SOUTH32

FY17
OUR APPROACH TO CLIMATE CHANGE

CONTENTS

SOUTH32

FROM THE CEO, GRAHAM KERR

Action on climate change is consistent with the creation of value for our shareholders.

We are the last generation that can do something about climate change, and we all have a role to play. To continue to make a difference in people's lives now and for generations to come, we need to manage the risks and seize the opportunities climate change brings.

Resources companies have an important role to play in supplying the materials needed to create a more prosperous future and a lower carbon economy. We have integrated the management of climate change into our business strategy.

The Taskforce on Climate-related Financial Disclosures (TCFD) voluntary disclosure guidelines ask that private businesses disclose their climate change risks and opportunities. Following the TCFD guidelines, we are openly sharing how we view and respond to climate change issues, which are explained in detail in this communication.

To ensure the sustainability of our business, we will regularly review the commodities and operations in our portfolio. Using the TCFD guidelines we have tested our portfolio under different climate related scenarios to help us understand the possibilities and uncertainties ahead.

We have our Climate Change Strategy which is built on three focus areas: climate change opportunity, climate resilience and emission reduction. Each year we commit to reporting on the progress of this strategy, including the targets and goals we have set ourselves to achieve. In a scenario where there is a far more rapid reduction in global emissions than we see today, our commodity exposure, the position of our assets within their industries and our strong balance sheet creates financial resilience.

In FY17 we reduced our emissions by three percent compared to FY16. We take our responsibility to minimise our energy use and our emissions seriously. We are committed to reviewing our emission reduction approach every five years from 2021 to ensure we continually monitor and improve progress towards our goal of net zero emissions by 2050. We support this and the other long-term objectives of the global Paris Agreement decided at the 21st Conference of the Parties in 2015.

We want to work together to take care of each other and our natural environment, to be able to create a better shared future for everyone. To achieve this, we need a smooth transition to a world that manages to avoid more than two degrees of warming and we are committed to playing our part.

Graham Kerr
Chief Executive Officer

> "We need a smooth transition to a world that manages to avoid more than two degrees of warming and we are committed to playing our part."
>
> **Graham Kerr**

ABOUT SOUTH32

Our purpose and values

Our purpose is to make a difference by developing natural resources, improving people's lives now and for generations to come. We are trusted by our owners and partners to realise the potential of their resources.

Our values guide the decisions that we make every day and how we work with each other, our stakeholders and the environment:

- Care – We care about people, the communities we are a part of and the world we depend on
- Trust – We value difference, listen and share, knowing that together we are better
- Togetherness – We deliver on our commitments and rely on each other to do the right thing
- Excellence – We are courageous and challenge ourselves to be the best in what matters

Our operations

We are a globally diversified metals and mining company with operations in Australia, Southern Africa and South America. We mine and produce bauxite, alumina, aluminium, energy and metallurgical coal, manganese, nickel, silver, lead and zinc.

Our headquarters are in Perth, Australia. Our Johannesburg office in South Africa supports our African operations, and our Perth office supports our Australian and South American operations. Our marketing activities are managed from Singapore and London.

Securities for South32 trade on the Australian Securities Exchange (ASX), Johannesburg Stock Exchange (JSE), and London Stock Exchange (LSE) under the listing code of S32.

Our strategy

Our business strategy is to invest in high-quality metals and mining operations that allow our distinctive capabilities and regional model to stretch performance in a sustainable way.

We will continue to:

- Optimise the performance of our existing operations
- Unlock their potential by converting high value resource into reserve
- Identify new opportunities to compete for capital

By maintaining financial discipline, we will deliver sector leading total shareholder returns.

Our approach to climate change

The impacts of climate change are increasingly being felt around the world through changing weather patterns, regulation and societal expectations. As a diversified global mining and metals company we are working to avoid and manage climate change risks, as well as take advantage of the opportunities we have to create a more prosperous future for our business, society and future generations. Further detail on our Climate Change Strategy can be found on pages 6, 7 and 8.

We are committed to the Paris Agreement objectives and will continue to align our climate change response with the United Nations Framework Convention of Climate Change (UNFCCC) actions, the Intergovernmental Panel on Climate Change (IPCC) scientific reports and national legislation as it emerges. Our approach to mitigating climate change risk, and taking advantage of opportunity, is integrated into our business strategy.

GOVERNANCE AND RISK MANAGEMENT

Our Sustainability Committee (Committee) represents and assists the Board in managing climate related opportunities and risks. The Committee's work is supported by the Chief Executive Officer, the Chief Operating Officer Australia, the Chief Operating Officer Africa and the Chief Sustainability Officer.

The Committee also discharges its responsibilities in reviewing and approving the South32 Sustainability Policy every two years, which includes the position, "To meet the challenge of climate change, we work to reduce our greenhouse gas emissions. We monitor our impact to avoid compromising the ecosystems which provide resilience against climate change for our host communities." The Committee receives at least two updates each year on the implementation of South32's Climate Change Strategy. At a management level, climate related responsibilities are assigned to the Head of Sustainability and Reporting, who manages the strategy implementation and provides progress reports on the control of risks and implementation of opportunities to the Committee.

The Committee also:

- Reviews and approves reporting, including disclosures of material climate related risks
- Recommends to the Remuneration Committee key performance indicators for the greenhouse gas emission component of the annual incentive plan for the Chief Executive Officer and the Lead Team; and determines the outcome for referral to the Remuneration Committee
- Reviews and endorses our public climate related targets
- Reports to our Risk and Audit Committee on material climate related risks

Climate change related risks are governed as part of the Company's risk management framework. We disclose and manage material climate related risks in much the same way we manage financial risks to our operations and long-term strategy.

Our Risk and Audit Committee's work is supported by the Chief Executive Officer, Chief Financial Officer, the Vice President Financial Reporting and the Vice President Risk and Assurance. Regional Risk and Audit Committees also assist the Risk and Audit Committee and our Board.

Our risk management framework sets out the overall approach to risk management including how we identify, monitor and manage material risks associated with our activities. This framework applies to all employees, Directors and contractors of the Company and its subsidiaries.

More information about our governance of risks and assessment of strategic opportunities can be found at *www.south32.net*.

> "To meet the challenge of climate change, we work to reduce our greenhouse gas emissions. We monitor our impact to avoid compromising the ecosystems which provide resilience against climate change for our host communities."

CLIMATE CHANGE RISKS AND OPPORTUNITIES

The combination of our operating leverage and stronger commodity prices underpinned strong financial performance in FY17. We generated free cash flow including equity accounted investment distributions of US$1.9 billion for a net cash position of US$1.6 billion at year end. Our strong balance sheet and simple capital management framework supports our overall resilience to climate change risks and enables us to take advantage of climate related opportunities.

