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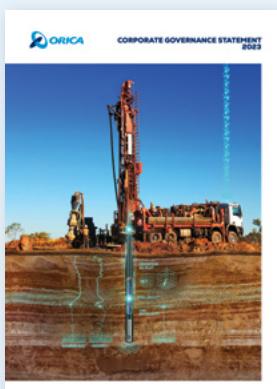
## Annual reporting suite

We produce a suite of reports to meet the needs of a wide range of stakeholders.



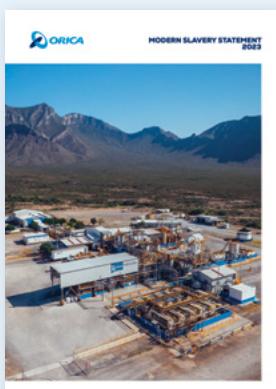
### FY2023 Annual Report

A holistic view of our activities, financial and non-financial performance and strategies.



### FY2023 Corporate Governance Statement

In accordance with the ASX Corporate Governance Council's Principles and Recommendations (4th Edition).



### FY2023 Modern Slavery Statement

In accordance with the *Australian Modern Slavery Act 2018 (Cth)* and the *UK Modern Slavery Act 2015*.



### FY2023 Tax Transparency Report

Overview of our approach to tax, governance structure and tax position.

The following documents are available at [orica.com/Investors](http://orica.com/Investors): **Full Year Results Investor Presentation** and **Full Year Results ASX Announcement**.

An **Environmental, Social, and Governance (ESG) Data Centre** is available on our website and contains detailed data and reporting indices such as our Global Reporting Initiative (GRI) Index, Sustainability Accounting Standards Board (SASB) Index, Taskforce on Climate-related Financial Disclosures (TCFD) Index and Climate Action 100+ (CA100+) Net Zero Company Benchmark Index. Enquiries about this report or our annual reporting suite can be directed to [companyinfo@orica.com](mailto:companyinfo@orica.com).



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# ABOUT THIS REPORT

## This report aligns to the Task Force on Climate-related Financial Disclosures (TCFD) voluntary disclosure framework.

It outlines Orica's approach to climate change including our governance processes, strategy, risk management, metrics and targets to manage climate risk and realise climate-related opportunities. It also outlines our decarbonisation and transition planning.

Monetary amounts are subject to rounding and reported in Australian dollars (AUD) unless otherwise stated.

## Disclaimer

This report includes forward-looking information regarding the plans, strategies, objectives and ambitions of Orica Limited and its relevant controlled entities (Orica) within its greenhouse gas (GHG) emissions boundary and in relation to responding

to climate change. It is provided for informational purposes only and has not been prepared to provide any guidance in relation to the future performance of Orica, including its performance in relation to GHG emissions reduction and responding to climate change generally.

This report has been prepared for submission to a shareholder advisory vote at the 2023 Annual General Meeting of Orica. It has not been prepared as financial or investment advice or to provide any guidance in relation to the future performance of Orica.

The forward-looking information in this report is based on management's current expectations and reflects judgements, assumptions, estimates and other information available as at the date of this document. While these forward-looking statements reflect Orica's expectations at the date of this report, they are not guarantees or predictions of future performance or outcomes. They involve known and unknown risks and uncertainties, which may cause actual outcomes and developments to differ materially from those expressed in the statements contained in this report.

There are also limitations with respect to the scenario analysis which is discussed in this report, and it is difficult to predict which, if any, of the scenarios might eventuate. Scenario analysis is not an indication of probable outcomes and relies on assumptions that may or may not prove to be correct or eventuate. As with all scenarios, the projections of each scenario should be treated with caution. Orica expects actual outcomes will likely differ substantially from those implied by the scenarios.

Orica cautions readers against reliance on any forward-looking statements or guidance, particularly in light of the long time horizon which this report discusses and the inherent uncertainty in policy, market and technological developments in the future. Orica will not be liable for the correctness and/or accuracy of the information, nor any differences between the information provided and actual outcomes and reserves the right to change its projections from time to time. Except as required by applicable regulations or by law, Orica does not undertake any obligation to publicly update or review any forward-looking statements.



# A MESSAGE FROM OUR MANAGING DIRECTOR AND CEO



**Sanjeev Gandhi**  
Managing Director and Chief Executive Officer

Orica supports a coordinated transition towards net zero emissions by 2050 and limiting global warming to well below 2°C and pursuing efforts to constrain warming to 1.5°C above pre-industrial levels.

Our Climate Action Report 2023, which is aligned with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), describes how we are managing and integrating climate-related risks and opportunities into our business and the targets and outcomes Orica is pursuing.

## Delivering action over ambition

Since 2019, Orica has delivered material reductions in net Scope 1 and 2 GHG emissions. This year, we reported a reduction in net Scope 1 and 2 emissions of nine per cent from FY2022, and 22 per cent reduction from FY2019 baseline levels. We have delivered successful low-emissions technology deployments and are now operating with increased climate policy certainty in Australia and Canada. This has given us the confidence to accelerate our climate change commitments as announced at our Sustainability Investor Day in September 2023<sup>1</sup>:

- an increased target to reduce net operational Scope 1 and 2 emissions by at least 45 per cent by 2030, from 2019 levels – an uplift from 40 per cent previously
- a new short-term target to reduce net operational Scope 1 and 2 emissions by 30 per cent by 2026, from 2019 levels
- a new ambition to reduce Scope 3 emissions by 25 per cent by 2035, from 2022 baseline levels.

In an Australian first, tertiary catalyst abatement was commissioned and is operating at our Kooragang Island facility in New South Wales (NSW). Mining customers in NSW are now benefitting from ammonium nitrate (AN) products that are almost 50 per cent less emissions-intensive than those we previously offered, helping them to achieve their sustainability goals.

With climate policy certainty, a final investment decision for the Yarwun Nitrates Decarbonisation project was confirmed. Construction has commenced and commissioning is scheduled in 2024. The project is forecast to reduce the site's Scope 1 emissions by approximately 200 ktCO<sub>2</sub>e per year and eliminate a total of 1.5 MtCO<sub>2</sub>e by 2030.

## Supporting our customers

While blasting in mining for metals and coal remains the core of our business, our proportion of revenue in Quarry and Construction (Q&C) and future-facing commodities (FFC) has continued to grow. To deliver the critical materials required for the energy transition, we are building on our strong presence in copper and growing our exposure to other future-facing commodities. Orica's commodity portfolio continues to diversify, with 49 per cent of our revenue contribution arising from gold, copper and future-facing commodities. Revenue from thermal coal represents 14 per cent in FY2023, down from 19 per cent in FY2019<sup>2</sup>. We will continue to supply and service our coal customers throughout the transition while strengthening our resilience to prosper into the future.

Our core blasting, automated and digital solutions have us well placed to support miners as they seek more complex and hard-to-access orebodies. For example, our new 4D™ bulk systems enables more predictable and precise blasting, while using less product and facilitating a more efficient recovery process of valuable orebodies. Beyond our blasting core, Orica is advancing digital

1. For more detail on target coverage, inclusions/exclusions and key enablers, refer to footnotes in the "Delivering on our commitments" section.  
2. Based on external sales, excluding discontinued operation Minova.

solutions to integrate mining workflows, from mine to mill. Our customers are increasingly able to understand and optimise their operations for productivity, efficiency and sustainability at every step of the value chain.

Renewable hydrogen is a potentially significant enabler of industrial decarbonisation and the transition to a lower-carbon economy. Orica is proud to be working with Origin Energy on the Hunter Valley Hydrogen Hub to develop a commercial-scale renewable hydrogen supply chain in the Newcastle industrial and port zone. This project is an example of how we are leveraging Orica's strategic capabilities and is a front runner in Australia's renewable hydrogen and low-carbon ammonia manufacturing and export market. A final investment decision is planned for 2024 on this project.

## When challenges present opportunity

The extreme weather events observed throughout Asia and during the northern hemisphere's summer are a reminder that the impacts of climate change present tangible risks to communities, businesses and industry more broadly.

Climate change and decarbonisation are some of the biggest challenges and opportunities impacting our industry. Given the significant scale of investment and resources required to transition the global economy, the pace of mining exploration needs to accelerate and resource extraction needs to be done more safely, efficiently and sustainably. At the same time, Orica and our industry are being challenged by inflation, higher wages, labour and skills shortages, energy security and affordability, and an unstable geopolitical situation.

Orica is embracing these challenges and capturing opportunities to use our expertise and leverage our technology to deliver new and smarter solutions as part of a safer, more productive and sustainable industry.

## Supportive policy for industry is required

Successful decarbonisation and climate change adaptation requires collaboration across government, industry and society. Effective government policy frameworks, supportive regulation and financial

incentives, managing societal expectations and access to new low-carbon technologies that can operate at a commercial scale, are all equally important.

Orica is well placed to manage national emissions regulations. Orica supports the Safeguard Mechanism<sup>3</sup> reforms passed by the Australian Parliament this year, which has brought renewed policy confidence and investment certainty for our decarbonisation plans. Tertiary abatement has not only reduced our emissions but also improved our shareholder returns to at least 2027 under current policy settings, principally by generating carbon credits that avoid penalties under Australia and Canada emissions trading schemes.

However, the pace and coordination of the renewables transition needs to accelerate. Land access, transmission infrastructure, rising technology costs and inflation all represent barriers to progress. We are focusing on what we can control and have progressed renewable or zero emissions electricity supply arrangements in Peru, Sweden and Australia over the last two years.

One critical consideration for maintaining Orica's competitiveness in Australia as we decarbonise is the introduction of a Carbon Border Adjustment Mechanism (CBAM). There are presently carbon leakage risks associated with AN due to differences in emissions reduction policies between Australia and key trading partners. We welcome the Australian government's carbon leakage review and believe a CBAM will ensure a level playing field and avoid unfair competition with imported products from countries with less mature carbon pricing regimes.

Orica welcomes the ongoing Australian Government consultation process and Federal Future Gas Strategy as natural gas is a critical transition fuel and feedstock. Gas industry structures that result in entrenched high domestic natural gas prices raise questions about the long-term viability of sovereign manufacturing. More activity by both Federal and State governments to stimulate the establishment of renewable sources of natural gas, such as biomethane, to give feedstock manufacturers like Orica viable and economic options to further decarbonise are necessary.

## Our people and collaboration are central to our success

On behalf of our Board and the Executive team, I would like to thank the entire Orica team for their ongoing dedication and commitment to taking action on climate change. We are in a good position to continue our momentum and drive further emissions reductions across our entire value chain while offering our customers superior product solutions.

This year, our Climate Action Report is the subject of a non-binding advisory resolution at our 2023 Annual General Meeting. The Plan describes the actions we are taking to address the risks and opportunities that climate change presents, including protecting and unlocking long-term value and helping our customers extract the metals and minerals that support the transition to a lower-carbon economy.

There is always more work to do, but we are working hard to accelerate our impact over the immediate term. Orica is delivering on our decarbonisation pathway, accelerating our commitments, deploying low-emissions technology and creating smarter solutions to fulfil our sustainability aspirations and those of our customers.

This work is highly motivating for our people. We look forward to continuing this journey as we pursue even more expansive goals in the future, together with our customers and partners.



**Sanjeev Gandhi**  
Managing Director and  
Chief Executive Officer

3. The Safeguard Mechanism is the Australian Government's policy for reducing emissions at Australia's largest industrial facilities. Relevant legislation and regulations were reformed during 2023.

# DELIVERING ON OUR COMMITMENTS

## Strengthening Orica's climate change commitments

Orica's accelerated climate change targets and ambition			
Operational net Scope 1 and 2 emissions targets		Renewable electricity	Scope 3 ambition
New	Updated	Existing	New
<b>30%</b> reduction by <b>FY2026</b> from FY2019 levels <sup>4</sup>	<b>45%</b> reduction by <b>FY2030</b> from FY2019 levels <sup>4</sup>	<b>60%</b> renewable electricity by 2030 <sup>5</sup>	<b>25%</b> reduction by <b>FY2035</b> from FY2022 levels <sup>6,8</sup>
<b>Previous target</b>	<b>At least</b> <b>40%</b> reduction by FY2030	<b>100%</b> renewable electricity by 2040 <sup>5</sup>	



- 4. Applies to existing operations and covers more than 95 per cent of Scope 1 and Scope 2 GHG emissions. Base year emissions will be recalculated consistent with GHG Protocol emissions accounting standards if structural changes occur such as acquisitions or divestments.
- 5. Target boundary excludes small sites (e.g., single remote offices, depots), markets where total consumption is less than 100 MWh pa, or countries where credible sourcing options do not exist.
- 6. Coverage includes all reported Scope 3 emissions across the 12 of the 15 Scope 3 reporting categories deemed relevant to Orica. Base year emissions will be recalculated consistent with GHG Protocol emissions accounting standards if methodology or structural changes occur such as acquisitions or divestments.
- 7. Our net zero emissions ambition covers our global Scope 1 and 2 emissions under our direct control, and material Scope 3 emission sources, covering 89 per cent of our global scope 1, 2 and 3 GHG inventory. Material means the GHG emissions arising from the Scope 3 reporting categories of purchased goods and services (category 1) and use of sold products (category 11).
- 8. Achieving the net zero emissions and scope 3 ambition will require effective government policy frameworks, supportive regulation and financial incentives, meaningful and transparent collaboration across value chains and access to new economically viable low-carbon technologies operating at commercial scale.

