



ANTOFAGASTA PLC

# Second Climate Change Report

Developing mining  
for a better future

2023





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# Introduction



# Message from the Chief Executive Officer

As a society, we are at a turning point in which it is imperative to make transformations that allow us to address climate change. Copper plays an essential role in the solution to this challenge as a key metal for the production of low-carbon technologies that are necessary for the energy transition and climate change mitigation.

**As a copper producer, we recognise our commitment to sustainably and responsibly supply this essential metal to achieve carbon neutrality.**

Our Climate Change Strategy is integrated into our business strategy and our management. It defines plans and actions around five pillars that enable us to enhance our resilience and competitiveness in the face of this phenomenon. It is a strategy that we update regularly, allowing us to adapt to potential changes in climate scenarios, regulations and scientific and technological advances to respond to the climate crisis. Over the past year, we made important progress in its implementation, advancing our purpose of developing mining for a better future.

We became one of the first mining companies in Chile to complete the transition to power supply contracts based on renewable energy in all our operations. This milestone allowed us to achieve,





three years early, our goal of reducing greenhouse gas (GHG) emissions by 30% by 2025, thus bringing us closer to our long-term goal: carbon neutrality by 2050.

We continue to evaluate low-carbon alternatives to reduce emissions by replacing diesel in our operations, mainly in our mine haulage trucks. Through initiatives such as Charge On and the Hydra Consortium, we are advancing the development and evaluation of various technologies, powered by cleaner fuels such as electricity and green hydrogen.

Along these lines, our railway freight operation has acquired a locomotive fuelled by green hydrogen, which we expect to begin operating in 2024, becoming the first railway company in Chile to acquire this type of technology.

Reducing Scope 3 emissions continues to be a challenge given the complexity of their measurement and management. We worked together with other companies in the mining industry worldwide to develop a guide that allows these emissions to be measured and reported.

This document includes the reporting of our Scope 3 emissions, and we are looking forward to establishing objectives that allow their management.

With regards to suppliers, we launched the Suppliers for a Better Future programme through which we support them to achieve higher sustainability standards, in particular, to measure emissions and make commitments to reduce them. Additionally, we apply an internal carbon price and environmental, social and governance (ESG) criteria when evaluating the allocation of contracts.

Through the new Water Policy, Energy Policy and Water Management Standard, we continue to improve the efficient management of our strategic resources, in order to ensure the supply of these resources for our operations and the surrounding area.

Our priority for the coming years will be to continue the implementation of our Climate Change Strategy, advancing the actions established for each of its pillars, working in line with the industry's objectives and national and international agreements.

Iván Arriagada  
Chief Executive Officer



# Message from the Vice President of Corporate Affairs and Sustainability

## 1. How does Antofagasta Minerals address the challenge of climate change?

Firstly, through the implementation of our Climate Change Strategy, we are developing various initiatives for each of its pillars. Its development and implementation are carried out in a comprehensive and transversal manner at all levels of the company, from the Board of Directors to our partner companies. In addition, we have a Climate Change Committee, which is responsible for supporting the implementation, monitoring and continuous improvement of the Strategy. One of the Committee's objectives is to maximise the participation of the different areas and levels of the organisation.

I would also like to highlight that climate change indicators are included in the performance agreements of all Antofagasta employees through which we seek to promote the alignment of teams and people with our purpose.

As an industry, we have to work collaboratively in order to promote and lead the responsible production of key metals and minerals for the energy transition and sustainable development. In that sense, as members of the International Council on Mining





and Metals (ICMM) and the International Copper Association (ICA), we actively participate in working groups and activities aligned with our purpose. In Chile, we are part of different associations, such as the Centre of Business Leaders for Climate Action (CLG Chile) and the Chilean Hydrogen Association (H2 Chile), whose missions are in line with our Strategy.

**It should also be noted that our Strategy is in line with Chile's commitments established in the Climate Change Framework Law, promulgated in June 2022, which establishes the objective of achieving neutrality in GHG emissions no later than 2050.**

## 2. What progress would you highlight in the Climate Change Strategy during the last year?

First, I would highlight that we managed to meet our Scope 1 and 2 emissions reduction target early, initially established for 2025. This is due to the fact that, since April 2022, all our mining operations' power contracts are from 100% renewable sources. This achievement challenges us to set a new reduction target in 2023.

We also continued to refine our calculation of Scope 3 emissions in order to set in order to set targets as soon as possible. At the same time, we are working together with other ICMM member companies to develop a methodological guide to calculate and report these emissions, with a view to adopting a common standard for defining Scope 3 reduction objectives.

Within the framework of our Electromobility Plan, and with the objective of reducing diesel use at our operations, we are advancing different initiatives such as Charge On, Hydra Consortium and the analysis of pilot electromobility solutions at Antucoya, Los Pelambres and Centinela. It is also worth highlighting the acquisition by our Transport division of a cargo train powered 100% by hydrogen, which is expected to start operations in 2024.

Regarding our management of strategic resources such as water and energy, we understand that it is a challenge to increase our copper production while using these resources efficiently in order to ensure their supply for our operations and the surrounding environment. In 2022, we approved new Water and Energy policies to improve our management, reducing the use of continental

waters, and favouring the efficient use of renewable energy sources and clean fuels.

In December 2022, Centinela ended water withdrawals from wells, corresponding to 13% of operational consumption, and began using 100% sea water. In addition, we aligned our Energy Management System with the requirements of Chile's Energy Efficiency Law.

**We also support the communities where our operations are located to adapt to climate change. In this context, it is worth highlighting the Aproxima En Red project, which seeks to gradually digitalise and automate the 80 rural sanitary services that provide drinking water in the Choapa Province to help address the acute drought.**

On biodiversity, we updated our Biodiversity Standard, thus deepening the incorporation and management of biodiversity in each phase of the mining cycle. It is also important to note that we continued with the phytostabilisation of Los Pelambres' Quillayes tailings storage facility (TSF). In this way, we continue working to



increase our knowledge regarding nature-based solutions (NbS) in order to define a future management plan.

In terms of the circular economy, at the end of 2022 we approved our Circular Economy Strategy, with the main objective of linear production processes moving towards a circular model. The Strategy is based on three pillars: reduce resource consumption, extend the useful life of materials and equipment and convert waste into new resources.

Finally, during 2022 we continued to work together with our suppliers. We maintained the implementation of an internal carbon price in tenders for categories intensive in carbon dioxide equivalent (CO<sub>2</sub>e) emissions and launched our Suppliers for a Better Future programme to support and encourage our suppliers to adopt more sustainable practices.

### 3. What challenges are identified for the coming years?

An important challenge in the coming years is the reduction of our Scope 1 and 3 emissions. In 2022, we continued to develop our decarbonisation roadmap, which will be completed in 2023,

and will analyse the implementation of new technologies in our operations, such as electric battery-powered trucks, green hydrogen, and/or trolley assist, with the objective of achieving carbon neutrality by 2050. The purpose is to present a decarbonisation plan that identifies intermediate goals and projects on which to base t.

**Along these lines, in June 2023 Centinela became the mining company with the largest fleet of electric pick-up trucks in Chile with the arrival of 50 pick-ups that will operate with energy from 100% renewable sources. Eight pieces of electric ancillary mining equipment were also added to the Esperanza Sur autonomous pit.**

On Scope 3 emissions, we continue deepen our calculation of these emissions in line with the work of the ICMM and we are establishing targets that will allow us to improve their management. The measures to address Scope 3 emissions reduction depend on joint efforts between producers, suppliers and customers and we will play a leading role in overcoming these challenges, establishing alliances to reduce these emissions throughout the value chain.

Regarding the efficient use of strategic resources, in 2023 we continue to explore new energy efficiency initiatives at our mining operations, with the aim of prioritising and developing implementation plans for initiatives that enable us to reduce our energy intensity in line with the Energy Efficiency Law requirements. In addition, we continue working to progressively reduce the use of continental water for productive purposes and thus meet our goal for sea and recirculated water to represent more than 90% of the total water used by our four operations once the desalinisation plant of Los Pelambres starts operating with its 800l/s capacity.

René Aguilar  
Vice President of Corporate Affairs and Sustainability



# Position statement on climate change

At Antofagasta, we are urgently addressing the challenge of climate change, aware of the threat it represents to life and the planet we know today.

Copper is a key metal in the development of low-carbon technologies, which is why its responsible production is necessary to contribute to the challenges of climate change.

In line with science and the Paris Agreement's goals, as a Group we are committed to reducing our greenhouse gas (GHG) emissions in the short and medium term and achieving carbon neutrality by 2050 (or sooner if technology permits).

To meet these commitments, we have integrated climate change as a factor into our risk management and decision-making. Through our Climate Change Strategy, we continually work to strengthen the Group's mitigation and adaptation capacity, assuming the urgency of reducing our emissions, as well as adapting and strengthening the climate resilience of our operations and value chain, supporting multi-sector collaboration to accelerate the development and use of low-emission technologies.

We recognise that protecting the environment and biodiversity is essential for climate action and emphasise the role of nature-based solutions (NbS) to mitigate climate change and adapt to its impacts.

As members of the ICMM, we adhere to its 10 Mining Principles and Position Statement on Climate Change issued in October 2021.

Our Climate Change Strategy allows us to take early action to manage the risks and opportunities presented by this phenomenon to mitigate its effects and have the capacity to adapt to new scenarios.

Its five pillars serve as the framework of our roadmap for "developing climate resilience, reducing GHG emissions, managing strategic resources efficiently, managing the environment and biodiversity and integrating stakeholders".





# Highlights of the last year

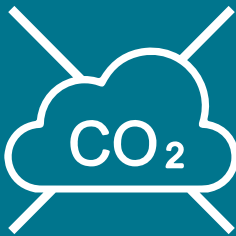
WE MET THE TARGET  
EARLY OF REDUCING  
SCOPE 1 AND 2  
EMISSIONS BY **30%**

- BY **2025**, COMPARED TO  
2020, ACHIEVING A **42%**  
REDUCTION IN **2022**.


**100%**

ALL OUR MINING  
OPERATIONS HAVE POWER  
SUPPLY CONTRACTS FROM  
RENEWABLE ENERGY,

REDUCING  
OUR SCOPE 2  
EMISSIONS BY  
**90%**  
COMPARED TO **2021**.




WE BEGAN WORKING ON A  
DECARBONISATION ROADMAP  
FOR ALL OUR OPERATIONS.




WE MEASURED OUR **2022**  
SCOPE 3 EMISSIONS.


WE INCORPORATED AN **INTERNAL CARBON  
PRICE** IN TENDERS FOR HIGH CARBON-  
INTENSITY PRODUCTS AND IN PROJECT  
EVALUATION.




WE APPROVED NEW  
WATER AND ENERGY  
POLICIES.



CENTINELA BEGAN TO  
OPERATE **100%** WITH  
SEA WATER.



THE COPPER MARK  
CERTIFICATION WAS  
OBTAINED BY OUR FOUR  
MINING COMPANIES.



WE APPROVED  
A CIRCULAR  
ECONOMY  
STRATEGY.



# Copper and the low carbon economy

Copper has a crucial role to play in the urgent need to limit the increase in the global temperature. According to the Intergovernmental Panel on Climate Change (IPCC), it is necessary to reduce GHG emissions by **43%** between 2022 and 2030 to limit the increase in global temperature to **1.5°C**<sup>1</sup>. For this purpose, technologies that enable the generation, transmission and storage of clean energy are essential. These technologies require a higher percentage of copper than those used for fossil fuels, making it an essential metal to achieve carbon neutrality. According to a study by S&P Global<sup>2</sup>, net zero emissions targets for **2050** will lead to an increase in copper demand of **82%** between **2021** and **2035**, particularly in the **following sectors**:

- **Automotive industry:** will represent the largest demand for copper until **2035**, rising from **2.2 Mt/year** in **2021** to **9.3 Mt/year** in **2035**.
- **Power transmission and distribution:** represents around 20% of annual copper demand and is expected to increase from approximately **4.7 Mt** in 2021 to **4.9 Mt** in **2025**, reaching **8.7 Mt/year** in **2040**.
- **Power generation:** the preference for renewable technologies such as photovoltaic solar panels or wind energy, which consume between two and five times more copper per MW of installed capacity than fossil fuel technologies, will also lead to an increase in copper demand.

ANTOFAGASTA HAS A TWOFOLD CHALLENGE AND CONTRIBUTION TO MAKE IN ADDRESSING CLIMATE CHANGE. AS WELL AS DECARBONISING OUR OPERATIONS AND CONTRIBUTING TO THE GLOBAL GOAL OF CARBON NEUTRALITY, OUR FOUR MINING COMPANIES HAVE OBTAINED THE COPPER MARK SEAL, HIGHLIGHTING OUR COMMITMENT TO BE PART OF THE SOLUTION BY RESPONSIBLY AND SUSTAINABLY SUPPLYING THIS CRUCIAL METAL FOR LOW-CARBON TECHNOLOGIES.

<sup>1</sup> Climate Change 2022: Mitigation of Climate Change. Working Group III report of the IPCC's Sixth Assessment Report.

<sup>2</sup> The Future of Copper, S&P Global, 2022.



# Antofagasta: Developing mining for a better future

Antofagasta is a copper-producing mining group based in Chile. It is listed on the London Stock Exchange and is part of the FTSE 100 index. In addition, it participates in sustainability indices, such as DJSI, FTSE4Good and Stoxx Global ESG Leaders.

Mining is our main activity and represents more than 97% of the Group's revenues and EBITDA. We operate four copper mines in Chile, two of which produce significant volumes of molybdenum and gold as byproducts. We also have a portfolio of growth opportunities located mainly in Chile. In addition to mining, our Transport division provides rail and road freight services in the Antofagasta Region, mainly to mining companies, including our own operations.

Our mining assets are divided into the North Operations unit, comprising Antucoya, Centinela and Zaldívar in the Antofagasta Region, and Los Pelambres in the Coquimbo Region.





Region	Operation	Ownership	Production	Mine life (years)	Copper production 2022 (tonnes)
Antofagasta Region	• Antucoya	70%	Copper cathodes.	21	79,200
	• Centinela	70%	Copper cathodes and copper concentrates, containing gold and silver, and molybdenum concentrate.	43	247,500
	• Zaldívar	50% (100% operated)	Copper cathodes.	13	44,500
Coquimbo Region	• Los Pelambres	60%	Copper concentrates, containing gold and silver, and molybdenum concentrate.	12	275,000

• Transport division

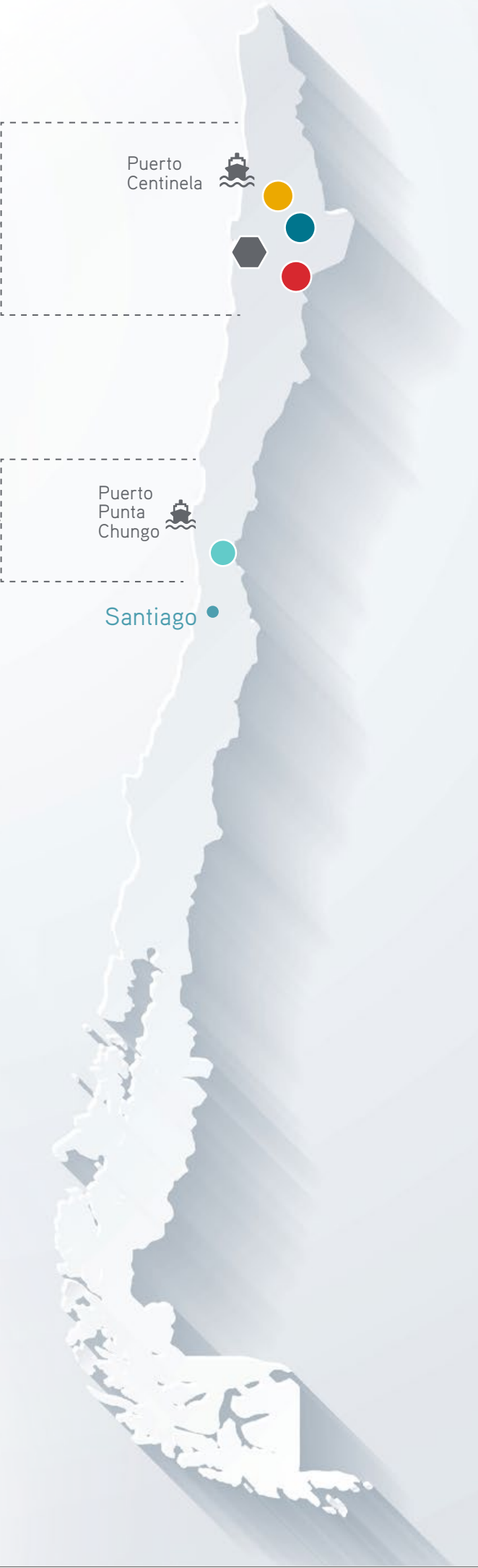
Region	Operation	Ownership	Material transported
Antofagasta Region	Transport division (900 km rail network)	100%	7.1 m tonnes

For more information, see our Annual Report, pages 3, 4 y 5.

