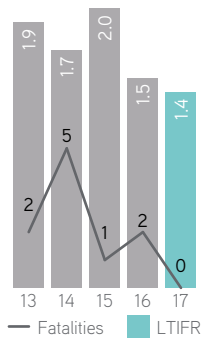


# A YEAR OF STRONG PERFORMANCE

## FATALITIES AND LOST TIME INJURY FREQUENCY RATE

There were zero fatalities in the year and the Lost Time Injury Frequency Rate of the Group reduced to 1.4 accidents with lost time per million hours worked.



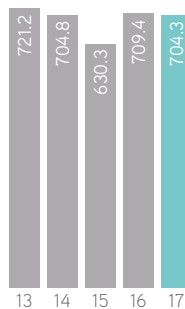
**0**  
Fatalities

**1.4**  
LTIFR

+ See page 56 for more information

## COPPER PRODUCTION<sup>1</sup>

Copper production of 704,300 tonnes a 0.7% decrease on 2016 on lower grades at Los Pelambres offset by Encuentro Oxides and full year of production at Antucoya.

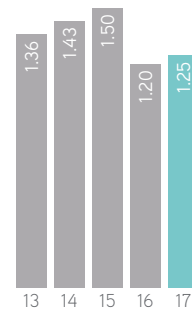


**704.3k tonnes**

+ See pages 34 to 43 for more information

## NET CASH COSTS<sup>2</sup>

Net cash costs for the year were 4.2% higher than in 2016 due to higher input prices, stronger local currency and lower grades.

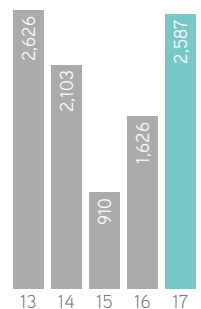


**\$1.25/lb**

+ See page 34 for more information

## EBITDA\*<sup>2</sup>

EBITDA of \$2,587 million, 59% higher than in 2016 due to higher realised prices.



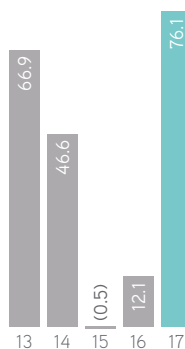
**\$2,587m**

\* Restated for discontinued operations

+ See page 48 for more information

## EARNINGS PER SHARE\*

Earnings per share from continuing operations increased to 76.1 cents per share due to higher realised prices.



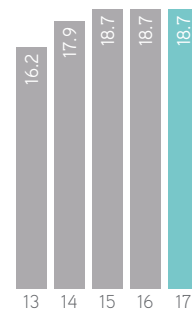
**76.1 cents**

\* Restated for discontinued operations

+ See page 48 for more information

## MINERAL RESOURCES<sup>3</sup>

Mineral resources decreased by 0.4%. Although new mineral resources added during the year offset tonnes mined, changed economic parameters reduced mineral resources overall.



**18.7bn tonnes**

+ See page 203 for more information

1. 100% of production at Los Pelambres, Centinela and Antucoya, and 50% of Zaldívar's production.  
 2. Non IFRS measure, refer to the alternative performance measures in Note 37 to the financial statements.  
 3. Mineral resources (including ore reserves) held by the Group's subsidiaries on a 100% basis and at Zaldívar on a 50% basis.

Remuneration performance criteria. See pages 113 for more information

# OUR BUSINESS TODAY



		REVENUE	EBITDA <sup>1</sup>
<b>ANTUCOYA</b> - 70% owned - 22-year mine life - produces copper cathodes			
<b>CENTINELA</b> - 70% owned - 50-year mine life - produces copper concentrates containing gold and silver, and copper cathodes			
<b>ZALDÍVAR</b> - 50% owned (and operated) - 13-year mine life - produces copper cathodes			
<b>LOS PELAMBRES</b> - 60% owned - 21-year mine life - produces copper concentrates containing gold and silver and a separate molybdenum concentrate			
<b>TRANSPORT</b> The transport division operates the main cargo transport system in the Antofagasta Region of Chile, moving goods and materials such as sulphuric acid and copper cathodes to and from mines by road and on its 900 km rail network.  Volume transported by combined rail and road in 2017 was 6,268,000 tonnes.			
<b>GROUP</b>		<b>\$4,749 m</b>	<b>\$2,587 m</b>

1. Non-IFRS measure. Refer to the alternative performance measures in Note 37 to the financial statements.

KEY CATHODES CONCENTRATE ROAD RAIL

**Copper production (tonnes)  
and net cash cost<sup>1</sup> (\$/lb)**

**2017                      2018 FORECAST                      GROWTH POTENTIAL**

**80,500                      75-80,000  
\$1.68/lb                      \$1.75/lb**

**228,300                      230-245,000  
\$1.36/lb                      \$1.50/lb**

**Centinela Expansion**

- Considering two alternatives:
- Building a second concentrator, or
  - Expanding the existing concentrator

**51,700                      55-60,000  
\$1.62/lb                      \$1.70/lb**

**Mine life extension**

- Assessing viability of primary sulphide leaching

**343,800                      345-355,000  
\$1.02/lb                      \$1.10/lb**

**Los Pelambres Incremental Expansion**

- Phase 1 will increase throughput capacity to 190ktpd. The project is expected to be approved during 2018
- Phase 2 will further increase throughput capacity to 205ktpd and extend the life of mine

**704,300                      705-740,000  
\$1.25/lb                      \$1.35/lb**

**THE BUSINESS**

Mining is the Group's core business, representing over 96% of Group revenue and EBITDA. The Group operates four copper mines in Chile, two of which produce significant volumes of by-products. The Group also has a portfolio of growth opportunities located mainly in Chile.

In addition to mining, the Group has a transport division providing rail and road cargo services in northern Chile predominantly to mining customers, which include some of the Group's own operations.

**+** See page 34 for more information

**STRATEGY**

**1 THE EXISTING CORE BUSINESS**

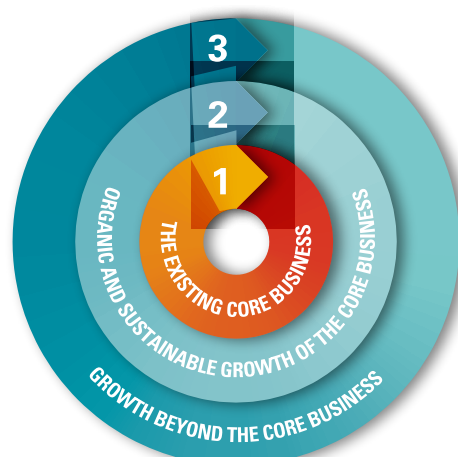
The first pillar of the strategy is to optimise and enhance the existing core business: Los Pelambres, Centinela, Antucoya and Zaldívar.

**2 ORGANIC AND SUSTAINABLE GROWTH OF THE CORE BUSINESS**

The second pillar of the strategy is to achieve sustainable, organic growth by further developing the areas around the Group's existing asset base in Chile.

**3 GROWTH BEYOND THE CORE BUSINESS**

The third pillar of the strategy is to seek growth beyond the Group's existing operations, in Chile or internationally, through the acquisition of high-quality operating assets and/or high-potential early-stage developments.



**+** See pages 12 to 13 for more information

# WORKING TOGETHER WITH PARTNERS



“I believe that Antofagasta’s long-term strategy of through-cycle investment has left the Group well placed to take advantage of the improved outlook for copper.”

Jean-Paul Luksic, Chairman

## DEAR SHAREHOLDERS,

Our focus over the course of recent years has been on ensuring the safety, sustainability, reliability and stability of our operations with a view to positioning Antofagasta for the anticipated recovery of the markets. To this end we have worked hard alongside our partners to maximise the sustainability and productivity of our mines, instilling a cost-conscious culture in our employees and maintaining our production volumes despite declining ore grades. At our transport division we are making exciting progress, revitalising our operations and investing in new equipment and track improvements.

These actions, when combined with the continued recovery in the copper price, have helped to lift the Group’s financial performance for the year. We have seen a marked improvement in our EBITDA margins since 2012 while copper production has almost been maintained despite a significant drop in grades at our two largest operations.

I believe that Antofagasta’s long-term strategy of through-cycle investment has left the Group well placed to take advantage of the improved outlook for copper. By taking a prudent approach to our finances throughout the cycle we have been able to invest during the downturn, adding additional copper-producing assets over the last few years as well as a range of future growth options.

## PARTNERS IN PROSPERITY

We have always believed that working in partnership – whether with our equity partners in the mining operations, the communities that we work in or the local and national government – is the best way of working. It is good for business as well: working together to ensure the safety, sustainability, reliability and stability of our operations enables everybody to prosper.

We have worked for many years closely with Marubeni at Centinela and Antucoya, and alongside JX Nippon and a consortium led by Mitsubishi at Los Pelambres. More recently, our acquisition of a stake in Zaldívar brought us into a renewed partnership with Barrick Gold. By working with multiple partners across our assets we have pooled risk, diversified our portfolios and financial exposure, and benefited from shared expertise. I would like to thank our partners personally for their support over the years and, as we look to the future, our shared vision of what we can achieve together going forward.

Although we have not always got everything right, we have always sought to be a good neighbour to the communities we work with. Working with local communities for us means that we have an open and honest dialogue with one another, ensuring transparency and a recourse for settling disputes. We formalised this partnership approach to community relations in 2015 in a programme agreed with the communities, Somos Choapa, which provides the community at Los Pelambres with clearer oversight of our operations, and decision-making power over how community funds are spent. This programme is now being rolled out at our other operations and I expect that all will benefit from this.

Mining continues to fulfil a central role in the growth of Chile’s economy, providing jobs and infrastructure as well as regional and national tax revenues. The industry has benefited from the economic, social, political and regulatory stability of Chile and in partnership with local and national government we are working to ensure that Chile develops its remaining copper resources – some 30% of global reserves – for future generations and the long-term benefit of the country. As we have seen over the years, if the mining industry performs well, Chile performs well.

As testament to our approach to partnership, we enjoy good relations with our employees and contractors. This is borne out by the great strides we have made in working with the labour unions – at Centinela and Zaldívar in 2017 – to reach agreement on compensation and working conditions for the next three years. Providing a fair deal for all sides meant we did so without strike action, a record we have maintained since we first began mining in 1980. I value the good relations we have with our employees, achieved through a regular dialogue outside periods of formal negotiation, despite the current environment in which conflict in negotiations has become more common.

## SAFETY

Our priority is the safety of our employees, contractors and the communities in which Antofagasta works. I am very pleased to say that in 2017 the Group achieved its target of zero fatalities and I am very proud of the efforts and achievements of everyone involved. However, while this performance is testament to the hard work and vigilance of our employees, there is no room for complacency and we continue to make every effort to raise our safety standards across all our operations.

**A NEW APPROACH TO SUSTAINABILITY**

In April 2017 the Board approved an updated sustainability policy. The policy has five areas of focus designed to place sustainability at the heart of everything we do and help safeguard our position as partner of first choice. The first area is the safety and health of our people. The second is to maintain and develop our model of sustainable value creation. The third is to contribute to the social development of the communities that we operate in. The fourth is to prevent, control and mitigate our impact on the environment and the fifth is to maintain and reinforce our strong corporate governance and to ensure transparency in everything we do.

**CULTURE, DIVERSITY AND INCLUSION**

In 2017 we reviewed and reconfirmed the Board’s commitment to the Group’s corporate values. The Group’s culture is embodied in these values and is demonstrated through the actions and leadership of the Board and senior management.

I believe that diverse and inclusive companies are better able to attract the best talent and to achieve stronger and more reliable overall performance. To this end the Board’s Remuneration and Talent Management Committee is overseeing our work to formalise our commitment to diversity and its inclusion at all levels of the Group. A broader diversity and inclusion programme is being rolled out during 2018.

**RISK MANAGEMENT**

Antofagasta’s growth into one of the world’s most important copper producers has been driven by its entrepreneurial spirit – a spirit that I am proud to say remains at the core of our identity. Balancing this has been our focus on risk management, an area we continued to strengthen during the year. As of this year at least one member of the Audit and Risk Committee serves on each of the other Board Committees to enable better analysis of the Group’s risks as presented by management. The Committee meets annually, specifically to evaluating key risks and mitigation activities.

Over recent years the workload of the Board Committees has increased significantly as they work with management to address important issues that cannot be covered in sufficient detail in Board meetings. I would like to thank all of the Committee members for their efforts, time and dedication.

**OUTLOOK**

One of the most exciting trends to emerge in 2017 has been the increased interest in new technologies, which use significantly more copper than established technologies. This is particularly the case in clean energy and electric vehicles, and a recent highlight for me has been our sponsorship of the FIA Formula E Championship in 2017–2018. While undoubtedly a fantastic spectacle, the Formula E race in Santiago really underlined the rapid changes that are taking place across the world about how we respond to climate change – and the central role that copper is set to play.

It is important not to overstate the near-term impacts these changes are likely to have on copper demand. While the emergence of this new source of consumption is likely to provide a welcome boost to the medium to long-term fundamentals of our business, our traditional markets in China, Europe and North America will remain the most important drivers for copper in the shorter term.

We believe that in the near term the copper market is looking balanced, with the longer-term outlook broadly positive. This gives me confidence that the three pillars that we have built our strategy around are the right ones. First, we continue to focus on optimising our existing operations and capital expenditure programme to ensure our investments generate good returns. Second, we look for sustainable, organic growth in the areas around our operations. And finally, we look for special opportunities in the Americas for growth beyond our core business in Chile.

Much of what we have achieved over the past year has been made possible by the hard work of our employees and management. I would like to thank them all for everything they have done for the Group during 2017 and I look forward to working with them to take advantage of the many opportunities we have in the year ahead.

**Jean-Paul Luksic**  
Chairman

**OUR CORE VALUES**



**RESPECT**



**SAFETY AND HEALTH**



**INNOVATION**



**EXCELLENCE**



**SUSTAINABILITY**



**FORWARD THINKING**

# TAKING CHARGE OF OUR FUTURE



“My focus over the year has been on producing profitable tonnes by reducing costs, improving productivity and efficiency and applying innovative solutions to the challenges we face.”

Iván Arriagada, CEO

## Q. WHAT DO YOU VIEW AS THE HIGHLIGHTS OF THE YEAR – FOR BOTH ANTOFAGASTA AND THE WIDER INDUSTRY?

Our most important achievement was that we had no fatalities at our operations – not least because this is not something that has simply happened overnight. When I started as CEO I found an organisation which had just had a few serious accidents, some of which had resulted in fatalities. Since then we have worked in a very deliberate way to bring safety to the forefront of everything we do and have succeeded in creating the strong safety culture that we have today.

While this is an encouraging result, we cannot be complacent because mining will always be a business that faces very real risks that can only be managed through a resilient safety culture. I am determined to continue to raise safety standards and awareness across the Group – from the Executive Committee, which regularly visits our mining operations as part of our safety leadership programme, to our employees and contractors in the mines and the people in the communities that we work alongside.

My focus over the year has been on producing profitable tonnes by reducing costs, improving productivity and efficiency and applying innovative solutions to the challenges we face. One of the outcomes of these efforts is that we as a Group are getting much better at consistent and reliable delivery – something that is borne out by our meeting production and cost guidance for the year, producing 704,300 tonnes of copper at a net cash cost of \$1.25/lb. This performance has translated into an EBITDA margin of 54.5%, the highest margin since 2012, when the copper price was nearly 30% higher.

## Q. CAN YOU TALK US THROUGH ANTOFAGASTA'S OPERATING PERFORMANCE?

Let me start with a couple of operating milestones that we reached during the year, which underpin Antofagasta's prospects for a balanced growth outlook into 2018.

In the third quarter of 2017 we brought on stream the Encuentro Oxides plant at Centinela. Once running at capacity Encuentro Oxides will produce on average 43,000 tonnes of copper cathode per year, making use of the spare capacity at the SX-EW facilities at Centinela and helping offset natural declines in production due to falling grades. We expect to see the full growth benefits flow through into the Group's results in 2018.

Also at Centinela we completed the construction of the Molybdenum Plant in June, conducted pre-commissioning tests throughout the second half of 2017 and expect to achieve first production during the first half of 2018. The plant will produce an average of 2,400 tonnes of molybdenum per year and help reduce our unit cash costs at Centinela.

So, two real operating milestones for Antofagasta – both of which demonstrate our commitment to investing through the cycle and which provide the Group with an excellent platform for the next stage of organic growth.

Turning to production, as highlighted above we achieved 704,300 tonnes during 2017, in line with our guidance for the year and slightly less than last year. This was consistent with the expected declines in grade at Los Pelambres and Centinela, which were not fully offset by Encuentro Oxides and the first year of full production at Antucoya.

The stronger production performance at these mines helped counterbalance a drop of 3.3% in copper production at Los Pelambres. This was primarily due to lower ore grade and underlines both the importance of projects such as Encuentro Oxides being brought onstream and also the need to maintain our drive for further productivity improvements.

Beyond our core copper business, gold production was 212,400 ounces, 21.6% lower than in 2016, which reflects lower grade at Los Pelambres and the shift to higher copper content ores at Centinela. However, our molybdenum production was boosted by 47.9% year on year by higher grade qualities.

At our transport division, EBITDA contribution to the Group improved by 12% compared to 2016, to \$98.1 million.

## Q. HOW ABOUT THE GROUP'S FINANCIAL RESULTS?

Our financial performance over the course of the year has been a real positive for me. As I said, at the heart of our strategy is the consistent and sustainable production of profitable tonnes. So, while we have been working hard to make sure that our operations are well positioned for growth, we have not lost our focus on tight cost control. During the year we conducted reviews of our Cost and Competitiveness Programme (CCP) and new operating model, embedding them into our everyday business practices.

The lower costs we have achieved combined with improved prices in 2017 flowed through into stronger cash flows and much improved margins. Our cash flow from operations was up 71.2% in 2017 to \$2.5 billion and our EBITDA margins returned to over 50% – a real step change in profitability.

It is this better financial performance that has allowed the Board to recommend a final dividend for the year of 40.6 cents per share, bringing the total dividend for the year to 50.9 cents per share or \$501.8 million. This is an increase of 176.6% on last year and represents a total pay out ratio of 67% of net earnings, ahead of the Company's policy of paying out a minimum of 35% of underlying net earnings.

#### **Q. DESPITE YOUR COST CONTROLS THE COMPANY IS INCREASING ITS CAPITAL INVESTMENT. WHY?**

Capital expenditure for 2018 is expected to be about \$1.0 billion, which is some \$100 million higher than in 2017. This reflects the coincidence of each of the three categories of expenditure we have, development, sustaining and mine development, increasing at the same time.

Development expenditure is mainly on the Los Pelambres Incremental Expansion project. Now that the EIA has been approved, it will be presented to the Board for approval once certain additional permits have been received.

On sustaining capital expenditure, we have been keeping a tight control on this and expect it to average about \$400-450 per tonne of production through a multi-year period, typically over five years. In 2016 and 2017 it was well below this level and although it is increasing in 2018 to \$385 million this is still within the target range over the cycle.

Finally, our mine development expenditure is mainly at Centinela and increases slightly this year as mining moves into a new phase with a larger amount of waste rock to be moved.

This investment will provide growth in future years and ensure our operations will continue to operate reliably and that productivity is improved.

#### **Q. WHAT PROGRESS HAS BEEN MADE ON THE GROUP'S GROWTH PROJECTS?**

The EIA for Phase 1 of the Los Pelambres Incremental Expansion project was approved in February 2018. We have also recently updated the capital estimate with current pricing projections, advanced detailed engineering and a project execution plan to a revised estimate of \$1.3 billion.

This figure includes the concentrator plant expansion and pre-stripping at \$780 million and the desalination plant and water pipeline at \$520 million. The desalination plant will serve as a back-up water supply for the entire operation – existing plus both phases of expansion – in conditions of severe drought.

The project is expected to be submitted for approval to the Board during the second half of 2018 once ancillary permits to the approved EIA are in place and additional geotechnical studies at the desalination plant have been completed.

The project will increase Los Pelambres' production by 55,000 tonnes of copper a year from 2021. Phase 2 will require further permitting and will add another 35,000 tonnes of production and extend the mine life by 15 years.

We also have the opportunity to expand production at Centinela and we are considering two alternatives. One is to build a new second concentrator at an estimated cost of \$2.7 billion and producing some 180,000 tonnes of copper equivalent per year. The other is to expand the existing concentrator. We have conducted preliminary work on a second option that has lower capital expenditure and lower construction and project execution risks than the Second Concentrator project. We will be doing more work on both options during 2018 with the intention of being in a position to select our preferred alternative by the end of the year. If the alternative to expand the existing concentrator is selected then a full feasibility study will need to be done before the Board decides on whether to approve it for construction. The feasibility study will take about 18 months.

#### **Q. LABOUR AND COMMUNITY RELATIONS HAVE BEEN AN ISSUE FOR THE CHILEAN COPPER INDUSTRY IN RECENT YEARS. HOW DO YOU APPROACH IT?**

Well, it can be a challenging issue for everybody concerned and is something I and my team spend a lot of time on. I am pleased that over the last few years we have been able to reset the relationships we have with our labour force and communities. During 2017 we successfully concluded pay agreements for the next three years with the unions at Centinela and Zaldívar. We've also made progress in strengthening our community relations – formalising our partnership with the Choapa Valley community through Somos Choapa.

It is my view we work best when we work in partnership, and the first step to success is mutual understanding. So, when I sit down with our employees, our contractors and with the communities that we work in I always want to begin by understanding their viewpoint. We may not always agree but over the years we have demonstrated that reaching agreement – through constructive conversation – helps secure jobs and prosperity for all of our stakeholders.

Over the last few years we have made excellent progress at Los Pelambres, resolving the legal challenges that have hung over the operation for some time. Going forward, Los Pelambres can enjoy the lack of distraction caused by these cases and the more rewarding interaction with the communities in the areas in which it has an impact. We are rolling out this community engagement model to our other operations, and we expect to improve the interaction we have there as well.

#### **Q. LOOKING AHEAD INTO 2018 AND BEYOND WHAT DO YOU SEE FOR ANTOFAGASTA AND THE MARKET?**

2017 was a good year for copper, with a strong rally in the price driven by a pick-up in demand – mostly in Asia but also, as the Chairman mentions in his letter, from potential new sources in the shape of electric vehicles and clean energy. It is my belief that the price will stabilise at current levels over the next couple of years, partly sustained by demand but also due to a tightening supply position going into 2019.

This is when you will see the benefit of our investment during the downturn in the copper price over the last few years, when we continued with the construction of Antucoya and the expansion of Centinela, and took the opportunity of acquiring 50% of Zaldívar. We were able to do this because of the strength of our balance sheet and our conviction that in the medium to long term the copper price would recover. Now these additional tonnes of copper production will contribute strongly to the Group's results and these assets will act as the basis for further growth in the future.