## Repositioning portfolio and building resilience



Future proofing continuous manufacturing assets via low-cost capacity debottlenecking, decarbonisation, renewable hydrogen and low-carbon ammonia projects with Origin Energy and H2U Group



Diversifying our commodity exposure, customer base and product mix with 49 per cent revenue contribution from gold, copper and future-facing commodities



Capital allocation for emissions reduction is delivering positive shareholder returns<sup>9</sup> – \$54 million invested in tertiary abatement projects from FY2021 to FY2023



Resilient revenue under long-term 1.5°C pathway analysis



Growth in Orica Digital Solutions

## Accelerating our decarbonisation (Scope 1 and 2)



### 22% REDUCTION

in net Scope 1 and Scope 2 emissions from our 2019 baseline, demonstrating progress towards our target of at least 45 per cent reduction by 2030 and net zero by 2050



**Strengthened** climate change commitments



**Installed** tertiary catalyst abatement technology for the first time in Australia at our Kooragang Island site



**Material reduction** in Scope 1 and 2 emissions intensity per tonne of AN produced (down 20 per cent from FY2022)



**Renewable electricity**<sup>10</sup> or zero emissions supply agreements established in Sweden, Peru and Australia



### 9% ANNUAL REDUCTION

in net Scope 1 and Scope 2 emissions from FY2022

## Creating commercial advantage

### 5% equity

position in Alpha HPA, increasing exposure to eMobility and battery markets

### \$1.3 billion

sustainability-linked loans achieving sustainability performance targets



**Carbon markets** strategy developed with governance, commercialisation and offsetting principles established



**Partnership** with Fertiberia, Spain to bring low-carbon Technical AN to customers throughout EMEA



**Partnering** to offer customers low-carbon solutions via the Hunter Valley Hydrogen Hub. Potential supply of low-carbon ammonia and AN having secured \$115 million in Australian federal and state government grants<sup>11</sup>



**Launched new sustainable solutions** in blasting and digital to help customers achieve their ESG goals, including Cyclo™, WebGen™, Exel™ Neo, OREPro™ 3D and Axis Mining Technology. ESG benefits of decarbonised explosives, emulsifiers and Cyclo™ being credibly quantified

## Value chain emissions (Scope 3)



Roadmap towards value chain decarbonisation established, underpinned by reliable Scope 3 emissions baseline



Supplier partnerships growing to access low-carbon products and solutions for our customers



Scope 3 emissions increased 2 per cent on account of increased production and associated demand for purchased chemical feedstocks

## Strong climate governance



Introduced a new FY2024-26 Long-Term Incentive (LTI) metric rewarding commodity portfolio resilience and diversification



Climate-related oversight built into the Board composition, structure, skills and process

9. Calculated to at least 2027 under current policy settings.

10. Orica's 100 per cent renewable electricity by 2040 target boundary excludes small sites (e.g., single remote offices, depots), markets where total consumption is less than 100 MWh pa, or countries where credible sourcing options do not exist.

11. \$115m represents total project contribution pre-joint venture partner allocation.

# DELIVERING ON OUR COMMITMENTS

## Our pathway of continuous improvement

Outlined below is the progress against commitments made in last year's Climate Action Report. The activities associated with delivering these commitments are overseen by Orica's Board, Executive Committee and Climate Change Committee (refer to 'Governance'). Orica seeks to continuously improve how it operationalises actions on climate change. Our priority forward-looking intentions are also summarised and detailed further throughout this 2023 Climate Action Report.

Our Progress in FY2023	Future Priorities	Description	2024	2025	2026
<p>Continued execution of tertiary abatement catalyst technology </p> <ul style="list-style-type: none"> <li>➤ Carseland operational</li> <li>➤ Kooragang Island installation and commissioning completed</li> <li>➤ Yarwun final investment decision (FID) reached.</li> </ul>	Operational decarbonisation	<p>Yarwun tertiary abatement installation</p> <p>Nitric acid plant (NAP) secondary catalyst optimisation program</p> <p>Increase proportion of renewable electricity in our mix</p> <p>Robust management of company-wide decarbonisation initiatives, techno-economic assessments of emerging technologies and net zero pathway</p>			
<p>Develop value chain (Scope 3) decarbonisation strategy </p> <ul style="list-style-type: none"> <li>➤ Strategy formulation complete (baseline validation, roadmap development and established Scope 3 ambition)</li> </ul>	Business resilience	<p>Grow in FFC, mining chemicals and digital solutions</p> <p>Enhance water stewardship to build adaptation resilience</p>			
<p>Progress industry partnerships and collaborations </p> <ul style="list-style-type: none"> <li>➤ Growing set of supplier partnerships for low-carbon chemicals</li> <li>➤ Industry Energy Transitions Initiative (ETI) concluded</li> </ul>	Explore and build adjacencies	<p>Co-develop Hunter Valley Hydrogen Hub with Origin Energy</p> <p>Alpha HPA North America growth studies</p>			
	Value chain decarbonisation	<p>Evolve procurement and sourcing strategies</p> <p>Expand low-carbon supplier partnerships</p> <p>Supplier engagement and collaboration</p> <p>Advance decarbonisation roadmaps</p>			
<p>Climate risk management and ongoing process embedment </p> <ul style="list-style-type: none"> <li>➤ Strengthened risk tools in place including capital shadow carbon pricing pilot</li> </ul>	Products, services and technology	<p>Product design, stewardship and quantifying product carbon footprints to meet customer needs</p>			
<p>Develop a carbon market strategy </p> <ul style="list-style-type: none"> <li>➤ Formulated carbon market strategy with Executive Committee oversight</li> </ul>	Transparent disclosure	<p>Preparedness for mandatory climate-related reporting and execution</p> <p>Report annual progress</p>			
	Climate policy engagement	<p>Periodic review of industry association memberships</p>			
	Governance and risk mitigation	<p>Ongoing climate risk management and process embedding</p> <p>Ongoing global decarbonisation planning and reporting across Scope 1, 2 and 3 emissions</p>			

Note: Projects requiring capital are subject to Orica's capital investment evaluation process.

### KEY

Implementing

Completing

 Completed

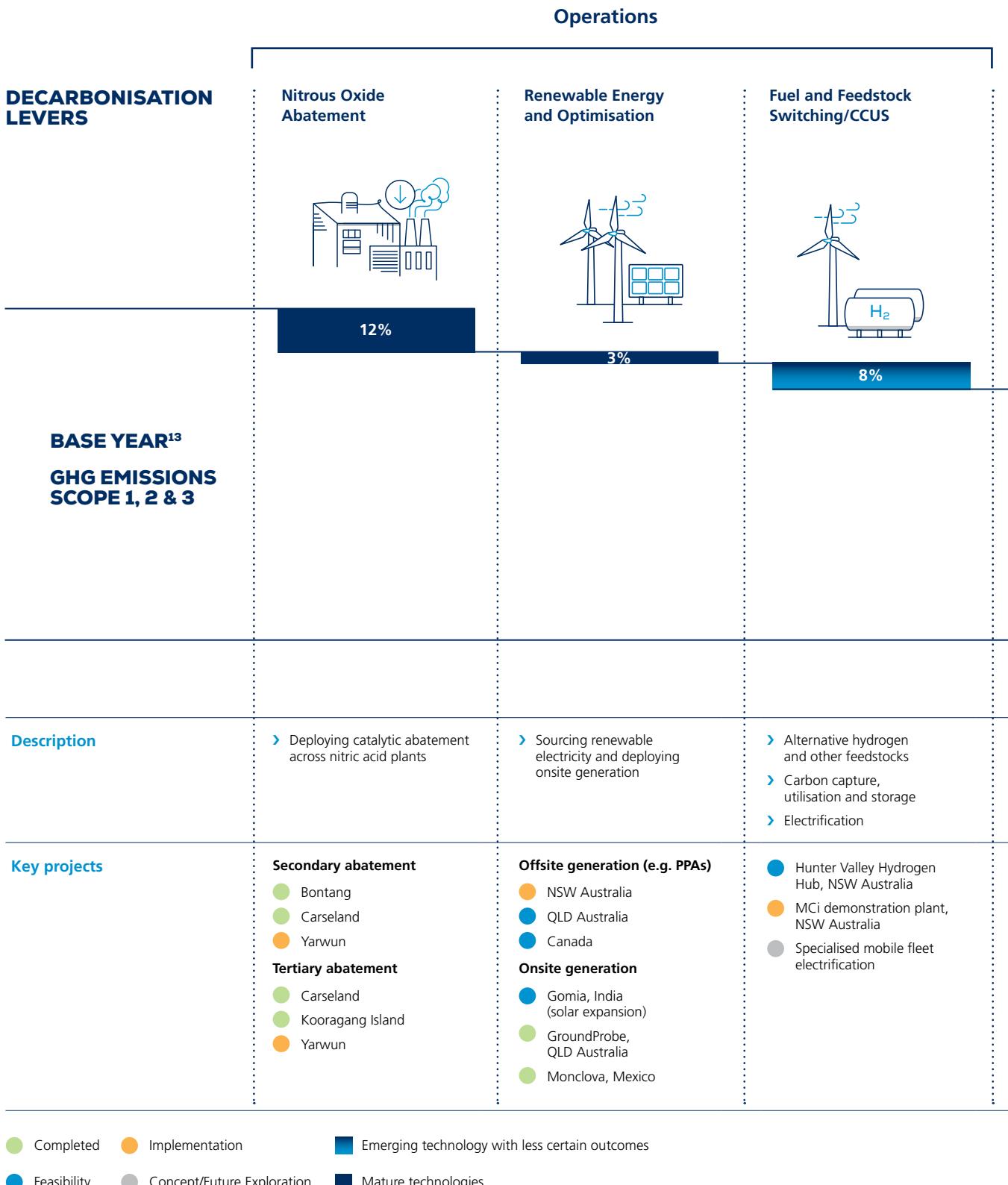
 Scheduled completion

 Ongoing



# DECARBONISATION

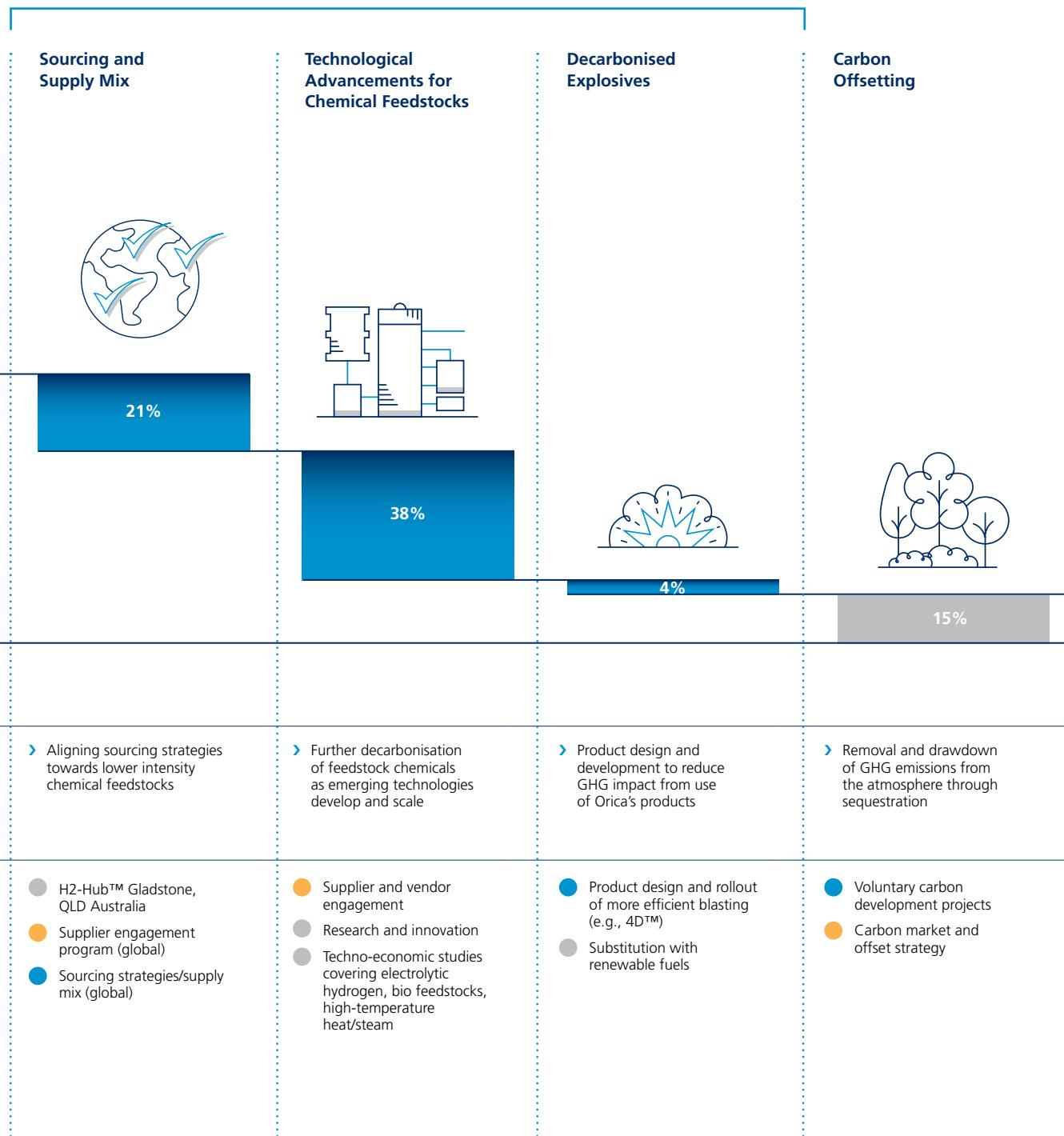
## OUR PATHWAY TOWARDS NET ZERO EMISSIONS BY 2050<sup>12</sup>



12. Our net zero emissions ambition covers our global Scope 1 and 2 emissions under our direct control, and material Scope 3 emission sources, covering 89 per cent of our global Scope 1, 2 and 3 GHG inventory. Material means the GHG emissions arising from the Scope 3 reporting categories of purchased goods and services (category 1) and use of sold products (category 11). Achieving the net zero emissions ambition will require effective government policy frameworks, supportive regulation and financial incentives, meaningful and transparent collaboration across value chains and access to new economically viable low-carbon technologies operating at commercial scale.

13. Base year emissions: Scope 1 and 2 emissions is FY2019; Scope 3 is FY2022.

## Value Chain



# DECARBONISATION

## Clear and evidence-based pathways towards achieving net zero emissions by 2050 have been identified.

Over the short and medium-term, Orica's operational Scope 1 and 2 decarbonisation is founded on practical initiatives, rapid deployment of mature technologies and access to government and market incentives to reduce emissions in an economically sustainable manner. To date, net Scope 1 and 2 emissions are 22 per cent below our 2019 baseline year.