2022 performance
Copper production
646,200 tonnes
Revenue
US\$5,862m
EBITDA
US\$2,930m

Antofagasta Region

Coquimbo Region





# International and national context

Climate change constitutes an increasingly serious threat to the well-being of humanity and the health of the planet. The IPCC, in its Synthesis Report of the Sixth Assessment Report (AR6) published in March 2023, points out:

Human activities, principally through GHG emissions, have unequivocally caused global warming, with global surface temperatures reaching 1.1°C above 1850-1900 levels in 2011-2020.

Human-caused climate change is already affecting many extreme weather and climate events in all regions of the world. This has led to widespread adverse impacts and related losses and damages to nature and people.

Global GHG emissions in 2030 implied by the Nationally Determined Contributions (NDCs) announced in October 2021 make it likely warming will exceed 1.5°C during the 21st century and make it harder to limit warming below 2°C.

Limiting human-caused global warming requires net zero CO<sub>2</sub> emissions. The level of GHG emissions reductions this decade will largely determine whether warming can be limited to 1.5°C or 2°C.

The call to action is clear. At the international level, at the 27th Conference of the Parties (COP27) to review the implementation of the United Nations Framework Convention on Climate Change, which took place at the end of 2022, the overall objective was to guarantee the full application of the Paris Agreement. It proposed to accelerate climate action through four key goals: mitigation, adaptation, finance and collaboration. Chile presented a series of commitments to strengthen its 2020 NDCs, in particular, to reverse the growing trend of methane emissions by 2025 and expand by at least 1 million hectares the surface area of officially protected land and continental water systems by 2030.

Nature plays a key role in the fight against climate change, being able to provide more than a third of the emissions reductions needed worldwide between now and 2030. In December 2022, the UN Biodiversity Conference (COP15) was held. Its main achievement was the adoption of the Kunming-Montreal Global Biodiversity Framework comprising a plan of concrete measures to halt and reverse nature loss, including 30% conservation of land and sea and 30% restoration of degraded ecosystems by 2030.



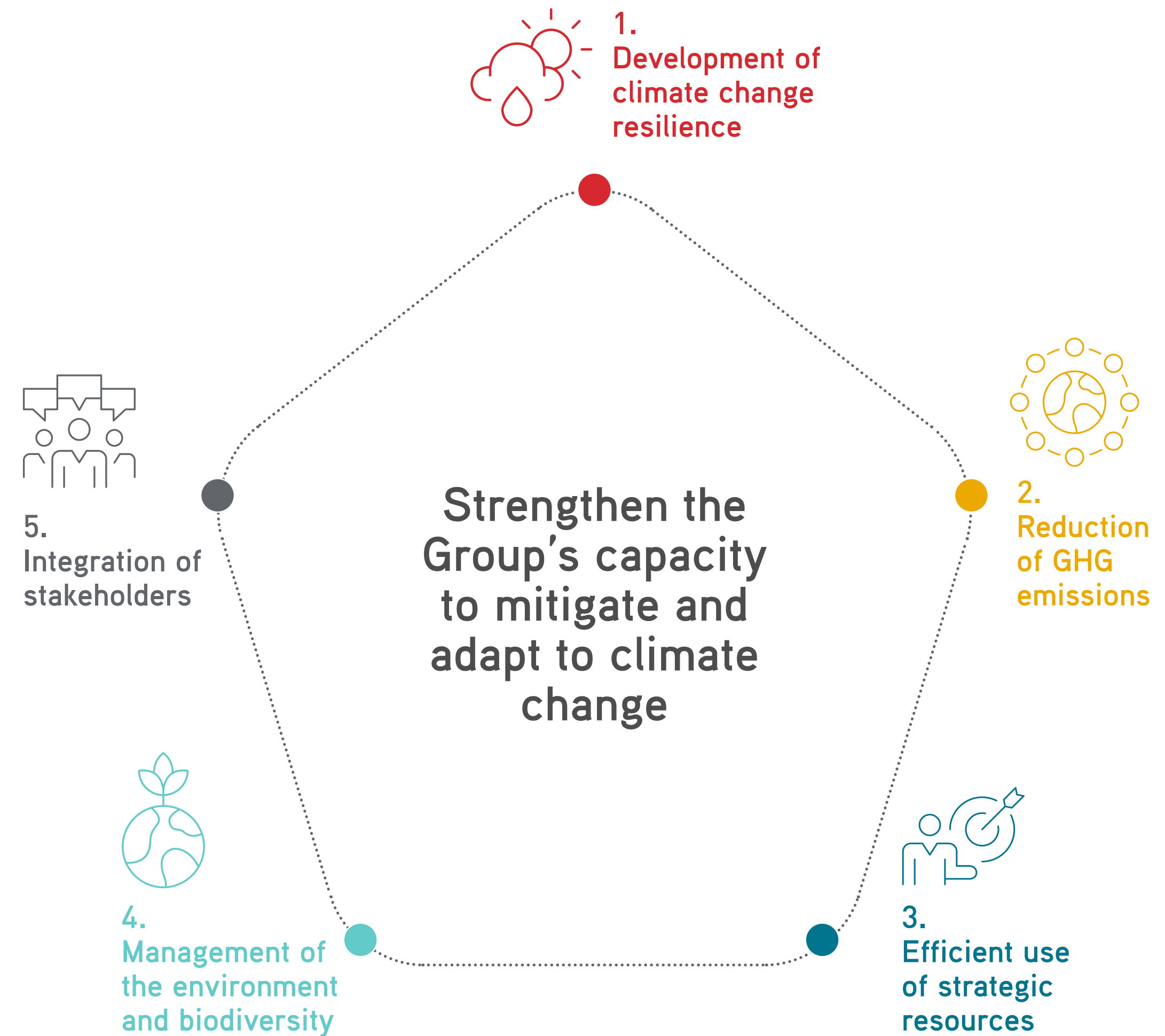


Chile has defined goals to achieve carbon neutrality and climate resilience no later than 2050. These objectives were institutionalised in the Climate Change Framework Law (Law No. 21.455) promulgated in June 2022. The law provides a legal framework to assign responsibilities to reduce emissions and requires the implementation and reporting of measures to mitigate emissions and adapt to climate change impacts. One of the instruments the law establishes to manage climate change is the Long Term Climate Strategy, which establishes that mining is one of the main sectors to undergo transformations in the transition towards carbon neutrality, requiring it to reduce operational emissions and favour energy from 100% renewable sources.



# Our Climate Change Strategy

Our Climate Change Strategy formalises our commitment to action to address this phenomenon, mobilising our capacity to mitigate its effects and adapt to future scenarios. The strategy has five pillars, for each of which different areas of action have been identified, accompanied by a plan of short, medium and long-term initiatives.





# Progress and achievements in the last year

## PILLAR 1 DEVELOPMENT OF CLIMATE CHANGE RESILIENCE



- We continue to adopt the TCFD<sup>3</sup> recommendations, deepening our analysis of climate scenarios, with the incorporation of the SSP2-4.5<sup>4\*</sup> scenario.
- We managed our physical and transition risks through the application of identified controls and action plans.
- The Circular Economy Strategy was approved, which provides the framework to move towards a circular economy in our operations and value chain, based on three management pillars.

## PILLAR 2 REDUCTION OF GHG EMISSIONS



- We met the target early of reducing Scope 1 and 2 emissions by 30% by 2025 compared to 2020, equivalent to 730,000 tCO<sub>2</sub>e. In 2022 we achieved a 42% reduction, equivalent to 928,163 tCO<sub>2</sub>e<sup>5</sup>.
- We completed the conversion of our mining operations' power supply contracts to clean energy sources, achieving a 90% reduction in our Scope 2 emissions compared to 2021.
- Our Transport division signed an agreement to acquire a 100% hydrogen-powered freight train, which is expected to start operating in 2024.
- We are advancing different Electromobility Plan initiatives such as: Charge On, Hydra Consortium and electric bus pilots.
- We started working on decarbonisation plans for all our operations.
- We measured our Scope 3 emissions in 2022 which means that we have three consecutive years of calculation based on the 15 categories of the GHG Protocol.
- We are applying an internal carbon price in tenders for carbon-intensive products and in project evaluations.

<sup>3</sup> TCFD, Task Force on Climate-related Financial Disclosures.

<sup>4</sup> In 2021, our analysis considered the RCP8.5 (SSP5-8.5) scenario.

<sup>5</sup> Compared to 2020

\* In Shared Socioeconomic Pathway (SSP) scenario used by the IPCC in its Sixth Assessment Report in 2021 (AR6).

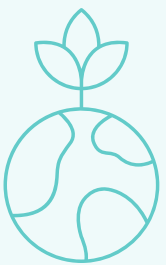


PILLAR 3  
EFFICIENT USE OF  
STRATEGIC RESOURCES



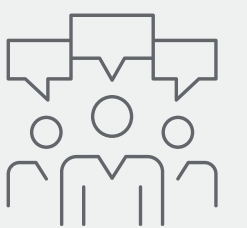
- We approved new Water and Energy Policies to improve our management of these strategic resources, and we aligned our Energy Management System with Law No. 21.305 on Energy Efficiency.
- We defined water efficiency goals and plans with objectives between 2025 and 2030.
- In December 2022, Centinela became the Group's second mining company to operate 100% with sea water.

PILLAR 4  
MANAGEMENT OF THE  
ENVIRONMENT AND BIODIVERSITY



- We updated our Biodiversity Standard considering national and international guidelines (ICMM). The standard defines biodiversity management in each phase of the mining and transportation cycle.
- We are making progress in deepening our knowledge of Nature-based Solutions with the aim of defining our management plan in 2023.
- The phytostabilisation project at Los Quillayes tailings storage facility (TSF) at Los Pelambres planted 48,000 native trees and shrubs on 60 hectares of land, bringing the total planted area to 120 hectares of the 300 hectares planned. This vegetation requires little irrigation, easily adapts to extreme environments and serves to control particulate matter, while blending the TSF in with its surroundings.

PILLAR 5  
INTEGRATION OF  
STAKEHOLDERS



- We began to use an internal carbon price in tenders for categories intensive in CO<sub>2</sub>e emissions.
- We entered into agreements with companies that supply mining equipment for the development of zero-emission vehicles and machinery.
- We launched our Suppliers for a Better Future programme, which sets ESG targets for suppliers to meet by 2025 on recruiting locally, hiring women and reducing emissions.
- We worked on long-term strategies to reduce Scope 3 emissions in nine purchasing categories and undertook collaborative initiatives with more than 15 suppliers.
- We held two training sessions on ESG for small and medium-sized companies (SMEs) in the Antofagasta Region and another four for companies from other regions. In total, more than 200 national and regional suppliers participated.
- At Los Pelambres we started the AProxima en Red project, and made important progress in the AProxima and Confluye programmes.





# 1. Resilient Management

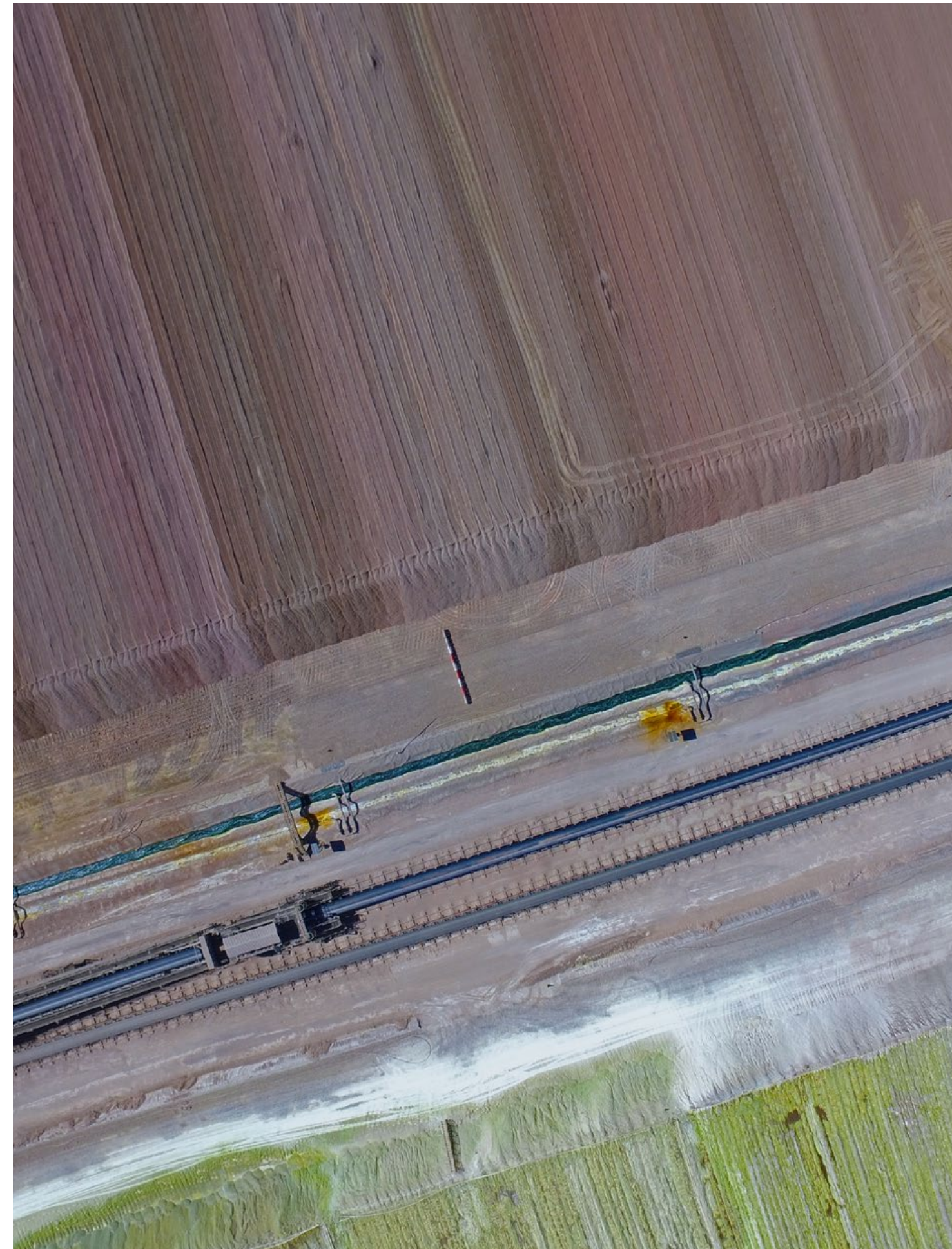


# Climate change

We have defined a governance structure, involving all levels of the company, to meet the requirements of our Climate Change Strategy, its objectives and the management of its pillars.

The Board of Directors, of which 70% of its members have sustainability skills (including competencies related to climate change),<sup>6</sup> is ultimately responsible for the Strategy and our proposed objectives, recognising climate change as one of the main challenges facing the company. To support this important role, the Board is assisted by committees with different oversight responsibilities.

The Sustainability and Stakeholder Management Committee is responsible for reviewing and monitoring the Group's strategy, policies and performance on key aspects of sustainability, such as climate change and other environmental issues, health and safety, human rights, communities and stakeholders. In 2022, its focus was to review the implementation of the Strategy, in addition to supporting the Board of Directors in the evaluation of the physical and transition risks of climate change and its impact on the Group's net present value.



In addition, the committee reviewed the water situation of the community in the Choapa Valley, which in the last 13 years has had below-normal rainfall. It also evaluated the Los Pelambres Water Management Strategy and operational initiatives and reviewed the progress report on the development of a Scope 3 emissions inventory.

The Audit and Risk Committee supervises and reviews the Group's risk management system and internal control system, including the main and emerging risks linked to climate change. It reports any significant issues to the Board of Directors at least three times a year.

At the executive level, Climate Change Strategy responsibilities are assigned to specific positions. The Chief Executive Officer (CEO) is responsible for approving targets and monitoring their progress. The Vice President of Corporate Affairs and Sustainability, the Vice President of Administration and Finance (CFO), and the Vice President of Strategy and Innovation are responsible for proposing targets and reporting on adaptation and mitigation issues.

