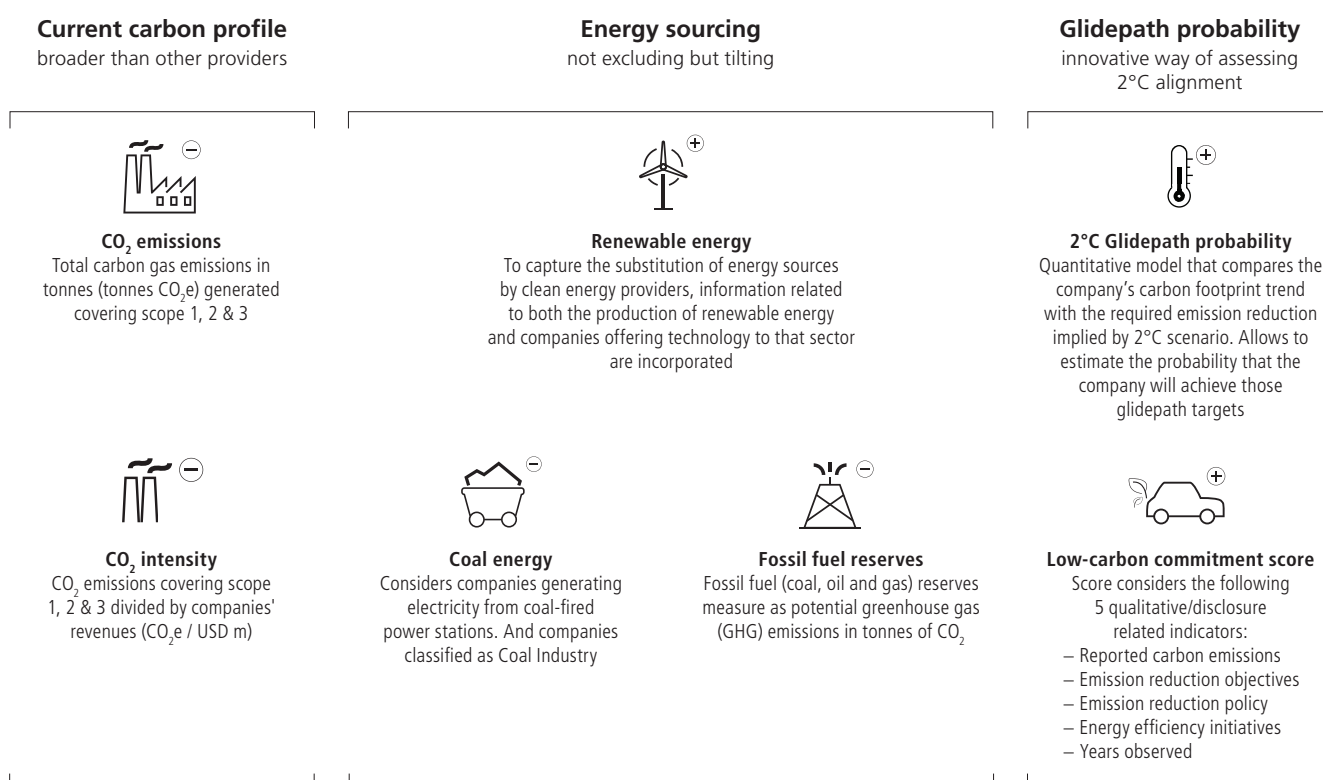


Source: UBS Asset Management. When we named the characteristics we deliberately borrowed from the scientific taxonomy of the low-carbon transition, as we believe these terms are particularly relevant to our methodology.



The climate aware framework is based on a UBS investment strategy developed in conjunction with a UK pension fund. It aims to meet current investment goals while taking into account climate change objectives such as lower-carbon footprint, reduced exposure to fossil fuel reserves, and greater exposure to renewable energy opportunities. By including engagement, it has also been designed to be forward-looking.

