Climate Action Report

BlueScope

Our Purpose

We create and inspire smart solutions in steel, to strengthen our communities for the future.

Our Bond

Our Customers
are our partners

Our People
are our strength

Our Shareholders
are our foundations

Our Local Communities
are our homes

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Cover image: Jack's Point Show Home – Queenstown, NZ COLORSTEEL ENDURA® Ironsand

This Jack's Point Show home was specifically formed to visually blend into the landscape using COLORSTEEL Endura® in Ironsand and environmentally sensitive construction processes. COLORSTEEL Endura® is ideal for moderate to severe coastal, geothermal and industrial environments. Read more on page 57 to 61.

BlueScope Steel Limited ABN 16 000 011 058

About this report

This is BlueScope's first Climate Action Report ('Report') and outlines our strategic direction and performance of the consolidated entity ('BlueScope' or 'the Group'), consisting of BlueScope Steel Limited ('the Company') and its controlled entities. In this Report, the terms 'BlueScope', 'Group', 'our operations', 'organisation', 'we', 'us', 'our' and 'ourselves' refer to BlueScope Steel Limited and its controlled entities.

This Report outlines our strategic approach to managing climate-related risks and how we plan to achieve our pathway to decarbonisation.

Within the broader strategy, sections of the Report align to the recommendations made by the Task Force on Climate-related Financial Disclosures (TCFD) and the four thematic areas of the TCFD: Governance, Strategy, Risk Management, and Metrics and Targets.

Following publication of this Report in September 2021, BlueScope will release its FY2021 Sustainability Data Supplement, which includes definitions and the data collection and reporting processes that accompany the metrics included in this Report. Our FY2021 Sustainability Data Supplement will be available on our website along with our FY2021 Sustainability Report and Annual Report.

Historically we disclosed climate-related content in our annual sustainability reports. The latest report, released in September 2020, and an archive of our historical reports is available on our website.

Our reporting metrics are consistent with the Global Reporting Initiative (GRI) Standards and the Sustainability Accounting Standards Board (SASB) Industry Standard for Iron and Steel Producers.

This Report reflects our views as of September 2021. Unless otherwise stated, all data is reported utilising the equity share approach of the *Greenhouse Gas Protocol: Corporate Accounting and Reporting Standard*, 30 June year end and in Australian dollars.

BlueScope has interests in a number of joint ventures (JVs). The most substantial are in partnership across ASEAN and the west coast of North America with Nippon Steel Corporation (NS BlueScope Coated Products) and in India with Tata Steel (Tata BlueScope Steel). Consistent with our reporting approach, the GHG emission data for these joint ventures are reported on an equity share basis.

BlueScope endeavours to ensure the data in this Report is as accurate and up to date as possible to enable stakeholders to understand our performance and compare it to prior periods. Where appropriate, historical data have been restated to present data on a consistent and comparable basis and an explanation is provided. We have not sought external assurance over disclosures in this Report.

Message from our Chairman

John Bevan
Chairman

I am proud to share BlueScope's first Climate Action Report.

Our Bond and Our Purpose guide the principles of how we work, including how we act on climate change.

The Board actively manages the risks and opportunities associated with climate change for our company and our stakeholders through integration with our corporate strategy and robust governance and risk management frameworks.

This Report represents an important milestone in our company's journey, to further integrate climate-related considerations into our operations and our products.

We also share this Report during a crucial period for global cooperation, shortly before the UN Conference of the Parties (COP 26) Summit in Glasgow and following the release of the Intergovernmental Panel on Climate Change (IPCC's) Sixth Assessment Report. We acknowledge the release of the IPCC report, and it strengthens our resolve to pursue our climate ambitions. We will continue to reflect developments in climate science, along with developments in technology, markets and public policy, as we progress on our decarbonisation journey.

We have been actively engaged in developing the climate strategy and pathway set out in this Report and integrating climate-related considerations into our Capital Allocation Framework. The Board will oversee the execution of the measures outlined, and the financial management and capital allocation required to support implementation. We are also committed to ongoing transparency and disclosure.

As we execute the climate strategy, our aim is to ensure we deliver long-term sustainable outcomes for our shareholders and our other stakeholders. We look forward to engaging further on the issues, actions and ideas in this Report.

John Bevan,
Chairman

Message from Managing Director & CEO and Chief Executive Climate Change

Mark Vassella
Managing Director & CEO

Gretta Stephens
Chief Executive Climate Change

BlueScope is aware of the critical and global importance of climate change to our business and our stakeholders. We have embedded climate action into our corporate strategy, recognising it is crucial to our long-term success, and we have publicly stated our commitment to taking action to reduce our greenhouse gas (GHG) emissions. We believe steel will play an essential role in the transition to a low-carbon economy. In pursuing our decarbonisation pathway, BlueScope considers the impacts that our operations and investments have on our people, communities and a broader range of stakeholders.

It is an exciting time for the steel industry and BlueScope, as we explore emerging technologies to understand the scale of emissions reductions they might deliver, potential commercial viability and timeframes, and the enablers and barriers to implementation. Several key technologies are currently in early stages of readiness, with significant advances expected to occur over the next decade.

We have developed a climate pathway that is based on two mid-term 2030 GHG emissions intensity targets and a longer-term 2050 net zero goal.

Achieving the 2050 net zero goal is highly dependent on several enablers, including the commerciality of emerging and breakthrough technologies, the availability of affordable and reliable renewable energy and hydrogen, the availability of quality raw materials, and appropriate policy settings.

Delivery of the 2030 targets and progress on the 2050 goal will be supported by our revised Capital Allocation Framework. To this end, we have made an initial allocation of up to $150M over the next five years, with an indicative expectation of requiring between $300 – $400M in capital expenditure to meet our mid-term commitments and make progress on our longer-term decarbonisation journey. The near-term allocation includes funding committed to progressing research and development in emerging and breakthrough technologies.

We recognise that addressing these challenges and opportunities will require collaboration and shared expertise: given the long timeframes involved, we do not yet have all the answers. To help us to explore less carbon-intensive technologies, we are building on existing partnerships and creating new collaborations with industry and research partners. Recognising that 'green steel' is not yet commercially available at scale, we are working on optimising existing processes to deliver emissions reductions and building optionality around emerging technologies, where feasible. This will include options at Port Kembla Steelworks, our iron- and steelmaking facility in New South Wales, where we are considering opportunities to reduce emissions over the mid and long-term.

Finally, as detailed in Our Bond, our people are our strength. Their expertise, capability and dedication are key to the delivery of the strategy and pathway we outline in this Report. Together, we are working to explore innovative, practical and efficient solutions, supported by our partners, suppliers, customers, communities and other stakeholders.

Mark Vassella,
Managing Director and CEO

Gretta Stephens
Chief Executive Climate Change

Executive summary

This Report sets out BlueScope's climate strategy, including its medium-term (2030) targets and longer-term (2050) goal, and how our climate action initiatives will be supported by our Capital Allocation Framework, advocacy, research and partnerships. The Report encompasses climate scenario analysis and physical risk assessment, metrics and targets, governance and risk management, aligned to TCFD reporting recommendations.

The global steel industry

Global steel demand is forecast to continue to grow to meet the demands of steel consuming industries, such as the building and construction and infrastructure segments. Steel has a major role to play in a low-carbon future, and is a critical material for renewable energy and transport infrastructure. These growth trends are expected to offset any potential slowing of demand from developed countries.

There is scope to reduce emissions from iron- and steelmaking through lower intensity production using existing and emerging technologies, increased use of affordable and reliable renewable energy, and through the increased use of scrap steel. However, to achieve net zero emissions in steelmaking, commercialisation of breakthrough technologies and supporting infrastructure will be needed.

BlueScope's climate strategy

Climate action is key to Our Purpose: we create and inspire smart solutions in steel, to strengthen our communities for the future. It is also one of our five sustainability outcomes that reflect what matters most to our stakeholders. Our strategy, which drives our focus across our business globally, is based on the three pillars: transform, grow and deliver. Actively addressing climate change and investing in carbon reduction technologies are explicitly highlighted in our strategy as a key focus of this transformation.

Our climate strategy guides our activities across six focus areas

- **Reducing our emissions in response to science, technology availability and the timing of key investment decisions;**
- **Using quality, cost-effective carbon offsets only where direct abatement is not feasible;**
- **Creating carbon efficient and climate resilient solutions for our customers;**
- **Making the case for local, sustainable steel in our communities; and**
- **Increasing our use of affordable and reliable renewable energy;**
- **Monitoring and appropriately managing climate risks and engaging with external stakeholders and partners.**

Our climate action pathway

We have developed our climate action pathway based on:

- A 2050 goal of pursuing net zero GHG emissions across all our operations[1], recognising that success will be dependent on several enablers, including:
  - Evolution of emerging and breakthrough technologies to viable, commercial scale;
  - Access to affordable and reliable renewable energy;
  - Availability of appropriate volumes of competitively priced hydrogen from renewable sources;
  - Access to appropriate quality and quantity of raw materials in both the near and longer-term; and
  - Public policy that supports investment in decarbonisation and avoids risk of carbon leakage.
- Pursuit of a 12 per cent Scope 1 and 2 GHG emissions intensity reduction target across our steelmaking activities by 2030, relative to FY2018. This translates into a target of 1 per cent year-on-year emission intensity reduction (from the 2018 baseline) across our steelmaking activities.
- A new Scope 1 and 2 GHG emissions intensity reduction target for our non-steelmaking activities, targeting a 30 per cent reduction by 2030, relative to FY2018.[2] This new target was adopted in FY2022.

This means our focus will be on optimising our existing assets and processes and working in partnership with industry and research bodies to progress the technical and commercial viability of future technology options. We will continue to explore relevant process routes and understand how they might fit into our operations, dependent on how the technologies, enabling infrastructure and policy evolve.

Delivering the 2030 targets and progress on the 2050 goal will be supported by our revised Capital Allocation Framework. On an indicative basis, we anticipate capital requirements of an estimated $300M to $400M over the next 10 years. To that end, we have made an initial allocation of up to $150M over the next five years to help deliver on our mid-term commitments and make progress on our longer-term decarbonisation journey.

We will continue to assess the appropriateness of our mid-term 2030 commitments and 2050 net zero goal. This will include periodically reviewing the scope, timing and required capital allocation to meet our targets and goal against developments in the areas of climate science, technology availability, raw materials technology and supply, as well as renewable energy and hydrogen market developments.

Emissions performance

BlueScope's total Scope 1 and 2 GHG emissions for FY21 were 10,540 $ktCO_2$-e. Over 90 per cent of our Scope 1 and 2 GHG emissions arise from our iron- and steelmaking operations. We will continue to report transparently on our emissions reduction efforts as we work towards our targets and goal.

Against our 2030 medium term Steelmaking and Non-Steelmaking targets, we have reduced our steelmaking GHG emission intensity by 1.8 per cent and reduced our midstream non-steelmaking activities GHG emissions intensity by 6.3 per cent.[3]

We have aligned the timing of the reporting of our Scope 3 GHG emissions profile with our broader climate and sustainability disclosures. Our GHG emissions for FY2021 was relatively consistent with FY2019, with FY2020 impacted by COVID-19 government mandated shutdowns, impacting our operations in a number of geographies.

Taking a longer-term perspective, since 2005, absolute GHG emissions from our steelmaking operations have decreased by 28 per cent, while GHG emissions intensity has reduced by 21 per cent, on an equity basis.[4]

Climate scenario analysis

In FY2021, we refreshed our FY2018 climate scenarios as crucial inputs into our climate strategy. This includes developing and assessing a 1.5°C scenario that anticipates faster development and early adoption of emerging and breakthrough technologies, as well as significant investments in renewable energy. Our scenario analysis indicates that, in all plausible scenarios assessed, steel will play an essential role in the transition to a low-carbon economy as the sector and the global community take action to decarbonise.

As part of our FY2021 scenario analysis, we undertook our first physical climate risk assessment. The findings indicate that, between now and 2050, we do not expect significant exposure to the physical impacts of climate change. However, the findings indicate that our risk profile may increase beyond 2050. We have identified the existing controls and future actions required to address these projected long-term impacts.

1 Goal applies to our total operational Scope 1 and Scope 2 GHG emissions. Refer to *Our decarbonisation pathway* for more details.
2 The Non-Steelmaking Target applies to our midstream activities that include our cold rolled, metal coating and painting lines and long and hollow products. It excludes our downstream activities. This target, together with our 12 per cent steelmaking emissions intensity target will cover 98 per cent of BlueScope's total Scope 1 and 2 emissions. Refer to *Our decarbonisation pathway* for more details.
3 Both 2030 medium-term targets are assessed relative to a 2018 base year. Tata BlueScope Steel's Jamshedpur site has not been included in the reported data for this metric.
4 BlueScope utilises the GHG Protocol Equity Share approach for GHG emissions accounting. In 2005, BlueScope had a 50 per cent equity share of the North Star steelmaking facility with Cargill. In October 2015 BlueScope acquired the remaining 50 per cent of North Star.

Advocacy, partnerships, emerging technologies and research

Climate change is a global issue that requires a global approach. We recognise that decarbonising the steel industry cannot be achieved by one company, or even the sector, alone. It will require sustained action by the entire steel value chain, investors, customers, governments and civil society. Our people will be central to the delivery of our strategy and pathway, drawing on their expertise, capability and dedication to develop solutions. Our partnerships with a range of industry, academic, government and community organisations will also be key enablers on our pathway.

BlueScope is playing an active role in advocacy for our industry, engaging with a broad range of stakeholders to address the issues raised by climate change. This Report is an opportunity to continue that engagement.

Create and inspire smart solutions in steel

Steel is an infinitely recyclable product, and we are developing products that will help to enable the climate transition. Our steel products provide enduring materials for rapid construction and long-term use, flexible design, thermal comfort and weather resilience.

Governance

Climate change is recognised by our Board and across the business as a key strategic issue requiring strong governance, clear accountabilities for oversight and implementation of our commitments.

Since 2019 and in line with our remuneration strategy, we have linked senior executive incentives to performance objectives relating to our climate strategy and our Steelmaking Target.

Risk management

BlueScope is committed to an integrated approach to managing risk.

We evaluate, monitor and manage the impact of climate-related risks and opportunities on our operations and corporate plans. This includes using the outcomes of our refreshed climate scenario analysis to better understand the impacts of climate-related physical and transition risks on our portfolio.

LOOKING AHEAD

We will:

- continue to build on the progress presented in this Report, engaging with our internal and external stakeholders to implement our climate strategy;
- continue to optimise our existing assets and processes and explore near-term emissions reduction technology options as we execute our expansion of North Star and assess options for steelmaking at Port Kembla. We will communicate and seek engagement from a broad range of stakeholders on key developments and options in relation to these projects;
- regularly review and assess the progression of projects through our capital evaluation process;
- continue to investigate opportunities to work with value-chain partners on research and development and on piloting emerging and breakthrough technologies;
- continue to assess and evolve analysis and management of the potential impacts of climate scenarios on our business. We also commit to undertaking a detailed refresh of the scenario analysis at least every three years; and
- continue to progress our disclosure of climate-related financial information within our annual results and sustainability reporting suite.

Engaging with investors and ClimateAction100+

Guided by Our Bond, BlueScope has a deliberate and enduring culture of authentic and meaningful engagement with our key stakeholders.

We place a strong emphasis on open, two-way engagement with investors. As providers of capital, and as protectors of economic security for their clients and society more broadly, we see investors as key to enabling organisations in hard-to-abate sectors to meet the objectives of the Paris Agreement.

We also see ClimateAction100+ (CA100+) as an important mechanism to streamline investor engagement. It also provides a platform for the lead investor to immerse themselves in the decarbonisation challenge of their investee company, and the approach the Company is taking to address this challenge.

Since the inception of CA100+, BlueScope has had active and productive engagement with the CA100+ secretariat and their lead investor for BlueScope, UniSuper. We continue to value the feedback and meaningful support provided by UniSuper through our engagement and in the evolution of our climate-related disclosures.

We have found the CA100+ engagement with BlueScope to be open and productive. We have been pleased with the continuous improvement in their disclosures over the last few years. We see their investment in people and expertise as evidence of their willingness to find decarbonisation solutions in a challenging sector.

Sybil Dixon
Governance and Sustainability Manager, UniSuper, and Climate Action 100+ Lead Investor for BlueScope.

The CA100+ Engagement Group led by UniSuper, have been engaging with BlueScope since early 2018. While the company faces significant decarbonisation challenges in a hard to abate sector, they have demonstrated a commitment to work with investors to find solutions and opportunities to work together including recently participating in a series of CA100+ Steel Roundtables with investors and companies that led to the development of a public report.

Laura Hillis
Director at the Investor Group on Climate Change, and lead for CA100+ (Australia/New Zealand).

Further detail on how information in this report aligns to the CA100+ benchmark is in the *Supplementary information* section of this Report.

BlueScope's position on climate change

We acknowledge...

» The scientific consensus on climate change including the work of the IPCC related to the warming of the climate system; and

» The objectives of the Paris Agreement, specifically in limiting global temperature rise this century to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C.

We believe...

» that steel will continue to play a critical role in underpinning sustainable development and the transition to a low-carbon, circular economy;

» the steel industry is a material contributor to GHG emissions globally and we must work to improve the efficiency of our operations and reduce our emissions;

» the steel industry is a hard-to-abate sector due to its capital intensity, long-lived assets, limited commercial alternatives to current greenhouse intensive production technologies, and exposure to international trade. However, this is not a reason for inaction;

» that decarbonising the steel industry will require sustained and cooperative action by the entire global steel value chain, investors, governments and civil society;

» that under all credible scenarios, a mix of mature and breakthrough technologies will be needed to meet climate goals and expected steel demand by 2050 and beyond;

» that government policies must enable industry to transition and must not lead to carbon leakage, by which production in one country is replaced by equal or higher emissions-intensive production in another country;

» that the availability of competitively priced and reliable renewable and low-emissions electricity and energy sources will be essential to underpin the transition of the steel industry to net zero emissions; and

» that it is important to future-proof our operations and the communities in which we operate against climate impacts.

We will...

» Play a meaningful role in transitioning our own operations to a low-carbon economy. In doing this, we:

  » have adopted a 2050 goal to pursue net zero emissions across our all of our operations.[5] We acknowledge that achieving this goal is highly dependent on several enablers, including commerciality of emerging and breakthrough technologies, the availability of affordable and reliable renewable energy and hydrogen, availability of quality raw materials, and appropriate policy settings;

  » continue to make steady progress towards our Steelmaking Target to reduce our emissions intensity across our steelmaking activities by an aggregate 12 per cent by 2030[6]; and

  » pursue our Non-Steelmaking Target of 30 per cent emissions intensity reduction across our non-steelmaking activities by 2030.[7]

» listen to our customers and collaborate with them to create and inspire smart steel products and solutions that support circular and climate-resilient building, infrastructure and transport systems while also reducing the embodied emissions of our products;

» continue to participate in industry research and, where feasible, partner with others to develop commercially viable low emissions solutions;

» encourage governments to adopt appropriate policies and plans to support the transition in line with our advocacy approach, including policies that support investment by steelmakers in low- and zero-emissions technologies;

» consider the impacts on our people, communities and other stakeholders, for a just and equitable transition when developing and executing our decarbonisation pathway; and

» investigate ways in which we can lead and support emissions reduction initiatives across our value chain.

5 Refer to *Our decarbonisation pathway* section for more information.
6 Applies to our Scope 1 and 2 emissions, relative to a 2018 baseline, across our steelmaking activities. Refer to *Our decarbonisation pathway* section for more information.
7 Applies to our Scope 1 and 2 emissions, relative to a 2018 baseline, across our midstream non-steelmaking activities. Refer to *Our decarbonisation pathway* section for more information.

Highlights

OUR PATHWAY

SET A GOAL FOR:

NET ZERO

GHG emissions across our operations by 2050[8]

SET TARGETS FOR:

12%

GHG emission intensity reduction by 2030 for our steelmaking activities
(based on 2018 levels)

30%

GHG emission intensity reduction by 2030 for our non-steelmaking activities[9]
(based on 2018 levels)

INITIAL ALLOCATION UP TO

$150M

Capital for climate projects and initiatives over the next 5 years

OUR ACTIONS

Appointed a Chief Executive Climate Change and established a corporate climate team

Climate scenarios revised, including a 1.5°C scenario

Climate further integrated into Capital Allocation Framework

Conducted a detailed climate physical risk assessment across >60 operational sites

We are listening to our customers to create innovative and more sustainable products

Our people are our strength – developing innovative, practical and efficient solutions

Climate performance linked to executive remuneration

Leading roles in key climate initiatives such as ResponsibleSteel™

OUR PERFORMANCE

1.8%

REDUCTION
in GHG emission intensity in our steelmaking activities since 2018

6.3%

REDUCTION
in GHG emissions intensity in our non-steelmaking activities since 2018

We have outlined our decarbonisation pathway and options to meet our medium-term targets and long-term goal

Continued to report against the TCFD

8 Our net zero goal covers BlueScope's Scope 1 and 2 GHG emissions. Achieving the 2050 net zero goal is highly dependent on several enablers, including commerciality of emerging and breakthrough technologies, the availability of affordable and reliable renewable energy and hydrogen, availability of quality raw materials, and appropriate policy settings.

9 The Non-Steelmaking Target applies to our midstream activities that include our cold rolled, metal coating and painting lines and long and hollow products. It excludes our downstream activities.

Section

01

Overview

Our Purpose, Bond and Strategy

Together, Our Purpose, Bond and Strategy define the way BlueScope develops, manufactures and sells steel products and solutions, while building our own resilience and capacity to drive a sustainable future.

Our Purpose

Our Purpose speaks to why we operate and where we want to be – to see our people work together to inspire our customers, meet our sustainability commitments, deliver value to our shareholders and strengthen communities for the long term.

Our Bond

Our Bond recognises the importance of our key stakeholders and expresses the values that have served to guide our decisions and actions since BlueScope was established in 2002. See Our Bond on the inside front cover of this Report.

Our Strategy

Our Strategy sets out how we will deliver on Our Purpose, and deliver strong returns and sustainable outcomes over the next five years and beyond. The strategy drives transformation and growth, while continuing to deliver on core expectations for our stakeholders. Core elements of Our Strategy include climate change and sustainability, product and service innovation, strong returns to shareholders and delivering a safe, inclusive and diverse workplace.

We create and inspire smart solutions in steel, to strengthen our communities for the future

Our Strategy is outlined in our FY2021 Directors' Report, on our website.

Sustainability outcomes

Our sustainability outcomes reflect the sustainability challenges and opportunities that matter most to our stakeholders and our success, including action on climate change. Further information on our performance against our sustainability outcomes can be found in our FY2021 Sustainability Report, Sustainability Data Supplement and Sustainability Summary.

Who we are and what we do

BlueScope is a leader in metal coating and painting for building and construction.

Principally focused on the Asia Pacific region, our 14,000 people in 18 countries manufacture and market a wide range of branded products that include pre-painted COLORBOND® steel, zinc/aluminium alloy coated ZINCALUME® steel and the LYSAGHT® range of building products.

