

TCFD REPORT

2022



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THE TCFD RECOMMENDATIONS

There is a growing demand for standardised, climate-related risk disclosure in the financial sector, and creditors and investors are increasingly asking for reporting that is consistent, comparable and clear. The Task Force on Climate-Related Financial Disclosure (TCFD) developed the TCFD disclosure recommendations to enhance market transparency and stability. TCFD encourages standardised reporting of financially material climate-related risks and opportunities to provide investors, lenders, and insurers with comparability when assessing and pricing companies.

The TCFD recommendations are grouped into four areas of disclosure that represent core elements of how organisations operate: governance, strategy, risk management, and metrics and targets. Moreover, the framework separates recommended disclosures into three main categories: risks related to the transition to a lower-carbon economy, risks related to the physical impacts of climate change, and climate-related opportunities. The TCFD has also incorporated potential financial impact as an integral part of its disclosure recommendations.

CORE ELEMENTS OF RECOMMENDED CLIMATE-RELATED FINANCIAL DISCLOSURES



Governance

The organisation's governance around climate-related risk and opportunities.

Strategy

The actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.

Risk Management

The process used by the organisation to identify, assess, and manage climate-related risks.

Metrics and Targets

The metrics and targets used to assess and manage relevant climate-related risks and opportunities.

Figure 1: Reprinted from "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures" (June 2017)

In line with the TCFD disclosure recommendations, the TCFD report is an integrated part of Borregaard's annual financial reporting.

TCFD CONTENT INDEX

GOVERNANCE	STRATEGY	RISK MANAGEMENT	METRICS AND TARGETS
Disclose the organisation's governance around climate-related risks and opportunities.	Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's business, strategy, and financial planning where such information is material.	Disclose how the organisation identifies, assesses, and manages climate-related risks	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.
Recommended Disclosures	Recommended Disclosures	Recommended Disclosures	Recommended Disclosures
a) Describe the board's oversight of climate-related risks and opportunities.	a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	a) Describe the organisation's processes for identifying and assessing climate-related risks.	a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.
b) Describe management's role in assessing and managing climate-related risks and opportunities.	b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.	b) Describe the organisation's processes for managing climate-related risks.	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.
	c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	c) Describe the targets used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and performance against targets

GOVERNANCE

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



Figure 2: Board-level oversight

Climate-related issues are integrated into Borregaard's governance mechanisms. The Board of Directors considers climate-related issues when reviewing and guiding strategy, risk management policies, annual budgets, and business plans, as well as when setting Borregaard's performance objectives. The Board has established an Audit and Sustainability Committee (ASC) which monitors and evaluates the more specific issues and plans on behalf of and as preparation for the Board meetings. Climate objectives are part of the business plan, which is prepared by the Sustainability Board. The Sustainability Board informs and guides the CEO and the Group Executive Management on which sustainability issues to address and measures to be implemented. The CEO reports current issues including sustainability issues to the ASC and to the Board of Directors. The CEO meets the Board and ASC 6-8 times a year. Progress on climate-related goals and targets are overseen and monitored by the Board of Directors in every meeting. Every quarter, the Board oversees climate-related issues such as emissions, and the Board sets overall climate-related goals for the company annually. An annual summary of climate objectives, climate risks and opportunities, as well as other material issues are reported in the integrated annual report which is approved by the Board of Directors. The Board of Directors also oversee major capital expenditures, acquisitions and divestitures where climate-related risks are considered in the process.