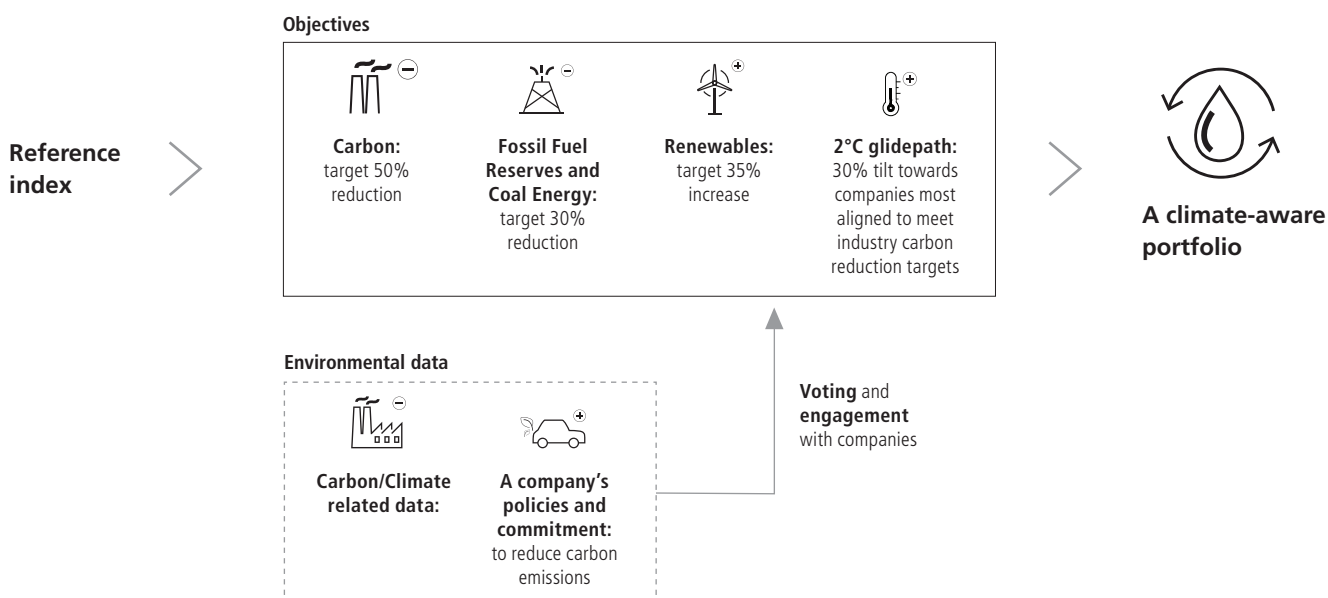
The framework in practice



Source: For illustrative purposes only. UBS Asset Management, January 2020.

Modelling climate change, especially in the context of equity and fixed income portfolios, means using sophisticated assumptions around the uncertainties of climate change, given we don't yet know its full implications. To add clarity to our own modelling, UBS has been working in several innovative areas. For example, we look at factors like supply chain patents, and improvements to qualitative data, such as greater levels of disclosure by companies around target emissions. As data availability improves we expect the opportunities for integrating these types of metrics into portfolios to increase. We believe similar mitigation approaches can also be applied more generally to support a broad investment portfolio.

Portfolio construction process



Source: For illustrative purposes only. UBS Asset Management, January 2020.

Portfolio mitigation

To reduce risk we need to minimize each portfolio's carbon footprint and use the principles of ESG integration

Minimizing carbon footprint

Many institutional investors now measure and publicly disclose their portfolios' carbon footprints. There is currently no clear measure of the size of funds being managed against the target of a reduced carbon footprint. But footprint measurement, and its comparison against a relevant benchmark, are being widely discussed³⁴. For example, the European Commission has proposed a "low-carbon benchmark", based on carbon foot-printing.

ESG integration and climate risk

How can investors get a more comprehensive understanding of climate change risks? Using the general principles of ESG integration – the systematic and explicit inclusion of environmental, social and governance factors into financial analysis – not only better aligns investment decisions with climate change considerations, it also helps investors deal with the broad nature of the climate transition more effectively. Assessing climate risks like this has two key advantages in our opinion: improved investment selection and a focus on lower-carbon intensive companies.

Connecting climate risk to the investment case

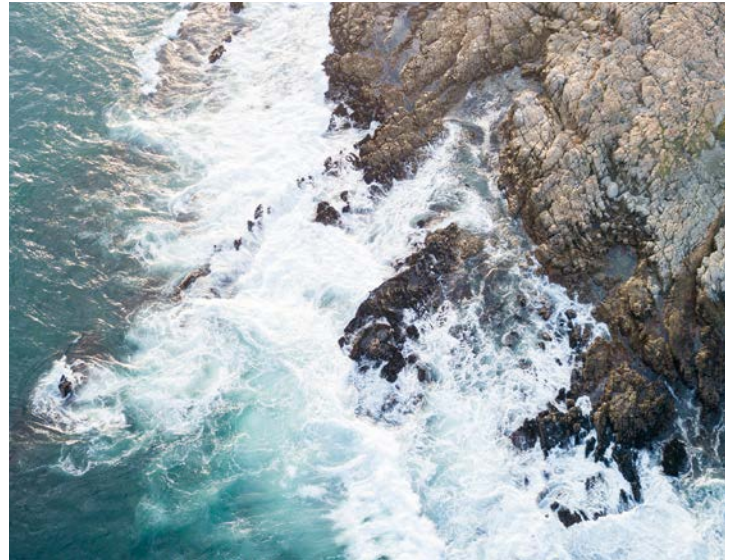
To get an even deeper understanding of the issues surrounding climate change as they relate to finance and business, investors and corporates can turn to the work of UBS research, which plays an important educational role.