BlueScope is Australia's largest steel manufacturer, employing around 6,000 employees at more than 100 sites. Our Australian Steel Products segment manufactures and distributes flat steel products, with a key focus on higher value, branded products for the building and construction industry – with leading brands such as COLORBOND® steel and TRUECORE® steel.

North Star BlueScope Steel is a low-cost hot rolled coil producer in the US, serving the automotive and construction industries. It operates at industry leading utilisation rates and is strategically located in Delta, Ohio, in a key scrap-rich area near its customers. An 850,000 tonnes per annum expansion of the mill is underway, which will add more low emissions intensity steel capacity to BlueScope's portfolio.

BlueScope has an extensive footprint of metallic coating, painting and steel building product operations across China, India and ASEAN, primarily servicing the residential and non-residential building and construction industries. The business also operates coating and painting assets on the West Coast of the US, serving the non-residential construction industry.[1]

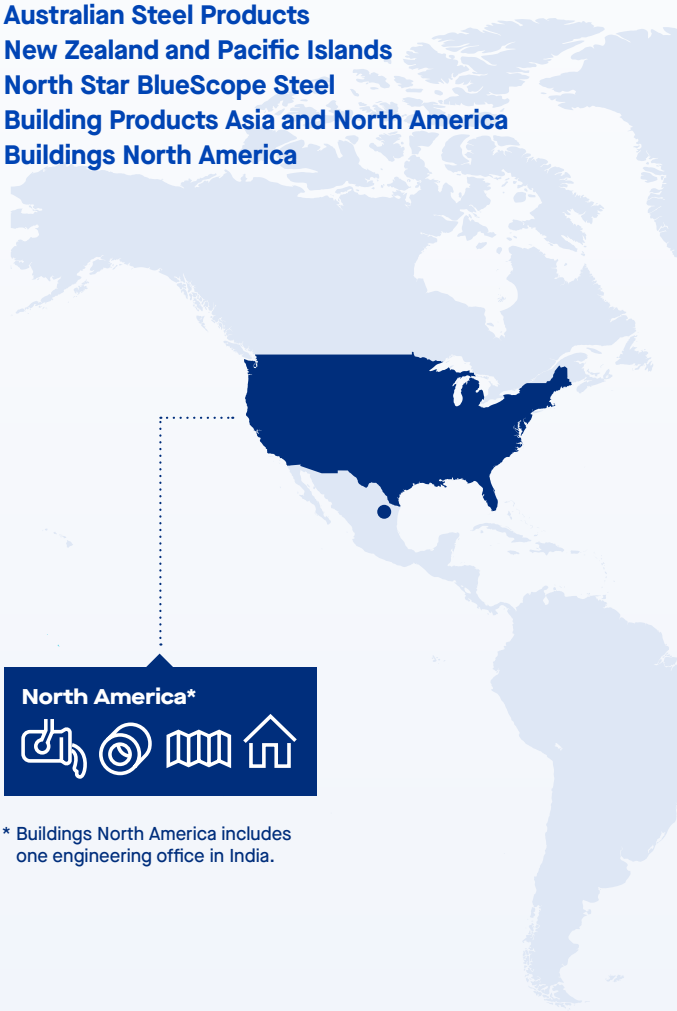
BlueScope is a leading supplier of engineered building solutions (EBS) to industrial and commercial markets in the US. Its value proposition is based on speed of construction and low total cost of ownership, with leading brands, including BUTLER® and VARCO PRUDEN®. This segment also includes the BlueScope Properties Group, which develops Class-A industrial properties (such as warehouses and distribution centres).

BlueScope is the only integrated steel producer in New Zealand, using locally-sourced iron sands to produce a range of flat and long steel products for domestic and export use. Our New Zealand operations include the Pacific Islands businesses, with facilities in Fiji, New Caledonia and Vanuatu.

1 BlueScope has interests in a number of joint ventures (JVs). The most substantial are in partnership across ASEAN and the west coast of North America with Nippon Steel Corporation (NSC) and in India with Tata Steel. Both are 50:50 joint ventures with BlueScope controlling and therefore consolidating the joint venture with NSC (NS BlueScope Coated Products), and jointly controlling and therefore equity accounting the joint venture with Tata Steel (Tata BlueScope Steel).

Our businesses

Australian Steel Products
New Zealand and Pacific Islands
North Star BlueScope Steel
Building Products Asia and North America
Buildings North America



* Buildings North America includes one engineering office in India.

KEY

UPSTREAM

Steelmaking (flat products)

MIDSTREAM

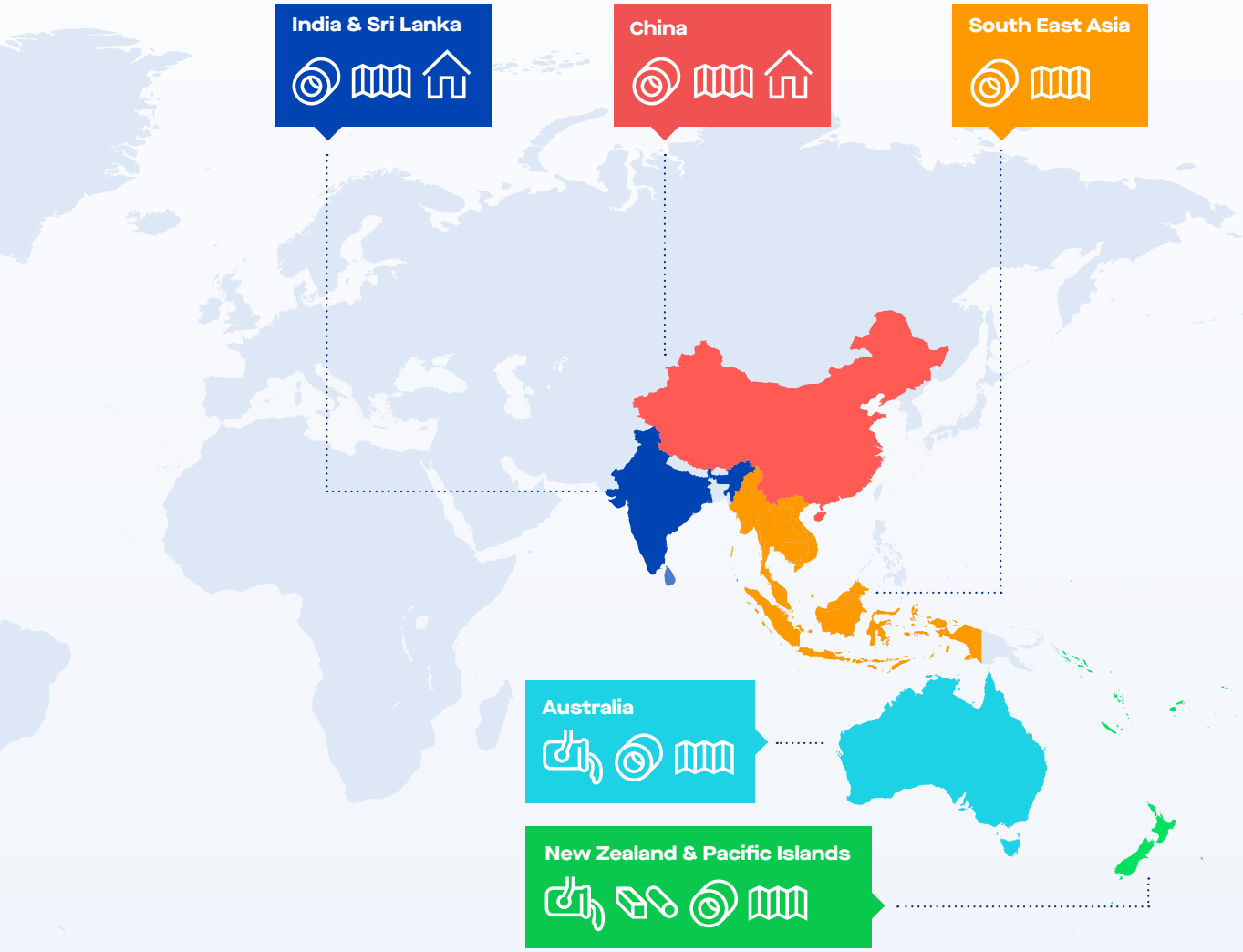
Metal coating and painting

Long products (rebar, wire)

DOWNSTREAM

Steel building materials and components

Steel buildings and systems



Scale of our organisation

(as at 30 June 2021)

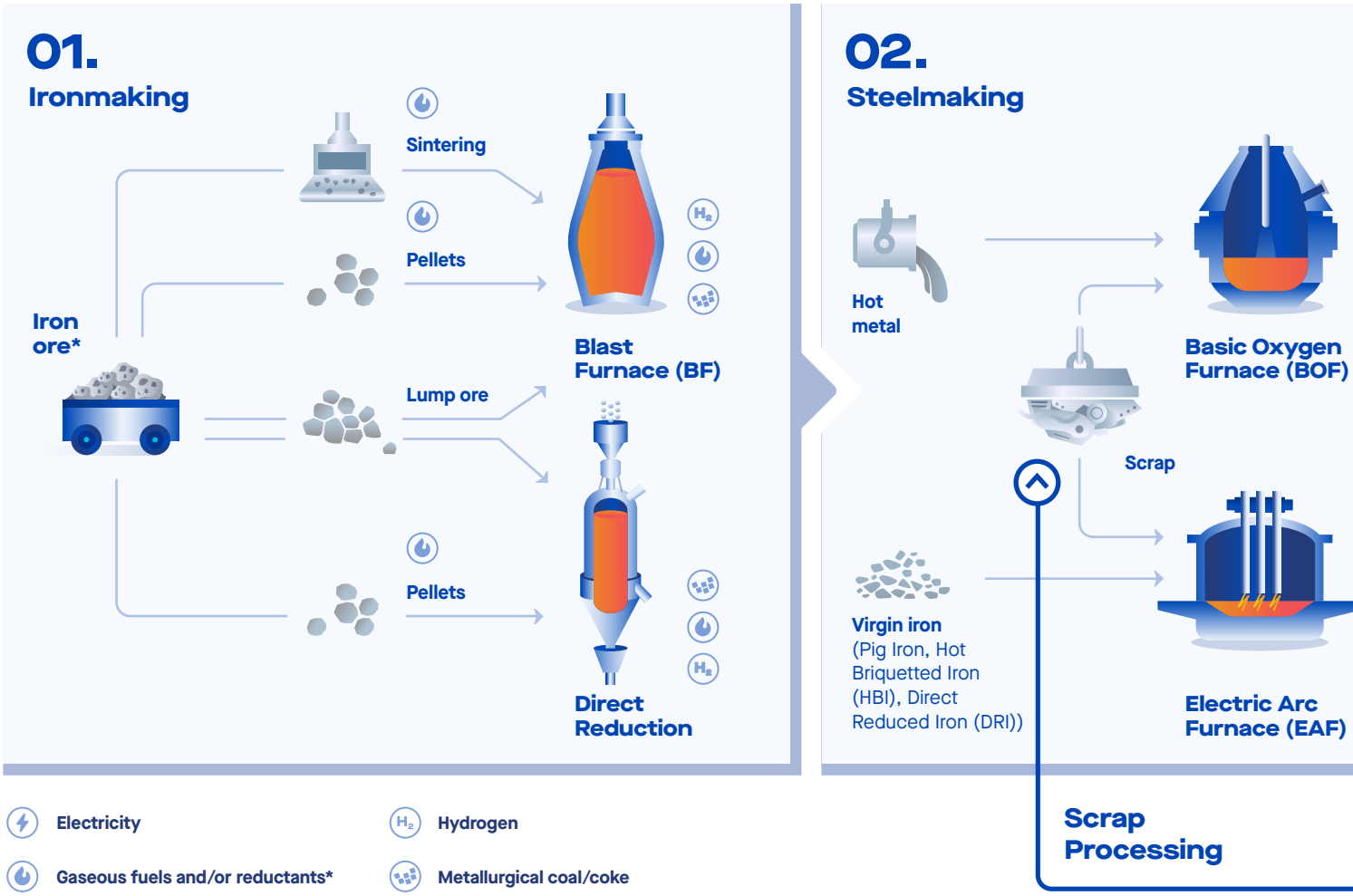
TOTAL NUMBER OF EMPLOYEES	TOTAL NUMBER OF OPERATIONS	RAW STEEL PRODUCTION (000 TONNES)	EXTERNAL DISPATCHES (000 TONNES)
14,300	>160	6,004	7,710

GHG profile

(as at 30 June 2021)

TOTAL SCOPE 1 AND 2 GHG EMISSIONS ($ktCO_2$-e)	SCOPE 3 GHG EMISSIONS ($ktCO_2$-e)	STEELMAKING EMISSIONS INTENSITY (tCO_2-e/t)	NON-STEELMAKING EMISSIONS INTENSITY (tCO_2-e/t)
10,540	12,700	1.606	0.192

OVERVIEW OF IRON AND STEELMAKING PROCESSES



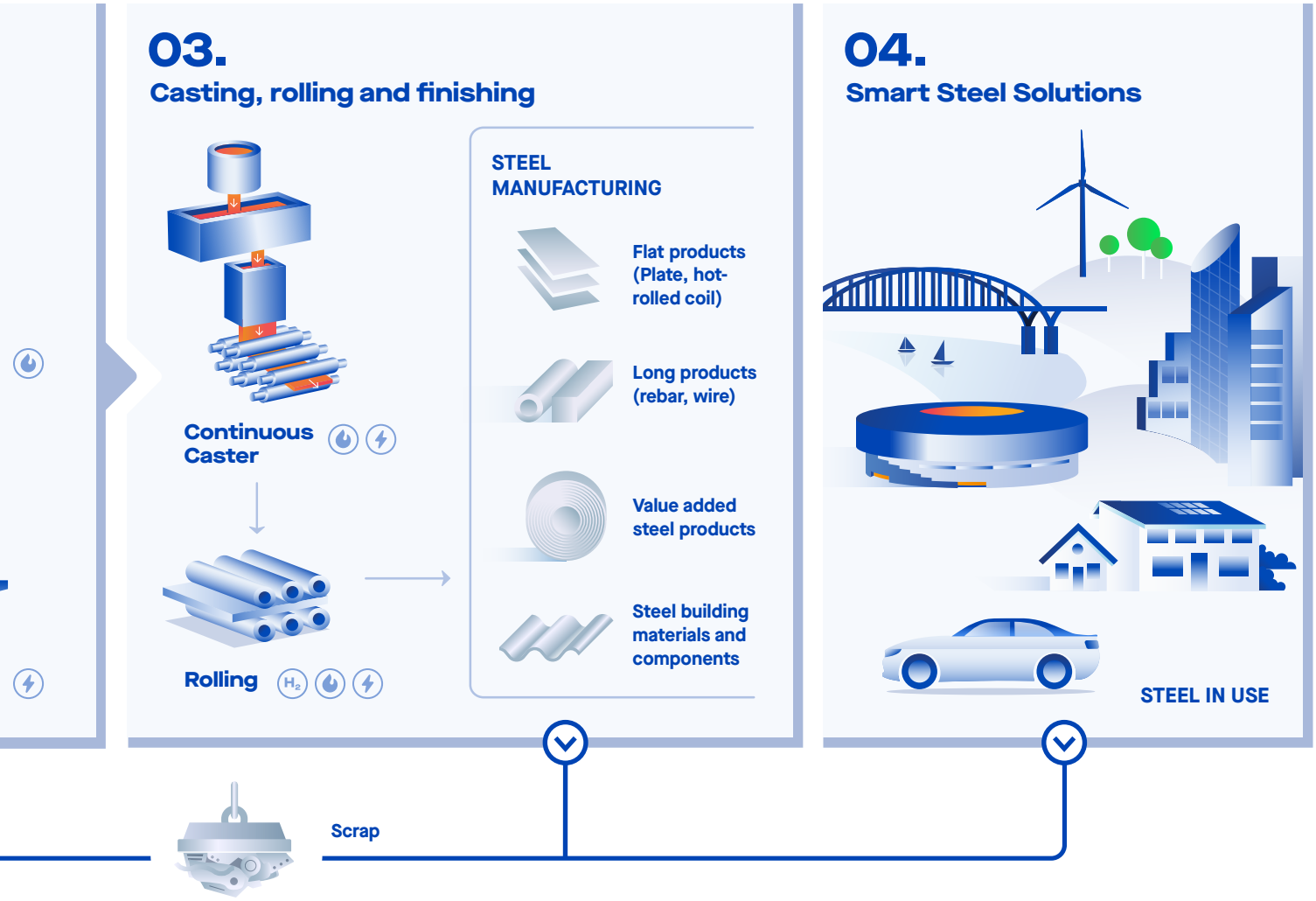
Blast Furnace (BF)

A blast furnace is a large vessel in which raw materials are smelted to produce iron. Raw materials, including coke (processed from metallurgical coal), iron ore and sinter and fluxes (such as limestone) are fed into the top of the furnace, while a hot blast of air is continuously blown into the bottom of the furnace via pipes called tuyeres. Pulverised coal can also be injected through the tuyeres to improve productivity and operating costs, and some international steelmakers are piloting the use of injecting syngas or pure hydrogen as a partial pulverised coal replacement. A chemical reaction occurs in which carbon or hydrogen extracts iron from the ore, producing molten iron, slag and blast furnace gas. Blast furnace gas is typically reused in an integrated steelworks to provide heat, steam and electricity. In order to be converted into steel, molten iron from a blast furnace needs to be further processed in an EAF or Basic Oxygen Furnace.

Basic Oxygen Furnace (BOF)

Basic oxygen furnace (BOF) steelmaking is the next step that follows the blast furnace process, where molten iron is made. Blowing oxygen through the iron, through a top lance and/or bottom tuyeres, lowers the carbon content of the molten bath and changes it into low-carbon steel. The process is known as basic because fluxes of burnt lime or dolomite, which are chemical bases, are added to promote the removal of impurities and protect the lining of the converter.

* BlueScope's Glenbrook utilises locally sourced iron sand that is processed through a unique process route.



Direct Reduction

Direct Reduced Iron (DRI) is the term given to a group of processes for making iron from ore (in the form of lumps, pellets, or fines) utilising a reducing gas or elemental carbon produced from natural gas or coal. The majority of the DRI manufactured today is via shaft furnaces using natural gas. In order to be converted into steel, DRI needs to be further processed in an EAF or Basic Oxygen Furnace.

DRI produced by natural gas is sometimes seen as a potential 'bridging' step between steel manufactured using fossil fuels and zero GHG emissions steel. Several companies and institutions have suggested that over time, DRI plants may have the potential for either carbon capture, utilisation and storage (CCUS), or phased conversion to hydrogen, which can provide a transition pathway to low emissions ironmaking.

Electric Arc Furnace (EAF)

An Electric Arc Furnace (EAF) is a steelmaking furnace, in which steel scrap or other iron sources are heated and melted by heat from electric arcs. The viability of EAFs is influenced by several factors, including access to adequate quantities of quality steel scrap, the cost, reliability and emissions intensity of local electricity supply and government policy settings.

Steel recycling

Steel is one of the most highly recycled materials in use today. Globally around 80-90 per cent of scrap steel is recovered and recycled to produce scrap based steel. Despite this high recovery rate, today only 32 per cent of global steel demand can be satisfied by scrap steel sources, with the IEA prediction that this will increase to 45 per cent by 2050. Further details on the role of scrap and the essential contribution of Integrated and scrap based EAF Steelmaking production are included in the following pages.

Global steel industry and the future of steel

Steel's strength, durability and adaptability makes it essential to modern economies. We see a strong future for steel, as it is a critical foundation for sustainable economic development and in the transition to a low-carbon society.

Steel	Steel industry in context[2]		
Steel is the most commonly used metal in the world	**1.8** BILLION TONNES Crude steel produced in 2020	**~7-9%** Global GHG emissions are from the steel industry	**6.1** MILLION People directly employed globally
Steel is the most recycled material on Earth	**200** $MtCO_2$-e Global GHG emissions displaced from substituting cement clinker with slag cement from the steelmaking process[3]	**60%** Reduction in energy consumption per tonne of steel produced since the 1960s	**$2.5** TRILLION (US) Worth of steel products sold in 2017

Breakthrough technologies

BlueScope recognises that the decarbonisation of hard-to-abate industries like iron- and steelmaking relies on breakthrough technologies, once proven and scalable. Several hydrogen-based ironmaking technologies are currently being explored across the industry. These range from the injection of hydrogen into existing blast furnace operations to the replacement of current ironmaking technologies with DRI manufactured using green hydrogen. Concept studies, prototypes and demonstration plants are being developed, but further significant advances will be needed before these technologies are commercialised.

Based on current research, technology and commercial readiness, we expect these technologies will continue to develop over the current and following decade, with significant take-up across the steel industry predicted to occur into the 2040s.

Improvements to existing steelmaking processes

While emerging technologies are in the process of commercialisation, our focus is on improving the emissions intensity of our existing infrastructure. Opportunities include optimising raw material mixes, capturing and reusing a greater proportion of waste heat and gases, potentially replacing a proportion of the coal currently used in the blast furnace process with alternative reductants such as hydrogen and biochar and establishing markets for co-products via carbon capture, utilisation and storage (CCUS). Increased rates of scrap use and renewable energy to reduce or eliminate Scope 2 emissions are also key focus areas.

2 worldsteel data.
3 Based on estimates provided by the IEA on annual GHG emissions reduced based on substituting cement clinker with slag cement.

BOTH INTEGRATED AND SCRAP BASED EAF STEELMAKING ARE ESSENTIAL

There are two main sources of steel used today – Integrated and Scrap based EAF steel.

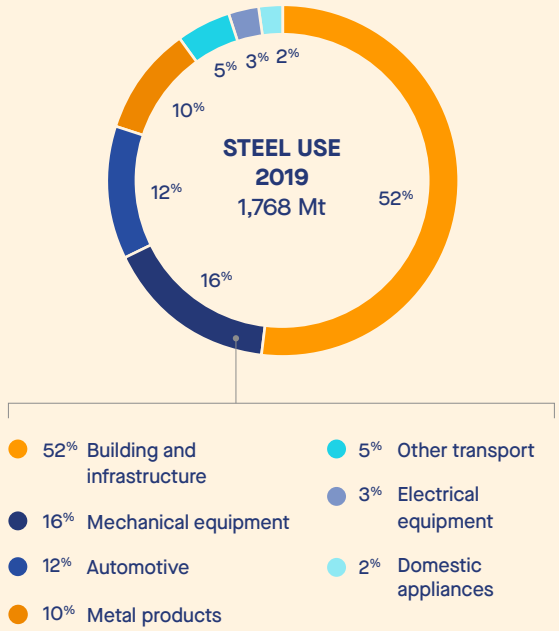
Integrated steel production predominantly relies on separating iron from its natural iron oxide state (iron ore or iron sand), which is then converted to steel in either a BOF or an EAF. EAF steel utilises recovered and recycled iron and steel scrap that is then re-melted into new steel. EAFs have the capacity to use up to 100 per cent scrap feed, and BOFs have the capacity to use up to 25 per cent[4] scrap feed.

Steel is one of the most highly recycled materials in use today (around 80-90 per cent globally).[4] However, scrap alone cannot fulfil the sector's volume requirements from input materials. This is because steel demand today is higher than when the products that are currently being recycled were produced. Scrap availability is therefore limited by the rate at which steel products reach the end of their life (lead times up to 100 years for buildings and infrastructure) and the efficiency of scrap collection and sorting systems.