The climate change risks outlined in this document are not listed in order of significance and are not intended to be exhaustive. They reflect the most significant risks currently identified for our company. Risks and opportunities will vary depending on how the world responds to climate change.

Globally, if we exceed more than two degrees of warming, the physical risks of climate change become more prevalent and include both acute risks (e.g. from extreme weather events) and chronic risks (e.g. droughts or heatwaves), which could harm the health of society and ecosystems.

If the world collectively mitigates climate change and avoids two degrees of warming, there will be opportunities and risks that emerge from how this transition is managed.

Table 1 summarises the climate related risks, mitigation options and opportunities relevant to our business today, both in a future that exceeds and in a future that avoids more than two degrees of warming. These are the most significant risks we have identified. Separately, the specific opportunities and risks to our business under climate related scenarios are outlined from page 10.

> “If the world collectively mitigates climate change and avoids two degrees of warming, there will be risks and opportunities emerging as a result of how this transition is managed.”

Table 1 South32 climate related risks, mitigation options and opportunities

Topic	Risks	Mitigation and opportunities
Policy	Carbon pricing policies including carbon taxes, cap and trade systems and any other regulatory carbon pricing mechanisms may increase costs for companies with liable carbon emissions. Water and biodiversity regulation may become more stringent as pollution concerns or scarcity pressures increase. As our stakeholders, including customers and suppliers, are likely to be subject to similar changes in policy, we may face changing commercial requirements to meet regulatory changes in jurisdictions outside of our own operating environments.	The implementation of projects to meet our voluntary carbon emission reduction target, which includes a net zero carbon emission goal by 2050 consistent with the Paris Agreement, will reduce the risk and/or scale of the risks of penalties around carbon emissions. To date, there is no material financial risk to our business from current carbon pricing policies. Through our focus on innovation and technology, we are working to reduce our land requirements, biodiversity impacts, waste, carbon and water usage over time. As our internal voluntary performance standards drive lower footprint operations, we aim to be ahead of policy change and avoid the risk that more stringent future policies could pose. We include a short run regional and long-run global carbon price(1) in our capital allocation and investment decisions, to ensure we fairly reflect the cost of carbon pricing on our business, thereby allowing us to allocate capital effectively.
Legal	Increased litigation against governments and companies, either seeking compensation for damages caused to them because of climate change impacts or to force greater action on climate change(2).	Litigation is likely to be of lower risk for us than for other higher emitters or companies whose main source of revenue is drawn from products that are unlikely to be needed in a world that successfully mitigates climate change. In FY16, less than 15 percent of our revenue was drawn from sales of energy coal. Our energy coal business is also assigned a book value close to zero (see page 10 onwards). Our actions and progress on our Climate Change Strategy demonstrate that we are taking meaningful action to transition to a low carbon and more climate resilient way of operating.
Technology changes	Difficulties in integrating new technologies with existing systems, the cost of new technologies and the unproven nature of new technology could reduce productivity and profit margins. There are also risks around the disruptive nature of new technologies that may change demand for our products (see 'market changes' below).	We have developed a Technology Roadmap that focuses on opportunities to improve productivity and safety through technology and innovation while reducing costs, risks and the environmental and social footprint of our operations.
Market changes	The supply and demand for our commodities may change as technology changes and consumer demands shift. Markets are increasingly directing money towards greener products and solutions creating a risk of lower or more competitive access to finance and investment. As governments and other companies take action on climate change, we may be exposed to higher costs for products on which we rely such as, electricity, coking coal or water.	We monitor the global environment, conduct detailed assessments of commodity markets and regularly update our supply and demand forecasts so that we can quickly respond to change. Several commodities would benefit from a transition to a low carbon economy. We see opportunities to create shared value by focusing our business on these commodities. We aim to be well positioned to take advantage of customer needs, including providing lower carbon products.
Reputation	If we fail to implement strategies across our business to address climate related risks, our reputation with a broad range of stakeholders may be harmed. This may make it harder to attract and retain talent, obtain and maintain licences to operate and attract investment capital and partners.	We support a globally competitive and broad based price on carbon. We recognise that increased levels of warming will have material negative impacts for society and our business in the long-term. Companies that show meaningful progress in reducing their own emissions and encourage the development of better policy could achieve reputational benefits and avoid risks to profit margins.
Physical risks (acute and chronic)	We mine geologically bound ore bodies, connected by rail, road, ports and sea. These may experience production and logistics delays as a result of extreme weather events (e.g. bushfires, cyclones and flooding). In addition, droughts, heat extremes or unseasonal weather variability could create water stress or contribute to the spread of disease, also impacting operations. The physical impact of climate change may also increase rehabilitation and/or closure liabilities. Climate change physical risks may also result in uninsurable risks. Physical risks can translate into social risks including potential conflict over access to natural resources. Regions with poorly developed social support systems could be vulnerable to the physical impacts of climate change. This could result in risks of decreased food and water security creating a challenging operating environment.	One of the core objectives of our Climate Change Strategy (see page 6) is to build the resilience of our operations so they can adapt to a changing climate and return to normal following extreme weather or other acute events. The two main avenues to build physical resilience identified in our Climate Change Strategy are: 1. Intelligent Land Management (ILM) - an integrated social, environmental and economic approach to achieving climate resilience. 2. Climate modelling - of changes in weather, including rainfall to better predict the physical risks our operations may be exposed to and to pro-actively mitigate or adapt to these risks. We use the World Resources Institute Aqueduct tool to screen our operations for water scarcity and oversupply risks. In addition to understanding how the weather is changing and planning our operations to be resilient against this, we also run community development programs to build economic resilience that buffers against climate change impacts.

(1) Our global and regional internal carbon prices are revised annually to reflect the national and global trends in climate policy and carbon pricing.
(2) Please see https://www.law360.com/articles/766214/emerging-trends-in-climate-change-litigation for a list of recent climate change litigation cases.

SOUTH32 CLIMATE CHANGE STRATEGY

We developed and began implementing our Climate Change Strategy in our first year of operation to ensure we take advantage of opportunities and mitigate or adapt to climate related risks.

Our Climate Change Strategy is focused on three areas:

1

Climate change opportunity – Managing our portfolio to ensure our products remain in demand and resilient in a world impacted by climate change. We are committed to:

- Continuing to provide the raw materials that support climate action and enable the transition to a lower carbon future
- Working in partnership with green finance providers and other stakeholders, to create long-term benefits to society and the environment

CASE STUDY

Climate change opportunity: What else should be in our portfolio?