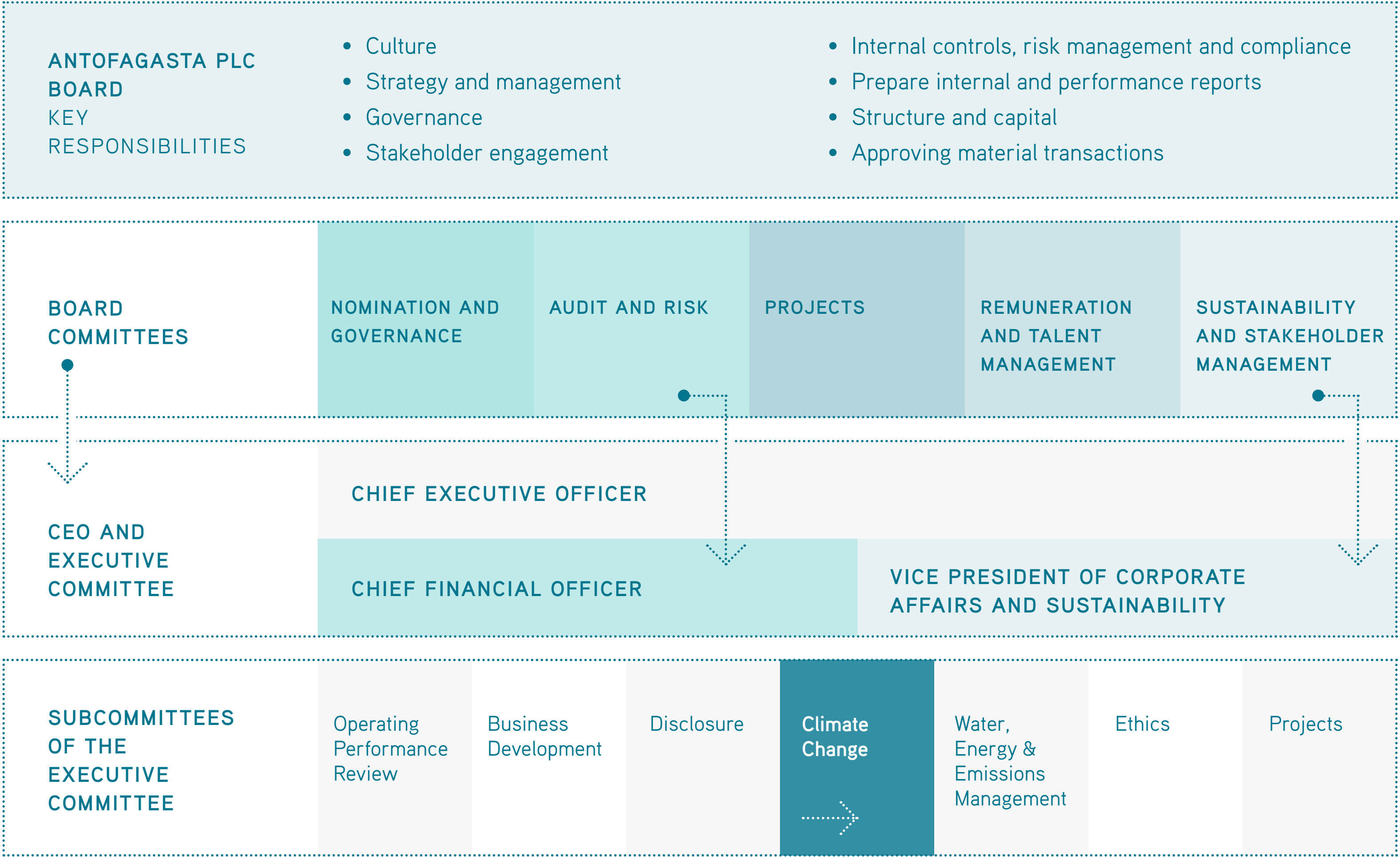
Finally, the Board's Remuneration and Talent Management Committee ensures, among other functions, that the Group's remuneration provisions are aligned with the effective implementation of its strategic

<sup>6</sup> For more information on the skills of the Board see page 120 of our Annual Report.

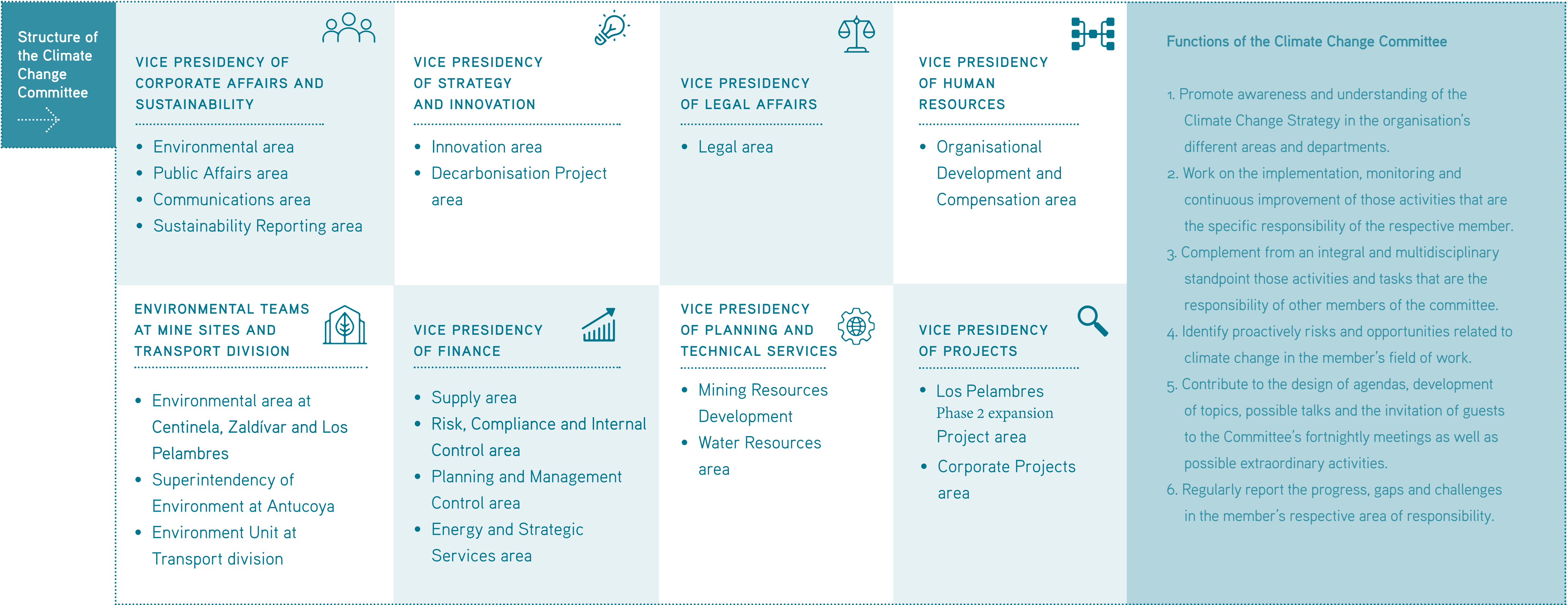


priorities. Using the Climate Change Strategy as a framework, it evaluates the terms of the short- and long-term incentive scorecards of the Group’s two employee bonus plans, among which the key performance indicators (KPIs) related to climate change have had greater weight in recent years. In 2022, climate-related KPIs for the Short Term Incentive at the Group level had a weight of 6%. In the case of the CEO, the environment category - which includes climate change - has a weighting of 10% in the annual bonus. It was defined that climate change and the environment will have a weight of 7.5% in the Long Term Incentive Plan for 2023.

The CEO is assisted in the implementation of the Group’s strategy by an Executive Committee, which receives reports on environmental matters, including climate change. The Executive Committee’s different subcommittees include the Climate Change Committee, formed in January 2021, to monitor the development and implementation of the Climate Change Strategy.









# Risks and opportunities of climate change



The effects of climate change have manifested themselves in recent years in Chile, affecting the Group's operations in different ways. As part of our Strategy's pillar to develop climate change resilience, we focus efforts on advancing measures that allow us to identify, analyse and manage the risks and opportunities that arise from climate change, enhancing the Group's resilience and competitiveness.

## Risk management

We promote effective risk management as part of our culture and strategy based on the recognition that they are inherent to our business. We manage risks using an Integrated Risk Management System, based on the ISO 31.000 risk management standard and the COSO ERM enterprise risk management framework, which is applied to all our operating companies, projects, exploration activities and support areas in order to have a comprehensive overview of the uncertainties that could affect the achievement of our strategic objectives.

The Board of Directors has overall responsibility for risk management, determining the nature and scope of principal and emerging risks, as well as defining and regularly reviewing the acceptable level of exposure based on the defined risk appetite. The Audit and Risk Committee assists the Board to evaluate the effectiveness of the risk management process. At the executive level, the Risk, Compliance and Internal Control area implements the policy as well as ensuring that a solid risk management culture exists at all levels of the organisation.

We recognise the threat that climate change poses to human life and the planet. For this reason, we have integrated climate change as one of our principal business risks, allowing us to strengthen our mitigation and adaptation capacity to address the consequences of this phenomenon. We follow the TCFD recommendations to assess our climate-related risks.

As part of our risk management, on an annual basis, we review the risk appetite assigned for each principal risk, understood as the level of acceptable exposure to risk based on the benefits it has for the fulfilment of strategic objectives. In 2022, the risk appetite for climate change was defined as medium (acceptable exposure to future uncertainties that the organisation is willing to assume to achieve its objectives) and the risk level was defined as high (due to its impact and probability of occurrence).



Physical risks

We have identified five priority physical risks that directly impact our operations and are managed by each of our companies:

Physical risk	Description	Possible cause	Possible consequence
Decrease of water supply	Decrease and/or loss of water supply	Drop in accumulated annual precipitation	Increased demand for desalinated water, increased supply costs and loss of operational continuity
Extreme rainfall events	Interruption or impact on the operation due to weather conditions (heavier and more frequent rainfall events)	Increased intensity of rainfall events	Damage to local infrastructure and transport
High and/or sustained temperatures	Effect on operation of periods of high and/or sustained temperatures	More frequent heatwaves	Higher consumption of inputs or components
Particulate matter emissions	Emissions of particulate matter with impact on the business	Dry conditions, wind	Suspension of operations and/or production restrictions
Restriction or suspension of operations due to disruptions in the logistics chain	Restriction or suspension of operations due to disruptions in the logistics chain (inbound or outbound)	Frequency of swells/extreme waves	Impact on shipping and infrastructure deadlines and costs, loss of operational continuity





Transition risks

The transition to a low-carbon economy may entail major policy, regulatory, technological and market changes to address climate change-related mitigation and adaptation requirements. Given this, we have identified and classified

the transition risks for our business into two categories and present below the consequences.

Category	Risk	Possible cause	Possible consequence
Politics and Legislation	Carbon tax	Introduction of a carbon tax that impacts the mining sector	Loss of competitiveness due to increased operational costs (direct and indirect)
	Regulatory changes to address climate change	Requirements from the Climate Change Framework Law (Law 21.455 that introduces mitigation plans for the mining sector and emission standards)	Loss of competitiveness and higher costs due to new requirements
		Changes in the Energy Efficiency Law (Law 21.305) and the Green Tax Law (Law 20.780)	
Reputacionales.	Greater pressure from stakeholders for environmentally responsible mining	Higher expectations of stakeholders (investors, clients, communities, society, etc.)  Slower pace of commercial-scale technological developments to replace low-carbon technologies	Clients choose suppliers who demonstrate greater climate ambition
	Greater requirements of the territory on climate change	Climate event that affects local communities	Reputational loss and higher costs due to new requirements

Opportunities

In addition to identifying, assessing and monitoring the transition and physical risks associated with climate change, we are continually monitoring and exploring new opportunities that allow us to improve our response to climate change.

Area	Transition opportunities
Resilience	<ul style="list-style-type: none"><li>• Improve adaptation and mitigation response through a better understanding of climate-related risks.</li><li>• Opportunity to carry out Nature-based Solutions projects.</li></ul>
Products	<ul style="list-style-type: none"><li>• Increase in copper demand and price as it is a key material for low-carbon technologies.</li></ul>
Resource efficiencies	<ul style="list-style-type: none"><li>• Reduction of costs associated with energy efficiency.</li><li>• Reduction of exposure to the carbon tax due to energy efficiency measures.</li><li>• Low carbon operational equipment and reduction of GHG emissions.</li><li>• Increase in capital available to invest in new technologies based on energy efficiency projects.</li></ul>
Energy sources	<ul style="list-style-type: none"><li>• Reduction of exposure to the carbon tax by replacing diesel with low-carbon alternatives.</li><li>• Low carbon operational equipment and reduction of GHG emissions.</li><li>• Cost reduction due to lower renewable electricity prices.</li><li>• Development of new technologies facilitates mitigation.</li><li>• Increase in capital available to invest in new technologies from energy efficiency projects.</li></ul>



# Resilience to climate change impacts

Over the last few years, we have worked to advance measures that allow us to identify, analyse and manage the risks associated with different climate change scenarios in the short, medium and long term, complying with international standards and possible new regulations, in order to strengthen our capacity for adaptation and competitiveness. The work has focused on three areas of action:

- Keep our climate models and projections updated to have information that enables us to make better decisions regarding business planning and forecasts.
- Design, implement and update adaptation plans for infrastructure and critical processes based on the risks detected through climate scenarios and forecasts.
- Generate collaborative and participatory processes with employees, communities, suppliers and contractors around climate change, promoting and facilitating the detection of adaptation opportunities for the Group.

## Update of climate scenarios

By analysing climate scenarios, we can obtain information about the possible impacts of climate change on our company, allowing us to evaluate the resilience of our strategy to address this phenomenon over time.

In 2022, we carried out a new analysis considering an intermediate IPCC scenario, known as SSP2-4.5<sup>7</sup> (RCP4.5), which builds on the latest climate models (CMIP -6) in which emissions peak around 2040 and then decline, leading to warming by 2100 of 2.5°C to 3°C compared to pre-industrial temperatures. This update enabled us to deepen our understanding of physical risks and their financial impact on the Group.

The update process was carried out through collaborative work and a bottom-up approach with the participation of different areas of the company. It included a review of the variables used to analyse the impacts, which were selected through multidisciplinary information-gathering sessions with operations, and considered specific operational thresholds in order to have a more detailed understanding of real operating conditions. These variables

<sup>7</sup> Shared Socioeconomic Pathway scenario used by the IPCC in its Sixth Assessment Report of 2021 (AR6).





are divided into categories such as higher temperatures, water scarcity, extreme rainfall events, conditions that cause particulate matter, swells and wave events, and were analysed at each of our operations to evaluate the potential impact on production and cost performance as well as the cost of adaptation measures and control options.

We continue to use the International Energy Agency's (IEA) widely recognised and ambitious Sustainable Development Scenario (SDS) to understand the financial impact of the risks of the transition. It provides a global vision and context for a low-carbon transition.

In the SDS, fossil fuel prices decrease due to low demand, as society opts for renewable and low-carbon energy sources. To counteract a potential rebound in fossil fuel consumption due to low energy costs, carbon taxes are introduced at higher rates and apply to a wider scope of sources. Based on this scenario, we quantify the financial impact of the introduction of a carbon tax, including an analysis of essential measures to decarbonise our mining operations and identify cost-efficient opportunities. To align the potential impact of physical and transition risks with

the life of mine and planning cycle of our mining operations, we define the short term as 0-5 years, the medium term as 5-15 years and the long term as 15-50 years.

Once the risks and opportunities were identified, they were evaluated and quantified in terms of probability and impact. Their financial impact was estimated using the assumptions contained in these scenarios from three points of view: 1) without mitigation or adaptation, 2) controls already implemented and 3) plans and actions implemented in the future. The financial impact of climate change was assessed over the life of mine of each operation and a 25-year time horizon for the Transport division.

In 2023, we continue reviewing our climate change risks, permanently improving preventive actions.





# Climatic scenarios

## TRANSITION RISKS

2021-2022

### Sustainable Development Scenario (SDS)

For transition risks, we use the IEA's SDS, an ambitious scenario that limits temperature rise to between 1.5°C and 1.8°C by 2100 through aggressive mitigation measures linked to policy action, technological development and market changes.

## PHYSICAL RISKS

2021  
RCP8.5 (SSP5-8.5)

It is a very high baseline emissions scenario, representing no climate policy or mitigation and continued high use of fossil fuels (or potentially that climate sensitivity is higher than expected).

This is the worst-case scenario for physical climate change and hazards in which insufficient mitigation measures result in a temperature rise of 4°C by the end of the century.

It is the scenario analysed by Chile in its Climate Risk Atlas and adaptation planning. It is also recommended by Chile's Environmental Assessment Service in the Methodological Guide for the consideration of climate change in the Environmental Impact Evaluation System.