Today around 32 per cent[4] of global demand for steel products can be satisfied by scrap steel sources. The IEA predicts that scrap based EAF steel production will only satisfy 45 per cent[4] of future demand due to limited scrap availability and scrap quality issues.

Regional differences in scrap availability also exist. Historical rates of steel consumption, proximity to and scale of manufacturing, combined with low-cost energy availability impact the relative contribution of integrated and EAF steelmaking in different regions. For example, in the United States approximately 70 per cent of steel comes from scrap based sources, while in China, it is estimated that only 20 per cent of steel came from scrap based sources in 2019. These contributions will evolve, with the IEA predicting that increased local supply of scrap steel will see China's EAF steel production increase markedly in the coming decades.

STEEL USE BY INDUSTRY[5]



In addition to scrap availability, scrap quality can impact the steel grades that can be produced via the EAF route. Copper is a persistent contaminant in scrap steel feed, and is often difficult to separate as it is often wrapped tightly around steel in several end-use applications (e.g. alternators, generators, motors). Improved scrap sorting and better separation techniques to reduce contamination by trace metals like copper will be important to ensure more steel grades can be produced via the EAF route.

In contrast to the finite nature of available scrap steel, integrated plant sources of iron are abundant and will remain critical to meeting future global steel demand. The resulting challenge is to reduce the emissions intensity of integrated steel production in order to meet global emission reduction targets.

4 IEA Iron and Steel Technology Roadmap.
5 Sustainable Steel: Indicators 2020 and steel applications, World Steel Association. 2020.

Circular, climate resilient steel products

Steel's recyclability is unmatched by other material groups and its contribution to circularity is increasingly recognised. Steel products are becoming more lightweight, designed for diverse applications and for an extended useful life, and the value of raw materials maximised through high rates of reuse, remanufacturing and recycling.

Growing preference for steel products with lower embodied carbon and the emergence of breakthrough decarbonisation technologies for iron- and steelmaking signal the sector's ongoing role in a circular economy. Noting global scrap supplies are insufficient to produce enough steel via the EAF route to meet expected total steel demand, we expect both the integrated and scrap based EAF steel production routes to be necessary (see *Both Integrated and Scrap based EAF steelmaking are essential*).

Other market trends include greater flexibility in building structures, whether it be modular design, greater reuse of heritage structures or improved build efficiency, which rely on lightweight, high-strength steel solutions.

Increasingly, there is an expectation for transparency around the embodied emissions of our steel products, which has the potential to influence customer choice.

Confidence in material supply, underpinned by certification schemes, is an important way to ensure transparency and meet stakeholder expectations. Launched in FY2020, the ResponsibleSteel™ standard and certification program sets a new transparency benchmark for our sector, defining the performance expectations that support responsible sourcing and steel production.

Read more about our support for the circular steel economy in the *Future of Steel* section of our FY2021 Sustainability Report, available on our website.

Steel makes our communities stronger

The COVID-19 pandemic has demonstrated the fragility of some global supply chains and comes at a time when tensions continue in global trade. Policymakers in many countries are now more attuned to the benefits of diversification, including maintaining local supply chains and manufacturing capacity. Steelmaking and industrial manufacturing will continue to play an important role as a provider of high-quality jobs and reliable materials supply to underpin industry, economic growth and stronger communities into the future.

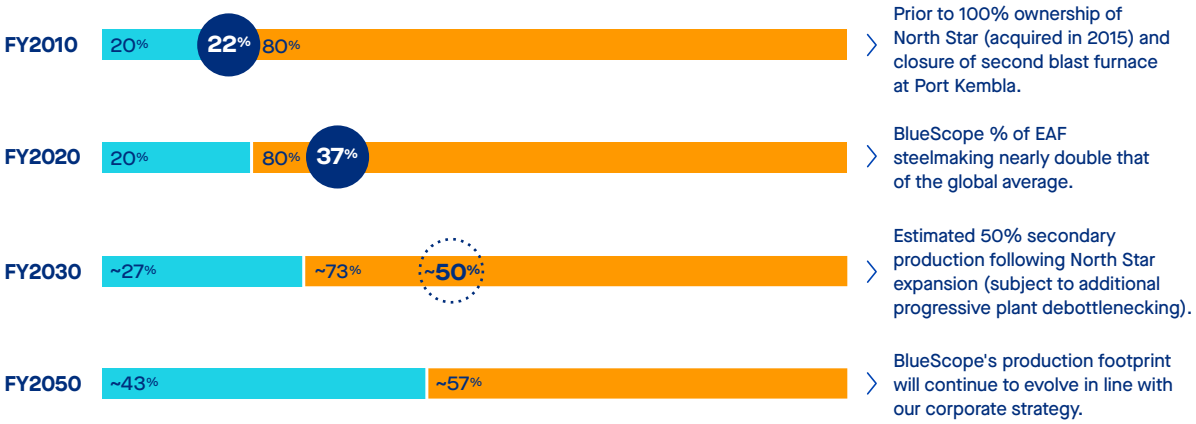
Perth Stadium

Our diversified steelmaking portfolio

In FY2021, 46 per cent of the metallic feed for BlueScope overall was comprised of recycled steel scrap, and this is estimated to approach 50 per cent once the North Star expansion is complete. BlueScope is now also assessing a further capacity increase of North Star once the current expansion project is commissioned, which will be facilitated by increased scrap melt capacity.

PRIMARY AND SECONDARY PRODUCTION THROUGH TIME FOR BLUESCOPE VS GLOBAL AVERAGE (%)[1,2]

Diagram illustrates BlueScope's proportion of primarily scrap based EAF steelmaking (in circles) compared to global proportions of scrap based EAF production (in blue bars).



1 BlueScope analysis leveraging IEA Iron and Steel Technology Roadmap.
2 Primary steel production refers to that which uses iron ore as its main source of metallic input. This includes for example, BF-BOF and DRI-EAF routes. Secondary steel production refers to that which uses scrap as its main source of metallic input (e.g. EAF).

BlueScope will begin to assess a further debottlenecking of North Star, which will be facilitated by increased scrap melt capacity, as we progress through the ramp up period of the current expansion project.

In Australia, at our Port Kembla Steelworks, the main raw materials for steelmaking via the BF-BOF method are metallurgical coal, iron ore and limestone. Port Kembla's location provides convenient access to Australia's high-quality coking coals from the Illawarra escarpment, which help maximise the productivity of the blast furnace operations. While a significant amount of scrap is used at Port Kembla, (over 800,000 tonnes in FY2021 or 26 per cent), the BOF process has a thermal limit on its ability to melt scrap as it has a cooling effect on the steelmaking process.

Port Kembla produces 3.2Mt of the total 6.0Mt of steel produced in Australia. Australia has approximately 4Mt of annual merchant scrap arisings, with the vast majority being obsolete grades.[6] As a result a significant portion of scrap is exported, reflecting Australia's relatively small manufacturing base and the fact it is not suitable for making all grades and types of steel in Australia. Higher proportions of post-consumer recycled scrap can be used in long steel products (reinforcing, wire etc), whereas the impurities often present in this type of scrap steel need careful management if used in the production of flat steel products such as roofing and cladding.

Unlike traditional primary ironmaking processes which rely on iron ore, our New Zealand Steel Glenbrook facility utilises locally sourced iron sand which, along with coal and limestone, is heated and dried in one of four multi-hearth furnaces. It is then fed into one of four reduction kilns, where it is converted to 80 per cent metallic iron in the solid state, before passing through one of two electric melters to produce molten iron for oxygen steelmaking.

Ensuring the long-term future of our steelmaking activities

Our focus is on sustainable, local steel that can support economic development. We work hard to optimise our assets' performance and seek to ensure that capacity will meet steel demand across the markets where we operate.

Port Kembla

We have commenced work on options for the future configuration of the Port Kembla Steelworks, once the No.5 Blast Furnace comes to the end of its current operating campaign. This is now expected to occur in the late 2020s, with an indicative range of 2026 to 2030.

To maintain supply and the role of local steelmaking in Australia, a secure source of iron needs to be available in this timeframe.

At this point, a reline of the existing or decommissioned blast furnace is likely to be the most technically feasible and economically viable option for Australian steelmaking, as longer-term breakthrough low-emission technologies are still under development. An integral part of the project assessment we are evaluating a range of technologies to reduce GHG emissions intensity in iron- and steelmaking.

We have also considered EAF steelmaking however, it is not a plausible option in the required timeframe given Australia's insufficient availability of cost-effective, quality scrap steel to support current production rates at Port Kembla and high electricity costs (refer to *Our Diversified Steelmaking operations* section). DRI was also considered. However, the relatively high cost of natural gas on the east coast of Australia renders this option economically unviable at this time.

As emerging and breakthrough technologies are developed over time to full commercial scale, the strong cash-flows and earnings capability of our Australian Steel Products business provide significant capacity to transition to these technologies as and when they are technically and commercially viable in Australia.

6 CRU, BlueScope analysis. The term obsolete scrap in this report refers to ferrous scrap that recovered from end-of-life products or demolition activity and which requires processing for further use.

North Star

Scheduled for completion in July 2022, North Star's steelmaking capacity increase from 2.1Mt to 3.0Mt per annum following an investment of over US$700M. Once running at capacity, North Star will deliver a reduction in the overall GHG emissions intensity of BlueScope's steelmaking portfolio. The EAF process, together with a decarbonising grid ensures low embodied emission steel products for our customers.

The first heat of steel from the new Electric Arc Furnace at North Star.

Glenbrook

At Glenbrook, we have identified and are currently implementing a range of low capital requirement energy and process efficiencies, including iron- and steelmaking energy efficiency and yield improvements, as well as higher proportions of recycled steel scrap and greater raw materials recycling.

Some of the projects underway to deliver these efficiencies include:

- Optimising the inherent carbon, iron and moisture content in raw materials through blending and storage to lower the overall intensity of each process step.
- Additional thermal insulation for existing vessels and utilisation of the extra energy retained to melt recycled steel.
- Recycling and processing of oversized and out-of-specification materials in hot or liquid form to keep them in the process and eliminate cooling and double handling for recycling, thereby improving yields.
- Melting additional recycled steel scrap in order to lower the proportion of primary iron for each tonne of steel output.

Since Glenbrook's electricity supply is already heavily weighted to renewables and this is projected to reach 100 per cent by 2030, no additional Scope 2 abatement actions have been included in the planned projects.

ECONOMIC BENEFITS OF THE AUSTRALIAN DOMESTIC STEEL INDUSTRY

The Port Kembla Steelworks is one of the largest employers in the Illawarra region, supporting approximately 9,000 jobs.[7] In New South Wales, where the Port Kembla Steelworks is located, BlueScope generates $10.3 billion in economic output per year, and is responsible for almost 1 per cent of Gross State Product, and approximately 19,000 jobs (direct and indirect).[8] More broadly, BIS Oxford Economics has estimated that for every $1M invested in the Australian steel and fabricated metal products industries combined: 12.89 workers are employed; $5.45M in output is contributed to the economy; and $2.19M is contributed to Australia's gross domestic product.[8]

NEW ZEALAND STEEL'S CONTRIBUTION TO THE LOCAL ECONOMY AND COMMUNITY[9]

New Zealand Steel is New Zealand's sole producer of steel and a supplier to strategic national infrastructure projects. It is an important part of the South Auckland economy and a major part of the local community. New Zealand Steel directly employs 1,276 full time equivalent employees (FTEs) across its three sites – the Glenbrook Steel Mill, Pacific Steel in Ōtāhuhu and the Waikato North Head Mine. Nationally, New Zealand Steel directly and indirectly supports a total of 4,063 FTEs. In FY2020 the GDP impact of New Zealand Steel on New Zealand's economy was $596M.

7 Includes contractors, suppliers and other service providers.
8 IRIS Economic Impact Study 2017.
9 New Zealand Steel Wellbeing assessment 2021.

OUR PEOPLE ARE OUR STRENGTH

Realising BlueScope's climate strategy and pathway will depend on the expertise, capability and dedication of our people. We are empowering our people to develop innovative, practical and efficient solutions to climate change across our operations, working with our partners, suppliers and a broad range of stakeholders. We have deep roots in the communities in which we operate, and we encourage and support our employees to work collaboratively with local community stakeholders to deliver shared value.

Within this context, BlueScope encourages employees, across all our operations, to share their knowledge from projects and initiatives undertaken in the business to help reduce our environmental footprint. These projects, known as our Environmental STARs (Situation-Task-Activity-Result), recognise the people doing the work, ensure effective use of resources and help to raise employee, community and other stakeholder awareness of BlueScope's sustainability challenges, opportunities and solutions. In addition, these STARs also serve as submissions to BlueScope annual Environment Awards. In FY2021 alone, our BlueScope teams submitted 72 STARs! All thoughtful, innovative and effective projects to help us reduce our environmental footprint, protect ourselves and our communities and reduce waste and cost. Another fantastic example of BlueScope people living Our Purpose.

The innovation and expertise of our people continues to bring fresh thinking to how we respond to climate change. Our people will be at the centre of our transition to lower emissions across our operations.

Kristie Keast
Chief People Officer

Emissions performance

92%

of our GHG emissions are from iron- and steelmaking activities

Our global GHG emissions profile

Monitoring resource consumption and associated GHG emissions is critical to understanding productivity and business performance. To help us to do this, we have adopted two emissions intensity reduction targets and a 2050 net zero goal to set a pathway to decarbonise our operations.

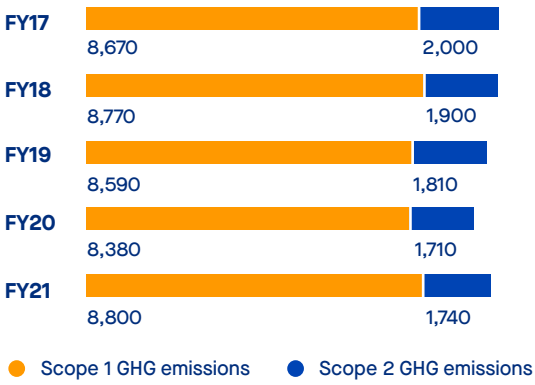
The majority of our Scope 1 GHG emissions result from industrial processes associated with our iron- and steelmaking operations, while Scope 2 GHG emissions result from electricity consumed from the grid. The largest contribution to our Scope 3 GHG emissions is from iron and steel that we purchase (but do not manufacture within our own operations).

BlueScope's total Scope 1 and 2 GHG emissions over the last five years are outlined in the graph top right. FY2021 saw an increase in absolute Scope 1 and Scope 2 GHG emissions of 1.3 per cent compared to FY2019 relative to a 1.6 per cent increase in external despatch volumes across the same period. FY2020 production and GHG emissions impacted by COVID-19 government mandated shutdowns.

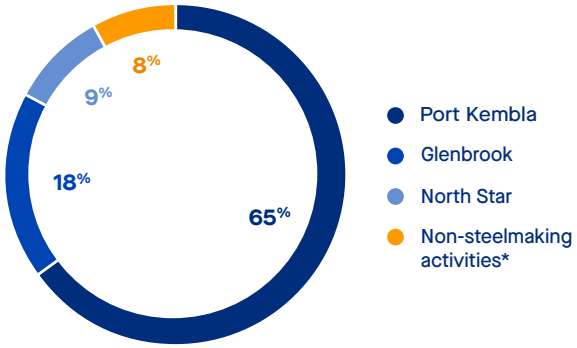
Over 90 per cent of our Scope 1 and 2 GHG emissions arise from our iron- and steelmaking activities at our three steelmaking facilities (graph on the right). Our largest steelmaking facility, Port Kembla Steelworks, contributes 65 per cent of our Group emissions and 53 per cent of the total crude steel produced in FY2021. Non-steelmaking activities represent the remaining 8 per cent of BlueScope's total Scope 1 and 2 GHG emissions. This includes our midstream activities (e.g. paint and metal coating lines) which account for approximately 6 per cent of our total Scope 1 and 2 GHG emissions, and downstream facilities (e.g. roll-forming, building infrastructure, etc) which account for the remaining 2 per cent of our total Scope 1 and 2 GHG emissions (graph bottom right).

BLUESCOPE'S TOTAL SCOPE 1 AND 2 GHG EMISSIONS FOR THE LAST FIVE YEARS[10]

$ktCO_2$-e



BREAKDOWN (%) OF OPERATIONAL EMISSIONS FOR STEELMAKING AND NON-STEELMAKING ACTIVITIES IN FY2021



* Non-steelmaking activities refers to the remainder of BlueScope's GHG emissions other than emissions arising from our steelmaking activities. This includes both our midstream and downstream operations on an equity ownership basis.

10 BlueScope's FY2020 Scope 1 GHG emissions have been restated to reflect an identified error in the data included in the FY2020 Sustainability Report. The FY2020 Scope 1 GHG emissions have subsequently been restated to 8,380 $ktCO_2$-e. BlueScope's FY2018 and FY2020 Scope 2 GHG emissions have been restated to align with more accurate electricity emission factors for our North Star operations for these reporting periods. The FY2018 Scope 2 GHG emissions has been amended from the version lodged on ASX on 1 September 2021.

LARGEST CONTRIBUTOR to Scope 3 GHG emissions from purchased iron and steel

Scope 3 emissions

In FY2021, in line with our commitment to improve our climate disclosures, we have aligned the timing of the reporting of our Scope 3 GHG emissions profile with our broader climate and sustainability disclosures.

Consistent with prior years, our purchases of steel (in regions where we do not manufacture steel within our own operations) and iron (such as pig iron or hot briquetted iron largely at our North Star facility) contributed 35 per cent of our total Scope 3 GHG emissions (graph on the right). The upstream extraction and processing of raw materials and processing of sold products (including the use of coke that we export from our Port Kembla facility) also contribute significant proportions to our Scope 3 profile.

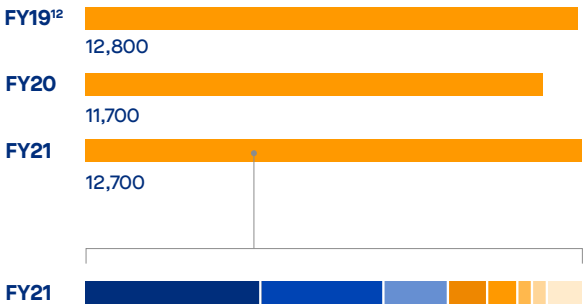
Scope 3 GHG emissions for FY2021 comparable to FY2019, with FY2020 production, purchases and GHG emissions impacted by COVID-19 government mandated shutdowns.

Our FY2021 data includes some supplier specific emission factors (such as those for aluminium and zinc), however like many organisations still early in their Scope 3 journey, we still rely on established global average emission factors. We will continue our focus on Scope 3 reporting over time.

We recognise that the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) require the disclosure of targets and metrics that relate to an organisation's climate-related risks and opportunities. Other than our GHG emission profile, our performance on energy, water and waste is outlined in our FY2021 Sustainability Report.

BLUESCOPE'S SCOPE 3 GHG EMISSIONS FOR THE LAST THREE YEARS[11]

$ktCO_2$-e



- 35% Purchased steel
- 25% Use and processing of sold products (including coke, excluding co-products)
- 13% Raw materials and alloys
- 8% Pig iron and hot briquetted iron
- 6% Coating metals and paints
- 3% Transport
- 3% Fuel and energy related activities
- 7% Other

65%

of our Scope 1, 2, 3 GHG emissions profile is associated with the manufacture or purchase of iron and steel. Therefore the largest category of our Scope 3 GHG emissions has the same challenges as we do within our Scope 1 and 2 GHG emissions.

11 BlueScope's FY2019 Scope 3 GHG emissions have been restated to align with more accurate emission factors utilised for the FY2020 and FY2021 reporting years.

28%

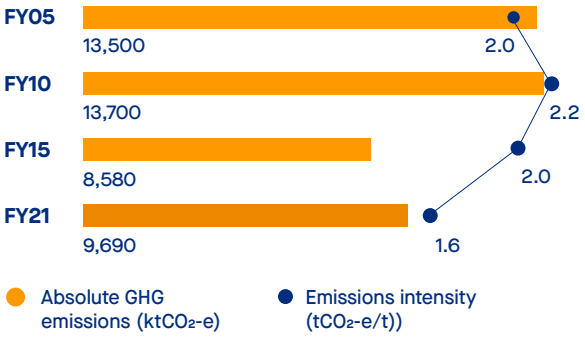
REDUCTION in absolute GHG emissions since 2005

Emissions abatement and emissions intensity improvements

BlueScope has a history of GHG emissions abatement and GHG emissions intensity improvements evidenced by examples outlined on the following page and in *Our decarbonisation pathway* section. Since 2005, absolute GHG emissions from BlueScope's steelmaking facilities have reduced by 28 per cent, while emissions intensity has reduced by 21 per cent, on an equity share basis[12] (graph below).

Our emissions journey as outlined in the graph below indicates that in FY2011, our Port Kembla Steelworks transitioned to a single blast furnace operation, removing surplus export steelmaking capacity in response to global oversupply of steel. The closure of Blast Furnace No. 6 resulted in a reduction of nearly 6 $MtCO_2$-2 per annum from BlueScope's emissions inventory. In October 2015, BlueScope acquired the remaining 50 per cent ownership of the North Star facility from our joint venture partner, increasing our absolute emissions by 550,000 tCO_2-e while increasing our steelmaking production tonnes by 25 per cent.

STEELMAKING EMISSIONS SINCE 2005 (ABSOLUTE AND INTENSITY)



2011 **BF6 shut down at Port Kembla Steelworks.**

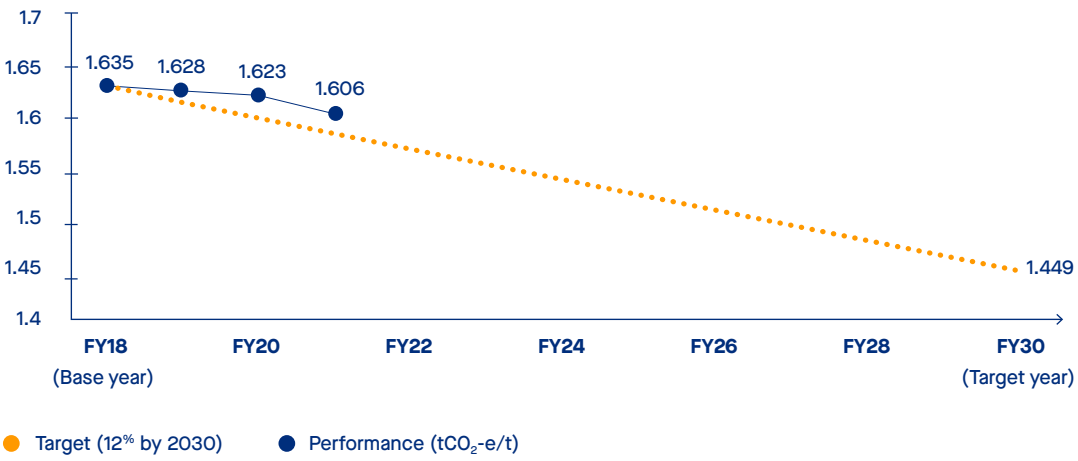
2015 **BlueScope acquired the remaining 50 per cent of North Star BlueScope Steel.**

Performance against Steelmaking Target

Our GHG emissions intensity continues to improve, despite the challenges presented by COVID-19 in recent times, with an aggregate 1.8 per cent reduction in intensity against our FY2018 base year.[13]

As demonstrated in the below chart, we are making progress on our commitment to reduce the overall Scope 1 and Scope 2 GHG emissions intensity of our steelmaking activities by 12 per cent by 2030.[14] The section on *Our climate strategy* outlines our pathway to decarbonising our steelmaking activities to meet both our 2030 targets and 2050 net zero goal.