We completed an analysis of the types of commodities not yet in our portfolio that are likely to be required in a world constrained by carbon. We have assessed a wide range of value chains and emerging trends in energy markets, consumer preferences and emerging technology. Our annual strategy day with our Board and Lead Team, references our ongoing work in this area. Accordingly, we have chosen not to develop any new greenfield energy coal basins.

2

Climate resilience – To work towards climate resilience for our communities and operations, we need to understand and respond to the physical (both acute and chronic) impacts of climate change. We are committed to:

- Implementing ILM projects, whereby land holdings are used to create enduring social, economic and environmental value for society, environment and our business through projects such as water protection and biodiversity conservation
- Incorporating climate change modelling in our capital allocation and investment decisions to make our host communities and operations more resilient to the acute and chronic physical impacts of climate change

CASE STUDY

Climate resilience: ILM at Illawarra, New South Wales, Australia

Just five percent of our land holdings are disturbed by mining. Most is buffer land, which we use to protect our neighbours. To achieve climate resilience we decided to begin to transform these buffers, which are otherwise unused, into areas that increase climate resilience and generate shared financial, social and environmental value. One of our first ILM projects was designed and created at Illawarra Metallurgical Coal. The New South Wales Government had developed the Biodiversity Banking and Offsets Scheme to address the loss of biodiversity values, including threatened species from habitat degradation and loss. Land managed under this scheme generates 'biodiversity credits' which can be sold to either offset the impact of development or retired for those seeking to invest in conservation. In FY17, we participated in the bio-banking scheme and contributed 84 hectares of land to conserve endangered ecological communities and species that live there, such as koalas. The revenue from the sale of the bio-banking credits goes into a trust that supports the ongoing management of land into perpetuity, with any additional revenue going to support future ILM projects. This ILM project creates climate resilience because it protects at risk water resources, sequesters carbon and provides land for biodiversity to thrive, despite increasing climate and development pressures.

CASE STUDY

Climate resilience:
Climate modelling at Worsley Alumina, Western Australia, Australia

Our mine planning process screens our operations for potential exposure to water supply and variability risks using the World Resources Institute (WRI) Aqueduct Tool. Operations in stressed or variable regions are scenario tested to better understand the risk and to determine the long-term implications for the business and the wider catchment.

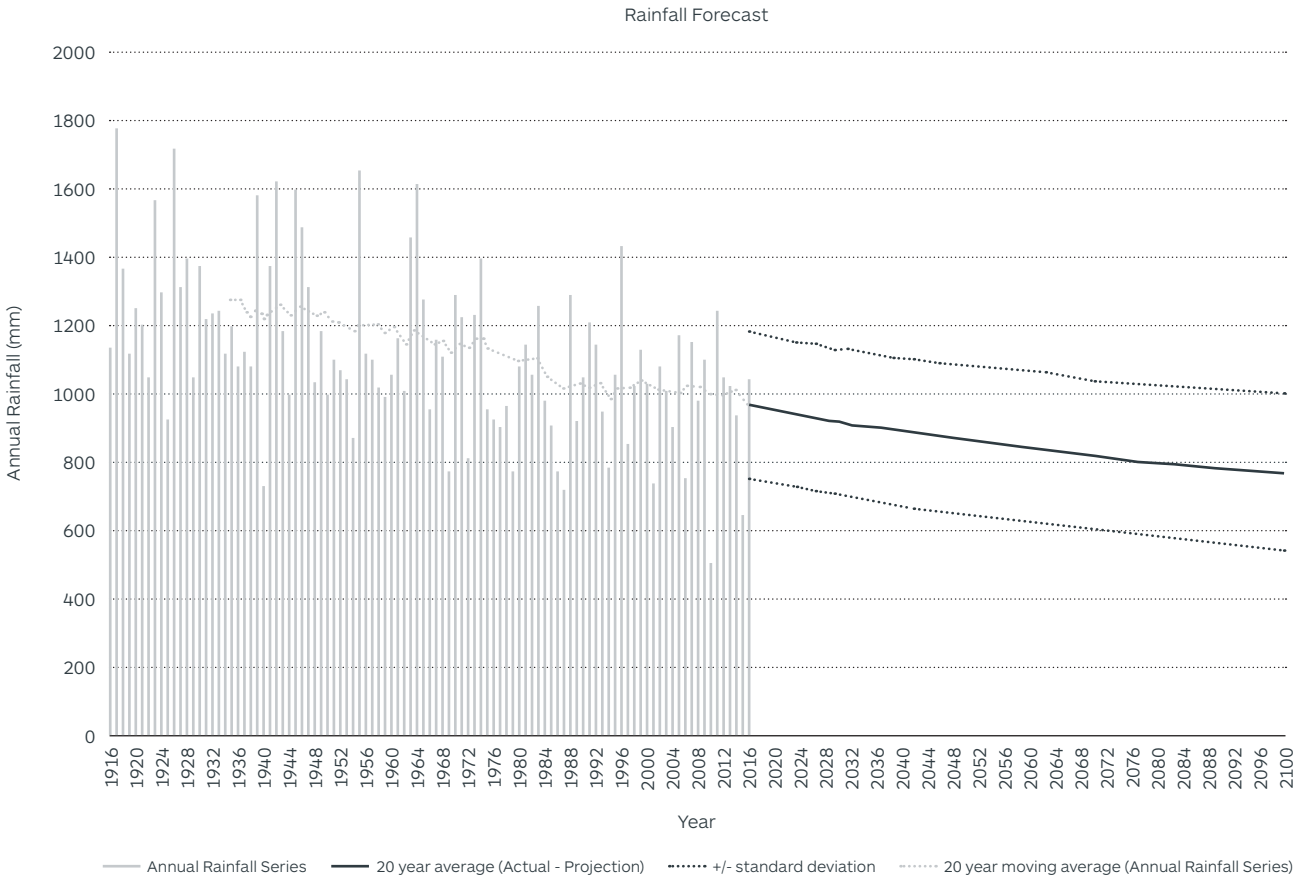
Worsley Alumina has experienced a water shortage due to significant changes in precipitation patterns in recent years. It is identified as being within a 'water variable' region and likely to experience increasing periods of water scarcity as well as more intense weather events which may result in water oversupply.

To understand how this would change over time, we worked with scientists to conduct local area climate modelling. As Worsley Alumina has water supplied through dams relying on surface water feeds, the climate modelling was based on rainfall and runoff (See Diagram 1).

Our climate modelling showed that there is a significant and likely ongoing drying trend in the South West of Western Australia. We can forecast the magnitude and timing of this trend, and this information can then be used to develop future mitigation strategies including continuing efficiencies, recycling and reuse, or exploring different sources of water supply.