2022  
RCP4.5 (SSP2-4.5)

Intermediate scenario in which emissions peak around 2040 and then decline, leading to warming by 2100 of 2.5°C to 3°C compared to pre-industrial temperatures.

While the Paris Agreement has the ambition to go beyond this (1.5-2°C), RCP4.5 aligns with the path implied by current policies.



Potential impacts of climate change on our operations

• Centinela

Located in a desert area of great geographical breadth.



**CENTINELA PORT**  
Interruption of supply chain and delays in shipments.



**MINE CAMP**  
Change in camp location due to increased dust



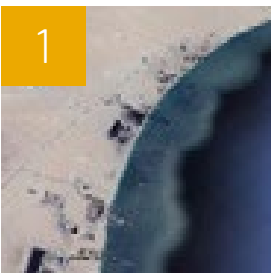
**CENTINELA PLANT**  
Increased evaporation from processing ponds due to an increase in makeup water to offset loss; damage to infrastructure, such as the hydraulic margin of DRE walls due to heavy rainfall.



**CENTINELA MINE (PIT)**  
Wear of equipment components and higher use of inputs (tyres, diesel).

• Antucoya

Located in a desert area with wide variations of temperature during the day.



**MEJILLONES PORT**  
Interruption of supply chain and delays in shipments.



**MINE CAMP**  
Adverse working conditions for personnel. Damage to external roads, high voltage transmission lines and roofs. Changes in project lead times and costs.



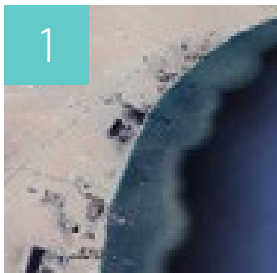
**CRUSHING – AGGLOMERATION**  
Higher water consumption, damage to conveyor belts and equipment due to increased dust.



**ANTUCOYA MINE (PIT)**  
Damage to equipment and road quality due to increased rain and dust.

• Transport division

Located in northern Chile with 700km of railway lines.



**MEJILLONES PORT (“MICHILLA ZONE”)**  
Port closures, problems receiving acquisitions at ports, shortage of sulphuric acid at suppliers’ terminals, restrictions on reception of cargo at ports.



**UPPER PART OF OLLAGÜE (2,260 – 3,660 MASL)**  
Impact on railway line/ restrictions on traffic and operations.  
  
Closure and/or operational restrictions at ports and terminals of clients and suppliers.



**LEACHING/ SOLVENT EXTRACTION AND ELECTROWINNING**  
Damage to equipment, roof of electrowinning bay and floor of cathode yard.

• Zaldívar

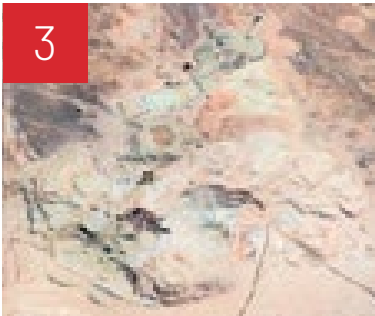
Located in a desert area, at a high geographical altitude (3,000 meters above sea level), with significant daily temperature range.



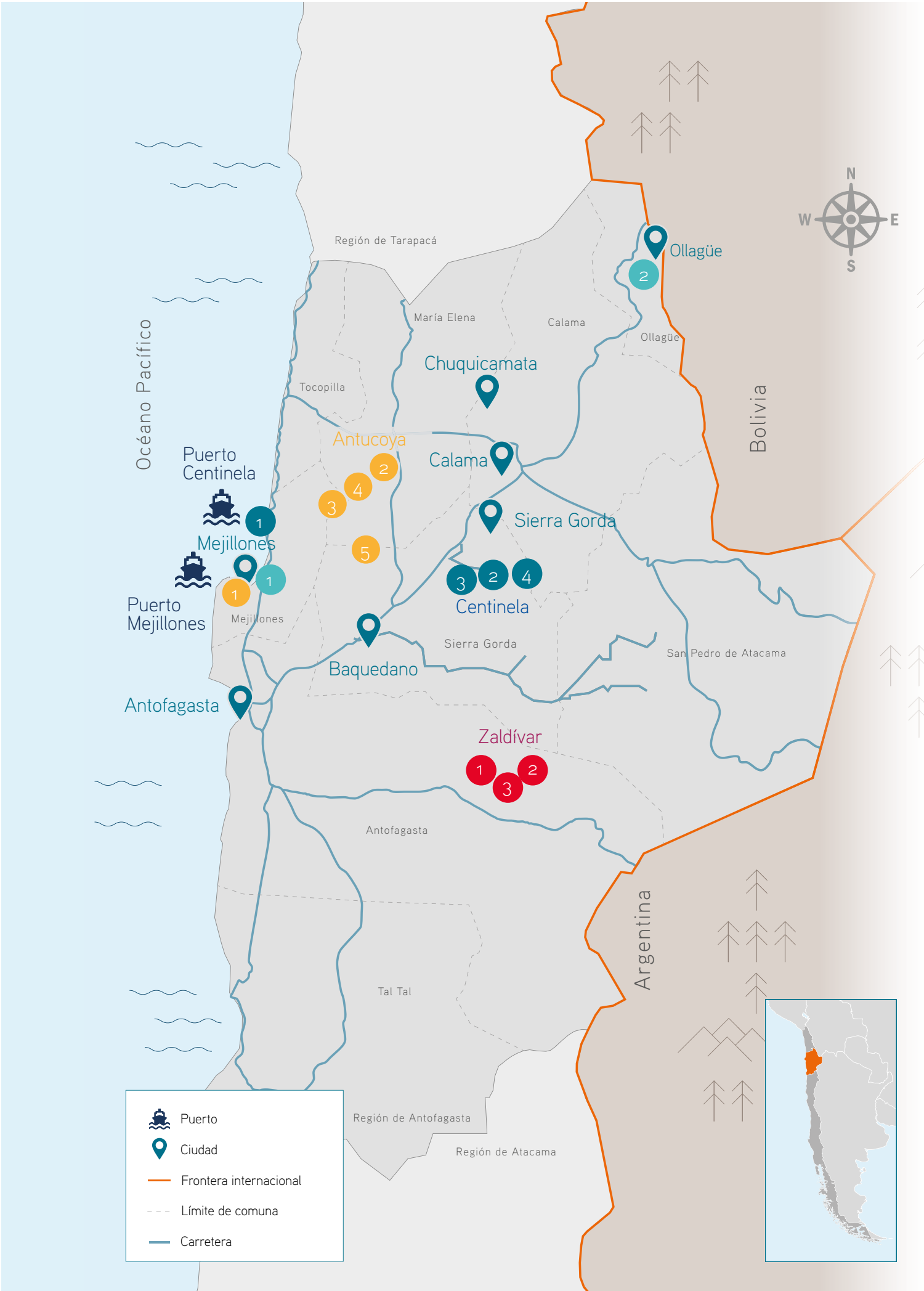
**SUPPLY OF ACID**  
Interruption of supply chain and shipping delays.



**ZALDÍVAR PLANT**  
Damage to infrastructure due to rain, increased dust and greater water consumption due to evapotranspiration



**ZALDÍVAR MINE (PIT)**  
Increased dust, damage to roads.





Potential impacts of climate change on our operations

• Los Pelambres

Located in an agricultural valley of the Coquimbo Region

1



**PUNTA CHUNGO PORT**  
Additional costs due to delays in starting loading ships (demurrage), increase in port maintenance costs.

2



**CHACAY PLANT**  
Lack of water for operation; potential impact on infrastructure due to flooding and/or landslides due to increased extreme rainfall, increase in dust.

3



**EL MAURO TAILINGS STORAGE FACILITY**  
Lack of water, damage to infrastructure from unusual rainfall, increased dust.

4



**LOS PELAMBRES MINE**  
Lack of water for operation; increase in dust; worsening water quality of the Pelambres River.





Results of climate scenario analysis

The 2022 analysis showed that the potential exposure of our business to the risks of climate change decreased compared to the analysis carried out in 2021. This was mainly due to the change in the modelling scenario used and our better understanding of the physical impact of climate change on our operations as a result of the work previously carried out. The greater financial impact of transition risks compared to 2021 is primarily due to the better quality information used in the 2022 analysis and the longer LOM<sup>8</sup> incorporated into the model. Although the probability of value at risk is uncertain, the analysis provides a useful benchmark for assessing and prioritising the mitigation and adaptation measures we need to develop and implement to reduce our exposure and strengthen our resilience.

8 LOM: Life of Mine.

9 The positive impact of climate change on copper demand or the copper price has not been quantified.

10 Physical changes in climate and associated impacts vary by geographic area and will impact Antofagasta’s operations differently.

The analysis does not include an estimate of the potential impact of climate change on copper demand or price, which is expected to be positive but is difficult to quantify.

Transition<sup>9</sup>:  
IEA’s SDS



\$1,000 – 1,500m  
Carbon tax



\$1,000 – 1,500m  
Investment in  
mitigation



\$50-100m  
Change in energy costs  
due to mitigation



\$500-100m  
Carbon tax avoided due to  
mitigation

Transition risks and opportunities have been identified in the short, medium and long term.

Physical<sup>10</sup>: IPCC’s  
SSP2-4.5

Northern Zone (Centinela, Antucoya, Zaldívar, Transport division)



Central Zone (Los Pelambres)



	Compared to 2021 analysis	Period	Compared to 2021 analysis	Period
Decline and/or loss of water supply	\$0-50m =	Medium term	\$100-200m =	Short and medium term
Extreme rainfall events	\$50-100m ↘	Medium term	\$0-50m ↘	Medium term
High temperatures and/or sustained	\$0-50m ↘	Medium term	\$0-50m ↗	Medium and long term
Particulate matter	\$50-100m =	Short and medium term	\$0-50m ↘	Short and medium term
Supply chain impacts	\$50-100m =	Short and medium term	\$0-50m =	Medium and long term




Net Present Value Positive Exposure



Net Present Value Negative Exposure

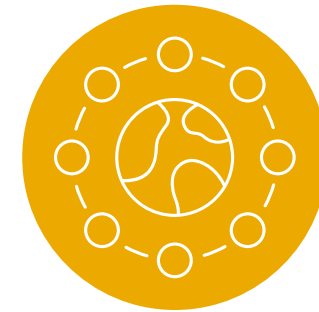




## 2. Actions to Achieve Carbon Neutrality



# Reducing operational emissions



As a Group, we recognise our responsibility for our activities' emissions and the urgency to adopt new technologies to reduce operational emissions. This challenge is covered by Pillar 2 of our Climate Change Strategy, which focuses on reducing GHG emissions through the definition of reduction targets and pathways that enable us to progress towards the development of sustainable mining and carbon neutrality. It also outlines the targets and measures we have adopted to mitigate our operations' carbon footprint.

At the end of 2020, we met early the target set in 2018 of reducing Scope 1 and 2 emissions by 300,000 tCO<sub>2</sub>e by 2022. In 2021,

we set the more ambitious targets of reducing Scope 1 and 2 emissions by 30% by 2025, compared to 2020, and achieving carbon neutrality by 2050 or sooner if the development of technology permits.

Since April 2022, all our power supply contracts are from renewable sources, leading to a 90% reduction of our Scope 2 emissions, compared to 2021, enabling us to meet the 2025 commitment early.

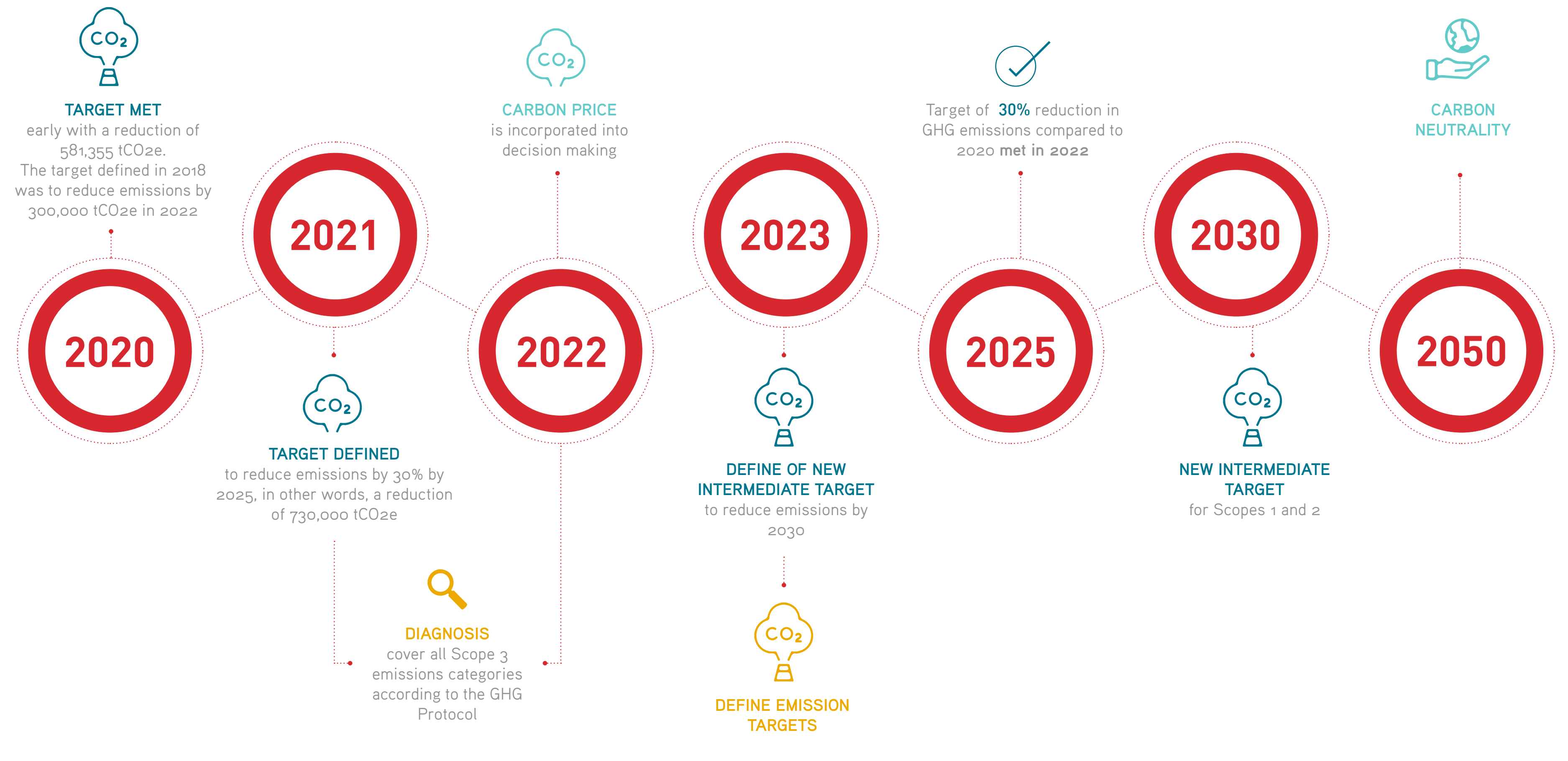
**In 2022, we achieved a 42% reduction in our Scope 1 and 2 emissions, compared to 2020, equivalent to a decrease of 928,163 tCO<sub>2</sub>e.**

In 2023, we have been working on defining a new medium-term reduction goal for 2030.





## Antofagasta emission targets





Decarbonisation roadmap

In 2022, we began working on a decarbonisation roadmap for all our operations, to be completed in 2023, that will determine the steps required to achieve carbon neutrality by 2050. The roadmap will define the emissions baseline, the haul truck replacement plan, energy consumption projections and assumptions about current and future technologies. In addition, it contains an analysis of the technologies necessary to decarbonise our operations according to different scenarios and long-term emissions targets.

11 Purchases of carbon credits and other alternatives.

12 Since 2022, all mining operations have 100% renewable energy power supply contracts.

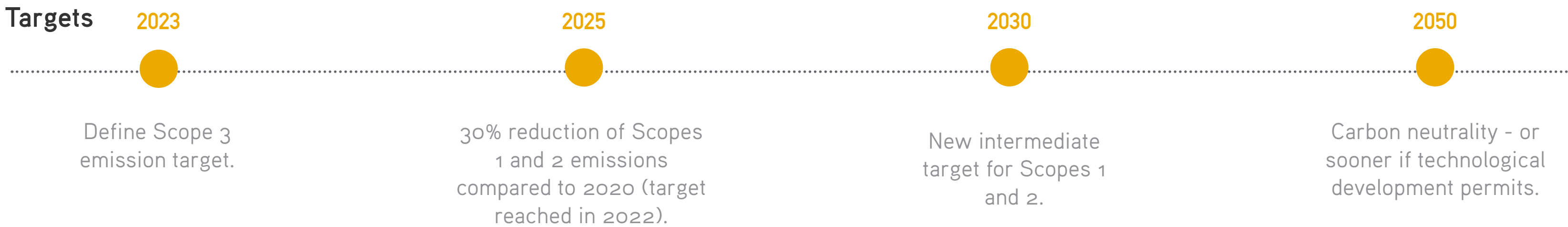
13 Suppliers of goods and services - doesn't include transport.