PERFORMANCE AGAINST 2030 STEELMAKING TARGET[15]



Performance against Non-Steelmaking Target

BlueScope has set a mid-term target to achieve a 30 per cent Scope 1 and 2 GHG emissions intensity reduction across our non-steelmaking activities by 2030 against a 2018 baseline.[16] Since 2018, our GHG emissions intensity across our midstream non-steelmaking activities has declined by 6.3 per cent.[17]

Our 2030 non-steelmaking and steelmaking emissions intensity targets together cover around 98 per cent of BlueScope's Scope 1 and 2 GHG emissions.

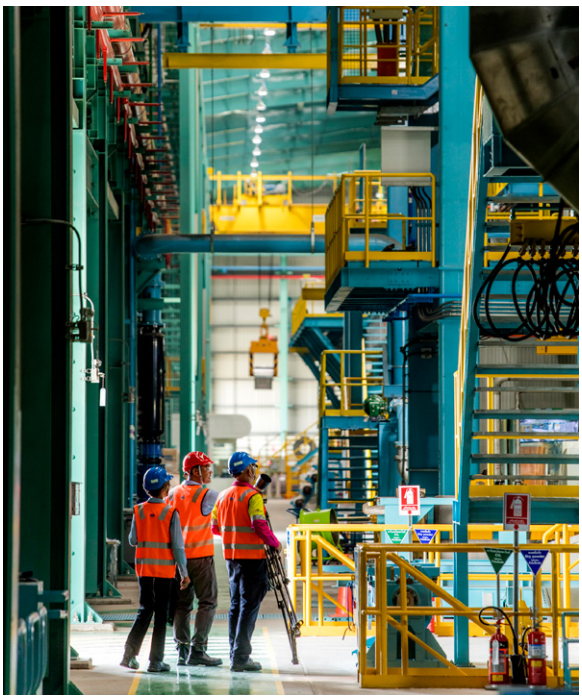
CASE STUDY

WORKING TOGETHER TO REDUCE EMISSIONS

Across our operations, from downstream and midstream through to our upstream iron- and steelmaking operations, we are exploring innovative ways to reduce our emissions. Our employees are front and centre in generating the ideas that can make an impact on their local operations, with solutions shared across our business.

NS BlueScope Lysaght Singapore recently signed a long-term Power Purchase Agreement with sustainable energy developer, Urban Renewables, to provide solar energy sourced from a solar PV rooftop installation with a 500 kWh capacity at its industrial facility in Benoi. As part of the partnership, Urban Renewables will also provide free electric vehicle charging stations at the Lysaght site.

Our NS BlueScope Coated Products business introduced a carbon reduction plan in FY2020, setting a path towards net zero carbon emissions by 2050. Their efforts resulted in a 7 per cent carbon emissions intensity reduction across their operations in FY2021 on a baseline of FY2020.



12 BlueScope utilises the GHG Protocol Equity Share approach for accounting for GHG emissions accounting. In 2005, BlueScope had a 50 per cent equity share of the North Star steelmaking facility with Cargill. In October 2015 BlueScope acquired the remaining 50 per cent of North Star. For comparison, if 100 per cent of the North Star steelmaking facility production tonnes and GHG emissions were included in 2005, it would represent a 4.5MtCO2-e (33 per cent) reduction in absolute emissions, and an 11 per cent reduction in emissions intensity since 2005.

13 With the introduction of our Non-Steelmaking Target and associated updates to our integrated steelmaking facility reporting boundaries, and updates to Scope 2 electricity emission factors, we have updated the FY2018 baseline and the 2030 target for our steelmaking GHG emissions intensity. For further details refer to the previous page.

14 Our 12 per cent emissions intensity reduction target across our steelmaking activities translates to a 1 per cent year-on-year target from FY2018 to FY2030. We do not expect achievement against this target to be linear.

15 Due to updates to electricity emission factors for our North Star facility and the introduction of our midstream non-steelmaking target and associated updates to our integrated steelmaking facility reporting boundaries, the FY2018 steelmaking GHG emission intensity baseline has been updated.

16 This Non-Steelmaking Target applies to our midstream activities that include our cold rolled, metal coating and painting lines and long and hollow products. It excludes our downstream activities.

17 Tata BlueScope Steel's Jamshedpur site has not been included in the reported data for this metric.

Section

02

Climate scenario analysis

Overview of our climate scenarios

In FY2021, we refreshed our climate scenario analysis to support the development of our climate strategy. We conducted this analysis in two parts. First, to test the resilience of our portfolio against potential impacts of climate change and second, to assess the physical impacts of climate change and the risk and requirements for adaptation.

Through this process, we explored the possible range of market, technology and policy outcomes for steel under five climate scenarios.

BlueScope's five scenarios were developed to align with a range of global temperature outcomes, dependent on the pace of change demanded by each scenario. Those scenarios where carbon pricing is more widespread and comes into play earlier in the period are associated with lower global average temperature outcomes.

These scenarios incorporate underlying assumptions from international research reports conducted by the IPCC and IEA, including assumptions regarding regional carbon pricing and its impact on emissions reduction and temperature outcomes. Outlined below is an overview of the climate scenarios including the key drivers that underpin the narratives and pathways that have been defined for each scenario.

These scenarios were developed in conjunction with third-party consultants and with the input and endorsement of the BlueScope's Climate Change Council, the Executive Leadership team and our Board.

SCENARIO OVERVIEW – KEY DRIVERS, ASSUMPTIONS AND SCENARIO NARRATIVES

Early green technology	Customer-led transformation	Two-speed world converges	Investor and public persuasion	Global inaction
~1.5°C	~2.0°C	~2.0°C	~3.0°C	~4.0°C
Significant shifts in US policy triggers comprehensive, **global cooperation** and **breakthroughs** in hydrogen and other 'green' **technologies**	Customers in advanced economies prefer **green steel** while the rise of substitutes erodes total demand for steel	**Global action splits** into highly ambitious jurisdictions vs large number of lower ambition/ limited action jurisdictions before rapidly converging	Investor and financiers **increase cost of capital** for high-emission businesses in response to the public's expectations	Nationalist interests trump global policy action as most major governments **focus on adapting** to climate change

USE OF SCENARIO ANALYSIS

Scenario analysis offers a constructive way to explore possible futures for specific industries and the broader economy resulting from climate-related issues. At an organisational level, scenario analysis is useful to test the resilience of an organisation's business strategy and operations under different climate trajectories and is an important aspect of risk management.

However, scenario outputs must be viewed with an appropriate level of caution given the large number of highly uncertain assumptions required to build and quantify them, and then assess industry, business and investment-level impacts.

As hypothetical constructs, scenarios should not be viewed as predictions or forecasts. In applying exploratory scenarios, no single climate scenario is considered a base-case or mid-point view against which BlueScope is directly managing its portfolio.

Early green technology

~1.5°C Temperature increase by 2100

MAJOR DRIVER
Limiting atmospheric CO_2 concentration

Link to published scenarios
Not linked to a published scenario[1]

Significant shifts in climate policy and green investment in the United States, combined with the acceleration of current European Union climate policy, drive earlier than expected breakthroughs in green technologies, including hydrogen. Most economies (both advanced and developing) adopt meaningful 2050 net zero targets, commit to rapidly reducing emissions by 50-55% of 2010 levels by 2030.[2] Governments make the investments required to meet these targets and support the radical decarbonisation of most sectors in the global economy, including power, transport, agriculture, construction and manufacturing.

Encouraged by government investment and strong carbon price signals, large emitters make material investments in green technology in order to conserve market share and to secure future demand. In this pathway, the intention to decarbonise is matched with effort and technology availability. In this ambitious scenario, warming is limited to ~1.5°C by 2100.

Indicative Carbon Prices[3]
Regional prices.

BY 2025 ~$50-$70

BY 2050 ~$250-$400

All carbon prices quoted in USD per tonne of GHG on a 2019 real basis.

Customer-led transformation

~2.0°C Temperature increase by 2100

MAJOR DRIVER
Decline in high-emission steel demand

Link to published scenarios
IEA Sustainable Development Scenario (SDS)

IPCC RCP 2.6[4]

Over the next decade, customers in advanced economies become fed up with policy inaction and start to vote with their wallets, shifting consumption toward lower-emission and recycled products. Green steel becomes a differentiated product from high-emission steel, attracting a premium as demand for low-emission steel increases. This premium spurs innovation in steel substitutes, decreasing the overall demand for steel. Governments in advanced economies accelerate climate policy progress, enacting carbon prices, more stringent emissions disclosure and recycling requirements. Developing economies follow suit in order to retain their competitiveness.

Breakthroughs in green technology emerge in Europe in the following decade, though access to the technology is initially restricted in order to conserve market share. Over time, global climate policy converges in order to limit average temperature increases to ~2.0°C and end markets for high-emission products become scarce.

Indicative Carbon Prices[5]
Regional prices.

BY 2025 ~$40-$90

BY 2050 ~$200

All carbon prices quoted in USD per tonne of GHG on a 2019 real basis.

1 Our scenario analysis was conducted prior to the release of IPCC's Sixth Assessment report and IEA's net zero special report. For more information on this scenario, refer to the call-out box in the following pages.
2 McKinsey Report on Climate math: What a 1.5°C pathway would take.
3 Broadly references the IEA World Energy Model "Sustainable Development" scenario accelerated by a decade and extrapolated out to 2050.
4 Scenario based on outcomes of the physical risk assessment conducted.
5 Broadly references the IEA World Energy Model "Sustainable Development" scenario extrapolated out to 2050.

Two-speed world converges

~2.0°C Temperature increase by 2100

MAJOR DRIVER
Ratio of carbon prices (Australia and New Zealand: China)

Link to published scenarios

IEA Sustainable Development Scenario (SDS)

IPCC RCP 2.6[6]

Over the next decade, the world continues to see the current sharp division in climate ambition across geographic boundaries we see today: a group of high ambition countries (New Zealand, European Union, states in the United States and Australian states, including New South Wales) press forward with aggressive targets, while another group (including the remainder of the United States, China) make much slower progress.

Beyond 2030, as countries experience the impacts of climate change this dynamic shifts quickly towards a global consensus on ambitious action, with the high-emissions countries scrambling to catch up to the leading countries who have gained a substantial head-start in decarbonising a range of sectors, including steel. This pathway limits warming to ~2.0°C, but the pattern of staggered action creates highly divergent impacts in different markets.

Indicative Carbon Prices[7]

Regional prices.

BY 2025	BY 2050
~$50-$90	~$200

All carbon prices quoted in USD per tonne of GHG on a 2019 real basis.

Investor and public persuasion

~3.0°C Temperature increase by 2100

MAJOR DRIVER
Weighted average cost of capital

Link to published scenarios

IEA Stated Policies Scenario (STEPS)

Over the next decade, fund managers in advanced economies will continue to favour allocating capital to low-emission businesses. A group of non-emissions sensitive investors will emerge and charge high emitters an increasing premium to secure capital. Steel customers (e.g. manufacturers, auto makers) also face pressure from investors to reduce indirect emissions in their supply chain, increasing demand for lower-emission alternatives such as EAF steel and green steel technologies commercialised in 2030-40.

Policy initially lags investor action, until the next decade when governments enact policy reflecting investor preferences, including a price on carbon and greater climate-related disclosure requirements. Staggered, delayed action from governments means that Paris climate ambitions are not met and warming increases to ~3.0°C by 2100.

Indicative Carbon Prices[8]

Regional prices.

BY 2025	BY 2050
~$20-$70	~$50-$100

All carbon prices quoted in USD per tonne of GHG on a 2019 real basis.

6 Scenario based on outcomes of the physical risk assessment conducted.
7 Broadly references the IEA World Energy Model "Stated Policies" scenario with developed regions accelerated by 5 years and extrapolated out to 2050.
8 Broadly references the IEA World Energy Model "Stated Policies" scenario extrapolated out to 2050.

Global inaction

~4.0°C Temperature increase by 2100

MAJOR DRIVER
Change in mean surface temperature

Link to published scenarios
IPCC RCP 8.5[9]

Despite bold climate announcements from major economies such as the United States, Japan and Korea, policy action is insufficient and prioritises nationalist interests over global cooperation to reduce emissions. Jurisdictions already on a more ambitious trajectory like Europe and New Zealand continue to strengthen policy and trading ties, while in less ambitious countries, such as Australia, there is only some meaningful progress towards climate commitments and no formal price on emissions.

Beyond 2030, the effects of climate change increasingly disrupt global supply chains. In most major economies, government policy is more focussed on responding to and preparing for natural disasters and supply chain disruptions than rapidly decarbonising the economy. A lack of global coordination and meaningful progress from large economies such as the United States, results in average temperature increases of ~4.0°C by 2100.

Indicative Carbon Prices[10]

Regional prices.

All carbon prices quoted in USD per tonne of GHG on a 2019 real basis.

New Zealand by 2025	New Zealand by 2050
~$40	~$80
China by 2025	**China by 2050[11]**
~$20	~$50

In ***Early green technology***, the early adoption of low emission technologies across a range of sectors including steel, driven by substantial carbon prices across many regions with concerted policy action, leads to the lowest global average temperature outcome of 1.5°C increase on pre-industrial levels by 2100. Central to this scenario is the rapid development, commercialisation and deployment of breakthrough low GHG emission technologies across all sectors. This pace of change challenges business-as-usual expectations for iron- and steelmaking technologies, given many are currently considered at low or very low technology readiness level (TRL). BlueScope's 1.5°C scenario was developed prior to the release of the IEA Net Zero Special Report[11], however there are significant common themes (refer to the following page for further information).

Customer-led transformation and ***Two-speed world*** both result in a temperature outcome of around 2°C. While technology breakthroughs are assumed not to occur until later in the period under both scenarios, other drivers result in lower emissions than for some of the other scenario pathways we explored. In *Customer-led transformation*, the key driver of lower GHG emissions is a decline in demand for high emissions products including steel. Lower emissions and recycled products attract a premium and this initially results in a reduction in steel demand before green steel technologies come into play later in the period. In *Two-speed world*, high ambition regions adopt stringent GHG emissions reduction targets early. However, the lag in adoption of similar policies by developing countries until they experience physical impacts from climate change later in the period, means that despite rapid delayed action across all countries, the resulting temperature outcome is higher than it otherwise would have been.

9 Scenario based on outcomes of the physical risk assessment conducted.
10 NZ broadly reflects modest escalation applied to current NZ ETS pricing; China Broadly references the IEA World Energy Model "Stated Policies" scenario extrapolated to 2050.
11 International Energy Agency's 'Net Zero by 2050: A roadmap for the Global Energy Sector report.

Investor and public persuasion results in a higher temperature outcome of approximately 3°C because the bottom-up approach to driving climate action by investors results in slower uptake of clean technology. As a result, emissions do not decrease as quickly as in some other scenarios. The main driver in this scenario is assumed to be an increase in capital costs for high GHG emitters, and this is expected to have a more delayed impact on GHG emissions reduction than concerted, coordinated policy actions by governments.

In the ***Global inaction*** scenario, BlueScope has explored the temperature outcome most likely to occur if policy positioning does not translate into policy actions by most countries. This scenario anticipates that those countries already engaged in carbon pricing will continue to escalate their pricing regimes through time, while most nations will focus their policy efforts on adapting to climate change. This scenario is aligned to current business-as-usual trajectories which result in a global average temperature increase of approximately 4°C by the end of the century.

Scenario drivers	**Early green technology**	**Customer-led transformation**	**Two-speed world converges**	**Investor and public persuasion**	**Global inaction**
Temperature outcome by 2100	~1.5°C	~2.0°C	~2.0°C	~3.0°C	~4.0°C
Pace of change					
Global government policy heterogeneity	→				
Global steel demand[12]	→	↓	→	↑	↑
Capital premiums for high-emitters	$$	$$	$$	$$$	$
Green steel breakthrough	2020-30	2030-40	2030-40	2030-40	–
Physical risks	⚡	⚡	⚡	⚡⚡	⚡⚡⚡
Aligned scenarios	*Not linked to a published scenario*[13]	**IEA** Sustainable Development Scenario (SDS) **IPCC** RCP 2.6[14]	**IEA** Sustainable Development Scenario (SDS) **IPCC** RCP 2.6	**IEA** Stated Policies Scenario (STEPS)	**IPCC** RCP 8.5[14]

12 Based on the assumptions outlined in the Stated Policies Scenario (STEPS) and Sustainable Development Scenario (SDS) scenarios in the IEA's Iron & Steelmaking Technologies Roadmap. The only exception to this was that under *Customer-led transformation*, a reduction in steel demand was modelled to test the impact on BlueScope as a result of rising substitution and consumer led transformation eroding the total demand for steel.

13 Our scenario analysis was conducted prior to the release of IPCC's Sixth Assessment report and IEA's Net Zero Special Report. For more information on developing this scenario, refer to the call-out box in the following pages.

14 Scenario based on outcomes of the physical risk assessment conducted.

Implications for BlueScope

The implications for BlueScope under the five scenarios have been assessed. This scenario analysis indicates that our business can play an essential role in the transition to a low-carbon economy as the steel sector and the global community take action to decarbonise.

Insights from the application of the five scenarios to BlueScope's steelmaking assets include:

Port Kembla

Port Kembla's performance is most significantly affected by carbon pricing differentials between countries. This highlights the need for government policy that creates a level playing field in the event of carbon pricing being adopted in Australia. Market mix shifts occur where consumers select lower carbon substitutes (*Customer-led transformation*) and may support consideration of carbon offsetting of products in the medium-term (subject to consumer preferences and product alternatives) while green steel technologies are commercialised. Of note is that under the *Early green technology* scenario, Port Kembla Steelworks performance is the strongest relative to all other scenarios because early commercialisation of low-emissions Hydrogen-DRI triggers near-synchronised shifts to very low GHG emissions steel in Australia and elsewhere.

North Star

At North Star, our low emissions EAF technology drives a substantial abatement cost advantage relative to many competitors across most scenarios. This advantage is most prominent in the *Customer-led transformation* and *Two-speed world* scenarios. In the Early green technology scenario, North Star's performance is less positive than under other scenarios because it loses the above mentioned cost advantage relative to incoming green steel technologies.

Glenbrook

The current ironmaking processes at Glenbrook, combined with high carbon prices in New Zealand, drive a cost disadvantage relative to key competitors over the period to 2050 under most scenarios. However, Emissions-Intensive, Trade-Exposed (EITE) allocations provided by the New Zealand Government limit Glenbrook's exposure to higher carbon prices significantly and allow some time for potential transition to a lower emissions footprint for the business.

BlueScope

Across BlueScope overall, business performance remains strong if low emissions iron and steel technologies are commercially available no later than 2040-2050. We note, however, that the adoption of these technologies will be highly dependent on their commercialisation, affordable and reliable renewables, sufficient volumes of low-cost hydrogen, availability of appropriate raw materials, and policies that support ongoing competitiveness and do not create carbon leakage.

At a minimum, we will revise our climate scenarios every three years as recommended by the TCFD guidelines. This will help to mitigate some of the recognised limitations of scenario analysis, including any bias attached to assumptions made at a specific point in time.

We have integrated our climate scenarios into our Capital Allocation Framework to support an ongoing risk-managed approach to investment. Going forward, this will include assessment of all major investment decisions against the quantified BlueScope scenarios. These assessments will incorporate carbon pricing assumptions by key region over time, capital availability and cost, impacts resulting from differences in regional climate policies and flow-on effects for steel demand and margins (refer to *Our capital allocation approach* section).

RECENT DEVELOPMENTS IN CLIMATE PROJECTIONS

The IPCC's Sixth Assessment Report (AR6)

We acknowledge the importance of the IPCC's AR6 Report, released on 9 August 2021. We note that the IPCC report was not available at the time that BlueScope was undertaking its FY2021 climate scenario analysis. However our scenario analysis incorporates a 1.5°C scenario requiring net zero emissions by 2050 which is broadly consistent with the IPCC AR6 lowest scenario pathway SSP1-1.9. In particular, concerted early decarbonisation action over the next decade is a feature of our 1.5°C scenario. We also include a 4°C scenario, which assesses impacts most consistent with IPCC AR6 scenario SSP5-8.5. We will further examine the findings and assumptions of IPCC AR6 and other important developments in climate science, policy settings and technology as we seek to undertake the next refresh of our scenario analysis.

BlueScope 1.5°C scenario relative to IEA

BlueScope's 1.5°C scenario was developed prior to the release of the IEA Net Zero Special Report in May 2021. However, there are significant common themes. Most prominently, both 1.5°C scenarios assume that technological advances that improve energy efficiency, promote renewable electrification and bring forward the expected deployment of hydrogen and CCUS are critical enablers to limiting a rise in global temperature. There is further commonality in the assumption that concerted additional policy action over and above what has been adopted under the Paris Agreement will be necessary to achieve 1.5°C and also that different countries and regions will follow varying pathways towards targets and in timing of achievement of net zero.

Both 1.5°C scenarios recognise the importance of early action in the decade 2020-2030 to ensure achievement of a more challenging climate ambition and that this requires the substantial deployment of clean technologies now as well as the faster development and early adoption of new technologies currently in demonstration. Adoption of significant carbon prices and large investments in renewable energy are also common themes across the IEA and BlueScope's 1.5°C scenarios.

One substantive difference in BlueScope's 1.5°C scenario relative to the IEA's relates to the demand for steel. BlueScope's scenario is conservative on this front and assumes global steel demand remains relatively static out to 2050. This reflects the perspective that substantial carbon prices globally would limit the rate of economic growth, and along with transition costs associated with moving to new technologies, steel demand which is GDP-correlated, would not grow strongly over the forecast period. The IEA Net Zero Special Report on the other hand assumes steel demand growth of around 12 per cent by 2050 relative to today. Given this variation, the BlueScope 1.5°C scenario might be considered a conservative view of sector growth. As a result, any negative implications for the business would be increased under BlueScope's assumptions relative to the IEA assumption on projected steel demand.

Physical risks

To deepen our assessment of the impacts of climate change on our business, we undertook a quantitative physical risk assessment to test the exposure of our sites to projected climate-related hazards.

We engaged a specialist consultancy in physical climate risk analysis to conduct this assessment. We tested the exposure of a selection of our sites to defined climate-related hazards across two IPCC climate scenarios across the time horizons of 2030, 2050 and 2100. These scenarios in our physical risk assessment were aligned to three of our scenarios from the broader climate scenario analysis noted in the previous section through alignment of Representative Concentration Pathways (RCPs), namely *Global inaction* (RCP8.5), and *Two-speed world/Customer-led transformation* (RCP2.6).