In FY17 we completed construction of a new water supply pipeline to a local third party surface non-potable water source to secure adequate water supply in the short to medium-term. We will continue to investigate long-term water supply solutions.

Diagram 1 South West of Western Australia, rainfall trends since 1916



Source: South32 internal climate modelling, 2017

3

Emission reduction – Working towards reducing the carbon emissions released to the atmosphere to mitigate climate change. We are committed to:

- Reviewing our carbon emission reduction approach every five years from FY21, in line with the Intergovernmental Panel on Climate Change updated scientific reports, to ensure we make a pragmatic and affordable transition toward the global goal of achieving net zero carbon emissions by 2050 (See Diagram 2)
- Meet any gaps between our actual carbon emissions in FY21 and our stated targets by purchasing carbon offsets, if required. Our short-term carbon emission reduction target is to stay below our FY15 scope 1 carbon emission baseline of 11,025 kt CO_2-e in FY21[3]

Scope 3 emissions

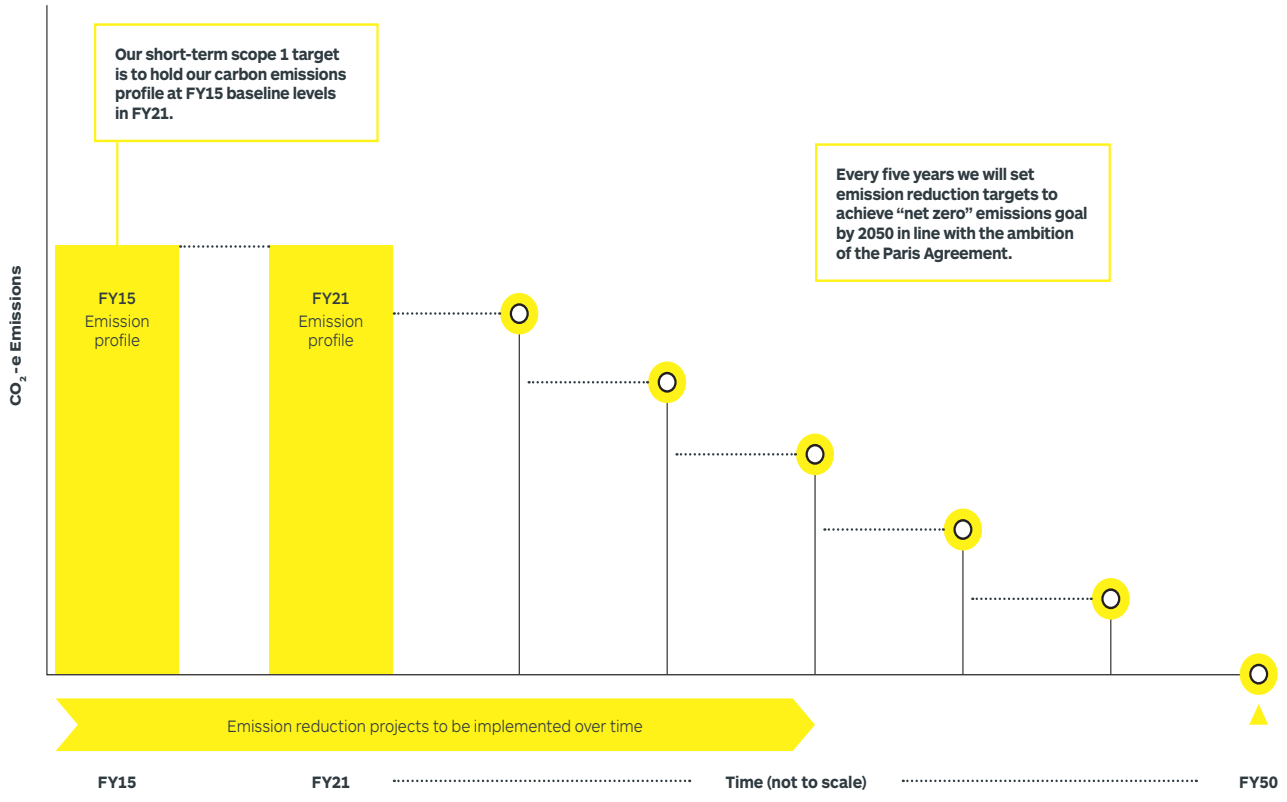
We have calculated the indirect emissions from our value chain (scope 3) for the first time in FY17, which equates to 125 million tonnes of CO_2-e. Understanding our scope 3 emissions helps us identify potential carbon emission risk in our value chain. This is because high carbon products may be exposed to substitution, or the cost of products and services we buy could increase as a result of pricing carbon.

Approximately 90 percent of our scope 3 emissions come from the use of our energy and metallurgical coal downstream.

We have completed a risk and opportunity analysis on our energy and metallurgical coal operations in a two degree or less scenario on pages 16 and 15 respectively.

A detailed breakdown of our emissions performance, including the scope 3 calculation methodology, can be found on our website. Our emission reduction targets are linked to all bonus payments and incentives, including at Lead Team level.

Diagram 2 Our long-term emission reduction framework



(3) The carbon emission reduction target is based on absolute, scope 1 carbon emissions and in the event of any mergers, acquisitions or divestments the FY15 baseline will be recalculated.

CASE STUDY

Emission reduction: Cerro Matoso reducing carbon emissions, Córdoba, Colombia

At Cerro Matoso, we implemented a series of projects to reduce carbon emissions. We reduced coal and gas consumption by improving the efficiency of the kilns and dryers and cut gasoline use by optimising our vehicle fleet. These improvements reduced Cerro Matoso's scope 1 carbon emissions by four percent (approximately 25kt CO_2-e). We will continue to explore carbon emission reduction initiatives to achieve our FY21 target.

CARBON PRICING

We believe that carbon pricing is an effective mechanism to efficiently reduce carbon emissions. We support carbon pricing that is globally competitive and broad-based, covering all industry sectors and all possible carbon emission sources. We would like to see the revenue raised from carbon pricing used to support the transition to a low carbon future. We review our forecast of the global carbon price annually and apply specific regional carbon prices in our valuations, planning and capital expenditure decisions.

We recognise that policies need to be introduced to address climate change. We support policy that helps us meaningfully transition to a low carbon economy, because sharp policy change to avoid climate change and the cost of inaction could impact value for shareholders in the long-term.

SOUTH32 SCENARIO METHODOLOGY

To create value for our communities, people and shareholders, and to ensure our portfolio remains competitive, we need to understand the impact climate change could have on our business.

Using the TCFD voluntary guidelines, we stress tested our portfolio using distinctive, plausible, evidence-based but extreme climate change scenarios. The three scenarios are described below.

