# TCFD recommendations: Climate-related disclosure

**We know that if society continues to emit greenhouse gas at current rates, global warming will speed up and that temperatures above 2° Celsius (2°C) – relative to the pre-industrial period – could have catastrophic economic, environmental and social consequences.**

**This is driving a growing demand for decision-useful, climate-related information and the development of several climate-related disclosure standards. The Task Force on Climate-Related Financial Disclosures (TCFD) was established in December 2015 with the goal of developing a set of voluntary climate-related financial risk disclosures, which companies can adopt to inform stakeholders of the risks they face in relation to climate change.**

The TCFD developed a stand-alone document for organizations to use when preparing disclosures, structuring their recommendations around four themes that represent core elements of how organizations operate: governance, strategy, risk management, and metrics and targets.

In 2021, we stepped up our TCFD efforts to assess the physical risks of climate change, as we developed two scenarios – a baseline and a 4-degrees global warming scenario by 2040 – and assessed the impact on our supply chain, our own operations and our customers.

In this document, we aim to follow the TCFD's recommendations. The overview may not, however, fully comply with the recommendations of the TCFD. For example, going forward we aim to develop a more holistic approach to climate change related risk and opportunities identification by integration in Enterprise Risk Management, conduct more location specific analysis when relevant and involvement of our value chain. This document also discusses risks related to climate-related matters but may not include all the risks that may ultimately affect ASML in this regard. Some risks not yet known, or believed not to be material, could ultimately have a major impact on our business objectives, financial condition, results of operation and reputation.

This document is a supplement to our Annual Report 2021, and references are made to the Annual Report 2021.

## Governance

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

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| Recommended disclosures: | a. | Describe the board's oversight of climate-related risks and opportunities. |
| | b. | Describe management's role in assessing and managing climate-related risks and opportunities. |

We manage ESG sustainability through a robust framework, governed by several levels to drive accountability and execution, which include Board of Management, ESG Sustainability committee, ESG Sustainability office, topic specific action owners and experts.

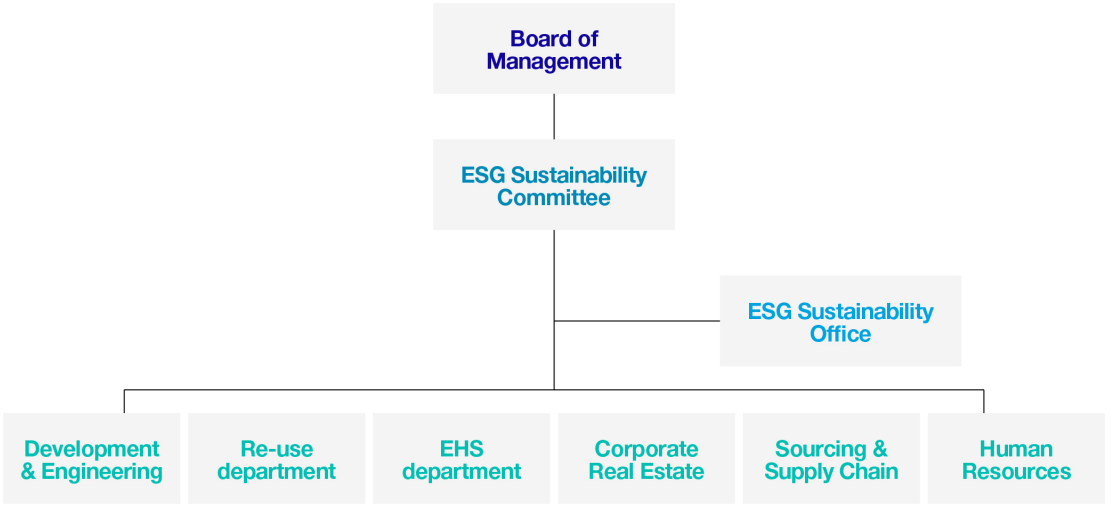
Our Board of Management approves and signs off our ESG Sustainability strategy. They are responsible for policymaking and the supervision of ASML's ESG Sustainability Strategy, as well as its compliance with legal and reporting requirements. This includes addressing the principal risks and opportunities related to the strategy. The Board of Management meets regularly to give guidance on relevant issues, including climate related risks and opportunities.