I believe that we are in a good position to benefit from this improving environment. We are forecasting production for 2018 of 705-740,000 tonnes of copper as Encuentro Oxides ramps up. We have taken \$525 million of costs out of the business since 2014, including \$166 million in 2017, and a further \$100 million have been identified for 2018. Combined with a prudent approach to our balance sheet, tight cost control and improved prices have boosted our operating margins and provided us with the flexibility to take full advantage of future organic growth opportunities, while safeguarding returns for our shareholders.

We have made great progress over the last few years in improving the resilience and efficiency of our operations and this is reflected in our adherence to guidance. This would not have been possible without the support and hard work of our stakeholders – our employees, contractors, shareholders, communities and state and national governments. I would like to thank all of them.

I am excited about what we can achieve together over the next few years.

**Iván Arriagada**  
Chief Executive Officer

# THE IMPORTANCE OF COPPER

Expanding infrastructure and changes in technology, innovation and demographics have brought global demand for copper to the highest level it has ever been and it is expected to continue to grow steadily.



## COPPER'S ROLE IN THE MODERN WORLD

Copper has for centuries played a central role in humankind's development, from the earliest civilisations to the modern world. Its versatile properties – high thermal and electrical conductivity, ductility, malleability and corrosion resistance – have made it a key industrial metal. Today, copper plays an important role in power generation and transmission, electric motors and consumer goods such as electronic devices, air conditioning units and refrigerators.

The global trend towards urbanisation has seen a rapid increase in demand for the metal over the last decade, as new houses are constructed, networks for electricity distribution are built and telecommunications infrastructure is put in place. At the same time rising wealth in the developing world is driving demand for vehicles, electronic devices and other consumer goods.

As the world looks to new clean energy technologies to provide a greener and more sustainable future, copper remains centre stage. From solar photovoltaic energy systems and wind turbines to electric vehicles and battery storage, the properties of copper have proven once again to be integral and ensure that it will continue to play a vital role in green energy systems for years to come.

Finally, copper is easy to recycle, with copper produced from scrap requiring 85–90% less energy than copper produced from ore. This ease of recycling in turn improves the recycling credentials of products and applications that use copper.



## MEETING THE WORLD'S DEMANDS

Copper is integral in the growth of clean, renewable energy systems and electric vehicles and also benefits from rising urbanisation and growing wealth across the globe.



### CLEAN AND RENEWABLE ENERGY

One of the United Nations Millennium Development Goals is to ensure environmental sustainability. The generation of power from renewable sources is a contributor to the achievement of this goal, and global demand for clean and renewable energy is growing fast.

### COPPER'S CONTRIBUTION

- Electricity generated from solar or wind, together with the electricity distribution systems required, are more copper intensive than using conventional technologies.



### ELECTRIC VEHICLES

Not many years ago electric vehicles were regarded as a novelty rather than a mainstream mode of transport. Now innovation is making them a reality with far more efficient engines and batteries and costs being driven down all the time. Today car manufacturers are making significant progress on e-mobility. Furthermore, some countries have announced they will forbid the selling of new cars with conventional engines within the next few decades.

Studies commissioned by the International Copper Association (ICA) estimate that by 2027 some 27 million electric vehicles will be produced each year – up from an estimated three million in 2017.

This is good news for the environment as well as for copper, one of the key metals required for this emerging trend. This is also one of the reasons the Group is sponsoring the Formula E race in Santiago, which raises awareness of the capabilities of electric vehicles.

### COPPER'S CONTRIBUTION

- Copper is used in the batteries, windings and copper rotors found in electric motors, wiring and busbars, as well as in EV charging infrastructure.
- An electric vehicle requires on average 80-85 kg of copper, compared with 20-25 kg in a vehicle powered by an internal combustion engine (ICE).
- By 2027 annual copper demand from the electric vehicles industry is estimated to be approximately 1.7 million tonnes, compared to 185,000 tonnes in 2017.



### URBANISATION

Rising urbanisation and growing wealth across the globe is driving up copper consumption in key markets, especially in China, where almost half of the world's copper is consumed. The migration of people from the countryside to cities increases the need for more and better infrastructure, from houses to electrical networks infrastructure and public transportation.

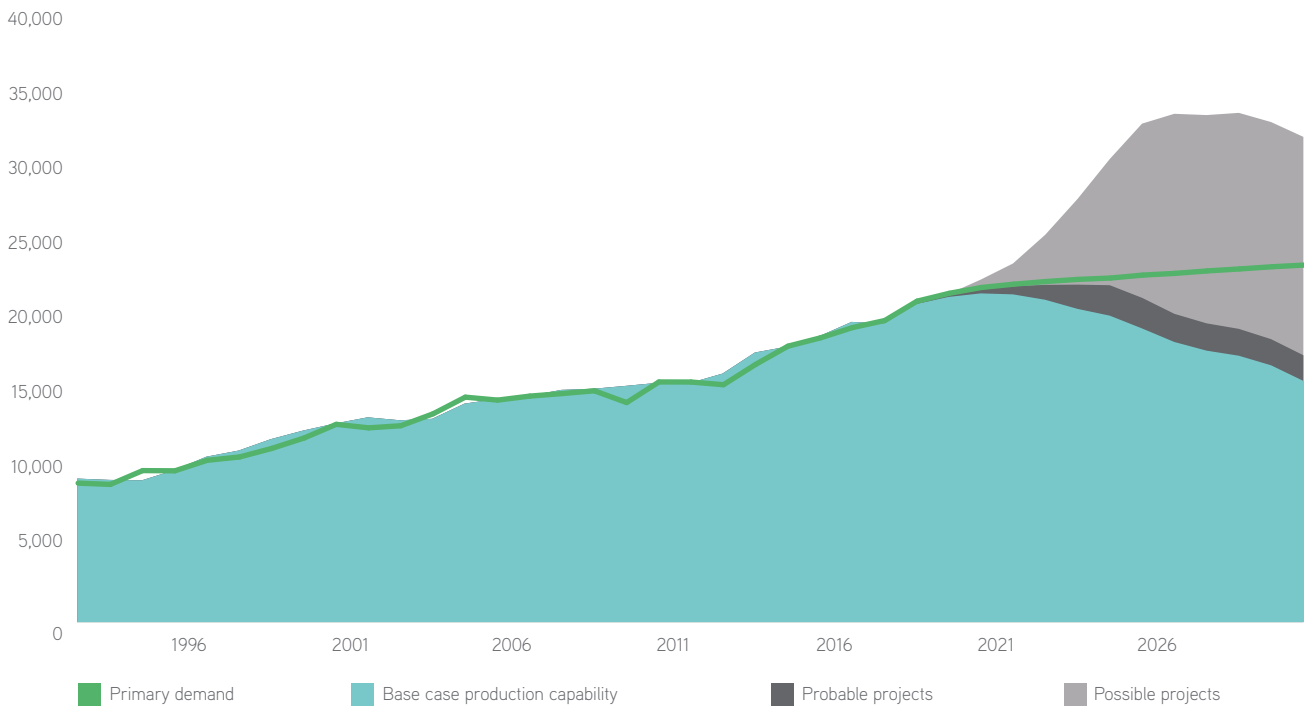
### COPPER'S CONTRIBUTION

- It is difficult to quantify the consumption of copper arising from urbanisation alone, but globally some 31% of copper is consumed in construction, 24% in electrical networks and 11% in transport. There is a correlation between GDP per capita and the demand for metals, such as copper, that are necessary to build infrastructure and are used in consumer products. Therefore as developing countries and middle-class populations grow, more copper will be consumed.
- The Group believes copper is a key contributor to sustainable development.

# RESPONDING TO A CHANGING WORLD

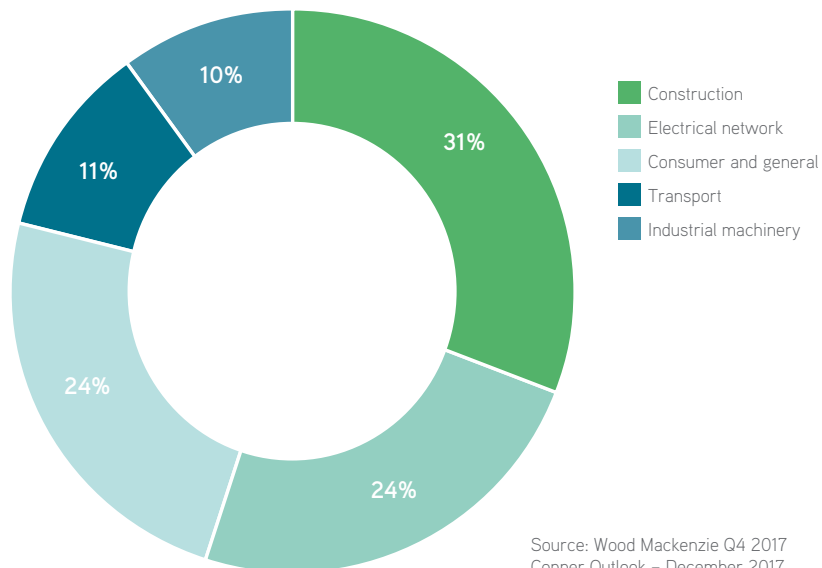
As the world develops and transforms, the demand for copper increases. The Group is responding by supplying the copper needed for a more sustainable world.

## GLOBAL COPPER SUPPLY AND DEMAND ('000 TONNES)



Source: Wood Mackenzie Q4 2017  
Copper Outlook – December 2017

## COPPER DEMAND BY SECTOR



Source: Wood Mackenzie Q4 2017  
Copper Outlook – December 2017

## MARKET ENVIRONMENT

Copper supply came under pressure during the first half of the year as strikes and other issues at some of the world's largest mines led to significant disruptions. In the second half of the year demand was supported by unexpected strength in key markets, particularly in China.

### REFINED COPPER

#### 2017 MARKET PERFORMANCE

The LME copper price at the beginning of 2017 was \$2.51/lb and rose to end the year at \$3.27/lb, averaging \$2.80/lb over the whole year, an increase of 27% compared with 2016. Copper supply came under pressure during the first half of the year as strikes and other issues at some of the world's largest mines led to significant disruptions. Additionally, in the second half of the year demand was supported by unexpected strength in key markets, particularly in China.

Global mine production accounts for some 87% of total refined supply and is estimated to have fallen by 1.5% during 2017, with labour and other disruptions offsetting new production coming mainly from Peru. Secondary supply from scrap increased as rising prices led to scrap dealers increasing their activity levels following subdued activity in 2015 and 2016. However, scrap consumption is now coming under pressure in China as the country enacts environmentally-friendly legislation restricting the import of "dirty" lower-grade scrap.

On the demand side, the most important market is China, which accounted for approximately 46% of global copper consumption in 2017, significantly more than Europe and North America combined, which consumed 18% and 7% respectively. An estimated 15-25% of Chinese consumption is re-exported as manufactured products.

The Group's average realised price in 2017 was 7% above the average LME price, reflecting a net positive provisional pricing adjustment at the end of the year of \$309 million.

#### MARKET OUTLOOK

The consensus is that the market will be balanced or show a small surplus in 2018, although it is expected to be much tighter in the second half of the year. From 2019 many industry participants expect the market to be in balance or even deficit as mine supply continues to be affected by the long-term trend of grade decline and lack of new investment. Considering the lead time between the decision to proceed with the construction of a reasonable-sized mining operation and it coming into production, the few projects that have been approved or are awaiting the final stages of permitting are only expected to come on stream in the next decade.

On the demand side, growth will continue to be driven by Chinese consumption, but the rise in demand from electric vehicles and renewables will be significant if they develop at the rates many analysts are expecting. In addition, there are an unusually large number of labour negotiations taking place in Chile and Peru during 2018. With the backdrop of stronger copper prices, employee expectations are raised and this may result in some supply disruptions.

### COPPER CONCENTRATE

Some 70% of the Group's copper production is in the form of copper concentrates, so the dynamics of the concentrate market are important and affect the level of treatment and refining charges ("TC/RCs") paid by the Group. These account for some 15% of the Group's cash costs.

#### 2017 MARKET PERFORMANCE

An increasing proportion of new copper production in the world is in concentrates, which has been absorbed by the new smelter capacity built in China. There was therefore surplus smelter capacity in 2017 and spot TC/RCs traded below the benchmark price set for annual contracts.

#### MARKET OUTLOOK

Further increases in smelter capacity are expected in 2018, while growth in concentrate production will be limited, leading to declining TC/RCs. The annual terms for 2018 have been agreed at levels close to \$80 per dry tonne of concentrate and 8c/lb of refined copper, well below the levels agreed for 2017.

### GOLD

The gold price during 2017 increased by more than 13%, peaking in September at \$1,348/oz. Macroeconomic events such as geopolitical tensions in south-east Asia and rising interest rates in the US and Europe all impacted on the price of gold, which is considered a safe-haven investment.

Gold averaged \$1,258/oz in 2017 compared with \$1,248/oz in 2016 and closed the year at \$1,303/oz. At the beginning of 2018 the consensus price forecast for the year was slightly under \$1,300/oz.

### MOLYBDENUM

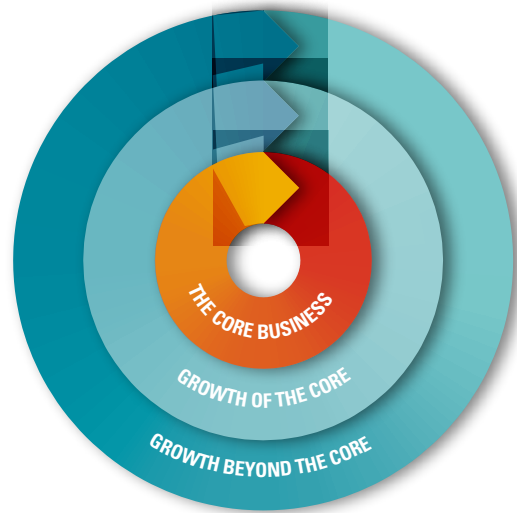
Molybdenum prices continued to perform strongly in 2017 on increased demand from the steel industry. The price averaged \$8.1/lb for the year compared with \$6.5/lb in 2016, and the consensus price for 2018 at the beginning of the year was about \$8.5/lb.



# STRATEGY

## OUR VISION

To be an international mining company based in Chile, focused on copper and related by-products, recognised for operating efficiency, for value creation and as a preferred partner in the global mining industry.



### 1 THE EXISTING CORE BUSINESS

The first pillar of the strategy is to optimise and enhance the existing core business: Los Pelambres, Centinela, Antucoya and Zaldívar.

#### CURRENT STRATEGIC FOCUS:

- Further embed the Safety Model across all operations to continue to achieve zero fatalities each year.
- Continue the Cost and Competitiveness Programme (CCP) to sustain the Group's competitive position.
- Seek long-term productivity improvements through the development and application of innovative solutions.
- Embed the New Operating Model to realise its full potential and benefits.
- Promote a culture which focuses on diversity and inclusion.
- Continue to cultivate a proactive and inclusive approach to local communities and other stakeholders in order to strengthen sustainable development.

#### 2017 IN REVIEW

As a result of the consolidation of the Safety Model, the Group had zero fatalities.

Copper production of 704,300 tonnes, representing a 0.7% decrease compared to 2016.

Group net cash costs of 1.25/lb, lower than the initial guidance for the year.

CCP achieved \$166 million of mine cost savings, in line with target.

Corporate values reinforced and new Diversity and Inclusion Policy approved by Board.

Labour agreements reached at Centinela and Zaldívar.

#### OBJECTIVES FOR 2018

Maintain zero fatalities by continuing to embed the Safety Model.

Special focus on health standards.

Copper production of 705-740,000 tonnes.

Group cash costs before by-product credits of \$1.65/lb, higher than 2017 due mainly to lower grades at Centinela.

Sustain cost discipline achieved through the CCP, with special focus on energy efficiency and process productivity delivered by the New Operating Model initiatives.

Ensure New Operating Model delivers the expected benefits to operations and releases spare capacity.

Implement the Diversity and Inclusion Policy.

Maintain healthy relationships with communities and local stakeholders.



## 2 ORGANIC AND SUSTAINABLE GROWTH OF THE CORE BUSINESS

The second pillar of the strategy is to achieve sustainable, organic growth by further developing the areas around the Group's existing asset base in Chile.

### CURRENT STRATEGIC FOCUS:

- Obtain permits to begin construction of Los Pelambres Incremental Expansion Phase I.
- Select preferred Centinela expansion alternative.

### 2017 IN REVIEW

Encuentro Oxides completed and ramping up to full production.

Molybdenum plant commissioned.

Environmental Impact Assessment (EIA) of Los Pelambres Incremental Expansion Phase I awaiting final approval by the environmental authorities. Detailed engineering of the project commenced.

Reviewed options to reduce capital cost of Centinela Second Concentrator project and maximise synergies with existing operation.

Completed scoping study on the expansion of the existing concentrator at Centinela as an alternative to the Second Concentrator.

Completed Los Pelambres Incremental Expansion Phase II environmental baseline study and advanced feasibility study.

### OBJECTIVES FOR 2018

Encuentro Oxides to reach design capacity in the first half of the year.

Molybdenum plant to start production in the first half of the year.

Los Pelambres EIA approval (achieved February 2018).

Update capital estimate, complete additional geotechnical studies and obtain Board approval to proceed with Incremental Expansion.

Decision on whether to expand existing Centinela concentrator or build Second Concentrator.

Advance innovation programme to assess value-capturing technologies.



## 3 GROWTH BEYOND THE CORE BUSINESS

The third pillar of the strategy is to seek growth beyond the Group's existing operations, in Chile or internationally, through the acquisition of high-quality operating assets and/or high-potential early-stage developments.

### CURRENT STRATEGIC FOCUS:

- Advance the Twin Metals project.
- Develop the long-term growth pipeline beyond the Group's existing operations.
- Continue the exploration programme focused on the Americas in order to identify long-term growth options.
- Monitor the current market to assess potential accretive acquisitions or joint ventures.

### 2017 IN REVIEW

Focused exploration programme, mainly on targets in Americas.

Commenced preparation of Twin Metals' Mine Plan of Operations.

Twin Metals' right to renew two federal mineral leases was reaffirmed by the US Department of the Interior.

### OBJECTIVES FOR 2018

Continue monitoring the market for potential acquisition opportunities.

Advance exploration programmes in Americas.

Complete revised Twin Metals project pre-feasibility study.

# MEASURING OUR PERFORMANCE

The Group uses Key Performance Indicators (KPIs) to assess performance in terms of meeting its strategic and operating objectives.

Performance is measured against the following financial, operating and sustainability objectives:

## FINANCIAL KPIs

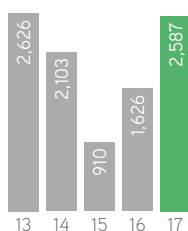
### EBITDA\*

#### WHY IT IS IMPORTANT

This is a measure of the Group's underlying profitability.

#### PERFORMANCE IN 2017

EBITDA rose in 2017, mainly as a result of higher realised prices.



**\$2,587m**

\*Restated for discontinued operations

+ See page 48 for more information

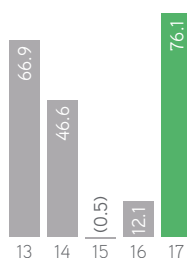
### EARNINGS PER SHARE\*

#### WHY IT IS IMPORTANT

This is a measure of the profit attributable to shareholders.

#### PERFORMANCE IN 2017

EPS rose due to higher realised prices.



**76.1 cents**

\*Restated for discontinued operations

+ See page 52 for more information

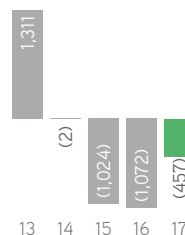
### NET CASH/(DEBT)¹

#### WHY IT IS IMPORTANT

This is a measure of the financial position of the Group.

#### PERFORMANCE IN 2017

Net debt fell by \$616 million in 2017 to \$457 million.



**\$(457)m**

+ See page 53 for more information

Remuneration performance criteria. See page 113 for more information

Footnotes:

1. Non-IFRS measures refers to the alternative performance measures in Note 37 to the financial statements.
2. 100% of production at Los Pelambres, Centinela and Antucoya, and 50% of Zaldivar's production.
3. Mineral resources (including ore reserves) relating to the Group's subsidiaries on a 100% basis and Zaldivar on a 50% basis.
4. The Lost Time Injury Frequency Rate is the number of accidents with lost time during the year per million hours worked.
5. Relates to the mining division only.

## OPERATING KPIs

### COPPER PRODUCTION<sup>2</sup>

#### WHY IT IS IMPORTANT

Copper is the Group's main product and its production is a key operating parameter.

#### PERFORMANCE IN 2017

Copper production of 704,300 tonnes, a 0.7% decrease on 2016 on lower grades at Los Pelambres offset by Encuentro Oxides and full year of production at Antucoya.



**704.3k tonnes**

+ See page 34 for more information

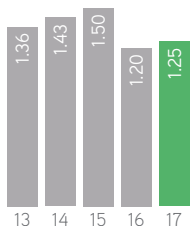
### NET CASH COSTS<sup>1</sup>

#### WHY IT IS IMPORTANT

This is a key indicator of operating efficiency and profitability.

#### PERFORMANCE IN 2017

Net cash costs increased 4.2% compared to 2016, reflecting higher input prices, stronger local currency and lower grades.



**\$1.25/lb**

+ See page 34 for more information

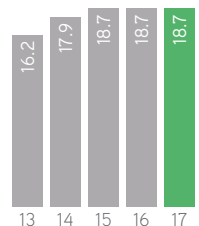
### MINERAL RESOURCES<sup>3</sup>

#### WHY IT IS IMPORTANT

Expansion of the Group's mineral resources base supports its strong organic growth pipeline.

#### PERFORMANCE IN 2017

Mineral resources decreased by 0.4%. Although new mineral resources added during the year offset tonnes mined, changed economic parameters reduced mineral resources overall.



**18.7bn tonnes**

+ See page 203 for more information

## SUSTAINABILITY KPIs

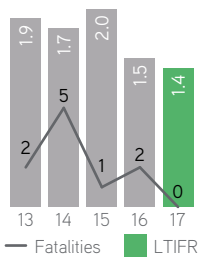
### FATALITIES AND LOST TIME INJURY FREQUENCY RATE<sup>4</sup>

#### WHY THEY ARE IMPORTANT

Safety is a key priority for the Group with fatalities and the LTIFR being two of the principal measures of performance.

#### PERFORMANCE IN 2017

Zero fatalities and the Lost Time Injury Frequency Rate of the Group reduced to 1.4 accidents with lost time per million hours worked.



**0 Fatalities**      **1.4 LTIFR**

+ See page 56 for more information

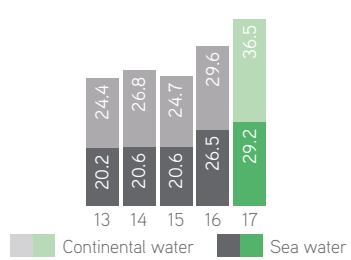
### WATER CONSUMPTION<sup>5</sup>

#### WHY IT IS IMPORTANT

Water is a precious resource and the Group is focused on using the most sustainable sources and maximising its efficient use.