14 Upstream transport (suppliers) and downstream transport (clients).

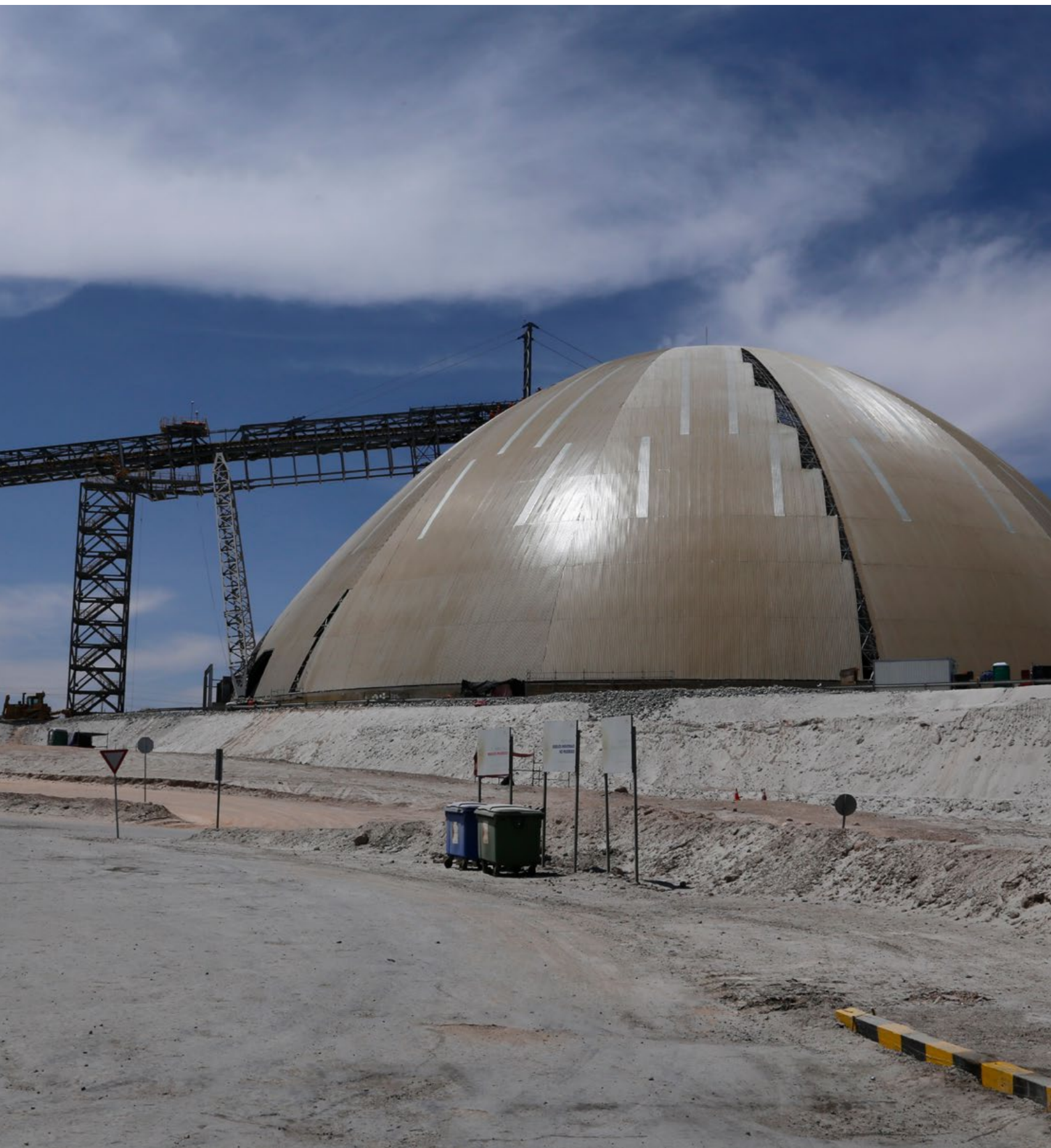
15 Fuels such as ammonia, green hydrogen or others.

Decarbonisation roadmap actions

Scope 1	Scope 2	Scope 3
<ul style="list-style-type: none"><li>• <b>Movement of material</b> Transition towards zero-emission mine haulage trucks, incorporating new technologies when feasible (trolley, electric battery-powered trucks and/or hydrogen trucks), as well as other non-haulage truck forms of transport.</li><li>• <b>Other processes</b> Work to find technological solutions to decarbonise the rest of the operation.</li><li>• <b>Decarbonisation</b> Seek solutions to capture and/or store carbon to reduce emissions.</li><li>• <b>Remnant</b> Compensate<sup>11</sup> for all those emissions that are not feasible to abate.</li></ul>	<ul style="list-style-type: none"><li>• Electricity 100% renewable energy power supply contracts<sup>12</sup></li></ul>	<ul style="list-style-type: none"><li>• <b>Suppliers<sup>13</sup></b> Work with our suppliers of goods and services to measure, disclose and manage their emissions, considering these matters in our decisions to award contracts.</li><li>• <b>Clients</b> Continuous coordination and collaboration with our clients on their current and future Co2 reduction plans.</li><li>• <b>Transport<sup>14</sup></b> Work with the maritime and land logistics industry to transition towards zero-emission technologies and fuels<sup>15</sup> (such as green hydrogen).</li></ul>







### Scopes 1 and 2 emissions

Our operational emissions comprise those that are produced or controlled directly by the company (Scope 1), mainly from using diesel in mine haulage trucks and producing the heat required in some mineral treatment processes, and indirect emissions associated with the generation of purchased electricity consumed by the company (Scope 2).

In 2022, almost 60% of our Scope 1 GHG emissions were attributed to the combustion of diesel in mine haulage trucks. Our Mining division's Scope 1 emissions increased by 12.7% compared to 2021, mainly due to longer mine haulage distances and higher fuel consumption by mobile and fixed sources.

Our objective is to eliminate diesel consumption from our operations, through a gradual transition to low-carbon alternatives.

To reflect the reduction of emissions in our annual reporting, in 2022 we verified our Scope 2 emissions for 2020, 2021 and 2022 in accordance with the methodology recommended by the GHG Protocol's Scope 2 Guidance, which considers market-based and location-based methods. The market-based method allows us to reflect the renewable energy supply in power purchase agreements (PPAs) with generators.



Operational CO2e emissions (tCO2e)<sup>(16,17)</sup>

	Los Pelambres	Centinela	Zaldivar <sup>18</sup>	Antucoya	Corporate offices (Santiago and London)	Mining division	Transport division	Total
Scope 1 Direct emissions								
2022	250,545	529,075	128,440	205,332	189	1,113,581	91,068	1,204,649
2021	226,199	439,484	156,500	165,641	124	987,948	90,778	1,078,726
2020	257,801	492,496	152,340	152,577	108	1,055,322	88,936	1,144,258
Scope 2 Indirect emissions <sup>19</sup>								
Location based <sup>20</sup>								
2022	306,056	438,788	121,063	94,283	460	960,650	717	961,367
2021	466,381	556,616	163,530	124,467	894	1,311,888	823	1,312,711
2020	464,492	542,020	162,688	120,087	603	1,289,890	858	1,290,748
Market based <sup>20</sup>								
2022	93,142	1,634	0	0	460	95,236	717	95,953
2021	286,848	556,616	0	124,467	894	968,825	823	969,648
2020	334,376	542,020	86,563	120,087	603	1,083,649	858	1,084,507

16 Tonnes of carbon dioxide equivalent.  
17 More information regarding our CO2 emissions can be found on the Carbon Disclosure Project website (www.cdp.net).  
18 The figures include 100% of the emissions from Zaldivar, despite Antofagasta plc having 50% ownership of said mine.  
19 Scope 2 figures for 2020 to 2022 have been verified by an independent third party.

20 According to the GHG Protocol, the location-based method reflects the average emissions intensity of the grid on which energy consumption occurs. The market-based method reflects emissions of the electricity that companies have chosen.  
21 Tonnes of CO2 equivalent per tonne of copper produced or per tonne transported in the case of the Transport division.  
22 Using Scope 2 market-based methodology

	Los Pelambres	Centinela	Zaldivar <sup>18</sup>	Antucoya	Corporate offices (Santiago and London)	Mining division	Transport division	Total
Total emissions (Scopes 1 and 2)								
Location based <sup>20</sup>								
2022	556,601	967,863	249,503	299,615	649	2,074,231	91,785	2,166,016
2021	692,580	996,100	320,030	290,108	1,018	2,299,836	91,601	2,391,437
2020	722,293	1,034,516	315,028	272,664	711	2,345,212	89,794	2,435,006
Market based <sup>20</sup>								
2022	343,687	530,709	128,440	205,332	649	1,208,817	91,785	1,300,602
2021	513,047	996,100	156,500	290,108	1,018	1,956,773	91,601	2,048,374
2020	592,177	1,034,516	238,903	272,664	711	2,38,971	89,794	2,228,765
Emissions intensity tCO2e/tCu <sup>21</sup>								
Location based <sup>20</sup>								
2022	2.02	3.91	2.81	3.78	-	3.00	12.91	-
2021	2.13	3.63	3.64	3.69	-	3.00	13.67	-
2020	2.01	4.19	3.27	3.44	-	3.00	13.93	-
Market based <sup>22</sup>								
2022	1.25	2.14	1.44	2.59	-	1.75	12.91	-
2021	1.58	3.63	1.78	3.69	-	2.56	13.67	-
2020	1.65	4.19	1.79	3.44	-	2.79	13.93	-



Electromobility Plan

We are advancing our Electromobility Plan to be an early adopter of technologies to reduce Scope 1 emissions, for example by using equipment powered by clean technologies such as electricity from renewable sources and green hydrogen, once these technologies are adequately developed.

Chile’s advantageous conditions for solar and wind energy generation mean that it has the potential to become a major producer of green hydrogen. As members of the Board of Directors of the Chilean Hydrogen Association (H2 Chile), we support the country’s development in this field and are exploring ways to incorporate hydrogen into our operations.

Technological applications based on green hydrogen still need to overcome multiple obstacles before being fully implemented in mining industry operations. We are carrying out different initiatives to include this technology in our operations in order to accelerate this transition..

Hydra Consortium

Within the framework of the international Hydra consortium, formed by French energy company Engie and technological research organisation Mining3, we carried out the first test in a Chilean mine of a hydrogen fuel cell and battery powertrain prototype to simulate the use of hydrogen in mine haulage trucks. The test at Centinela was carried out to ascertain the fuel’s performance under actual mining conditions. The results showed that high altitude, low temperatures and low humidity all affect operations and performance and these factors will be considered when developing this technology.

We sponsored the Charge On open innovation challenge, which seeks to develop solutions for the safe, sustainable and rapid charging of electric batteries for mine haulage trucks. Likewise, we decided to participate in the ICMC’s Innovation for Cleaner, Safer Vehicles (ICSV) to promote the preparation of a charging and communication standard for large mining equipment.

In 2022, we conducted a tender for the development of an electric-powered trolley pilot to assist a mine haulage truck at Los Pelambres. We also signed an agreement with Komatsu, a mining equipment supplier, to advance the development of zero-emission vehicles and machinery, and to test four types of electric battery vehicles in 2023 at our operations (excavators, front-end loaders, dump trucks and pick-up trucks).

In addition to addressing haul trucks, we are also working to decarbonise our auxiliary fleets and support equipment.





We began operating the first electric transit van at Antucoya to transfer people between the operation’s plant and mine camp. Its autonomy and efficiency will be monitored for three years to evaluate its response to the physical conditions of the mine site.

At Los Pelambres, we tested an electric pick-up truck with a range of 400 kilometres and a 100% electric bus to transport 40 passengers. The knowledge we obtain from these pilot projects is essential for evaluating whether we can scale up the use of these technologies in future contracts.

Our Transport division is also looking for green hydrogen alternatives to reduce the GHG emissions of its railway services. In 2022, it signed an agreement to acquire a locomotive powered 100% by green hydrogen, which should begin operations in 2024.

This new locomotive was purchased from a Chinese supplier, comprised of the companies CRRC QISHUYAN and AHTECH. It considers the highest safety standards, with gas detection systems, automatic supply cut-off in the event of the slightest leak, special hydrogen tanks and controllers of all system signals.

Building on this milestone, the Transport division has a project to convert its current fleet to green hydrogen that was selected in a call for initiatives by the Sustainable Energy Agency’s Green Hydrogen Accelerator programme. The agency is a Chilean foundation that implements programmes and projects to promote energy efficiency in the country.

**Mining operations powered by  
100% renewable energy contracts**

Our transition to renewable power supply contracts was led by Zaldívar, which became our first operation to use 100% renewable energy in July 2020. Antucoya and Centinela followed suit in January 2022 and Los Pelambres in April 2022, allowing the Mining division’s Scope 2 emissions to be reduced by 873,589 tCO<sub>2</sub>e in 2022 compared to 2021.





# Reducing emissions in the value chain



\* Considering Scope 2 location-based emissions.

<sup>23</sup> For more information, see the CDP website ([www.cdp.net](http://www.cdp.net)).

## Scope 3 emissions

In addition to reducing our operational emissions, we are addressing the challenge of supporting and encouraging our suppliers to manage and reduce our Scope 3 emissions, which in 2022 represented 73% of the total carbon footprint of the Mining Group\*.

Although Scope 3 emissions are related to our activity, they are generated in upstream (suppliers) and downstream (clients) processes, requiring us to work together with companies in our value chain to achieve their reduction.

According to the GHG Protocol's Corporate Value Chain (Scope 3) Accounting and Reporting Standard, there are 15 categories of Scope 3 emissions. Of these, eight correspond to upstream activities and seven to downstream activities. At Antofagasta, we have been reporting Scope 3 emissions in the Carbon Disclosure Project (CDP) for several years.<sup>23</sup>

Over the last two years, we have focused on deepening our knowledge of Scope 3 emissions. In 2021, we carried out an initial analysis of the 15 emissions categories from 2020,

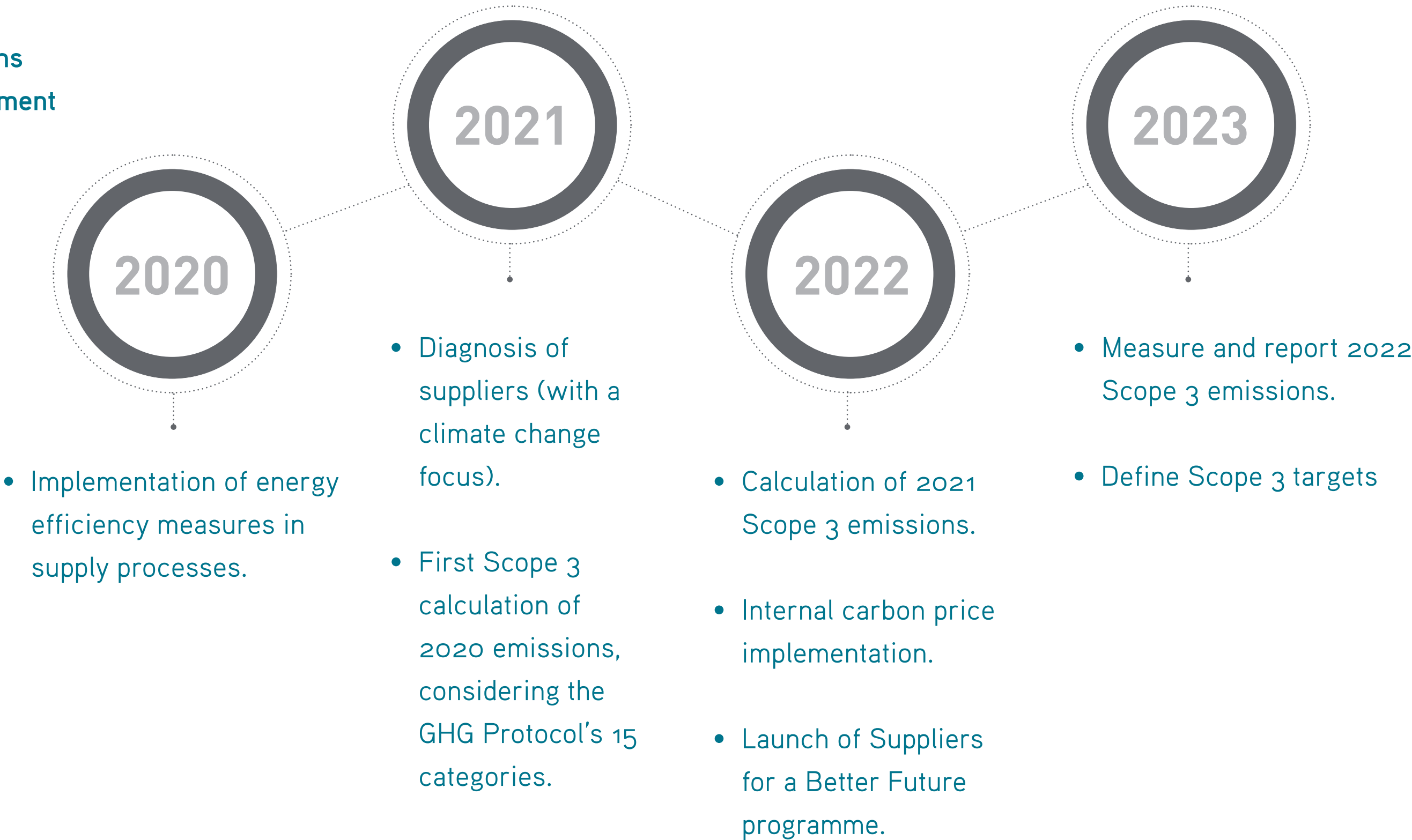
allowing us to identify opportunities for improvement in the calculation process. In our Climate Change 2023 report to the CDP, we reported our 2022 Scope 3 emissions.