The ESG Sustainability Committee (SC) comprises members of the Board of Management and senior management executives and is headed by our CEO and COO. The ESG SC aims to optimize coordination and alignment at company wide level. The ESG SC is charged with developing corporate-wide ESG sustainability policies and has overall responsibility for monitoring and reviewing the ESG Sustainability KPIs to track progress. This also includes initiatives and actions addressing climate change matters. The ESG SC is equally focused on creating positive social and environmental impacts. The results of the climate related risks and opportunities, in this report, will be discussed in the ESG SC in 2022.

Our ESG Sustainability Office is responsible for overseeing and implementing our ESG Sustainability Strategy, and facilitating the ESG SC, such as facilitating the accomplishment of sustainability management policies and goals. Furthermore, the ESG Sustainability Office is tasked with identifying key issues, risks and opportunities (including climate change relates matters), global trends and (peers) best practices that could impact various short, medium and long-term ESG sustainability objectives.

Each of the material topic and responsible business theme is assigned to a senior executive, supported by a topic expert. Each senior executive is responsible for a KPI from the ESG Sustainability Strategy and is responsible for monitoring progress against agreed targets, and ensuring there are sufficient resources available to meet targets and objectives. In the event of insufficient progress, this is discussed at operational performance review meetings and raised during the ESG SC meetings.

Climate-related risks and opportunities are identified, assessed and managed the same way as other risks described in Sections 'How we manage risks' and 'Risk factors'– Annual Report 2021 through our Enterprise Risk Management (ERM) process. For more information on Board's oversight of risk refer to section 'How we manage risks' (Risk Management Governance Structure). The results of periodic risk-assessments and potential impact of external trends and emerging risks are captured in the ASML risk landscape. The ASML risk landscape is reviewed, updated and discussed by the Corporate Risk Committee each quarter. Our ERM process provides a holistic approach combining both top-down (company-level) and bottom-up (organization- and process-level) perspectives. This helps us to ensure that risk identification, evaluation, and management are performed at the right level. The main value chain stages included, but not limited to, are our direct operations, upstream (our supply chain) and downstream (our customers) value chain. We define strategies to address relevant risks and take these into account when we define the corporate priorities.




## Strategy

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

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| Recommended disclosures: | a. | Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term. |
| | b. | Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning. |

We believe digital technologies are the cornerstone of a sustainable society. Enabled by microchips, they form the heart of tools and solutions that can help society make progress and address global challenges, such as tackling climate change by reducing energy consumption and greenhouse gas (GHG) emissions.

In terms of carbon footprint, we identify three impact areas: the direct emissions from fossil fuels (scope 1) used on our premises, the indirect emissions from the electricity consumption (scope 2) on our premises, and the indirect emissions in our value chain (scope 3) from upstream supply chain and downstream use of our products by customers.

Our ambition is to achieve carbon neutrality with net zero emissions in our operations (scope 1 and 2) by 2025. Through close collaboration with our suppliers we aim to achieve net zero emissions in our tier-1 supply chain by 2030. In addition, through industry collaboration on a joint roadmap, we strive toward net zero emissions for our products' use at our customers (scope 3) by 2040.