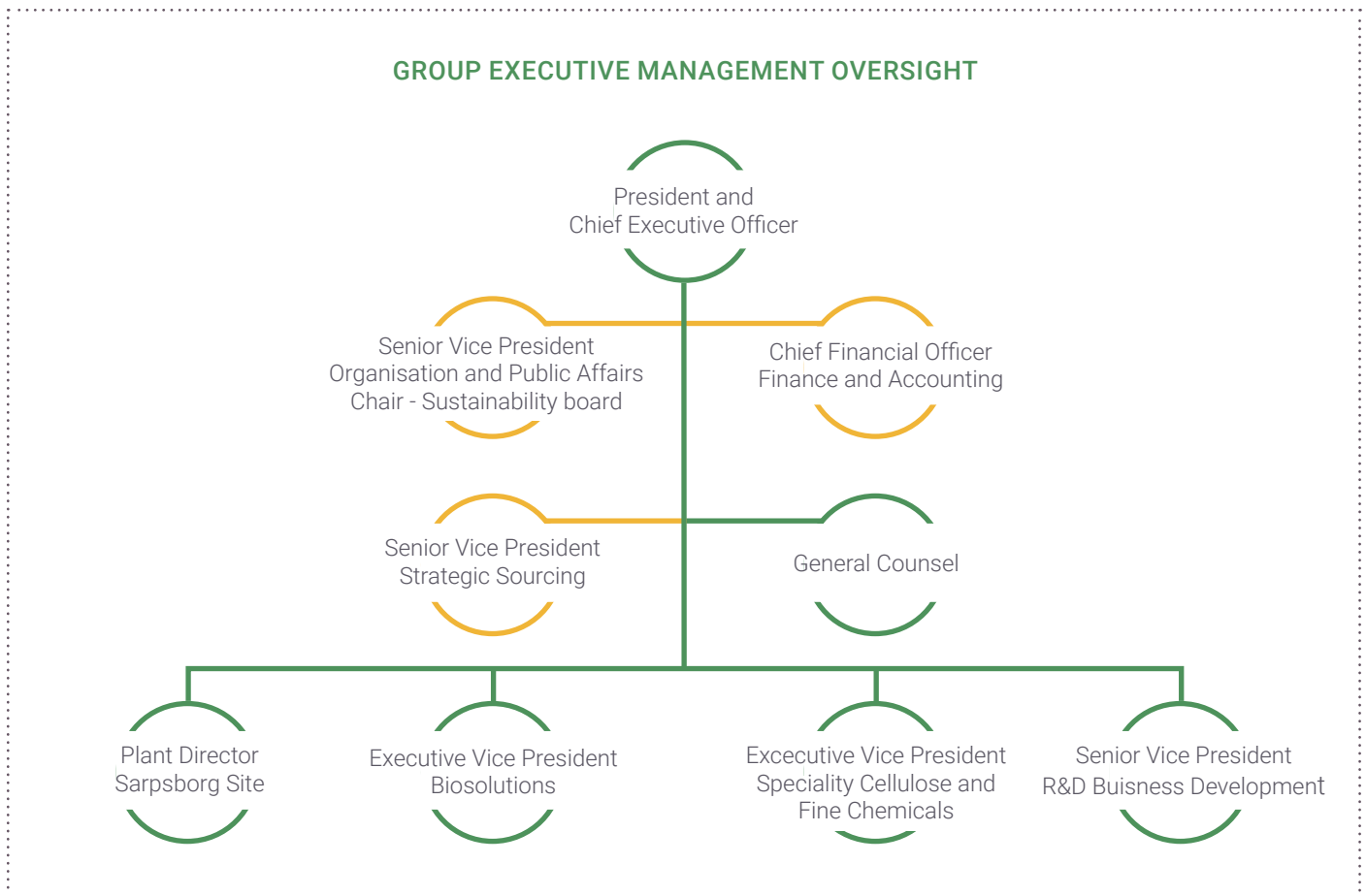


Figure 3: Group Executive Management oversight

The **President and Chief Executive Officer** (CEO) is the highest responsible for climate-related issues under the Board of Directors as climate-related issues are part of Borregaard's business strategy and are considered important for the company's long-term success. The CEO is ultimately responsible for monitoring, assessing and managing climate-related issues, including climate-related risks and opportunities. The CEO leads the Group Executive Management and reports sustainability risks and strategic issues to the Board of Directors continuously as relevant issues arise. It is of utmost importance for the company that the CEO has a complete picture of all climate-related issues that can affect the business plan. That enables the CEO to allocate the right resources in order to achieve long-term strategies and goals.

The practical monitoring, assessment and coordination of climate-related issues, including climate-related risks and opportunities are conducted by the Sustainability Board. The Sustainability Board are responsible for assessing Borregaard's sustainability and climate initiatives and coordinating this work in the value chain. The Sustainability Board reports directly to the CEO and the Group Executive Management and consists of three members from the Group Executive Management (represented in green), as well as other key employees at Borregaard with responsibilities within the value chain and sustainability.

The **Senior Vice President Organisation and Public Affairs** is chair of the Sustainability Board. The Sustainability Board coordinates all sustainability activities to ensure exchange of best practice, as well as sufficient progress and anchored priorities. One responsibility is to ensure that Borregaard's sustainability policies (e.g., Environment, climate, health and safety engagement policy, Human rights and working conditions policy, Anti-Corruption Manual, Code of Conduct) are up to date and in accordance with best practice. The SVP is leading the processes of setting science-based targets, developing management routines and input to the Audit and Sustainability Committee, and contributing to input for

monetary incentives and investments for climate-related activities. The SVP and the Sustainability Board are responsible for assessing and coordinating climate-related risks and opportunities. In order to offload the CEO in the day-to-day strategic environmental work, the SVP has been appointed the responsibility for chair of the Sustainability Board. The SVP is a member of the Group Executive Management and reports to the CEO.

The **Chief Financial Officer** (CFO) is member of the Sustainability Board and the Group Executive Management, and reports to the CEO. The CFO is responsible for internal and external financial reporting, financing and risk management, including climate-related reporting, ESG reporting and green financing. In this role, the CFO is responsible for that all public non-financial reporting is in accordance with the latest accounting requirements.

The **Senior Vice President Strategic Sourcing** is member of the Sustainability Board and the Group Executive Management, and reports to the CEO. The SVP is responsible for Borregaard's sourcing activities, including sourcing of energy, chemicals and transportation which are substantial emission sources for the Group. The SVP is also responsible for ensuring sustainable sourcing of natural, renewable raw materials and that Borregaard reaches its target of sourcing only certified wood. In this role, the SVP must ensure that all suppliers meet a set of requirements, including climate-related requirements, and that key suppliers improve their work on sustainability.

The other members of the Group Executive Management are managing and assessing climate-related risks and opportunities in their respective area of responsibility, even though they are not part of the Sustainability Board. As sustainability is one of Borregaard's core values it is natural that everyone in the top management have a particular focus on climate and sustainability in their roles.

STRATEGY

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

CLIMATE-RELATED RISKS AND OPPORTUNITIES IDENTIFIED OVER THE SHORT, MEDIUM AND LONG TERM

Borregaard assesses climate-related risks and opportunities in **short (1-4 years), medium (4-7 years (2030)) and long-term (7-27(2050)) time-horizons**. As climate-related issues often manifest themselves over a longer time-horizon, long-term time-horizon is expanded over 25+ years in our physical climate risk assessment.

TIME HORIZON	YEAR	
Short-term	1-4	Borregaard’s strategic and financial period has a time horizon of 4 years.
Medium-term	4-7	Borregaard’s environmental strategy contains a group-wide objective to achieve a reduction of greenhouse gas emissions by 2030 in line with a 1.5°C target from a 2020 base year. Plans to realise emission reductions in this time period is established, the first investment decisions are taken and our exposure to risks and opportunities related to climate change is evaluated
Long-term	7-27	Borregaard has committed to a long-term net-zero target towards 2050.

Table 1: Definition time horizons

We identify and assess company-level climate risks within our risk management model (ISO 31000). We have also used the TCFD framework to identify the most significant climate-related driving forces that are relevant for Borregaard and that might bring positive or negative financial or strategic impacts for the company. Below is a summary of this assessment.