An important challenge facing the mining industry worldwide is to define a consistent methodology to calculate and report Scope 3 emissions. In this context, we worked with other ICMM member companies to prepare a guide\* to consistently measure and report Scope 3 emissions, with the objective of adopting a common standard to define reduction targets. We also participate in various national bodies at the industry level to address this challenge.

Scope 3  
emissions  
management



\*<https://www.icmm.com/en-gb/news/2023/disclosure-scope-3-emissions>





Scope 3 Emissions Mining Group (tCO2e) (2020, 2021 and 2022) <sup>24</sup>

Scope 3 category	2020	2021	2022
1. Purchases of goods and services	2,976,328	2,712,403	3,232,187
2. Capital goods	Included in Cat. 1	29,343	17,597
3. Fuel and electricity not included in Scopes 1 and 2	483,517	775,335	781,613
4. Transport and distribution (purchases)	144,992	160,417	174,127
5. Disposal and treatment of waste	1,095	1,230	1,804
6. Business trips	768	901	5,841
7. Daily transport to workplace	5,321	5,513	5,362
8. Leased assets	Included in Cat. 1.	14,408	14,345
9. Transport and distribution (sales)	325,578	290,275	244,111
10. Processing of sold products	1,280,753	1,252,952	1,215,886
11. Use of sold products <sup>25</sup>	N/A	N/A	N/A
12. Final disposal of sold products <sup>25</sup>	N/A	N/A	N/A
13. Leased assets to third parties <sup>25</sup>	N/A	N/A	N/A
14. Franchises <sup>25</sup>	N/A	N/A	N/A
15. Investments	310,155	0	0
Total Scope 3 Emissions	5,528,507	5,242,777	5,692,874

24 The figures in the table have been verified by an independent party

25 Categories that do not apply according to the GHG Protocol



The table presents Scope 3 emissions for the years 2020, 2021 and 2022 in its 15 categories, according to the GHG Protocol, for the Mining Group (\*). Categories 1 (purchase of goods and services) and 10 (processing of sold products) currently have the largest emissions contribution, representing around 57% and 21%, respectively, in the 2022 Scope 3 total.

Category 1 is calculated using both expenditure and consumption data, so we are working on several initiatives with key suppliers to progressively improve the accuracy of the calculation and improve emissions management. The 2022 emissions increase for this category was due to an increase in spending, which also reflects the significant price rises of the last 12-24 months.

Categories 11 (use of sold products), 12 (final disposal of sold products), 13 (leased assets to third parties) and 14 (franchises) are not applicable to the Mining Group according to GHG Protocol guidelines.

\* Ferrocarril Antofagasta Bolivia (FCAB) Scope 3 emissions are immaterial to the Mining Group's Scope 3. More information in the FCAB Sustainability Report 2022.





### Responsible supply

Given that a large proportion of Scope 3 emissions are generated in upstream processes, we are working closely with our suppliers to progressively align their practices with our own internal environmental, social and governance (ESG) standards. Our priority is for them to reduce their GHG emissions in line with our Climate Change Strategy. Likewise, we place attention on their governance, local hiring, and diversity and inclusion practices.

With this in mind, in 2022 we began to apply ESG criteria in our tenders for contracts worth over \$10 million to complement the energy efficiency and safety criteria already in place, prioritising bids from companies with solid governance, local hiring, diversity and inclusion and carbon emission reduction strategies and objectives.

Likewise, we began to apply an internal carbon price in tenders for categories of goods and services with higher CO<sub>2</sub> emissions intensity. Internally, we apply a carbon price when evaluating growth projects, capital allocation and in our financial planning cycles.

In 2022, we worked with our suppliers to refine our Scope 3 emissions calculation, carried out in 2021, focusing on specific categories, such as explosives, grinding balls and liners. We also began working on long-term strategies to reduce these emissions in nine purchasing categories and initiated collaboration initiatives with more than 15 supplier companies.

Our objective is to work together to reduce emissions in the value chain with the understanding that there are specific realities for each local and international supplier. For this reason, we are also focused on supporting supplier companies to develop more sustainable practices, playing a leading role in overcoming these challenges and establishing alliances that enable realistic emission reduction targets to be set throughout the supply chain.<sup>26</sup>



<sup>26</sup> For more information on Suppliers, see pages 36 and 37 of the Antofagasta Minerals 2022 Sustainability Report.



# Efficient use of strategic resources



Pillar 3 of our Climate Change Strategy focuses on the efficient management of strategic resources, such as water and energy, to ensure the supply of these resources for our operations and the surrounding area. To address the above, we consider innovation opportunities, the impacts on the environment and communities, as well as technological advances and regulatory changes. Within this framework, we have made progress in the development of various initiatives that allow us to respond as a Group to this challenge.

## Water

Three of our four mining operations are located in the Atacama Desert and the fourth, Los Pelambres, is in an area that has been suffering a severe drought for the last 13 years. As a result, water consumption and efficiency have long been a management priority.

### Water management

In 2022, we significantly improved our water management through the approval of a new Water Policy and Water Management Standard. The Policy recognises that water is a strategic resource for our Group and is essential for life on our planet, with a sociocultural, environmental and economic impact. In addition, it establishes practices aligned with the ICMM Water Stewardship Framework to safeguard the availability of water resources for our operations, communities and the environment.

Meanwhile, the Standard sets the minimum water management requirements that our operations and projects must consider throughout their lifecycle and in the geographical areas where they are located, aiming at the sustainable use of continental and maritime water resources and protection of the environment, in compliance with the Water Policy. It is directed at all the Group's mining companies and their operational and technical teams.

As a first step to implement the Standard, in 2022 we carried out a diagnosis and evaluation process to establish compliance action plans, along with setting goals for 2023.



Decrease in continental water withdrawals

In 2022, our water withdrawal totalled 73 gigalitres, of which 45.4% corresponded to sea water, led by Antucoya (97%) and Centinela (87%)\*. Water withdrawal increased by 5.4% compared to 2021.

We seek for our operations to reduce the use of continental waters by improving water efficiency, recirculation and protection in the company’s areas of influence through the search for supply alternatives and innovative technological solutions.

These alternatives include the complete cessation of water withdrawal from Centinela wells in December 2022 and the expected reduction in continental water withdrawal from the Choapa River when Phase 2 of the Los Pelambres desalination plant is completed.

(\*) Mine water and ore moisture are considered continental water.

In December 2022, Centinela completely ceased withdrawing water from wells, beginning to operate 100% with sea water as of 2023, thus joining Antucoya.

Phase 1 of the Los Pelambres desalination plant, with a production capacity of 400 l/s, was completed in the first half of 2023. The expansion to 800 l/s is in the environmental approval process and will allow Los Pelambres to stop using water from the Choapa River for operational purposes.

Zaldívar’s permits to withdraw water from wells located some 100 km from the mine will expire in May 2025 and an Environmental Impact Study has been presented to evaluate the transition to alternative water sources by the end of the decade as part of LOM extension plans.

In 2022, water reuse rates at our mining operations ranged from 79% at Los Pelambres to 94% at Zaldívar. Our target is for sea water and reused water to supply more than 90% of the Mining division’s operational water withdrawal once the desalinisation plant of Minera Los Pelambres starts operating with its 800l/s capacity.







27 As defined by ICMM, operational water is the volume of water used in operational tasks. Operational water use is therefore the actual volume of water required or used to support operational activities.

Mining division’s operational water<sup>27</sup> withdrawals by source (megalitres)

		2022	2021	2020	2019
Los Pelambres	Total	29,350	26,818	27,847	21,633
	Surface water	20,093	15,790	19,481	13,898
	Groundwater	9,249	11,019	8,358	7,726
	Supplied by third parties	9	9	9	9
Centinela	Total	30,902	29,223	27,178	26,369
	Sea water	26,762	25,251	23,316	22,602
	Groundwater	4,140	3,973	3,862	3,356
	Supplied by third parties	-	-	-	410
Antucoya	Total	6,521	6,316	5,923	5,804
	Sea water	6,299	6,081	5,720	5,623
	Groundwater	221	235	204	181
Zaldívar	Total	5,993	6,653	7,015	7,015
	Groundwater	5,993	6,653	7,015	7,015
Antofagasta Minerals	Total	72,766	69,010	67,963	60,821
	Sea water	33,061	31,332	29,036	28,225
	Surface water	20,093	15,790	19,481	13,898
	Groundwater	19,603	21,879	19,438	18,279
	Supplied by third parties	9	9	9	419
	Percentage of sea water compared to total water withdrawal.	45%	45%	43%	46%

Energy

At Antofagasta, we prioritise supply from renewable energy sources and clean fuels, establishing targets aligned with actual options in the energy market and the GHG emissions pathway.

Energy use and management

Energy represents approximately 21.1% of the total operational costs of our mining operations. Of this percentage, about 10.5% corresponds to electricity and 10.6% to fuel, mainly diesel. In 2022, electricity consumption reached 3,295 GWh, 5.4% lower than the 3,482 GWh in 2021, while diesel consumption was 429,627 m<sup>3</sup> an increase of 7.7% compared to 398,847 m<sup>3</sup> in 2021.

In 2022, we published our Energy Policy, which establishes that energy is a strategic resource, whose management must ensure a safe, economic, efficient and sustainable supply for our companies, in accordance with our Climate Change Strategy. This policy materializes the commitment that Antofagasta plc has had for a decade with the supply of renewable energy for the operation of our mining sites. It commits us to implement, maintain, operate and continually improve our Energy Management System, incorporating technological innovation and the use of clean energies to drive GHG emission reductions.



Under the Policy’s framework, we have incorporated the role of energy manager at each mining operation. The energy manager is responsible for leading and ensuring that the Energy Management System is established, implemented and continually improved in accordance with the requirements of Law 21.305 on Energy Efficiency, ensuring compliance with energy management and decarbonisation objectives and targets through the development of plans to improve the organisation’s energy performance and reduce GHG emissions.

In 2022, we concluded the process of aligning our Energy Management System, based on the ISO 50001:2018 standard on energy management systems, with the requirements of Chile’s Energy Efficiency Law.

Our mining operations have Energy Performance Indicators that measure the production/consumption relationship of different operational processes in order to monitor and improve our energy performance. By doing so, we can monitor the specific consumption of electricity and fuel, allowing us to identify operational gaps which can be addressed by the implementation of energy efficiency measures.

Key energy efficiency initiatives

Initiative	Saving (Jan-Dec 2022) [MWh]	GHG emissions avoided (Jan-Dec 2022) [tCO <sub>2</sub> e]
Performance improvements in SAG mill, Los Pelambres	50,475	12,193
Use of recovered water in the concentrator plant, Centinela	56,824	16,807
Improvements in crusher use, Antucoya	24,496	7,191
Performance improvements in water pumping to site, Zaldívar	5,504	1,711
Change to LED lighting, Los Pelambres	2,552	767
Performance improvements in gravel unloading, Zaldívar	6,250	1,799

In 2023, we continue to explore new energy efficiency initiatives at our operations in order to prioritise and develop implementation plans for initiatives that enable us to reduce our energy intensity in line with Energy Efficiency Law requirements.

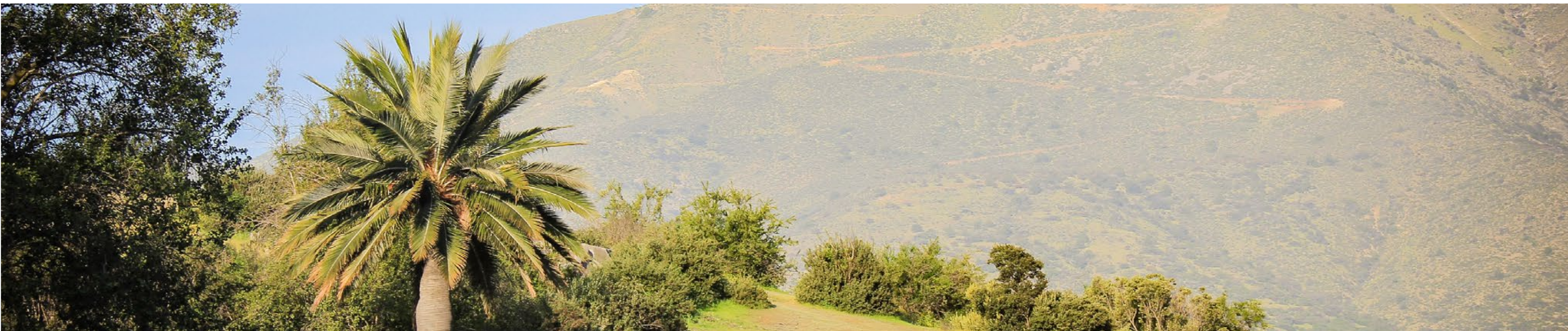
Over the past few years, we have renegotiated our power purchase agreements with generating companies, switching from conventional sources, principally coal, to renewable sources available in Chile. In addition, our own operations have their own sources of renewable energy to reduce fuel consumption, such as at Centinela, which has a solar thermal plant, and at Los Pelambres and Zaldívar, which use a conveyor belt system for the self-generation of electricity.



# Biodiversity and nature-based solutions



Protecting the environment and biodiversity is a key component of our path towards carbon neutrality. Under the framework of our Climate Change Strategy’s Pillar 4, which focuses on environmental and biodiversity management, we seek to explore nature-based solutions (NbS) that contribute to CO<sub>2</sub> capture and adaptation to physical risks in order to advance in the reduction of emissions, adaptation to climate change and the Group’s overall sustainability.

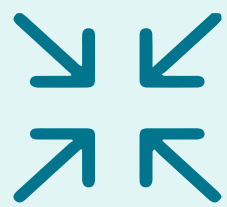


## Biodiversity Standard

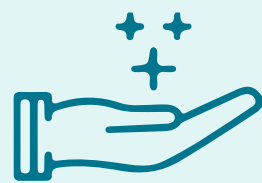
In 2022, we updated our Biodiversity Standard to improve its alignment with the ICMM position statement on Mining and Protected Areas and other international guidelines. The update is a result of joint work with operational, project and exploration teams in which we deepened the incorporation and management of biodiversity in each phase of the mining cycle, from exploration to closure.

The updated Standard includes our Transport division and promotes the generation of biodiversity net gains in which we seek to avoid or minimise any negative impact on biodiversity and mitigate or compensate for any impact generated.

### Biodiversity management objectives



- Apply the mitigation hierarchy to manage biodiversity impacts and risks\*



- Generate additional benefits in the areas where we operate

\*This means adopting a sequence of actions to avoid, minimise, restore and offset negative impacts.





### Nature-based solutions

Nature-based solutions (NbS)<sup>28</sup> are actions that aim to protect, sustainably manage and restore natural or modified ecosystems, which address societal challenges in an effective and adaptive way, while also simultaneously providing human wellbeing and biodiversity benefits. For example, they consider the protection and replanting of woodland, with its capacity to absorb carbon dioxide, and the restoration of wetlands.