SCOPE

61

Sites assessed for exposure to climate-related hazards
Includes our 3 steelmaking sites and a selection of our coating and painting and building manufacturing sites.

2

Climate scenarios applied
The selected scenarios are aligned to IPCC's RCP 2.6 and 8.5.[15]

3

Time horizons assessed
2030, 2050 and 2100 were selected to stress test the exposure of our sites to climate-related hazards over time.

Our sites were assessed against six hazards with the below associated potential impacts

Soil movement
- Subsidence following drought reduces soil stability and impacts structures.

Coastal inundation
- Inundation of footings and low-lying structures causing widespread damage.
- Increased salinity leading to corrosion of structures.

Riverine flooding
- Inundation of footings and low-lying structures.
- Accelerated deterioration of exposed surfaces and structures.

Extreme wind
- Accelerated deterioration of exposed surfaces and structures.
- Equipment failure due to blackouts.

Forest fire
- Damage to exposed surfaces and structures.
- Equipment failure due to extreme heat.

Pluvial (flash) flooding
- Result of extreme rainfall, flash flooding can damage low-lying structures.

15 Aligned to IPCC's Representative Concentration Pathways (RCP). RCP 2.6 was used to represent a low risk, stringent scenario often referred to as below 2°C, linked to the objectives of the Paris Agreement (with low emissions) and RCP 8.5 was used to represent a high risk, 'business as usual' scenario (with high emissions). We note that the IPCC AR6 Report was not available at the time that BlueScope was undertaking its FY2021 climate scenario analysis, thus we have used RCPs for this assessment aligned to IPCC's Fifth Assessment Report.

INSIGHTS

The findings of this assessment indicated that broadly, our risk exposure profile does not increase significantly under either of the two selected climate scenarios until after 2050. However, in the second half of the century, this risk profile is expected to increase under both scenarios, especially under RCP 8.5 representing a high-risk business-as-usual scenario with high emissions (this scenario aligns to our *'Global inaction'* scenario). For the climate-related hazards assessed, some of the key insights include:

Steelmaking activities

- **Port Kembla Steelworks** will be most exposed to soil movement and coastal inundation towards 2100.
- **Glenbrook** will be most exposed to soil movement with exposure expected to increase over time.
- **North Star** will experience an overall decrease in exposure to climate impacts due to increased wetting trends (resulting in decrease in soil movement) projected for the region. Nevertheless, the site will be most exposed to soil movement towards the end of the century.

Non-steelmaking activities

- Exposure to climate-related hazards projected to increase over time, with variations across geographies.
- Soil movement (due to drought) is the most common and frequent hazard that affected the sites assessed.

BLUESCOPE'S RESPONSE

The results of this analysis will be used by our engineering teams to consider the vulnerability of specific assets to the identified exposures and adjust future capital works programs, if required. However, based on our current understanding, between now and 2050 we do not expect to spend significant capital to address the identified potential exposures.

Current actions

- Continue to adhere to existing design and planning standards.
- Continue to meet relevant building and infrastructure standards for each operation that already considers climate-related hazards.
- Maintenance of assets aligned to asset management plans.
- Routine monitoring systems as part of day-to-day operations focussing on structural integrity, changes or disruption (e.g. stockpile management, bunding).

Future actions

- Revise asset management plans to take into account projected impacts. For example, monitor changes to building/infrastructure standards that take into account changes to hazards such as 1-in-100 year floods.
- Identify potential controls that may be required to reduce projected impacts.
- Monitor assets for potential climate-related impacts.
- Incorporate outcomes into the Capital Allocation Framework.

As climate models continue to develop and refine regional and local climate projections, we will update our understanding of how our assets might be exposed to the physical impacts of climate change. In future years, we will extend this analysis to better understand the impacts across our supply chains.

Section

03

Our climate strategy

Our climate strategy

Climate action is key to Our Purpose to strengthen communities for the future and is one of our five sustainability outcomes that reflect what matters most to our stakeholders. In 2019, climate action was incorporated as a key strategic theme into our refreshed corporate strategy, to guide our ongoing commitment to decarbonisation. Our climate strategy outlines the key focus areas we will work towards. Our climate action pathway sets out the measures BlueScope intends to take to implement the strategy.

Focus area	Our intent
Reduce our GHG emissions in response to evolving climate science, technology availability and key investment decisions	Over the short and medium-term, we are working to meet our 2030 GHG intensity targets by encouraging and empowering our sites to take action, using our climate scenarios to inform our major investment decisions, and implementing improvement projects. Over the long-term we have adopted a 2050 net zero goal.[1] Our decarbonisation pathway is built on research and development preparing for major investments aligned to the capital cycles of our major steelmaking facilities, and leadership and involvement in key global and regional initiatives.
Create carbon-efficient and climate-resilient solutions for our customers	We continue to engage with our customers and focus on how we can best meet their needs, conducting product research and design and pursuing operational excellence to deliver resilient, efficient and innovative products.
Increase our use of affordable and reliable renewable energy	We believe that competitively priced, reliable renewable and low-emissions energy will underpin the transition of the steel industry to net zero GHG emissions.
Use quality and cost-effective carbon offsets, only where direct abatement is not feasible	We have developed offset principles, to ensure that any offset procurement would meet our business principles and stakeholder expectations, and that it complements direct abatement actions.
Making the case for local, sustainable steel in our communities	We are working with industry, customers, communities, regulators and governments to demonstrate the benefits of a local steel sector. Recognising steel's essential role in modern society and its contribution to local economies and the balance of trade, we are advocating for a strong policy framework that supports domestic steel industries.
Monitor, manage and engage	We maintain an active external view as we seek to drive resilience in our operations and supply chains. We keep abreast of external developments, continue to monitor and manage climate risk uncertainties, report our progress to relevant stakeholders regularly and engage effectively with key stakeholders.

1 Applicable to our Scope 1 and 2 GHG operational emissions.

Future actions

Reduce our GHG emissions in response to evolving climate science, technology availability and key investment decisions

To meet our 2030 GHG emissions targets[2], we will:

- Adopt commercially available technology that passes successfully through our capital planning processes.
- Continue to investigate emerging mid-term technology to reduce GHG emissions intensity across our steelmaking activities.
- Reduce our non-steelmaking GHG emissions through efficiency and productivity improvements and innovation, particularly in relation to gas use and increasing use of renewable energy.
- Finalise US$700M investment in the expansion of low-GHG emission steelmaking at North Star.
- Seek out partnerships and collaborations to improve access to, or bring forward adoption of GHG emission abatement technology and processes.
- Allocate up to $150M over the next five years for projects and processes that support our decarbonisation journey[3], noting a highly indicative capital cost of between $300-400M over 10 years to meet our 2030 targets.

To work towards achieving our 2050 net zero goal, we will:

- Continue to explore the strategic fit and viability of a range of identified emerging and breakthrough technology options to reduce GHG emissions at our Port Kembla and Glenbrook iron- and steelmaking sites.
- Foster partnerships and collaborations to support acceleration of the steel sector's decarbonisation pathway.
- Seek government support in emerging and breakthrough technologies, technically viable reductants and sources of energy.
- Undertake pilot programs to test and help develop new abatement opportunities.
- Seek to adopt commercially viable emerging and breakthrough technology as and when available and aligned to our capital cycle.

Create carbon-efficient and climate-resilient solutions for our customers

We will:

- Continue to work with our customers to meet their needs and deliver fit-for-purpose product solutions.
- Continue our focus on products and services that maximise our products' circularity credentials in design, use, end of life and reuse.
- Continue to conduct product research focusing on the durability of our products to withstand projected physical impacts of climate change and contribution to energy efficiency of buildings (e.g. extreme heat, severe storms, etc.).
- Continue to transparently report the life cycle impacts of steel products through Environment Product Declarations (EPDs), and maintain our customers' trust through third party sustainability accreditations including ResponsibleSteel™, Global Green Tag and Environmental Choice New Zealand.

Increase our use of affordable and reliable renewable energy

We will:

- Seek to manage price volatility and reduce emissions by entering into affordable and reliable renewable energy supply agreements where commercially feasible.[4]
- Explore opportunities to support the development of:
  - low GHG emission firming assets that facilitate the continued uptake of renewable energy and provide reliable competitively priced energy to BlueScope's operations; and
  - new technologies and supply chains for low GHG emissions energy sources, including hydrogen, where commercially feasible and aligned to BlueScope's broader business strategy.
- Take a regional approach to renewable energy to ensure fit-for-purpose strategies that recognise differences in the markets in which BlueScope operates.
- Develop and implement a renewable energy procurement strategy (aligned to GHG emission reduction targets) for our steelmaking and non-steelmaking operations.

Use quality and cost-effective carbon offsets, only where direct abatement is not feasible

- Develop a carbon offset strategy and build out our offset principles at a more detailed level, including clearly articulating the attributes of a quality offset project. We will:
  - Only procure cost-effective[5], quality offsets to deliver on BlueScope's GHG emission reduction targets where abatement is not feasible;
  - Ensure the quality of offsets by procuring traceable and auditable offsets from projects that deliver additional GHG reductions in compliance with relevant certification standards;
  - Where viable, align the sourcing and creation of offsets to the country corresponding to the generation of emissions;
  - Preferentially, align any offset procurement opportunities with BlueScope's broader sustainability principles, maximising the benefit of these offset projects for BlueScope's local communities; and
  - Transparently disclose any offset retirements needed to supplement our mid-term targets and long-term goal.

Making the case for local, sustainable steel in our communities

We will:

- Continue developing partnerships and collaborations to demonstrate the critical role steel plays in underpinning sustainable development and a transition to a low-carbon, circular economy.
- Advocate for a policy landscape that supports investment by the steel industry in low and zero GHG emissions technologies, while not adversely impacting competitiveness.
- Advocate for policy and investment to appropriately decarbonise the electricity grid and develop efficient, commercial renewable hydrogen supply chains.

Monitor, manage and engage

We will:

- Continue to monitor and respond to key developments that are of importance to our stakeholders, such as investors, customers, employees, governments, suppliers, communities.
- Participate in key industry forums to support initiatives that leverage steel sector knowledge of technology development and whole of sector transition.
- Engage with our external audiences by:
  - Continuing to provide regular updates through our sustainability reporting and future Climate Action Reports on our key commitments, including our 2030 targets and long-term goal.
  - Continuing to align our public climate-related disclosures to the TCFD framework.
  - Participating in industry forums and responding to ESG indices and customer surveys that are important to our stakeholders.

2 Includes our Steelmaking and Non-Steelmaking Targets.
3 Refer to *Options to decarbonise our iron and steelmaking portfolio* section.
4 For a supply agreement to be commercially feasible it needs to meet the risk and cost profile of the business. Where possible we should seek to secure low emissions supply at or close to the cost of traditional supply. Where a carbon premium is payable, the supply option also needs to make commercial sense in relation to the broader suite of abatement opportunities.
5 Cost effective offsets are offsets that are offered at an attractive market price and that also make sense when assessed against other abatement opportunities. For example, it may be lower cost to procure offsets than to implement expensive unproven technology to offset emissions from immaterial carbon sources.

Our decarbonisation pathway

Our decarbonisation pathway will support the delivery of our climate strategy. We acknowledge that the steel industry is a material contributor to GHG emissions globally. It is therefore critical that BlueScope sets a pathway that drives the work already started to improve operational efficiencies, and to explore emerging and breakthrough emissions reduction technologies. Below are the steps we are following in developing and executing on our decarbonisation pathway.

Emissions exposure mapping	Forecasting our emissions based on current and expected future production and emissions intensity.
Mapping climate risks and opportunities	Physical and transition risks aligned to TCFD including use of scenarios.
Determining possible abatement pathways	Mapping currently available, emerging and breakthrough technologies and timeframes for implementation and high-level capital estimates.
Building collaborations	Leveraging our existing relationships and investigating new opportunities to build partnerships, including conducting trials of breakthrough technologies.
Assessing abatement projects	Assessment and prioritisation of abatement projects based on emission reduction potential, capacity for operational optimisation, cost savings and current viability and future expected commercial availability.
Communication	Ongoing engagement with investors, governments, our customers, suppliers, and communities and with our employees.
Project implementation	Application of our Capital Allocation Framework and initiation of selected abatement projects for implementation.

We will continue to assess the appropriateness of our net zero transition plan, including its scope, capital requirements and timing.

Our goal and targets

2050 GOAL

NET ZERO Scope 1 and 2 GHG Emissions

All global operations (steelmaking and non-steelmaking)

We have set the goal of pursuing net zero Scope 1 and 2 GHG emissions across our business (including our midstream and downstream activities).

Our 2050 net zero goal is contingent on five key enablers:

- Evolution of emerging and breakthrough technologies to viable, commercial scale;
- Access to affordable and reliable renewable energy;
- Availability of appropriate volumes of competitively priced hydrogen from renewable sources;
- Access to appropriate quality and sufficient quantities of raw materials to support the production of iron and steel in the near term as the industry transitions to lower carbon production methods; and
- Public policy that supports investment in decarbonisation and avoids risk of carbon leakage.

Noting the uncertainty regarding breakthrough technologies in the hard-to-abate steelmaking industry, we will continue to assess the appropriateness of our 2050 net zero goal, including its scope and timing, against developments in these areas and as further information comes to light.

We believe it is important to clearly and transparently define the scope and boundaries of our 2050 net zero goal, including that:

- It covers our operational Scope 1 and Scope 2 emissions and applies to our global operations, including our steelmaking and non-steelmaking activities (including both midstream and downstream).
- It considers the six greenhouse gases recognised under the Kyoto Protocol and the GHG Protocol. This includes carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6).
- Performance will be reported under the GHG Protocol's equity-based approach for organisational boundaries.
- We recognise the role of high integrity offsets that are additional, measurable, verifiable and permanent, and may count them towards our targets and goal where direct abatement of GHG emissions is not technically achievable or commercially practical. Refer to our *principles for offsets* for further details.

To generate momentum towards achieving our 2050 net zero goal, we have adopted:

2030 STEELMAKING TARGET

12% Emissions intensity reduction

Steelmaking sites (Port Kembla, Glenbrook and North Star)

A Scope 1 and 2 GHG emissions intensity reduction target of 12 per cent by 2030 against a FY2018 baseline (measured as tonnes CO_2-e per tonne of raw steel produced from our steelmaking operations). This target is equivalent to a 1 per cent year-on-year emission intensity reduction (from 2018) across our steelmaking activities.

2030 NON-STEELMAKING TARGET

30% Emissions intensity reduction

Midstream sites that include painting and coating lines

A Scope 1 and 2 GHG emissions intensity reduction target for our midstream non-steelmaking activities, targeting a 30 per cent GHG intensity reduction by 2030 against a FY2018 baseline (measured as tonnes CO_2-e per despatched tonne of steel). This new target was adopted in FY2022.

Together our 2030 targets will cover around 98 per cent of BlueScope's Scope 1 and 2 emissions.

Delivery of the 2030 targets and progress on the 2050 goal will be supported our revised Capital Allocation Framework. On a highly indicative basis, we anticipate capital requirements estimated at $300M to $400M over the next 10 years, and to that end we have initially allocated up to $150M over the next five years to help deliver on our mid-term commitments and make progress on our longer-term decarbonisation journey.

Options to decarbonise our iron- and steelmaking portfolio

By using BlueScope's iron- and steelmaking knowledge, and understanding the latest developments in technology innovation, we have developed an indicative iron- and steelmaking decarbonisation pathway (below) over two phases:

(i) our pathway to achieving our 2030 steelmaking emissions intensity reduction target; and

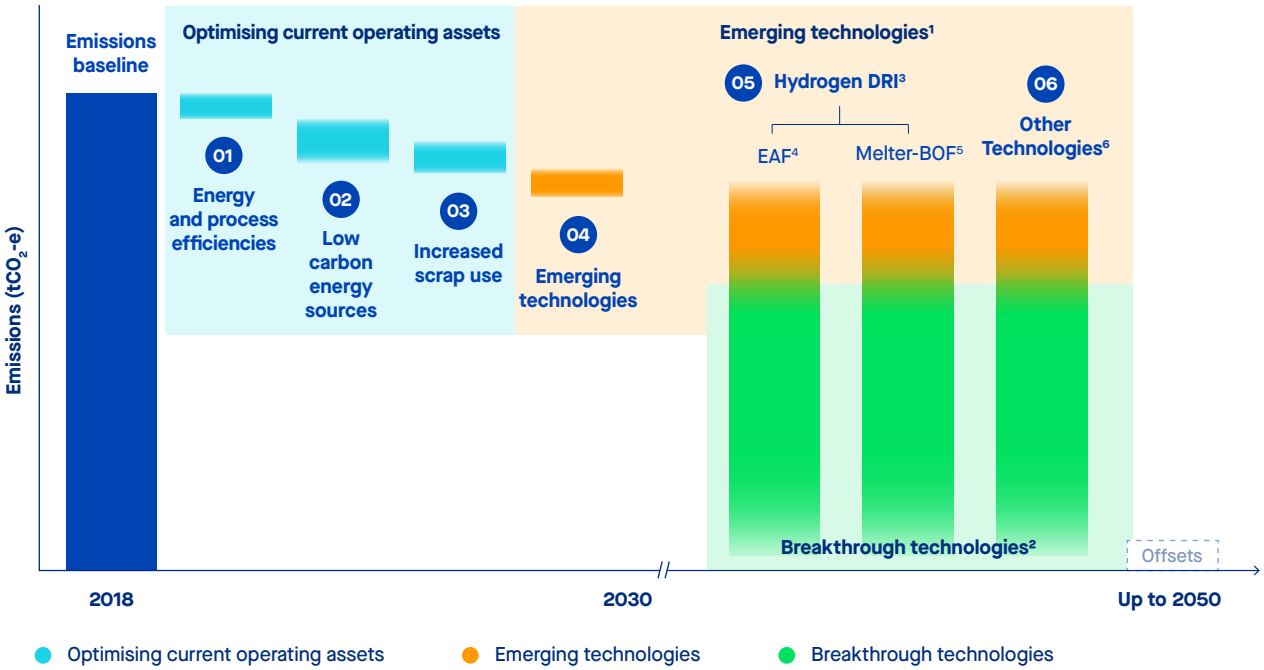
(ii) a suite of options to meet our 2050 net zero goal.

In the near to mid-term, this means our focus will be on optimising our existing assets and processes and working in partnership with industry and research bodies to progress the technical and commercial viability of future technology options (e.g. hydrogen DRI production route).

In the longer-term, we will continue to explore multiple process routes and understand how they might fit into our operations depending on how the technologies, energy and raw materials availability, and regional policies evolve.

INDICATIVE IRON- AND STEELMAKING DECARBONISATION PATHWAY

Details of each technology option that corresponds to the below Figure[7] is outlined in the following section.



1 Emerging technologies refers to demonstrated technology that is commercially available but requires further application to integrated steelworks, e.g. biochar, hydrogen tuyere injection, etc.
2 Breakthrough technologies refers to technology not yet commercialised, currently at concept or pilot stage, or not yet applied to integrated steelworks (e.g low Technology Readiness Level (TRL)).
3 Contingent upon feasible supply of hydrogen from renewable sources.
4 Requires suitable high-grade ores, estimated at less than 15% of available ores and access to cost-effective energy sources.
5 For Melter-BOF, DRI-melter replaces the blast furnace. Maintains existing BOF and caster infrastructure, and allows a wider range of ores to be used.
6 Other technologies include CCUS, electrolytic reduction, etc.
7 Each technology option is allocated a number which corresponds to information outlined in this section.

Figure above: BlueScope's indicative decarbonisation pathway for our iron- and steelmaking activities.

Note: this diagram is not intended to present a checklist of sequential projects that will be implemented by BlueScope; pursuit of one project may preclude or impact the economics for other projects. This is especially true for options that require significant reconfiguration of existing facilities/process routes, or would result in duplicative production routes such as those included in 05 and 06.

Now to 2030

The iron- and steelmaking facilities across our portfolio each use different technologies and, as a result, have unique challenges and opportunities.

We have continued to develop a range of options to meet our 2030 Steelmaking Target. While this requires around a 1 per cent year-on-year reduction across our three key steelmaking sites (North Star, Port Kembla and Glenbrook), it represents a challenging target to achieve in a hard-to-abate sector, where very low emissions technologies that could provide step-change reductions are still a significant way from technical and commercial readiness.

We have identified a range of initiatives with the potential to achieve our 2030 Steelmaking Target acknowledging that work must continue to refine specific project options via our capital planning process. These initiatives are summarised below.

01 Energy and process efficiencies

We acknowledge the work being undertaken across the world to explore breakthrough 'green steel' ironmaking technologies. These technologies range from the injection of hydrogen into existing blast furnace operations to the capital intensive replacement of front-end ironmaking with DRI using hydrogen. While these prospective hydrogen ironmaking technologies are exciting, those with the potential to deliver a meaningful reduction in emissions are at the early stage of technology development necessary for a fully integrated value chain.

Other energy and process efficiencies aimed at reducing our emissions profile include optimising our use of raw materials, improving process operation parameters and material recycling. Our digital transformation program will be key to help modernise and optimise our plant processes and carbon reduction. This involves implementing a range of 'big data' techniques to optimise our process control in real time to allow improved efficiency, ironmaking process control, scrap utilisation and assessing future technology options and their impact on emissions. Several digital simulations will also be employed to predict the outcome of future scenarios to help us make the best decisions in evolving our decarbonisation pathway.

Additionally, options relating to improved utilisation of surplus indigenous gases are being explored. These will be examined through our Capital Allocation Framework to determine the optimal future configurations for carbon abatement.

SLABMAKING AND HOT METAL POT TEMPERATURE MODELS

Using advanced data analytics and machine learning, the slabmaking temperature model has improved its prediction accuracy. This development has allowed for lower steelmaking endpoint temperatures, facilitating higher scrap charge and improved raw material efficiency.

Our hot metal pot temperature prediction model has also been developed using 'what if' prediction capability. This modelling enables plant operators to optimise the conditions to maximise the hot metal temperature to enable increased scrap melting capability.

INDIGENOUS GAS COLLECTION

The indigenous gases that are created by the coke ovens and blast furnace processes are currently collected, stored and reused for process heating and the production of steam which is used to drive blowers/compressors/pumps, and for electricity generation. Currently the off gases from the BOF process are not captured.

A prefeasibility study into the collection and distribution of the currently flared BOF off gas (known as Linz Donawitz gas or LDG) is being undertaken. This project is a significant enabler for further optionality in the distribution and use of our indigenous gases. This system would indirectly provide the energy to either improve internal electricity generation, enable increased scrap utilisation or allow the injection of hydrogen-rich coke ovens gas (COG) into the blast furnace.

STEELMAKING SLAG FOR GLENBROOK

At our Glenbrook plant, we have been recycling our steelmaking slag onto the coal stockpile to use as a flux in the ironmaking process. This beneficial remnant burnt lime from the recycled slag replaces quarried limestone that would otherwise have been used. Through this recycling process, the calcination of the displaced limestone and its associated carbon emissions are avoided. The recycling started continuously in late 2019 and we have demonstrated a greater than 10 per cent reduction in the limestone intensity for the ironmaking process. The result of this is an expected Scope 1 GHG emission reduction of approximately 7,500tCO_2-e per year into the future.

