

2020 Task Force on Climate-related Financial Disclosures (TCFD) Index

At Illumina, we believe addressing climate change is one of the key topics to achieving a sustainable, just, and resilient future for all.

To understand the potential risks and opportunities of climate change, we conducted an assessment using the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

We are committed to transparency and as our program evolves, we will continue to share progress in our annual CSR Report and CDP submissions.

Governance

The Board of Directors (Board) provides oversight to the CSR program covering environmental, social, and governance (ESG) topics, including climate-related issues. The Board receives updates at least annually on current performance and future strategic plans, with additional updates provided if material changes occur.

The Illumina CEO is responsible for directing all aspects of company strategy, planning, and operations. Climate-related issues and projects associated with the reduction of our environmental footprint are escalated to the Board through the Illumina CEO and their direct reports. On at least an annual basis, updates on CSR, including climate-related topics, are provided to the Board of Directors.

The Chief Financial Officer (CFO) chairs the Executive CSR Steering Committee, which comprises a team of senior leaders drawn from across the organization, including the Chief People Officer, Chief Medical Officer, Chief Marketing Officer, General Counsel, Chief Product Officer, and SVP Operations. The CSR Executive Committee has overall responsibility for reviewing company activities related to CSR, including climate change.

The CSR functional group reports directly to the Chief Financial Officer (CFO), with responsibility for program recommendations, management, reporting, and oversight on efforts to incorporate sustainability into our business practices.

CSR is increasingly embedded into all areas of our business, including several supporting working groups with targeted focus such as: Diversity & Inclusion Steering Committee; Environment, Health & Safety Steering Committee; Quality Council; Public Policy Committee; Illumina Cares Champions; Sustainability Green Teams, and employee resource groups.

As we grow our CSR programming and the external sustainability landscape evolves, we will re-assess the frequency of regular updates to the Board and the potential assignment of responsibility to a Board sub-committee.

Strategy

Environmental sustainability was identified as one of our CSR core focus areas following our first materiality assessment and stakeholder engagement exercises. With the publication of our first CSR Report in April 2020, we announced our approach, focus, and targets. We established targets in support of the science-based methodology to align with the Paris Agreement and a scenario of well below 2°C. Our first sustainability targets are centered around our facilities, our supply chain, and our products. We plan to expand to include Scope 3 assessments in 2021.

We recognize that climate-related risks and opportunities span both physical risk (extreme weather) and transition risks (energy pricing, customer expectations, regulations, and technology). The following types of risk were identified in line with TCFD terminology: technology; market; reputation; acute physical; and chronic physical. Impact could be the result of business interruption due to climate-related risk or business operational impact. Impact is assessed for financial, operational, and reputational risk.

The following definitions apply to our assessment:

Time Horizon: Short (0–5 years), Medium (5–8 years), Long (8–10 years)

Likelihood: Not likely, As likely as not, More likely than not, Likely, Virtually certain

Impact: Low (ability to absorb financial, operational, reputational impact), Moderate (some impact to finances, operations, reputation), High (substantive financial, operational, strategic, reputational impact. Substantive financial impact would likely require material financial reporting disclosure)

Risk	Description	Time Horizon	Likelihood	Impact
Acute Physical	Increased severity and frequency of extreme weather	Medium	More likely than not	Moderate
	Increased severity and frequency of wildfires	Medium	More likely than not	Moderate
Chronic Physical	Changes in patterns for precipitation and extreme variability in weather	Long	More likely than not	Low
	Rising temperatures and sea levels	Long	Not likely	Moderate
Reputation	Increased stakeholder concern or negative stakeholder feedback	Medium	Not likely	Low
Market	Carbon or energy tax	Medium	Not likely	Low
	Supply chain raw material availability and cost	Medium	Not likely	Moderate

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Opportunities	Description	Time Horizon	Likelihood	Impact
Energy Source	Lower emission source of energy	Short	More likely than not	Moderate
Products & Services	Development of new products or services through R&D and innovation	Medium	More likely than not	Low
Resource Efficiency	More efficient buildings, processes, modes of transport	Short	More likely than not	Low
Markets	Access to new markets	Medium	More likely than not	Low
Resilience	Participation in renewable energy programs and adoption of energy-efficiency measures	Short	More likely than not	Moderate
Reputation	Consumer preferences	Short	As likely as not	Low

The climate change elements that have most influenced our strategy are physical risk to operations, supply chain impact, and reputation. These risks have been incorporated into business continuity planning, future product development, redundancy in supply chain where possible, and site selection for future growth. We are actively reviewing opportunities to further integrate climate into our processes and path to further expand resilience.

Examples of incorporation include: targets to align with the UN Sustainable Development Goals and utilize the Science Based Targets initiative (SBTi) methodology for a well below 2°C scenario (2DS); holistic goals of reducing the environmental footprint of our products throughout the life cycle; incorporation of Design for Environment into our new product design; and addition of a new logistics location to our network on the east coast resulting in cost savings, improved supply chain planning, and a reduction of air emissions. We have implemented redundant planning and maintained safety stock to provide resilience during severe weather events. For financial planning, we include risk and opportunities evaluated through our standard budget planning. Investment in energy-reduction projects that require capital expenditures are evaluated through the Capital Committee planning process. Potential indirect cost associated with supply chain, future tax, or increased operating costs from extreme weather would connect with these internal workstreams.

Climate Scenario Analysis

In 2020, we engaged with BSR (Business for Social Responsibility) to develop three 2030 climate scenarios linked to global warming by 2100. Our goal was to better understand the implications of climate change for our business and identify opportunities to build resilience.