#### PERFORMANCE IN 2017

Consumption of water increased during 2017, mainly after the commissioning of the Encuentro Oxides project and the adoption of ICMM's new water reporting guidelines.



**65.7mm<sup>3</sup>**

+ See page 62 for more information

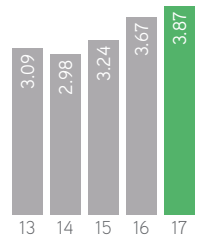
### CO<sub>2</sub> EMISSIONS<sup>6</sup>

#### WHY IT IS IMPORTANT

The Group recognises the risks and opportunities of climate change and the need to measure and mitigate its greenhouse gas ("GHG") emissions.

#### PERFORMANCE IN 2017

Carbon emission intensity increased from 2016 primarily due to Antucoya operating at full production for the whole year, the commissioning of Encuentro Oxides and the slight decrease in total production.



**3.87 per tonne of Cu produced**

+ See page 64 for more information

# RISK AND COMPLIANCE MANAGEMENT FRAMEWORK

Effective risk and compliance management is essential to the Group’s operations and strategy. The accurate and timely identification, assessment and management of risks are key to achieving the Group’s operating and financial targets.

## THE RISK AND COMPLIANCE MANAGEMENT DEPARTMENT:

Provides guidelines, standards and best-practice examples of risk and compliance management at the corporate and business unit levels

Responsible for the risk and compliance management systems

Maintains the Group’s risk register

Organises and promotes risk and compliance workshops

Supervises the operations’ risk management

Reviews the effectiveness of mitigating actions

Supports internal stakeholders in key strategic decisions

Ensures there are policies, guidelines and procedures in place to support the effectiveness of the Group’s internal controls

## AREAS OF FOCUS AND DEVELOPMENT DURING 2017

### RISK

The focus was on the continued consolidation of risk, compliance and internal control management processes, which included the following:

- Independent review of the Group’s risk appetite and tolerance to risk.
- Working to achieve a higher maturity level in risk management based on an independent review and embedding a risk management culture in the organisation as a key element in the decision-making process.
- Expanding risk analysis to routine corporate actions of the Company, including comprehensive risk assessment of all matters presented to the Board for approval.
- Implementing effectiveness audits and self-assessments for risk owners, and verifying the design and effectiveness of key controls through onsite independent peer reviews.
- Setting up a key risk indicators dashboard to provide early warning of increasing risks.

### COMPLIANCE

- Expanding compliance training to all employees on the Code of Ethics, anti-corruption, antitrust, the Modern Slavery Act, etc, through e-learning.
- Including the Modern Slavery Act as part of the Compliance Model. Reviewing all of the Group’s suppliers to ensure that modern slavery is not occurring in their businesses or supply chains.
- Updating due diligence assessments of suppliers and business partners to include modern slavery-related verifications.
- Obtaining the certification of the Group’s Crime Prevention Model for the third consecutive year.
- Recognised as one of the top three companies in Chile in managing an ethical and compliant internal culture and receiving the “Commitment with Integrity” award in Chile. The recognition encompasses the prevention and detection of unethical treatment, promoting best business practices and consolidating an organisational culture based on the relevance of people’s dignity and a sense of common welfare.

### INTERNAL CONTROL

- Conducting preventative analysis of roles and profiles to strengthen transaction risk management.
- Ensuring SAP transactions are in full compliance with delegated authority structures.
- Ensuring that key in-built SAP automatic controls are appropriate and effective.

**+** Further information about the Group’s risk management systems is given in the Governance section on pages 90 to 95 and in the Sustainability Report on page 65. Further detailed disclosures in respect of financial risks relevant to the Group are set out in Note 24 to the financial statements

## The Group's risk and compliance management framework comprises:



### GOVERNANCE

The Board is responsible for determining the nature and extent of the significant risks that the Group will accept in order to achieve its strategic objectives, and for maintaining sound risk management and internal control systems. During the year an externally-facilitated review of the Group's risk appetite was started and will be completed in 2018.

The Board receives detailed analysis of key matters for consideration in advance of Board meetings. This includes reports on the Group's operating performance, including safety and health, financial, environmental, legal and social matters, key developments in the Group's exploration, project and business development activities, information on the commodity markets, updates on talent management and analysis of financial investments.

The provision of this information allows the early identification of potential issues and assessment of any necessary mitigating actions.

The Audit and Risk Committee assists the Board by reviewing the effectiveness of the risk management process and monitoring key risks and mitigation procedures. The Chairman of the Committee reports to the Board following each Committee meeting and, if necessary, the Board can discuss the matters raised in more detail.

These processes allow the Board to monitor effectively the Group's major risks and mitigation procedures, and to assess the acceptable level of risk arising from the Group's operations and development activities. Risk management reports are sent to the Board quarterly.

The Code of Ethics sets out the Group's commitment to undertaking business in a responsible and transparent manner. The Code requires honesty, integrity and accountability from all employees and contractors and includes guidelines for identifying and managing potential conflicts of interest. An Ethics Committee comprising members of senior management implements, develops and updates the Code and monitors compliance. The Code and other compliance matters form part of the induction programme for all new employees.

**+** Further information on the Board and its Committees is given in the Governance section on pages 84 to 104

### RISK MANAGEMENT

The Risk and Compliance Management Department is responsible for risk and compliance management systems across the Group. It maintains the Group's risk register, which specifies the strategic risks that represent the most significant threats to the Group's performance and achievement of its strategy, along with any necessary mitigation activities. The risk register is regularly updated and annual strategic risk workshops are held at which senior management from across the Group review the Group's key strategic risks and related mitigation activities.

The Risk and Compliance Management Department reports quarterly to the Audit and Risk Committee on the overall risk management process, giving a detailed update of key risks, mitigation activities and actions being taken.

The General Managers of each of the operations have overall responsibility for leading and supporting risk management. Risk owners within each operation have direct responsibility for the risk management processes in their operations and for the continuous updating of individual business risk registers, including relevant mitigation activities. The owners of the risks and controls at each business unit are identified, providing effective and direct management of risk. Each operation holds its own annual risk workshop in which the business unit's risks and mitigation activities are reviewed in detail and updated if necessary. Workshops are also used to assess key risks that may affect relationships with stakeholders, limit resources, interrupt operations and/or negatively affect potential future growth.

Mitigation techniques for significant strategic and business unit risks are annually reviewed by the Risk and Compliance Management Department.

The Board regularly reviews Group compliance with all relevant laws and regulations, internal policies, procedures and control activities. A formal risk assessment is conducted at least once a year at all the Group's operations, and all risks are reported and reviewed quarterly by the Audit and Risk Committee.

As the Group has no operations or material exposure to the UK, Brexit is not expected to have any appreciable impact on the Group. This position is kept under review as Brexit negotiations advance.

## COMPLIANCE

The Group's Compliance Model applies to both employees and contractors. It is clearly defined and is communicated regularly through internal communication channels, as well as being available on the Group's website. All contracts with contractors include clauses relating to ethics, modern slavery and crime prevention to ensure adherence to the Group's Compliance Model.

The Compliance Model comprises five pillars:

### 1 CODE OF ETHICS

The Code of Ethics sets out the Group's values and provides guidelines on the behaviour required of all employees and contractors.

- Conflict of Interest Guidelines
- Gifts and Hospitality Guidelines
- Modern Slavery Act
  - Monitoring the effectiveness of the programme
  - Annual Statement

**+** Please see our [Modern Slavery Statement on page 65](#)

### 2 CRIME PREVENTION MODEL

The Crime Prevention Model ensures compliance with the anti-bribery and anti-corruption laws in the United Kingdom and Chile. The Vice President of Finance and Administration is responsible for overseeing, defining and implementing the Model. As part of the Model, the Group regularly undertakes the following activities:

- Training on key risk areas (ethics, anti-corruption, modern slavery and antitrust matters)

- Investigating all reports made by whistleblowers
- Assessing conflict of interest and due diligence on all business partners
- Updating and reviewing all employees' conflict of interest statements
- Strengthening the compliance programme and systems
- Overseeing third-party reviews of the Crime Prevention Model
- Implementing policies and processes to ensure the proper management of any non-compliance exposure
- Crime Prevention Handbook
- Anti-corruption clauses in contracts
- Due diligence process, including global checking
- Antitrust – Politically Exposed Person (PEP) Facilitation Fees Guidelines

**+** See page 23 for more information on [corruption prevention and mitigation activities](#)

### 3 WHISTLEBLOWING

Employees and external stakeholders can report concerns about irregular conduct or ethical issues through the Company's intranet, by email, or letter, or by using a dedicated hotline. All complaints are investigated and the findings are reported to the Ethics Committee and action is taken if required. The security and confidentiality of employees is ensured for the duration of the process, safeguarding individuals and thereby achieving greater transparency.

- Reporting channels (web, telephone, hotline, email)

- Methodology for complaints investigation and reporting
- Monitoring – analysis of complaints and improvements to internal control

### 4 COMPLIANCE RISKS AND CONTROL ASSESSMENT

The objective of the Compliance Risks and Control Assessment is to identify, develop and improve internal controls to prevent and mitigate potential risks. This assessment is performed at least annually.

- Identification of risks and controls
- Assessment of risks and controls, and improvement of the process
- The Compliance Model is reviewed regularly, both internally and by third parties, and on matters relating to corruption it has been certified under Chilean anti-corruption legislation

**+** See page 65 for more information

### 5 COMMUNICATION AND TRAINING PROGRAMME

The Group has a comprehensive training programme to ensure that the policies and procedures of the Compliance Model are clearly understood and embedded in the culture of the organisation. The programme emphasises the right to know, and there are measures in place to enhance the skills required to ensure its effective implementation.

- Communications (news, intranet, posters)
- Training programme – induction of new employees and e-learning

## VIABILITY STATEMENT

To address the requirements of provision C.2.2 of the 2014 UK Corporate Governance Code, the Directors have assessed the prospects of the Group over a period of five years.

Mining is a long-term business and timescales can run into decades. The Group maintains life-of-mine plans covering the full remaining mine life for each of the mining operations. More detailed medium-term planning is performed for a five-year time horizon (as well as very detailed annual budgets). Accordingly, a period of five years has been selected as the appropriate period over which to assess the prospects of the Group.

When taking account of the impact of the Group's current position on this viability assessment, the Directors have considered in particular its financial position, including its significant balance of cash, cash equivalents and liquid investments and the borrowing facilities in place, including their terms and remaining durations.

When assessing the prospects of the Group, the Directors have considered the Group's copper price forecasts, the Group's expected production levels, operating cost profile, capital expenditure and financing plans. The Directors have taken into consideration the

principal risks which could impact the prospects of the Group over this period, and consider the most relevant to be risks to the copper price outlook. Robust down-side sensitivity analyses have been performed, assessing the impact of a significant deterioration in the copper price outlook over the five-year period, along with the impact of the potential occurrence of a number of the Group's other specific principal risks. This analysis has focused on the existing asset base of the Group, without factoring in potential development projects, which is considered appropriate for an assessment of the Group's ability to manage the impact of a depressed economic environment. These stress-tests all indicated results which could be managed in the normal course of business.

Based on their assessment of the Group's prospects and viability, the Directors confirm that they have a reasonable expectation that the Group will be able to continue in operation and meet its liabilities as they fall due over the next five years.

### GOING CONCERN

Based on the factors considered above, the Directors also considered it appropriate to prepare the financial statements on the going concern basis.

# PRINCIPAL RISKS

The Board has carried out a robust assessment of its principal risks, which are set out below, together with the related mitigation techniques.

## FINANCIAL RISKS



### GROWTH OPPORTUNITIES

The Group may fail to identify attractive acquisition opportunities or may select inappropriate targets.

The long-term commodity price forecast and other assumptions used when assessing potential projects and other investment opportunities have a significant influence on the forecast return on investment and, if incorrectly estimated, could result in poor decisions.

### MITIGATION

The Group assesses a wide range of potential growth opportunities, both internal projects and external opportunities. A rigorous assessment process is followed to evaluate all potential business acquisitions, which are subjected to different stress-test scenarios for sensitivity analysis, and to determine the risks associated with the project or opportunity.

The Group's Business Development Committee reviews potential growth opportunities and transactions, and approves or recommends them within authority levels set by the Board.

**+** Details of the Group's growth opportunities are set out in the Operating Review on pages 44 to 47



### COMMODITY PRICES

The Group's results are heavily dependent on commodity prices – principally copper and, to a lesser extent, gold and molybdenum. The prices of these commodities are strongly influenced by a variety of external factors, including world economic growth, inventory balances, industry demand and supply, possible substitution, etc.

### MITIGATION

The Group considers exposure to commodity price fluctuations to be an integral part of the business and its usual policy is to sell its products at prevailing market prices. The Group monitors the commodity markets closely to determine the effect of price fluctuations on earnings, capital expenditure and cash flows. Very occasionally, when it feels appropriate, the Group uses derivative instruments to manage its exposure to commodity price fluctuations. The Group runs its business plans through various different commodity price scenarios and develops contingency plans as required.

**+** The sensitivity of the Group's earnings to movements in commodity prices is set out in Note 24 to the financial statements



### FOREIGN CURRENCY

The Group's sales are mainly denominated in US dollars although some of the Group's operating costs are in Chilean pesos.

The strengthening of the Chilean peso may negatively affect the Group's financial results.

### MITIGATION

As copper exports account for over 50% of Chile's exports, there is a correlation between the copper price and the US dollar/Chilean peso exchange rate. This natural hedge partly mitigates the Group's foreign exchange exposure. However, the Group monitors the foreign exchange markets and the macroeconomic variables that affect them and on occasion implements a focused currency hedging programme to reduce short-term exposure to fluctuations in the US dollar against the Chilean peso.

**+** Details of the Group's currency hedging arrangements are shown in Note 24 to the financial statements

## OPERATING RISKS



### STRATEGIC INPUTS

Disruption to the supply of any of the Group's key strategic inputs such as electricity, water, fuel, sulphuric acid and mining equipment could have a negative impact on production. Longer term, any restrictions on the availability of key strategic resources such as water and electricity could affect the Group's opportunities for growth.

A significant portion of the Group's input costs are influenced by external market factors.

### MITIGATION

Contingency plans are in place to address any short-term disruptions to strategic resources. The Group negotiates early with suppliers of key inputs to ensure supply continuity. Certain key supplies are purchased from several sources to mitigate potential disruption arising from exposure to a single supplier.

Technological and innovative solutions, such as using sea water in the Group's mining operations, can help mitigate exposure to potentially scarce resources.

The Group also utilises several sources of renewable energy such as wind and solar power as well as conventional sources such as coal and gas-fired generators.

**+** Details on the strategic inputs of the Group are included within the Operating Review on pages 28 to 32 and details on projects reviews are included within the Project Committee report on pages 100 to 101



### OPERATING

Mining operations are subject to a number of circumstances not wholly within the Group's control. These include damage to or breakdown of equipment or infrastructure, unexpected geological variations or technical issues, extreme weather conditions and natural disasters, any of which could adversely affect production and/or costs.

### MITIGATION

Key risks relating to each operation are identified as part of the regular risk review process undertaken by the individual operations. This process also identifies appropriate mitigation techniques for such risks. Monthly reports to the Board provide variance analysis of operating and financial performance, and allow potential key issues to be identified in good time and any necessary actions, such as monitoring or control activities, to be implemented to prevent unplanned downtime.

The Group has Business Continuity Plans and Disaster Recovery Plans for all key processes within its operations in order to mitigate the consequences of a crisis or natural disaster. The Group also has property damage and business interruption insurance to provide protection from some, although not all, of the costs that may arise from such events.

**+** Details of the performance of each of the Group's operations are included within the Operating Review on pages 34 to 43



### PROJECT MANAGEMENT

Failure to effectively manage the Group's development projects could result in delays in the start of production and cost overruns.

### MITIGATION

The Group has a project management system consisting of standards, manuals and procedures containing the best practices applicable and enforceable in all phases of project development. The project management system supports the decision-making process by balancing risk with benefit, increasing the likelihood of success and providing a common language and standards. All geometallurgical models are reviewed by independent experts.

During the project lifecycle, quality checks for each of the standards applied are carried out by a panel of experts from within the Group. This panel reviews each feasibility study to assess the technical and commercial viability of the project and how it can be safely developed.

Detailed progress reports on ongoing projects are regularly reviewed and include assessments of progress against key project milestones and performance against budget.

**+** Details on the progress of the Group's projects are included within the Operating Review on pages 44 to 47, and details on project reviews are included within the Projects Committee report on pages 100 to 101



### POLITICAL, LEGAL AND REGULATORY

The Group may be affected by political instability and regulatory developments in the countries in which it is operating, pursuing projects or conducting exploration activities. Issues regarding the granting of permits, or amendments to permits already granted, and changes to the legal environment or regulations, could adversely affect the Group's operations and development projects.

### MITIGATION

Political, legal and regulatory developments affecting the Group's operations and projects are monitored continually. The Group operates in full compliance with the existing laws, regulations, licences, permits and rights in each country in which it operates.

The Group assesses political risk as part of its evaluation of potential projects, including the nature of any foreign investment agreements.

The Group monitors proposed changes in government policies and regulations and belongs to several associations that engage with the government on these changes. This helps to improve the Group's internal processes and better prepare it to meet any new regulatory requirements.

**+** Details of any significant political, legal or regulatory issues that may impact the Group's operations are included within the Operating Review on pages 34 to 43



### IDENTIFICATION OF NEW MINERAL RESOURCES

The Group needs to identify new mineral resources to ensure continued future growth and does so through exploration and acquisition. There is a risk that exploration activities may not identify sufficient viable mineral resources.

### MITIGATION

The Group conducts exploration programmes both in Chile and in other countries. The Group has entered into early-stage exploration agreements and strategic alliances with third parties in a number of countries and has also acquired equity interests in companies with known geological potential. The Group focuses its exploration activities on stable and secure countries to reduce risk exposure.

**+** A review of the Group's exploration activities is set out in the Operating Review on page 33



### ORE RESERVES AND MINERAL RESOURCES ESTIMATES

The Group's ore reserves and mineral resources estimates are subject to a number of assumptions, including geological, metallurgical and technical factors, future commodity prices and production costs. Fluctuations in these variables may result in some reserves or resources being deemed uneconomic, which could lead to a reduction in reserves and/or resources.

### MITIGATION

The Group's reserves and resources estimates are updated annually to reflect material extracted during the year, the results of drilling programmes and any revised assumptions. The Group follows the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code") in reporting its ore reserves and mineral resources. This requires reserves and resources estimates to be based on work undertaken by a Competent Person, as defined by the Code. In addition, the Group's reserves and resources estimates are subject to a comprehensive programme of internal and external audits.

**+** The ore reserves and mineral resources estimates, along with supporting explanations, are set out on pages 196 to 205

## SUSTAINABILITY RISKS



### SAFETY AND HEALTH

Safety and health incidents could result in harm to the Group's employees, contractors or local communities. Ensuring their safety and wellbeing is first and foremost an ethical obligation for the Group, as stated in the Group core values. A poor safety record or serious accidents could have a long-term impact on the Group's morale, reputation and production.

### MITIGATION

The Group is seeking continuous improvement of its safety and health risk management procedures, with particular focus on the early identification of risk and preventing fatalities. The Corporate Safety and Health Department provides a common strategy for the Group's operations and co-ordinates all safety and health matters. The Group has a Significant Incident Report system, which is an important part of the overall approach to safety. The Group's goal of zero fatalities and minimising the number of accidents requires all contractors to comply with the Group's Occupational Safety and Health Plan. This is monitored through monthly audits and supported by regular training and awareness campaigns for employees, contractors, employees' families and local communities, particularly with regard to road safety. Critical controls and verification tools are regularly strengthened through the verification programme and regular audits of critical controls for potentially high-risk activities.

**+** Details of the Group's safety and health activities are included on pages 56 to 57



### COMMUNITY RELATIONS

Failure to identify and manage local concerns and expectations can have a negative impact on the Group. Relations with local communities and stakeholders affect the Group's reputation and social licence to operate and grow.

### MITIGATION

The Group has a dedicated team that establishes and maintains relations with local communities. These are based on trust and mutual benefit throughout the mining lifecycle, from exploration to final remediation. The Group seeks to identify early any potentially negative operating impacts and minimise these through responsible behaviour. This means acting transparently and ethically, prioritising the safety and health of its employees and contractors, avoiding environmental incidents, promoting dialogue, complying with commitments to stakeholders and establishing mechanisms to prevent or address a crisis. These steps are undertaken in the early stages of each project and continue throughout the life of each operation. The Group contributes to the development of communities in the areas in which it operates, particularly through human capital development – the education, training and employment of the local population. The Group endeavours to communicate clearly and transparently with local communities, in line with the established Community Relations Plan, including the use of a grievance management process, local perception surveys, and local media and community engagement.

**+** Further information about the Group's activities in respect of community relations is set out on pages 60 to 61



### ENVIRONMENTAL MANAGEMENT

An operating incident that damages the environment could affect both the Group's relationship with local stakeholders and its reputation, undermining its social licence to operate and to grow. The Group operates in challenging environments, including the Atacama Desert, where water scarcity is a key issue.

### MITIGATION

The Group has a comprehensive approach to incident prevention. Relevant risks are assessed, monitored and controlled in order to achieve the goal of zero incidents with significant environmental impact. The Group works to raise awareness among employees and contractors and provides training to promote operating excellence. Potential environmental impacts are key considerations when assessing project viability, and the integration of innovative technology in the project design to mitigate these effects is encouraged. For example, the Group strives to ensure maximum efficiency in water use, pioneering the use of sea water for mining operations in the arid Antofagasta Region of Chile and, most recently, introducing thickened tailings technology at Centinela to achieve higher rates of reuse and recovery.

**+** Further information in respect of the Group's environmental activities is set out on pages 62 to 64



## TALENT MANAGEMENT AND LABOUR RELATIONS

The Group's highly skilled workforce and experienced management team are critical to maintaining current operations, implementing development projects, achieving long-term growth and preserving current operations without major disruption. Managing talent and maintaining a high-quality labour force is a key priority for the Group and any failures in this respect could have a negative impact on the performance of the existing operations and future growth.

## MITIGATION

The Group maintains good relations with its employees and unions founded on trust, continuous dialogue and good working conditions. The Group is committed to safety, non-discrimination and compliance with Chile's strict regulations on labour matters.

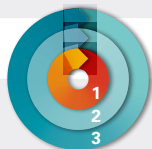
There are long-term labour agreements in place with employee unions at each of the Group's mining operations, which help to ensure labour stability.

The Group seeks to identify and address labour issues that may arise throughout the period covered by existing labour agreements and to anticipate any potential issues in good time. Contractors are an important part of the Group's workforce and under Chilean law are subject to the same duties and responsibilities as the Group's own employees. The Group's approach is to treat contractors as strategic associates and its goal is to build long-term mutually beneficial contractor relationships. The Group maintains constructive relationships with its employees and the unions that represent them through regular communication and consultation. Union representatives are regularly involved in discussions about the future of the workforce.