RISK TYPE	DESCRIPTION OF RISK
Current and emerging carbon pricing mechanisms	Borregaard's site in Sarpsborg is subject to the EU's emission trading scheme (EU ETS). In 2022, the exposure was 143,042 tonnes CO ₂ . The price of carbon for the EU-ETS sector in socio-economic analyses is forecasted to NOK 1720 in 2040 (Karbonprisbaner for bruk i samfunnsøkonomiske analyser - regjeringen.no) and the allocation of free allowances will decrease, which will impact Borregaard's operational costs. In addition, other carbon pricing mechanisms covering the transportation sector is also likely to be implemented. Carbon pricing on emissions from transportation will impact Borregaard's indirect operations. Current and emerging carbon pricing mechanisms are considered a short to medium-term risk with high financial impact. The risk is an integrated part of business plans the priority of this risk is high. Borregaard has implemented several risk mitigation activities such as increased use of renewable energy and energy efficiency measures. The exposure to EU ETS for the emissions covered today is expected to be reduced to 20,000 tonnes CO ₂ and as opposed of today we will have no free allowances. Borregaard has committed to a net-zero science-based target for reducing its scope 1, 2 and 3 GHG emissions according to the 1.5°C ambition.
Changes in energy prices	The EU has decided to raise its emission targets for 2030 and submitted proposals for changes in regulations to achieve this. This has already contributed to raising the CO ₂ price significantly. This has also had a clear effect on power prices in Norway during the last year, as countries and companies are demanding more renewable energy at the same time as the capacity for other energy sources have been reduced. Low availability of natural gas in Europe due to the Russian invasion of Ukraine has resulted in extremely high power prices. Power prices will become more volatile and the average energy price is expected to more than double towards 2040. In 2022, Borregaard's total energy consumption was 1781 GWh, whereas heat energy was 1235 GWh (from LNG, light oil, biofuel, biogas, waste and electricity) and 546 GWh is power supply. With a more than doubling in energy prices in the coming years, Borregaard's indirect operational costs are likely to increase in the short to medium-term time-horizon. The Sarpsborg site is currently most exposed to this risk as the major part of the Group's production is located here. To reach the emission targets the share of renewable electricity in the energy mix must be increased and we will also have to increase the electric power supply from the grid by 35 MW. Working actively to reduce energy consumption as well as entering long-term contracts with energy suppliers to ensure stable energy prices for years to come, will make Borregaard adaptable to the increased energy prices.
Wood availability	In a world transitioning to a low-carbon economy, forests are likely to be more protected. Forests are a natural ally in adapting to and fighting climate change and will play a vital role in making Europe the first climate neutral continent by 2050. In EU's Forest Strategy, it is stated that at least 30% of EU's land area should be legally protected, hereunder strictly protecting ecosystems with the most potential to capture and store carbon (boreal forests from which Borregaard sources its wood) in trees and soil. More extreme weather such as storms, droughts and forest fires can potentially also damage forests. Reduced availability of wood due to the above-mentioned indicators, as well as a likely increase in demand for low-carbon products made from wood, will impact the wood availability in the years to come and increase prices. Increased prices of Borregaard's most important raw material will likely impact the company's costs in the short to medium-term time-horizon. The risk of wood shortage is mitigated to some extent as Borregaard has a solid market position and has the means to pay a price premium for wood. Further, Borregaard makes R&D investments to utilise more from the raw material and make higher value-added products, further increasing its market position. Another more long-term risk mitigation activity is to develop other types of bio-based raw materials that can be used as alternatives to wood. Borregaard has developed and patented the BALI concept. BALI™ is a biorefinery concept developed by Borregaard for production of cellulosic sugars, ethanol and lignin biopolymers based on various biomass raw materials.
Physical (Acute)	The supply chain and operations are likely to be impacted by acute weather events such as heavy rainfall or flooding (River Glomma and Rhine). Heavy rainfall can trigger increased frequency of landslides, potentially blocking road and rail transportation routes, as well as flooding in rivers, potentially limiting transportation by boat. This can lead to delays in the value chain, impacting the company's operational costs. To mitigate the risk of disruptions to the value chain, Borregaard sources wood from different locations in Norway and Sweden. We have alternative transportation modes for several of our routes, and we can store larger volumes of wood if needed. Heavy rain can also trigger quick clay landslides in the Sarpsborg region. This can potentially damage on-site infrastructure and buildings, and in worst case stop the production. When new buildings or infrastructure are built, this inherent risk is always accounted for, and financial impact of the risk is further mitigated by insurance solutions. We are doing investigation and measures to reduce risk related to ground. Higher temperatures will likely increase the number of coastal flooding and their severity at Borregaard's site in Fernandina Beach in Florida. Ingoing and outgoing logistics can be highly impacted, in addition to damage of equipment. The site is also exposed to tropical hurricane events and strong winds and has already been closed several times in connection with challenging weather conditions. To mitigate the risk of disruption in production Borregaard can temporarily source products from other sites.
Physical (Chronic)	The risk of sea-level rise is likely to impact Borregaard's site in Fernandina Beach in Florida after 2030. Even if the global temperature stays well-below 2°C, the sea level will rise 0.15 meters in 2030 and 0.28 meters in 2050. Sea-level rise at the Florida plant could interrupt inbound and outbound logistics from the site, damage equipment and potentially flood the site. The site in Florida was built adjacent to RYAM's pulp mill in 2018-2019, and Borregaard was well-aware of the potential physical climate impacts. Thus, to mitigate this risk of disruption in production, Borregaard can source products from other sites to ensure that the customers receive their products.