Over the long-term, there are several barriers to further decarbonising Orica's industrial manufacturing activity. Some chemical processes, including ammonia production, remain hard-to-abate, with new technology and alternative feedstock options not yet cost-competitive or only just emerging. In recent years, the marginal cost of abatement has increased due to inflation, growing clean technology demand and elevated commodity prices. Maintaining the scale and pace of operational decarbonisation currently observed at Orica will be challenging.

Orica's value chain (Scope 3) decarbonisation focuses on material emissions sources including purchased goods and services and the use of Orica's products, primarily

bulk explosive products in blasting activities. Achieving our roadmap for value chain decarbonisation relies on the emergence of low-carbon feedstocks and renewable fuels at a commercial scale, key suppliers achieving their emissions targets, alternative sourcing strategies and innovative product design.

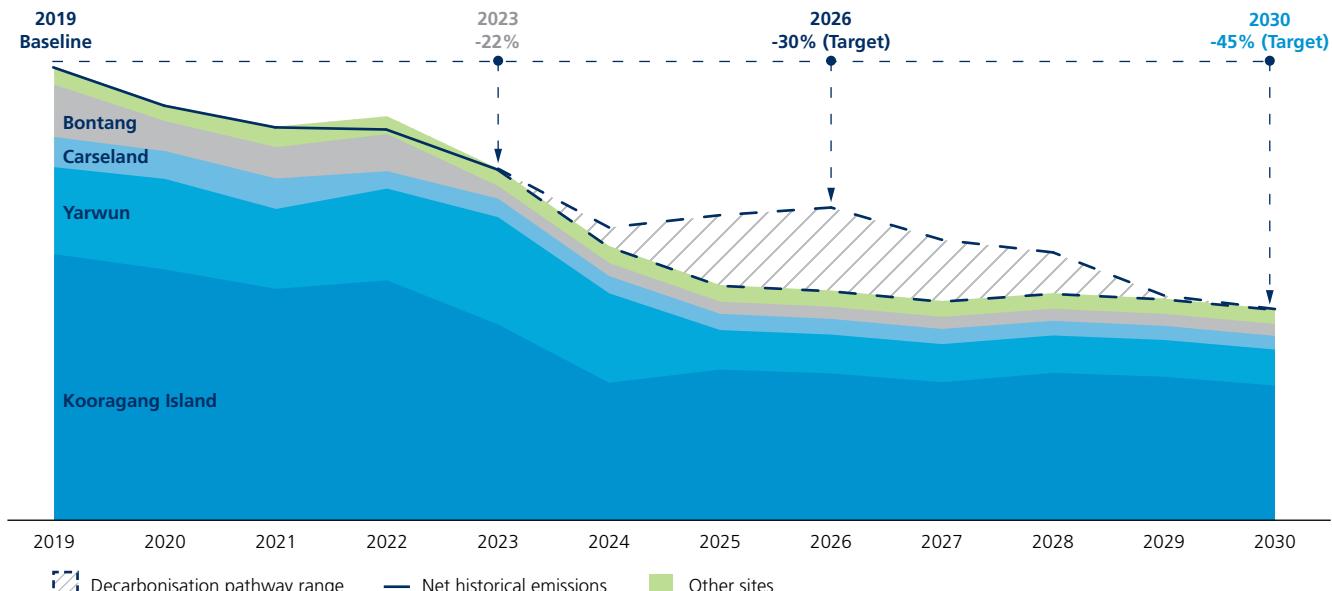
Achieving net zero emissions by 2050 will require technology maturity, deployment and commercialisation, and effective and coordinated global climate policies that provide financial incentives to help fund the cost of the transition.

Our pathway to net zero will require offsetting and negative emission technologies to neutralise residual emissions once all abatement technology options have been deployed. Nature-based activities and other carbon capture utilisation and storage (CCUS) technologies can reduce GHG emissions and increase carbon dioxide ( $\text{CO}_2$ ) absorption by creating and expanding natural sinks, supporting biodiversity, improving water quality and aiding in the social development of local communities.

Today, modelling indicates residual emissions of around 15 per cent in our pathway to 2050<sup>14</sup>, though the advancement of emerging and breakthrough technologies will likely reduce this volume over time.

Our accelerated climate commitments have been informed by the Science Based Targets Initiative (SBTi)<sup>15</sup> and align with the goals of the Paris Agreement. By our assessment using the non-sector specific Absolute Contraction Approach, our global 2030 target is in line with a well-below 2°C temperature pathway. This year, Climateworks Centre performed a Paris-alignment assessment with reference to Orica's Australian operations, accounting for approximately 88 per cent of our global Scope 1 and 2 emissions. Their analysis found Orica's net zero ambition and interim operational emissions target are compatible with an Australia specific 1.5°C decarbonisation pathway<sup>16</sup>.

### 2030 decarbonisation pathway (net Scope 1 and 2)



NOTE: Range of net emissions outcomes developed on the basis of anticipated compliance obligations in relevant jurisdictions (Australia and Canada), and management of credits in line with global carbon market strategy and carbon accounting principles.

14. Based on modelling conducted against the existing boundary of our net zero ambition, namely operational Scope 1 and 2 emissions under our direct control, and material Scope 3 emissions arising from category 1 (purchased goods and services) and category 11 (use of sold products).
15. Orica acknowledges there are numerous ways in which to assess alignment with Paris Agreement goals, including SBTi, and note the development of the sector-specific chemicals methodology. However, given the complexity of the chemicals sector and the hard-to-abate nature of our operations and value chain, it is not anticipated the proposed methodology will be fit-for-purpose for Orica. Orica does not intend to seek SBTi validation across our suite of commitments in the near-term.
16. [Climateworks Centre Paris alignment assessment report](#).



## Considering fairness and equality during the energy transition

Orica believes the path to a net zero emissions economy must represent a fair and equitable (or 'just') transition to encourage sustainable development by enabling environmental stewardship<sup>17</sup>, offering meaningful employment and social equity. This is why Orica will continue to support our coal customers and strive to be the responsible mining services provider of choice.

Decarbonisation of our industrial facilities contributes to the regional economies in which we operate and safeguards local manufacturing and jobs. It also strengthens the availability of low-carbon manufacturing and exports to support sovereign competitiveness.

The scope of transitioning Orica's manufacturing asset base and supply chain over the long-term relies on technology advancement, commercialisation at scale and effective global climate policy. There is an opportunity to link Orica's decarbonisation efforts to advance local community benefits. The co-development of the Hunter Valley Hydrogen Hub has sought wide stakeholder input through environmental assessment and planning processes and is anticipated to create around 100 local jobs. This year, Orica also commissioned a research project in Gladstone, Australia in partnership with Climate-KIC to understand local community needs and explore Orica's role in helping co-ordinate and manage the industrial transition to net zero emissions. The research is ongoing.



CLIMATEKIC  
Australia

17. The responsible use and protection of the natural environment through conservation and sustainable practices to enhance ecosystem resilience and community well-being.

# STRATEGY AND BUSINESS RESILIENCE

Orica supports the global response to keep global temperatures rising to well below 2°C and pursue efforts to constrain warming to 1.5°C. We believe a transition to a net zero emissions economy is required to limit global warming, in line with the goals of the Paris Agreement.

It is unlikely the most stringent global mitigation efforts cannot avoid further impacts of climate change over the coming decades<sup>18</sup>, which makes adaptation unavoidable. Orica is accelerating decarbonisation and reducing GHG emissions to help mitigate the impacts of climate change. Our understanding of long-term physical climate change risks is improving and over time, it is expected climate adaptation responses will mature across our operations and in the communities in which we operate.

## Strategy and planning

Our purpose is to sustainably mobilise the earth's resources and help our customers responsibly extract the resources critical to support a lower-carbon future.

Orica is delivering on our strategy to optimise our operations, deliver smarter solutions and partner for progress to drive sustainable growth. Our strategic priorities are focused on our four key business verticals: mining, Q&C, digital solutions, and mining chemicals, with sustainability being at the heart of our approach.

Our strategic, operational and financial planning considers the actual or potential impacts of global megatrends and material climate-related risks and opportunities. Further information is presented in Our Strategy and Risk sections of our 2023 Annual Report.

Supplementary disclosures on the integration of climate-related risks and opportunities into Orica's strategic and financial planning are presented in Orica's 2023 CDP response.

Key global megatrends are shaping our operating context and influencing our responses to climate-related risks and opportunities.

## Changing commodity demand

The mining and resources industry is supplying the raw materials to enable the energy transition and manufacture of decarbonisation technologies. In response, the demand for critical minerals is forecast to grow<sup>19</sup>.

Exploration and production of these commodities will need to increase at pace, be digitally enabled and mined efficiently and ethically. With a significant scale of investment and resources required to support the transition, innovation and collaboration are critical.

Vast quantities of minerals such as lithium, copper and other base metals are needed to support the massive technological transition ahead. Prices for copper, lithium, nickel and cobalt surged between 2021 and 2022, and while prices moderated in 2023, they remain well above historical averages<sup>19</sup>. This represents a significant opportunity for Orica as we continue to actively grow our presence in FFC, particularly in Australia Pacific and Latin America. Our Orica Digital Solutions segment incorporates technology to support exploration and resource definition activities, and processing phases of the mining value chain.

## Energy market volatility and geopolitical tensions

Energy markets around the world have prioritised energy security triggered by the Russia-Ukraine conflict, rising inflation and deployment of renewable generation technology becoming more complex. Some economies have reintroduced or extended reliance on thermal coal and gas as part of their energy mix over the short to medium-term.

Thermal coal continues to be used to base load new power plants across Asia with further expansions planned, especially in

China and India, given its wide availability and relative cost attractiveness. Orica will continue to service our thermal coal customers while the world transitions to low-carbon energy sources, and deploy leading technologies to help enable safer, more efficient and lower-carbon outcomes across the coal industry.

For Orica, natural gas is a critical industrial feedstock used to manufacture ammonia and ammonium nitrate for our customers. To allow the transition to low-carbon ammonia feedstocks, competitively priced gas is required until alternative feedstocks can be proven to be economic at scale.

Orica continues to pursue opportunities to switch to low-carbon feedstock alternatives with third-party sourcing arrangements being developed in Europe and the Americas. In Australia, the Hunter Valley Hydrogen Hub, located at Kooragang Island in NSW, is co-developed with Origin Energy. A financial investment decision is anticipated in 2024, with a proportion of low-carbon ammonia and ammonium nitrate available from 2026 for domestic and international markets.

## Digitisation and technological change

As mining conditions grow more complex, demand for automated and digital solutions to improve safety, productivity, recovery and sustainability outcomes across the mining value chain, are rising.

Upstream from blasting, Orica is helping our customers better understand their ore bodies in real-time, driving more informed decisions downstream. Ensuring optimal energy utilisation and blast outcomes while reducing overall cost and improving recovery of ore, enables better exploitation of existing reserves.

18. [IPCC, 2018, AR4 – Inter-relationships between adaptation and mitigation.](#)

19. [2023 International Energy Agency Critical Minerals Market Review.](#)

Orica's core blasting technologies are focused on optimised blasting to drive safety, productivity and sustainability outcomes. In the example of 4D™ bulk systems, improved orebody recovery, reduced overall explosive consumption and associated environmental impacts can be realised.

Downstream, our focus on post-blast measurement and monitoring solutions provides insights into blast outcomes and quantifies the impact on the subsequent stages.

When customers can measure the value of their decisions, they can begin to close the continuous improvement loop to further drive better outcomes.

## ESG expectations

The ESG risks and opportunities facing our industry are transformational, with decarbonisation the most immediate challenge. Companies are grappling with tensions to reduce fossil fuel use and emissions, and minimise the environmental footprint of operations, while maintaining community acceptance, productivity and profitability.

Our focus is on anticipating and improving performance ahead of regulation, addressing material ESG issues such as climate change, safety, diversity, equity and inclusion, and providing transparent disclosure of our performance.

As a consequence, Orica is turning our sustainability and climate change agenda into a competitive advantage. We are delivering on our public commitments with new low-carbon products to meet customer demand emerging. The transition of our manufacturing assets and evolution of global supply networks over time is responding to workforce, stakeholder and community needs.



# STRATEGY AND BUSINESS RESILIENCE

## Scenario analysis

Orica recognises our business faces long-term shifts in commodity demand and customer mix.

Since FY2016, our business strategy has been tested against a range of plausible future economic and climate scenarios. While not forecasts, these scenarios illustrate conceivable futures that may emerge as the world transitions to a low-carbon economy. They are designed to be plausible, relevant and challenging to test the resilience of our

strategy and enable the business to evaluate capital, market and commodity opportunities and climate-related risks. The scenarios are not probability-weighted and represent a range of hypothetical external environments. A cautionary statement on forward-looking statements is found at the front of this report.

Our scenario analysis has historically focused on transition risks and opportunities across policy, markets, commodity demand and technology. In FY2023, Orica refreshed scenarios as part of a cyclical review and

conducted our base case assessment. Key updates included introducing a new 'emissions overshoot' scenario, extending our time horizon from 2040 to 2050, adopting the Paris-aligned International Energy Agency (IEA) Net Zero by 2050 (NZE) dataset<sup>20</sup>, and more comprehensively incorporating carbon pricing and physical climate impacts.

A summary of our scenarios is shown below. Detailed assumptions underpinning our approach can be found in our [Scenario Analysis Assumptions](#).