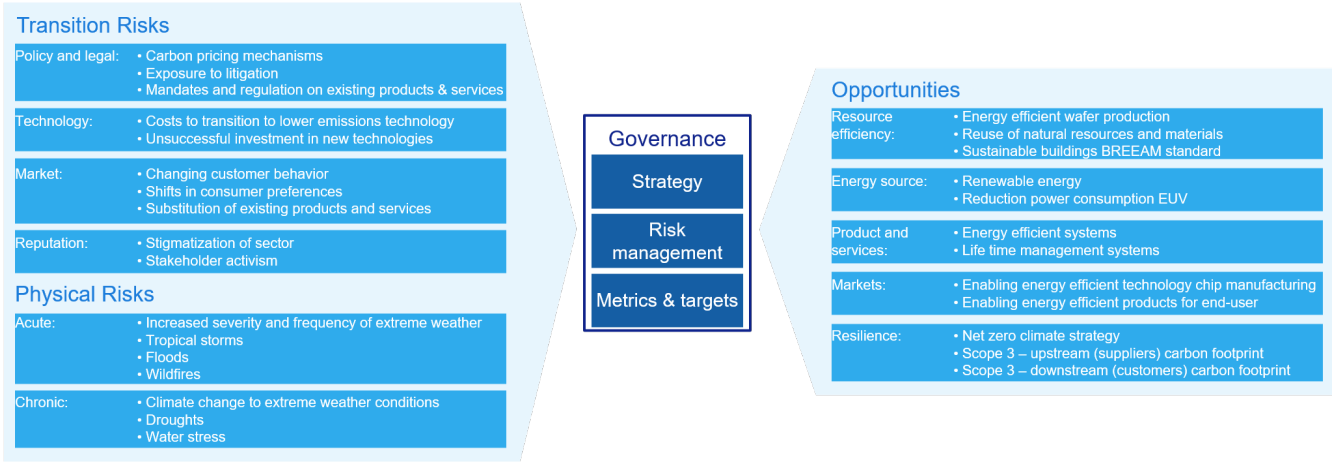
In the climate change scenario analysis we have applied an 2040 time horizon, to align with the timeline of our scope 3 ambition. However, in the risks and opportunities identification we use a shorter timeframe, due to an increase in uncertainties with longer timelines.

The time horizons over the short-, medium- and long-term, which we apply in the risks and opportunities identification and related impact, are as follow:

i. Short-term: from 0 to 1 year
ii. Medium-term: from 1 to 3 years
iii. Long-term: from 3 to 7 years

A summary of the climate-related risks and opportunities we identified at this moment in time, which could lead to positive or negative impacts, if not managed, is shown in figure 1.

**Figure 1: Summary of climate related risks and opportunities identified**




In the following sections, we discuss the transition and physical risks and opportunities we have identified.

**Transition risks**

Transitioning to a lower-carbon economy may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of impacts. We monitor climate change-related regulations and policies to understand the potential impact and opportunities for our business and stakeholders.

The European Commission released its Fit for 55 legislation package supporting its commitment to reduce net greenhouse gas emissions by at least 55 per cent by 2030 compared to 1990. The package aims to accelerates climate efforts through an interconnected set of revised and additional regulations and directives in the areas of climate, energy and transport. Amongst other expansion of emission trading to new sectors, increased focus on energy efficiency and higher use of renewable energies are included. Although still under discussion in the Parliament and the Council of the European, the outcomes are expected to impact the energy and transport costs.

The Netherlands is part of the United Nations Framework Convention on Climate Change (UNFCCC) and a signatory of the Paris Agreement. The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5°C. The Dutch government has set the goal to reduce GHG emission by 55% in 2030. The Dutch government has stated that its ultimate ambition for the industry is to be circular, and to no longer emit greenhouse gases by 2050.