The Group develops the talents of its employees through training and development, invests in initiatives to widen the talent pool including increasing the number of women in the workplace, and focuses on maintaining good relationships with employees, unions and contractors.

The Group's Employee Performance Management System is designed to attract and retain key employees by creating suitable reward and remuneration structures and providing personal development opportunities. The Group has a talent management system to identify and develop internal candidates for key management positions, as well as identifying suitable external candidates where appropriate.

**+** Details of the Group's relations with its employees and contractors are set out on pages 31 to 32



## CORRUPTION ACTIVITIES

The Group's operations or projects around the world could be affected by risks related to corruption or bribery, including operating disruptions or delays resulting from a refusal to make "facilitation payments". Such risks depend on the economic or political stability of the country in which the Group is operating.

## MITIGATION

The Group employs procedures and controls against any kind of corruption, including open channels of communication that any employee or external party can use in order to raise any concerns or complaints.

In addition, the Group has Ethics Committees composed of senior executives at each of its operations, responsible for investigating complaints and taking any necessary measures. They in turn report such investigations to the Corporate Ethics Committee, which decides whether any further action is required.

All employees in the Group receive training on the Group Compliance Model, which is subject to external certification.

There are also control procedures in place that help to prevent corruption, covering such issues as conflicts of interest, suitability of suppliers, receiving and giving of gifts and hospitality, and facilitation payments.

**+** Further information about the Group's activities in respect of corruption activities is set out on pages 56 to 65



## INFORMATION SECURITY

Breaches in, or failures of, the Group's information security management could adversely impact its business activities.

## MITIGATION

The Group's information security management model is designed with defensive structural controls to prevent and mitigate the effects of computer risks. It employs a set of rules and procedures, including a Disaster Recovery Plan, to restore critical IT functions.



# OPERATING PERFORMANCE



The Group seeks to set realistic, but stretching operating targets each year and then achieve them year after year.



## OPERATING PERFORMANCE

Business model	26
Operating Review	
Key inputs and cost base	28
Key relationships	31
Exploration activities	33
Business units	34
Growth projects and opportunities	44
Financial Review	48

MAPTEK I-Site

200533

# THE MINING LIFECYCLE

## INPUTS



### RESOURCES AND RELATIONSHIPS

The Group's mining operations depend on a range of key inputs such as energy, water, labour and fuel. The management of these inputs has a significant impact on operating costs and the sustainability of mining operations, so ensuring the long-term supply of key inputs is a vital part of the business.

See page 28 for more information

Chile  
International

### EXPLORATION

To ensure the sustainability of its mining business in the long term, the Group must focus on expanding its mineral resource base.

The Group undertakes exploration activities in Chile and abroad, with particular focus on the Americas. Exploration programmes outside Chile are generally carried out in partnership with other companies in order to benefit from their local knowledge and experience.

**3-5 years**

See page 33 for more information

Los Pelambres Incremental Expansion

### EVALUATION

Effective project evaluation and design maximise value at this stage of the mining cycle. The Group's wealth of experience in both areas helps to make the best use of established mineral deposits. The Group integrates sustainability criteria into the design process and project evaluation phase, developing innovative solutions for challenges such as water availability, long-term energy supply and community relations.

**5 years**

See page 44 for more information

Encuentro Oxides  
Centinela Molybdenum Plant

### CONSTRUCTION

Once a project has been approved by the Board, construction begins.

This stage requires significant input of capital and resources, and effective project management and cost control maximise a project's return on investment.

The Group has a co-operative approach to developing projects. Typically, after the feasibility stage, and before the construction phase, the Group seeks a development partner, generating an immediate cash return, diversifying risk and providing broader access to funding, while maintaining operating control of the project.

**3-5 years**

See pages 44 to 47 for more information

Los Pelambres  
Centinela  
Antucoya  
Zaldívar

### EXTRACTION

The Group's four operations in Chile are Los Pelambres, Centinela, Antucoya and Zaldívar.

The world-class Los Pelambres and Centinela mining districts have long-life copper mining operations with large mineral resources and produce significant volumes of gold, silver and molybdenum as by-products. All of the Group's mines are open pit operations.

Safety and health are key elements of operating efficiency and remain a top priority for the Board and management team.

**20+ years**

See pages 36 to 41 for more information



## CREATING VALUE THROUGH THE MINING LIFECYCLE

Mining is a long-term business and timescales can often run into decades. The period from initial exploration to the start of production can exceed ten years and, depending on the nature of the project and the market conditions, it may take more than five years of operation to recoup the initial investment.

Where possible, mines exploit higher-grade areas towards the start of the mine life in order to maximise returns. As a result, average ore grades may decline over time, with production volumes decreasing along with revenue.



### MINE CLOSURE

During the operation of a mine, its impact on the environment and the neighbouring communities is carefully managed. At the end of its life, a mine must be closed and its surroundings restored to their original state.

A closure plan for each mine is maintained and updated throughout its life to ensure compliance with the latest regulations and provide for a sustainable closure.

+ See page 63 for more information



### MARKETING

The marketing team builds long-term relationships with the smelters and fabricators who purchase the Group's products, with approximately 70% of output going to Asian markets.

As well as copper, Los Pelambres and Centinela produce significant volumes of gold, molybdenum and silver as by-products. Gold and silver are sold for industrial and electronic applications and in jewellery-making. Molybdenum is used to produce steel alloys.

Most copper and molybdenum sales are made under annual contracts or longer-term framework agreements. Sales volumes are agreed each year, which guarantees offtake.

+ See page 31 for more information



### PROCESSING

The Group mines both copper sulphide and copper oxide ores, which require different processing routes:

#### Los Pelambres and Centinela Concentrates

Mined sulphide ore is milled to reduce its size before passing to flotation cells where it is upgraded to a concentrate containing 25–35% copper. This concentrate is then shipped to a smelter operated by a third party and converted to copper metal.

#### Centinela Cathodes, Antucoya and Zaldívar

Mined oxide ore, sometimes combined with leachable sulphide ore, is crushed, piled into heaps and then leached with sulphuric acid, producing a copper solution. This solution is then put through a solvent extraction and electrowinning ("SX-EW") plant to produce copper cathodes, which are sold to fabricators around the world.

+ See pages 36 to 41 for more information

## OUTPUTS



The Group's mining operations create significant economic and social value for a wide range of stakeholders. Local communities benefit from job creation and improved infrastructure, while the Chilean government and local municipalities receive tax payments and royalties.

There are also benefits to society in general, with the copper the Group produces being used across many sectors, from industrial to medical, and increasingly in renewable and green technologies.

The copper and by-products from the Group's mines go on to be further processed for use in end markets, including property, power, electronics, transport and consumer products.

+ See pages 48 to 53 for more information

# KEY INPUTS AND COST BASE

The Group's mining operations depend on many inputs, ranging from energy and water to labour and fuel, the most important of which are reviewed below.

Concentrate producers such as Los Pelambres and Centinela require other particular inputs such as reagents and grinding media. Cathode producers such as Centinela, Antucoya and Zaldívar, which use the SX-EW process, require sulphuric acid. The availability, cost and reliability of these inputs are central to the Group's cost management strategy, which focuses on cost control and security of supply.

The Group's two largest operations, Los Pelambres and Centinela, are already competitively positioned on the copper industry cost curve. The Group's operations and the industry as a whole have a declining grade profile over time, which places upward pressure on unit costs. During the year the initiatives below have been implemented by the Group's Procurement Department to reduce the unit cost of each operation and allow each to remain profitable as ore grades decline.

### ENERGY

The Group sources its energy from the two electricity grids in Chile: the northern grid (SING), which supplies the Centinela, Antucoya and Zaldívar mines, and the central grid (SIC) which supplies Los Pelambres. The SING has an installed capacity of 5.3GW, supplied by coal-fired power stations and renewable sources such as wind and solar. The SIC's installed capacity is 17.4GW, primarily from hydroelectric plants. Due to this reliance on hydroelectric power, the cost of energy on the SIC fluctuates depending on precipitation levels, whereas on the SING costs tend to be more stable.

In 2014, the Chilean government began a process to connect the SING and SIC power grids to increase the reliability of the national power system. This should be completed in 2018. The new integrated grid will supply 99% of national demand, increasing customer access to a range of power generation sources and bringing stability to power prices throughout the year.

Approximately 19% of the Group's cash costs are energy related. To manage price fluctuations, the Group has medium and long-term electricity contracts, called Power Purchase Agreements (PPAs) at each operation. Pricing, in most cases, is linked to the cost of electricity on the Chilean grids or the generation costs of a supplier, the latter being subject to adjustments for inflation and fuel input prices. The Group operations' power requirements, which previously had some exposure to spot prices, are now all under PPAs.

All of the Group operations located on the SING benefit from long-term contracts, mostly indexed to the price of coal. The first of these to expire will be the PPA supplying 100% of Zaldívar's power until 2020. The Group has invited several suppliers to bid for the long-term power contracts for Zaldívar, and hopes to conclude the process in 2018. The Group's other PPAs continue until 2026–28.

### WATER

Water is a precious commodity in the regions where the Group's mines operate, so the efficient use and recycling of water is extremely important.

Water for each operation is sourced either from the sea or from surface and underground sources. Each operation has the necessary permits for the long-term supply of water at current production levels.

The Group optimises water efficiency by reducing demand, using untreated sea water and encouraging recycling across its operations. Water reuse rates depend on a range of factors and the Group seeks to achieve a rate of 76–93% depending on circumstances at each operation.

The Group pioneered the use of untreated sea water in the 1990s and currently uses it at Centinela and Antucoya. In 2017, sea water accounted for 45% of total Group water use, a decrease from the previous year.

### LABOUR

Secure labour supply is key to the Group's success. Labour agreements with unions are in place at all of the Group's mining operations, generally lasting for a period of three years. In 2017, the Group successfully entered into new labour agreements with the unions at Centinela and Zaldívar.

The Group continues to foster good working relationships with its employees and unions and to date there has been no industrial action. At Centinela, the Group was able to conclude labour agreements several months in advance of the formal negotiation period, streamlining benefits across the three main unions at the mine.

Contractors account for approximately 70% of the workforce across the Group's operations, and are responsible for labour negotiations with their own employees. The Group maintains strong relations with all contractors to ensure operating continuity and requires all contractors to adhere to the same standards expected of its own employees, particularly in the areas of safety and health.





INPUTS



### SERVICE CONTRACTS AND KEY SUPPLIES

The Group's Central Procurement Department negotiates corporate-level agreements for key purchases such as mining equipment, tyres and reagents. It also achieves synergies and economies of scale in other high-spend areas, while co-ordinating activities at each of the mining operations. A core of experts defines product and service categories, and procurement policies and procedures are standardised across the Group.

The Group continually reviews its procurement processes and existing agreements, identifying additional cost-saving opportunities during the coming years as part of its Cost and Competitiveness Programme.

In total, the Group has over 3,000 suppliers for goods and services. Key contracts, such as tyres, grinding media, mining and mobile equipment, chemicals, explosives, camp administration and maintenance, are under long-term agreements. Price adjustment formulae reflect the market variations of key cost elements, such as steel, petrol and the Consumer Price Index (CPI). Contracts are normally negotiated between the operation and the supplier, but tenders and negotiations are generally co-ordinated, and sometimes led, by the Central Procurement Department in order to maximise leverage and benefits.

The Group's corporate procurement team uses a variety of strategies, such as full-price competition, price auctions, sourcing from China and working with strategic suppliers to reduce the costs to each party and achieve a sustainable, longer-term, lower-cost base.

### OIL PRICE

Fuel represents approximately 7% of total cash costs and is used in trucks transporting ore and waste at the mine sites. Improving fuel efficiency is a priority, with the amount of fuel consumed per tonne of material extracted being a key measure. Fuel is supplied by Chile's two largest suppliers to avoid sole supplier risk.

The oil price tends to affect the spot price of energy, shipping rates for supplies and products, and the cost of items such as tyres and conveyor belts, which contain oil-based products. The oil price rose by approximately 15% during 2017, putting pressure on the Group's operating cost base.



### SULPHURIC ACID

The sulphuric acid market was tight during 2017 due to supply disruptions in many regions of the world. This increased the regional deficit and caused prices to rise during the year.

The Group secures most of its sulphuric acid requirements under contracts for a year or longer, at prices normally agreed in the latter part of the previous year. The tight market in 2017 is reflected in lower acid prices in 2018.

### EXCHANGE RATE

Costs are affected by the Chilean peso to US dollar exchange rate, as approximately 35-40% of the mining division's operating costs are in Chilean pesos. However, as over half of Chile's foreign exchange earnings are generated from copper sales, an increase in the copper price tends to weaken the Chilean peso and vice versa and so a natural hedge exists for the Group. During 2017, the Chilean peso strengthened by 4.1% from Ch\$677/\$1 in 2016 to Ch\$649/\$1. During the first two months of 2018 it strengthened further, averaging Ch\$601/\$1.



KEY INPUTS AND COST BASE CONTINUED

**COST AND COMPETITIVENESS PROGRAMME**

The Group introduced its Cost and Competitiveness Programme (CCP) in 2014, with the aim of reducing its cost base and improving the Group’s competitiveness within the industry. Since then, it has achieved savings in mine site costs of \$525 million, approximately \$166 million of which were made during 2017. These savings are equivalent to 11 cents per pound for the year.

The Group target for 2018 is for a further \$100 million of operating cost savings, to be achieved mainly through asset and labour productivity improvements.

The programme focuses on four areas:

- 1 **Services productivity:** Improving the productivity and quality of contracts while reducing costs
- 2 **Operation and maintenance management:** Improving the performance of critical processes and finalising the implementation of standard maintenance management practices
- 3 **Corporate and organisational effectiveness:** Reducing costs and restructuring the Group’s organisational framework
- 4 **Energy efficiency:** Optimising energy efficiency and lowering energy contract prices

**Examples of savings initiatives**

- Renegotiation of truck maintenance contracts
- Negotiation with explosive service providers
- Optimisation of fuel transport services
- Improving grinding media consumption
- Minimising waste in blasting to reduce explosives consumption
- New Operating Model implementation (strengthening of key processes)
- Optimising the organisational structure
- Modifying peak consumption patterns to reduce power costs

**Sustainable practice**

- Contract administration model
- Maintenance strategy
- New Operating Model
- Energy optimisation





INPUTS



# KEY RELATIONSHIPS

The Group's business model is underpinned by relationships with stakeholders at local, regional, national and international levels. Successful management of these relationships contributes to the long-term success of the Group.

## CUSTOMERS

Most copper and molybdenum sales are made under annual contracts or using longer-term framework agreements, with sales volumes agreed for the coming year. Gold is contained in the copper concentrates and therefore is part of copper concentrates sales.

The majority of sales are to industrial customers who refine or further process the copper – smelters, in the case of copper concentrate production, and copper fabricators in the case of cathode production. The Group's marketing team builds long-term relationships with these core customers while ensuring customer diversification. The Group also maintains relationships with trading companies that participate in shorter-term sales agreements, or in the spot market.

Over 80% of the Group's mining sales are under contracts of a year or longer and metals sales pricing is generally based on prevailing market prices.

## STRUCTURE OF SALES CONTRACTS

Typically, the Group's sales contracts set out the annual volumes to be supplied and the main terms for the sale of each payable metal, with the pricing of the contained copper in line with LME prices.

In the case of concentrate, a deduction is made from LME prices to reflect TC/RCs – the smelting and refining costs necessary to process the concentrate into copper cathodes. These TC/RCs are typically determined annually in line with market developments and the parties' assessments of the copper concentrate market at the time of the negotiation of the terms.

In the case of copper cathodes transactions a premium, or in some cases a discount, on the LME price is negotiated to reflect differences in quality, logistics and financing compared with the metal exchange's standard copper contract specifications.

Similarly, the Group's molybdenum contracts are made under long-term framework agreements, with pricing usually based on Platts' average prices.

Across the industry, neither copper producers nor consumers tend to make annual commitments for 100% of their respective production or needs, and producers normally retain a portion to be sold on the spot market throughout the year.

The prices realised by the Group during a specific period will differ from the average market price for that period. This is because, in line with industry practice, sales agreements generally provide for provisional pricing at the time of shipment, with final pricing based on the average market price for the month in which settlement takes place.

For copper concentrate, sales remain open until settlement occurs, on average four months from the shipment date. Settlement for the gold and silver content in copper concentrate sales occurs approximately one month from shipment. Copper cathode sales remain open for an average of one month from shipment. Settlement for copper in concentrate sales is later than for copper cathode sales,



as further refinement of copper in concentrate is needed to produce copper metal for sale. Molybdenum sales generally remain open for two or three months from shipment.

## SUPPLIERS

Suppliers play a critical role in the Group's ability to operate safely and efficiently, providing a large range of products and services from grinding media to catering at the mine sites.

The Group works with over 3,000 suppliers, focusing on the top suppliers in each category to ensure the most cost-effective and efficient solutions across all operations. A centralised corporate procurement team defines and consolidates common procurement practices and procedures, with separate targets and procurement practices for strategic goods and transactional purchases.

The teams have increased their expertise in each cost-relevant product category, reducing the number of suppliers in order to extract greater benefits from selected suppliers over a long period of time. One example is the consolidation and integration of all logistics for the mining operations within two centres in Chile under a single logistics operator. This allows greater control of goods in the supply chain as the Group moves towards a "just in time delivery" model. The Group has also begun managing return trips of goods leaving the operations, in order to significantly reduce the number of trucks needed and improve cost and environmental efficiency.

Since 2016 the Group has been operating a Group-wide contract administration model that measures performance, costs and productivity on a monthly basis. Currently, the 80 largest service contracts are managed using this model. In 2017 they accounted for over 70% of the cost of service at the operations and over 6,000 contractor employees. The intention is to reinforce this management framework further during 2018.

### KEY RELATIONSHIPS CONTINUED

The Group encourages suppliers to raise any issues or concerns they may have about their relationship with the Company, their contracts or the workforce. A separate complaints procedure ensures that all contracts are awarded in a fair and transparent manner.

All suppliers are audited before a contract is awarded and periodically thereafter to ensure compliance with applicable labour and other legislation, as well as the Group's strict safety and health and other policies. The Group also monitors suppliers' financial health and requires bank guarantees when deemed necessary.

**+** See page 18 for more information

#### EMPLOYEES

The Group employs approximately 6,200 people, working alongside approximately on average 15,000 contractors at its corporate offices, operations and projects (including 100% at Zaldívar). Mining operations are inherently risky and ensuring the safety and health of every employee is not only an absolute priority, but an ethical obligation central to the Group's strategic objectives.

The Group has created a variety of initiatives over the past few years to secure and develop talent, and to increase diversity within the organisation. In particular, efforts are being made to increase the number of women working in the Group and to attract young professionals into the mining industry.

Relationships with unions are based on mutual respect and transparency. This helps the Group to retain employees and avoid labour disputes, contributing to greater productivity and business efficiency. During 2017, the Group renewed labour agreements with employees and supervisors at Centinela and Zaldívar. In the Chilean mining industry labour agreements are negotiated with each union for a maximum of three years and the Group's next negotiations are scheduled for 2020.

**+** See page 58 for more information

#### CONTRACTORS

The number of contractors working for Antofagasta varies according to business needs and the level of construction activity.

At the end of 2017 there were approximately 13,700 contractors working at the Group's operations and projects (including 100% at Zaldívar). This was some 6% lower than the same time in 2016, principally due to the completion of the Encuentro Oxides project.

Contractors are essential to mining operations and the Group aims to build long-term relationships with contractor companies based on the highest standards. Safety and health targets are included in performance agreements and compliance with safety and human rights laws, labour regulations and the Group's own safety and health standards is assessed regularly using internal and external audits. Contractors have access to the same mine camp facilities as the Group's own employees and the Group requires that all contractor employees must be paid at least 50% above the minimum wage required by Chilean law.

**+** See page 58 for more information



#### LOCAL COMMUNITIES

It is crucial to have strong relationships with local communities in the areas where the Group operates, because without mutual trust, co-operation and understanding it is not possible to run a mine successfully.

Having clear social policies and regular contact with community members helps to identify potential conflicts and maintains the Group's social licence to operate. During 2014 the Group pioneered a new community engagement model called "Somos Choapa" (We Are Choapa), after the region in which Los Pelambres and its communities are located. In 2015, Los Pelambres signed a framework agreement with three municipalities under the initiative, and has begun assessing a portfolio of projects for sustainable development in the region.

During 2016, the Group resolved long-standing legal issues with the Caimanes community, mainly related to the Mauro tailings dam, by engaging in open dialogue with the community, prioritising their needs and clarifying the Company's commitments. The dialogue was monitored by the Chilean chapter of Transparency International to ensure the openness and fairness of the process.

**+** See page 60 for more information

#### GOVERNMENT RELATIONS

Political developments and changes to legislation or regulations in Chile, the UK, or other countries where the Group has operations, development projects or exploration activities, can affect the Group's business.

The Group monitors new and proposed legislation in order to anticipate, mitigate or reduce possible effects and ensure it complies with all legal and regulatory obligations. It works with industry bodies to engage with governments on public policy, laws, regulations and procedures that may affect its business, including such issues as climate change and energy security.

The Group assesses political risk when evaluating potential projects, including existing foreign investment agreements. It also utilises internal and external legal expertise to ensure its rights are protected.

#### OTHER LOCAL STAKEHOLDERS

Good relationships with other stakeholders situated near the Group's operations and projects, such as local authorities, local media and others, are fundamental to the smooth operation and future growth of the business. Each of the Group's operations has a manager who oversees these relationships.



EXPLORATION

# EXPLORATION ACTIVITIES

The Group seeks to expand its copper production in Chile and abroad by developing new projects and other potential opportunities. Brownfield development within the Group's Los Pelambres and Centinela mining districts in Chile remains the primary focus for maximising value while managing associated risks.

The Group has a portfolio of longer-term growth options and actively evaluates opportunities that come to market. Long-term growth options within the portfolio are under constant evaluation. Given the early stage of some of these projects, their potential and timing is uncertain and the following outline provides only a high-level indication of potential opportunities.

## EXPLORATION ACTIVITIES

Exploration, in Chile and internationally, remains a key contributor to the sustainable and long-term growth of the Group's copper business. The Group has an active programme of early and intermediate stage exploration projects managed by its exploration teams in Santiago, Lima and Toronto. Exploration is conducted using in-house teams and through partnerships with selected third parties, with the aim of building a portfolio of long-term opportunities in Chile and the Americas.

Following initial positive results at the Group's ongoing projects, exploration and evaluation expenditure increased from \$44.3 million in 2016 to \$68.8 million in 2017.

### CHILE

All exploration in Chile is carried out by the Group's Santiago-based exploration team, with activity focused along the main copper belts of northern and central Chile as well as in prospective new belts. A key activity is the rationalisation of the Group's exploration assets and land holdings, with the acquisition of new exploration licences in the areas of focus and the relinquishment of lower priority ground.