High transition impacts				High physical impacts
	Scenario 1: Net zero achieved by 2050  Global warming: 1.5°C Global GDP growth: 3.1%	Scenario 2: Concerted effort but delay in reaching net zero  Global warming: 2.5°C Global GDP growth: 2.3%	Scenario 3: Emergence of new regional growth centres  Global warming: 3.0°C Global GDP growth: 3.6%	Scenario 4: Widespread nationalistic focus  Global warming: >4.0°C Global GDP growth: 1.0%
Macro and Policy	Transition to a lower-carbon economy becomes one of the drivers of global economic growth, partly offset by softer end-use consumption.	Governments and industry pursue net zero but fall short on delivering against Paris commitments and timing.	Emergence of new economic growth centres – India and Africa – supported by a favourable global trading and investment environment.	Prolonged impact of Russia/Ukraine conflict and threat of further conflicts leads to delayed focus in net zero activity and limited global cooperation. Free trade declines, ultimately suppressing growth in economic output.
Technology	Broader innovation, technology investment drives accelerated adoption of new technology, breakthrough clean technology and early retirement of conventional capacity.	Energy crisis in early part of scenario sees conventional energy play a larger role for longer, stimulating new technology investment and adoption of clean technology albeit at a slower rate than that for net zero.	High capacity to invest in technology development leads to a proliferation of innovative products; accelerated technology adoption profile.	Weak investment and cooperation slows R&D activity and commercialisation of new technology.
Market	Consumer and stakeholder preferences evolve towards building a zero-emission circular economy.	Consumer and stakeholder preferences evolve towards net zero but at a slower pace due to realities of reliance for longer on less expensive conventional energy to ease cost of transition.	Strong adoption of low-carbon emission technologies in developed world; India and Africa progress along a more conventional pathway in pursuit of growth.	Consumers and the industry are driven by economic choices and rely on conventional options.
Climate Change	Global cooperation and commitment among governments to address climate change puts global emissions on the 1.5°C trajectory. Carbon pricing and carbon border tariffs exist in all major regions – advanced countries 2030 est. US\$140/ tCO <sub>2</sub> -e and 2050 est. US\$250/ tCO <sub>2</sub> -e.	Cooperation and commitment among governments and industry drives energy transition at a slower pace, with majority of governments striving to achieve national targets and net zero achieved around 2070. Carbon pricing and carbon border tariffs exists in most regions – advanced countries 2030 est. US\$135/ tCO <sub>2</sub> -e and 2050 est. US\$200/ tCO <sub>2</sub> -e.	Most governments deliver on stated policies; US, EU and China ramp up their responses in an effort to offset additional emissions from India and Africa. Carbon pricing exists only in major advanced economies and physical climate impacts are increasing.	Majority of governments abandon global climate change commitments with no global carbon price in place. National efforts and focus shifts to adaptation and resilience, as global physical climate impacts grow to be significant.

To illustrate the evolution of demand and revenue mix under various future scenarios, our most exposed commodities are grouped into three categories, based on their sensitivity to the low-carbon economy transition.

**Commodities in decline**  
Primarily and negatively impacted by transitioning to a lower-carbon economy. Includes thermal coal and metallurgical coal.

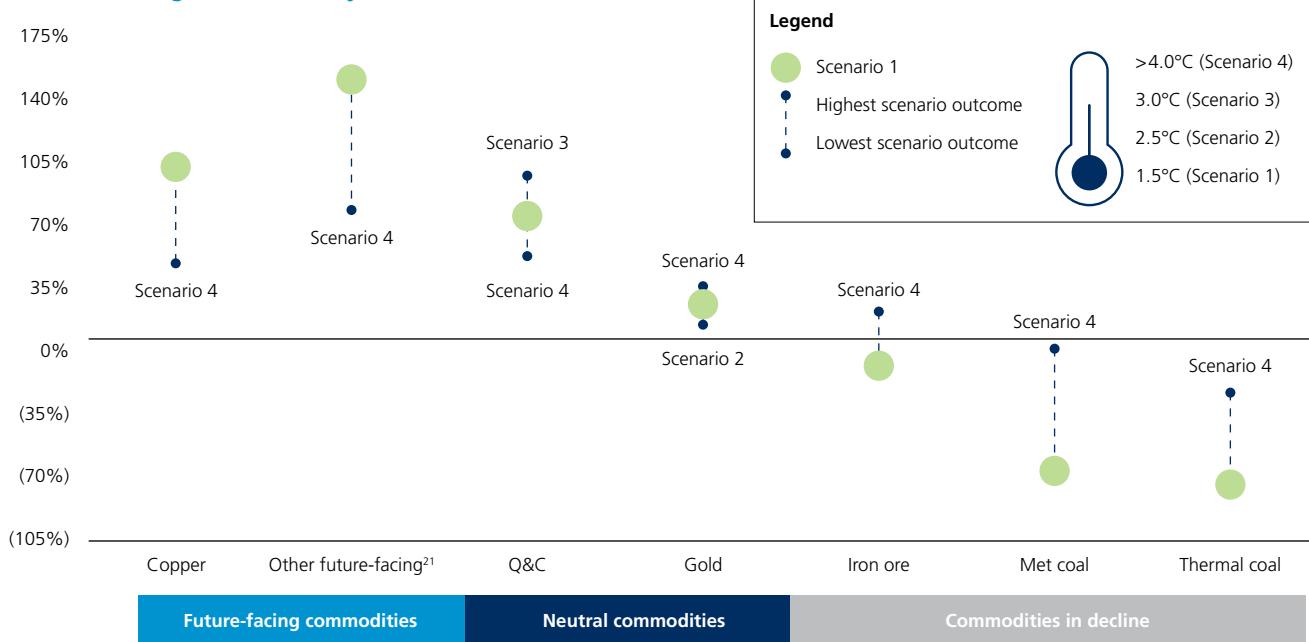
**Neutral commodities**  
While impacted by the transition, mostly driven by other trends such as recycling. Includes gold, iron ore, limestone and other crushed stone (used in Q&C).

**Future-facing commodities**  
Elevated demand in a lower-carbon economy. Includes copper, nickel, lithium and other metals and minerals supporting clean energy technologies.

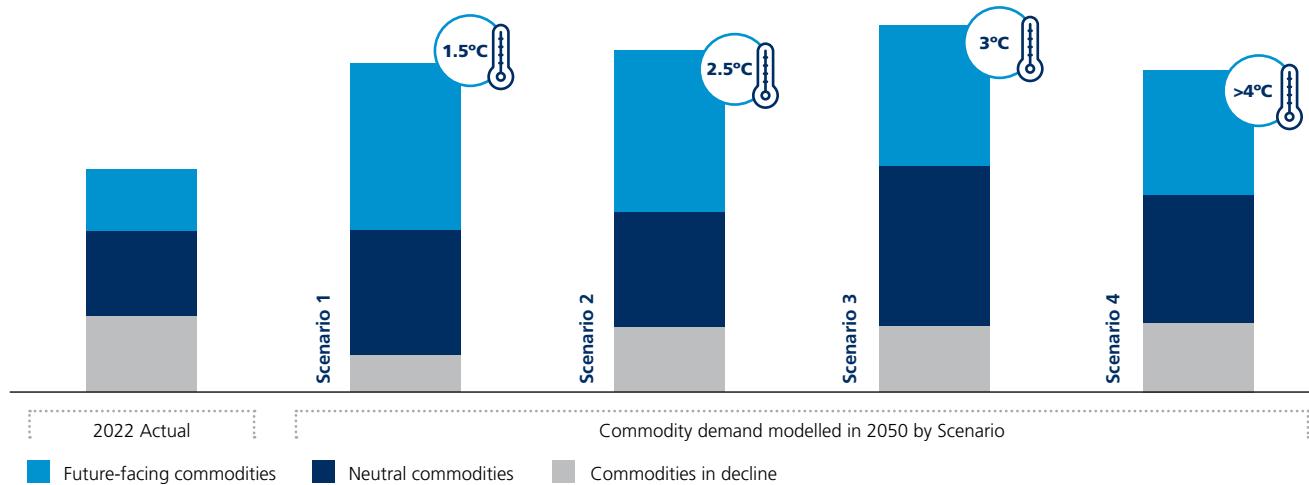
20. The analysis incorporates the 2021 publication the IEA Net Zero by 2050 Report and data from the 2022 IEA World Energy Outlook NZE pathway. The 2023 update to the IEA Net Zero by 2050 Report was released after the internal analysis was concluded but will be considered in any future relevant updates.

Our analysis models the demand changes in these commodity groups across different scenarios.

### Absolute change in commodity demand (2022 vs 2050)



### Actual (2022) vs scenarios revenue by commodity in real terms (in absence of any mitigating actions)



Note: 'future-facing commodities' includes copper, nickel, lithium and other metals and minerals supporting clean energy technologies; 'neutral commodities' include gold, limestone and other crushed stone (used in Q&C); 'commodities in decline' include thermal coal, metallurgical coal and iron ore.

Source: Orica research and analysis.

Across the scenarios, Orica found:

- the material moved (which consumes bulk explosives and consumables) for key commodity groups is a sensitive lever underpinning Orica's blasting activities
- new technology, blasting products and digital solutions present a significant opportunity and growth area for Orica, where demand is less correlated with material moved

- longer-term outlooks show a relatively resilient revenue profile at the Group level over the range of scenarios, however growth rates differ across scenarios and for individual business regions
- the strongest outlook is from Scenario 3 driven by population growth in Africa and India, followed by Scenario 2 and then Scenario 1. The differential revenue profile across the scenarios is somewhat immaterial and will not act as a deterrent from Orica pursuing outcomes consistent with a Scenario 1 net zero emissions world
- the poorest outcome is Scenario 4 which modelled a world encumbered by trading blocs, poor international coordination on climate change and exposure to physical climate impacts
- key thermal coal-servicing regions are materially impacted by a 2050 global net zero scenario (Scenario 1) due to declining thermal coal volumes. The scenario indicates the impact on Orica is partially offset by growth in copper, FFC and Q&C materials.

21. Calculated as weighted-average growth among lithium, nickel, cobalt and graphite.

# STRATEGY AND BUSINESS RESILIENCE

## Strategic response

Orica's strategy, planning and capital allocation framework responds appropriately to enhance the resilience and ongoing profitability of the business. Strategic optionality is fundamental to ensuring Orica's success, regardless of how the scenarios may unfold.

There are three key actions driving our long-term response:

1. Diversifying commodity exposure and customer mix to endure in a net zero world.
2. Grow our Mining Chemicals, Digital, Quarry and Construction segments.
3. Explore adjacency and inorganic growth opportunities to enhance shareholder returns.

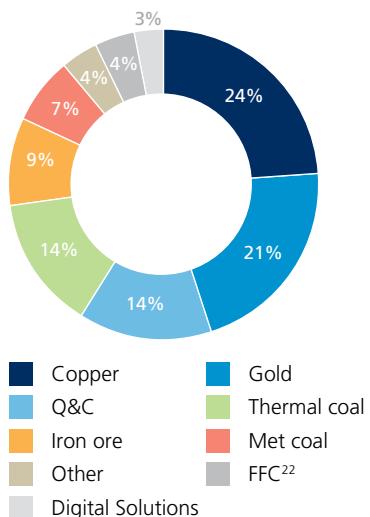
### Diversifying our commodity exposure and customer mix

Orica is making good progress to strengthen our portfolio's earning resilience and capture growth and diversification opportunities to increase our exposure to base metals and FFC.

In FY2023 we continued diversifying our commodity exposure, customer base and product mix with 49 per cent revenue contribution from gold, copper and FFC.

Thermal coal revenue exposure was 14 per cent in FY2023, down from 19 per cent in FY2019<sup>23</sup>. In the short term Orica expects export growth in Australia to outpace domestic decline and we will continue to serve our customers through the transition.

### Group revenue by commodity



With orebodies increasingly becoming harder to find, more difficult to mine and ESG responsibilities and commitments increase globally, demand for software, sensors and data science is increasing exponentially. We continue to build and invest in the next generation of automated and digital solutions beyond our blasting core, with Orica Digital Solutions one of our key growth segments across the mining value chain.

Quarrying and construction will continue to grow, linked to infrastructure investment and industrialisation in the developing world. Large government-committed infrastructure programs in the United States and India, among others, are supporting that growth.

### Exploring adjacency and inorganic growth

Orica has executed agreements to progress low-carbon ammonia/ammonium nitrate supply opportunities with Origin Energy (Australia), H2U Group (Australia) and Fertiberia (Spain). Additional arrangements are anticipated in the future.

In FY2023, Orica secured a five per cent equity stake in Alpha HPA, Australia, to increase exposure to eMobility and the growing battery technology market. A pipeline of other inorganic growth opportunities remains under ongoing assessment.



22. FFC in FY2023 includes nickel, lithium, lead and zinc.

23. Based on external sales, excluding discontinued operation Minova.

## Risk management

Our risk management system provides a framework aligned with ISO31000: 2018 Risk Management – Principles and Guidelines. This facilitates the ongoing assessment, monitoring and reporting of risks, including climate change, which could otherwise impede progress in delivering our strategic priorities. The framework defines where an impact is deemed substantive (or material<sup>24)</sup> from a financial or strategic point of view. Risks are identified, evaluated, mitigated (as far as is acceptable) and reported according to the same principles of quantification in a comparable manner.

Several company-wide strategic material business risks have been identified with potentially direct climate-related physical impacts. Other impacts associated with a transitioning global economy have been identified, including changing policy and regulation, community and investor expectations, changes in markets and commodity demand, customer/product mix and the emergence of new technologies. A full description of our enterprise risk management approach is outlined in the Risk section of our 2023 Annual Report.

Orica has a long history of identifying, evaluating and working to progressively mitigate climate-related risks and capture new opportunities. A summary of our risk evaluations and responses can be found below together with previous Climate Action Reports. Additional detailed information on climate-related risks and opportunity management can be found in our 2023 CDP Climate Change Questionnaire response.