The three scenarios created were qualitative and quantitative in approach and are purposely extreme to provide a sharp contrast between potential futures. The real future may deliver on a combination of the different scenarios or none, but they are conducted to gain insight, recognise trends, identify possibilities and enable us to act quickly on the opportunities we see.

Scenario analysis is part of our strategic planning process and considers major variables such as the outlook for commodities, the development of technology, the needs of societies, consumer behaviour and the ability of the environment to continue providing the natural resources and ecosystem services that we and the world need to continue to thrive.

Our marketing team also build detailed models to forecast the price, supply and demand outlook for our commodities. Climate related considerations are factored into this quantitative analysis annually. We then apply each of our three scenarios, changing the factors and other demand and supply drivers to give us a quantitative view of how climate change would impact our portfolio's resilience in each of the three scenarios.

This scenario analysis and modelling provides us, and our stakeholders, with a view on the outlook for each commodity in our portfolio under a rapid decarbonisation (the global cooperation) scenario as well as a more granular view of the financial resilience of each operation in our portfolio. It provides an in-depth view of the resilience of our portfolio under the global cooperation scenario where quantitative analysis was completed.

The climate change scenarios we used are based on those developed by major international agencies and we chose to conduct qualitative analysis on the resilience of our portfolio under two scenarios - runaway climate and patchy progress. In each case we outline any assumptions made as we tested these scenarios.

Runaway climate change scenario[4]

Reference scenarios: International Energy Agency - World Energy Outlook November 2016, Current Policies scenario and the Intergovernmental Panel on Climate Change Representative Concentration Pathway 6.0 and 8.5 scenarios.

In this scenario, the development of new industries is hindered by a slowdown of capital allocation to low carbon products, renewable energy and research and development (R&D). No global carbon price emerges. Global sentiment largely repeals existing climate policy and there is a stagnation of efforts by political leaders to make meaningful progress in reducing carbon emissions at a local and national level.

Global GDP would experience incremental gains in this scenario until around 2035, supported by incremental productivity improvement. Long-term economic growth would vary across the globe and be dependent on the resilience of countries to the increasing physical impacts of climate change (such as water insecurity and disease).

Between now and 2035, those nations that are able to rebuild, recover and/or adapt to the physical impacts climate change creates would increase the demand for raw materials, including many of the commodities in our portfolio. For example, the need to build more resilient cities and the rebuilding required following acute weather events, could increase the demand for steel making materials including manganese. However, the ability of many developing nations to recover will be limited, reducing the scope of potential demand growth.

From 2035, the pressure on ecosystems would begin to affect the supply of food and water, harming economic growth and geo-political stability. With many nations struggling to meet their basic needs, commodities consumption is likely to decline. In this scenario, there are likely to be large numbers of displaced people crossing borders and conflicts over natural resources, as well as a breakdown in the rule of law and global security from 2040.

The greatest risks and opportunities for our portfolio in this scenario result from the physical impacts of climate change. There is some incremental demand growth from the world's investment in adaption and resilience. Relative to the other scenarios, our own operations would also be at greater risk from the physical impacts of climate change, both acute and chronic. This could result in negative impacts to our supply chain and production, thereby reducing profit margins. However, the physical impacts of climate change in this scenario mean that a world that exceeds more than two degrees of warming is less favourable to long-term global prosperity than a scenario of two degrees or less.

(4) The Runaway climate change scenario results in increased physical risks from climate change relative to the other scenarios. South32 has not yet quantitatively modelled the impact of this scenario on our commodity portfolio and other assets. Qualitatively we do understand the risks that runaway climate change pose to the world at large and have a strategy in place to help mitigate these risks for our communities and South32 (Avenue 2 of the Climate Change Strategy on climate resilience including, 1. Climate modelling and 2. Intelligent Land Management). Where physical risks are already being felt (such as changes in rainfall patterns) we are quantifying and mitigating the risks as well as investing in adaptation measures (see case study on climate resilience on page 7).

Patchy progress scenario

Reference scenarios: International Energy Agency – World Energy Outlook November 2016, New Policies scenario.

The patchy progress scenario largely reflects current trends and technology development, with limited additional climate change mitigation measures or policy changes beyond 2016. It assumes that concerns over loss of industries due to carbon leakage deter some countries from implementing policy that would help mitigate climate change risks. In this scenario fossil fuel and agricultural groups choose to protect business as usual arrangements.

This scenario is characterised by large regional divergence and volatile swings in climate change policy. The national commitments [5] in the Paris Agreement on climate change are implemented, though some countries with high emissions fail to meet their current targets, while others continue to adopt more stringent goals consistent with the agreed policy framework. As a result, the pace and scale of decarbonisation will vary by region and sector.

Existing energy trends continue, with renewable energy gaining an increasing share of the energy mix as costs fall and utilities adopting battery storage as the technology improves. Nonetheless, an uncertain policy environment slows renewable energy penetration and allows high carbon land-use (such as continued clearing of old growth forests and peatlands) to continue, which means the transition is not fast enough to meaningfully reduce global carbon emissions and avoid more than two degrees of warming.

In this scenario, the physical risks of climate change to our portfolio is less severe than those outlined in the runaway climate change scenario. Transition risks including volatile swings in climate change policy create both opportunities and risks for our commodities.

Global cooperation scenario

Reference scenarios: International Energy Agency – World Energy Outlook November 2016 450 (parts per million (ppm)) scenario, the IEA Energy Technologies Perspectives two degree scenario, and the Bloomberg New Energy Finance, New Energy Outlook 2016 modelling.

In the global cooperation scenario there is a proactive and collaborative approach by major governments, industries and society to reduce carbon emissions, sufficiently enough to stabilise global temperature to two degrees or below by 2100, relative to pre-industrialisation (1950) temperatures. Global carbon emissions peak around 2025 and net-zero carbon emissions is reached by the second half of the century (from 2050) in line with the Paris Agreement.

From FY16, climate change mitigation and adaptation policies are introduced and immediately begin to have a meaningful impact on business. Significant nations and sub-regions, introduce incentives to avoid further deforestation and phase out fossil fuel subsidies. A global carbon market emerges from FY30. The global carbon price rises to more than US$100 a tonne, after cheaper, first round carbon emission reduction projects are implemented. The global carbon price stays high enough to ensure emissions continue to fall, though market forces and significant incentives (such as low cost lending for green products) play a greater role in changing behaviour than carbon penalties in this scenario. Governments and private business fund extensive R&D and green investments.