During the year early-stage target-testing drilling was conducted at various projects in the Antofagasta Region in the north of Chile and target-confirmation drilling was completed at the Encierro project in the Atacama Region. An environmental impact study was approved for the Cachorro project, south of Antucoya, and significant drilling programmes are planned at both Encierro and Cachorro during 2018.

In addition, resource delineation drilling was carried out at the Sierra project south of Antucoya and new resource models were completed for both Brujulina, near El Abra, and the hypogene copper-gold mineralisation project at Zaldívar.

### INTERNATIONAL

The Group's international exploration business model includes partnering with technically strong and locally-experienced operators. This ensures that funding is spent effectively and directly on projects, minimising expenditure on local administration.

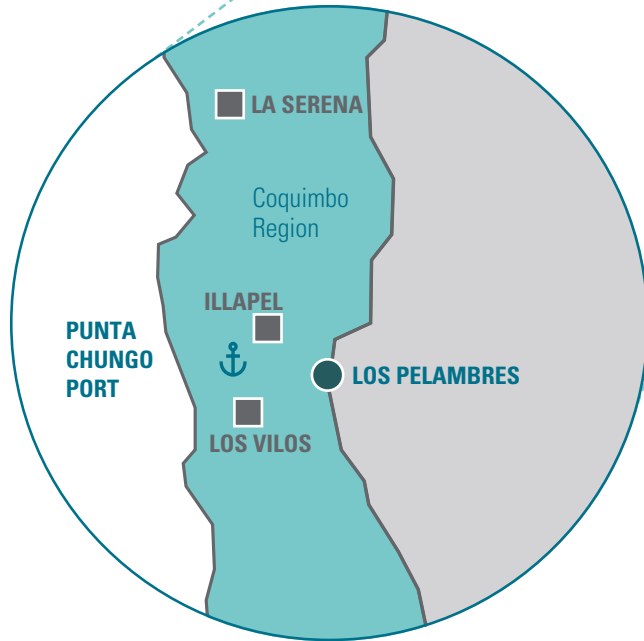
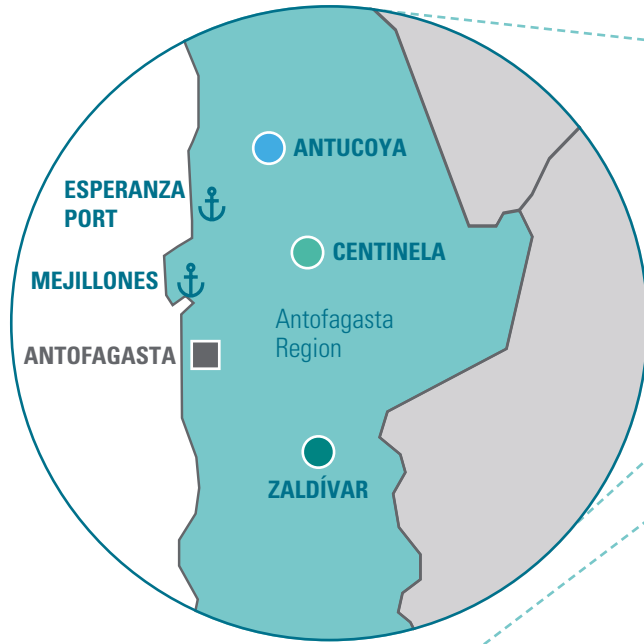
During 2017, significant progress was made in consolidating the Group's international exploration activities to focus attention solely on the Americas. An exploration office has been re-established in Peru and additional resources have been assigned to North America in order to support increased levels of activity in Canada, the US and selected areas of Mexico, where the Group has a portfolio of early-stage projects.

During 2017 several projects in British Columbia in Canada were drill tested and the Group exited from non-core projects in Zambia, Australia and the south-west Pacific region.

[+ See page 196 to 205 for more information regarding reserves and resources](#)



# BUSINESS UNITS





EXPLORATION



EVALUATION



CONSTRUCTION



EXTRACTION



PROCESSING



MARKETING



All of the Group's operations are located in the Antofagasta Region of northern Chile except for its flagship operation, Los Pelambres, which is in the Coquimbo Region of central Chile.



**LOS PELAMBRES**

p36



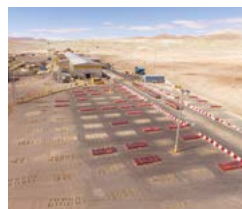
**CENTINELA**

p38



**ANTUCOYA**

p40



**ZALDÍVAR**

p41



**TRANSPORT DIVISION**

p42



**GROWTH PROJECTS AND OPPORTUNITIES**

p44

**704,300**

Tonnes of copper produced in 2017

**212,400**








Ounces of gold produced in 2017

**10,500**

Tonnes of molybdenum produced in 2017

**\$1.25/lb**

Net cash costs in 2017

-  Los Pelambres
-  Centinela
-  Antucoya
-  Zaldívar
-  Capital city
-  Cities and town centres
-  Ports

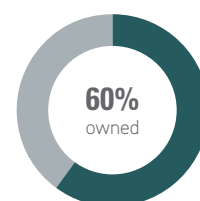
## MINING DIVISION



# LOS PELAMBRES

Los Pelambres is a sulphide deposit in Chile's Coquimbo Region, 240 km north of Santiago. It produces copper concentrate (containing gold and silver) and molybdenum concentrate through a milling and flotation process.

2017 PRODUCTION	2017 FINANCIALS	2018 FORECAST
<b>Copper (tonnes)</b> <b>343,800 (3.3%)</b>	<b>EBITDA</b> <b>\$1,428m +55.0%</b>	<b>Copper (tonnes)</b> <b>345–355,000</b>
<b>Molybdenum (tonnes)</b> <b>10,500 +47.9%</b>	<b>Net cash costs</b> <b>\$1.02/lb (3.8%)</b>	<b>Molybdenum (tonnes)</b> <b>10–11,000</b>
<b>Gold (ounces)</b> <b>55,400 (4.2%)</b>		<b>Gold (ounces)</b> <b>60–70,000</b>



### COPPER PRODUCTION ('000 TONNES)



**343,800 tonnes produced in 2017**



EVALUATION

CONSTRUCTION

EXTRACTION

PROCESSING

MARKETING

## 2017 PERFORMANCE

### Operating performance

EBITDA at Los Pelambres was \$1,428 million in 2017, compared with \$921 million in 2016, reflecting increased realised metal prices.

### Production

Copper production was 343,800 tonnes in 2017, which was 3.3% lower than in 2016. This decrease was primarily due to lower grades, which dropped from 0.73% to 0.68%.

Molybdenum production for the year was 10,500 tonnes, 47.9% higher than in 2016, due to higher grades, recoveries and throughput. Gold production was 4.2% lower in 2017 at 55,400 ounces, compared with 57,800 ounces in 2016.

### Cash costs

Cash costs before by-product credits at \$1.44/lb were 5.9% higher than in 2016, as grades decreased, partially compensated by higher throughput. Net cash costs in 2017 were \$1.02/lb compared with \$1.06/lb in 2016, due to significantly higher credits from molybdenum sales.

Total capital expenditure in 2017 was \$236 million, which included \$89 million on mine development. Capital expenditure is forecast at approximately \$365 million in 2018, reflecting the expected start of construction of the Incremental Expansion project and higher sustaining capital expenditure compared to 2017.

## OUTLOOK

### Production

The forecast production for 2018 is 345–355,000 tonnes of payable copper (slightly higher than in 2017), 10–11,000 tonnes of molybdenum and 60–70,000 ounces of gold.

### Cash costs

Cash costs before by-product credits for 2018 are forecast to increase to approximately \$1.50/lb and net cash costs to increase to approximately \$1.10/lb.

### Legal update

In November 2017, the San Juan Province accepted a plan presented by Los Pelambres to remove the Cerro Amarillo waste rock dump, and work commenced in December. The execution of the plan is subject to certain conditions and the approved time for the removal of 5.5 years can be extended by one year in certain circumstances. The Company made a provision of \$50 million during 2017 for the removal of the waste rock. The removal plan does not represent any acknowledgement of responsibility by Los Pelambres nor prejudice any of its rights, since at the time the Company started construction of the waste rock dump it did so in accordance with valid permits issued by the responsible Chilean government agencies.



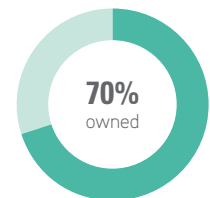
**MINING DIVISION CONTINUED**



# CENTINELA

Centinela was formed in 2014 from the merger of the Esperanza and El Tesoro mining companies. Centinela mines sulphide and oxide deposits 1,350 km north of Santiago in the Antofagasta Region, one of Chile’s most important mining areas.

Centinela Concentrates produces copper concentrate (containing gold and silver) through a milling and flotation process, and Centinela Cathodes produces copper cathodes using a solvent extraction and electrowinning process SX-EW.



2017 PRODUCTION	2017 FINANCIALS	2018 FORECAST
<b>Copper (tonnes)</b> <b>228,300 (3.3%)</b>	<b>EBITDA</b> <b>\$859m +52.8%</b>	<b>Copper (tonnes)</b> <b>230–245,000</b>
<b>Gold (ounces)</b> <b>157,000 (26.3%)</b>	<b>Net cash costs</b> <b>\$1.36/lb +14.3%</b>	<b>Gold (ounces)</b> <b>130–140,000</b>
		<b>Molybdenum (tonnes)</b> <b>1,500</b>

**COPPER PRODUCTION ('000 TONNES)**



**228,300 tonnes produced in 2017**



EVALUATION

CONSTRUCTION

EXTRACTION

PROCESSING

MARKETING

## 2017 PERFORMANCE

### Operating performance

EBITDA at Centinela was \$859 million, compared with \$562 million in 2016, despite lower production and higher operating costs, as the realised copper price increased by 28% and the realised gold price rose by 2.1%.

### Production

Copper production for the full year 2017 was 228,300 tonnes, 3.3% lower than in 2016 primarily as a result of lower recoveries and lower grades at Centinela Concentrates. This was partly offset by higher grades in the oxides line and the start of production at Encuentro Oxides.

Copper in concentrate production for the full year was 163,900 tonnes, 9.1% lower than 2016, mainly reflecting slightly lower grades and the consequential drop in recoveries.

Gold production was 157,000 ounces, 26.3% lower than in 2016. This was mainly due to lower grades and recoveries.

Copper cathode production for the year was 64,500 tonnes, 15.6% higher than the previous year, as grades increased and Encuentro Oxides came into production in the last quarter of the year.

### Cash costs

Cash costs before by-product credits for the year were \$1.81/lb, 3.4% higher than in 2016, mainly as a result of lower copper production, higher input prices and the payment of a one-off signing bonus following the successful conclusion of labour negotiations with three unions at the operation. The essential terms of each of the labour agreements were standardised, allowing for the completion of the operational integration of Esperanza and El Tesoro, which began in 2014 when they were merged as Centinela. This completion of the integration will bring further improvements in operating practices at Centinela and will enable improvements in productivity.

Net cash costs for 2017 were \$1.36/lb compared with \$1.19/lb in 2016. This increase is due to the increase in cash costs before by-product credits and lower gold production.

Capital expenditure was \$578 million, including \$192 million on Encuentro Oxides and the molybdenum plant and \$264 million on mine development. Total project expenditure on the Encuentro Oxides project was \$605 million, some \$30 million under budget.

Total capital expenditure in 2018 is expected to be \$516 million, included approximately \$280 million on mine development.

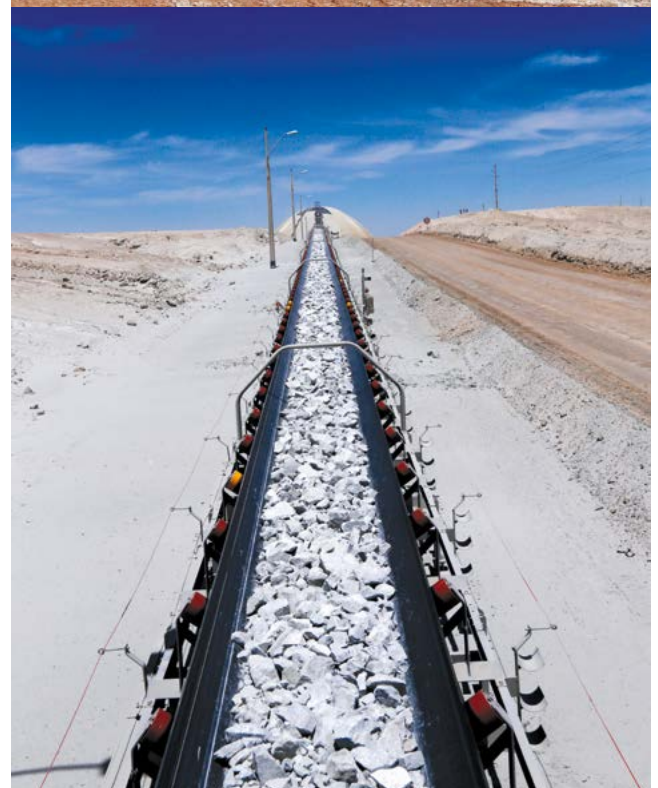
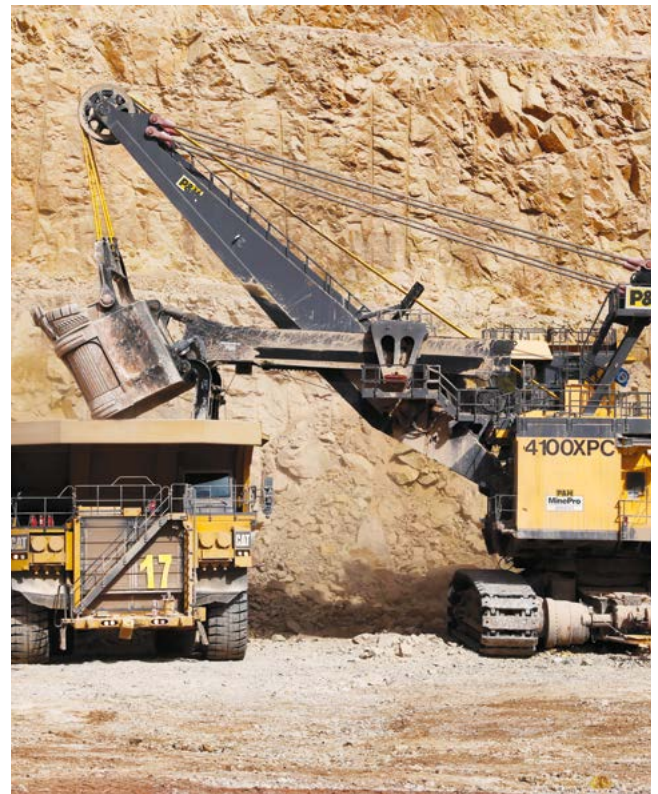
## OUTLOOK

### Production

Production for 2018 is forecast at 230–245,000 tonnes of payable copper, 130–140,000 ounces of gold and 1,500 tonnes of molybdenum, following the commissioning of the molybdenum plant early in 2018. While the grade at Centinela Concentrates will be lower than in 2017, Encuentro Oxides will reach full capacity during the year, contributing approximately 50,000 tonnes of payable copper.

### Cash costs

Cash costs before by-products for 2018 are forecast at approximately \$1.90/lb and net cash costs at approximately \$1.50/lb.

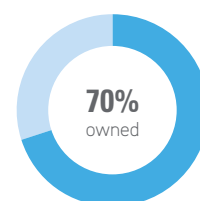


**MINING DIVISION CONTINUED**



# ANTUCOYA

Antucoya is approximately 1,400 km north of Santiago and 125 km north-east of the city of Antofagasta, in Chile’s Antofagasta Region. Construction of the project was completed in 2015 with full production achieved in 2016. Antucoya mines and leaches oxide ore to produce copper cathodes.



2017 PRODUCTION	2017 FINANCIALS	2018 FORECAST
<b>Copper (tonnes)</b> <b>80,500 +21.6%</b>	<b>EBITDA</b> <b>\$207m +219.4%</b>	<b>Copper (tonnes)</b> <b>75–80,000</b>
	<b>Cash costs</b> <b>\$1.68/lb (8.2%)</b>	

**COPPER PRODUCTION ('000 TONNES)**



**80,500 tonnes produced in 2017**

**2017 PERFORMANCE**

**Operating performance**

EBITDA at Antucoya was \$207 million compared with \$65 million in 2016, reflecting Antucoya’s first year of operation at full capacity.

**Production**

Production was 80,500 tonnes of copper, 21.6% higher than in 2016, following the completion of the ramp-up in late 2016.

**Cash costs**

Cash costs for the year were \$1.68/lb, 8.2% lower than in 2016, mainly because of higher production.

Capital expenditure was \$44 million, including \$17 million on mine development.

**OUTLOOK**

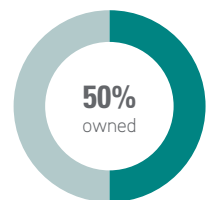
Production in 2018 is forecast to be approximately 75–80,000 tonnes and cash costs are expected to increase to \$1.75/lb.

Total capital expenditure is expected to be approximately \$57 million, which includes \$22 million of mine development costs.



# ZALDÍVAR

Zaldívar is an open-pit, heap-leach copper mine operating at an average elevation of 3,000 meters above sea level, approximately 1,400 km north of Santiago and 175 km south-east of the city of Antofagasta. The Group completed the acquisition of a 50% interest in the asset from Barrick Gold Corporation in 2015 and is the operator of the mine.



2017 PRODUCTION <sup>1</sup>	2017 FINANCIALS	2018 FORECAST
<b>Copper (tonnes)</b> <b>51,700 0.0%</b>	<b>EBITDA</b> <b>\$134m +57.7%</b>	<b>Copper (tonnes)<sup>1</sup></b> <b>55–60,000</b>
	<b>Cash costs</b> <b>\$1.62/lb +5.2%</b>	

1. Attributable share of production.

## COPPER PRODUCTION ('000 TONNES)



**51,700 tonnes produced in 2017**

## 2017 PERFORMANCE

### Operating performance

Attributable EBITDA was \$134 million compared with \$85 million in 2016.

During 2017 the Company successfully concluded labour negotiations with the workers' union.

### Production

Total attributable production in 2017 was 51,700 tonnes of copper cathodes, unchanged from 2016 as, although the grade increased, recoveries were lower due to the significantly higher proportion of sulphide ores being processed compared to 2016.

### Cash costs

Cash costs for 2017 were \$1.62/lb, 5.2% higher than previous year mainly because of impact of the one-off signing bonuses following the conclusion of the labour negotiations and higher input prices. Attributable capital expenditure for 2017 was \$51 million, which includes approximately \$25 million with respect to mine development. These amounts are not included in the Group capital expenditure figures.

### OUTLOOK

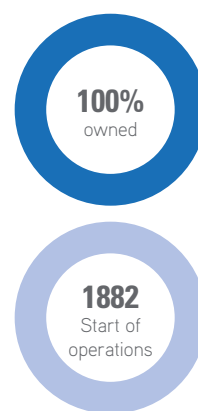
Attributable copper production in 2018 is forecast to be approximately 55–60,000 tonnes at a cash cost of \$1.70/lb.

Attributable capital expenditure in 2018 is expected to be approximately \$60 million, of which \$10 million will be spent on mine development.

**TRANSPORT DIVISION**



# TRANSPORT DIVISION



The division, known as Ferrocarril de Antofagasta a Bolivia (FCAB), provides rail and truck services to the mining industry in the Antofagasta Region. The transport division operates its own railway network, with access to Bolivia and the two largest ports in the region at Mejillones and the city of Antofagasta. The port at Antofagasta is managed by Antofagasta Terminal Internacional (ATI), which is minority-owned by the Group.

**2017 TONNAGE TRANSPORTED ('000 TONNES)**

**6.3m tonnes**



**2017 FINANCIALS**

**EBITDA**

**\$98.1m**



**2017 PERFORMANCE**

During the year, the transport division further optimised its business under the FCAB Management Model based on the three key areas of sustainability, productivity and cost management. Tonnage transported continued in line with the previous year and the railway renewed an acid and cathode transport contract with one of its largest customers. Additionally, the FCAB was awarded a new concentrates transport contract, confirming the competitiveness of its cost structure. Furthermore, in early 2018 an additional acid, cathode and concentrates contract was awarded to FCAB. Seven new locomotives purchased during the year are scheduled to begin operating the first half of 2018, and another five locomotives have been ordered, optimising the fleet and increasing asset productivity.

**Operating performance**

The division's EBITDA was \$98.1 million in 2017, compared to \$87.7 million in 2016, reflecting appropriate cost management and higher sales from the water business.

**Transport tonnage**

During 2017 the division transported 6.3 million tonnes, compared to 6.5 million tonnes in 2016, 3.5% lower mainly due to labour disruptions at one of the division's clients, partially offset by higher road transport volumes and productivity improvements achieved during the year.

**Costs**

Cost management was focused on optimising the division's business processes to ensure the lasting competitiveness of its services through better utilisation of the fleet, organisational changes and cost savings.

**OUTLOOK**

The division will continue to develop new business opportunities and optimise the use of rolling stock and utilisation of the fleet. Improvements are expected in maintenance, using knowledge gained from the mining division and best practices from the railway industry, and benefiting from the new locomotives and higher fleet availability. This is the beginning of a renewal programme of FCAB's locomotives fleet. The implementation of the Costs and Competitiveness Programme will further help to keep costs under control.

One of the main areas of focus in 2018 will be the development of projects to service the two new transport contracts. Once these are in place in 2019, FCAB's transport tonnage will increase by about 10%.



EVALUATION

CONSTRUCTION

EXTRACTION

PROCESSING

MARKETING

## CUSTOMERS MAP



STRATEGIC REPORT



## SUSTAINABILITY

The division's sustainability activities are now integrated with those of the mining division in the region, leading to improved efficiency and the exchange of best practices and experience.

No fatalities or accidents with serious consequences to people were reported in 2017. The focus during the year was on critical controls to avoid fatalities. The division is now in the process of rolling out the relevant verification tools for these controls across the organisation.

The Lost Time Injury Frequency Rate (LTIFR) in 2017 was 7.3 compared to 4.9 in 2016. Incident reporting, including near misses, conditions and actions, increased by 89% over the same period, reflecting the effectiveness of the mining division's reporting approach adopted in 2016.

In 2018, the focus will be on consolidating the application of critical controls, executing safety leadership practices and improving employees' safety behaviour, while simultaneously deepening the interaction with local communities and strengthening the division's image in the region.

# GROWTH PROJECTS AND OPPORTUNITIES

The Group is focused on controlling capital costs and optimising production from existing operations. It achieves this through careful project management and constant monitoring of the efficiency of its mines, plants and transport infrastructure.

## GROWTH PROJECTS

Where possible, debottlenecking and incremental plant expansions are used to increase throughput and improve overall efficiencies as these projects often have lower capital expenditure requirements and generate higher returns than greenfield projects.

The Group continues to review its options for maximising returns and reducing the capital cost of projects and is enhancing the capabilities of the project team to improve project execution strategy, management and control.