Table 2: Climate-related risks

OPPORTUNITY TYPE DESCRIPTION OF OPPORTUNITY

Resource Efficiency	<p>Borregaard's business model is based on the utilisation of as much as possible from a wood log to increase value-added of existing products and develop new bio-based products. We see opportunities in the efficient utilisation of sidestreams and cascading use. Borregaard's biorefinery is an extraordinary cascading operation where wood, which consists of fibres, lignin and sugars, is turned into cellulose before the sidestream from this operation is utilised for a variety of other valuable products. The sidestream from the production of cellulose fibres, is first used in the production of bioethanol before the sidestream from the ethanol operation is converted into lignin-based biopolymers. Parts of the lignin are also used in the production of biovanillin and parts of the cellulose are converted into cellulose fibrils. Some sidestreams from production are also sold to other industries, which in turn use them as raw materials in their production. By utilising one raw material to its maximum, Borregaard serves many markets with our unique products, and with further investments in R&D and technology developments the resource efficiency will increase. This is an opportunity for Borregaard in the transition to a low-carbon economy, as we can serve more customers from the same volume of wood.</p>
Renewable Energy	<p>Most of Borregaard's direct GHG emissions stems from energy production. New technology for changing from fossil to renewable energy is thus an opportunity for Borregaard to reduce emissions. To reduce emissions and meet our 2030 science-based targets, we will make technology investments for energy efficiency and increase our utilisation of renewable energy sources such as hydropower and biogas. We will enhance the redundancy of Borregaard's energy system and facilitate flexibility in our electricity consumption. This will reduce our exposure to future carbon price increases.</p>
Products and Services	<p>The transition to a low-carbon economy will increase demand for our products with low carbon footprint, that replace fossil-based products. In the coming years, we believe there will be large environmental transitions that Borregaard could provide solutions for. Today, Borregaard makes biochemicals and biomaterials with low carbon footprint that can substitute a variety of fossil-based products in different sectors. About 60% (NOK 4.1 billion) of Borregaard's sales revenues in 2022 came from bio-based products with lower climate/environmental footprint compared with fossil-based products. With our high innovation effort, we will be able to increase value-added for these products as well as develop new products. This will allow us to expand the use of our biochemicals and biomaterials products. Examples of climate-related product innovations include:</p> <ul style="list-style-type: none"> • Use of lignin-based biopolymers as a dispersing and binding agent as an option to petroleum-based alternatives. The biopolymers are used in end-market applications such as construction, industrial binders, batteries and agrochemicals. • Use of wood-based vanillin in the personal care and cosmetics industry as customers search for natural products. • Adding wood-based microfibrillar cellulose (Exilva) to the glue, the environmental profile of corrugated boards will increase. • Decarbonising the transport sector will replace fossil fuels with biofuels. This is an opportunity for Borregaard as our advanced bioethanol can be used for this purpose.
Capital Markets	<p>Borregaard has already received funding for innovation and energy transitions. However, we see possibilities in getting more financing from innovation funds, private and debt equity as well as government subsidies that have been allocated to assist in the transition to low carbon technologies. Further, The EU has unveiled its new Climate, Energy and Environment Aid Guidelines which detail how member countries can support companies in the transition to a low-carbon economy by investing in renewable energy, energy efficiency and industrial decarbonisation. Following the recent passage into law of the EU's taxonomy disclosure regulation, investors are positioning their portfolios to capture taxonomy compliance. Borregaard has activities that are EU taxonomy eligible. This is an opportunity for Borregaard to attract new investors as our processes and products are integrated in value chains that support and enable transitions to a circular economy and mitigate climate change, creating high ESG trust with investors. We have Sustainability linked margin on long-term loans. There is a potentially lower interest expense on future loans. Premium pricing as "green" may impact the share price.</p>
Resilience	<p>Borregaard's efficient use of raw materials to create a variety of low-carbon products offered to different markets makes the company resilient to market changes. Borregaard has more than 800 different products in numerous applications which reduces our exposure to cyclical markets. Markets that will grow or decline due to climate changes are identified. Our high innovation rate of new products further positions us to expand the product portfolio and attract new customers and new markets, increasing Borregaard's revenue. The current and expected future increased demand for low-carbon products and Borregaard's resilience planning through increased investments in R&D to meet this demand, is likely to increase the market value of our company enabling us to further expand our product portfolio. In addition we will maintain or increase the flexibility in sourcing, especially within energy and basic chemicals.</p>

Table 3: Climate-related opportunities

THE IMPACT OF CLIMATE-RELATED RISKS AND OPPORTUNITIES ON BORREGAARD'S BUSINESSES, STRATEGY, AND FINANCIAL PLANNING

In 2019, the Science Based Targets Initiative (SBTi) approved our well-below 2°C temperature increase target. In 2022, Borregaard's revised targets for reduction in GHG emissions were approved by the Science Based Targets initiative. The new targets are in line with the 1.5°C goal in the Paris Agreement and Norwegian Climate Law. We will reduce Scope 1 and 2 emissions by 42% by 2030 and by 90% by 2050 from a 2020 base year. The indirect Scope 3 emissions will be reduced by 25% by 2030 and by 90% by 2050 from a 2020 base year.

An important part of our low-carbon transition plan is research and development, as well as collaborations aimed at creating sustainable solutions. Furthermore, by using resources efficiently through the entire lifecycle, we create products with less environmental impact and low lifecycle costs, which differentiates Borregaard's products. Borregaard's portfolio includes products that actively contribute to reducing our customer's environmental impacts, for example through replacing ingredients in products made from fossil-based materials with bio-based alternatives.

Examples of our low-carbon products include:

- Wood-based biopolymers to be used in e.g., plant nutrition, animal feed, glue, dust suppression and road stabilisation, to substitute less environmentally friendly components of products.
- Wood-based vanillin that can replace vanilla flavour made from mineral oil.
- Bioethanol made from woody biomasses as a substitute to petrol.

To reduce emissions from own operations, we have also implemented several emission reduction initiatives.

Examples of such initiatives include:

- Energy efficiency in production processes
 - Rebuilding the feed to the bio-boiler with new technology for vapor recompression (MVR) and salt removal to increase the utilisation of available renewable fuels.
 - Utilise surplus heat from the compressor station.
 - Optimise the use of evaporator in the new spray dryer which will decrease natural gas consumption when drying lignin.
- Waste heat recovery from production processes and incineration of sorted household waste.
- Utilise more surplus heat from low-temperature heat sources.
- Replacing oil heating at the Sarpsborg site with district heating supplied from residual energy from our processes
- Increase the use of biogas in the drying process of lignin.
- Implement plans to increase the use of hydropower to produce heat energy in our electro boilers.