02 Low carbon energy sources

Steelmaking facilities are significant energy users. The availability of reliable, low-cost, low-emission energy will be critical on the pathway to lower carbon steelmaking. As the world transitions away from fossil fuel-based energy sources, BlueScope is advocating for increased development of affordable and reliable low emissions energy supply.

Along with our Finley Solar Farm Power Purchase Agreement in NSW, our Port Kembla Steelworks has announced the creation of a Renewable Manufacturing Zone in conjunction with the NSW Government in the Illawarra region to support the manufacture of renewable energy components (for more information refer to *We create and inspire smart steel solutions* section). Our Glenbrook site benefits from a largely decarbonised electricity grid, while North Star benefits from nuclear power as part of the local grid mix.

We will continue to increase our use of affordable and reliable renewable energy, where commercially feasible, to reduce Scope 2 GHG emissions not covered by grid decarbonisation. In addition, we will also pursue opportunities to reduce Scope 1 GHG emissions by investigating new commercially viable opportunities for fuel switching and accessing low-emissions energy sources. This includes investigation of longer-term opportunities to source cost competitive low or zero emissions energy at commercial scale, and local 'green' hydrogen, which will need to be supported by extensive renewable energy generation and network infrastructure. Refer to *Our renewable energy principles* disclosed later in this section.

FINLEY SOLAR FARM POWER PURCHASE AGREEMENT

In FY2020 the 500,000 solar panel, 300 hectare, Finley Solar Farm commenced generating renewable electricity. The construction of the 133MW_{ac} solar farm was made possible by BlueScope entering into a 7-year PPA, committing to 66 per cent of the electricity generated which equates to approximately 20 per cent of our Australian Steel Products division purchased electricity.

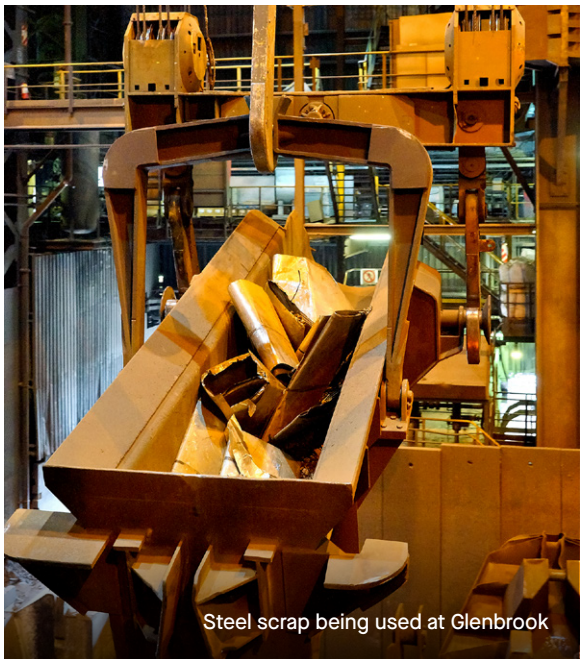
03 Increasing scrap use

The increased use of steel scrap as part of the circular economy helps to produce steel products with lower embodied emissions. We recognise, however, that the EAF steelmaking route is not a complete answer to decarbonisation of the global steel industry, given limitations in local scrap availability and other factors (refer to call out box on *Both Integrated and Scrap based EAF steelmaking are essential*). BlueScope is investing in a range of activities which include new equipment and digital technologies to increase and optimise the economic use of steel scrap in our iron- and steelmaking. By working with regulators and suppliers in all our steelmaking locations, we are seeking to increase our participation in the circular economy of scrap recycling. The investment in increased capacity in our North Star EAF-based facility is a significant step towards moving our steelmaking portfolio in this direction.

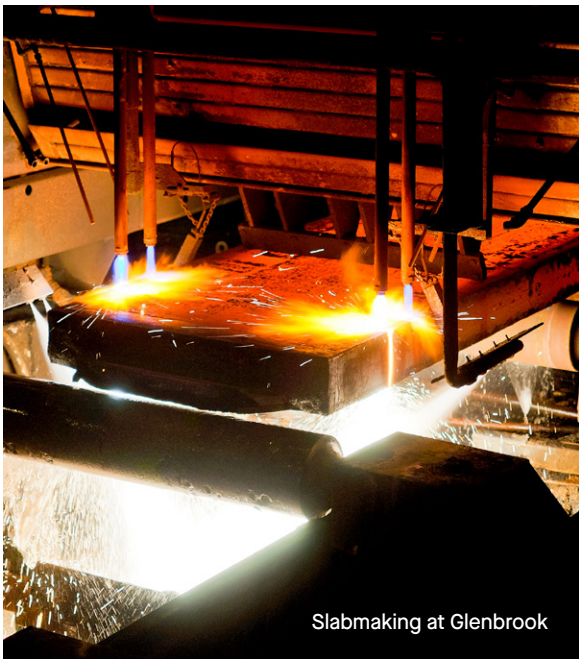
GLENBROOK AND PORT KEMBLA – INCREASING SCRAP USE

In Port Kembla, a range of opportunities are being considered to improve the amount of scrap that is being used in the steelmaking process. This ranges from improved utilisation of hot metal torpedo ladles, improved scrap delivery, managing scrap inputs, preheating/melting scrap, and slabmaking process temperature management.

For Glenbrook, significant progress has been made in optimising the charge balance to accommodate more scrap in recent years. This represents an extra 4 per cent of the total steel output coming from scrap at charge balance. Further step-change improvements will involve melting additional recycled steel scrap with electricity and/or steelmaking process gas to lower the proportion of primary iron for each tonne of steel output.



Steel scrap being used at Glenbrook



Slabmaking at Glenbrook

04 Emerging technologies

We have allocated resources to assessing the applicability of various emerging iron- and steelmaking technologies to our sites and the timescales for commercialisation. As we develop our options for carbon abatement, partnerships with governments, technology vendors and industry bodies will be crucial to making sure we are ready to implement the best available technologies for each of our site-specific needs. Several partnerships are already in place, and we are actively pursuing the development of emerging options.

We will prioritise long-term abatement opportunities and associated collaborations based on their potential to reduce emissions, their fit with our strategy and values, synergies with other abatement options, degree of challenge to execute and expected commerciality. It is expected that our portfolio of abatement opportunities under assessment at any given time will span a range of horizons with respect to technical and commercial readiness.

BIOCHAR

Potential use of charcoal produced from forestry industry waste or construction industry waste to replace Pulverised Coal Injection (PCI) in the Blast Furnace and other carbon sources.

Research and Development (R&D) of this technology was previously conducted by BlueScope and other industry participants with the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

Biochar is used as a reductant in some iron and steel plants overseas (e.g. Brazil) but its use in Australia will require the development of an economic supply chain for the collection and conversion of wood based waste into Biochar.

Biochar/coal mixture pneumatic transport laboratory testing and furnace biochar injection trials are planned with the University of Wollongong. Supply chain opportunities are also being investigated.

Potential emerging and breakthrough technologies beyond 2030

While critical technologies that will help enable net zero emissions in the steelmaking sector are generally still at an early stage of technical and commercial readiness, BlueScope recognises the need to identify the most prospective technology opportunities and build these options into our abatement plans. We will continue to explore their application through our capital planning processes, ongoing research and discussions with industry collaborators, and partnerships with R&D organisations (refer to *Partnerships and research* section for our recent participation in R&D and industry initiatives).

Prospective emerging and breakthrough technology options recognised in our decarbonisation pathway include the options summarised in 05 and 06 below.

05 Hydrogen DRI (includes DRI-EAF and DRI-Melter-BOF)

Natural gas-based DRI, which is already technically proven and commercially viable where low-cost natural gas is available, could serve as a transition path to hydrogen based DRI. Given that the most abundant ore bodies (currently used in blast furnaces) are not well suited to DRI (refer to *Access to raw materials* and *The DRI value chain: Magnetite or Hematite* on the following page), an intermediate refining stage after DRI such as a melter could be required.

Hydrogen-based DRI produced from green hydrogen could potentially be coupled with either a Melter-Basic BOF configuration or EAF technology, once the technology is technically and commercially viable. Adoption of this technology will depend on a secure, low-cost supply of hydrogen, and substantial grid-scale renewable energy infrastructure development to support the hydrogen supply. It will also depend on long-term access to appropriate quality commercial raw materials.

DRI-EAF

If stable, competitive, commercial supply of DRI grade pellets of sufficient quality for an EAF, together with economic scrap supplies are available and can be secured, the DRI-EAF route provides the most direct conversion approach for iron ore into steel.

EAF steelmaking provides an approach that results in steel production with lower GHG emissions, as the scrap input to this process has already been reduced from iron ore at a previous stage.

EAF steelmaking is considered in our decarbonisation pathway as emerging because further transition to EAF technology utilising 100 per cent renewable electricity would allow for very low-carbon emissions. To be viable in either our Australian or New Zealand context, this option requires secure, reliable and economic supplies of renewable power and sufficient economic volumes of quality steel scrap (refer to *Ensuring the long-term future of our steelmaking activities* section).

The EAF option has been reviewed for Port Kembla. However, it is not currently a plausible option in the near to mid-term given shortages of prime or ex-manufacturing scrap, relatively high electricity prices, high capital outlay and scale of additional electrical infrastructure required (refer also to call out box on *Both Integrated and Scrap based EAF steelmaking are essential)*.

In North America we have recognised the benefits of a standalone EAF production route through the significant expansion of our North Star facility. Secure local supplies of commercial quality scrap and a decarbonising grid inclusive of nuclear power support our expansion of this process route at North Star.

DRI–Melter-BOF

An alternative process for the use of lower-grade ore sources, such as hematite ores predominant in the Pilbara region of Australia, can be achieved by adding a melter process after the DRI process. Such technology exists today (e.g. our New Zealand melter process), and can be used to remove the gangue that will be present in the hematite based ore. This process also enables the existing BOF-Caster configuration that is part of an integrated steelworks to continue to be utilised, without the need to invest in an additional conversion process. This process is also electricity-intensive.

06 Other breakthrough technologies

There is a range of other breakthrough technologies that we will continue to keep under review as and when they develop beyond pilot/early stages, including:

- Direct electrolysis of iron ore utilising 100 per cent renewable electricity. This is an early-stage technology currently undergoing small pilot trials overseas.
- Adoption of high efficiency blast-furnace technology together with CCUS. This option will involve building on international efforts to optimise blast furnace efficiency and build in optionality to utilise future emissions-reducing technologies, as and when they become commercially and technically viable. A number of CCUS trials and developments are currently in place but have not achieved the scale required to manage the volume of emissions either a blast furnace or natural gas DRI process produces.

We believe that achievement of net zero GHG emissions by 2050 will be highly dependent on several key enablers as articulated earlier in this section. Access to raw materials, hydrogen and renewable energy is central to commercial deployment of emerging and breakthrough technologies in any given regional context and these enablers are covered in the following page in more detail. Appropriate policy settings are explained in more detail in the *Advocacy* section of this Report.

Exploring some of the enablers to assist BlueScope in achieving net zero GHG emissions by 2050

IRON ORE

Access to raw materials

Raw material availability will be crucial to secure steel production capability in the near and longer term and to support the transition to net zero. Securing access to the raw materials that are currently used in the blast furnace process, such as metallurgical coal, will be critical in the early transition period, as will be securing future raw material requirements, such as DRI and hydrogen.

Underpinning the transition to net zero GHG emissions by 2050 in the iron and steel industry is the assumption that ironmaking technology will transition from predominantly blast furnace production to DRI using green hydrogen. Currently, approximately 70 per cent of steel production globally comes through the BF-BOF route, while DRI using natural gas represents less than 5 per cent.

Unlike blast furnace production, raw materials in the DRI process remain solid. For this reason, the impurities present in the raw material are not removed, so the DRI process works best with higher-grade ores. DRI grade ores suitable for use in the EAF represent less than 15 per cent of current seaborne ores. The demand for these ore types will inevitably increase but will only support a small proportion of global steel production.

Hematite[6] could be used in the DRI process, however additional processing stages will be required. The potential for a melting and refining stage post DRI to produce liquid iron for feed into a BOF is currently being examined. Although an additional expensive processing step is added, this route could enable the current BF-BOF process route to be adapted to a DRI-Melter-BOF process using more readily available ore types.

DIRECT REDUCTION

The DRI value chain: magnetite or hematite

A key difficulty in adopting DRI technology in markets such as Australia would be domestically sourcing cost-effective iron ores of the right grade to produce the required pellets for DRI. DRI plants require the iron ore to have a higher iron content (above 67 per cent) and to be low in contaminant materials, e.g. below 3 per cent (silica + alumina).

To address this shortfall, an alternative option is the mining of magnetite ores. This is an emerging industry in Australia with large deposits being developed in the Pilbara and mid-west regions of Western Australia, and in South Australia. Magnetite ore deposits are of a lower ore grade (20 – 30 per cent iron content) but can be made into concentrates through additional beneficiation that relies on its magnetic properties, i.e. magnetic separators. This significantly increases the cost, as more than twice the amount of ore needs to be mined and processed.

Historically, proven resources of iron ore in Australia have been thought to be around 72 per cent hematite and 28 per cent magnetite, with hematite representing the majority of ores exported from Australian iron ore producers for BF-BOF steelmaking. Before export, these Australian ores undergo a relatively simple beneficiation process (crushing and screening) and typically, range between 56 per cent and 62 per cent iron and 6.2 per cent (silica + alumina) contents. This restricts their use in DRI production without higher order beneficiation, which substantially increases their costs and reduced their mined yield.

Hydrogen

The development of green hydrogen production to a commercial scale is currently in its infancy. The current use of DRI is typically limited to locations where natural gas is abundant and cheap. As hydrogen production technologies improve and their currently prohibitive cost falls over time, the use of green hydrogen in the DRI process could increase.

Renewable energy

To support the development of a commercial green hydrogen industry, renewable electricity availability will need to increase substantially. Low-cost, large-scale reliable supply of renewables is critical to reducing the cost of green hydrogen production sufficiently to bring it into the range of commercial viability for industrial use in iron- and steelmaking.

We will continue to assess the appropriateness of our net zero transition plan in consideration of evolving science, global initiatives, technology development and commercial readiness, policy developments and stakeholder expectations. Any updates on our climate strategy and/or pathway will be provided through future Climate Action or Sustainability Reports.

6 Amended from document version lodged on ASX on 1 September 2021.

Decarbonising our non-steelmaking activities

Non-steelmaking activities represent around 8 per cent of BlueScope's total GHG emissions (Scope 1 and 2). This includes our midstream (paint and metal coating) and downstream (roll forming and building infrastructure) facilities. The majority of these emissions arise from electricity and gas used to run our operations.

In FY2022, BlueScope set a mid-term target to achieve a 30 per cent GHG emissions intensity reduction across our non-steelmaking operations by 2030, against a 2018 baseline year.[7] We have analysed our emission sources and potential options for decarbonisation across our non-steelmaking activities to understand what actions are required to meet this target.

Non-steelmaking Scope 1 GHG emissions reduction initiatives will primarily be driven by operational efficiencies and productivity improvements. For Scope 2 GHG emissions, although there will be incremental improvement opportunities, the primary opportunity will be in pursuing further renewable energy solutions.

We will continue to assess all opportunities to reduce emissions across our activities, including their interactions as we progress them through our capital assessment process.

WESTERN SYDNEY PAINT LINE NATURAL GAS REDUCTION

Reducing the emissions intensity at our major operations will be critical to meeting our 30 per cent target for non-steelmaking activities. An example of the opportunities we are investing in has been implemented at our Western Sydney paint line. Through improved process control equipment and system logic, the team enabled the oven pressures and exhaust to be better managed, reducing the amount of cold air being drawn into the paint ovens. The result was that natural gas consumption was reduced by 25 per cent, and electricity consumption by 10 per cent.

7 The Non-Steelmaking Target applies to our midstream activities that include our cold rolled, metal coating and painting lines and long and hollow products. It excludes our downstream activities.

Our renewable energy principles

Across our operations there is significant diversity in energy markets and opportunities to adopt low-emissions energy supplies. Recognising this diversity and the importance of competitively priced, reliable and low-emissions energy, the following high-level principles have been developed. These principles will be used to coordinate and guide action across the business in adopting low-emissions energy sources.

We will:

- Seek to manage price volatility and reduce emissions by entering into reliable renewable energy supply agreements where commercially feasible.[8]
- Explore opportunities to support the development of:
  - low-emission firming assets that facilitate the continued uptake of renewable energy and provide reliable competitively priced energy to BlueScope's operations; and
  - new technologies and supply chains for low emissions energy sources, including hydrogen, where commercially feasible and aligned to BlueScope's broader business strategy.
- Take a regional approach to renewable energy to ensure fit-for-purpose strategies that recognise differences in the markets in which BlueScope operates.

Our offset principles

Carbon offsets provide recognition of an action taken to produce a reduction, avoidance, removal or sequestration of greenhouse gases. A carbon offset unit represents one tonne of CO_2-equivalent emissions avoided or removed by a specific emissions reduction project.

While we do not intend to rely on carbon offsets in the achievement of our 2030 targets, we retain the option to use them where direct abatement is not technically or commercially feasible.

We have developed principles to ensure that any offset procurement would meet our business principles and stakeholder expectations, and that it complements direct abatement actions to meet our emissions reduction targets. Any action taken will also need to be cost-effective, account for risk and align to broader business strategy:

Therefore, if required we will:

- Only procure cost-effective,[9] quality offsets to deliver BlueScope's emission reduction targets where abatement is not feasible.
- Ensure the quality of offsets by procuring traceable and auditable offsets from projects that deliver additional emissions reductions in compliance with relevant certification standards.
- Preferentially, align any offset procurement opportunities with BlueScope's broader sustainability principles, maximising the benefit of these offset projects for BlueScope's local communities.
- Where viable, align the sourcing and creation of offsets to the country where the emissions are generated.
- Transparently disclose any offset retirements needed to supplement our mid-term targets and long-term goal.

We will provide further information on our evolving offset strategy in our future climate-related disclosures.

8 For a supply agreement to be commercially feasible it needs to meet the risk and cost profile of the business. Where possible we would seek to secure low emissions supply at or close to the cost of traditional supply. Where a carbon premium is payable, the supply option also needs to make commercial sense in relation to the broader suite of abatement opportunities.

9 Cost effective offsets are offsets that are offered at an attractive market price and that also make sense when assessed against other abatement opportunities. For example, it may be lower cost to procure offsets than to implement expensive unproven technology to offset emissions from immaterial carbon sources.

Partnerships and research

Addressing decarbonisation in the iron and steel industry will require a range of perspectives and expertise, and partnerships across our value chain.

BlueScope has a strong history of partnering with universities and steelmakers and participating in specific initiatives led by research organisations. Some recent examples include our participation in the review of the IEA steel sector roadmap (read here), released in October 2020 and submission to the Institutional Investors Group on Climate Change (IIGCC) on the transition of the steel sector to a net zero aspiration (read here).

We are also members of several multi-stakeholder forums and initiatives, including our role as founding members of ResponsibleSteel™, Australian Industry Energy Transitions Initiative and the Net Zero Steel Pathway Methodology Project.

CASE STUDY

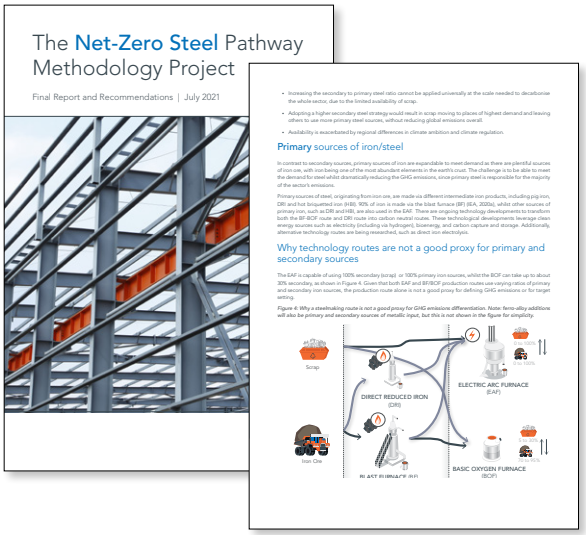
NET ZERO STEEL PATHWAY METHODOLOGY PROJECT

BlueScope is a founding member of the Net Zero Steel Pathway Methodology Project (NZSPMP), along with ArcelorMittal, Tata Steel Europe, Liberty Steel, ResponsibleSteel™ and worldsteel. The project was established to identify recommendations to address some of the challenges created by existing methodologies which make it difficult for stakeholders, including financial institutions, to assess the emissions performance and ambition of companies against their peers.

The NZSPMP's Final Report, released in July 2021, articulates a set of key principles that are needed to underpin consistent steel sector guidance for the measurement of realistic and credible net zero targets, including:

- Distinguishing between steel produced from iron ore (integrated steel) and steel produced from scrap (EAF based steel), and the inability of global scrap supplies to meet global steel demand.
- Recognising the need to set a consistent system boundary to reduce the variability in reporting.
- Establishing a consistent steel sector budget and trajectory.
- Acknowledging the GHG emission reductions from co-products made by the steel industry.
- Integrating the influence of regulatory policy when setting a net zero target.
- Leveraging existing GHG standards and methods into a dedicated steel sector decarbonisation approach for more consistent target setting.
- Providing guidance for companies making different types of steel products.

It is hoped that the recommendations complement the ongoing important work of other established initiatives and bodies such as the Science Based Target initiative, the Steel Climate-Aligned Finance Working Group and ResponsibleSteel™.



We are also involved in a range of industry-led and multi-stakeholder programs, including:

Australian Industry Energy Transition Initiative (ETI)

An industry-led initiative to develop pathways to net zero emission supply chains across critical sectors of the Australian economy. The Industry ETI participants include Climate Works Australia, CSIRO, Australian Industry Group (AiGroup), the Rocky Mountain Institute, as well as organisations across the mining, energy, finance and manufacturing sectors. We have participated in workshops and one-on-one engagements to explore the challenges and opportunities for Australia, and to develop a shared understanding of the potential for industry to reach net zero emissions. Going forward, the Industry ETI aims to identify and prioritise technologies and understand barriers to a net zero future, to create a credible pathway and practical action plan for industry transition.

worldsteel's Step-up programme

BlueScope is a signatory to worldsteel's step-up programme, a four-stage efficiency review process for steel mill operators. The programme aims to increase the operational efficiency of sites operated by member companies of worldsteel with a view to lower carbon emissions. We have nominated the Port Kembla facility to participate as a 'step-up site' and we will conduct an annual self-evaluation to determine our rate of improvement against the programme criteria.

ResponsibleSteel™

ResponsibleSteel™ BlueScope has played a foundational role in the establishment of ResponsibleSteel™, our sector's first global multi-stakeholder standard and certification programme.

The ResponsibleSteel™ Site Certification standard sets the new benchmark for industry stewardship, responsible performance and accountability. It defines core considerations that support the responsible sourcing and production of steel, including a strong focus on climate commitment, action and disclosure. We continue to participate in the development of further ResponsibleSteel™ sourcing standards to improve supply chain transparency and performance.