At Centinela the expansion of the existing concentrator and using its infrastructure (power lines, pipelines, port and other facilities) is being considered as an alternative to building a new concentrator.

The Group is also evaluating the disposal of under-utilised assets and unlocking value through the sale and lease-back of certain infrastructure assets.

### CENTINELA SECOND CONCENTRATOR

One alternative under consideration for the expansion of Centinela is the construction of a second concentrator some 7 km from Centinela's current concentrator. It is expected to have an ore throughput capacity of approximately 90,000 tonnes per day, with annual production of approximately 180,000 tonnes of copper equivalent, which includes gold and molybdenum as by-products.

Ore will be sourced initially from the Esperanza Sur deposit and, once mining is completed at Encuentro Oxides, additionally from Encuentro Sulphides.

The EIA for the project was approved in 2016 and the Group has commenced applications for the additional permits required for the project following certain design modifications made during the year. The feasibility study for this \$2.7 billion project is due for completion by the end of 2018, when a decision will be made on whether to proceed with either this project or the expansion of the existing plant. If approval is given in 2018 first production is expected in 2022.

However, if the expansion of the existing concentrator is approved it is likely that the second concentrator will proceed at a later date.

There is also scope to increase the plant capacity further once the second concentrator is completed, which could bring throughput capacity to approximately 150,000 tonnes per day and increase the plant's production to approximately 250,000 tonnes of copper equivalent.

## 180,000 tonnes

copper equivalent production per year





EVALUATION



### ALTERNATIVE DEVELOPMENT OPTION

As an alternative to the construction of a second concentrator, the Group is evaluating the expansion of the existing concentrator and tailings storage facilities as a less capital-intensive alternative. Technical viability, capital cost and financial returns will be assessed before the completion of the feasibility study for the second concentrator. The expansion of the existing concentrator would not preclude the later construction of the second concentrator.

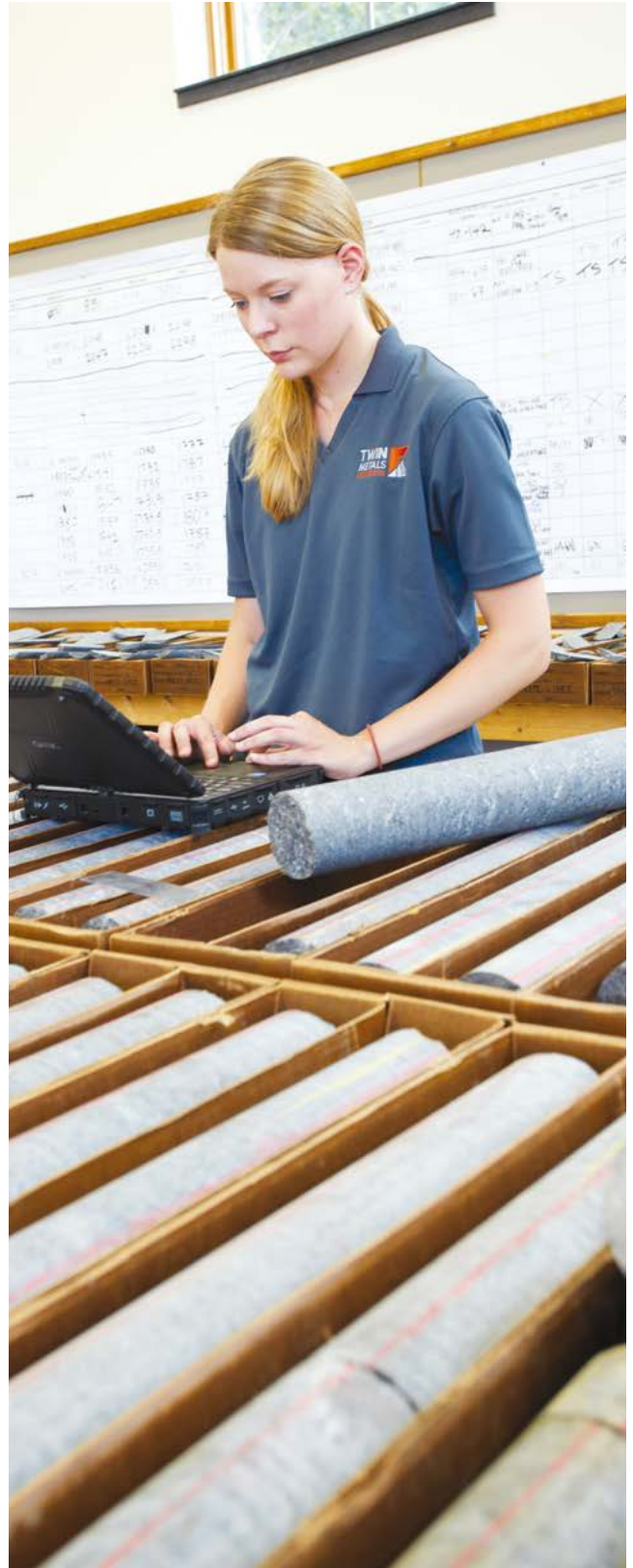
More work will be conducted on both expansion options during 2018 with the intention of the Company being able to select its preferred alternative by the end of the year. If it is decided to proceed with the expansion of the existing concentrator in preference to building a second concentrator, a full feasibility study will be required before it is taken to the Board for approval. This work would delay the date for final project approval by approximately 18 months.

### TWIN METALS MINNESOTA

Twin Metals Minnesota is a wholly-owned copper, nickel and platinum group metals (PGM) underground mining project which holds the Maturi, Maturi Southwest, Birch Lake and Spruce Road copper-nickel-PGM deposits located in north-eastern Minnesota, US.

During 2017 the Group commenced preparation of the Mine Plan of Operations, a pre-requisite for permitting applications. The Group also undertook further evaluation and optimisation exercises on the pre-feasibility study, completed in 2014, with the aim of completing an updated pre-feasibility study by the end of 2018.

In December 2017 the US Department of the Interior reaffirmed Twin Metals' right to renew two federal mineral leases, a right denied in December 2016 by the Bureau of Land Management (BLM) and the US Forest Service (USFS). These mineral leases cover part of the project's mineral resources.



## GROWTH PROJECTS AND OPPORTUNITIES CONTINUED

### LOS PELAMBRES INCREMENTAL EXPANSION

This expansion project is being carried out in two phases in order to simplify the permitting application process and spread the cost over a longer period.

#### Phase 1

This phase is designed to optimise throughput within the limits of the existing operating, environmental and water extraction permits, with only relatively simple updates required and an EIA for the new desalination plant. During this phase, Los Pelambres will operate at an average throughput of 190,000 tonnes of ore per day, with the addition of a new grinding and flotation circuit to mitigate the impact of the harder ore currently being mined, and a 400 litres per second desalination plant and associated pipeline. Desalinated water will be pumped from the coast to the Mauro tailings storage facility, where it will connect with the recycling circuit returning water to the Los Pelambres concentrator plant.



During 2017 the Group progressed the EIA for the project with the authorities and provided various submissions associated with the permitting process. The EIA was approved in February 2018.

The project's capital estimate has been updated with current pricing projections, advanced detailed engineering and a project execution plan to a revised estimate of \$1.3 billion. This figure includes the concentrator plant expansion and pre-stripping at \$780 million and the desalination plant and water pipeline at \$520 million. The desalination plant will serve as a back-up water supply for the entire operation – existing plus both phases of expansion – in conditions of severe drought. The project is expected to be submitted for approval to the Board during the second half of 2018 once ancillary permits to the approved EIA are in place and additional geotechnical studies at the desalination plant have been completed.

The project will increase Los Pelambres' production by 55,000 tonnes of copper a year from 2021.

# +55,000 tonnes

annual copper production

#### Phase 2

In this phase the Group will seek to increase throughput to 205,000 tonnes of ore per day and to extend the mine's life by 15 years beyond the currently approved 20 years. As part of this development the Group will submit a new EIA to increase the capacity of the mine's Mauro tailings storage facility and mine waste dumps. Work on the environmental baseline study for the new EIA started in 2017 and the results will be reviewed in late 2018.

Capital expenditure for this phase was estimated in the pre-feasibility study at approximately \$500 million, the majority being on mining equipment, additional crushing and grinding capacity and flotation cells. The conveyors from the primary crusher to the concentrator plant will also have to be repowered to support the additional throughput. Critical studies on tailings and waste storage capacity are underway and should be completed in 2018. However, the project will only proceed following a decision on Phase 1 and will require the submission of extensive permit applications, including the new EIA. First production from this phase would be in 2022 at the earliest and is expected to increase copper production by 35,000 tonnes per year.

# +35,000 tonnes

annual copper production



EVALUATION

## PROJECT COMPLETED DURING THE YEAR

### ENCUENTRO OXIDES

The Encuentro Oxides deposit is in the Centinela Mining District. It is expected to produce an average of approximately 43,000 tonnes of copper cathode per year over an eight-year period, offsetting a natural decline in production due to falling mined grades at Centinela's existing oxide pits.

The project was completed during 2017 and first production was in September with full production expected in the first half of 2018.

The project entails the installation of new crushing and heap-leach facilities at the Encuentro Oxides deposit, a pipeline to take the leach solution for processing at the existing SX-EW plant some 17 km away, and the extension of the sea water pipeline from Centinela to Encuentro. Higher-grade ore will be crushed and sent to the new heap-leach facilities, while lower-grade ore will be processed later on a Run-of-Mine (ROM) leach pad.

This deposit is important for the Group's long-term development, as Encuentro Oxides sits on top of the much larger Encuentro Sulphide deposit. The Encuentro Oxides project therefore acts as a funded pre-strip for the sulphide deposit, opening up the latter for development as part of the Centinela expansion project.

During 2017, total expenditure incurred was \$153 million, bringing total expenditure on the project to \$605 million, some \$30 million under budget.

# +43,000 tonnes

average copper production per year

# \$605 million

construction capex, 5% under budget

## PROJECT UNDER CONSTRUCTION

### MOLYBDENUM PLANT

This project will allow Centinela to produce an average of 2,400 tonnes of molybdenum per year. Production is expected to start in early 2018, and the addition of another by-product credit will lower Centinela's unit net cash costs.

At the end of December 2017, the project was 98% complete (including design, engineering, procurement and construction). During 2017, total expenditure incurred was \$40 million.



# SOLID FINANCIAL PERFORMANCE



“Earnings per share from continuing operations increased by 119%<sup>1</sup>, reflecting the strong growth in revenue during the year.”

Alfredo Atucha, CFO

	Year ended 31/12/2017			Year ended 31/12/2016
	Total \$m	Before exceptional items \$m	Exceptional items <sup>2</sup> \$m	Total \$m
Revenue	4,749.4	3,621.7	–	3,621.7
EBITDA (including results from associates and joint ventures)	2,586.6	1,626.1	–	1,626.1
Operating costs excluding depreciation	(2,318.9)	(2,100.0)	(241.0)	(2,341.0)
Depreciation, loss on disposals and impairments	(589.4)	(598.1)	(215.6)	(813.7)
<b>Operating profit from subsidiaries</b>	<b>1,841.1</b>	923.6	(456.6)	467.0
Net share of results from associates and joint ventures	59.7	23.4	(134.7)	(111.3)
<b>Total profit from operations, associates and joint ventures</b>	<b>1,900.8</b>	947.0	(591.3)	355.7
Net finance expense	(70.0)	(71.1)	–	(71.1)
<b>Profit before tax</b>	<b>1,830.8</b>	875.9	(591.3)	284.6
Income tax expense	(633.6)	(313.5)	204.9	(108.6)
<b>Profit from continuing operations</b>	<b>1,197.2</b>	562.4	(386.4)	176.0
<b>Discontinued operations<sup>3</sup></b>	<b>0.5</b>	38.3	–	38.3
<b>Profit for the year</b>	<b>1,197.7</b>	600.7	(386.4)	214.3
<b>Basic earnings per share</b>	<b>US cents</b>	US cents	US cents	US cents
From continuing operations	76.1	34.7	(22.6)	12.1
From discontinued operations <sup>3</sup>	0.1	3.9	–	3.9
<b>Total continuing and discontinued operations</b>	<b>76.2</b>	38.6	(22.6)	16.0

1. Excluding exceptional items in 2016.

2. Further details given in Note 4 to the financial statements.

3. At 31 December 2017 the Group had commenced a process to dispose of Centinela Transmission, the electricity transmission line supplying Centinela and other external parties. As a result of this, its net results are shown as a discontinued operation in the income statement. In the 2016 comparatives the net results of the Group's former Michilla operation were shown as a discontinued operation.

A detailed segmental analysis of the components of the income statement is contained in Note 5 to the financial statements.



OUTPUT

The following table reconciles the change in EBITDA between 2016 and 2017:

	\$m
<b>EBITDA in 2016</b>	<b>1,626.1</b>
<b>Revenue</b>	
Increase in copper volumes sold	122.0
Increase in realised copper price	966.4
Decrease in treatment and refining charges	23.3
<b>Increase in revenue from copper sales</b>	<b>1,111.7</b>
Decrease in gold revenue	(61.1)
Decrease in silver revenue	(8.3)
Increase in molybdenum revenue	74.5
<b>Increase in revenue from by-products</b>	<b>5.1</b>
Increase in transport division revenue	10.9
<b>Increase in Group revenue</b>	<b>1,127.7</b>
<b>Operating costs</b>	
Increase in mine operating costs	(175.0)
Increase in closure provisions	(30.5)
Increase in exploration and evaluation costs	(24.5)
Increase in corporate costs	(15.2)
Decrease in other mining division costs	35.2
<b>Increase in operating costs for mining division</b>	<b>(210.0)</b>
Increase in transport division operating costs	(8.9)
Increase in attributable EBITDA relating to associates and joint ventures	51.7
<b>Total EBITDA in 2017</b>	<b>2,586.6</b>

## REVENUE

Revenue for the Group in 2017 was \$4,749.4 million, 31.1% higher than in 2016. The increase of \$1,127.7 million mainly reflected an increase in the realised copper price and copper sales volumes, as well as higher molybdenum revenue offset by lower gold and silver revenue.

### Revenue from the mining division

#### Revenue from copper sales

Revenue from copper concentrate and copper cathode sales increased by \$1,111.7 million, or 32.3%, to \$4,578.3 million, compared with \$3,461.5 million in 2016. The increase reflected the impact of higher realised prices and increased sales volumes.

#### (i) Realised copper price

The higher average realised copper price resulted in a \$966.4 million increase in revenue. The average realised price increased by 28.5% to \$3.00/lb in 2017 (2016 – \$2.33/lb), largely reflecting the 26.7% increase in the LME average market price to \$2.80/lb (2016 – \$2.21/lb). In addition, there was a significant positive provisional pricing adjustment of \$309.5 million, mainly reflecting the increase in the year-end copper price to approximately \$3.25/lb at 31 December 2017, compared with around \$2.50/lb at 31 December 2015.

In 2017 revenue also includes a loss of \$17.1 million (2016 – loss of \$2.2 million) relating to commodity derivatives which matured during the year. Further details of hedging activity in the period are given in Note 24(d) to the financial statements.

Realised copper prices are determined by comparing revenue (gross of treatment and refining charges for concentrate sales) with sales volumes in the period. Realised copper prices differ from market prices mainly because, in line with industry practice, concentrate and cathode sales agreements generally provide for provisional pricing at the time of shipment with final pricing based on the average market price for future periods (normally around one month after delivery to the customer in the case of cathode sales and normally four months after delivery to the customer in the case of concentrate sales). Realised copper prices also reflect the impact of realised gains

or losses on commodity derivative instruments hedge-accounted-for in accordance with IAS 39 “Financial Instruments: Recognition and Measurements”.

**+** Further details of provisional pricing adjustments are given in Note 6 to the financial statements

#### (ii) Copper volumes

Copper sales volumes reflected within revenue increased from 634,100 tonnes in 2016 to 657,700 tonnes in 2017 increasing revenue by \$122.0 million. This increase was mainly due to Antucoya which achieved commercial production on 1 April 2016, and which therefore recorded a full 12 months’ of sales volumes within revenue in 2017 (80,800 tonnes), compared to only nine months’ sales volumes in 2016 (54,900 tonnes).

#### (iii) Treatment and refining charges

Treatment and refining charges for copper concentrate decreased by \$23.3 million to \$277.7 million in 2017 from \$301.0 million in 2016, mainly due a decrease in the average TCs/RCs. Treatment and refining charges are deducted from concentrate sales when reporting revenue and hence the decrease in these charges has had a positive impact on revenue.

#### Revenue from molybdenum, gold and other by-product sales

Revenue from by-product sales at Los Pelambres and Centinela relate mainly to molybdenum and gold and, to a lesser extent, silver. Revenue from by-products increased by \$5.1 million or 1.0% to \$505 million in 2017, compared with \$499.9 million in 2016. This overall slight increase reflects higher molybdenum revenue largely offset by lower gold sales.

Revenue from molybdenum sales (net of roasting charges) was \$168.5 million (2016 – \$94.0 million), an increase of \$74.5 million. The increase was due to higher sales volumes of 9,600 tonnes (2016 – 7,200 tonnes) and an increased realised price of \$8.7/lb (2016 – \$6.8/lb).

## FINANCIAL REVIEW CONTINUED

Revenue from gold sales (net of TCs/RCs) was \$278.6 million (2016 – \$339.7 million), a decrease of \$61.1 million which mainly reflected a decrease in volumes, partly offset by a higher realised price. Gold sales volumes decreased by 19.6% from 271,400 ounces in 2016 to 218,200 ounces in 2017, mainly due to lower grades and recoveries at Centinela. The realised gold price was \$1,280.4/oz in 2017 compared with \$1,256.1/oz in 2016, with the increase reflecting slightly higher market prices.

Revenue from silver sales decreased by \$8.3 million to \$58.2 million (2016 – \$66.2 million). The decrease was due to lower sales volumes of 3.5 million ounces (2016 – 3.7 million ounces) as well as a decrease in the realised silver price to \$16.8/oz (2016 – \$17.5/oz).

### Revenue from the transport division

Revenue from the transport division (FCAB) increased by \$10.9 million or 6.8% to \$171.1 million, mainly due to increased average rail tariffs and higher road tonnages.

### Operating costs (excluding depreciation, loss on disposals and impairments)

Operating costs (excluding depreciation, loss on disposals and impairments) are considered to provide a useful and comparable indication of the current operational performance of the Group's businesses, excluding the depreciation of the historic cost of property, plant and equipment.

The Group's total operating costs (excluding depreciation, loss on disposals and impairments) amounted to \$2,318.9 million (2016 – \$2,100.0 million), an increase of \$218.9 million, mainly due to increased costs at the mining division.

### Operating costs (excluding depreciation, loss on disposals and impairments) at the mining division

Operating costs (excluding depreciation, loss on disposals and impairments) at the mining division increased by \$210.0 million to \$2,223.1 million in 2017, an increase of 10.4%. Of this increase, \$175.0 million is attributable to higher mine site operating costs. This increase in minesite costs reflected the higher production volumes in the year, the one-off signing bonus payable following the successful completion of labour negotiations at Centinela, the stronger Chilean peso and higher key input prices, partly offset by cost savings from the Group's Cost and Competitiveness Programme. As a result, weighted average unit cash costs excluding by-product credits (which are reported as part of revenue) and refining charges for concentrates (which are deducted from revenue) increased from \$1.33/lb in 2016 to \$1.41/lb in 2017.

The Cost and Competitiveness Programme has been designed to achieve permanent savings through the application of a structured process. During the year, \$166 million of savings were achieved, bringing total savings since the start of the programme to \$525 million. These permanent savings have been achieved through organisational simplification, improved productivity of services and operations, tightened maintenance management and greater energy efficiency.

Exploration and evaluation costs increased by \$24.5 million to \$68.8 million (2016 – \$44.3 million). This reflected a general increase in activity, including with early-stage generative exploration activity in Chile and drilling work at Los Pelambres. Costs relating to the mine closure provisions increased by \$30.5 million compared with 2016 and corporate costs increased by \$15.2 million. These increases were partly offset by a \$35.2 million decrease in other expenses, largely relating to decreased community expenditure at Los Pelambres.

### Operating costs (excluding depreciation and loss on disposals) at the transport division

Operating costs (excluding depreciation and loss on disposals) at the transport division increased by \$8.9 million to \$95.8 million, mainly reflecting higher diesel prices due to the stronger Chilean peso and an increase in services provided by third parties.

### EBITDA

EBITDA (earnings before interest, tax, depreciation and amortisation) increased by \$960.5 million or 59.1% to \$2,586.6 million (2016 – \$1,626.1 million). EBITDA includes the Group's proportional share of EBITDA from associates and joint ventures.

EBITDA from the Group's mining increased by 61.8% from \$1,538.4 million in 2016 to \$2,488.5 million in this year. As explained above, this was mainly due to the significant increase in revenue, partly offset by the higher unit cash costs and increased exploration and evaluation expenditure and mine closure provision costs.

EBITDA at the transport division increased by \$10.4 million to \$98.1 million in 2017, reflecting the increased revenue offset by higher operating costs explained above.

### Depreciation, amortisation and disposals

The depreciation and amortisation charge was largely in line with the prior year at \$581.1 million (2016 – \$578.4 million). In addition, there were losses on disposals of assets of \$8.3 million (2016 – loss of \$19.7 million).

### Prior year exceptional impairment provisions

In 2016, the Group recognised exceptional impairment provisions with a total impact of \$591.3 million before tax. After a corresponding tax credit of \$204.9 million the after tax impact was \$386.4 million.

**+** Further details are given in Note 4 to the financial statements

### Operating profit from subsidiaries

As a result of the above factors, operating profit from subsidiaries increased in 2017 by 294.2% to \$1,841.1 million (2016 – \$467.0 million). Of the prior year exceptional impairment provisions outlined above \$456.6 million were recorded within operating expenses, and therefore excluding the exceptional items from the prior year figures, the year-on-year increase in operating profit was \$917.5 million or 99.3%.

### Share of results from associates and joint ventures

The Group's share of results from associates and joint ventures was a gain of \$59.7 million in 2017, compared with a loss of \$111.3 million in 2016. The prior year loss was largely a reflection of the exceptional impairment provisions. Of the total prior year impairment provision outlined above, \$134.7 million was recorded within the share of results from associates and joint ventures. Excluding the impact of the exceptional impairment provisions from the prior year results, the year-on-year increase in the share of results from associates and joint ventures was \$36.3 million or 55.1%. The improvement compared with the prior year mainly reflected a higher contribution from Zaldívar due to an increase in the profit after tax (on a 50% attributable basis) to \$58.5 million (2016 – \$29.5 million).

EBITDA  
increased to  
\$2,586.6 million

**59%**  
EBITDA increase



OUTPUT

## Net finance expense

Net finance expense in 2017 was \$70.0 million, compared with \$71.1 million in 2016.