Climate change means we need to think about companies differently. UBS's energy research team takes an innovative view, looking at certain sectors to see where change is possible, at what pace, and what the investment implications might be. As well as providing insights for clients, the work has also informed public debate³⁵.



³⁴ <https://www.unpri.org/climate-change/how-measuring-a-portfolio-carbon-footprint-can-assist-in-climate-risk-mitigation-and-reducing-emissions/608.article>

³⁵ Sam Arie, Financial Times 17 July 2019.



Portfolio adaptation

Investing for a lower-carbon future depends on the ability to invest in new technologies and solutions

Exploring solutions

Allocating capital to low-carbon opportunities can be challenging. Concerns have been expressed around scale, access, availability of opportunities and regulatory uncertainty. In 2018 Ceres examined the state of the renewable energy market and noted it has matured considerably. It now offers a diversified range of primary market investment opportunities across:

- Clean energy infrastructure (wind and solar projects)
- Storage infrastructure
- Grid technology
- Low-emission vehicles in the transportation sector, and
- Energy efficiency in the built environment³⁶

These can be accessed in several ways, including:

- Via infrastructure or private equity funds
- Direct project-level investment
- Buying securitized bonds or equity
- Investing in green buildings

³⁶ Ceres, In sight of the Clean Trillion, 2018



Case study

With responsible real estate management, UBS in Switzerland is contributing to eight of the UN's 17 SDGs

Our Swiss real estate business manages assets of some CHF 23 billion across eight products and is a market leader in the Swiss Real Estate fund sector³⁷. This is a sector where the importance of sustainability is clearly visible. Statutory requirements are becoming more stringent; social, economic

CHF 23bn

Our Swiss real estate business manages assets of some **CHF 23 billion** across eight products

and environmental criteria need to be considered when making decisions about real estate investments. These include:

- The reduction of CO₂ emissions
- The development of renewable energies
- The promotion of energy efficiency
- Tenant satisfaction
- The optimization of properties' life cycle costs

Since 2012, our real estate business has been pursuing its sustainability strategy. It's applied consistently to all eight of our real estate investment products. By using a fully-integrated approach our ecological footprint is measured; at the same time our actions are positively contributing to the environment and society. This approach goes hand-in-hand with the UN's 17 goals for sustainable development. In fact, responsible real estate management can contribute directly to eight of the goals.

One of these is "Affordable and clean energy". We're putting in place energy efficiency measures which can also cut tenants' ancillary costs. Increasingly, we're covering the electricity needs of our real estate portfolio through renewable energies. One example is a photovoltaic project, designed to install more than 100 power-generating systems with an output of around 15 MWp by 2021. This is enough to supply some 400 homes. The electricity will be available to tenants meaning they can profit from green electricity on favorable terms.

Every year, the independent third party rating platform GRESB (Global Real Estate Sustainability Benchmark) evaluates and compares the annual sustainability performance of real estate investment vehicles. It has certified the strong performance of our Swiss real estate's business sustainability strategy³⁸.

³⁷ As at 30 November 2019. Source: SXI Real Estate® Funds Broad.

³⁸ GRESB Benchmark Report. 4 September 2019.

Two examples of emerging product offerings around climate change are multilateral development bonds and green bonds.

– **Multilateral development bond (MDB) portfolios with an element of climate risk**

Regionally focused multilateral development bank debt instruments (many of which are highly rated by credit agencies) allow clients to fund sustainable development projects that have the largest impact on the economies and communities in their home regions. Over time, climate MDBs could offer clients the potential for risk-adjusted financial returns comparable to US Treasury bonds. Their efforts offer potential inspiration for more comprehensive corporate disclosure on sustainability criteria.

In *Awareness, simplification, and contribution*, we highlighted our partnership with the World Bank and Solactive in founding the first MDB benchmarks³⁹. Through the innovation of our asset management arm we created the first dedicated, publicly-traded multilateral development bank debt instruments.

– **Green bond portfolios**

Climate (or climate-aligned) bonds refer to labelled and un-labelled bonds, whose proceeds are intended to finance projects and activities contributing to a low-carbon and climate-resilient economy. 'Green bonds' refer to (either in full or in part) new and/or existing eligible green projects within four core components:

- Use of proceeds
- Process for project evaluation and selection
- Management of proceeds
- Reporting

According to the Climate Bonds Initiative (CBI) State of the Market Report 2017, over 3,000 bonds have been issued across seven climate themes (transport, energy, multisector, water, buildings and industry, waste and pollution, agriculture and forestry).

³⁹ The Solactive UBS Development Bank Bond Subindices include bonds whose issuer is identified as a development bank. The Solactive UBS Global Multilateral Development Bank Bond Subindices cover bonds whose issuer is recognized as a Multilateral Development Bank. The Solactive UBS World Bank Bond Subindices include bonds issued only by the lending arm of the World Bank.