To reduce emissions in our value chain we have implemented the following:

- An interdisciplinary group that works with scope 3 emission reductions. Suppliers with the intent of doing business with Borregaard are asked which plans they have for reducing carbon footprint in the short, medium, and long term.
- Use electric vehicles for internal transportation when possible.
- Produce our own NaOH with much lower climate footprint than the chemicals we purchase.

We also engage with our customers and communicate the benefits of biobased chemicals from Borregaard and how they can help our customers reduce their scope 3 emissions.

Climate-related risks and opportunities have influenced Borregaard's financial planning elements, such as revenues, indirect costs, capital expenditures, access to capital, assets, liabilities, and acquisitions & divestments. The increased demand for sustainable low-emission products has influenced the company's capital expenditure. Between 2015 and 2020

Borregaard invested close to MNOK 2 000 in various strategic projects to increase top-line growth of sustainable low-emission products and solutions. To be able to meet the growing demand for low-emission products, we continue to target our investments within e.g., sustainable conversion of bio-based raw materials. Investments have a long-time horizon, and the internal rate of 15% is the determining factor for these investments. Further, the climate-related risk of increased energy prices is influencing our financial planning as we are entering power purchase agreements with a time horizon of up to 12 years (medium to long time horizon). This, in addition to energy saving activities, will mitigate the risk of more volatile and higher energy prices. Energy saving activities are prioritised based on saving effect, internal rate and payback.

AREAS INFLUENCED BY CLIMATE- RELATED R&OS

DESCRIPTION OF RISK

Products and Services	The products and services part of our operations have been influenced through identification of opportunities to offer sustainable products with minimised environmental and climate impact. There is an increasing demand for such products, and with Borregaard's implemented strategy to develop new products and solutions through innovation and investments, we will be able to meet market demand. The strategy has a time horizon of 3 years, however, it is revised annually. As customers are becoming more concerned about their emissions, the demand for solutions that reduce emissions increases.
Supply chain	The IPCC clearly describes the dramatic difference between an increase in the global average temperature to 2°C compared to 1.5°C. This has influenced Borregaard's strategy for CO ₂ emissions in the value chain as we strive to be a part of the green solutions. Thus, Borregaard has set an ambitious emissions reduction target committing us to reduce our indirect emissions by 25% by 2030 and 90% by 2050, net-zero. Borregaard's efforts in reducing scope 3 emissions are organised in our established Scope 3 programme. We continuously search for alternative suppliers and solutions for goods and services which can lead to reduced emissions, while at the same time taking cost and security of supply into account.
Investments in R&D	Climate-related issues have been identified as an opportunity for Borregaard to develop more low-carbon products and solutions. This has impacted our investments in R&D within the area. Investments have been made in a number of research projects and pilots that are related to products and solutions that can contribute to lower CO ₂ emissions. Investments in R&D has a long-term time-horizon as it can take years to develop new products.
Operations	The risk of increasing carbon prices affects our operations, especially in Norway where a significant part of our operations take place. This has led Borregaard to implement a range of energy saving activities in production and invest in technology for switching to the use of more renewable energy rather than fossil fuels for our steam production. The implementation is ongoing and in line with Borregaard's strategy to reduce direct emissions to reach our 1.5°C target.
Acquisitions / Divestments	Climate-related issues are integrated into Borregaard's governance mechanisms, such as the Board's oversight over major capital expenditures, acquisitions and divestitures.
Access to Capital	The opportunity of more favourable margins for Borregaard's loans, has influenced our strategy to reduce emissions. In the bilateral multicurrency revolving credit facility agreements we have with three Nordic banks, our margins are linked to the Group's overall climate target. By implementing emission reductions initiatives and continuously developing our sustainable business model in the short, medium, and long-term, Borregaard has access to sustainability linked financing. We also see possibilities in getting more financing from innovation funds, private and debt equity as well as government subsidies that have been allocated to assist in the transition to low-carbon technologies. The European Commission has unveiled its new Climate, Energy and Environment Aid Guidelines (CEEAG), which detail how member countries can support companies in the transition to a low-carbon economy. This is especially interesting to Borregaard as the financing includes investment in renewable energy, energy efficiency and industrial decarbonisation.
Adaptation and mitigation activities	Increased risk of physical climate-related issues has impacted the company's financial planning of our assets. Borregaard's fixed assets could be destroyed by more extreme weather such as heavy rain, flooding and quick clay landslides in the coming years. The risk of financial impacts from damage to assets is mitigated as climate-related incidents is fully covered until 2030 under Property Damage and Business Interruption Coverage policy for all our sites. Provision has been made for further investigation of risk.

Table 4: Areas influenced by climate-related R&Os

THE RESILIENCE OF BORREGAARD'S STRATEGY, TAKING INTO CONSIDERATION DIFFERENT CLIMATE-RELATED SCENARIOS, INCLUDING A 2°C OR LOWER SCENARIO

Borregaard has analysed how climate change may impact its operations and the value chain. We have analysed physical and transitional risks and opportunities with help of public IPCC and IEA scenarios and other relevant sources. We have used both well-below 2°C and 4°C pathways. The well-below 2°C scenario assumes meeting the goals set in the Paris Agreement with climate change mitigation through policy changes, whereas the 4°C scenario considers a business-as-usual scenario without ambitious climate policy changes. The scenarios were selected in order to test Borregaard's strategy resilience and better understand future strategic and financial impacts in both favourable and non-favourable scenarios. Borregaard's short (1-4 years), medium (4-8 years) and long-term time-horizons (8-28 years) were taken into consideration. Borregaard commits to reduce our Scope 1 and 2 greenhouse gas emissions by 42% by 2030, to reduce our indirect emissions by 25% by 2030 and become net zero by 2050. Reducing global CO₂ emissions to net zero by 2050 is consistent with efforts to limit the long-term increase in average global temperatures to 1.5°C.