	Year ended 31/12/17 \$m	Year ended 31/12/16 \$m
Investment income	23.8	26.9
Interest expense	(91.5)	(86.1)
Other finance items	(2.3)	(11.9)
<b>Net finance expense</b>	<b>(70.0)</b>	<b>(71.1)</b>

Interest income decreased slightly from \$26.9 million in 2016 to \$23.8 million in 2017. Interest expense increased from \$86.1 million in 2016 to \$91.5 million in 2017. This was mainly due to a full year of interest charges being expensed at Antucoya this year, compared with only nine months in 2016 following the achievement of commercial production on 1 April 2016. This factor was partly offset by the higher capitalisation of interest cost during this year.

The other finance items were an expense of \$2.3 million (2016 – expense of \$11.9 million). This reflected an expense of \$11.6 million for the unwinding of the discounting of provisions (2016 – \$10.0 million) and an expense of \$7.8 million relating to the time value element of changes in the fair value of derivative options (2016 – gain of \$1.0 million), largely offset by a \$17.1 million foreign exchange gain (2016 – expense of \$2.9 million).

## Profit before tax

As a result of the factors set out above, profit before tax increased by 543.3% to \$1,830.8 million (2016 – \$284.6 million). Excluding exceptional items in 2016, profit before tax increased by \$954.8 million or 109.0%.

## Income tax expense

The tax charge for 2017 was \$633.6 million and the effective tax rate was 34.6%. Excluding the impact of exceptional items in the prior year, the 2016 tax charge was \$313.5 million and the effective tax rate was 35.8%.

	Year ended 31/12/2017 \$m	%	Year ended 31/12/2016 \$m	Year ended 31/12/2016 Before exceptional items %	Year ended 31/12/2016 After exceptional items \$m	%
<b>Profit before tax</b>	<b>1,830.8</b>		<b>875.9</b>		284.6	
Tax at the Chilean corporate rate tax of 25.5% (2016 – 24%)	(466.9)	25.5	(210.2)	24.0	(68.3)	24.0
Provision against carrying value of assets (exceptional items)	–	–	–	–	63.0	(22.1)
Effect of increase in future first category tax rates on deferred tax balances	(0.6)	–	(24.6)	2.8	(24.6)	8.6
Adjustment in respect of prior years	(35.4)	1.9	–	–	–	–
Items not deductible from first category tax	(26.7)	1.5	(23.7)	2.7	(23.7)	8.3
Deduction of mining royalty as an allowable expense in determination of first category tax	17.4	(1.0)	8.5	(1.0)	8.5	(2.9)
Credit of tax losses absorbed from dividends of the year	(4.3)	0.2	–	–	–	–
Carry-back tax losses resulting in credits at historic tax rates	–	–	(5.4)	0.6	(5.4)	1.8
Mining tax (royalty)	(78.3)	4.3	(60.1)	6.9	(60.1)	21.1
Withholding taxes	(64.8)	3.5	–	–	–	–
Withholding taxes – adjustment to previous year	–	–	(3.8)	0.4	(3.8)	1.3
Tax effect of share of results of associates and joint ventures	15.2	(0.8)	5.6	(0.6)	5.6	(1.9)
Reversal of previously unrecognised tax losses	9.9	(0.5)	–	–	–	–
Net other items	0.9	–	0.2	(0.0)	0.2	(0.0)
<b>Tax expense and effective tax rate for the year</b>	<b>(633.6)</b>	<b>34.6</b>	<b>(313.5)</b>	<b>35.8</b>	<b>(108.6)</b>	<b>38.2</b>

The effective tax rate varied from the statutory rate principally due to the mining royalty tax (impact of \$78.3 million/4.3%), the withholding tax due on remittances of profits from Chile (impact of \$64.8 million/3.5%), adjustments in respect of prior years, which relate to adjustments made during the year in the deferred tax asset base (impact of \$35.4 million/1.9%) and items not deductible for Chilean corporate tax purposes, principally the funding of expenses outside of Chile (impact of \$26.7 million/1.5%), partly offset by the deduction of the mining royalty tax which is an allowable expense when determining the Chilean corporate tax charge (impact of \$17.4 million/1.0%) and the impact of the recognition of the Group's share of profit from associates and joint ventures, which is included in the Group's profit before tax net of their respective tax charges (impact of \$15.2 million/0.8%).

**+** Further details are given in Note 10 to the financial statements

## FINANCIAL REVIEW CONTINUED

### Profit from discontinued operations

At 31 December 2017 the Group had commenced a process to dispose of Centinela Transmission, the electricity transmission line supplying Centinela and other external parties. As a result of this, its net results (a gain of \$0.5 million) are shown as a discontinued operation in the income statement. In the 2016 comparatives the net results of the Group's former Michilla operation (a gain of \$38.3 million) were shown as a discontinued operation.

### Non-controlling interests

Profit for 2017 attributable to non-controlling interests was \$447.0 million (2016 – \$56.3 million). Excluding the prior year exceptional items the profit attributable to non-controlling interests in 2016 was \$220.9 million.

### Earnings per share

	Year ended 31/12/17 \$ cents	Year ended 31/12/16 \$ cents
<b>Including exceptional items</b>		
Earnings per share from continuing operations	76.1	12.1
Earnings per share from discontinued operations	0.1	3.9
<b>Earnings per share from continuing and discontinued operations</b>	<b>76.2</b>	16.0
<b>Excluding exceptional items</b>		
Earnings per share from continuing operations	76.1	34.7
Earnings per share from discontinued operations	0.1	3.9
<b>Earnings per share from continuing and discontinued operations</b>	<b>76.2</b>	38.6

Earnings per share calculations are based on 985,856,695 ordinary shares.

As a result of the factors set out above, profit attributable to equity shareholders of the Company was \$750.7 million compared with \$158.0 million in 2016, and total earnings per share from continuing and discontinued operations was 76.2 cents per share (2016 – 16.0 cents per share).

Profit from continuing operations and excluding exceptional items attributable to equity shareholders of the Company was \$750.2 million compared with a profit of \$341.5 million in 2016, and earnings per share from continuing operations excluding exceptional items was 76.1 cents per share (2016 – 34.7 cents per share).

### Dividends

Dividends per share declared in relation to the period are as follows:

	Year ended 31/12/17 \$ cents	Year ended 31/12/16 \$ cents
<b>Ordinary</b>		
Interim	10.3	3.1
Final	40.6	15.3
<b>Total dividends to ordinary shareholders</b>	<b>50.9</b>	18.4

The Board determines the appropriate dividend each year based on consideration of the Group's cash balance, the level of free cash flow and underlying earnings generated during the year, and significant known or expected funding commitments. It is expected that the total annual dividend for each year would represent a payout ratio based on underlying net earnings for that year of at least 35%.

The Board has declared a final dividend for 2017 of 40.6 cents per ordinary share, which amounts to \$400.3 million and will be paid on 25 May 2018 to shareholders on the share register at the close of business on 27 April 2018.

The Board declared an interim dividend for the first half of 2017 of 10.3 cents per ordinary share, which amounted to \$101.5 million and was paid on 6 October 2017 to shareholders on the share register at the close of business on 8 September 2017.

This gives total dividends proposed in relation to 2017 (including the interim dividend) of 50.9 cents per share or \$501.8 million in total, an increase of 176.6% (2016 – 18.4 cents per ordinary share or \$181.4 million in total).

The distributable reserves of Antofagasta plc approximate to the balance of its retained earnings reserve and can be increased, as required, by the receipt of dividends from its subsidiaries.

### Capital expenditure

Capital expenditure increased by \$103.9 million from \$795.1 million in 2016 to \$899.0 million. The increase partly reflected increased capitalised stripping costs at Centinela and Antucoya, and higher capital expenditure at the transport division on locomotives and rolling stock. Capital expenditure figures quoted in this report are on a cash flow basis, unless stated otherwise.

### Derivative financial instruments

The Group periodically uses derivative financial instruments to reduce exposure to commodity price movements. At 31 December 2017 the Group had entered into min/max contracts at Centinela and Antucoya for a notional amount of 30,000 tonnes of copper production at each operation, covering a period up to 31 December 2018, with an average minimum price of \$2.50/lb and an average maximum price of \$3.60/lb.

The Group also periodically uses interest rate swaps to swap floating rate interest for fixed rate interest. At 31 December 2017 the Group had entered into interest rate swaps at Centinela for a maximum notional amount of \$35 million at a weighted average fixed rate of 3.372% maturing in August 2018. The Group had also entered into interest rate swaps in relation to a financing loan at the FCAB for a maximum notional amount of \$60 million at a weighted average fixed rate of 1.634% maturing in August 2019.

### CASH FLOWS

The key features of the Group cash flow statement are summarised in the following table.

	Year ended 31/12/17 \$m	Year ended 31/12/16 \$m
Cash flows from continuing and discontinued operations	2,495.0	1,457.3
Income tax paid	(338.4)	(272.6)
Net interest paid	(44.8)	(31.9)
Capital contributions and loans to associates	(45.4)	(10.1)
Acquisition of joint ventures	–	20.0
Disposal of subsidiaries and joint ventures	3.1	10.0
Acquisition of mining properties	(2.3)	(7.0)
Purchases of property, plant and equipment	(899.0)	(795.1)
Dividends paid to equity holders of the Company	(252.3)	(30.6)
Dividends paid to non-controlling interests	(320.0)	(260.0)
Dividends from associates	81.8	10.2
Other items	4.3	0.4
Changes in net debt relating to cash flows	682.0	90.6
Other non-cash movements	(72.2)	(149.0)
Exchange	5.5	10.2
Movement in net debt in the period	615.3	(48.2)
Net debt at the beginning of the year	(1,071.7)	(1,023.5)
<b>Net debt at the end of the year</b>	<b>(456.4)</b>	(1,071.7)



OUTPUT

Cash flows from continuing and discontinued operations were \$2,495.0 million in 2017 compared with \$1,457.3 million in 2016. This reflected EBITDA from subsidiaries for the year of \$2,430.5 million<sup>1</sup> (2016 – \$1,521.7 million) adjusted for the positive impact of a net working capital decrease of \$12.5 million (2016 – working capital increase of \$73.3 million) and a non-cash increase in provisions of \$52.0 million (2016 – increase of \$8.9 million).

The net cash outflow in respect of tax in 2017 was \$338.4 million (2016 – \$272.6 million). This amount differs from the current tax charge in the consolidated income statement of \$509.8 million because the cash tax payments comprise payments on account for the current year of \$294.0 million based on the prior year's profit levels, the settlement of outstanding balances in respect of the previous year's tax charge of \$113.7 million and withholding tax due on remittances of profits from Chile of \$62.1 million, partly offset by the recovery of \$131.4 million relating to prior years.

In 2017 the cash inflow from the disposal of subsidiaries and joint ventures of \$3.1 million related to the disposal of Energia Andina (2016 – \$10.0 million related to the disposal of Minera Michilla).

Contributions and loans to associates and joint ventures of \$45.4 million relate to the Group's funding of Alto Maipo (\$36.0 million accrued at December 2016 and paid in 2017), Tethyan Copper Company (\$9.3 million) and Energia Andina (\$0.1 million).

Cash disbursements relating to capital expenditure in 2017 were \$899.0 million compared with \$795.1 million in 2016. This included expenditure of \$578.3 million at Centinela (2016 – \$534.7 million), \$237.8 million at Los Pelambres (2016 – \$215.3 million) and \$43.6 million at Antucoya (2016 – \$9.4 million).

At 31 December 2017 dividends paid to equity holders of the Company were \$252.3 million (2016 – \$30.6 million), which related to the payment of \$101.5 million as the interim dividend declared in respect of the current year (2016 – \$30.6 million) and the final element of the previous year's dividend of \$150.8 million.

Dividends paid by subsidiaries to non-controlling shareholders were \$320.0 million (2016 – \$260.0 million).

### Financial position

	At 31/12/17 \$m	At 31/12/16 \$m
Cash, cash equivalents and liquid investments	2,252.3	2,048.5
Total borrowings	(2,708.7)	(3,120.2)
<b>Net debt at the end of the period</b>	<b>(456.4)</b>	<b>(1,071.7)</b>

At 31 December 2017 the Group had combined cash, cash equivalents and liquid investments of \$2,252.3 million (31 December 2016 – \$2,048.5 million). Excluding the non-controlling interest share in each partly-owned operation, the Group's attributable share of cash, cash equivalents and liquid investments was \$2,002.0 million (31 December 2016 – \$1,830.2 million).

New borrowings in 2017 were \$272.0 million (2016 – \$938.8 million), including new short-term borrowings at Los Pelambres of \$242.0 million and Antucoya of \$30.0 million. Repayments of borrowings and finance leasing obligations in 2017 were \$759.0 million, relating mainly to repayments at Los Pelambres of \$350.7 million, Centinela \$150.0 million, Antucoya \$223.1 million, the corporate centre \$3.9 million and the transport division \$31.3 million.

Total Group borrowings at 31 December 2017 were \$2,708.7 million (at 31 December 2016 – \$3,120.2 million). Of this, \$2,043.6 million (at 31 December 2016 – \$2,329.7 million) is proportionally attributable to the Group after excluding the non-controlling interest shareholdings in partly-owned operations.

1. Excluding the Group's share of EBITDA from associates and joint ventures.

### CAUTIONARY STATEMENT ABOUT FORWARD-LOOKING STATEMENTS

This Annual Report contains certain forward-looking statements. All statements other than historical facts are forward-looking statements. Examples of forward-looking statements include those regarding the Group's strategy, plans, objectives or future operating or financial performance, reserve and resource estimates, commodity demand and trends in commodity prices, growth opportunities, and any assumptions underlying or relating to any of the foregoing. Words such as "intend", "aim", "project", "anticipate", "estimate", "plan", "believe", "expect", "may", "should", "will", "continue" and similar expressions identify forward-looking statements.

Forward-looking statements involve known and unknown risks, uncertainties, assumptions and other factors that are beyond the Group's control. Given these risks, uncertainties and assumptions, actual results could differ materially from any future results expressed or implied by these forward-looking statements, which apply only as at the date of this report. Important factors that could cause actual results to differ from those in the forward-looking statements include: global economic conditions; demand, supply and prices for copper and other long-term commodity price assumptions (as they materially affect the timing and feasibility of future projects and developments); trends in the copper mining industry and conditions of the international copper markets; the effect of currency exchange rates on commodity prices and operating costs; the availability and costs associated with mining inputs and labour; operating or technical difficulties in connection with mining or development activities; employee relations; litigation; and actions and activities of governmental authorities, including changes in laws, regulations or taxation. Except as required by applicable law, rule or regulation, the Group does not undertake any obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

Past performance cannot be relied on as a guide to future performance.

#### Alfredo Atucha

Chief Financial Officer

# COMMITTED TO CREATING SUSTAINABLE VALUE

Mining is a long-term activity which has an even longer-term impact and the Group seeks to ensure that its business develops on a sustainable basis.

At Antofagasta, the safety and health of the workforce always comes first. The Group is also continuously improving its environmental performance, contributing to the social development of the areas where it operates and maintaining open and transparent communication with local stakeholders.

The sustainability of the Group's business is structured around five pillars: People, Financial Performance, Environmental Management, Social Development and Transparency, as set out in the recently updated Sustainability Policy.

Antofagasta remains convinced its operations allow it to produce lasting positive changes in the communities and regions where it operates. This drives its constant effort to mine in a more efficient, sustainable and inclusive way.

The Group's sustainability priorities are its values, its principal risks and its stakeholders' key concerns and expectations, all of which are reviewed annually by senior management as part of the sustainability reporting process.

## IN THIS SECTION

Sustainability highlights	55
Safety and health	56
Employees	58
Communities	60
Environment	62
Sustainability governance	65



# SUSTAINABILITY HIGHLIGHTS

## DURING 2017, ANTOFAGASTA:

- Achieved its zero fatalities goal, while continuing to improve safety and health performance.
- Updated its Sustainability Policy.
- Set its first carbon emissions reduction target.
- Reached 45% of sea water usage.
- Began implementing a new Environmental Management System to ensure full compliance with its commitments and key risks controls.
- Approved a Diversity and Inclusion strategy.
- Obtained governmental recognition of two new biodiversity areas protected by Los Pelambres
  - Quebrada de Llau Llau and Palmas de Monte Aranda.
- Had its Somos Choapa programme presented at the Chile Architecture and Urbanism Biennial Exhibition as a leading example of innovation in sustainable engagement between mining and communities.
- Was also given an award for the Somos Choapa programme by the Columbia Center on Sustainable Investment for the programme's contribution to the UN's Sustainable Development Goals.
- Adopted 20 ideas from over 100 proposed by employees in the first year of InnovAminerals, the Group's innovation initiative.

## REPORTING AND TRANSPARENCY

This section of the Annual Report summarises the Group's sustainability performance. More information is provided in the annual Sustainability Report<sup>1</sup>, which is published separately, and the CDP's carbon and water questionnaires.

Antofagasta is a constituent of the FTSE4Good Index series, the STOXX Global ESG Leaders Index and the ECPI Global Developed ESG Best-in-Class Equity Index, and has been a member of the ICMM since 2014. Its mining division is a member of Chile Transparente, the national chapter of Transparency International.



1. Prepared in accordance with the GRI reporting standards and ICMM requirements.



# SAFETY AND HEALTH

## PEOPLE COME FIRST

People come first and their safety and health is the Group’s top priority. Antofagasta continuously strives to improve its performance in all matters that could impact its employees, contractors and neighbours.

In 2017 Antofagasta achieved its goal of zero fatalities. The Group remains fully committed to this goal while continuing to work to reduce the number and severity of accidents, which also fell by 18% in its mining division during 2017.

### FOCUS ON FATAL RISKS

In line with international best practice the Group’s safety and health model is based on fatal risk prevention and self-awareness. This applies to the whole workforce, both employees and contractors.

In 2017 further progress was made in standardising and simplifying fatal risk prevention and controls. Antofagasta focuses on 15 fatal risks prevented through 72 critical controls. Employees and contractors are encouraged to take responsibility for their own and their colleagues’ safety through the continuous verification of the implementation of ethical controls, leadership, training, awareness initiatives, public recognition of safe conduct and the use of the best available safety technology.

### REPORTING AND AWARENESS

Visible leadership is paramount to Antofagasta’s Safety and Health Model. The Executive Committee conducts regular onsite safety and health reviews verifying that critical controls for fatal risks are correctly applied. Top management reviews and challenges the investigation of high-potential events and recognises employees who display outstanding safe conduct.

Safety performance is reported weekly to the Executive Committee and monthly to the Board, and the Sustainability and Stakeholder Management Committee reviews any serious safety incidents.

Raising employees and contractors’ awareness of risks and getting them fully committed to their own safety and that of their colleagues, remains a cultural challenge. Their awareness is reinforced through a variety of actions, including intensive onsite supervision, near-miss reporting, training, the wide distribution of information about the causes of severe accidents, extended safety meetings, public recognition of committed workers and increasing collaboration with the Safety and Health Committees of workers and managers.

Safety and health induction courses are mandatory for all new employees and contractors before they are allowed onsite. Refresher workshops on safety policies and procedures are also mandatory and regular events are held to discuss lessons from near-miss incidents and best safety practices.

Safety and health performance targets account for 5% of Antofagasta’s annual performance bonuses.

### CONTRACTORS

Antofagasta requires that all contractors apply its standards and report contractor’s performance alongside its own.

Ensuring contractors fully comply with Antofagasta’s standards remains a major challenge and through 2017 the Group continued to help contractors embed its safety framework in their own practices and procedures. It did this by using its Corporate Guidelines on Safety and Health for Contractors, and providing orientation, training and technical support, while closely monitoring compliance through onsite audits.

### IN FOCUS: INNOVATION TO IMPROVE SAFETY AND PRODUCTIVITY

Equipment maintenance often requires that the power is locked out and isolated, a critical control. However, the locking circuit breakers are often a long way from the equipment that is being maintained, and switching the circuits on and off can account for 25–40% of a maintenance shift. In 2016, 22% of the Group’s high-potential safety incidents were related to problems with isolating power supplies.

The good news is that a mobile power-locking device has been developed that has improved maintenance workers’ safety and increased productivity. This idea originated from a Los Pelambres employee and was turned into reality by an international developer.

This is one of our InnovAminerals projects.



### OCCUPATIONAL HEALTH STANDARDS

The Group developed 10 Occupational Health Standards using the same fatal risks approach, specific controls and regular onsite auditing as for safety. Building on the experience of previous years, progress was made in assuring legal compliance, completing a health baseline, identifying higher exposure groups, raising awareness and standardising the health focus across operations.

Six workers with occupational diseases were identified during the year, three from Zaldívar and three from FCAB. Of these six cases, four are related to work-related stress, one related to altitude sickness and one concerns hearing loss.

### PERFORMANCE IN 2017

In 2017 Antofagasta achieved its zero fatalities goal and is determined to continue with this success. It has also continued to reduce the severity and frequency of accidents. During the year near-miss reporting increased by 162%. These results confirm the value of near-miss reporting, which is one of the pillars of the Corporate Safety Model focused on risk prevention and operational control.

Compliance with the Safety and Health Model is audited twice a year at each site. Additionally, members of the Group's Executive Committee make monthly visits to the sites specifically to review safety and health issues.

#### Lost Time Injury Frequency Rate (LTIFR)<sup>1</sup>

	2017	2016	2015	2014	2013
Chilean mining industry	N/A	1.8	2.0	2.5	2.6
Mining division	1.0	1.2	1.2	1.1	1.1
Transport division	7.3	4.9	10.9	10.3	10.3
Group	1.4	1.5	2.0	1.7	1.9

#### All Injury Frequency Rate (AIFR)<sup>2</sup>

	2017	2016	2015	2014	2013
Chilean mining industry	N/A	N/A	N/A	N/A	N/A
Mining division	7.4	6.9	6.9	5.0	3.9
Transport division	22.0	13.3	17.8	22.2	17.7
Group	8.3	7.3	7.9	6.1	5.1

#### Number of fatalities

	2017	2016	2015	2014	2013
Chilean mining industry	N/A	18	16	27	25
Mining division	-	1	1	5	2
Transport division	-	1	-	-	-
Group	-	2	1	5	2

1. The Lost Time Injury Frequency Rate is the numbers of accidents with lost time during the year per million hours worked.
2. The All Injury Frequency Rate is the total number of accidents during the year per million hours worked.





# EMPLOYEES

## ENGAGED EMPLOYEES ARE COMMITTED TO BUSINESS GOALS

Antofagasta is committed to the wellbeing, motivation and professional development of its employees. It seeks to engage them through its shared values and an attractive offer that enhances the experience of being part of the mining group. The Group actively manages and develops the talents of its employees and strives to maintain excellent labour relations.

In 2017 the Group's average total workforce was approximately 21,360 people, of which about 6,360 were employees and 15,000 contractors.

### LABOUR RELATIONS

The Group recognises employees' rights to union membership and collective bargaining. It has ten unions: four at Centinela, three at Los Pelambres, two at Zaldívar and one at Antucoya, together representing 76% of the total number of employees. In 2017, Antofagasta sponsored 30 labour leaders taking a diploma in Labour Relations from the Universidad Católica de Chile.