### LEGEND

#### Time horizon

Short	Medium	Long

## Execution risk

Risk	Description of impact, risks and opportunities	Our management response and actions
<b>Failure to deliver against the 2023 Climate Action Report</b>	Failure to deliver against the targets, commitments and key initiatives outlined in Orica's 2023 Climate Action Report may result in reputation, financial and legal impacts.	<ul style="list-style-type: none"> <li>Maintain strong corporate governance, Board oversight and regular executive and management assessments of progress.</li> <li>Regularly assess and adjust (if required) Orica's capability, decarbonisation capital allocations and resourcing to deliver stated commitments.</li> <li>Engage with shareholders and other interested stakeholders to remain informed, enabling us to respond quickly to areas of concern or capture new opportunities.</li> <li>Continue constructive engagement with Climate Action 100+ and other investor initiatives to keep abreast of evolving shareholder expectations.</li> <li>Monitor key signposts associated with markets, government policy, technology development and costs to make regular assessments of Orica's ability to meet stated medium and long-term commitments.</li> <li>Work to secure government incentives and collaborate with value chain partners to access new economically viable low-carbon technologies at commercial scale.</li> <li>Advocate responsibly for globally effective climate policy to help enable the achievement of Orica's stated commitments.</li> <li>Transparently report progress to stakeholders on an annual basis.</li> </ul>

24. Orica defines substantive financial impact as being greater than \$50 million cumulative (both opportunity and downside) and/or loss of key customers and license to operate in a key jurisdiction. This financial value represents a 'critical' category in our enterprise risk consequence definitions.

# STRATEGY AND BUSINESS RESILIENCE

## LEGEND

Time horizon	Type
 Short	 Policy and legal
 Medium	 Market
 Long	 Reputation

## Transition risks

Impact, type, and time horizon	Description of impact, risks and opportunities	Our management response and actions
<b>Supply chain resilience and security</b>      	<p>Increasing regulated carbon pricing may increase our sourcing costs due to the increased cost of key inputs and services, including raw materials, gas, electricity and freight services.</p>	<ul style="list-style-type: none"> <li>Routinely monitor carbon pricing developments across the globe consistent with our carbon market strategy. Consider pricing changes as part of Orica's normal pricing assessments and models.</li> <li>Measure and report on Scope 3 emissions to understand changes and progress in decarbonising our value chain.</li> <li>Progressively seek opportunities to source lower emissions-intensive products on a cost competitive basis.</li> </ul>
<b>Climate and energy policy, carbon pricing and markets</b>      	<p>An increasing price on carbon may lead to increasing operating costs.</p> <p>The introduction of trading taxes and/or barriers for high emissions-intensive products has the potential to impact our import and export costs and activity.</p> <p>The development of carbon market mechanisms and government carbon policy can provide opportunities to participate in carbon markets to incentivise decarbonisation.</p>	<ul style="list-style-type: none"> <li>Monitor and anticipate carbon policy, trade and carbon costs across key jurisdictions. Currently, 76 per cent of our operational emissions are subject to direct emissions regulation<sup>25</sup>.</li> <li>Execute and operate tertiary abatement projects at Kooragang Island and Yarwun. Generate Australian Carbon Credit Units under the voluntary ACCU scheme.</li> <li>Reduce our GHG emissions by setting a suite of climate change commitments, targets and ambitions, and delivering emissions reductions to achieve them.</li> <li>Implement Orica's carbon market strategy.</li> </ul>
<b>Our reputation</b>     	<p>Negative impacts to our reputation can occur if we fail to demonstrate credible action on climate change.</p> <p>This may impact our ability to secure financing and investment capital, social license to operate and our ability to attract and retain talent.</p> <p>Positioning our business to support the transition to a lower-carbon economy offers growth opportunities and enhanced reputation.</p>	<ul style="list-style-type: none"> <li>Deliver on Orica's climate change commitments and targets.</li> <li>Assign adequate and competent resources to implement Orica's climate change and decarbonisation strategy.</li> <li>Transparently report on our performance and hold a non-binding 'Say on Climate' advisory shareholder vote at the FY2023 AGM.</li> <li>Maintain engagement with investors and Orica's other stakeholders. Respond to feedback in a constructive and pragmatic manner.</li> <li>Communicate our progress, lessons learned and share knowledge.</li> </ul>

25. In Australia, we fulfil legislated requirements under the Safeguard Mechanism, administered under the *National Greenhouse and Energy Reporting Act 2007*. In Canada, we participate and report under the Technology Innovation and Emissions Reduction (TIER) Regulation.

<b>Impact, type, and time horizon</b>	<b>Description of impact, risks and opportunities</b>	<b>Our management response and actions</b>
<b>Changing demand for our products and services</b>	<p>The demand for our products and services is evolving as the world transitions to a lower-carbon economy.</p> <p> </p> <p> </p> <p>Global demand for copper, nickel and other future-facing commodities grows stronger as the energy transition gains momentum. This presents opportunity to increase exposure and capture growth.</p> <p>At the same time, thermal coal production is still expected to decline in the long term.</p>	<ul style="list-style-type: none"> <li>Consider outcomes and develop responses to macro-economic and climate scenario analysis. We refreshed our scenarios in FY2023. See section 'Scenario analysis' for more.</li> <li>Increase exposure to and deliver on the growth potential of key emerging markets within Asia, Africa and Latin America.</li> <li>Growth in Orica Digital Solutions through accelerated adoption of innovative blasting technologies and expansion in high-growth Mining Chemicals markets.</li> <li>Move towards growth commodities that are essential to a broader energy transition, including rebalancing our portfolio mix towards gold, copper, future-facing commodities and the Quarry and Construction vertical.</li> <li>Assessing financial risks by incorporating decarbonisation expenditure and long-term movements in Orica's commodity portfolio into asset impairment testing.</li> <li>Introduced a new FY2024-26 Long-Term Incentive (LTI) metric into Orica's remuneration framework rewarding commodity portfolio resilience and diversification.</li> </ul>
<b>Operational competitiveness</b>	<p>The development and deployment of lower-carbon technologies have the potential to impact our ability to remain competitive in our operations.</p> <p> </p> <p> </p> <p>If we successfully integrate these technologies to drive lower operating costs and emissions intensities, this can be positive. If we transition at a slower pace than our competitors and customers, this can be negative.</p>	<ul style="list-style-type: none"> <li>Set evidence-based emissions reduction targets and a credible ambition for net zero emissions by 2050, providing a pathway forward to improve our operational competitiveness.</li> <li>Establish industry partnerships to explore transition opportunities at some of our key Australian facilities, including progressing renewable hydrogen and low carbon ammonia at some of our key Australian facilities in the major industrial regions of the Hunter Valley (NSW) and Gladstone (Queensland).</li> <li>Establishing an evidence-based Scope 3 roadmap, focusing on upstream and downstream sources, including our most material emissions arising from purchased goods and services and the use of bulk explosive products in blasting activities.</li> <li>Transparently report on our performance.</li> <li>Engage in regular, meaningful and inclusive dialogue with our stakeholders including employees, investors, lenders and community groups where we operate.</li> <li>Create financial incentives by linking executive remuneration to climate change. This year, we introduced a new FY2024-26 Long-Term Incentive (LTI) metric rewarding commodity portfolio resilience and diversification.</li> <li>Converted \$1.3 billion of existing bank debt facilities to sustainability-linked loans in FY2022.</li> <li>Performing periodic materiality assessments to identify and prioritise sustainability topics most important to our investors and other stakeholders.</li> </ul>
<b>Changing societal expectations</b>	<p>Societal standards for businesses to act responsibly are increasing. Failing to anticipate or respond appropriately could see increased regulatory burden, supply and/or operational disruption, damaged stakeholder relationships and reputation.</p> <p> </p> <p> </p>	<ul style="list-style-type: none"> <li>Engage in regular, meaningful and inclusive dialogue with our stakeholders including employees, investors, lenders and community groups where we operate.</li> <li>Create financial incentives by linking executive remuneration to climate change. This year, we introduced a new FY2024-26 Long-Term Incentive (LTI) metric rewarding commodity portfolio resilience and diversification.</li> <li>Converted \$1.3 billion of existing bank debt facilities to sustainability-linked loans in FY2022.</li> <li>Performing periodic materiality assessments to identify and prioritise sustainability topics most important to our investors and other stakeholders.</li> </ul>

# STRATEGY AND BUSINESS RESILIENCE

## LEGEND

Time horizon	Type
 Short	 Acute
 Medium	 Chronic
 Long	

## Physical risks

Impact, type, and time horizon	Description of impact, risks and opportunities	Our management response
<b>Worker health and safety</b>     	Acute (extreme weather events) and chronic (increasing temperatures and number of hot days, increased prevalence of tropical diseases, etc.) physical climate change has the potential to increase health and safety risks for our employees and contractors, impacting productivity and absenteeism rates and our ability to attract and retain talent.	<ul style="list-style-type: none"> <li>Implement our Safety, Health and Environment policy and our SHES management systems.</li> <li>Monitor and maintain a safe working environment for employees as required by SHES Group Standards, including ensuring employees are fit to work, and monitoring heat stress at our major operating facilities (where required).</li> </ul>
<b>Supply chain resilience and security</b>     	Increased frequency and/or intensity of extreme weather events (cyclones, floods, bushfires etc.) have the potential to disrupt our supply chain, impacting our ability to access raw materials and inputs, maintain production levels and service customer demand.	<ul style="list-style-type: none"> <li>Critical supplier managers building awareness of climate-related issues and developing mitigation actions where necessary.</li> <li>Increase adaptability by maintaining production capacity and high utilisation for critical goods, such as ammonia and ammonium nitrate, and maintain safety stocks at site.</li> <li>Completed global physical risk assessment to inform further actions to better understand physical climate risks at key ports and customer sites.</li> </ul>
<b>Asset integrity and production continuity</b>     	<p>Increased frequency and/or severity of extreme weather events have the potential to damage our assets and/or interrupt our ancillary services.</p> <p>This could lead to operational disruptions, impacts to planned production capacity and increased repair costs.</p> <p>More frequent and prolonged droughts and changes in rainfall patterns may lead to constrained water supply impacting the production capacity and environmental obligations of our manufacturing processes.</p>	<ul style="list-style-type: none"> <li>Regular asset-level risk assessments of key manufacturing locations conducted independently by Orica's insurers. Assessment results shared with site-level managers and SHES.</li> <li>Completed global physical risk assessment to inform further actions to better understand physical climate risks at the asset level.</li> </ul>

## Better understanding physical risks

In 2023, the world continued to break temperature records. According to the latest climate science, physical climate risks will increase in prevalence if global temperatures continue to rise at the current pace<sup>26</sup>.

Physical risks can be acute or chronic. Acute physical risks refer to those that are event-driven, including increased severity of extreme weather events such as hurricanes or floods. Chronic physical risks refer to longer-term shifts in climate patterns due to sustained

higher temperatures that may cause a rise in sea levels or chronic heat waves.

The physical impacts of climate change are already being experienced by Orica in our operating locations to a minor extent. Heavy rainfall and floods on the east coast of Australia (early 2023) and wildfires in North America (mid-2023) caused a temporary halt and reduction of blasting activity on customer sites, resulting in slowed demand for Orica's services in those affected regions. Our ability to offer premium blasting emulsions that perform in wet conditions has partially offset some of these impacts.

Orica is increasing our understanding of acute and chronic physical risks and the potential financial impacts to our business and supply chain. To inform the physical climate risks posed to our business and supply chain over three temperature scenarios, Orica has completed a global physical risk assessment of our assets, operating locations, major customer sites and critical ports. The assessment was completed in collaboration with S&P Global Trucost. Further details on the results are shown adjacent.

26. [IPCC, 2023, AR6 Synthesis Report, Climate Change 2023](#).

## Global physical climate risk assessment

Over 100 unique site locations were analysed in the assessment including all Orica continuous and discrete manufacturing sites, critical ports in our global supply chain and key customer sites by major commodity.

The assessment analysed physical risks over a 2030- and 2050-time horizon, compared to a 2020 temperature baseline.

### Climate change scenarios assessed

#### Low (RCP 2.6)

Aggressive mitigation actions to halve emissions by 2050. This scenario is likely to result in warming of less than 2°C by 2100.



#### Moderate (RCP 4.5)

Strong mitigation actions to reduce emissions to half of current levels by 2080. This scenario is more likely than not to result in warming in excess of 2°C by 2100.



#### High (RCP 8.5)

Continuation of business-as-usual with emissions at current rates. This scenario is expected to result in warming in excess of 4°C by 2100.



The climate hazards assessed cover both acute and chronic physical risks.

#### Acute risks



##### Tropical storms

Including hurricanes, typhoons and cyclones.



Philippines



Australia



##### Wildfire

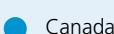
Risk of occurrence by location based on area of burnt vegetation.



Australia



United States



Canada



##### Riverine Flood

Flooding from rivers but excludes coastal flooding (covered in sea level rise) or flash flooding.



Mexico



Chile



Australia

#### Chronic risks



##### Extreme heatwaves

Occurrence of periods of extreme heat relative to local climatic conditions.



Colombia



Philippines



Indonesia



Chile



Ghana



United Arab Emirates

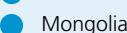


##### Extreme coldwaves

Occurrence of extreme cold relative to local climatic conditions.



Canada



Mongolia



United States



Peru

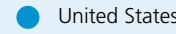


##### Water stress

Projected future ratio of water withdrawals to total renewable water supply in a given area and does not take into account water stress mitigation such as water recycling or desalination efforts.



Australia



United States



Chile



##### Sea level rise

The extent of annual flooding or permanent inundation due to sea level rise.



Australia



United States



Chile

*A note on the findings: the global physical risk assessment only considers the level of unmitigated risk – it does not consider the effect of measures currently in place at sites to mitigate the physical risk. The actual risk level may be lower, based on any existing or planned internal risk mitigation measures at sites.*

At the aggregate group level, our operational sites, on average, are exposed to moderate physical risks across all three temperature scenarios:

- **Until 2030:** the greatest physical climate impacts will be from water stress, followed by coldwaves and wildfires, heatwaves and river floods, sea level rise and tropical storms.
- **Until 2050:** water stress remains the dominant impact in the assessment, followed by wildfires and then coldwaves, heatwaves and river floods, sea level rise and tropical storms.

The analysis also made an assessment by asset, critically ranked to reflect the importance of the asset to the business continuity of Orica's manufacturing capabilities and servicing to customers. Physical impacts for criticality one assets, which include our continuous AN manufacturing plants, cyanide plant and key initiating systems and packaged explosives manufacturing sites, remained on average moderate in 2030 and 2050 under all three scenarios, where the largest impact was from water stress, followed by wildfires and then coldwaves.