| | Policy and legal | Technology | Market | Reputation |
|---|---|---|---|---|
| **Description** | Politicians can implement measures to achieve these goals, such as carbon-pricing mechanisms to reduce GHG emissions. In addition, new regulations may restrict or lead to fossil fuels being abandoned altogether, | Our lithography systems and applications have become increasingly complex, and accordingly, the costs and time involved in developing new products and technologies have increased. | Limited number of customers. With the increase in global awareness of climate change, managing the environmental impact of products is a concern for our customers and other stakeholders. They may prefer to change to products with lower carbon footprints. | The semiconductor manufacturing process consumes large volumes of energy and water resources. With the increase in global awareness of climate change, managing the environmental impact of products is a concern for our customers and other stakeholders. |
| **Time period** | Medium term | Long term | Medium term | Long-term |
| **Likelihood** | Possible | Unlikely | Possible | Unlikely |
| **Assumptions** | We have seven manufacturing sites around the world. Veldhoven is the largest of these, representing around 80% of our total gross GHG emissions (scope 1 and 2). | Generally, the success of new product introductions is uncertain and depends on our ability to successfully execute our R&D programs. | Our customers operate in countries where strict GHG emissions supply and/or usage quotes by national law/regulations may apply. Customers may pass those requirements on to our products and services. | Investors and other stakeholders are increasingly focused on ESG practice. |
| **Impact** | The Dutch government expects a considerable contribution from industry to achieve its emissions goals. Should carbon-pricing be implemented, then associated financial costs of energy is expected to increase. Restrictions on fossil fuels may lead to asset impairments and/or could result in a need to redesign products and/or purchase at higher costs new equipment or materials with lower carbon footprints. | There is a risk we will not be able to develop new technologies to reduce energy consumption or the cost of the transition will be very high. Our suppliers may not have the means or be willing to invest the resources necessary to continue developing new technologies. This may lead to us contributing funds to such R&D programs or limiting the R&D investments we can undertake. | The lithography equipment industry is highly competitive, and our capacity to compete depends on our ability to develop new and enhanced lithography equipment. enhanced lithography systems. Failure to meet our customer expectations may lead to damage to our reputation and/ or sales loss. | Failure to achieve our ESG objectives, meet the emerging ESG expectations of our stakeholders and/or timely respond to enhanced regulations could negatively affect our brand and reputation. |
| **Our approach** | We monitor climate change-related regulations and policies to understand the potential impact and opportunities for our business and stakeholders.<br><br>We deploy our carbon footprint strategy, which we aim to achieve net zero emissions for scope 1 and 2 by 2025.<br><br>We deploy our product energy efficiency roadmap to reduce the carbon footprint of our products and enabling low carbon technology and products in the value chain. | We develop our technology and product roadmaps in close collaboration with our customers and supply chain partners.<br><br>We assess supply chain capabilities and business continuity to secure our roadmaps.<br><br>We monitor market developments. | We develop our technology and product roadmaps in close collaboration with our customers and supply chain partners.<br><br>We make sure that these are aligned with our customers' roadmaps.<br><br>We assess supply chain capabilities and business continuity to secure our roadmaps.<br><br>We monitor market developments. | ESG focus on minimizing environmental impact and contributing to climate change mitigation and adaptation efforts.<br><br>Continuous engagement and open dialogue with our stakeholder groups and reporting on our ESG objectives and progress.<br><br>Employee network group 'Green@ASML' to create awareness and local initiatives. |

| | Policy and legal | Technology | Market | Reputation |
|---|---|---|---|---|
| **Metrics** | • Cost of energy<br>• Total energy consumption - operations (fossil fuels and electricity from renewable and non-renewable resources)<br>• Scope 1 emission<br>• Scope 2 emissions<br>• Total energy consumption – our lithography systems | • R&D costs<br>• Number of R&D partners<br>• Investment in EU research projects<br>• Customer feedback survey<br>• Supplier profiling and performance dash board<br>• Number of patents | • Market size<br>• Growth potential<br>• Holistic lithography product portfolio | • External ESG ratings and rankings |

**Physical risks**

Physical risks resulting from climate change can be event driven (acute) or longer-term shifts (chronic) in climate patterns.

Acute physical risks refer to those that are event driven, including increased severity of extreme weather events, such as cyclones, hurricanes, or floods. Chronic physical risks refer to longer-term shifts in climate patterns (e.g., sustained higher temperatures) that may cause sea level rise or chronic heat waves.

Methodology scenario analysis: We have conducted climate change risk analysis for two scenarios baseline and 4.0°C by 2040. In this analysis we assessed five climate risks – droughts, floods, tropical storms, water stress and wildfires. Applying recognized global and regional databases, risks within our value chain are assessed. The scope includes location of own production locations and the locations of our main customers and suppliers. We found during our analysis that most of the longer-term climate change modeling and projections are of a global nature and subject to significant uncertainties (type of RCP and SSP applied). To understand the local/regional impacts, we need climate change related data on local level.

In addition, we have used the IPCC latest AR6 Climate change tooling (Interactive Atlas), to model the five climate change risks against future projections based on the scenario criteria applied, after which we have mapped out the regions where our operations facilities, main customers and suppliers are located. (see Figure 2).