As a Group, we recognise the role of NbS in our path towards carbon neutrality, due to its contribution to climate change mitigation and adaptation and as a strategy to complement the actions we are carrying out to address this phenomenon.

NbS could provide about 30% of the cost-effective mitigation needed by 2030 to stabilise global warming below 2°C.<sup>29</sup>

In 2021, we began to analyse this concept and reviewed a series of initiatives at the national and international level, with the intention of developing a portfolio of initiatives that are developed in ecosystems similar to the geographical conditions of our operations.

In 2022, we worked with our operations to publicise the concept, disseminate our portfolio and define work priorities on this matter. The aforementioned took account of the physical risks of climate change faced by our operations and, consequently, involved project selection that adjusted to local needs and is in line with the environmental management model.

In 2023, we continue to define our conceptual NbS work framework and identifying potential pilot projects to implement in the short and medium term.

<sup>28</sup> International Union for Conservation of Nature (IUCN), 2016.  
<sup>29</sup> International Union for Conservation of Nature (IUCN), 2020. IUCN Global Standard for Nature-based Solutions. A user-friendly framework for the verification, design and scaling up of NbS. First edition.



### Biodiversity protection and management

Our actions on biodiversity management and protection consider the implementation of environmental measures, dissemination and follow-up of monitoring, among others. Additionally, Los Pelambres administers four officially recognised nature sanctuaries and other protected areas. Likewise, our activities involve protecting species and conducting outreach and research initiatives.

Los Pelambres is located in the Choapa Province, an area especially rich in biodiversity where our operation protects and conserves nearly 27,000 hectares, equivalent to seven times the area used by the mine and its related installations.

#### Nature sanctuaries

**Laguna Conchalí:**

Coastal wetland recognised under the international Ramsar Convention on Wetlands due to its role as a staging area for migratory birds.

**Monte Aranda:**

Located in the Quebrada de Culimo Biodiversity Conservation Priority Site, its main ecological value is the presence of the Chilean palm (*Jubaea chilensis*), an endemic species classified as vulnerable by the International Union for Conservation of Nature (IUCN).

**Quebrada Llau-Llau:**

This protected area is home to some endangered species such as the white Chilean myrtle (a flowering plant) and the canelo or winter’s bark tree.

**Cerro Santa Inés:**

Acquired for conservation by Los Pelambres in 2014, the site was declared a nature sanctuary by the Chilean government in July 2020. Its importance is based on the conservation of a relict rainforest that has survived the area’s semi-arid climate.

#### Phytostabilisation of the Quillayes tailings storage facility

The sustainable closure plan for Los Pelambres’ Quillayes tailings storage facility (TSF) considers a phytostabilisation process to restore the environment through the planting of native trees and feral shrubs. This NbS-based project has been designed to ensure the chemical stability of the TSF and mitigate the risk of suspended particulate matter and its consequent negative impact on air quality.

To date, 120 hectares have been planted, of which 60 hectares were planted in 2022 with 48,000 preferably native shrubs and trees.

In 2020, we drew up a portfolio of biodiversity initiatives, which were presented in our first 2021 Climate Change Report<sup>30</sup>. In 2022 and 2023, we continued to implement this portfolio, carrying out different activities related to the protection of species and ecosystems as well as outreach and research initiatives.

<sup>30</sup> For more information on biodiversity initiatives, see p.52 of the 2021 Climate Change Report.



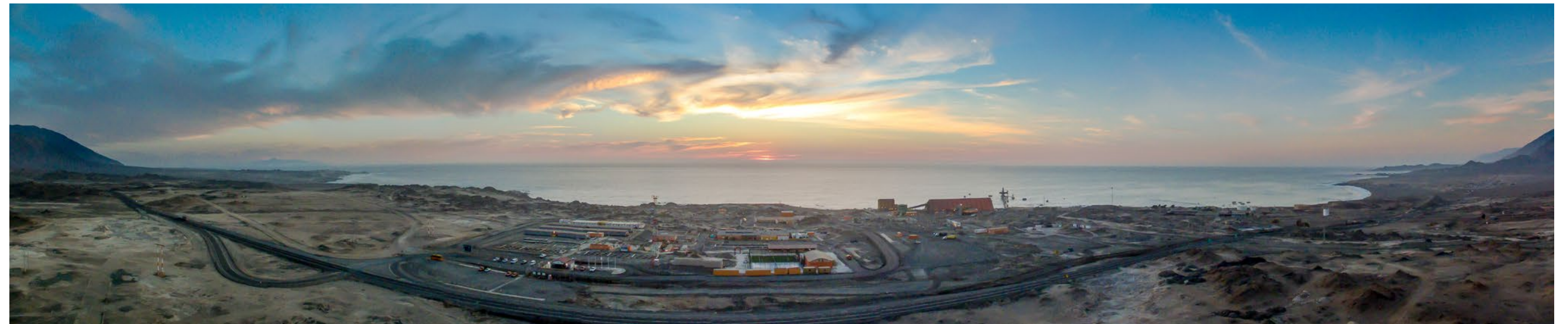
Key biodiversity initiatives

Protection of species	
<b>Eulychnia iquiquensis (Rumpa de Iquique)</b>	<p>In 2017, Centinela transferred nursery-aged specimens of this cactus from the Tarapacá Region to the coast near Quebrada El Diablo and made efforts to strengthen the plants. We continue to monitor the status of this species and its ecosystem.</p> <p>This species is found in the desert along the coast between the Arica and Parinacota Region and the Atacama Region.</p>
<b>Jubaea chilensis (Palma Chilena)</b>	<p>Part of the Monte Aranda management plan under evaluation by the authority. Located in a protected area managed by Los Pelambres, we continue to monitor its status and ecosystem.</p>
<b>Porlieria Chilensis (Guayacán)</b>	<p>Los Pelambres continues to monitor the general status and evaluate the regeneration of this species. In addition, we planted approximately 250 Guayacán trees to enrich a native forest.</p>
<b>Carica Chilensis (Papaya) and Porlieria chilensis (Guayacán) research project</b>	<p>As part of Los Pelambres’ Complementary Infrastructure Project (INCO), in 2022 technical reports were prepared that presented the results of the research conducted by Chile’s Institute of Ecology and Biodiversity (IEB). In addition, articles about the importance of research on these plant species in the Pupio Valley were published in different media outlets. One of the highlights of the research was the successful reproduction of Carica chilensis in nurseries, which is essential for its future propagation in the wild.</p>

Education and/or research	
<b>Environmental Education Trail, Morro Moreno National Park</b>	<p>Through the North Operations Public Affairs area, Antofagasta participates in the development of the educational potential of this national park, located near the port of Mejillones.</p>
<b>Production of native plants</b>	<p>In this initiative linked to Los Pelambres, more than 300,000 plants covering over 50 species were produced in 2022 to meet the planting requirements of reforestation, environmental enrichment and phytostabilisation projects.</p>
Protection of ecosystems	
<b>Laguna Conchalí</b>	<p>We continued with the general monitoring of this coastal wetland’s ecosystem which is an officially recognised nature sanctuary and Ramsar site.</p>
<b>High Andean grasslands</b>	<p>We continued with the general monitoring of this ecosystem near the Los Pelambres mine, considering its use for summer livestock grazing with local associations.</p>
<b>Comprehensive management measures for plants, soil and animals</b>	<p>Within the framework of the Los Pelambres INCO project, in 2022 a diagnosis was conducted on the biodiversity indices of the El Mollar and Tipay-Romer estates. As a result, activities were carried out to generate habitats for fauna through the installation of nesting boxes, rock piles and perches. In addition, fences were erected and tree seedlings were selected to improve the existing vegetation. A biodiversity monitoring plan will be implemented for at least 10 years.</p>



# Circular economy



In the context of the current climate crisis, the linear economic model that consists of extracting, producing, using and disposing is not sustainable. In response, the circular economy proposes a model of circular production and consumption in accordance with three principles: eliminate waste and pollution from design, keep products and materials in use for as long as possible and regenerate natural systems.

Chile has made progress on the issue by promoting policies, laws, strategies and roadmaps that seek to promote the circular economy under different regulatory instruments, such as the Roadmap for a Circular Chile to 2040 and Law 20.920 that establishes the framework for waste management, Extended Producer Responsibility (REP after its Spanish acronym) and promotion of recycling.

In 2022, we began preparing Antofagasta's Circular Economy Strategy to develop circular economy initiatives through a common vision, defining strategic pillars to support its management and advance circularity in our operations.

We began the process by defining a baseline which highlighted the level of information on waste generation and treatment (reuse, recycling, waste-to-energy and final disposal, among others). In parallel, we formed the Circular Economy Strategic Committee, with the participation of different areas of the Group, generating a transversal and multidisciplinary look at the topic.

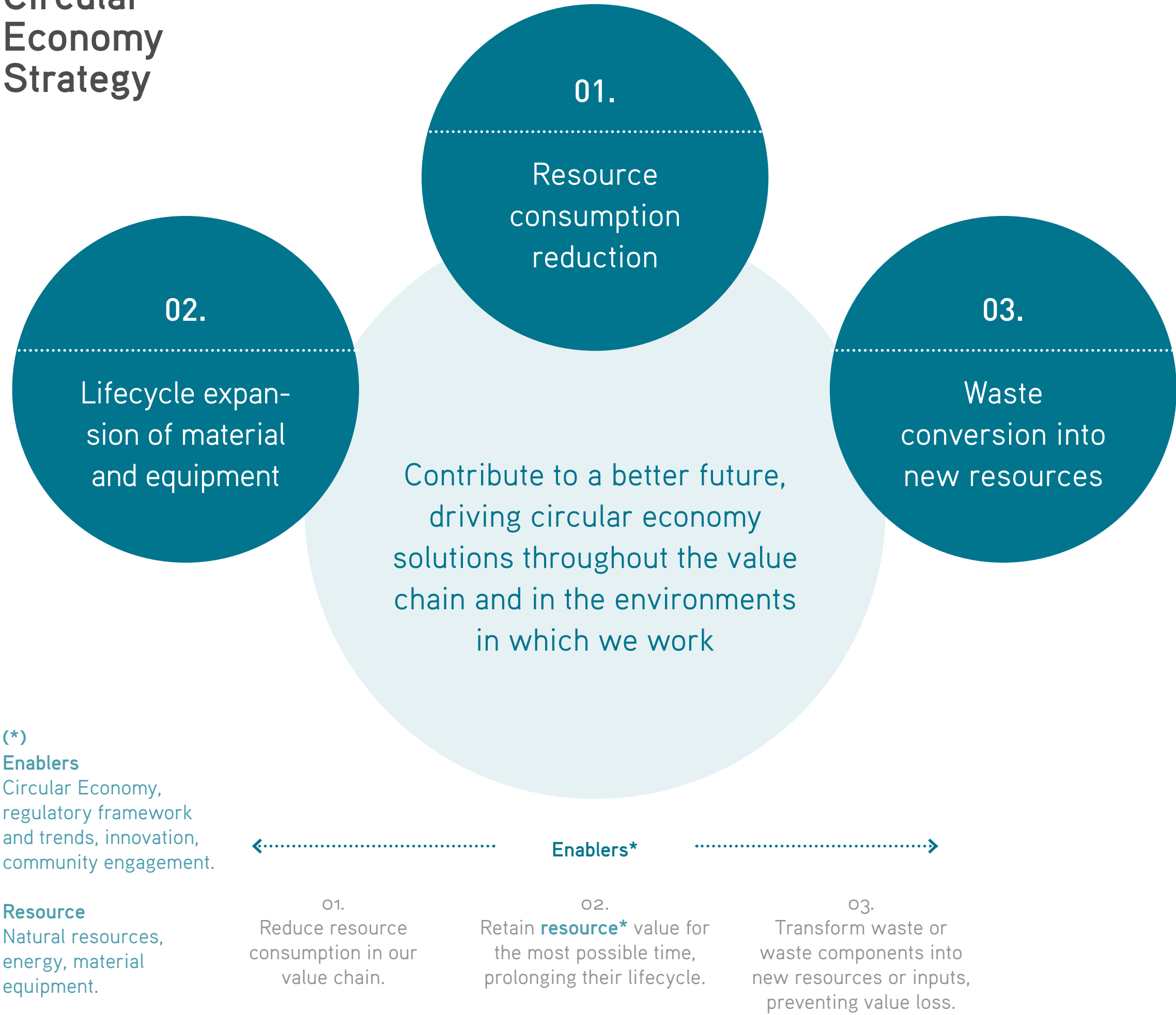
In December 2022, the Executive Committee approved the Circular Economy Strategy. It is based on **three management pillars**:

- **Reducing the use of resources**
- **Extending the lifecycle of material and equipment**
- **Converting waste into new resources**

In addition, the Strategy has a transversal enabling pillar to cover matters such as creating a circular culture, monitoring trends and regulatory frameworks, engaging with stakeholders and innovation management.



# Circular Economy Strategy



For its implementation, in 2023 we are working on prioritising the portfolio of key initiatives, identifying possible ad-hoc circularity indicators for our sector, creating the necessary governance structure and identifying pilot projects.

This Strategy will allow us to enable the transition to a circular model for all those participating in our value chain, generating synergies for compliance with Antofagasta’s climate change commitments. The Procurement area will cover issues such as packaging, pallets and the logistics of how goods are transported, as well as the potential reuse of products such as tyres and steel.

We have also implemented a number of circular economy initiatives. In 2020, Centinela launched a project to recycle the high-density

polyethylene (HDPE) piping it uses to irrigate leach pads. Thanks to the adoption of new shredding technology, the material is compacted to be transported to Santiago where it is treated to produce the raw material for geosynthetics or, for example, new HDPE products. Antucoya has also adopted this model.

In 2022, Centinela began a survey of its hydro plant where it located 6,934 disused anodes, of which some 40% had the appropriate thickness to re-enter the production process, and the rest (60%) considered unusable scrap. Today, the latter can be traded with suppliers with exchange alternatives of four or five disused anodes for one new one, achieving the integration of new assets into the system and final waste disposal, which must be completed in 2023.





Case study

**CENTINELA:**  
Recycling wood  
with social value  
creation

In 2022, Centinela sent more than 5,800 kilograms of wood from operations waste to the Colina 1 Penitentiary Centre, in the Metropolitan Region, for the inmates to convert into other products such as lath panels, pellets for combustion stoves, decorative bark chippings and cutting boards.



Case study

**LOS PELAMBRES**  
From mine haulage  
truck tyres to  
grinding balls

This pilot initiative considers the production of 97 tonnes of steel from 156 disused mine haulage truck tyres. Of this, 60 tonnes were delivered in the first phase of the project. The challenge is to make it a sustainable process that covers all mining activity tyres providing benefits for both Los Pelambres and its suppliers. The pilot project demonstrates that it is possible to incorporate circularity in our waste management, strengthening alliances with our suppliers.





# Stakeholder integration



As a Group, we understand that climate change affects both our operations and the communities around us, which is why the creation of collaborative alliances with our different stakeholders is essential to generate adaptive processes and develop capabilities that allow us to address the challenges we face.

Our Climate Change Strategy's Pillar 5 on the Integration of Stakeholders aims to include the vision of stakeholders to identify social trends and develop projects that generate positive externalities and co-benefits. As such, we have been working to generate alliances with different institutional, community and social players to implement programmes to build communities' resilience to climate change and create governance structure to address key challenges.

## Water management and adaption from a territorial standpoint

One of this pillar's areas of focus is to engage different stakeholders in the design and implementation of water management initiatives and adaptation solutions that co-benefit the territory in line with climate scenario actions and analysis.







### APRoxima

The APRoxima programme is implemented by Fundación Minera Los Pelambres (FMLP), a foundation, in collaboration with the municipalities of Illapel and Salamanca. It seeks to contribute to the development of Rural Water Services (SSR), optimising their management and operation, expanding infrastructure coverage, and providing training and technical assistance to SSR Committees for the design of water projects. In 2022, we installed telemetric systems, which operate with solar energy, to increase water-use efficiencies. In addition, in September we launched the APRoxima En Red project, which seeks to gradually digitalise and automate, between 2022 and 2025, the 80 SSRs that provide drinking water in the Province of Choapa as part of measures to confront the acute drought.



Support for **80+** SSRs in the Choapa Province, enabling access to drinking water for more than **52,000** people living in rural areas.



### Confluye

The Confluye programme aims to promote projects to strengthen agricultural activity based on the efficient use of water resources for irrigation. It is also implemented by FMLP, together with the Choapa area's Water Boards and public services such as Chile's economic development agency CORFO, national irrigation commission CNR and agricultural development institute INDAP.