Transitioning portfolios

Helping investors align portfolios to their chosen climate glidepath

Finding direction

The primary objective of our climate aware methodology is to help investors evaluate and build their portfolios in a forward-looking way, aligned to a low-carbon future.

We've discussed ways investors can assess the risks and opportunities, but how do they make sure their investments are on track with the pathway they've chosen, whether that is a 2°C world, a 1.5°C world, or a different trajectory altogether? How do they cope with heightened physical risks? What about changes in public policy and the effects on their business as well as the companies they invest in? And can they better collaborate with business to drive action? To ensure companies' business models and activities are on target for a lower-carbon future?

The answer to all these questions lies in portfolio transitioning. Giving investors the tools to better understand the current and future impact of climate change. Helping them to monitor the progress that investee companies are making toward their stated climate targets.

First they need to understand their portfolio's current climate trajectory. To help investors ascertain that trajectory, UBS has pioneered an innovative approach called the Glidepath Probability score (glidepath), which it launched in 2017. It's

based on the principles of scenario analysis and was developed in conjunction with the UK's National Employees Savings Trust (NEST) to supplement carbon portfolio foot-printing and provide an estimate of the future risk of climate change. It's forward-looking and allows us to calculate the probability that each company's carbon emissions reduction strategy is in line with at least a 2°C carbon reduction scenario. It serves as the basis for re-weighting companies in the Climate Aware framework.

Portfolio alignment moves into the spotlight

We expect the issue of portfolio alignment to receive closer attention, particularly the applicability of the EU proposal on the Paris Aligned Benchmark, announced in June 2019⁴⁰. A pilot approach to measuring alignment is provided by the Paris Agreement Capital Transition Assessment.

In Europe, The Institutional Investors Group on Climate Change (IIGCC) is working with asset owners on a 'Paris Aligned Initiative' to explore ways investors can understand and align their portfolios to the goals of the Paris Agreement. It will cover a number of asset classes, including public equity, corporate debt and sovereign debt. It intends to report in mid-2020. We think it can help create clarity and drive a standardized methodology for monitoring and reporting on portfolios' Paris alignment.

⁴⁰ https://ec.europa.eu/info/publications/sustainable-finance-teg-climate-benchmarks-and-disclosures_en



Using scenario analysis to understand the future impact of climate risk on companies and their business models

The next step, and arguably the most important, is for investors to understand the likely future impact of regulation and climate risk on the companies in which they're invested. Developing that understanding depends on the discipline of scenario analysis.

In 2017, the Task Force on Climate-related Financial Disclosures (TCFD) explicitly advised investors and companies to undertake climate change scenario analysis as a way of understanding their climate risk.

In 2018, to help asset owners and managers, IIGCC published a five-step framework for using scenario analysis in the context of climate change⁴¹. It emphasized a cross-functional approach, bringing together experts with backgrounds in risk management, investment and ESG to create actionable and investment-relevant outcomes. As a caveat, they flagged the relative scarcity of reference scenarios with sufficient investment-relevant detail. Many are also focused on IEA scenarios, as the PRI has highlighted⁴².

Limitations notwithstanding, scenario analysis does offer a structured way to consider climate change and monitor the early warning signs. That way, investors can better assess the likely impact and probability of different climate scenarios for their portfolios and position their investment strategy accordingly. This could help optimize emerging opportunities while better managing downside risk.

Engagement drives change

In order to integrate climate change fully, active engagement, proxy voting and partnerships are an important element. Company engagement can also provide regular touchpoints to determine whether a company is meeting its climate commitments. We've recently seen a marked rise in engagement with corporates on their climate strategy, governance and disclosure, both from institutional and private wealth investors. Collaborating with company management to address climate transition risks and opportunities is a critical way of driving improvement at the company level and thereby extending the mitigation of climate risks into the wider economy and society.

⁴¹ Navigating climate scenario analysis – a guide for institutional investors. Institutional Investors Group on Climate Change. November 2018.

⁴² <https://www.unpri.org/climate-change/directory-of-climate-scenario-tools/3606.article>

Climate engagement in practice

Illustrating ways companies can be selected for engagement and objective setting

The following diagrams illustrate:

- The engagement selection criteria
- The engagement objectives, and
- The impact that engagement program represents in terms of GHG emissions

In this example, the benchmark index is the FTSE Developed and the companies in the engagement list represent 27% of CO₂ emissions (scope 1 and 2).