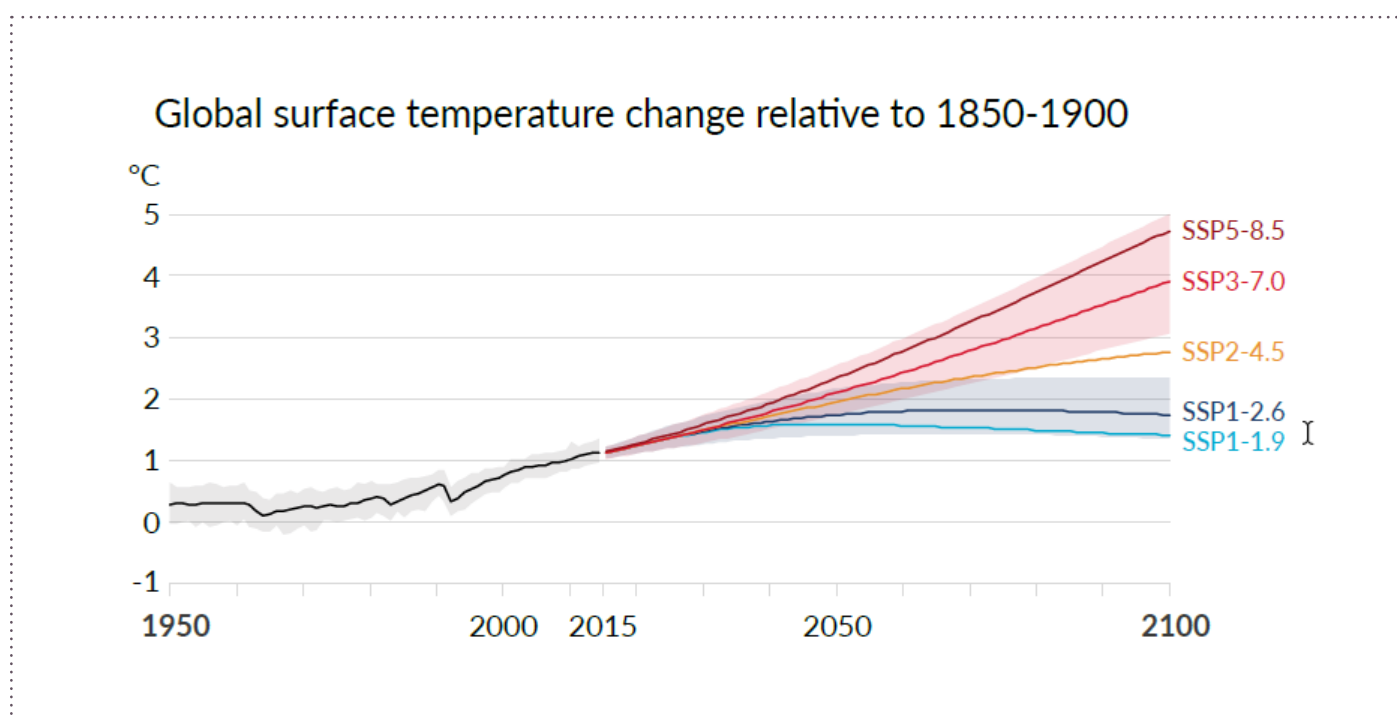


Figure 4: IPCC global warming pathways

Well-below 2°C scenario - the very low and low GHG emissions scenario

In this scenario, we assume an orderly transition to limit global warming to well-below 2°C. The scenario assumes a rise in climate policy ambition and coordinated, global climate action to start gradually in immediate future. This scenario is dominated by transitional risks and opportunities. The well-below 2°C scenario assumes that global CO₂ emissions peaked in 2020 and decline fast. High carbon prices are introduced in most economies, and global power is mostly generated using renewables. Due to low demand, fossil fuel prices are low. Customers and investors are increasingly climate-conscious and require more from Borregaard. Government and private investors prefer "Green companies". This scenario is based on IEA Net Zero (ZNE) and Sustainable Development (SDS) Scenarios, as well as the IPCC SSP1-2.6 pathways. The IEA's NZE scenario assumes net zero emissions in 2050 whereas the SDS scenario reaches global net zero emissions by 2070 (with many countries and regions reaching net zero much earlier). IPCC's SSP1-2.6 pathway stays below 2°C warming relative to pre-industrial levels.

Business-as-usual Scenario (4°C) - the very high GHG emissions scenario

The 4°C business as usual scenario is dominated by increasing physical risks, due to a lack of coordinated policy actions to limit climate change. In this scenario, economic growth is preferred over climate action and overconsumption of resources continues. The world continues to be dependent on fossil fuels and only modest rates of technological change and energy intensity improvements occur. Water becomes a key resource with limited availability and climate-related conflicts increase in number because of poor agriculture and living conditions. Tens of millions of people move northwards in hope of a better life. As the globe is warming up, the severity and frequency of extreme weather events are increasing. Flooding, heavy precipitation and sea level rise impact Borregaard's operations and value chain. The ambition for economic growth is not met, as GDP losses occur due to increased physical risks as the temperatures rise. This scenario is based on IPCC RCP 8.5 / SSP5-8.5 scenario.

Our complete scenario analysis is presented in Borregaard Scenario Analysis, see <https://www.borregaard.com/sustainability/sustainability-documentation>.

Conclusions and Strategic Response

The analysed risks and opportunities have medium to high impact on Borregaard in short, medium or long term. Medium impact means some effect on performance, or strategy being temporarily disrupted or delayed. High impact translates to considerable effect on performance and strategy affected.

Low-emission scenario

In the well-below 2°C scenario, the main climate-related risks are transitional and related to carbon pricing mechanisms, energy prices and reduced wood availability. To address its transitional risks, Borregaard has committed to an ambitious science-based target, while increasing energy efficiency, entering long-term energy contracts, increasing resource efficiency, and sourcing wood from multiple locations. This scenario supports Borregaard's climate-related opportunities which are mainly related to developing low-carbon products.