In 2017 labour agreements were negotiated with the unions at Los Pelambres, Centinela and Zaldívar. These binding agreements cover salaries, shift patterns and employment benefits and are renegotiated every three years, in accordance with Chilean legislation. Among other provisions, Chilean law limits working hours and forbids both child and forced labour.

The Group's excellent labour relations are based on good working conditions, mutual trust and regular dialogue, and have been successful in reaching fair labour agreements and avoiding strikes.

### CONTRACTOR STANDARDS

Antofagasta is committed to ensuring its contractor workers operate under the same safety and health standards and management system as its own employees. Its contractor companies must comply with mandatory corporate standards regarding human rights, business integrity, minimum salaries and working conditions, including health and life insurance, which must be offered to all their employees. Failure to comply can lead to sanction and even contract withdrawal. The Group regularly audits its contractors to ensure full compliance with these standards.

### ENGAGEMENT

One challenge is to keep employees engaged with the organisation and aligned with the Group's business goals. The Human Resources Model is designed to attract and retain talented and committed employees by offering the opportunity to be part of a growing company with strong corporate values. The Group offers a safe work environment, good quality accommodation, fair pay and opportunities for talent to develop, alongside a healthy work-life balance.

In 2017 labour agreements were negotiated with the unions at Los Pelambres, Centinela and Zaldívar.

**76%**  
of employees are unionised



### DEVELOPING TALENT

Antofagasta has introduced a management system designed to retain employees with key talents by providing them with opportunities for professional growth. Succession plans are in place for key positions and employees in supervisory and managerial positions are offered regular training to further develop their leadership skills. The Group's management strongly believes that internal mobility, training and professional development opportunities foster engaged employees, and 57% of new positions that became available in 2017 were filled by internal candidates.

In 2017, Antofagasta invested \$3.1 million in training, providing an average of 4.8 hours of training per employee per year.

### INCREASING GENDER DIVERSITY

A Diversity and Inclusion Strategy has recently been approved by the Board to increase the Group's capacity to attract and advance the progress of women and to encourage the inclusion of people with different international experience, training and capabilities. These new perspectives and experiences will help the Group develop excellence and increase both productivity and engagement.

In 2017 women represented 9% of the mining division's workforce, of whom 58% were supervisors or above and 10% held senior management roles. There are two female Board directors and one Vice President.



### IN FOCUS: DIVERSITY AND INCLUSION STRATEGY

In December 2017, the Board approved a Diversity and Inclusion Strategy with the goal of achieving greater inclusivity by 2022 and being an employer of choice. This strategy is based on three priorities: increasing gender recognition, expanding opportunities for disabled people and attracting employees with international experience.

The strategy encourages the development of a respectful working environment that promotes collaboration, flexibility and equity in a meritocracy without prejudice through the appropriate training of managers and employees.

The first steps of the implementation plan include onsite workshops at all four mining operations, establishing a baseline and monitoring progress.





# COMMUNITIES

## ENGAGING LOCALLY TO CONTRIBUTE NATIONALLY

Antofagasta contributes to the sustainable development of the regions and communities in which it operates, creating a shared vision for development by engaging in effective, participatory and transparent stakeholder dialogue, as well as recognising controversies and opportunities.

The Group believes the wellbeing of its surrounding communities is a direct enabler of its business success, and strives to prevent, mitigate and compensate for any adverse impact that its activities may have. Antofagasta is convinced its activities bring opportunities for national and local development and is committed to building on these opportunities.

### LONG-TERM ENGAGEMENT AND INVESTMENT

From 2013 the Group made a thorough review of how it engaged with the communities impacted by its activities, introducing a radically new local engagement framework called Somos Choapa (We Are Choapa)<sup>1</sup>. It is based on a methodology devised to sustain ongoing dialogue between the Company, local authorities, neighbours and local organisations to address its impact on the local area; and, on how the Company can contribute to the sustainable development of the region. Participation is a key ingredient of this framework and the first stage of the programme is an open invitation to stakeholders to participate in a series of regional meetings to discuss local challenges and their vision for local development.

As Somos Choapa progresses at each municipality, local development visions are translated into a portfolio of projects and programmes to be financed through public-private alliances and implemented via strategic partnerships. These initiatives are aligned with local priorities and contribute to the UN's Sustainable Development Goals.

### EXTENDING THE PROGRAMME

The Somos Choapa framework includes funding for an integrated technical team of professionals from the fields of social sciences, architecture and strategic design. This team supports the engagement process and the design of projects, ensuring all initiatives carry a recognisable watermark of technical excellence, systemic vision and adaptation to the local context. The experience was presented at Chile Architecture and Urbanism Biennial Exhibition – entitled Unpostponable Dialogues – as a leading example of innovation in the sustainable collaboration between a company, its surrounding communities and local authorities.

By 2017, engagement processes based on Somos Choapa were being rolled out by Centinela with its Sierra Gorda community and by Antucoya with the municipality of María Elena. The Group has named this latter initiative “Dialogues for Development”.

### MEASURING PROGRESS

During 2017 Somos Choapa continued working on the definition of indicators to measure its progress, developed through a participative process combining technical factors with governmental requirements and input from beneficiaries. Some of these indicators will be used to assess the impact of each community investment project and its efficiency. Others will measure the overall contribution of the Somos Choapa project portfolio in improving the wellbeing of communities according to the UN's Sustainable Development Goals (SDG) parameters. The decision to use SDG indicators reflects Antofagasta's willingness to find common ground with public authorities regarding long-term sustainable local development.

1. Choapa is the name of the province where Los Pelambres is located. It includes the municipalities of Salamanca, Illapel, Los Vilos and Canela.



### CONFLICT TRANSFORMATION

In May 2016 over 80% of the residents of Pupío, Rincon and Caimanes, the three communities near the Mauro tailings dam, signed an agreement with Los Pelambres, the Caimanes Agreement, ending a ten-year conflict and inaugurating a new era of co-operation. This agreement included Los Pelambres' contribution to a Community Development Fund that will finance the most popular projects chosen by over 300 residents. This involved a formal transparent selection process following ten preparatory meetings to review the whole project portfolio.

- Caimanes residents decided to build a fire station, buy an area for a planned police station, purchase equipment for the local health clinic, fund repairs to the local church and improve school facilities.
- The residents of Rincón chose to build a clubhouse and to repay a community debt they had taken on to pay for a collective agricultural project.
- In Pupío, the community chose to install solar panels on their houses and to build water storage facilities.

### MANAGING SOCIAL RISKS

#### WATER SCARCITY

Water scarcity remains a major community concern in Los Pelambres' area of influence. Besides adopting operating measures to preserve water (see page 62) and actively participating in local water management initiatives, the Company is leading the public-private Salamanca Agreement to develop long-term solutions such as building a public desalination facility and more irrigation dams.

Ensuring water availability and quality was one of the key issues addressed in the Caimanes Agreement. In 2017 the Company began sealing the contour channel built around the dam that prevents naturally flowing run-off water from reaching the tailings dam below. The Company is also covering other channels that carry this water to the Pupío stream for use by the community and is building two pools for animal drinking water. Lastly, Los Pelambres is collaborating with the Rural Drinking Water Committee on a set of projects to improve local drinking water facilities.

#### EMERGENCY PREPAREDNESS

The Group's tailings dams and other facilities are designed to resist extreme weather conditions and severe earthquakes. The Mauro tailings dam continued to operate normally after an earthquake in September 2015 that reached 8.5 on the Richter scale, and had its epicentre only 50 km from the dam wall.

As legally required, all four of the Group's mining operations have emergency procedures in place, approved by the national mining authority, and response plans co-ordinated with public agencies and other authorities. These plans include preventive and corrective operating measures at each of the sites. At Los Pelambres these plans are supplemented with a special emergency communication procedure designed jointly with the Caimanes community in order to protect neighbours in any emergency situation. This initiative included defining a new safety zone, improving early warning and evacuation procedures, providing emergency transportation for impaired residents to the safety zone, new road signals and a sound alarm, and establishing additional procedures to monitor the Mauro tailings dam.

### IN FOCUS: INNOVATION, REGIONAL DIALOGUE AND PUBLIC POLICY

Antofagasta is a contributor to public-private efforts to ensure Chile remains internationally competitive and becomes a centre for highly sustainable mining practices. Maintaining mining operations' social licence to operate is key to achieving this. One of the public-private institutions supported by the Group, Valor Minero (Mining Value), is developing new institutional processes to implement shared value agreements and to manage potential conflicts from early-stage projects to mine closures.

This initiative has advanced through a series of dialogues at which political authorities, communities, indigenous people, NGOs, mining companies, academics and other stakeholders have exchanged views and contributed their insights. The results will be presented as a Public Mining Policy proposal to Chile's President by mid-2018.

Valor Minero is also organising a pilot regional dialogue in the Sierra Gorda community. The aim is to build a shared value agreement for the area's development and a roadmap for both public and private contributions, taking a similar approach to Antofagasta's Somos Choapa. Participants include the regional presidential representative, Sierra Gorda's mayor, local organisations and the four nearby mines, Centinela (Antofagasta), Spence (BHP), Gabriela Mistral (Codelco) and Sierra Gorda (KGHM).



Under the new framework, community investment priorities come from local residents, who remain involved until the projects are completed, empowering project beneficiaries and increasing effectiveness of the results.

**10**  
preparatory meetings to review project portfolio



# ENVIRONMENT

## THE FUTURE OF SUSTAINABLE MINING

Antofagasta seeks to prevent, mitigate and control the impact of its activities on the environment. The Group remains committed to achieving sustainable and efficient use of natural resources throughout the mining cycle, from exploration to site closure and beyond.

The Group’s environmental stewardship priorities remain:

1. Ensuring compliance with all of its include RCA<sup>1</sup> commitments under its operating permits.
2. Ensuring all key environmental risk controls are in place.
3. Enabling its projects through the early identification and assessment of environmental risks to reduce, mitigate and/or compensate for their impact.

### ENVIRONMENTAL MANAGEMENT

In Chile, mining projects are subject to strict environmental and social impact assessment by the national environmental authority, which includes formal consultation with the local communities. If the project is approved, the impact prevention, mitigation and compensation measures proposed as part of the application become legally binding commitments set out as RCAs in the operating permit. The Environmental Superintendency regularly reviews these commitments and non-compliance can result in severe fines and even revocation of the operating permits.

Antofagasta’s mining operations have a total of 54 RCAs listing some 6,500 environmental commitments. These commitments are now centrally administered through Antofagasta’s updated Environmental Management System, which is similar to the Safety System and focuses on key risk prevention, specific controls, audits and the reporting of near-miss incidents.

In 2017, Los Pelambres submitted the Environmental Impact Assessment (EIA) for its Incremental Expansion Project, and this was approved early in 2018.

1. Resoluciones de Calificación Ambiental (Environmental Qualification Resolutions).

### ENVIRONMENTAL COMPLIANCE

In October 2016 the Environmental Superintendency raised charges against Los Pelambres for delayed or incomplete compliance with some of its RCA commitments. The Company reacted by conducting an in-depth review of its internal processes to understand how these compliance gaps had occurred and to accelerate implementation of the new corporate Environmental Management System. The review found that some smaller and older commitments had been missed by the original control system; interpretations of other commitments had evolved over the years, and audit standards had changed.

Towards the end of 2017 the Environmental Superintendency accepted the compliance programme proposed for Los Pelambres and suspended the charges raised in 2016.

The Group had no significant operating incidents with environmental impact in 2017.

### WATER MANAGEMENT

The Group pioneered the use of raw sea water in its mining operations in the 1990s and currently 45% of its total water consumption comes from the Pacific Ocean. The main loss of water is through evaporation and no water is discharged into waterways. The Group has achieved a high reuse rate, which varies from 76–93%. Residual water remains inside the tailings dams. In 2017 Antofagasta consumed 36.5 million m<sup>3</sup> of continental water.

#### IN FOCUS: ENSURING ENVIRONMENTAL COMPLIANCE

Antofagasta’s updated Environmental Management System is based on its successful corporate Safety System. Both focus on preventing key risks, assigning each risk to regularly audited specific controls and encouraging the reporting of near-miss incidents. Executive-led onsite verification now considers environmental matters as well as safety.

The new Environmental Management System’s implementation began with a review of the four operations’ RCAs, applying one common standard, and by the end of 2017 some 6,500 commitments within the RCAs had been fully reviewed. Their descriptions and controls were then standardised for the first time, and their respective compliance conditions were assessed using the Environmental Superintendency’s audit criteria.



Water quantity and quality are monitored by national authorities, and jointly by local communities and the mining operations, to improve transparency.

Los Pelambres uses continental water from the Choapa river, which is a water-stressed zone. This is why the Company's Incremental Expansion project, approved in February by environmental authorities, includes a desalination plant to supplement the mine's demand in case of a drought. Also, the Company is an active member of the public-private alliance in charge of finding long-term solutions to local water shortages.

**MINING WASTE**

Mining waste takes the form of waste rock, spent ore and tailings, which are left over after the valuable portion of the ore has been separated from the uneconomic portion. As Antucoya, Zaldívar and Centinela Cathodes use leaching to produce copper, their waste goes to fully-permitted spent ore dumps. Los Pelambres and Centinela Concentrates use flotation and deposit their mining waste in licensed tailings storage facilities.

Centinela was the first large-scale copper mine in the world to use thickened tailings technology that is more water-efficient, makes tailings more stable and offers better dust control. Its expansion project will also use thickened tailings.

**CLOSURE PLANNING**

Antofagasta has no operations close to closure. The nearest is Zaldívar, but the Group is working on plans to extend its life.

Chilean legislation requires mining operations to have comprehensive closure plans approved by Sernageomin (the National Geology and Mining Service). Approved plans are required before environmental approval of new projects is granted and must be updated at least every five years while the mine is operating. Closure plans focus on preventing pollution and ensuring tailings dams' physical and chemical stability. They also consider the funding of closure activities and the financial provisions for its implementation.

**CLIMATE CHANGE**

The effects of climate change can be observed in northern and central Chile through higher than average temperatures and reduced rainfall.

One of Antofagasta's priorities is to reduce the intensity rate of GHG emissions arising from the Group's growth by investing in renewable energy sources. Renewables now account for 21% of the Group's total energy consumption.

In 2016 the Group designed an integrated climate change strategy based on:

- identifying risks and opportunities
- encouraging innovation for cleaner and more efficient energy sourcing
- committing to measuring progress and transparent reporting under CDP
- setting an obligation to mitigate GHG emissions.

In early 2018 Antofagasta set its first carbon reduction target – to reduce forecast CO<sub>2</sub> emissions over the period 2018 to 2022 by 300,000 tonnes – which it will achieve by implementing projects that have been selected after two years of studies.

The Group's emission reduction will also benefit from the interconnection of Chile's two main power grids that should be completed in 2018. Interconnection will increase the proportion of renewable energy available in the north of the country and so, over time reduce, the carbon intensity of Centinela, Antucoya and Zaldívar.

**IN FOCUS: TOWARDS ZERO WASTE MINING**

Mining the raw material the world needs to produce computers, circuitry, wiring, batteries and structural components can result in dangerous by-products. Advancing towards Zero-Waste mining is a significant challenge and a tremendous opportunity for innovation.

The Chilean Mining Consortium is a public-private alliance between the country's four leading copper operators and Corfo (Chile's innovation agency). It is committed to making Chile a global innovation hub for sustainable and inclusive mining.

In 2017 the Consortium sponsored the XPRIZE Grand Challenge inviting innovative solutions to the challenge of Zero Waste Mining. The prize will be awarded to a "moonshot" idea or technology aiming to extract critical metals, minerals and rare earth elements without solvents, strip-mining or stockpiles, ensuring water contamination ceases to be a threat.

See more at: [www.xprize.org/visioneers/teams/zero-waste-mining](http://www.xprize.org/visioneers/teams/zero-waste-mining)



**ENVIRONMENT CONTINUED**

**CO<sub>2</sub> emissions in 2017 (tonnes of CO<sub>2</sub> equivalent)**

Mining division	Scope 1 Direct emissions		Scope 2 Indirect emissions		Total emissions		CO <sub>2</sub> emissions intensity	
	2017	2016	2017	2016	2017	2016	2017	2016
Los Pelambres	195,362	172,227	500,040	493,065	665,402	665,292	2.02	1.87
Centinela	334,019	358,134	969,598	941,521	1,303,617	1,299,655	5.71	5.73
Antucoya	177,051	99,918	243,060	199,524	420,111	299,442	5.22	4.52
Zaldívar	147,985	165,590	357,932	364,689	505,917	530,279	4.89	5.13
Corporate offices	212	124	1,306	1,210	1,518	1,334	-	-
<b>Total for mining division</b>	<b>854,628</b>	<b>795,994</b>	<b>2,071,937</b>	<b>2,000,010</b>	<b>2,926,565</b>	<b>2,796,004</b>	<b>3.87</b>	<b>3.67</b>

1. Total CO<sub>2</sub> emissions per tonne of fine copper produced (Scopes 1 and 2).

**SUSTAINABLE ENERGY**

Energy represents around 19% of the mining division’s total cash costs. Antofagasta is already very energy-efficient and has succeeded in securing renewable energy for Los Pelambres from several wind and solar sources. In 2017 renewables accounted for 54% of Los Pelambres’ total energy requirement, and 21% of the Group’s.

In 2018 when Chile’s two main electricity power grids’ interconnection is completed, renewable energy will become available to supply mining operations in northern Chile where Centinela, Antucoya and Zaldívar are located. A decrease of their emissions intensity is to be expected when their PPAs expire, the first of which is in 2020.

**BIODIVERSITY AND HERITAGE**

The Group has no operations in protected areas. Its biodiversity challenges are mainly at Los Pelambres as it is at the head of the Choapa Valley, which is an area rich in biodiversity. Since it started operating the Company has undertaken several biodiversity projects including the restoration of a coastal wetland recognised under the Ramsar Convention that had become an illegal waste dump, and the protection of Santa Ines, a rare temperate relict rainforest. In 2017 Los Pelambres also obtained government recognition for two new biodiversity areas already under its protection, the Llau Llau ravine and Palmas de Monte Aranda, one of the last remaining Chilean palm forests. Los Pelambres now protects over 25,000 hectares of high conservation value land.

The Choapa Valley is also rich in archaeological remains of the ancient cultures that inhabited this area, about which there is still much to be discovered. Some of these remains had to be rescued and moved when the Mauro tailings dam was built. These items are exhibited in the Parque Rupestre Archaeological Centre, a large openair museum, and the Campesina Cultural Centre, which is dedicated to preserving the cultural heritage of the area.

**Antofagasta set its first carbon emissions reduction target**

**Antofagasta has no significant gaseous emissions other than GHG**

**Two new nature conservancy areas were established in Chile during 2017 and placed under private conservation by Los Pelambres**

# SUSTAINABILITY GOVERNANCE

Antofagasta believes in developing effective, accountable and transparent institutions. To this end, it has established guidelines and internal regulations that set out the Group's commitment to conduct its business responsibly.

Antofagasta wants to be known for having honest and transparent business practices that respect human rights and the law.

In April 2017, Antofagasta's Board approved a new Sustainability Policy completely updating its previous one from 2008.

## BOARD INVOLVEMENT

Antofagasta's Board is supported by five committees including a Sustainability and Stakeholder Management Committee that met eight times in 2017. The Vice President of Corporate Affairs and Sustainability oversees the Group's safety, environmental, communications and public affairs, and the mining operations and the transport division each have safety and health, and environmental managers.

Sustainability targets, related to safety, organisational capabilities, community relations and environmental compliance account for 25% of the Group's annual performance goals and impact the bonuses of every employee.

Further information on the Board and its Sustainability and Stakeholder Management Committee can be found on pages 96 to 97.

## BUSINESS INTEGRITY

The Group's Code of Ethics guidelines are mandatory for the Directors, executives, employees and contractors. Its Crime Prevention Handbook describes conflicts of interest and establishes an anonymous whistleblowing procedure. In 2017, an internal communications campaign encouraged employees to use this to clarify doubts and report inappropriate behaviour. All employees must complete a declaration to prevent potential conflicts of interest and participate in compliance workshops. Contractor companies are also trained in compliance standards and are expected to report unethical behaviour.

Further information on the Group's Code of Ethics and Crime Prevention Handbook can be found on page 18.

## PAYMENTS TO GOVERNMENTS

Antofagasta makes payments to governments relating to activities involving the exploration, discovery, development and extraction of minerals. In June 2017, the Group published its second report detailing its mining division's payments to governments for the year ended 31 December 2016. These payments were primarily taxes paid to the Chilean government, and mineral licence fees. In 2016 these payments totalled \$74.1 million, of which 99.7% were paid in Chile. The full report is available on the Company's website at [www.antofagasta.co.uk](http://www.antofagasta.co.uk).

Chilean law allows political donations subject to certain requirements, but Antofagasta made no donations in 2017. However, it often contributes financing for projects benefiting local communities in alliance with the local municipalities and the government. These contributions are regulated by some specific laws and reviewed by the Chilean Internal Revenue Service.

## COMPLIANCE

Antofagasta's risk management and compliance function is responsible for the corporate compliance programme that is overseen by the Board's Audit and Risk Committee.

Group suppliers are required to provide specific information including their safety, anti-corruption, antitrust, modern slavery and other procedures.

+ Further information can be found in the Risk Management section on page 18

## HUMAN RIGHTS

Antofagasta respects and supports human rights by:

- providing high safety and health standards, fair wages and good labour relations
- preventing discrimination, harassment and bullying
- complying with the UK Modern Slavery Act
- providing good-quality accommodation, services and facilities and opportunities for training and development
- preventing corruption and malpractice
- preventing or mitigating adverse environmental and social impacts
- respecting communities' rights, culture and heritage
- engaging in dialogue throughout the mining lifecycle from exploration to closure
- responding to grievances
- supporting community development.

In 2017 the Group adopted a Diversity and Inclusion Strategy to provide female employees with more career opportunities and to become a more inclusive employer while fostering diversity.

Only the Zaldívar operation needs to engage with an indigenous community who live in Peine, 100 km away from the mine. Relations with the community are good and are conducted in accordance with the provisions of the ILO 169 Covenant, ICMM Guidelines and Antofagasta's Sustainability Policy.

Corporate due diligence of suppliers' legal compliance includes key human rights issues such as general working conditions, preventing child labour and preventing discrimination, harassment and other abuses. These are regularly audited by each company and also by the corporate centre.

## MODERN SLAVERY ACT

In compliance with the UK's Modern Slavery Act 2015 the Group has published a statement setting out the steps taken to ensure that slavery and human trafficking are not occurring in its supply chain or in any part of its business. This statement is available at [www.antofagasta.co.uk](http://www.antofagasta.co.uk).

The Strategic Report has been approved by the Board and signed on its behalf by:

**Jean-Paul Luksic**  
Chairman  
12 March 2017

**Ollie Oliveira**  
Senior Independent  
Director