Climate scenario analysis was completed using three plausible narrative future representations of our operating environment respectively aligned to a well below 2°C, a 3°C, and a 4°C level of warming. To map assumptions for each trajectory, we utilized standardized third-party climate modeling data, such as the Shared Socioeconomic Pathways (SSPs) and the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathways (RCP).

Climate Trajectory	SSP Scenarios	RCP	Variables Assessed
4°C	SSP 3 – baseline	RCP 8.5	GHG emissions, energy consumption, carbon price; physical impacts including temperature change, drought likelihood, heat wave probability, and maximum rainfall. Physical climate impact models used The World Bank Climate Change Knowledge Portal .
3°C	SSP 4-45	RCP 6.0	
Well below 2°C	SSP 1-26	RCP 2.6	

Under the 4°C scenario, global warming reaches 4°C by 2100, relative to pre-industrial temperatures. In 2030, we assume a geopolitically fragmented world with limited flows of goods or knowledge, and a challenging economic situation, worsened by disinformation and general mistrust. Limited action on climate policy will be taken and a doubling down on fossil-based energy sources will result. More frequent climate-related weather events impact most regions by 2030. This scenario utilizes data from RCP 8.5 and SSP 3 (high challenges to mitigation and adaptation).

Under the 3°C scenario, we assume a world in 2030 facing a slow global economy with fraught geopolitical alliances. Accelerating automation with uneven benefits leads to a focus on inequality. Society is slow to react to climate impacts, distracted by larger economic concerns. Carbon emissions have started to decline slightly: energy efficiency and renewable gains are easily offset by increased use of energy-intensive tech. This scenario causes some physical climate impacts by 2030. This model utilizes data from RCP 6.0 and SSP 4 (low challenges to mitigation, high challenges to adaptation).

Under the well below 2°C scenario, we assume a world in which global cooperation leads to economic recovery that fully embraces the low-carbon transition, with strong climate policy and regulatory action. Some severe climate impacts felt spur coordinated risk-containment efforts.

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While some physical impacts are already locked in, the pace of change slows and by 2050 the world is on a well below 2°C trajectory. This model utilizes data from RCP 2.6 and SSP 1 (low challenges to mitigation/adaptation).

The scenarios were reviewed in a cross-functional workshop that included key stakeholders across various business units. The implications for each scenario were discussed and participants identified risk and opportunity hot spots to help direct further integration of resilience planning and embed climate into our developing enterprise risk management program. We will be utilizing the climate scenario insights to expand influence on our climate planning evolution and business continuity plans.

Sample hot spots identified for further consideration included:

Hot Spot	Description
Supply Chain	Raw material availability, cold chain, and supplier community climate resilience
Physical Risks	Risk of acute and chronic physical risks to Illumina's operations and employees
Energy	Energy pricing and availability, renewables, customer expectations, and product energy efficiency
New Products/ Markets	Opportunities generated by climate change in agriculture, human health, and climate science
Geopolitical and Trade Dynamics	Availability of materials and feasibility of current operating model
Employee Demographics	Changing workforce demographics and culture, including implications of remote work
Social License to Operate	Perceptions of genomics, data privacy and security, and ethics of product use

Risk Management

To identify and manage climate-related issues we are integrating climate impact into our existing risk management structure using the Environment, Health & Safety team management system, the CSR materiality assessment, business continuity program management, supply chain risk reviews, and internal audit risk program. As our enterprise risk management program evolves, we plan to integrate climate as a key component.

Metrics and Targets

In 2020, we announced our 2030 sustainability targets with a focus around energy, water, and waste at our facilities. We created targets on engaging our strategic suppliers in our supply chain, and incorporating Design for Environment into our products and packaging. In 2021, we will assess our Scope 3 footprint and initiate planning for addressing our more holistic environmental footprint.

Metrics	Targets	Next Steps
Embed green design in new construction projects	Achieve LEED certification elements or regional equivalent	Continue reviewing opportunities to green our current and new facilities
Reduce emissions	30% reduction in portfolio level Scope 1 and 2 by 2030	Add Scope 3 emission reduction targets
Increase renewable use	50% increase from 2019 baseline by 2030	Continue to investigate renewable opportunities for our sites and start to review carbon offsets and/or PPA to complement energy conservation projects
Reduce water footprint	10% decrease at our main site locations by 2030	Identify water conservation projects that can be initiated at main sites
Reduce waste	Achieve >90% landfill diversion at our main site locations by 2030	Continue to seek opportunities to reduce sources of waste, repurpose waste, and increase recycling
Integrate Design for Environment principles in new product design	All new product development includes Design for Environment assessments	Identify product quantitative targets such as energy optimization in sequencers, plastic reduction, green chemistry, and circular model options
Packaging reduction	By 2030, achieve a 75% reduction in packaging; 50% recyclable primary packaging; 90% recyclable or reusable secondary and tertiary packaging; and 90% reduction in use of dry ice	Measure Scope 3 emissions and create targets for reduction
Magnify impact with suppliers	100% of our strategic suppliers have a commitment to reduce their environmental footprint	Scope 3 assessment, supplier physical risk assessment on key raw materials, develop climate indicators to embed in procurement process and vendor selection

Additional details on current energy, water, and waste levels can be found in the performance summary of this CSR Report, with additional impact stories in the sections on [Focus on Environment](#) and [Focus on Integrity](#).

Results

The results of our scenario analysis and review of the TCFD recommendations indicate there are some risks and opportunities in each scenario path. While we are confident that our business model is resilient and will continue on our growth trajectory, it is clear that we will need to continue to work to enable the realization of a world with a temperature rise of well below 2°C. We are currently evaluating how the results of this predictive analysis can best support inclusion of climate-related scenario analysis in business strategy development going forward. We are committed to investing to support a more sustainable future and will continue to evaluate risk and opportunities as external conditions evolve.