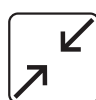


Target companies

- Focus on companies in oil and gas, utilities (ex. water) sectors that are underweighted in the climate-aware model
- Among underweighted companies, select those which we believe offer the most potential for successful engagement



- Engagement with 50 companies (22 oil and gas, 28 utilities)
- Regions: North America, Europe, Asia and Australia



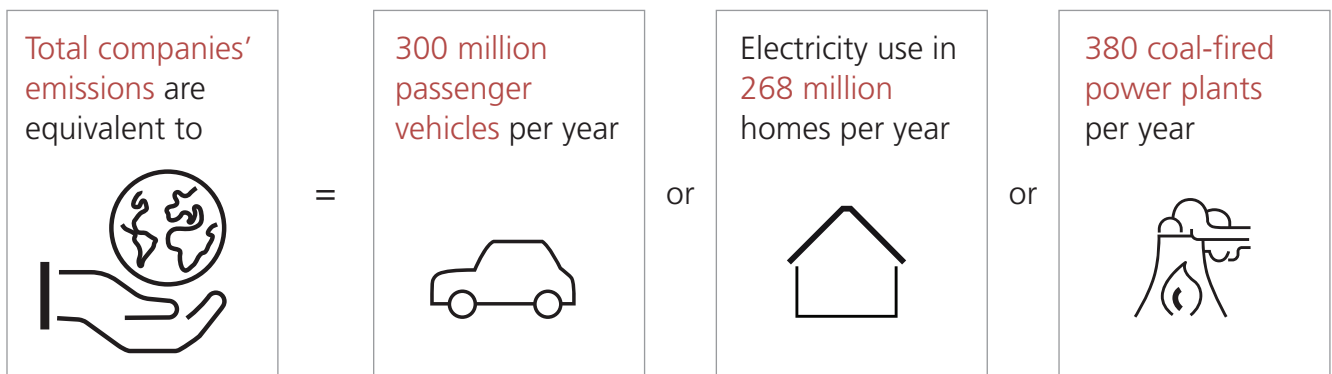
Engagement objectives

- Alignment with the Taskforce on Climate-related Financial Disclosure (TCFD)'s disclosure recommendations on governance, strategy, risk management, metrics and targets
- Progress on climate issues at the board level, either through management incentives relating to climate issues or the appointment of at least one director with expertise in climate issues
- Evidence of 2°C scenario testing, demonstrating the impact of a 2°C scenario on the business model
- Disclosure on strategy and initiatives for reducing GHG emissions
- Disclosure of goals and progress to reduce normalized GHG emissions
- Disclosure to Carbon Disclosure Project (CDP)

Source: UBS Asset Management September 2019. For illustrative purposes.



Example engagement focus list:



Source: UBS Asset Management September 2019. For illustrative purposes.

We've recently seen a marked rise in engagement with corporates on their climate strategy, governance and disclosure, both from institutional and private wealth investors.



Proxy voting

The rise of shareholder resolutions

Between 2009 and 2018 investors saw a growing trend of shareholder resolutions in company meetings relating to climate change. Like engagement, proxy voting can be a valuable way to address climate change head-on with companies.

During 2019 the widely varying levels of support among asset managers for climate-related shareholder resolutions came under close scrutiny. In November 2019 Share Action (the responsible investment campaign group) ranked UBS as the leading asset manager for voting on climate resolutions. They examined the shareholder votes cast by over 50 of the world's largest asset managers on a total of 65 proposals that would speed up corporate action on climate change, including emissions reduction targets, climate reporting and governance, and corporate lobbying⁴³.

Overall, it found that institutional investors in Europe are more prepared to hold companies accountable on climate issues versus their US peers. We're proud to have been ranked the best performer, supporting over 90% of the climate resolutions in the study.

Engagement isn't just an institutional approach. It also helps private clients generate sustainability improvements in areas they care about, while potentially enhancing the commercial performance of the company in which they've invested.

High client appetite for corporate engagement has led us to start three dedicated engagement investment strategies, as well as developing engagement strategies within our asset management division.

The use of active engagement to bring about policy and strategy change is central to each instrument's investment thesis. The most recent effort, a partnership with Hermes Investment Management and Federated Investors, breaks new ground as the world's first fixed-income-focused engagement fund. It draws on work by the UN Principles for Responsible Investment, which argues that frequent refinancing of debt obligations gives fixed income investors more opportunities for corporate engagement than their equity investor counterparts have.

⁴³ <https://shareaction.org/investors-inconsistent-climate-votes/>



Driving climate action through partnerships

Accelerating the transition

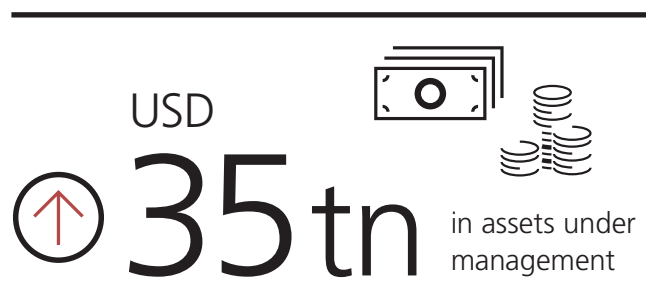
Collective engagement – speaking with one voice

Given the existential threat posed by climate change, investors need to act collaboratively to address the issue and support their efforts so they achieve maximum impact. That means investor partnerships are essential. Bringing together diverse stakeholders and uniting around the common goal of addressing climate change is critical if action is to be taken at the scale needed to meet the climate challenge.