The risk of increased carbon prices for existing activities and implementation of carbon pricing for new sectors is significant to Borregaard as our operation costs will increase in the short to medium time-horizon. To address this risk, Borregaard is working actively on emissions reductions, and has committed to become net-zero by 2050. Borregaard's operations in Norway is further eligible for free allocation of emission allowances. In the period from 2012 to 2020, Borregaard received more free allowances than the amount emitted due to our reduction initiatives. As the number of free allowances will be reduced in the coming years, Borregaard is well-positioned as we have a surplus of allowances which will balance the need for free allowances. Because of this, the increased carbon cost is offset to some extent, and we will be able to continue to invest in emission reduction initiatives. As an example, Borregaard invests in measures to increase utilisation of renewable energy sources. Further, by increasing cooperation with suppliers and partners, Borregaard may better calculate and reduce its supply chain emissions, which in turn helps manage the potential costs related to new and expanding carbon pricing mechanisms for e.g., the transport sector.

Borregaard has considered the threat of increased energy prices. With increased demand for renewable energy, gas prices in Europe, carbon prices and exchange capacity between the Nordics and Europe, the energy price is expected to double towards 2040. To mitigate the exposure to higher electricity prices and tariffs following higher electricity consumption, we are continuously looking to enhance the redundancy of Borregaard's energy system and facilitate flexibility in our electricity consumption. This will benefit both Borregaard and the energy system as such.

Strengthened forest and biodiversity protection, increased use of natural sinks as carbon storage in addition to increased frequency of extreme weather, has been identified as factors reducing the availability of wood, and thus increasing the

price. This will impact Borregaard's strategy as wood is our most important raw material. Borregaard's business model is based on the utilisation of wood to increase value-added of existing products and develop new bio-based products, and much of the Group's investments are directed to this purpose. If the availability of wood on the market is drastically reduced, Borregaard will need to increase its investments in resource efficiency to keep its market position, impacting our medium and long-term strategy. The increasing biodiversity protection can impact investor expectations of Borregaard to ensure that we protect biodiversity in our business. The Group's strategy is to purchase raw material that is certified in accordance with PEFC/FSC. However, with the increased expectations, Borregaard would need to ensure an even more ambitious purchasing policy to avoid a loss in reputation as a sustainable company.

In a world transitioning to net-zero, Borregaard is well prepared for the likely increase in customer demand for low-carbon products. The core of our business model is resource efficiency and replacing fossil-based components of products with wood-based ones. The increased ratio of biofuel in the transport sector is an opportunity for Borregaard as we are a leading producer of advanced bioethanol. Customers are increasingly seeking healthier products made with low-carbon ingredients. As Borregaard is already an established supplier of products in segments such as consumer goods applications, agriculture and construction, we are in a good position to capitalise on the increasing demand of sustainable products. Serving existing and new markets with our products to reduce global emissions is a key component of Borregaard's short, medium and long-term strategy.

Reaching net-zero emissions requires also using all available clean and efficient energy technologies. Borregaard sees opportunities in increased energy efficiency of operations such as utilising low temperature heat, resulting in cost reductions especially in the currently less energy efficient operations. During 2022, we have progressed our long-term transition plan to achieve the science-based targets for 2030 and 2050. Energy efficiency measures and increased availability of renewable sources such as electricity from hydropower or biogas remain key priorities.

To reach net-zero, carbon removal of residual emissions might be necessary. Borregaard's biorefinery in Norway has signed an agreement with a cluster of companies in the region, and a feasibility study of technologies and value chains for Carbon Capture and Storage (CCS).

High-emission scenario

The financial impact of Borregaard's physical climate risks is estimated to be low in short and medium term, but on medium impact level in the long term. As temperatures rise, extreme weather events will become increasingly severe, and the impact of chronic climate change will increase. An extreme temperature event that usually occurred once every 50 years will likely occur every 3-4 years if the earth reaches 2°C above pre-industrial temperatures. The IPCC also underlines that the world should expect more compound events occurring simultaneously. Already experienced full production stop twice at the Fernandina Beach site due to hurricanes, we expect this to increase in frequency. Sea-levels rise and storm surge can potentially cause damage to machinery and interrupt the ingoing and outgoing logistics from the site in Florida. However, as exposure is currently limited to sites with less production, the impact remains low.

The likelihood of disruptions in the value chain and to the Sarpsborg site due to landslides is expected to increase in the coming years as heavy rain becomes more severe. Transportation by road and rail is likely to be impacted as the transportation routes risk blocking. Transportation on inland waterways can potentially become more unpredictable in the future as more frequent high-water levels are expected by 2050, and low water levels are expected after 2050. This will have an impact on the load factor and potentially increase the number of shipments from the sourcing locations. Borregaard's logistics is flexible (several transportation routes and transportation modes), limiting the risk of disruptions in the value chain to medium impact. Further, the site in Norway has been inspected to limit the risk of a landslide, and the site is insured against climate change incidents.

Increased rate of extreme weather events such as droughts are also potentially damaging to the forests where Borregaard sources its wood. Increased temperatures and drought increase the risk of forest fires. Further, higher global temperatures increase the risk of pest damage to trees as pests such as the spruce bark beetle thrives in a warmer climate. To mitigate the risk of reduced access to wood, Borregaard works with forests owners to ensure sustainable forest management. Borregaard also has the possibility to purchase wood from other areas in Europe than Norway and Sweden if necessary.

RISK MANAGEMENT

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

BORREGAARD'S PROCESS FOR IDENTIFYING, ASSESSING, AND MANAGING CLIMATE-RELATED RISKS IS INTEGRATED INTO BORREGAARD'S OVERALL RISK MANAGEMENT

Borregaard assesses climate-related risks and opportunities on short (1-3 years), medium (3-7 years) and long-term (7+) time-horizons.

Borregaard uses the ISO 31000:2009 Risk management Principles and guidelines as our definition of risk terminologies. Borregaard further uses ISO 31000 as our risk management model to identify, assess, and manage risk, including climate-related risk. The process defines the financial or strategic impact of climate-related risks. As defined by Borregaard, risks with substantial financial impact are risks with low, medium, or high negative effect on the Group's EBITDA in different time-horizons. Climate-related risks are integrated into Borregaard's multi-disciplinary risk management process, and climate-risks are assessed more than once a year. Within risk framework, the sequence is to initiate, assess, analyse, plan for initiatives, implement and review. To identify opportunities, Borregaard's R&D department works in close cooperation with sales, manufacturing, customers (actual and potential), external institutes, and universities in several countries. This co-operation has resulted in innovative developments of low emissions products and solutions.