In 2022, more than 54.9 km of irrigation canals were relined, benefiting more than 37 water communities. In addition, work began on the improvement and rehabilitation of five community reservoirs to collect water, of which two are completed, one is under construction and two are in the design stage.

### Promoting research

We co-finance the Quitai Anko Water Technology Consortium, a strategic alliance led by the University of La Serena that focuses on developing sustainable solutions for water challenges in the Choapa Valley, as well as in the Coquimbo, Atacama and Valparaíso Regions.

### Other initiatives

In 2022, we begin working on initiatives to improve the administration of SSRs in Michilla, Calama and San Pedro de Atacama in the Antofagasta Region. In line with our commitment to En Red (our digital community programme), these initiatives involve creating databases to control water consumption and facilitate the issuance of invoices for water use to SSR users.





### Co-construction of supply chain measures

As a Group, we recognise that our suppliers are diverse and some may face greater technological and collaboration barriers than others. Our Climate Change Strategy considers training to help them adopt more sustainable practices.

In December 2022, we launched our Suppliers for a Better Future programme, which seeks to align contractors’ practices with our Purpose of developing mining for a better future. The programme provides support and sets ESG targets for suppliers to meet by 2025 on local recruitment, hiring women and reducing emissions.

In alliance with the Catholic University of the North (UCN), the programme also seeks to strengthen the capacities of local small and medium-sized enterprises (SMEs) in their application of ESG criteria. During the year, we held two training sessions on ESG for SMEs in the Antofagasta Region and another four for companies from other regions. In total, more than 200 national and regional suppliers participated.

#### Suppliers for a Better Future programme

The programme seeks to work with companies that provide goods and services to the Group to help them achieve higher sustainability standards. It provides support and sets ESG targets for suppliers to meet by 2025 in four key areas for mining in the path towards better standards and practices.

<b>Local development:</b> covers jobs and local purchasing	<b>People:</b> focuses on improving labour conditions, health and safety and encouraging greater inclusion	<b>Environment:</b> focuses on reducing emissions	<b>Innovation:</b> covers innovation and supplier training
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We also began working on a sustainability rating diagnosis to determine the ESG performance of our suppliers. After the evaluation, a scorecard is prepared that identifies areas that suppliers must improve and monitor. By the end of 2022, approximately 50 of our largest suppliers were participating and more will be added during 2023.



### Education, training and activation of stakeholders

We carry out various actions to train employees and other stakeholders about matters relating to climate change, increasing awareness and providing continuous incentives, to align employees with our sustainability objectives.

Along these lines, the Climate Change Strategy’s main objectives are reflected in the short- and long-term performance incentives for executives, as well as employees’ Annual Performance Bonus. In 2022, KPIs on climate matters in the Short Term Incentive at the Group level had a weight of 6%.

In 2022, we conducted a number of communication and training activities to promote knowledge and management of matters related to the Strategy. For example, climate change topics were included in inductions for new recruits at the corporate level and in specific workshops of the Climate Change Committee (50% of the sessions addressed topics such as NbS, Chile’s Climate Change Framework Law and IPCC reports) in addition to numerous internal communication publications.

In 2023, we continue to strengthen our learning, through a training programme on specific topics such as the basics of climate change, circular economy, GHG emissions, among other topics.

#### Antofagasta Minerals Chair of Water Sustainability

In the academic field, in 2020 we created the Antofagasta Minerals Chair of Water Sustainability in alliance with the Catholic University of Chile (PUC) to promote research and dissemination of scientific knowledge related to water sustainability and climate change. In 2022, four virtual seminars were held to address the following topics:

- **The role of spatial heterogeneity in the sustainability of river ecosystems.**
- **Observed changes and future projections of drought on a global scale.**
- **Flood risk assessment and management.**
- **Earth-Atmosphere Interactions in the Americas: from the local to the continental scale.**







# Appendices



## TCFD Disclosure

We continue to adopt the TCFD recommendations and report progress in detail in our 2022 Annual Report.

Governance	
Disclose the organisation’s governance around climate-related risks and opportunities.	
Recommended disclosures	References
a) Describe the board’s oversight of climate-related risks and opportunities.	Climate change governance, page 20 Annual Report, page 107
b) Describe management’s role in assessing and managing climate-related risks and opportunities.	Climate change governance, page 20 Annual Report, page 60

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.	
Recommended disclosures	References
a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	Climate change risks and opportunities, page 23 Physical risks, page 24 Transition risks, page 25 Transition opportunities, page 25 Annual Report, pages 60 and 66
b) Describe the impact of climate-related risks and opportunities on the organisation’s businesses, strategy, and financial planning.	Resilience to climate change impacts, page 26 Potential impacts of climate change on our operations, page 29 Results of the analysis of climate scenarios, page 31 Annual Report, pages 58, 60, 62 and 63.
c) Describe the resilience of the organisation’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Resilience to climate change impacts, page 26 Update of climate scenarios, page 26 Annual Report, page 66.



Risk Management	
Disclose how the organisation identifies, assesses, and manages climate-related risks.	
Recommended disclosures	References
a) Describe the organisation’s processes for identifying and assessing climate-related risks.	Climate change risks and opportunities, page 23 Resilience to climate change impacts, page 26 Annual Report, page 30
b) Describe the organisation’s processes for managing climate-related risks.	Climate change risks and opportunities, page 23 Risk management, page 23 Update of climate scenarios, page 26 Annual Report, page 60
c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation’s overall risk management.	Climate change risks and opportunities, page 23 Risk management, page 23 Resilience to climate change impacts, page 26 Annual Report, page 30

Metrics and Targets	
Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	
Recommended disclosures	References
a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	Climate change risks and opportunities, page 23 Risk management, page 23 Annual Report, pages 60 and 65
b) Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.	Operational emissions reduction, page 36 Value chain emissions reduction, page 40 Scope 3 emissions, page 42 Annual Report, page 61
c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	Climate change risks and opportunities, page 23 Risk management, page 23 Annual Report, pages 61 and 63



Verification Letter



**Greenhouse Gas Verification Opinion Number  
CCP.VOL.INV0052.2022 v1**

The inventory of Greenhouse Gas emissions in the period  
01/01/2022 – 31/12/2022 for

**ANTOFAGASTA PLC (Mining Division)**

Av. Apoquindo 4001, 18<sup>th</sup> floor, Las Condes,  
Santiago - Chile

has been verified in accordance with ISO 14064-3:2019 as  
meeting the requirements of

**ISO 14064-1: 2018**

To represent a total amount of:

**1,113,581 tCO<sub>2</sub>e**  
(Category 1: Direct GHG emissions)

**960,650 tCO<sub>2</sub>e**  
(Category 2: Indirect emissions from imported energy using location-based method)

**95,236 tCO<sub>2</sub>e**  
(Category 2: Indirect emissions from imported energy using market-based method)

**61,743 tCO<sub>2</sub>e**  
(Category 2: Transmission and distribution emissions from imported energy)

**962,558 tCO<sub>2</sub>e**  
(Category 3: Indirect GHG emissions from transportation)

**3,452,687 tCO<sub>2</sub>e**  
(Category 4: Indirect GHG emissions from products used by organization)

**1,215,886 tCO<sub>2</sub>e**  
(Category 5: Indirect GHG emissions associated with the use of products from the  
organization)

**For the following activities**

Mining operations and offices

Direct GHG emissions:

- Diesel consumption (mobile sources and fixed sources)
- Gasoline consumption (mobile sources and fixed sources)
- Kerosene consumption (fixed sources)
- Liquefied Petroleum Gas (fixed sources)
- Natural Gas (fixed sources)
- Refrigeration and air conditioning system

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- Mineral decarbonation
  - Acetylene use
  - Water treatment
  - Waste treatment
  - Fire extinguishers
- Indirect GHG emissions from imported energy:
- Electricity consumption
  - Transmission and distribution losses from electricity consumption
- Indirect GHG emissions from transportation:
- Employee commuting
  - Business travel by air
  - Stationary and mobile combustion by contractors (Centinela and MLP)
  - upstream transportation and distribution
  - Downstream transportation and distribution
  - Upstream emissions arising from fuel generation and fuel transportation/distribution (direct emissions and imported energy)
- Indirect GHG emissions from products used by an organization:
- Waste and wastewater treatment
  - Purchased goods and services
  - Capital Goods
- Indirect GHG emissions associated with the use of products from the organization:
- Processing of sold products

Lead Assessor: Paulina Kellenberger  
Technical Reviewer: Andrew James Collins

Authorised by:

*Pamela Chadwick*  
Business Manager]  
SGS United Kingdom Ltd

**Verification Opinion Date 24<sup>th</sup> July 2023**

This Opinion is not valid without the full verification scope, objectives, criteria and conclusion available on  
pages 3 to 5 of this Opinion.

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Schedule Accompanying Greenhouse Gas Verification Opinion  
Number CCP.VOL.INV0052.2022 v1

Brief Description of Verification Process

SGS has been contracted by Antofagasta plc for the verification of direct and indirect carbon dioxide (CO<sub>2</sub>) equivalent emissions as provided by Antofagasta plc, Av. Apoquindo 4001, 18<sup>th</sup> floor, Las Condes, Santiago - Chile in their GHG Statement in the form of a Greenhouse Gas Emissions Report covering CO<sub>2</sub> equivalent emissions.

Roles and Responsibilities

The management of Antofagasta plc is responsible for the organization's GHG information system, the development and maintenance of records and reporting procedures in accordance with that system, including the calculation and determination of GHG emissions information and the reported GHG emissions.

It is SGS' responsibility to express an independent GHG verification opinion on the emissions as provided in the Antofagasta plc GHG Statement for the period 01/01/2022 – 31/12/2022.

SGS conducted a third-party verification following the requirements of ISO 14064-3: 2019 of the provided CO<sub>2</sub> equivalent Statement in the period November 2022 to February 2023 and June to July 2023.

The assessment included a desk review. The verification was based on the verification scope, objectives and criteria as agreed between Antofagasta plc and SGS on 07/11/2022.

Level of Assurance

The level of assurance agreed is *reasonable* for direct and indirect GHG emissions from imported energy and *limited* for other indirect GHG emissions.

Scope

Antofagasta plc has commissioned an independent verification by SGS of reported CO<sub>2</sub> equivalent emissions arising from their activities in Chile and an office in UK, to establish conformance with the requirements of ISO 14064-1: 2018 within the scope of the verification as outlined below. Data and information supporting the CO<sub>2</sub> equivalent statement were historical in nature and proven by evidence or estimated based on the best available data.

This engagement covers verification of emissions from anthropogenic sources of greenhouse gases included within the organization's boundary and meets the requirements of ISO 14064-1: 2018.

- 
- The organizational boundary was established following the operational control approach.
- Title or description of activities: mining operations and offices.
- Location/boundary of the activities: Antofagasta plc Head Office in Chile and UK; Los Pelambres, Centinela, Zaldivar and Antucoya Mines in Chile.
- Physical infrastructure, activities, technologies and processes of the organization: Head offices and four copper mining operations.
- GHG sources, sinks and/or reservoirs included:

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- Category 1: Direct GHG emissions and removals stationary combustion, mobile combustion, process emissions, fugitive emissions (refrigerants, gases, fire extinguishers), waste and wastewater treatment;
- Category 2: Indirect GHG emissions from imported energy – purchased electricity, transmission and distribution losses from purchased electricity;
- Category 3: Indirect GHG emissions from transportation: employee commuting, business travel by air, stationary and mobile combustion by contractors (Centinela and MLP), upstream transportation and distribution, downstream transportation and distribution, upstream emissions arising from fuel generation and fuel transportation/distribution (direct emissions and imported energy).
- Category 4: Indirect GHG emissions from products used by an organization: waste and wastewater treatment, purchased goods and services, capital goods.
- Category 5: Indirect GHG emissions associated with the use of products from the organization: processing of sold products.

- Types of GHGs included: insert GHGs included e.g.CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, HFCs, PFCs and SF<sub>6</sub>.
- GHG Reduction Initiatives: None.
- GHG information for the following period was verified: 01/01/2022 – 31/12/2022.
- Intended user of the verification Opinion: internal use and external publication.

Objective

The purpose of this verification exercise were, by review of objective evidence, to independently review:

- Whether the CO<sub>2</sub> equivalent emissions are as declared by the organization's CO<sub>2</sub> equivalent statement
- That the data reported are accurate, complete, consistent, transparent and free of material error or omission.

Criteria

Criteria against which the verification assessment is undertaken are the requirements of ISO 14064-1: 2018.

Materiality

The materiality required of the verification was considered by SGS to be below 5% for direct and indirect GHG emissions from imported energy and below 10% for other indirect GHG emissions, based on the needs of the intended user of the GHG Statement.

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**Conclusion**  
Antofagasta plc provided the GHG Statement based on the requirements of ISO 14064-1: 2018. The GHG information for the period 01/01/2022 – 31/12/2022 disclosing gross emissions of 7,767,105 metric tonnes of CO<sub>2</sub> equivalent using location-based method for imported energy and 6,901,690 metric tonnes of CO<sub>2</sub> equivalent using market-based method for imported energy, are verified by SGS to a reasonable level of assurance for direct and indirect GHG emissions from imported energy and limited level of assurance for other indirect GHG emissions, consistent with the agreed verification scope, objectives and criteria.

SGS' approach is risk-based, drawing on an understanding of the risks associated with modeling GHG emission information and the controls in place to mitigate these risks. Our examination included assessment, on a sample basis, of evidence relevant to the voluntary reporting of emission information.

SGS concludes, for direct and indirect GHG emissions from imported energy, with reasonable assurance, that the presented CO<sub>2</sub> equivalent assertion is materially correct and is a fair representation of the CO<sub>2</sub> equivalent data and information and is prepared following the requirements of ISO 14064-1: 2018.

SGS concludes, for other indirect GHG emissions, with limited assurance that there is no evidence to suggest that the presented CO<sub>2</sub> equivalent assertion is not materially correct and is not a fair representation of the CO<sub>2</sub> equivalent data and information and is not prepared following the requirements of ISO 14064-1: 2018.



Verified with Comments - We planned and performed our work to obtain the information, explanations and evidence that we considered necessary to provide a reasonable level of assurance for direct and indirect GHG emissions from imported energy and a limited level of assurance for other indirect GHG emissions, that the CO<sub>2</sub> equivalent emissions for the period 01/01/2022 – 31/12/2022 are fairly stated.

This Opinion shall be interpreted with the CO<sub>2</sub> equivalent statement of Antofagasta plc as a whole.

Note: This Opinion is issued, on behalf of Client, by SGS United Kingdom Ltd, Rossmore Business Park, Inward Way, Ellesmere Port, Cheshire, CH65 3EN ("SGS") under its General Conditions for GHG Validation and Verification Services. The findings recorded hereon are based upon an audit performed by SGS. A full copy of this Opinion and the supporting GHG Statement may be consulted at **Antofagasta plc website** ([www.antofagasta.co.uk/](http://www.antofagasta.co.uk/)). This Opinion does not relieve Client from compliance with any bylaws, federal, national or regional acts and regulations or with any guidelines issued pursuant to such regulations. Stipulations to the contrary are not binding on SGS and SGS shall have no responsibility vis-à-vis parties other than its Client.



Glossary

Adaptation	In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects.
Carbon nuetrality	Carbon neutrality or net zero carbon dioxide (CO2) emissions are achieved when anthropogenic CO2 emissions are balanced globally by anthropogenic CO2 removals over a specified period.
Carbon price	The price for avoided or released carbon dioxide (CO2) or CO2-equivalent emissions.
Climate model	A numerical representation of the climate system based on the physical, chemical and biological properties of its components, their interactions and feedback processes, and accounting for some of its known properties.
Energy intensity	Quantity of energy required per unit of output or activity.
FTSE100	The Financial Times Stock Exchange 100 Index.
Greenhouse gas emissions (GHG)	Anthropogenic gases such as carbon dioxide, methane and nitrous oxide that contribute to the warming of the planet.
Mitigation	A human intervention to reduce emissions or enhance the sinks of greenhouse gases.
ML	Megalitres.
MWh	Megawatt hour.
Mt	Millions of metric tonnes.

RCP	Representative Concentration Pathways. Scenarios that include time series of emissions and concentrations of the full suite of greenhouse gases and aerosols and chemically active gases, as well as land use/land cover.
Recycled/reused water	Water that has been used in an operational task and is recovered and used again in an operational task, either without (reuse) or with (recycle) treatment.
Resilience	The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation.
SMEs	Small and medium-sized enterprises.
tCO2e	Tonnes of carbon dioxide equivalent.
LOM	Life of mine.
ESG	Environmental, social and governance criteria.





ANTOFAGASTA PLC