# STRATEGY AND BUSINESS RESILIENCE



## The role of carbon markets and offsets

For complex organisations like Orica, there are hard-to-abate processes where cost or technology hurdles to avoid emissions cannot be easily overcome. As a result, neutralising emissions using carbon offsets is necessary. Carbon offsets may also be required for compliance as emissions regulations tighten over time, to meet voluntary targets or develop future low-carbon offerings for our customers looking to reduce their emissions profiles.

Where it is not practical to reduce or avoid emissions, our intent is to mitigate impact through carbon removal or drawdown. When required, Orica will preference higher-quality, long-term storage options with a high degree of environmental integrity and low risk of reversal. Orica is committed to sourcing high-quality carbon offset

credits, certified to a reputable standard by an independent third party to ensure their impact is real, additional, measurable, does not cause harm and does not lead to emissions increases<sup>27</sup>.

Orica has had a long history of participating in carbon markets, which is particularly evident in our Canadian and Australian operating jurisdictions, where today Orica is positioned on the supply side of the carbon market. In FY2023, Orica formulated a global carbon market strategy to define our ongoing approach to meet obligations for emissions reductions and optimise value by generating and managing surplus credits.

Our future participation in carbon markets is guided by five key pillars:

- Originate carbon credits to meet growing obligations, and only acquire credits if necessary.

- Maximise value for any surplus credits with no clear links to future obligations.
- Support decarbonisation business cases with opportunities for incremental carbon credit revenue.
- Anticipate changes to the regulatory environment and prepare the business to meet obligations at the lowest cost abatement.
- Establish cross-functional governance processes to maximise value, preserve optionality and manage reputational impacts.

For more information on Orica's participation in compliance and voluntary carbon markets, refer to the [2023 Sustainability Investor Day](#) presentation.

## Orica's approach to the use of offsets



27. Consistent with the [Oxford Offsetting Principles report](#).

# STRATEGY AND BUSINESS RESILIENCE

## Supporting industry while it decarbonises

Orica anticipates carbon pricing mechanisms will be progressively adopted around the world and increase in value over time. National carbon and energy policies in the key jurisdictions where Orica operates have been strengthened. While a variety of market and regulatory carbon pricing levers are adopted by governments worldwide, we continue to advocate for carbon pricing policies that maintain the global competitiveness of trade-exposed industries to prevent carbon leakage.

The European Union's CBAM commenced on 1 October 2023. A CBAM can ensure a level playing field for decarbonised manufacturing, so that industry is not unfairly competing against imported products from countries with less mature carbon pricing regimes and reduce the risk of carbon leakage<sup>28</sup>. Similar carbon border policies are being considered by other major developed economies where we operate, such as Australia and Canada.

Government grants will also play a key role in assisting the transition and by supporting credible projects, first movers will accelerate the transition. Government support, like the Australian Hydrogen Headstart program, is crucial to defining the opportunities and ways Orica can accelerate the renewable hydrogen industry and by opening doors and driving demand through international markets, will see opportunities for renewable hydrogen beyond Australia.

In the US, the introduction of the *Inflation Reduction Act* and related funding is accelerating the decarbonisation of energy systems and the US industrial sector. Similar policy mechanisms are being put in place by governments in Canada, India and the European Union. Incentives are being adopted in areas of low or zero-emissions technology such as renewable hydrogen, CCUS and renewable energy more generally. Orica is monitoring developments closely and positioning for future opportunities.

## Capital allocation and decarbonisation

### Value accretive investment

As our industrial manufacturing facilities have long lifespans, the investment decisions Orica makes in the coming years will influence our efforts to decarbonise as we consider adopting lower-emissions technology options.

Capital allocation for emissions reduction is delivering positive shareholder returns, with \$54 million invested in tertiary abatement projects from FY2021 to FY2023. In FY2023, Orica spent \$36.7 million on sustainability sustenance capital, which includes \$20.7 million towards reducing our GHG emissions at Kooragang Island, Yarwun (Australia), and Bontang (Indonesia).

These cumulative investments enable the ongoing execution of our decarbonisation strategy, mitigating potential costs associated with tightening emissions reduction regulations, as well as enabling the offering of lower-carbon intensity AN products and blasting to our customers.

In Australia, the recently reformed Safeguard Mechanism (which covers our Kooragang Island and Yarwun Nitrates facilities) introduced facility baselines which will reduce year-on-year until 2030 and progress Australia towards its National Determined Contribution<sup>29</sup>. Orica's voluntary action to invest in tertiary catalyst abatement technology is materially reducing Scope 1 emissions and is anticipated to enable us to avoid excess emissions penalties over the next five years. However, changes in national government, climate policy or regulation may alter this view.

In FY2021, Orica secured optional Carbon Abatement Contracts under the voluntary Emissions Reduction Fund for the \$37 million Kooragang Island Decarbonisation Project. In FY2022, Orica partnered with the New South Wales Government and received a \$13 million grant, with Orica's \$24 million capital financed by the Clean Energy Finance Corporation. The commissioning of tertiary abatement technology as part of the project

is now complete. The first tranche of carbon credits created from the project is anticipated to be issued in FY2024. See 'The role of carbon markets and offsets' for more.

Over the past four years, Orica has materially reduced our Scope 1 and 2 emissions. Decarbonisation investment has protected shareholder returns by avoiding compliance penalty obligations and has been supported by securing government incentives.

Policy certainty enables businesses to have the confidence to invest. With the passage of the Safeguard Mechanism in Australia, Orica announced a final investment decision to install tertiary catalyst technology at two unabated NAPs at our Yarwun Nitrates facility. The project is also underpinned by optional Carbon Abatement Contracts with the Australian Government. Construction has commenced with plant commissioning to be undertaken in 2024.

### Capital expenditure governance and pricing carbon policy risk

As we execute our strategy and deliver on our commitments, sustainability and decarbonisation capital will be allocated in line with our capital allocation framework (see FY2023 Annual Report).

Our capital expenditure process is subject to rigorous review and approval processes, with large investments overseen by the Orica Investment Committee (OIC) and the Board. To inform group capital decisions, a representative of the Sustainability and Government Relations team is embedded in the OIC, bringing decarbonisation and transition considerations to the Group's capital allocation process.

Capital expenditure relating to safety, environmental or regulatory requirements is prioritised, while other capital expenditure, including sustainability-related projects, is subject to financial hurdles and ranked according to a rigorous prioritisation process. Our capital allocation framework also supports investment in strategic initiatives, which may include sustainability-related projects.

28. Carbon leakage refers to the shift of emissions-intensive industries from production locations with regulations and penalties on GHG emissions to production locations without these regulations. This should be prevented as it results in GHG being emitted elsewhere globally when the aim is to avoid the emissions being released, through a policy mechanism and financial penalty to the emitter (company).

29. Updated in 2022, Australia increased the ambition of its 2030 target, committing to reduce GHG emissions 43 per cent below 2005 levels by 2030.

This prudent approach positions Orica well to manage the volatile external environment, supporting further business growth and delivery of our sustainability commitments, while delivering improved shareholder returns.

Incorporating carbon pricing into financial decisions is useful to understand any risks from carbon policies that could impact an investment business case. An internal price on carbon creates a theoretical cost per tonne of GHG emissions.

Orica continues to apply internal carbon pricing into key decision areas, to better understand the potential impact of external carbon pricing on the profitability of projects and investments, as well as assessing potential opportunities with new business models.



Application	Internal carbon price type	Description
<b>Group capital planning</b>	Shadow carbon price	Applied to internal decarbonisation business cases to inform investment decisions. In jurisdictions where a regulated carbon price is present, that price is incorporated into our business case. Where uncertainty exists, this year Orica applied a shadow carbon price of US\$50/tCO <sub>2</sub> -e to understand and pilot the potential financial exposures under different future carbon pricing and regulatory scenarios.  Further work has been conducted in FY2023 towards integrating shadow carbon pricing considerations across different types of investment decisions overseen by the OIC, with further regional integration planned in FY2024.
<b>Scenario analysis</b>	Shadow carbon price	For strategic planning, Orica adopts shadow carbon pricing as a cross-cutting policy intervention in scenario assumptions. Carbon prices vary according to scenario (refer to our summary of <a href="#">Scenario Analysis Assumptions</a> ). The outcomes assist with understanding carbon price risks, particularly impacts to changing commodity demand and business profitability under different scenarios.
<b>Corporate development</b>	Shadow carbon price	Orica applies shadow carbon pricing assumptions in merger and acquisition activities, which would materially impact our GHG emissions footprint. A shadow carbon price is informed by the asset location, incorporating existing regulatory carbon pricing policies for that jurisdiction, if relevant applying cost increase assumptions over time, and considering planned policies which may increase this cost further over the coming decade. Orica conducted assessments using a shadow carbon pricing range of US\$20/tCO <sub>2</sub> -e to US\$50/tCO <sub>2</sub> -e.
<b>Commodity analysis</b>	Shadow carbon price	Carbon cost impacts are applied in commodity demand analysis and production cost modelling for ammonium nitrate.
<b>Sourcing and procurement</b>	Market price	Impacts arising from regional emissions regulation and carbon pricing are considered in strategic product pricing and sourcing.
<b>Impairment modelling</b>	Market price	Orica incorporates the allocated capital to our decarbonisation activities into asset impairment testing, as forecasted capital expenditure and costs. These are the capital outflows required to meet the Group's commitment to reduce net Scope 1 and 2 emissions by 2030. Orica also incorporates the financial impacts of enacted carbon emissions regulation, such as the Safeguard Mechanism reforms in Australia.

# OPERATIONAL EMISSIONS

## Scope 1 emissions

Our four continuous manufacturing facilities produce ammonia, nitric acid, ammonium nitrate and sodium cyanide which contribute over 95 per cent of our Scope 1 emissions.

Major sources of Scope 1 emissions are nitrous oxide ( $N_2O$ ), generated as a by-product of nitric acid manufacture, and our ammonia plant at Kooragang Island (Australia), which generates hard-to-abate GHG emissions in the form of carbon dioxide. Other Scope 1 GHG emissions arise within our operations from industrial processes, such as fossil fuel combustion in boilers for process heat and steam generation.

Over the past two years, Orica has completed installation of tertiary  $N_2O$  abatement technology at our Carseland site in Canada and in an Australian first, in all three NAPs at our Kooragang Island facility. The technology is achieving more than 95 per cent abatement efficiency in both

facilities and has reduced the site's gross Scope 1 and 2 GHG emissions intensity, per tonne of AN produced, by 51 per cent at Carseland and 47 per cent at Kooragang Island, compared to pre-installation levels.

The announcement of a final investment decision on the tertiary abatement project at our Yarwun manufacturing facility in Gladstone, Australia, aims to deploy this technology on our remaining two unabated plants. This is estimated to reduce gross Scope 1 emissions from the site by 200 ktCO<sub>2</sub>-e per year and avoid a total of 1.5 MtCO<sub>2</sub>-e by 2030<sup>30</sup>.

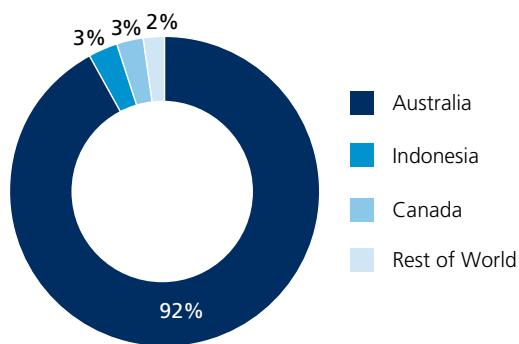
At some of our sites, secondary catalyst abatement technology continues to be an efficient option for nitrous oxide abatement. This year, Orica upgraded the secondary abatement catalyst in our plant at Bontang, Indonesia, resulting in a reduction in gross Scope 1 and 2 emissions of 69 per cent from the site's 2019 baseline.

Looking ahead, our most material remaining Scope 1 emissions arise from Kooragang Island, as a result of steam-methane reforming of natural gas in the production of ammonia. Planning and concept studies for alternative chemical feedstocks have commenced, including the co-development of the Hunter Valley Hydrogen Hub with Origin Energy. This partnership represents an important opportunity to further understand the role of renewable hydrogen<sup>31</sup> in our decarbonisation pathways and future business models.

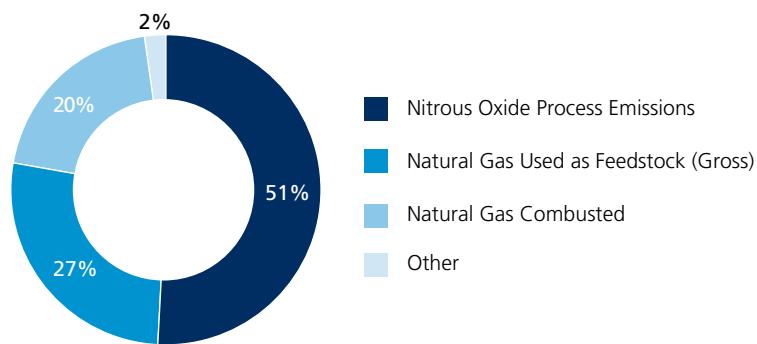
Over the medium term, further advancement of other alternative feedstocks and renewable fuels will also be required, as well as consideration of additional technology levers such as CCUS, fuel-switching and electrification.

With the right policy settings and corporate commitments, emissions reduction is possible in hard-to-abate and expensive-to-abate sectors of the economy.