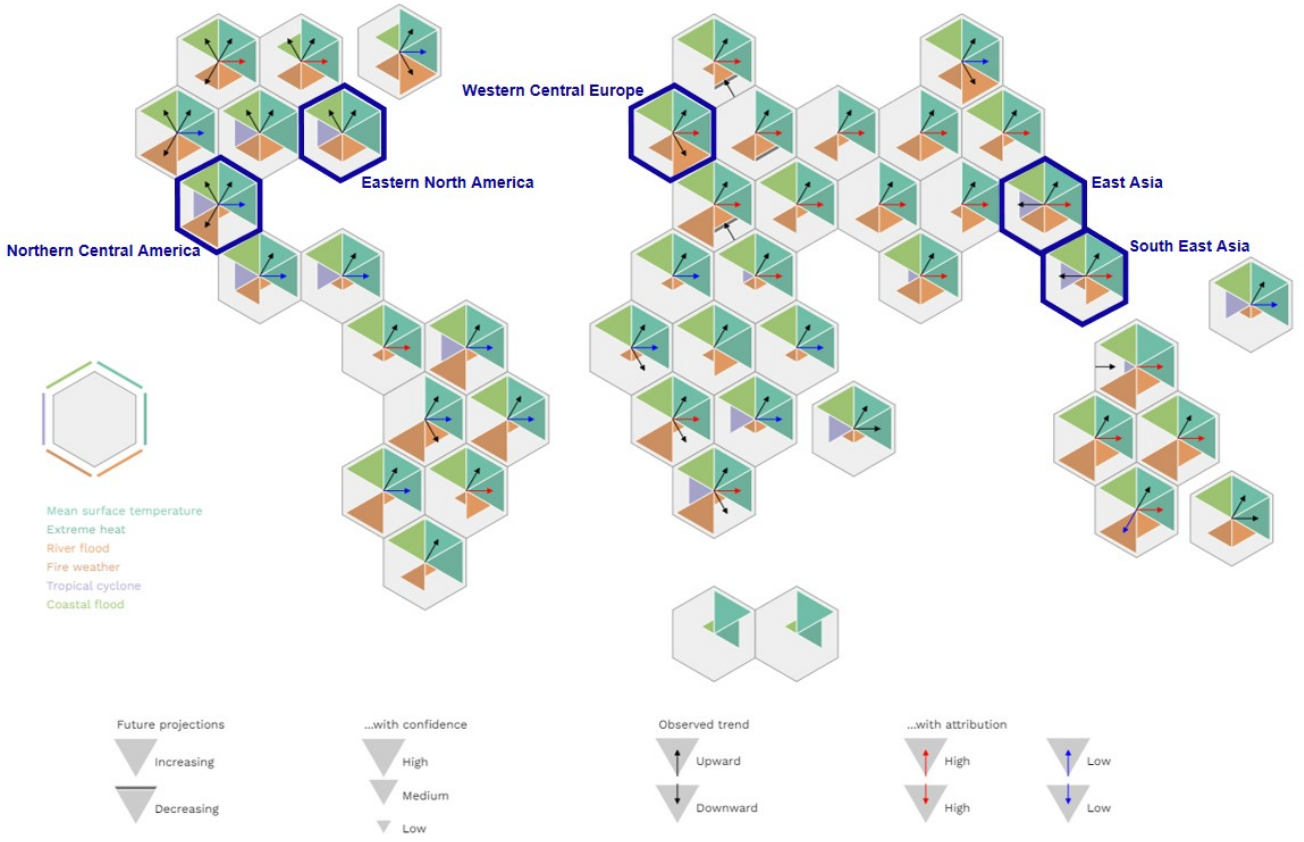
Where risks are considered as potential medium or high we evaluate the options to mitigate the risk through own actions or by cooperation with partners in the value chain.