A central risk management function responsible for Borregaard's risk management model and the implementation of the risk management process has been established in Borregaard. This function is headed by the Chief Risk Officer (CRO). In addition, each member of the Group Executive Management is responsible for identifying and managing climate-related risks within their respective areas. The individual unit managers in the Group are also responsible for acquainting themselves with all significant risk factors within their area of responsibility, thus contributing to a financially and administratively sound handling of these risks. It is the CRO that has the overall responsibility of managing climate-related risk across all business areas and disciplines. The purpose of the bottom-up risk management process is to provide an overview of the risks and uncertainties Borregaard is exposed to and to support value creation, ensure risk awareness and balance risk versus return for the entire company. The aggregated risk picture in Borregaard is consolidated by the CRO and reviewed by the Group Executive Management before it is submitted to the Audit and Sustainability Committee, and finally to the Board. The Board conducts a review of the Group's risk picture at least annually.

Borregaard identifies and assesses asset level climate-related risks and opportunities within the framework of our common process for risk and opportunity management. The Group identifies sources of risk, areas of impacts, events, and potential financial or strategic consequences and implement mitigation activities. The risk identification work starts with the initiating phase. In this phase of the process, the acceptance criteria associated with the risk are set to ensure the correct probability and consequence scales for the business. The sequence is then to assess, analyse, plan for initiatives, implement the initiatives and review them. There is a set of predefined criteria for how risks are assessed using a risk register scale. The probability and the consequence of the risks are rated as "Low", "Medium" or "High" and are visualised in a matrix. Once a risk has been assessed and analysed as high enough, initiatives to mitigate the risk are implemented. The identified risks present an aggregated risk picture for Borregaard covering the entire Group's operations, and they have a high impact on our EBITDA. The owner of the risk factors implements relevant mitigation strategies and activities and consult the Group Executive Management in the process.

METRICS AND TARGETS

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

INTERNAL CARBON PRICE

The internal price on carbon applies to the operations in Sarpsborg, Norway, which is subject to EU ETS. Borregaard applies an internal price on carbon that reflects the EU ETS to change internal behaviour, drive energy efficiency, and pursue low-carbon investments and opportunities. Our internal carbon price has for several years been the EUA forward price and has direct influence on our energy cost and decisions for energy mix. Borregaard has established an Energy and Climate committee which assesses monthly energy costs, including the development of the carbon price. The carbon price influences the marginal energy costs and is thus used for energy mix decisions in the short and long-term perspective. The energy production at Borregaard has four different sources: LNG, light fuel oil, electricity and waste. The energy price for the different sources includes the carbon cost and is included in the KPI-diagrams for energy cost. For instance, LNG or electricity are used for peak load steam, the carbon price is thus an important factor in the calculation to decide which source to use on the margin. Borregaard has made a price model to monitor how different factors in energy cost structure changes, including the CO₂ cost from the carbon price. The data trend is discussed in the monthly Energy and Climate committee meeting.

SCOPE 1, SCOPE 2, AND SCOPE 3 GREENHOUSE GAS (GHG) EMISSIONS IN TONNES

	2022	2021	2020
Scope 1	157,768	153,285	130,945
Scope 1 (biogenic emissions)	148,565	150,748	139,657
Scope 2 (location-based)	56,511	64,818	65,414
Scope 2 (market-based)	309,208	308,291	336,965
Scope 2 (biogenic emissions)	74,861	70,214	72,159
Scope 3	354,303	364,245	399,998
Scope 3 (biogenic emissions)	1,032,703	1, 026,394	970,695

Table 5: GHG emissions, Borregaard Group

OUR UPDATED CLIMATE-RELATED TARGETS FROM 2022

Sustainability is, and has always been, an integrated part of Borregaard's strategy. Our core business is providing sustainable products and solutions with a documented favourable environmental impact which improve the customers' climate footprint. To ensure that we also reduce our own emissions, we have set ambitious emissions reduction targets that covers the entire Group and implemented activities and plans to achieve these targets. We follow the progress on the targets closely, and they are discussed at every quarterly Board meeting. Our climate-related targets and their

progress is reported annually to CDP Climate. In 2022, we updated our target from a well below 2°C target to a 1.5°C target.

COMMITMENT TO NET-ZERO BY 2050

To ensure that Borregaard is in line with the more ambitious targets from the Paris Agreement, we have committed to becoming net-zero by 2050. The target submission was approved by Science Based Target initiative in August 2022.

Near-term emissions reduction target to reduce Scope 1 and 2 emissions by 42% by 2030

The target covers 100% of emissions in scope 1 and 2 and is aligned with the Paris Agreement's goal to limit the increase in global average temperature to 1.5°C above pre-industrial levels. Borregaard's target is based on IPCC scenario SSP1-1.9.

- Base year: 2020
- Target Year: 2030
- Scopes: Scope 1+2 (location-based)
- Targeted reduction from base year: 42%
- % of target achieved: -8%

Near-term emission reduction target to reduce Scope 3 emissions by 25% by 2030

The target covers 100% of emissions in scope 3 and include emissions from all categories. The target is aligned with the Paris Agreement's goal to limit the increase in global average temperature to 1.5°C above pre-industrial levels.

Borregaard's target is based on IPCC scenario SSP1-1.9.

- Base year: 2020
- Target year: 2030
- Scopes: Scope 3
- Targeted reduction from base year: 25%
- % of target achieved: 11.5%

Overall long-term emissions reduction target to reach net-zero

We will reduce our overall emissions in Scope 1, 2 and 3 by at least 90% by 2050 and remove our residual emissions through carbon removal mechanisms.

Our nature-related targets for water and forests are discussed in a separate report, Task Force on Nature-related Financial Disclosure, TNFD (<https://www.borregaard.com/sustainability/sustainability-documentation>).