Fortunately, several important collaborative partnerships have emerged in recent years. This suggests that investors are indeed starting to act at scale, offering a hopeful signal that tangible action is being taken which is capable of generating results.

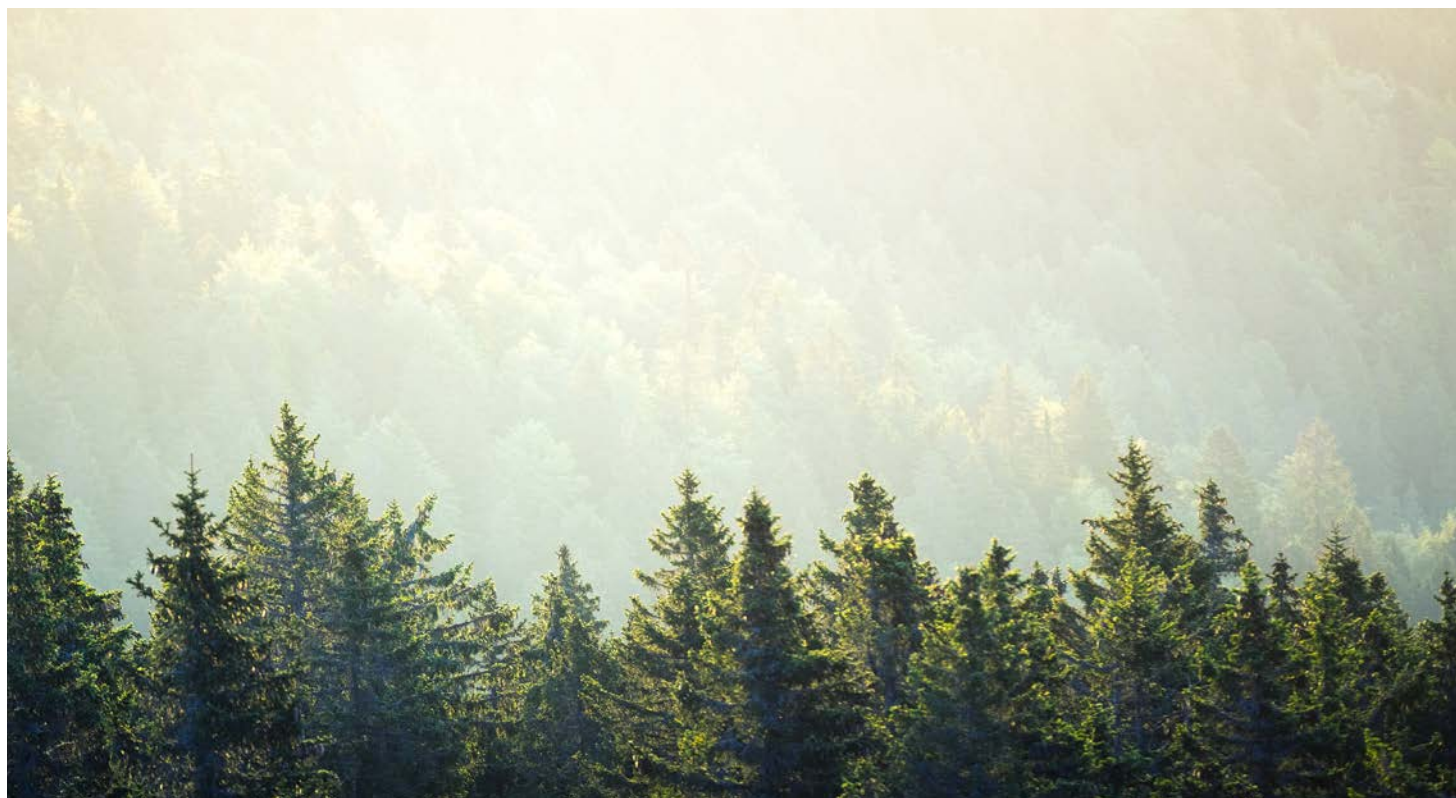
The work of Climate Action 100+ (CA 100+) is arguably one of the most successful collaborative engagement efforts in history. It offers a powerful example of the way investors' collective engagement with companies can drive the low-carbon transition. Formed in 2017, it's co-ordinated by five partner organizations: Asia Investor Group on Climate Change, Ceres, IIGCC, UN Principles for Responsible Investment and the Investor Group on Climate Change.

In September 2019 its membership base numbered 373 signatories, representing over USD 35 trillion in assets under management. Together, they're engaging with 161 global companies across 33 markets⁴⁴.



Those companies are either key to the low-carbon transition, or considered systemically important greenhouse gas emitters. They account for over 80 percent of corporate GHG emissions, based on 2018 data reported to the Carbon Disclosure Project, and CA 100+ analysis. As such, they're critical to the de-carbonization of investment portfolios and the global economy.