The assessment will be reviewed on a yearly basis as changes can occur in the future. Uncertainty also arises from the differing temporal and spatial scales over which climate related risks develop. For example, acute physical risks, such as extreme weather, wildfires, and heatwaves, develop over shorter time frames (e.g., annually) and at local or subnational spatial scales. Chronic physical risks, such as long-term changes in precipitation patterns and average temperatures, develop over longer time period (e.g. decadal) and at global and regional scales.

| | Scenario 1 | Scenario 2 |
|---|---|---|
| **Description** | Global warming limited to 1.5°C (baseline 1850-1900) | Global warming limited to 4°C (baseline 1850-1900) |
| **Time period** | baseline | 2040 |
| **Scenario** | SSP1 - RCP2.6 | SSP2 - RCP8.5 |
| **Assumptions** | Assuming that society will act vigorously to reduce green house gas emissions. Assuming that global emissions are reduced to net-negative and the global temperature increase is limited. | Assuming that there is less government action and regulations to combat climate change and emissions remain high, leading to higher global warming and increase shift in climate patterns. |
| **Impact** | Increased severity of extreme weather events such as cyclones, droughts and floods.<br>• This may result in (temporary) loss of revenue, due to business disruption and/or supply chain disruption.<br>• Suppliers may not be able to deliver materials resulting from transportation difficulties or reduced capacity.<br>• Increased capital costs (e.g., damage to facilities)<br>• Increased insurance premiums | Changes in precipitation patterns and extreme variability in weather patterns, due to rising mean temperatures and sea levels.<br>• This may result in disruption in our supply chain. Suppliers may not be able to deliver materials due to shifts in supply and demand for certain commodities (e.g. rare earth elements, minerals) requiring re-design changes in our products and / or requiring alternative materials.<br>• Write-offs and early retirement of existing assets (e.g., damage to property and assets in “high-risk” locations)<br>• Increased operating costs<br>• Shift in customer preferences toward products that produce lower emissions, consume less resources (e.g. mineral substances, electricity), or other requirements that require re-design changes in our products. |

| | Scenario 1 | Scenario 2 |
|---|---|---|
| **Results of our analysis** | Scope: total 31 locations (ASML, customers and suppliers)<br>• Droughts: on average the locations in scope are located in low to medium risk area. However, five locations of our customers operations are in medium to high risk area (southern Europe and east Asia)<br>• Floods: medium to high risk in east and south east Asia. We have two facilities located in this area and seven of our customer locations are located in this area.<br>• Tropical storms: on average the locations in scope are located in low to medium risk areas.<br>• Water stress: four supplier locations in Europe are identified as high risk areas. Two locations of our customers operations are in an extreme high risk area (southern Europe) and three locations of our customers operations are in a high risk area (East Asia).<br>• Wildfires: In general the Europe is deemed a low risk area. Two locations of our customers operations are in high risk area (central America). There were no data sources available for Asia. | Scope: total 31 locations (ASML, customers and suppliers)<br>• Droughts: the were no data sources available to assess the risks for the scenario's timeframe<br>• Floods: the were no data sources available to assess the risks for the scenario's timeframe<br>• Tropical storms: the were no data sources available to assess the risks for the scenario's timeframe<br>• Water stress: our own facility locations are projected to become medium to high risk areas, and extreme high risk for our facilities in the US. Four supplier locations in Europe are identified as high risk areas. However, the production of the materials by the supplier has limited water resource dependency. The locations of our customers operations in Asia and the US are projected to become extreme high risk areas.<br>• Wildfires: In general the Europe is deemed a low risk area. There were no data sources available for Asia and the US. |
| **Our approach** | Through our business continuity program we closely monitor the development of these risks and impact on our own operations and our suppliers.<br><br>We execute our ESG strategy focusing on minimizing environmental impact and contributing to climate change mitigation and adaptation efforts. | Through our business continuity program we closely monitor the development of these risks and impact on our own operations and our suppliers.<br><br>We execute our ESG strategy focusing on minimizing environmental impact and contributing to climate change mitigation and adaptation efforts. |

**Figure 2: IPCC Regional synthesis - Model projections 2100**




**Opportunities**

At ASML, we aim to make positive contributions to a digital and sustainable future with lithography products and services that enable further shrink. As a responsible organization, we want to do more to become a leader in sustainability, using our innovation strengths to get there.

We believe digital technologies are the cornerstone of a sustainable society. Enabled by microchips, they form the heart of tools and solutions that can help society make progress and address global challenges, such as tackling climate change by reducing energy consumption and greenhouse gas (GHG) emissions.

Our products continue to support the continuation of Moore's Law, which makes computation, communication and countless aspects of our lives more energy efficient. Pursuing our vision, we develop lithography technology to continue to produce

microchips that are three times more energy efficient every two years. In addition, we are helping our customers minimize the use of materials and energy required to produce advanced microchips.