The global economy grows more strongly than in the runaway climate change or patchy progress scenario, as the rapid development of new green industries more than offsets the loss of businesses that cannot survive when potable water, biodiversity and carbon emissions are priced appropriately. This scenario demonstrates how global collaboration to protect natural resources can result in the development of emerging economies, where there is an increase in the consumption of low carbon services and sustainable products.

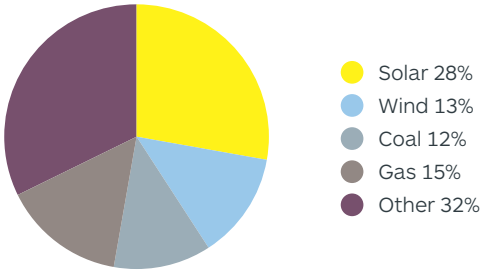
A transformation of the global energy system occurs. In this senario, solar (mostly photovoltaics) accounts for 28 percent of the total energy mix, wind accounts for 13 percent and energy coal and natural gas account for 12 percent and 15 percent respectively. Hydro, nuclear, oil and other renewables combined account for the remainder in 2040[6].

(5) Commitments are the intended Nationally Determined Contributions made by each nation.

(6) https://about.bnef.com/new-energy-outlook/. Other efforts such as land-use change, reforestation, some carbon capture and storage are necessary to avoid two degrees of warming.

The commercialisation of battery storage provides cheap, reliable, green energy on demand allowing renewables to displace fossil fuel generation. This scenario assumes limited uptake of Carbon Capture and Storage (CCS) given the relative immaturity of the technology in 2016. CCS would only be used where there are limited options to transition energy or industrial capacity to lower carbon alternatives.

Diagram 3 Energy mix by 2040 in the global cooperation scenario



Source: Adapted from Bloomberg New Energy Finance, New Energy Outlook 2016

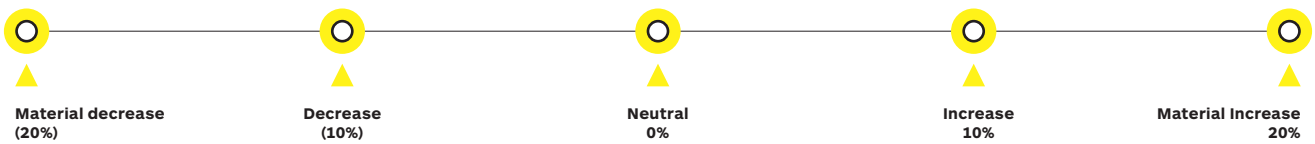
Although the transformation of the energy sector is critical, it will be not enough by itself to limit the temperature increase to less than two degrees. In this scenario, changes to consumer and industrial behaviour that promote commodity recycling to its technical limits; the deployment of technologies which increase productivity through efficiency; a reduction in deforestation and an increase in reforestation and afforestation brought about by better designed and planned urbanisation; smarter agricultural practices and much lower consumption of meat products which reduces the need for land clearing, all contribute to achieve avoidance of two degrees of warming.

SOUTH32 RESILIENCE IN THE GLOBAL COOPERATION SCENARIO[7]

The resilience of our operations are highly dependent on how the world collectively chooses to respond to climate change over the long-term. The composition of our portfolio will depend on future prices and the opportunities that emerge over time. Our detailed analysis shows us that today, based on our current commodity portfolio, there is no risk to the value of our business even when assessing the transition risks (see Table 1) incurred in the global cooperation scenario.

The following sections describe the resilience of our commodity portfolio under the global cooperation scenario as well as provide insight into the unique risks and opportunities presented by this scenario for our current operations.

Diagram 4 Resilience scale[8] (percentage change between 2015-2040)

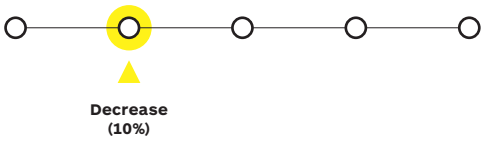


(7) This section refers to South32 commodity and operational resilience under the global cooperation scenario. As such, the descriptions of resilience here are not South32 forecasts, but describe what we have assessed could happen if the world's development progressed in line with the global cooperation scenario.

(8) Resilience was determined by whether the supply and demand balance increased or decreased (ten percent either way) or materially increased or decreased (20 percent either way), relative to our base case forecasts.

Cannington

Lead



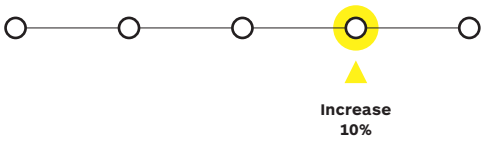
Lead is primarily used in the starter batteries in conventional vehicles. In the global cooperation scenario, we assume 33 percent of global car stock is electric by 2040, with approximately one billion electric vehicles in use.

The conventional vehicle ownership model would come under pressure as less resource intensive transport options emerge alongside increasingly urban populations. These include public transport, car or ride-sharing options propelled by a rise in autonomous vehicle technologies.

Greater recycling of batteries and the emergence of non-lead batteries in cars would mean that primary demand growth from the auto sector would peak in the short to medium-term (2020 to 2025) and decline thereafter. The level of sustained demand for lead acid batteries from conventional vehicles could be met through closed loop recycling. As such, lead demand in new batteries decreases and lead is not resilient in the global cooperation scenario.

While the global cooperation scenario is not favourable for lead demand, the positive outlook for zinc and silver are likely to see lead produced globally as a by-product, creating a resilient lead supply.

Silver

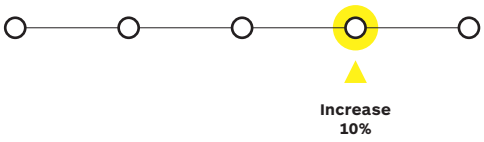


In the global cooperation scenario, around two-thirds of the energy generated in 2040 would come from renewables, with almost a third of this from solar panels. Silver is used in solar panels for its reflective qualities as it helps generate electricity by reflecting sunlight into collectors.

There is also likely to be additional demand from the construction industry. Insulated silver coated glass reduces the need for heating and cooling and will play an important role in reducing the energy use in buildings.

This scenario also results in more rapid innovation. The growing use of robotics, monitoring and hand-held devices are also expected to boost silver demand relative to the base case.

Zinc



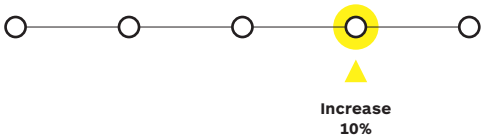
Zinc galvanised steel materials are used extensively in transport, construction and appliance manufacturing due to their insulation and anti-corrosive properties. Zinc weather-proofs steel against corrosion via galvanisation but this protection is lost over time due to environmental degradation and so it needs to be constantly replaced.