⁴⁴ <http://www.climateaction100.org/>



Institutional coalitions can deliver a unified message to industry on climate change

As well as improving insights and best practice, investor coalitions can effectively deliver a unified message to industry on climate change – a powerful incentive for investee companies to focus and act.

As noted earlier, the IIGCC initiative is perhaps the most significant initiative to explore the alignment of investment portfolios to the goals of the Paris Agreement. This collaborative project is being led by a steering committee of leading European investors. Through the sharing of best practice among both asset managers and asset owners, the IIGCC provides a mechanism for investors to work together more quickly to align their portfolio strategies with the Paris Agreement.

Partnering with academia and business to deepen the knowledge base

We've already highlighted the valuable educational role that sell-side research plays in relation to climate change. As well as in-depth published research, the research team also hosts

several industry conferences and events, such as 2019's ESG & Sustainable Investing Symposium in partnership with GRASFI (Global Research Alliance for Sustainable Finance), which saw speakers from across our firm, as well as academia and business. Institutional investor clients have much appreciated "think tank" style lunches with individual Global Visionaries. Meanwhile, our European Oil team recently led an Oil Sector ESG day, where about two thirds of the clients were "mainstream" and the remainder ESG specialists. Several leading oil firms were also present.

Private wealth is also engaging more closely with networks of grassroots sustainable businesses and non-profit organizations to improve awareness of sustainability issues

An example of one such network is the UBS Global Visionaries program, a group of more than 20 social entrepreneurs. Their work, which spans medicine-delivering drones to vertical farming, can help private client investors better understand the world's most pressing sustainability issues and identify the best ways to tackle them to achieve the UN SDGs.

#TOGETHERBAND centers around the conviction that none of the goals, including SDG #13, Climate Action, can be achieved without collective, multi-sector action.

TOGETHERBAND

Besides these actions in the financial community, we're acting on the climate emergency through the #TOGETHERBAND initiative, which supports the UN Sustainable Development Goals.

#TOGETHERBAND centers around the conviction that none of the goals, including SDG #13, Climate Action, can be achieved without collective, multi-sector action. Created in the spirit of SDG #17, Partnership for the Goals, #TOGETHERBAND brings together people and organizations who share the commitment towards a more sustainable future. It aims to generate mass awareness and engagement on the SDGs.

Raising consciousness among the public at large and investors of any size is important for several reasons:

- It can create demand for actual change, as well as for sustainable investments
- Our everyday actions have the potential to significantly impact the creation of a more sustainable future
- Broader awareness generates broader opportunities for collaboration

#TOGETHERBAND was founded by sustainable fashion company Bottletop and UBS. A wide range of partners, such as the UN Foundation, WWF, Project Everyone, To.org and several ambassadors and world-leading experts on each of the SDGs are supporting the project.

The initiative offers a tangible, accessible way to drive awareness by offering sustainably-produced wristbands, one for each of the SDGs. The bands are a symbol to wear and act as a reminder of the role everyone can and needs to play to achieve a sustainable future. Each package of #TOGETHERBANDS includes two bands. Everyone is called on to choose a SDG, wear the corresponding #TOGETHERBAND and share the second one with someone else, thus raising awareness and continuing the conversation.



Goal #13 Climate Action:

Climate change is a serious threat to life as we know it. The impacts are visible and will be catastrophic unless we come together and act now. We need education, innovation and a commitment to the changes necessary to protect our planet.

ubs.com/togetherband

Looking to the future

Our climate commitments at UBS

As our own climate strategy makes clear, UBS AG is committed to supporting clients in their own climate change transition. Alongside that commitment sit our actions to manage the risks to our balance sheet, activities and stakeholder relationships. Putting that commitment into action, UBS will continue to focus on the development of investor relevant solutions.