Materials and Embodied Carbon Leaders' Alliance (MECLA)

BlueScope is a Founding Partner of MECLA, a collaboration of organisations whose aim is to drive reductions in embodied carbon in Australia's building and construction industry. MECLA aims to demonstrate demand for low-emissions materials and support the acceleration of their supply. BlueScope is involved in a number of working groups including a dedicated group for steel which is exploring barriers and opportunities for the production and specification of low embodied carbon steel in the Australian market.

Mineral Carbonation International (MCi)

BlueScope has been working with MCi on the use of slag to store CO_2 and generate a value-add product. BOS slag contains high concentrations of reactive lime (CaO) and calcium silicate minerals suitable for carbonation. In 2020 MCi conducted a study using slag from the Port Kembla Steelwork's Basic Oxygen Steelmaking (BOS) plant. The study showed that there was potential to sequester CO_2 into the slag with two processing options, with different opportunities for the level of CO_2 abatement and product type produced.

Victoria University Wellington (VUW) – Iron sands Hydrogen steelmaking project

New Zealand Steel is assisting VUW in this project through advice on downstream steelmaking and processing, the economics associated with the transition and the processing and value of co-products.

We continue to utilise our strong and long-standing relationship with our JV Partners in engaging on initiatives to combat the challenges that climate change presents. Many of the initiatives we participate in such as ResponsibleSteel™, worldsteel and the Net Zero Steel Pathways Methodology Project include our JV partners Tata Steel and Nippon Steel. We are actively exploring opportunities to further engage and collaborate with our JV partners on climate initiatives.

Support from governments for the steel industry's transition will also be essential. The scale of capital investment needed for this transition to occur, the requirement to fundamentally restructure energy and raw material supply chains, and the competitiveness challenges presented by the uneven application of climate change policy worldwide, mean that decarbonisation is not a task that can be undertaken by the industry alone.

Few, if any steelmakers will be able to finance a transition of this scale without public funding and supportive public policy.

We recognise the importance of continuing our strong track record of engagement through partnerships and research. Going forward, BlueScope will continue to identify and prioritise opportunities to collaborate with partners along our value chain to support our decarbonisation pathway.

Capital allocation approach

The right capital allocation process will be a key factor in achieving our decarbonisation pathway and emissions reduction targets.

BlueScope's capital allocation is guided by the Capital Allocation Framework ('Framework'). A key element of the Framework is the goal of maintaining a strong balance sheet and financial capacity, providing the flexibility to weather industry and economic cycles and/or to deliver on value-accretive opportunities.

The capital allocation process should support the identification, assessment and allocation of capital towards initiatives that help us achieve our climate aspirations in the most capital-efficient manner, to ensure we are optimising our investment portfolio around both financial and climate outcomes.

Maintaining safe and reliable operations is non-negotiable and investments in Sustaining and Foundation spend are therefore prioritised. Thereafter, the Framework describes a returns-focused process. Beyond satisfying Sustaining investment requirements, Growth capital expenditure, acquisitions and shareholder returns compete for surplus capital with a target of returning at least 50 per cent of free cash flow to shareholders.

Climate-related investments are seen as a key use of capital and this has been incorporated into the revised Framework to ensure it receives appropriate prioritisation. Given our focus on achieving our decarbonisation pathway, climate-related investments are considered critical in maintaining BlueScope's long-term sustainability and will be prioritised ahead of Growth investments and shareholder returns as appropriate.

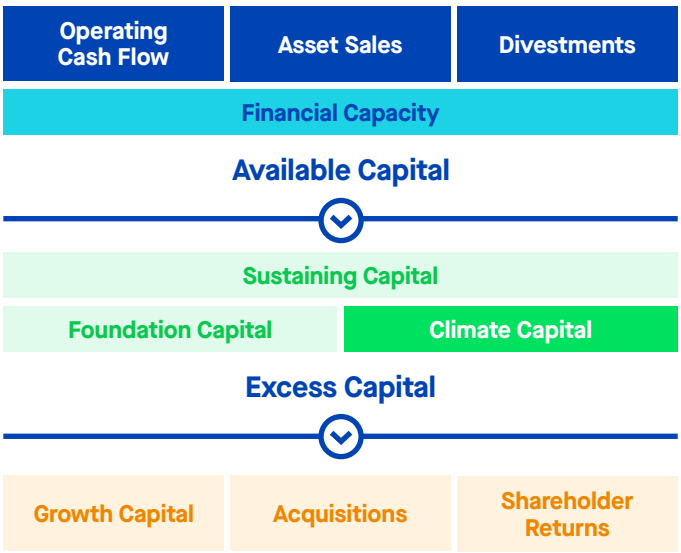
It is also recognised that climate-related investments must have an appropriate commercial overlay to ensure we are optimising our investment portfolio around both financial and climate outcomes and pursuing decarbonisation in the most capital efficient manner.

Portfolio optimisation is supported by the following processes and mechanisms:

- Review major investments under BlueScope's five climate scenarios including assessment of carbon pricing impacts.
- Prioritise investment that helps us achieve the decarbonisation pathway in the most capital-efficient ways, including consideration of return metrics such as dollars invested per tonne of GHG emission abatement.
- Further assess all climate-related investment where economics are less compelling, including options for external stakeholder funding.
- Consider R&D investment and partnership opportunities to explore emerging and breakthrough technologies.

We have allocated up to $150M over the next five years for projects and processes that support our decarbonisation journey.

CAPITAL ALLOCATION FRAMEWORK



- Strong balance sheet, with Group net cash of around $800M at 30 June 2021.
- In order of priority, available capital is allocated to required Sustaining, Foundation and Climate investments.
  - Invest to maintain safe and reliable operations, and in foundational and new technologies.
  - Climate is a key capital allocation priority, pursued ahead of Growth where appropriate.
- Growth, Acquisitions and Shareholder Returns compete for surplus capital.
- Returns-focussed process with disciplined competition for capital.
- Target to distribute at least 50 per cent of free cash flow to shareholders.

We create and inspire smart steel solutions

Our range of durable steel products is designed to meet the varying needs of our customers, such as rapid construction and long-term use, flexible design, thermal comfort and weather resilience. The steel we supply today will support economies for decades to come and is critical to underpinning the transition required in many sectors including the renewable energy industry.

We have absolute confidence in the fundamental attributes of our products for society's beneficial use and circularity.

We continue to review our product development pipeline while considering future and emerging external factors and consumer shifts in the regions we operate. Each region focuses on building deep market and customer understanding along the entire value chain so that we can develop and scale up new solutions via our global centres of technical excellence.

» Across our business we develop and produce a wide range of products, with energy efficiency and climate resilience in mind, including **components to underpin the renewable energy transition**. Renewable energy projects and supporting electricity transmission infrastructure are highly steel intensive. A typical individual wind tower can include up to 300 tonnes of steel plate, averaging approximately 60 tonnes of raw steel for every megawatt (MW) of wind electricity generation.[10] Steel is equally critical for the components required for solar farms such as piles, tubes and backing frames as well as expansion in electricity transmission infrastructure to underpin the creation of new renewable generation zones.

» **Cool roof solutions** developed to help reduce the intensity of urban heat islands[11], maintain thermal comfort in hot weather and minimise cooling energy demand in buildings temperature. BlueScope technologists from our Australian based centre of excellence work with our product teams around the world to ensure the different technologies developed and tested suit the local climate and associated building types. Cool roofing solutions incorporating solar reflectance technologies are available across the ASEAN region, Australia and New Zealand.

» **Advanced coating technologies** and extensive testing regimes for improved corrosion resistance to extend product life. BlueScope invests extensively in developing and testing our coatings to confirm performance in durability and resilience. Activate® technology is BlueScope's industry leading, patented, metallic coating technology that to date has been launched in Australia, China and Vietnam, developed to meet emerging building advances in areas such as material efficiency, durability and sustainability.

» **Light gauge steel framing** for innovative design, long roof spans and reuse of existing structures. Products including TRUECORE® steel and AXXIS® steel help designers make the most of available space and create cost-effective, modular and enduring solutions. TRUECORE® steel frames incorporate Activate® technology for improved corrosion resistance, and will not ignite or contribute to the spread of fire which may help achieve the building standards required for extreme-rated Australian bushfire flame zones.[12] Light gauge steel products can be delivered pre-fabricated to building sites, helping to reduce waste.

10 BlueScope analysis conducted based on underlying energy needs to meet the 2030 state renewables target.

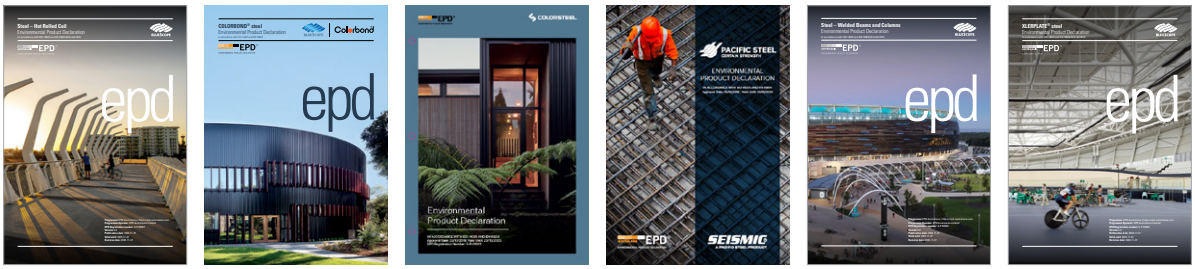
11 An urban heat island is an urban or metropolitan area that is significantly warmer than its surrounding rural areas due to human activities, modification of land surfaces and waste heat generated by energy use.

12 AS 3939 – Bushfire Attack Level (BAL).

- **Co-products displacing emissions in other sectors.** The co-products from steel manufacturing have many uses including road base, cement manufacture, pigments and fertiliser. A key co-product is Ground Granulated Blast Furnace Slag used as a general cementitious replacement for Portland Cement in concrete construction[13] to lower GHG emissions. The use of blast furnace slag from our Port Kembla Steelworks in this way supports the avoidance of more than 400,000 tCO_2-e of GHG emissions every year relative to traditional cement making processes.[14]
- **Roofing and wall cladding for better ventilation and healthier internal environments.** COLORSTEEL® DRIDEX® is recognised as a Sensitive Choice® product, acknowledging its ability to deliver healthier environments for residential and commercial buildings. The product uses a unique anti-condensation fleece layer and combines several building elements into one for superior condensation absorption, improved ventilation and faster, safer and more cost-effective installation.
- BlueScope manufactures a range of standard and **high strength steel grades** in plate and coil form. High strength steel grades enhance the strength to weight performance in structural steel applications when the design is governed by strength; by maximizing the strength grade, a reduced volume of steel would be required in these applications, e.g. columns and primary members. This in turn can result in embodied carbon savings relative to a reference building design that utilises standard steel grades.
- **Transparency and stewardship:** Our customers expect credible information about the sustainability credentials of our products to inform their decision-making and support their own sustainability objectives. At BlueScope, we understand and support the need for transparency through disclosures and certifications. Environmental product declarations (EPDs) provide transparent and verified disclosure about a product's life-cycle impacts and can allow downstream users to earn points for certification schemes in their sector. BlueScope's EPDs, available for a number of products in Australia, are compliant with International Standard ISO 14025 and European Standard EN 15804, and are publicly available on our websites and from a range of industry sources to support informed decision-making across the life cycle of a building or project.

Collaboration is an integral part of BlueScope's approach to delivering sustainable product solutions. We work with our customers to understand their needs and develop products and services that support sustainable development and a more circular economy.

As one of the top Australian organisations registering international patent applications, BlueScope recognises the importance of being ready and equipped to drive technical advancements when the market is ready and receptive. We collaborate with research institutes and academia globally to develop a pipeline of products and services for the next 10 years and beyond.



13 Australasian (Iron & Steel) Slag Association (2020). Products – Granulated Blast Furnace Slag.
14 BlueScope analysis.

CASE STUDY

STEEL SUPPORTING WIND GENERATION

Enabled by supportive state government policy[15], BlueScope Distribution supplied nearly 60,000 tonnes of wind tower grade plate steel into Victoria, Australia between 2017 and 2020. The majority has been supplied to Keppel Prince Engineering, a wind tower manufacturer in Portland Victoria, and has resulted in BlueScope's steel playing a significant role supporting 8 wind farm developments[16] throughout Victoria representing over 1500 MW.

BlueScope's steel in use - in wind towers at the Wannon Water Treatment Plant in Portland, manufactured by Keppel Prince in Victoria, Australia.

CASE STUDY

COOL ROOFING SOLUTIONS

BlueScope's COLORBOND® Coolmax® steel in Australia and COLORSTEEL® Bounce™ in New Zealand have both been developed to deliver high solar reflectance, which may help reduce roofing temperatures, the peak cooling load on the building and the impact of urban heat islands. Additionally, 21 out of the 22 standard colours (except Night Sky®) in the COLORBOND® steel range in Australia Feature Thermatech® solar reflectance technology.[17] Thermatech® technology is designed to reflect more of the sun's heat on hot, sunny days, which can help reduce dependence on air-conditioning.[18]

Hervey Bay Community Centre. Photography by Jason Wilson

15 Victorian Renewable Energy Target and mandated local content provisions.
16 Projects include Stockyard Hill (530MW) and Moorabool North (312MW) wind farms located near Ballarat, Victoria and Mt Gellibrand wind farm (132MW) located in Birregurra in Victoria.
17 Thermatech® technology is not available in Night Sky®, or non-standard colours, and is not available in COLORBOND® Metallic steel, COLORBOND® Coolmax® steel or COLORBOND® Intramax® steel.
18 Results will depend on roof colour, level and location of insulation, type and location of building shape and function.

CASE STUDY

CREATING THE STANDARD FOR SUSTAINABLE AND RESILIENT HOMES

BlueScope has sponsored the Green Building Council of Australia to develop a new standard for sustainable Australian homes. The Standard, titled 'Green Star Homes', will be used to assess Australian homes against three key criteria:

POSITIVE: net zero in energy, fully electric, draught sealed, efficient and powered by renewables.

HEALTHY: ventilated, comfortable, with products that are better for you.

RESILIENT: water efficient and climate change ready.

In addition to being net zero energy, Green Star Certified homes will need to be built with proactive measures to be better than Code at withstanding natural disasters and future climate change impacts such as bushfires, flooding, and heat stress.

BlueScope has also sponsored the development of a new star rating system for bushfire resilience developed by the Bushfire Building Council of Australia (BBCA) in conjunction with the CSIRO. The Bushfire Resilience Star Rating System (BRSR) recognises improved disaster resilience results in longer building lifecycles and more sustainable outcomes. The approach is aligned to the Green Star Homes and Passive House rating systems and is designed to be a simple tool for householders to determine the resilience of their existing or new build.

The BRSR also considers the ability of building systems and materials to withstand a changing climate, in particular material drying from drought conditions, increased wind exposure and more intense and prolonged bushfire seasons – steel performs at the highest level.

Lantern House, Victoria, by Timmins+Whyte Architects.
Photography by Peter Bennetts.

BLUESCOPE RENEWABLE MANUFACTURING ZONE

In late 2020, we committed to invest $20M to develop a Renewable Manufacturing Zone at our Port Kembla Steelworks site. This will be the foundation of an expanding sustainable manufacturing base for the state of New South Wales and is aligned with its innovative Renewable Energy Zones state-wide rollout.

It is estimated up to 650,000 tonnes of steel will be required for the proposed increase in renewable energy generation assets. Approximately half of BlueScope's investment is being offered to companies that want to build new manufacturing capability in the Illawarra region of New South Wales, focused on the state's growing renewable energy sector. BlueScope will invest the remainder in the Port Kembla Steelworks capability to tool-up our facilities ready for this exciting growth opportunity. We will invest directly in our own plant, but also partner with innovators and entrepreneurs to develop new technology in key industries like wind tower and solar farm componentry fabrication and other renewables.

INTERNATIONALLY RECOGNISED ECOLABELS

A number of our Australian products have achieved the internationally recognised ecolabel Global GreenTag^{CertTM} GreenRate^{TM}. This holistic product sustainability assessment includes environmental performance in manufacturing operations including GHG emissions.

In New Zealand, our pre-painted and resin coated steel products have achieved Environmental Choice New Zealand certification. In North America, NS BlueScope has third-party verified Product-Specific Type III Environmental Product Declarations, and issued Living Building Challenge's Declare labels for some products.

Section

04

Governance

Strong governance is an important aspect of BlueScope's culture.

Climate change is recognised across the business as a material strategic issue requiring clear accountabilities for oversight and implementation of our commitments. Our Code of Conduct, How We Work outlines our expectations for all employees regarding responsible business practices, including our decisions and actions to strengthen our communities and protect the environment. Our commitment to climate action has been further reinforced by the appointment of a Chief Executive Climate Change in FY2021 and the recruitment of a team of climate change professionals.

Our Board, with the assistance of its committees, including the Risk and Sustainability Committee, oversees all climate-related matters, while day-to-day accountability rests with BlueScope's Executive Leadership Team (ELT), the Chief Executive Climate Change and management.

BlueScope's Climate Change Council oversees the development and implementation of our climate strategy and associated work programs and provides input and recommendations to the ELT and the Board.

The Board has established the following Committees and leadership structure:

BlueScope Board

Risk & Sustainability Committee | **Health, Safety & Environment Committee** | **Remuneration & Organisation Committee** | **Audit Committee** | **Nomination Committee**

Executive Leadership Team (ELT) including Chief Executive Climate Change

Climate Change Council

The Climate Change Council sits alongside other functional-specific Leadership teams including the Sustainability Council, Central Safety Committee, People Leadership Team and Social Compliance Steering Committee. These groups include members of the ELT, Functional leads and Business representatives.

Climate Change Council's six focus groups

Stakeholders
Monitor the evolving stakeholder landscape to inform strategy and ensure pro-active internal and external engagement on climate related matters.

Renewable energy and offsets
Investigate opportunities to procure renewable energy and offsets as part of delivering on our emission reduction commitments.

Climate strategy and scenarios
Operationalise BlueScope's climate change strategy and delivery of outcomes across each focus area. Lead climate scenario analysis.

Targets and performance
Support emission data collection and develop insights on BlueScope's abatement pathways to meet the emission reduction commitments.

Technology and partnerships
Investigate opportunities to reduce emissions through proven and commercially viable technologies to meet our emission reduction commitments. Explore long-term breakthrough technology opportunities and develop partnerships.

Communications and reporting
Develop climate disclosures including the Climate Action Report and associated internal and external stakeholder engagement activities.

Further information about our governance structures, including Directors' experience, Committee memberships and meeting attendance is available in our FY2021 Corporate Governance Statement and FY2021 Directors' Report, available on our website. Our Code of Conduct, How We Work, is available on our website.

The Board, Risk and Sustainability Committee and Executive Leadership Team

The Board engages in bi-annual climate strategy updates, at a minimum, including review of progress made towards our targets, decarbonisation pathway, and external collaborations and partnerships. The Board is also provided with regular updates on climate developments and associated impacts for the industry and BlueScope. We have held and continue to run Board education sessions on climate-related matters, focusing to date on hydrogen, emerging technologies, renewables, carbon offsets, and stakeholder developments. This Climate Action Report and the establishment of the new climate targets were approved by the Board in August 2021.

The Risk & Sustainability Committee (RSC) assists the Board to fulfil its responsibilities in relation to the oversight of climate change risks. The RSC engages with bi-annual updates on climate risks (including any associated monitoring and mitigation approaches where relevant) and sustainability disclosures, while updates of performance against emission intensity targets are discussed on a quarterly basis.

At Board level, the Chair of the Board, supported by the Chair of RSC, has ultimate responsibility for overseeing BlueScope's approach to climate change action. As a central theme of BlueScope's strategy, the Board considers the impact of climate change in general, and our climate strategy in particular, when making any material strategic decisions and in overseeing the corporate strategy.

BlueScope's ELT is responsible for reviewing progress made against the climate strategy, and associated governance processes and procedures for the Group, and receives quarterly updates (at a minimum) from the Climate Council. The role of ELT was further elevated with the establishment of a new Executive Leadership Team position in FY2021, and appointment of Gretta Stephens as Chief Executive Climate Change.

Executive remuneration

BlueScope's remuneration framework rewards executives for the achievement of challenging annual performance targets and the delivery of sustainable profitability across the cycle. The framework aligns executive remuneration outcomes with that of shareholders through equity ownership. The Board takes great care to ensure that as business priorities evolve, so too do BlueScope's remuneration arrangements.

During FY2021 the Board reviewed the remuneration framework and increased the weighting of safety and ESG measures, including climate change, to 25 per cent of the total Short-Term Incentive (STI) scorecard, reinforcing the criticality of these elements for our business. Performance against objectives will be disclosed after the end of the financial year in the Remuneration Report within BlueScope's Directors' report.

Further information on executive remuneration policies and performance is available in our annual Directors' Report on our website.

Climate Change Council

In FY2021, BlueScope's Climate Change Council (referred to as 'Climate Council') was established to oversee the development and implementation of our climate strategy. Comprising of senior leaders from across the Group including business unit and functional representatives, the Climate Council fosters whole-of-business collaboration, promotes cross-business unit and cross-function discussions, and drives innovation.

The full Climate Council meets at least six times a year and has six focus groups that meet regularly to help coordinate path-critical areas of our Climate Strategy. It will continue to support the executive climate change function into the future.

Advocacy

Supportive public policy will be essential for the steel industry to transition to low- and zero-emissions technologies and meet climate change goals.

Accordingly, the company engages with policymakers to advocate for policies that help achieve this transition, including policies that:

- Support the development of affordable and reliable low-emissions energy supplies;
- Support the establishment of competitive 'green' hydrogen supply chains;
- Support ongoing access to quality raw materials, now and during the transition to emerging and breakthrough technologies for iron- and steelmaking;
- Assist industry to invest in abatement projects and ensure a level legislative and regulatory playing field; and
- Support research and development efforts and industry and product stewardship schemes.

Recognising that climate change is a global issue that requires a global approach, government policies must not lead to carbon leakage. This is where steel production in one country is replaced by equal or higher-emissions production in another.

BlueScope takes a bipartisan approach to political discourse in all jurisdictions where it operates, focusing on relevant policy matters. We do not endorse candidates for office, or the election (or re-election) of particular political parties.

The company will, however, take public positions in support of or opposition to policies, legislation and regulations that have a significant effect on its operations or financial performance, including from time to time seeking amendments to such policies. We do this through several mediums, including corporate reporting, submissions, media and industry-based forums and associations. We also meet with ministers, members of parliament and officials for the purposes of informing them about the company and our views on such policies.

In doing so, BlueScope seeks public policy that:

- Helps underpin a sustainable steel industry;
- Is aligned with our position on climate change;
- Provides a stable basis for investment decisions, including in long-lived assets;
- Supports the company's international competitiveness and does not unreasonably disadvantage it compared to industry peers and competitors;
- Is in line with Our Purpose, Our Bond and policies, where relevant; and
- Reflects what we judge to be in the overall best interests of our stakeholders, including shareholders, employees, customers and communities.

Our membership of industry associations

BlueScope is an active member of various industry associations in many of the countries in which it operates. It participates in these organisations in order to be better informed about public policy that has the potential to affect the company, to share knowledge about policy, and contribute its views and experience. Our engagement with industry associations on climate change and energy matters is guided by the positions, commitments and principles outlined above, in addition to compliance with competition law.