There will also be a positive impact on zinc demand from the increased use of light weight steel alloys in the automotive sector, as designs are changed to meet the stringent carbon emission targets and avoid the carbon price. As a result, zinc demand will benefit from the steel demand growth to occur in the global cooperation scenario.

Our Cannington operation in Australia produces lead and zinc concentrates, both of which contain silver. All concentrates are sold to smelters who smelt, extract the silver and other by-products such as copper and then refine the product into a London Metals Exchange deliverable.

Cannington has an updated reserve life to FY27 so there is limited exposure of our balance sheet to the potential impacts, either positive or negative, of the global cooperation scenario. The likely increase in demand relative to our base case for zinc and silver in the global cooperation scenario has been considered as part of our mergers and acquisitions strategy.

Cerro Matoso

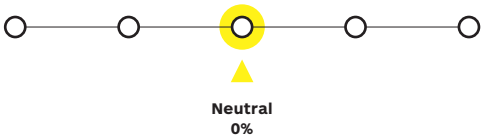


Nickel is primarily used in stainless steel, alloys and plating. Many of its properties will be more valuable in the global cooperation scenario. It is anti-bacterial, possesses high corrosion resistance, and is used in batteries that support both renewables and electric vehicles.

The use of nickel intensive stainless steel relative to other stainless steel grades has been more closely linked to technical standards and Gross Domestic Product (GDP) growth than energy use. We do not see these factors changing and therefore nickel demand is unlikely to be hampered in this scenario.

Our Cerro Matoso operation in Colombia produces ferronickel (an alloy of nickel and iron), which is sold almost exclusively to stainless steel producers. It has traditionally been recognised for its low impurities and stable nickel content. The nickel we produce is likely to benefit from increased global demand and is resilient in the global cooperation scenario.

Illawarra Metallurgical Coal



Metallurgical coal, also known as coking coal, forms high strength coke that is primarily used in the integrated steel making process. There are three main types of metallurgical coal of which hard coking coal is the most sought after by steel producers.

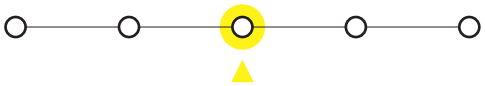
In the global cooperation scenario, steel (and, therefore, metallurgical coal) benefits from the substitution for cement, which has a more energy and carbon emissions intensive production process. There is significantly more steel scrap collected and reused in this scenario and this scrap steel will be made available to meet the growing global steel demand as the world continues to urbanise and industrialise.

However, as an outcome of the increase in available steel scrap, an increasing proportion of steel demand will be met through Electric Arc Furnace (EAF) production, which does not require metallurgical coal. In this scenario we expect that steel produced by blast furnaces (the alternative to EAF production and that uses metallurgical coal) will fall from approximately 75 percent in 2016 to approximately 50 percent in 2040. This scenario also assumes that, due to changes in consumer behaviour, there will be significantly more steel scrap in the future than currently available, most notably in China as the economy matures.

Around 80 percent of Illawarra Metallurgical Coal's production is premium mid volatility hard coking coal, which is recognised as a valuable component in steel making blends and sold globally. As steel scrap alone will not meet market demand in the global cooperation scenario, demand for high quality metallurgical coal exports will remain resilient on the back of demand from major steel producing countries (such as India and Brazil).

Illawarra Metallurgical Coal is well positioned to benefit from a high globally consistent and equally applied carbon price. Carbon pricing policy incentives are likely to support an expansion of the operation's gas capture and energy conversion operations, which would enhance its position on the cost curve relative to other producers and support margins.

South Africa and Australia Manganese



Manganese ore is inextricably linked to the global steel industry. Over 90 percent of manganese ore is converted to a manganese alloy which is used to remove sulphur, de-oxidise and strengthen steel. These unique characteristics make the commodity robust in the global cooperation scenario.

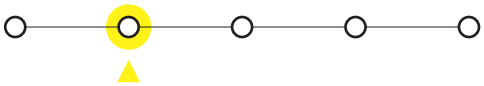
Although other alloys can strengthen and harden steel, only manganese can remove sulphur and deoxidise in a cost efficient manner. As these steps are important to reduce pollution and the public health risk of steel production, manganese is unlikely to be substituted for another product in the global cooperation scenario.

The increase of steel scrap recycling has less of an impact on manganese than other steel raw material inputs because manganese is largely lost in the recycling process and needs to be continually replaced. In the global cooperation scenario, energy efficient urbanisation including high-rise buildings, public transport, water, power, and all other infrastructure requiring steel are significant drivers of demand. Growth in manganese demand is also expected as low carbon products, such as electric vehicle battery technologies, achieve deeper penetration.

Although manganese is relatively abundant, the resources in major steel producing countries, like China and India, are relatively low grade. Higher grade imports are necessary to achieve the right blend.

Our operations produce mostly high quality grade manganese. We also supplied approximately 25 percent of the manganese ore traded in the seaborne market in 2016. Therefore, we are well positioned to take advantage of continued demand for high quality manganese in this scenario.

South Africa Energy Coal



Energy coal is primarily used in electricity generation, with the remainder used in areas such as cement production and heating. Its future in the global energy mix is tied to public opinion and the technical and economic feasibility of CCS technology.

Public acceptance of energy coal continues to diminish, with climate change and concerns around the impact of air pollution on public health making it politically risky to support new energy coal power stations or mines. Although CCS is used in the global cooperation scenario, with some plants fitted with the technology by 2025, it is deployed much more slowly than renewables, reducing energy coal's ability to take part in the transition to a low carbon future. As a result, the seaborne trade for energy coal would continue to decline to 2040.

Energy coal demand is more resilient in South Africa, Russia and South East Asian nations with centralised energy coal operations built between 2000 and 2025. In these areas, coal use is likely to largely focus on integrated operations with low cost deposits near power plants. In this scenario, there is no scope for the development of greenfield energy coal mines. Any investment would be focused on small incremental projects in well-established mining regions.

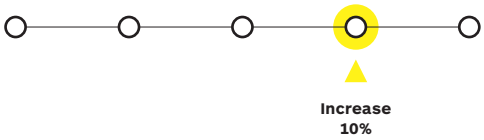
Although the supply-demand balance for energy coal drops around 20 percent in the global cooperation scenario, demand is likely to be resilient in the domestic markets we supply.

South Africa Energy Coal produces energy coal for both the South African domestic market and export markets. South Africa Energy Coal operations are positioned at the low end of the industry cost curve. They supply the domestic South African market under long-term contracts to Eskom, the national power provider (which delivers 90 percent energy coal powered generation) and seaborne export markets.