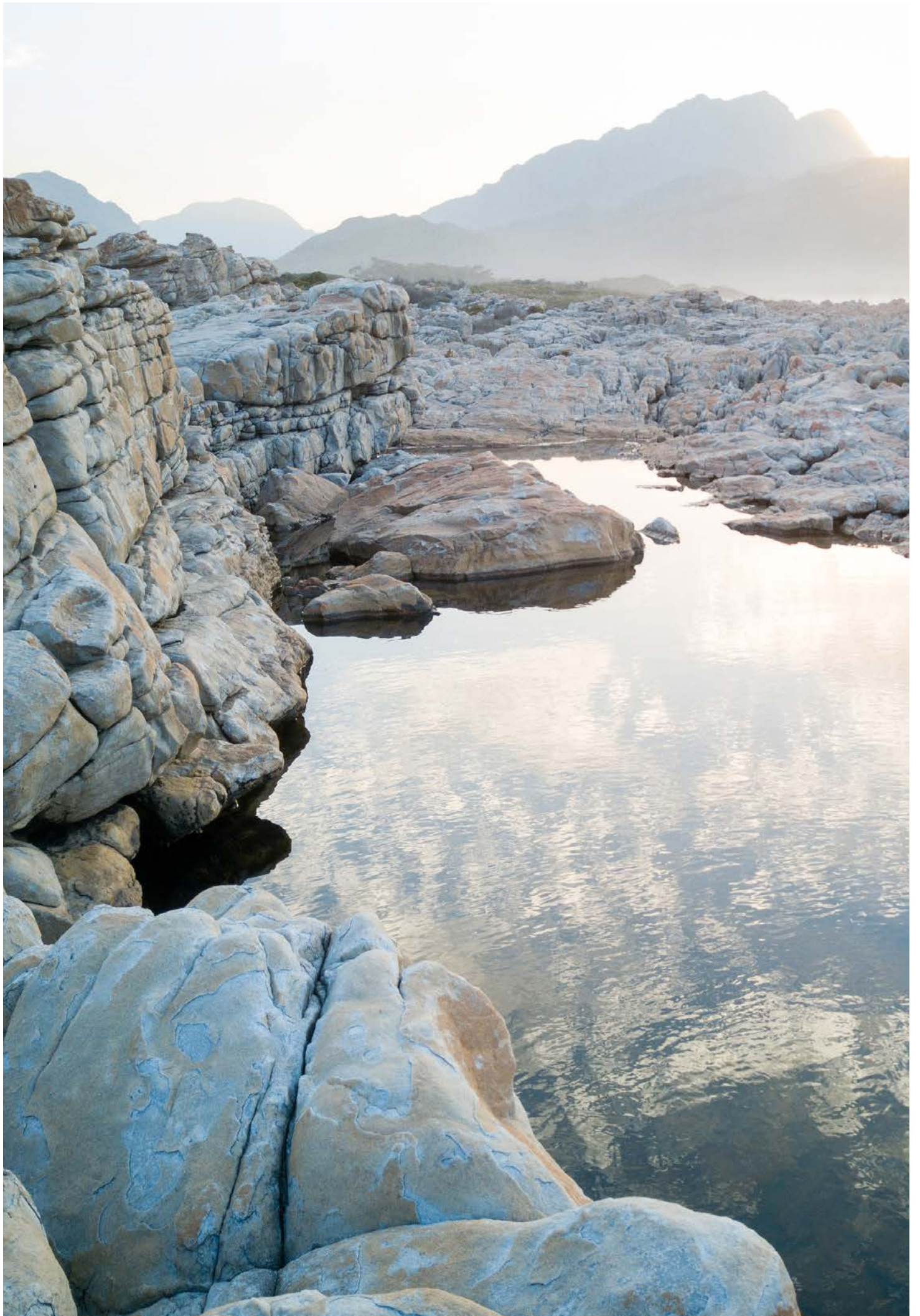
For our private wealth clients we will promote the use of green bonds in private wealth portfolios as an

UBS AG is committed to supporting clients in their own climate change transition.

investment grade credit substitute. Also, as part of Global Wealth Management's personalized investment advice process, climate change will be offered as one of the key topics clients can indicate their preference on. Mapping of climate data to approximately 10,000 issuers supports this approach. And in addition, further partnerships will be developed with multilateral development banks to drive scalable climate change strategies.

For our institutional clients we will continue to systematically identify and measure climate change risks in active portfolios through the enhanced use of our proprietary tools and techniques, most notably glidepath and scenario analysis, in order to align investments to the most appropriate climate trajectory. For all products we will establish ESG and climate risk metrics to further enhance levels of oversight and reporting. And in order to broaden the suite of climate solutions available to our clients, we will further expand our climate aware approach across asset classes, within active and passive.

Our product commitments will be underpinned by the publication of a TCFD style climate report. Our investor collaborations will extend further still to membership of the One Planet Sovereign Wealth Funds Framework and we will sponsor the IIGCC Portfolio Aligned Investment Initiative.



Contact us

If you would like to learn more about our climate initiatives and the various ways we can help you invest for a lower-carbon world, please contact your client or financial advisor.

ubs.com/contact

ubs.com/wef-2020

Photographic information has been sourced from the following publications:

- Pp. 10–11, <https://www.britannica.com/science/iceberg/Climatic-impacts-of-icebergs>
- Pp. 14–15, *The Great Barrier Reef Outlook Report 2014 – In Brief*. Published by the Australian Government Great Barrier Reef Marine Park Authority
- Pp. 30–31, Thrive Global, May 2019. <https://thriveglobal.com/stories/making-a-sustainable-impact-with-rooftop-gardens/>
- Pp. 38–39, National Ocean Service, October 2019. <https://oceanservice.noaa.gov/facts/saltmarsh.html>

Creative concept and design: Kelly McLaughlin, UBS Asset Management

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