### Scope 1 Emissions – by country



### Scope 1 Emissions – by source



30. Based on forecast production and vendor provided tertiary catalyst abatement operational effectiveness.

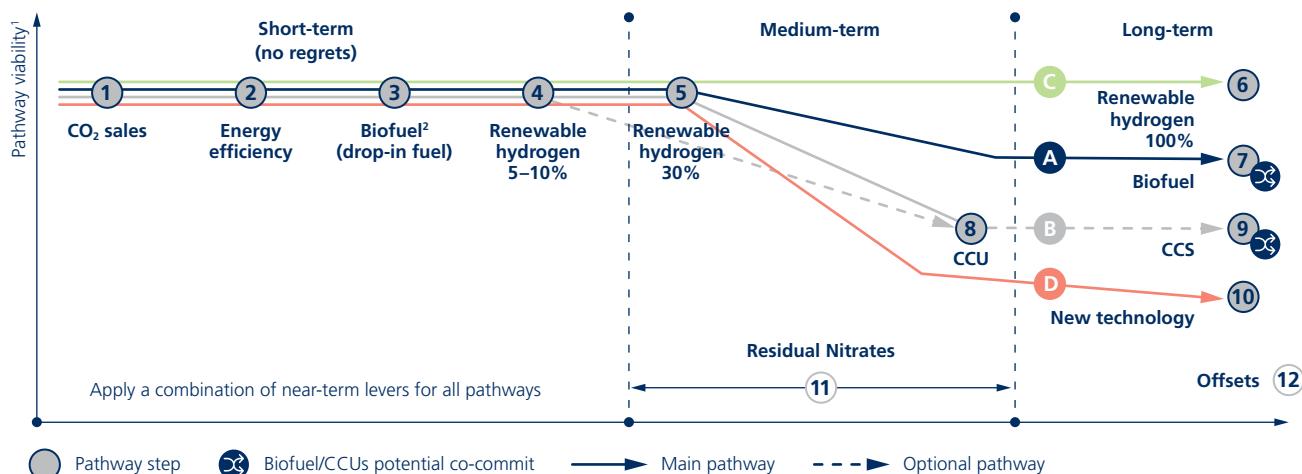
31. Hydrogen produced via electrolysis, using renewable electricity. Renewable electricity may be sourced directly (e.g. solar generation) or via grid-connected supply supported with the retirement of renewable energy certificates.

## Kooragang Island, Australia, net zero study

In FY2023, Orica completed a net zero study for our facility at Kooragang Island to further understand our next phase of operational decarbonisation.

This study was conducted in partnership with the New South Wales Department for Planning and Environment under the Net Zero Industry Innovation Program (Transformative Industry Projects Scoping Studies). The Kooragang Island Net Zero Study has validated a roadmap outlining the major activities and decisions to transition

the Kooragang Island asset to net zero Scope 1 emissions, subject to economic viability. It is based on four potential pathways (below). These pathways will be further investigated as the roadmap is implemented. Renewable hydrogen appears likely to be the most viable, based on current assessments.



### Net zero pathways



Direct emissions reductions by progressively displacing feedstock with renewable hydrogen followed by a concerted shift to 100 per cent.



Progressive blending of biomethane as a primary fuel and feedstock, augmented by electrification or other bioenergy sources as technology becomes available.



Near and mid-term increase in CO<sub>2</sub> sales, with utilisation increasing as CCU tech, such as MCI, advances. Where CCU isn't feasible, partnerships may improve economics of transport to storage location.

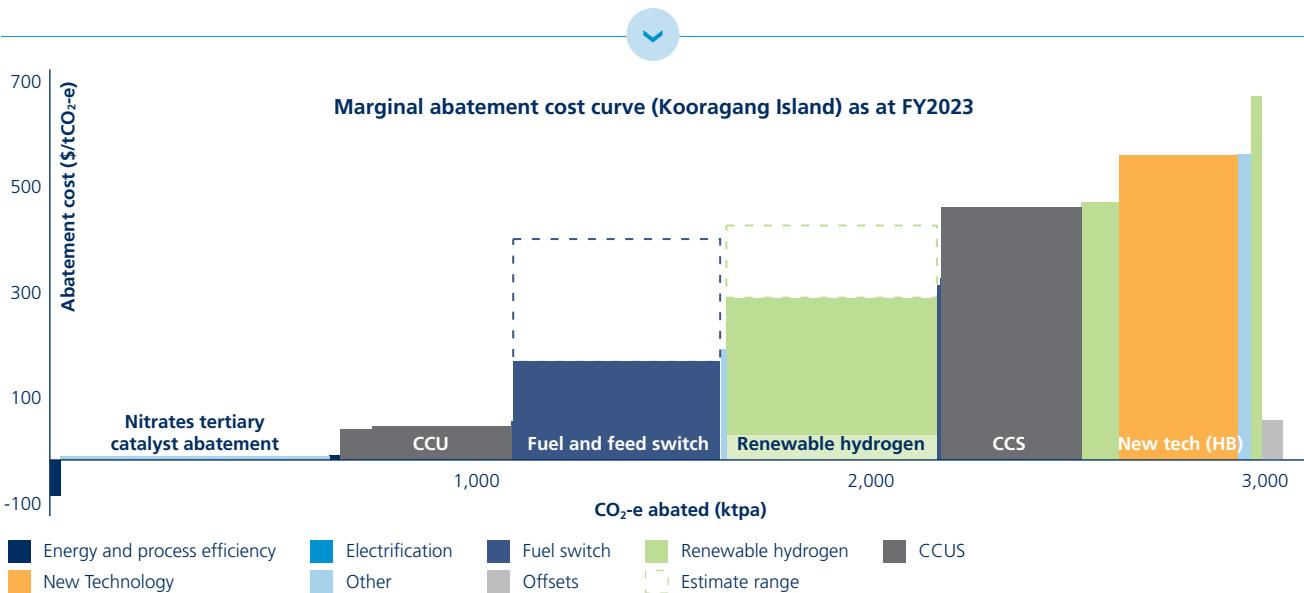


Ongoing monitoring and research and direct investment in new technology to abate emissions through alternative NH<sub>3</sub> production.

1. Pathway ranking indicative based on consideration of technical, commercial and cost viability.

2. Where available in small supply quantities.

Note: Co-commitment to biofuel and CCUS will reduce the scale at which both abatement levers are deployed.



Note: MACC includes all initiatives for comparative purposes and does fully not account for combined effects of abatement. MACC does not capture feasibility or viability challenges.

# OPERATIONAL EMISSIONS

## Hunter Valley Hydrogen Hub, Australia

Hydrogen is an essential component in the manufacture of ammonia, derived from natural gas and creating carbon dioxide as a by-product. Our partnership with Origin Energy to co-develop the Hunter Valley Hydrogen Hub offers an opportunity to progressively replace our natural gas feedstock with renewable hydrogen, to establish a safe, reliable and commercial-scale hydrogen supply chain in the Newcastle industrial and port precinct.

The Hunter Valley Hydrogen Hub will have direct access to our ammonia plant. As the only operating ammonia plant on Australia's east coast adjacent to a deepwater port, this offers a clear competitive advantage. It is also near the Port of Newcastle's Clean Energy Precinct, ensuring the building of critical infrastructure and subsequent scale-up will be capital-efficient and coordinated.

In phase one of the project, our ammonia plant will take up to 80 per cent of the hydrogen produced at the hub. This will reduce the site's direct Scope 1 emissions by approximately 52,000 tCO<sub>2</sub>-e per annum and displace approximately one petajoule of natural gas from the plant, freeing up the equivalent in domestic gas supply. This will enable us to offer low-carbon explosives to our mining and Q&C customers and unlocks optionality for the sale of low-carbon ammonia to mining, energy and other markets.

As with our previous investments in decarbonisation, Orica will apply commercial discipline to our participation in the Hunter Valley Hydrogen Hub. While we are deeply committed to future-proofing our manufacturing assets, renewable hydrogen is currently not economically viable. Renewable power and gas costs remain high and market formation will need to be supported by effective public policy. We support the emergence of Production Credits and the Hydrogen Headstart Fund and believe the Australian Government needs to act quickly and reward early movers who are fast approaching their final investment decisions.



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## Scope 2 emissions

Our pathways to mitigate Scope 2 emissions rely on optimising energy use through energy efficiency and increasing the proportion of renewable energy in our mix. Our largest source of Scope 2 emissions is purchased electricity, representing 80 per cent of our global inventory. The remaining 20 per cent of Scope 2 emissions arise from third-party purchased steam.

Our operations in Australia account for 63 per cent of our global electricity consumption. From 2025, our power purchase agreement for the supply of renewable electricity from the Wellington North solar farm commences. Once operational, our contracted capacity will be sufficient to meet the electricity demands of our current operations in NSW.

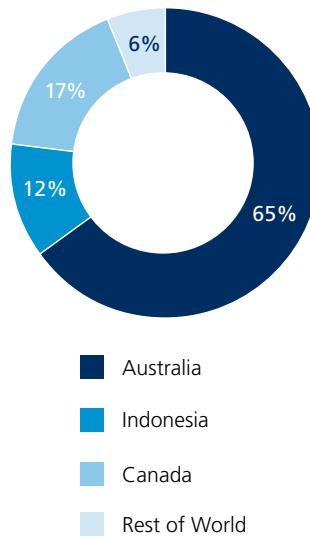
Looking ahead, Orica is prioritising sourcing renewable electricity for other major continuous manufacturing facilities at Yarwun, Australia, and Carseland, Canada. Across our operations, a number of smaller facilities are also exploring the opportunity to switch to lower-emissions energy sources, including:

- our GroundProbe head office in Brisbane, Australia installing two solar systems (34kW and 78kW respectively) in FY2021.
- our facility at Gyttorp, Sweden switching its grid-electricity source to nuclear energy in FY2023.
- our office in Monclova, Mexico installing a 32kW unit with 58 solar panels onsite in FY2023.
- in FY2023, our discrete manufacturing site in Lurin, Peru, began sourcing renewable electricity as part of ongoing efforts towards diversifying our energy supply.

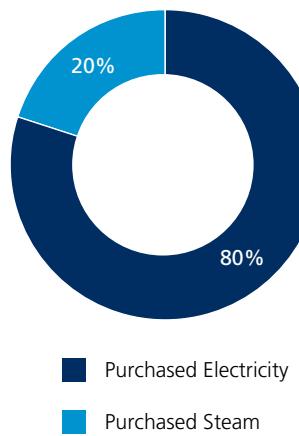
In addition to renewable electricity, Orica will continue to investigate energy efficiency opportunities. Improved energy efficiency through process optimisation, equipment upgrades and waste heat recovery have the potential to translate into a net reduction in energy consumption. Such opportunities are identified as part of ongoing plant operations and typically targeted for implementation in future continuous manufacturing planned shutdowns.

Our other major source of Scope 2 emissions is purchased steam. At our continuous manufacturing facilities where Orica relies on steam from third-parties, we are engaging our suppliers to understand options for decarbonisation. Similar to our own operations, abatement options for industrial heat include fuel switching and electrification, which are not technically or commercially viable at present, at the temperatures and pressures we require.

### Scope 2 Emissions – by Country



### Scope 2 Emissions – by Source



## Enabling our people to take action

This year, several events were held for our global business functions and regional teams to educate and share knowledge on sustainability topics including climate change, energy and emissions. As part of Orica's internal Strategy in Action series, Orica hosted focused sessions on Sustainability for the business, including an overview of climate action at Orica.

To enable participation in our climate change commitments across sites, this year Orica launched a new internal grant program, the 'Towards Net Zero Fund'. The goal is to create a culture that is aware of sustainability and climate change, by incentivising climate action, helping reduce operational emissions and partnering to decarbonise our value chain and the locations in which we operate. In its first year, the program received interest from regions for small-scale solar projects, energy optimisation initiatives and decarbonisation studies.

Orica will continue to develop broader sustainability awareness development and training, including climate change-related training, to educate and empower our people to take action.



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# OPERATIONAL EMISSIONS

## Operational emissions performance

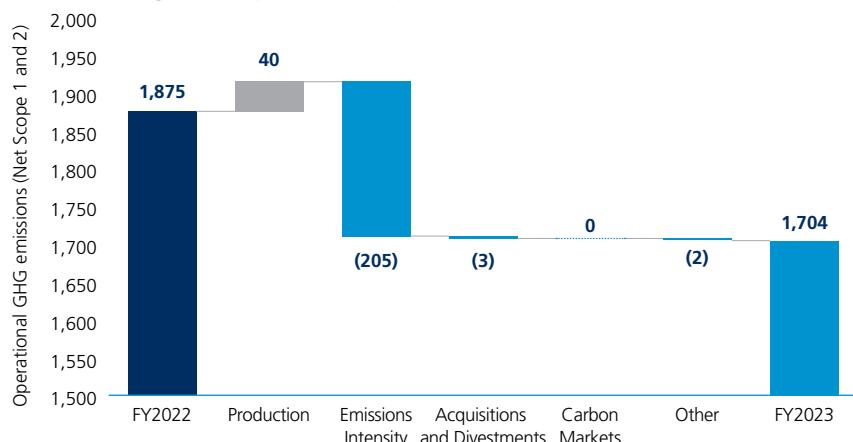
Our net operational Scope 1 and 2 GHG emissions for FY2023 were 1,704 ktCO<sub>2</sub>-e<sup>32</sup>. This represents a nine per cent decrease from FY2022 and a 22 per cent reduction from our base year of FY2019.

Gross Scope 1 GHG emissions decreased by 14 per cent from FY2022, driven primarily by abatement at our continuous manufacturing facilities. This year, low-emissions technology was installed and optimised at our facilities, namely tertiary catalyst abatement at Kooragang Island's three NAPs, and secondary catalyst at one plant each at Bontang and Yarwun.