We have defined a roadmap to get us to zero waste by 2030 and net zero value chain emissions by 2040. We develop lithography technology to continue to produce microchips that are more energy efficient with each new generation, replacing many energy-inefficient technologies, products and services. Reducing our environmental footprint and managing our waste – both from our operations and the use of our products and services – is key to our circular economy approach and sustainability practices.

We maintain our ambition to achieve carbon neutrality with net zero emissions in our operations (scope 1 and 2) by 2025. At the same time, we raise our ambition on scope 3 emissions. Through close collaboration with our suppliers we aim to achieve net zero emissions in our tier-1 supply chain by 2030. In addition, through industry collaboration on a joint roadmap, we strive toward net zero emissions for our products' use at our customers (scope 3) by 2040.

*Read more: ASML Annual Report 2021, section 'Our Strategy' and 'Climate and energy'*

## Risk management

Disclose how the organization identifies, assesses, and manages climate-related risks.

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| Recommended disclosures: | a. | Describe the organization's processes for identifying and assessing climate-related risks |
| | b. | Describe the organization's processes for managing climate-related risks. |
| | c. | Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management. |

Management of climate-related risks is currently conducted through three main elements. A proactive approach is followed through our sustainability strategy through which potential adverse impacts on our organization are mitigated in an early stage and avoid transition risks. Where physical risks could occur, insurances are in place to mitigate financial implications due to physical climate change impacts.

Our Enterprise Risk Management process assesses both top-down (company level) and bottom-up (organization and process-level) risks. It comprises financial and non-financial risk factors that could influence our operational, business continuity, financial and regulatory compliance objectives. The risk universe allows consolidated and comparative analysis across ASML. The financial and non-financial risk factors as identified in the risk universe are plotted in a risk landscape. The risk landscape contains the risk exposure as well as the main risk response (mitigating action). Both are discussed with the Board of Management and Supervisory Board. This Enterprise Risk Management process ensures that actions to mitigate risk are monitored through a system of multidisciplinary assessments, monitoring, reporting and operational reviews. *Read more in: ASML Annual Report 2021, section 'How we manage risks' and 'Risk factors'.*

In addition, for Climate-related risks, we have used the Climate-Related Risks, Opportunities, and Financial Impact guidelines as provided by the TCFD in conducting our risk assessment on climate change risk. In this assessment we assessed and identified risks at both company level (e.g. political, legal, reputation, market, etc.) as well as at asset level (e.g. physical) and we have identified the climate related opportunities for our company to contribute towards lowering the impact on climate change. *Read more in: section 2 Strategy.*

## Metrics and targets

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

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| Recommended disclosures: | a. | Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process. |
| | b. | Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. |
| | c. | Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets. |

*Read more in: section 2 Strategy and 3 Risk management in this document*

*Read more in: ASML Annual Report 2021, section 'Our Strategy', 'Climate and energy', 'How we manage risks' and 'Risk factors'.*

## Special note regarding forward-looking statements

This document contains statements that are forward-looking, including statements with respect to sustainability and other TCFD targets and goals including climate neutrality, plan to reduce and eliminate hazardous substances, energy efficiency targets, conflicts minerals policy and commitment to comply with laws and regulations, including guidelines for handling hazardous materials and chemicals and other non-historical statements. You can generally identify these statements by the use of words like "may", "will", "could", "should", "project", "believe", "anticipate", "expect", "plan", "estimate", "forecast", "potential", "intend", "continue", "target", and variations of these words or comparable words. These statements are not historical facts, but rather are based on current expectations, estimates, assumptions and projections about our business and our future financial results and readers should not place undue reliance on them. Forward-looking statements do not guarantee future performance and involve risks and uncertainties. These risks and uncertainties include, without limitation, risks relating to our ability to comply with our TCFD goals and targets and the risk factors included in ASML's Annual Report on Form 20-F and other filings with and submissions to the US Securities and Exchange Commission. These forward-looking statements are made only as of the date of this document. We do not undertake to update or revise the forward-looking statements, whether as a result of new information, future events or otherwise.