Membership also allows companies in the steel industry to jointly address long-term, global issues, such as sharing information regarding developments in technology, including lower-emissions steelmaking technology and carbon capture and utilisation.

In FY2020 we published an Industry Associations Governance Standard. The Standard details the five principles that guide our membership of industry associations, and the processes by which we assess alignment between the public policy positions of the industry association and BlueScope's position as stated in public documents.

The Standard requires that, at least once a year, a nominated BlueScope representative (or delegate) will assess the public policy positions taken by industry associations on matters of significance to the company, specifically: health, safety and environment; climate change and energy; people and workplace relations; trade and industrial policy; and taxation and economic policy. High level outcomes of the annual assessment will be documented in our sustainability reporting or on our website.

We recognise that the public positions of these industry associations will not always be exactly the same as BlueScope's. However, we seek to engage with, and remain members of, organisations that have positions that are broadly consistent with ours on the issues of most importance to the company.

Refer to website for further information of our industry associations and governance standards.

Section

05

Risk management

BlueScope is committed to an integrated approach to managing risk. We aim to have a proactive risk culture, ensuring a balanced approach to managing uncertainty in the delivery of strategic and commercial outcomes.

Our risk appetite statements set the fundamental principles that govern the way we will execute our strategy and the acceptable level of risk. Understanding risk, and our appetite for particular types of risk, is a key consideration in our decision making. Climate change is included as a specific component in our risk management framework. The fundamental principles relating to climate change that support our risk appetite statements are to:

- Play an active role in reducing GHG emissions associated with the manufacture and use of steel products.
- Build the resilience of our operations and investments and support our customers to manage climate change impacts.

Our integrated framework of risk management, policies, procedures and controls means that decisions are made as close as possible to the source of risk. Our three lines of accountability model aims to ensure clear accountabilities through the Group. This includes our business unit management at the first line of accountability, followed by the functions/centers of excellence in the second line and the Internal Audit function representing the third line of accountability. Our leaders are empowered to own and manage risks directly, with the support of second-line centres of excellence and third-line independent assurance for the oversight of senior management and the Board. Each business unit's performance against the Group risk appetite and fundamental principles is monitored each quarter and the consolidated metrics reported to the RSC of the Board.

FY2021 Sustainability Report outlines further information on our three lines of accountability model.

Climate risks

We regularly analyse trends and changes in the global and regional steel industry and the impact they may have on demand and supply of steel, including supply chain impacts. Our assessments include the broader megatrends that will have a longer-term effect, such as the impact of more countries moving to regulate reductions in emissions, as well as the physical effects of climate change.

We evaluate and monitor the impact of climate-related risks on our businesses and corporate plans over a range of time horizons and build these into our corporate strategy, where appropriate. Six-monthly updates are shared with the Risk and Sustainability Committee on identified climate risks and progress made on risk mitigation responses.

In FY2021 we updated our climate risks following the outcomes of our refreshed climate scenario analysis to better understand the impacts of climate-related physical and transition risks on our portfolio.

Refer to our *Supplementary information* section for our identified climate-related risks and our proposed actions to address these risks.

Supplementary information

BlueScope's identified climate-related risks

Risk	Description	Our proposed actions to address identified risks
01. **Reputational impacts - failure to demonstrate progress against public commitments**	Failure to achieve and transparently communicate sufficient progress on our mid- and long-term commitments may negatively impact our ability to recruit and retain employees, erode trust of customers, regulators, governments, investors and the communities in which we operate.	» Provide clear and comprehensive information to stakeholders through regular climate and sustainability disclosures. » Continue to optimise our existing assets and processes and explore near-term emissions reduction technologies options. » Show progress against our 2030 targets and 2050 goal and pathway. » Regularly review and assess the progression of projects through our capital evaluation process. » Commitment to undertake a review of our approach to climate scenario analysis and GHG emission reduction targets at least every three years.
02. **Government regulation of GHG emissions without sufficient measures to maintain international competitiveness**	Policy environments in key operating areas may not adequately support the transition to low emission steelmaking technology. Climate change and energy policies may increase our cost base compared to steel imports from countries with less regulation.	» Advocate for public policies that support the steel industry's sustainable transition to a low-carbon economy. Monitor developments and engage with policy makers on current and emerging climate policy, including appropriate recognition for hard to abate, trade-exposed operations. » Embed considerations of climate, and energy policy within risk management framework, climate scenario analysis, and Capital Allocation Framework.
03. **Challenges to develop and deploy low-emission iron- and steelmaking technologies**	Through increased focus on GHG emissions intensity of integrated steelmaking, there is a failure to acknowledge its importance in meeting demand relative to scrap based EAF steelmaking. Availability of breakthrough low emissions iron- and steelmaking technology may not align with key capital decision milestones. Limitations in infrastructure, supply chains or energy costs may impact the ability for breakthrough low emissions steel to be practically and commercially adopted in Australia and New Zealand.	» Align public disclosures to industry and independent assessments of the necessary contribution that integrated steelmaking will continue to play in meeting future steel demand. » Climate risk assessments, controls, and initiatives are integrated into business risk review, planning, budget and capital allocation processes. » Continue to investigate opportunities to work with value-chain partners on research and development and on piloting emerging and breakthrough technologies. » Advocate for public policies that support the steel industry's sustainable transition to a low-carbon economy.

Risk	Description	Our proposed actions to address identified risks
04. **Access to capital and insurance becomes more restricted or expensive**	Concern over climate-related risks may result in higher cost of capital for our business and our suppliers of energy and raw materials.	» Outcomes from our climate scenario analysis incorporated into the Capital Allocation Framework including carbon pricing and cost of capital implications. » Continue to optimise our existing assets and processes and explore near-term emissions reduction options as we expand North Star and assess options for steelmaking at Port Kembla. We will communicate and seek engagement from a broad range of stakeholders on key developments and options in relation to these projects. » Continue to align our climate and sustainability disclosures with well-established reporting frameworks. such as the Sustainability Accounting Standards Board (SASB), TCFD recommendations and other internationally accepted frameworks. » Regular, open and effective engagement with key investor and financial stakeholders on climate change and broader environment, social and governance (ESG) issues. » Access a broad range of capital markets and diversity of funding sources.
05. **Substitution of steel by competing materials**	Growing stakeholder interest in embodied and lifecycle emissions of different construction materials, with possible impacts on the demand for steel products in certain markets and applications.	» Communicate steel's contribution to a circular economy through its endless recyclability and full lifecycle emissions benefits. » Promote the resilience of our products, including ability to withstand impacts of extreme weather. » Continue to transparently disclose environmental attributes of products in line with recognised international standards including Environmental Product Declarations (EPD). » Align public disclosures to industry and independent assessments of the necessary contribution that primary steelmaking will continue to play in meeting future steel demand. » Seek certification for our products against recognised sustainability standards such as ResponsibleSteel™. » Monitor market trends and support product research and development to support our customers' sustainability expectations.

Risk	Description	Our proposed actions to address identified risks
06. **Susceptibility of operations and supply chains to more extreme weather events and climate-related hazards**	Susceptibility of our operations and supply chains to more frequent and severe climate-related hazards. Storage and handling of raw materials at steelmaking sites may be impacted by an increase in extreme weather events, exposure to coastal inundation and drought conditions caused by a lack of rainfall, resulting in increased slumping, fugitive dust and storm water runoff.	» Climate physical risk assessment performed by climate risk experts to assess the exposure of our sites to projected climate-related hazards. » Results from climate physical risk assessment and scenario analysis in risk management processes and Capital Allocation Framework. » Plant design specifications, asset and site maintenance plans, and sustaining capital and repair and maintenance budgets consider acute or chronic impacts of climate change and additional adaptation measures. » Engage with key suppliers to support better insight into specific supplier physical risk exposures and vulnerabilities that may impact BlueScope operations.
07. **Impact to availability of local or commercially suitable raw material supplies due to climate change transition risks**	Changes to climate and energy policies or licence conditions may restrict operating licences or increase the cost base of raw material suppliers or restrict access to capital or insurance.	» Monitor developments and engage with policy makers on current and emerging climate change and environmental policy, and raw material supplies as an enabler of the net zero transition. » Work closely with raw material suppliers to understand their extraction plans, licensing conditions and risk management approaches. » Where appropriate ensure access to alternative raw material supplies.
08. **Regulatory/ litigation risk**	Increase in the number of claims brought against companies with respect to climate change matters. This litigation may include third-party challenges to project approvals, enforcement of corporate duties, and/or common law claims.	» Implement climate change strategy and workplan to address legal and regulatory requirements in line with industry best practice. » Monitor legal and policy developments and industry best practice and evolve our approach to managing climate risk to take into account any relevant developments. » Early stakeholder and community engagement in connection with climate strategy and capital projects. » Actively manage compliance with corporate duties to mitigate the risk of regulatory action. » Disclosure to shareholders of any material climate-related action brought against BlueScope, as required by law and/or the Australian Stock Exchange (ASX) Listing Rules.

TCFD index

Theme	TCFD recommended disclosures	Reference
Governance	Describe the board's oversight of climate-related risks and opportunities.	Governance page 63
	Describe management's role in assessing and managing climate-related risks and opportunities.	Message from our Chairman page 02 Governance page 63 Risk management page 67
Strategy	Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	Overview of our climate scenarios page 29 BlueScope's identified climate-related risks pages 68-70
	Describe the impact of climate related risks and opportunities on the organisation's businesses, strategy, and financial planning.	Implications for Bluescope page 34 Physical risks pages 36-37 BlueScope's identified climate-related risks pages 68-70 Our climate strategy pages 39-41
	Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Overview of our climate scenarios page 29 Implications for Bluescope page 34
Risk management	Describe the organisation's processes for identifying and assessing climate-related risks.	Risk management page 67
	Describe the organisation's processes for managing climate-related risks.	Risk management page 67 Physical risks pages 36-37
	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	Risk management page 67 Capital allocation approach page 56
Metrics and targets	Disclose the metrics used by the organisation to assess climate related risks and opportunities in line with its strategy and risk management process.	Capital allocation approach page 56 Emissions performance pages 24-27 FY2021 Sustainability Report and FY2021 Sustainability Data Supplement (Released September 2021)
	Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	Emissions performance pages 24-27 FY2021 Sustainability Data Supplement (Released September 2021)
	Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	Glossary page 74 Our climate strategy pages 39-41 Our goal and targets page 43

CA100+ company benchmark outcomes

Focus area risk	Summary of indicators	BlueScope's response
01. **Net zero ambition**	The company has set an ambition to achieve net zero GHG emissions by 2050 (or sooner).	BlueScope's net zero 2050 goal was announced in August 2021; enablers and an outline of our decarbonisation pathway to achieve our goal are outlined in this report (see page 74, 39-41 & 43).
02. **Long-term target**	The company has set long-term (2036 to 2050) Paris aligned goals for reducing its GHG emissions, covering more than more than 95 per cent of Scope 1 and 2 emissions.	Paris aligned net zero goal by 2050 applies to all Scope 1 and Scope 2 GHG emissions across our operations (see page 74, 39-41 & 43).
03. **Medium-term target**	The company has set medium-term (2026 to 2035) Paris aligned targets for reducing its GHG emissions, covering more than more than 95 per cent of scope 1 and 2 emissions.	Medium term target of a 12 per cent reduction in our Scope 1 and 2 GHG emissions intensity across our iron- and steelmaking activities by 2030 (2018 baseline), representing greater than 90 per cent of the Company's GHG emissions. Non-Steelmaking Target of 30 per cent reduction in GHG intensity of midstream activities; when combined with our Steelmaking Target represents a coverage of approximately 98 per cent of the Company's scope 1 and 2 GHG emissions (see page 74, 39-41 & 43).
04. **Short-term target**	The company has set short-term (2020 to 2025) Paris aligned targets for reducing its GHG emissions, covering more than 95 per cent of Scope 1 and Scope 2 emissions.	Short-term target of 1 per cent year-on-year emission intensity reduction across our steelmaking activities (from FY18 to FY30). Progress against our 2030 targets is monitored via quarterly and annual business reviews, and year-on-year performance assessed as part of the Short-Term Incentive (STI) scorecard of senior Executive Remuneration Framework (see page 43).
05. **Decarbonisation strategy**	The company has a robust decarbonisation strategy to deliver short, medium and long-term GHG reduction and includes a commitment to 'green revenues' from low-carbon products and services.	In 2019, BlueScope refreshed its corporate strategy, which elevated climate strategy to sit at its core. This report outlines BlueScope's decarbonisation path to achieving our short, medium and long-term GHG emission reductions. Our net zero goal applies to our Scope 1 and 2 emissions across all of our operations. The key challenges and enablers to achieving our decarbonisation pathway are outlined in (see page 05, 39-41, 44-52). Details on how BlueScope's products contribute to the low carbon economy and sustainable development are a key focus of our climate strategy and outlined in the *We create and inspire smart steel solutions* section of this Report (see page 39-41 & 57-61).
06. **Capital allocation alignment**	The company conducts an assessment on the extent to which a company's capital investment in carbon-intensive assets or business lines are consistent with the goals of the Paris Agreement.	This Report outlines BlueScope's approach to integrating climate-related considerations in its Capital Allocation Framework. Climate change is built across the following levels: » Setting and achieving decarbonisation pathways and emission reduction targets. » Testing our portfolio under target emissions pathways, our five climate scenarios and physical risk exposures. » Evaluating significant projects that impact target emissions pathways. For further information refer to page 56.

Focus area risk	Summary of indicators	BlueScope's response
07. **Climate policy engagement**	The company has developed a clear commitment and set of disclosures clarifying intent to support climate policy, together with a demonstration of how direct and indirect lobbying is consistent with this intent.	The climate change position statement outlines BlueScope's beliefs on what will be needed for steel to play a significant role in the transition to a low carbon economy; and actions BlueScope will take to address this challenge (see page 05, 43 & 65). The *Advocacy* section of this report and our website (read here) outlines our approach to constructive engagement with relevant governments to communicate the policy settings that are required to enable the transition to a decarbonised economy for the steel industry. In addition, BlueScope's Industry Association Governance Standard (read here), sets out the principles that guide our membership in industry associations. Alignment with these principles is assessed each year by the Board and RSC.
08. **Governance**	The company has effective Board oversight of (and capabilities), and remuneration linked to, delivery of GHG targets and goals.	The Board, with the assistance of its committees, oversees all climate-related matters, while day-to-day accountability rests with management. An assessment of Board competencies is outlined in BlueScope's Remuneration report and Corporate Governance Statement (read here). In addition, in FY2021, BlueScope appointed a Chief Executive, Climate Change who is responsible for all climate-related matters across BlueScope and reports to the Board. At Board level, the Chair of the Board, supported by the Chair of RSC, has ultimate responsibility for overseeing BlueScope's approach to climate change action. Refer to the *Governance* section of this Report. The Board has increased the weighting of safety and ESG measures, including climate change, to 25 per cent of the total Short-Term Incentive (STI) scorecard (see page 63-65).
09. **Just transition**	The company has disclosed information on how a 'just transition' can be achieved – taking account of the impact on employees, communities, and other stakeholders – and has been incorporated into the company's transition planning.	Our climate change position statement outlines BlueScope's beliefs on what will be needed for steel to play a significant role in the transition to a low carbon economy; and actions BlueScope will take to address this challenge. This statement references potential impacts on BlueScope's employees, customers and the communities in which we operate (see page 05, 08 & 39-41).
10. **Reporting**	The company's overall climate risk reporting is consistent with the recommendations of the TCFD.	This Report aligns with the recommendations of the TCFD Framework, including the conduct of a climate-related scenario analysis which takes into account a 1.5°C scenario aligned to the Paris Agreement goals. The TCFD Content index on page outlines how each recommendation has been addressed in this Report (see page 71).

Glossary

Term or metric	Definitions
2050 Net zero goal	**The 2050 net zero goal set out on page 43;** » Applies to our entire business including our GHG emissions from steelmaking and non-steelmaking operations (both midstream and downstream); » Covers BlueScope's operational Scope 1 and Scope 2 GHG emissions; » Considers the six greenhouse gases recognised under the Kyoto Protocol and the GHG Protocol. This includes carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6); » Performance will be reported under the GHG Protocol's equity-based approach for organisational boundaries; » Our scope 2 GHG emissions are measured utilising the GHG Protocol Scope 2 Location Based method (this approach is unchanged from our previous reporting approach); » This goal will be complemented by our existing and proposed emissions targets for 2030. **Our ability to achieve net zero emissions by 2050 will be inextricably linked to:** » Evolution of emerging and breakthrough technologies to viable, commercial scale; » Access to affordable and reliable renewable energy; » Availability of appropriate volumes of competitively priced hydrogen from renewable sources; » Access to appropriate quality and quantity of raw materials both ahead of and beyond the transition; and » Public policy that supports investment in decarbonisation and avoids risk of carbon leakage.
2030 Steelmaking Target	This target set out on page 43 relates to a 12 per cent reduction of GHG emissions intensity by 2030 across BlueScope's steelmaking activities at Port Kembla, Glenbrook and North Star. Performance against this target will be measured against a 2018 baseline. Emissions intensity is calculated based on Scope 1 and Scope 2 GHG emissions per tonne of raw steel at our steelmaking facilities, reported in tonnes of carbon dioxide equivalent (tCO_2-e) per tonne (t) of raw steel (tCO_2-e/t).
2030 Non-Steelmaking Target	This target set out on page 43 relates to a 30 per cent reduction of emissions intensity by 2030 across BlueScope's midstream non-steelmaking activities which includes our cold rolled, coated, painted, long and hollow products. This target does not apply to our downstream activities which include roll-forming, pre-engineered building and other downstream activities. Performance against this target will be measured against a 2018 baseline. Emissions intensity is calculated based on Scope 1 and 2 GHG emissions per tonne of despatched steel at our midstream sites, reported in tonnes of carbon dioxide equivalent (tCO_2-e) per tonne (t) of despatched steel (tCO_2-e/t).
BlueScope's midstream activities	BlueScope's midstream non-steelmaking activities include our cold rolled, coated, painted, long and hollow products.
BlueScope's downstream activities	BlueScope's downstream activities include roll-forming, pre-engineered building manufacture and other activities to support BlueScope's operations.

Term or metric	Definitions
Carbon Capture, Utilisation, and Storage (CCUS)	CCUS includes methods and technologies to remove CO_2 from the flue gas and/or from the atmosphere, for utilisation in other processes or for safe and permanent storage.
CO_2 equivalent (CO_2e)	The universal unit of measurement to indicate the global warming potential (GWP) of each greenhouse gas, expressed in terms of the GWP of one unit of carbon dioxide. It is used to evaluate the warming potential of releasing (or avoiding releasing) different greenhouse gases against a common basis.
Co-products (or by-products)	Materials that are produced in parallel to, or as a consequence of, the production of a primary product and which also have a potential value. The main solid co-products produced during iron and crude steel production are slags (90 per cent by mass), dusts and sludges. Alongside solid co-products, process gases from coke ovens, blast furnaces and basic oxygen steelmaking furnaces are also important steelmaking co-products. Internally generated scrap steel (pre-consumer scrap) is not included as a co-product. Co-products are reported in tonnes (t).
Despatch tonnes (t)	Invoiced despatches of steel and steel products, including intercompany transfers, reported in tonnes (t).
DRI or Direct Reduced Iron	Direct reduced iron. Refer to pages 14-15 for further information on Direct Reduced Iron.
Emissions factor	A factor that converts activity data into greenhouse gas emissions data (e.g. kg CO_2-e emitted per GJ of fuel consumed, kg CO_2-e emitted per kWh of electricity consumed).
Equity share approach	A consolidation approach whereby a company accounts for greenhouse gas emissions from operations according to its share of equity in the operation. The equity share reflects economic interest, which is the extent of rights a company has to the risks and rewards flowing from an operation.
Gangue	The unwanted material that exists in an ore body.
Greenhouse gas emissions (tCO_2-e)	Total greenhouse gas emissions (GHG) arising from our operations, on an equity basis in line with the GHG Protocol and reported in tonnes of carbon dioxide equivalent (tCO_2-e). The gases included are the six classes of gases listed in the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC): carbon dioxide (CO_2); methane (CH_4); nitrous oxide (N_2O); Hydrofluorocarbons (HFCs); Perfluorocarbons (PFCs); and Sulphur Hexafluoride (SF_6).
IEA	International Energy Agency.
IPCC	The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.
LDG (Linz Donawitz Gas)	A by-product gas from the production of liquid steel in a Basic Oxygen Furnace (BOF).
MW_{AC}	Megawatt alternating current. It is a measure of the power output (generating capacity) from a solar installation after the output of the PV panels has been converted to AC via inverter devices.

Term or metric	Definitions
Paris Agreement	A legally binding international treaty on climate change adopted at the United Nations Framework Convention on Climate Change (UNFCC) Conference of the Parties (COP21) in Paris in 2015.
Paris Agreement goals	The central objective of the Paris Agreement is its long-term temperature goal to hold global average temperature increase to well below 2°C above preindustrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.
Raw (or crude) steel	Steel in its first solid (or usable) form measured at each caster at our steel production facilities and reported in tonnes (t).
Reductant	An element or compound that loses or "donates" an electron to an electron recipient. Both carbon and hydrogen can act as a reductant in removing oxygen from iron ore.
Reliable energy	Maintaining the output from variable, intermittent power sources such as wind or solar over a specific period of time.
Reline	The replacement of the internal lining of a blast furnace.
Representative Concentration Pathway (RCP)	RCPs are used to describe how the trajectory of future GHG emissions concentrations, as linked to socio-economic and other assumptions, might impact radiative forcing (the change in atmospheric energy flux) and hence global average temperature outcomes.
ResponsibleSteel™	A not-for-profit organisation, ResponsibleSteel™ is the industry's first global multi-stakeholder standard and certification programme.
SASB	Sustainability Accounting Standards Board.
Scope 1 greenhouse gas emissions	Direct greenhouse gas emissions that occur from sources that are owned or controlled by the Company reported in tonnes of carbon dioxide equivalent (tCO_2-e).
Scope 2 greenhouse gas emissions	Indirect greenhouse gas emissions associated with the purchase of electricity, steam, heat or cooling and reported in tonnes of carbon dioxide equivalent (tCO_2-e). Scope 2 emissions physically occur at the facility where electricity or steam is generated, however they are accounted for in the inventory of the entity that uses the energy.
Scope 3 greenhouse gas emissions	Indirect greenhouse gas emissions that occur in the Company's value chain from sources not owned or controlled by the Company and reported in tonnes of carbon dioxide equivalent (tCO_2-e).
Scrap steel	Recovered and recycled scrap steel used in the steelmaking process. Includes raw steel production feedstock from internally generated scrap, industrial scrap and end of life scrap.
Slabmaking	Refers to the steelmaking and casting sections of an integrated steelworks.
TCFD	Task Force on Climate-related Financial Disclosures.
Tonnes (t)	Unit of measurement equivalent to 1,000 kilograms, or 1.1023 short tons (US tons). In the US it may be referred to as a "metric ton".

BlueScope

Refer to our website for our upcoming reports.

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