The domestic market in South Africa for our energy coal is likely to be relatively resilient in this scenario. As the seaborne export market for energy coal would decline, it is likely that we can divert this product to opportunities in the domestic market. Also the value ascribed to South Africa Energy Coal on South32's balance sheet is very low.

Illawarra Metallurgical Coal produces a by-product energy coal stream (approximately 20 percent of product mix) which is exported to countries with electricity supplied by large centralised energy coal operations built between 2000 and 2025.

Africa Aluminium and Australia Alumina



Aluminium is often referred to as the metal of the future as it can be recycled with no loss of mass or quality and is highly corrosion resistant. Construction, packaging and transport sectors will continue to create demand for aluminium, making it relatively resilient against substitution risks in the key end-use sectors. Building light-weight transport options, offering durability and design flexibility in building construction, and substituting fossil-fuel based plastics in packaging, are some examples of how aluminium is used in the below two degrees of warming carbon constrained, global cooperation scenario.

In this scenario, the demand for aluminium increases relative to the base case. Aluminium recycling is advanced to technical limits. Alumina inputs (and consequent bauxite demand) will still be required to meet primary aluminium demand expectations.

Aluminium smelters are energy intensive and can produce significant carbon emissions, especially when using coal-fired energy. In the global cooperation scenario, renewable energy becomes an increasingly important fuel source for smelters. Nonetheless, it is anticipated that a large portion of the world's energy coal powered aluminium smelters remain in use for their technical life to meet the forecast increase in demand. In this scenario, these smelters are all subject to the global carbon price of US$100 dollars per tonne from 2030. Since a large portion of the supply base (energy coal powered) will be impacted by the carbon cost, it is expected this will be transferred to end users and the global aluminium price will increase accordingly.

We own two aluminium smelters, Hillside in South Africa and Mozal in Mozambique. Hillside aluminium smelter is dependent on power generated from energy coal, while Mozal Aluminium purchases green power from hydro sources. In the global cooperation scenario, Hillside aluminium smelter is expected to maintain positive margins and Mozal aluminium smelter is likely to benefit from its lower carbon position.

In Australia, we operate the Worsley Alumina refinery which sources bauxite from its Boddington mine. Worsley Alumina benefits from a lower energy intensive bauxite (Gibbsite) compared to higher energy intensity bauxite used in most Chinese refineries (Bohmite / Diaspore). As such, the additional carbon cost impost per tonne of alumina produced at our Worsley alumina refinery would be relatively lower than the global supply. This means that of the bauxite/alumina required to meet primary demand, Worsley Alumina is likely to benefit preferentially in the global cooperation scenario.

GLOSSARY OF TERMS

Alumina
Alumina is produced from bauxite in the Bayer refining process. Alumina is then converted (reduced) in an electrolysis cell to produce aluminium metal.

Bauxite
Principal commercial ore of aluminium.

Biodiversity Banking and Offsets Scheme
The New South Wales Government in Australia introduced the Biodiversity Banking and Offsets Scheme (BioBanking scheme) to help address the loss of biodiversity values, including threatened species, due to habitat degradation and loss.

BioBanking enables 'biodiversity credits' to be generated by landowners and developers who commit to enhance and protect biodiversity values on their land through a Bio-Banking agreement. These credits can then be sold, generating funds for the management of the site. Credits can be used to counterbalance (or offset) the impacts on biodiversity values that are likely to occur as a result of development. The credits can also be sold to those seeking to invest in conservation outcomes, including philanthropic organisations and the government.

Carbon Capture and Storage (CCS)
Carbon capture and storage refers to mitigating global warming by capturing carbon dioxide from large point sources such as fossil fuel power plants and storing it instead of releasing it into the atmosphere.

Carbon emissions
For South32 reporting purposes, these are the aggregate carbon dioxide equivalent (CO_2-e) emissions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6). We measure emissions according to the World Resources Institute/ World Business Council for Sustainable Development Greenhouse Gas Protocol.

- Scope 1 carbon emissions – refers to direct carbon emissions from operations.
- Scope 2 carbon emissions – refers to indirect carbon emissions from the generation of purchased electricity.
- Scope 3 carbon emissions – refers to the carbon emissions in our supply chain.

Coking coal
Used in the manufacture of coke, which is used in the steelmaking process by virtue of its carbonisation properties. Coking coal can also be referred to as metallurgical coal.

Electric vehicles
Vehicles that use one or more electric motors or traction motors for propulsion. An electric vehicle may be powered through a collector system by electricity from off-vehicle sources, or may be self-contained with a battery, solar panels or a generator to convert fuel to electricity. Electric vehicles include road and rail vehicles, surface and underwater vessels, electric aircraft and electric spacecraft.

Electric Arc Furnace (EAF)
A furnace that heats charged material by means of an electric arc (an electrical breakdown of a gas that produces an ongoing electrical discharge).

Energy coal
Used as a fuel source in electrical power generation, cement manufacture and various industrial applications. Energy coal is also be referred to as steaming or thermal coal.

Taskforce on Climate Related Financial Disclosures (TCFD)
The Task Force on Climate-related Financial Disclosures (TCFD) produced guidance for voluntary climate-related financial disclosures that are consistent, comparable, reliable, clear, and efficient, and provide decision-useful information to lenders, insurers, and investors.

Gross Domestic Product (GDP)
The total value of goods produced and services provided in a country during one year.

Greenfield
Greenfield development refers to a new venture or operation, without any association or proximity to a current operation.

Intergovernmental Panel on Climate Change (IPCC)
The IPCC is the international body for assessing the science related to climate change. The IPCC was set up in 1988 by the World Meteorological Organization (WMO) and United Nations Environment Program (UNEP) to provide policymakers with regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation.

Metallurgical coal
This refers to all coal used in the process of steelmaking. It can also be referred to as coking coal.

Paris Agreement
A global climate agreement that was agreed under the United Nations Framework Convention on Climate Change (UNFCCC) at the 21st Conference of the Parties (COP21) in Paris (30 November to 12 December 2015). The Paris Agreement sets in place a durable and dynamic framework for all countries to take climate action from 2020, building on existing international efforts in the period up to 2020.

Renewable energy
Renewable energy is produced using natural resources that are constantly replaced and never run out.

Risk Management Framework
A framework, which sets out the overall approach to risk management of South32 Limited and its subsidiaries (the Company). It applies to all employees, Directors and contractors of the Company.

World Resources Institute Aqueduct Tool
A global water risk mapping tool that helps companies, investors, governments and other users understand where and how water risks and opportunities are emerging worldwide. The tool uses a peer reviewed methodology and the best-available data to create maps of water risk.

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