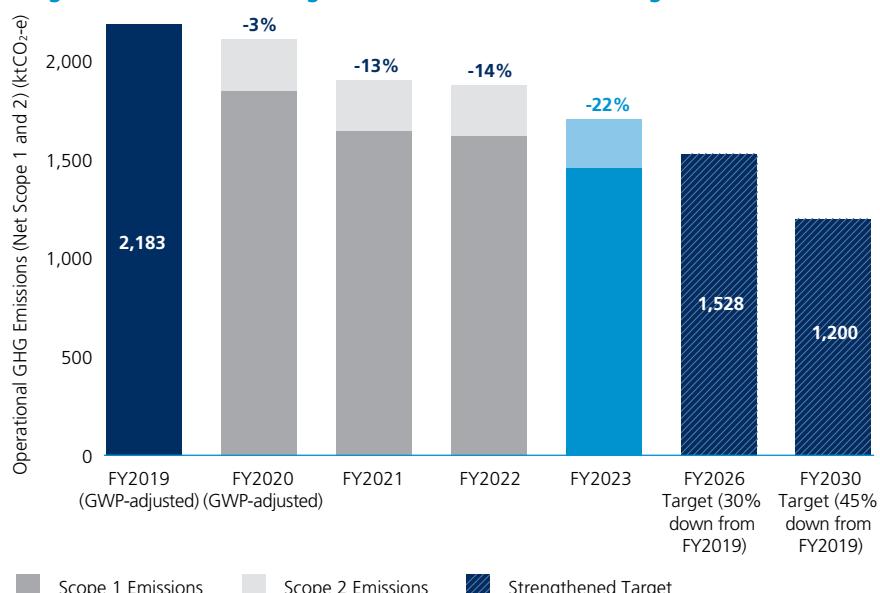
Abatement technologies contributed to emissions intensity improvements and lowered site-based Scope 1 and 2 emissions intensity per tonne of AN produced by 20 per cent in FY2023 compared to FY2022. These reductions in emissions intensity were partially offset by increased AN production volumes, which were up six per cent globally from FY2022.

Gross Scope 2 GHG emissions remained stable from FY2022, decreasing by 0.2 per cent, with 335 MWh (0.10 per cent) of electricity generated from renewable sources. Despite increased global operations resulting in higher consumption, Scope 2 emissions arising from purchased electricity were down two per cent. This was primarily due to electricity grid factors decreasing in key operational jurisdictions, including Australia. With the establishment of our company-wide renewable electricity target, we intend to transition to dual location and market-based Scope 2 emissions reporting over the coming years.

### Annual change in Scope 1 and Scope 2 GHG emissions (ktCO<sub>2</sub>-e)

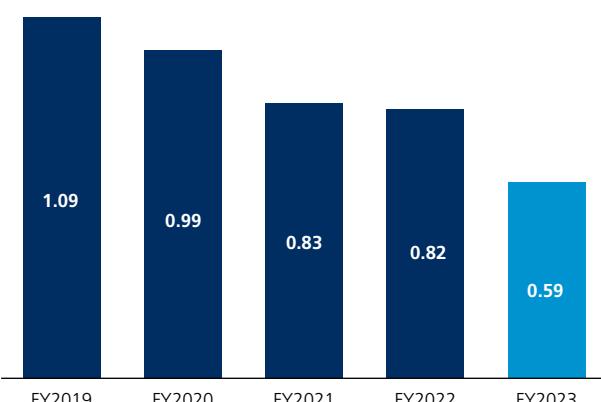


### Progress towards achieving GHG emissions reduction targets



For a comprehensive breakdown of our Scope 1 and 2 emissions, refer to Appendix Energy and Emissions Data on page 50. The Orica [ESG Data Centre](#) is found on our website.

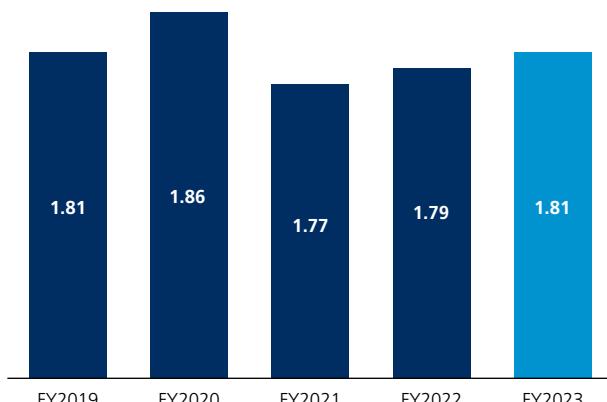
### Global nitric acid plant emissions intensity (Scope 1 Nitrous Oxide – tCO<sub>2</sub>-e/t nitric acid produced)



Note: Boundary covers Scope 1 nitrous oxide emissions only.

32. Our net Scope 1 and Scope 2 GHG emissions position for FY2023 is equivalent to our gross Scope 1 and Scope 2 GHG emissions given no surrender of carbon credits occurred within the reporting period.

### Ammonia plant emissions intensity (tCO<sub>2</sub>-e/t ammonia produced)





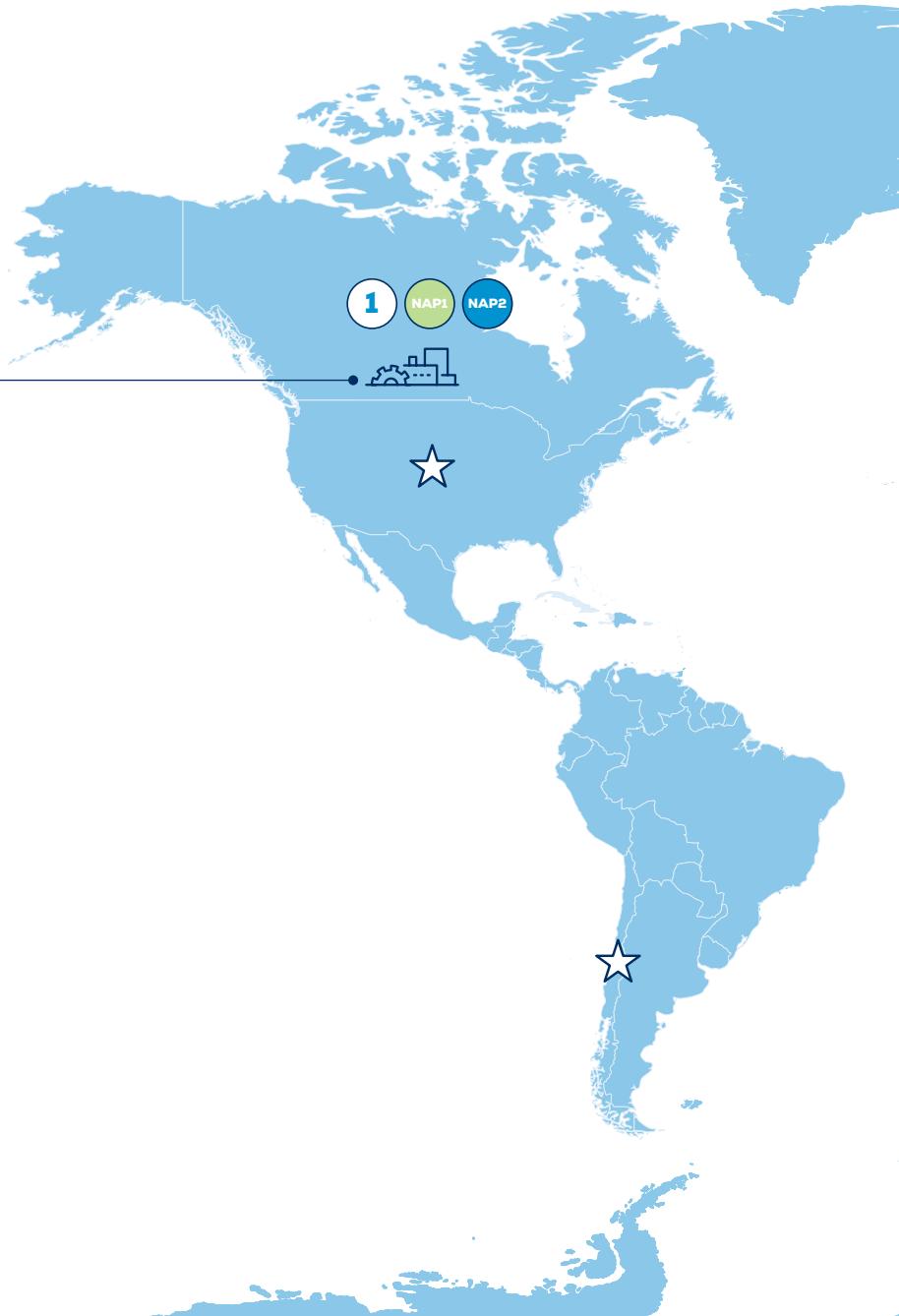
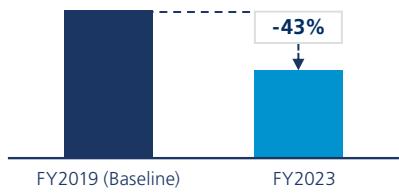
# OPERATIONAL EMISSIONS

Demonstrable progress towards reducing operational emissions through decarbonising our continuous manufacturing plants

## ① Carseland

- Tertiary catalyst installed NAP1 November 2021
- Secondary catalyst in operation on NAP2

### Scope 1 and 2 emissions (ktCO<sub>2</sub>-e)



### Major Operations

- Head Office
- Regional Head Office
- Orica presence
- Continuous Manufacturing

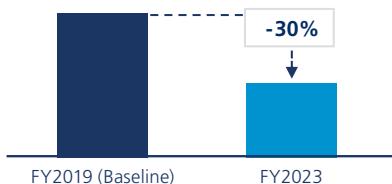
Burrup facility is not included as it is managed and operated by Yara Australia Pty Ltd, the partner of Orica in the JV company that owns this facility.

- Tertiary N<sub>2</sub>O abatement
- High-performing secondary N<sub>2</sub>O abatement
- Planned tertiary N<sub>2</sub>O abatement (from 2024)

## 2 Kooragang Island

- Tertiary catalyst installed on NAP1-3 completed in July 2023
- Hunter Valley Hydrogen Hub with Origin Energy
- Renewable electricity power purchase agreement from 2025

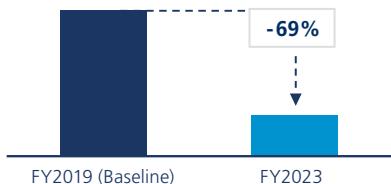
### Scope 1 and 2 emissions (ktCO<sub>2</sub>-e)



## 3 Bontang

- Secondary catalyst optimised on NAP1

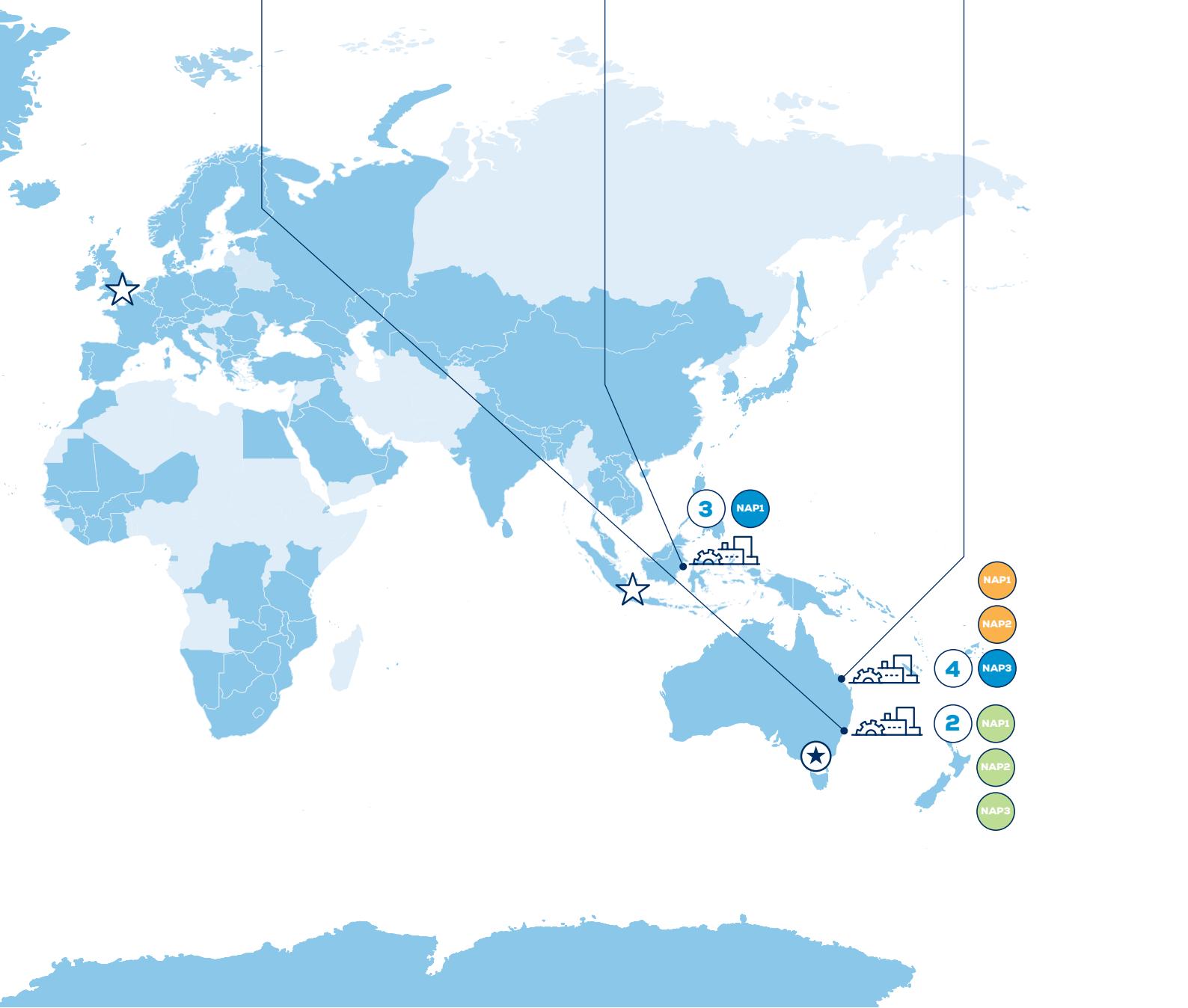
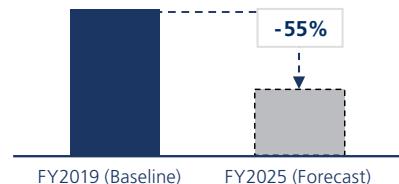
### Scope 1 and 2 emissions (ktCO<sub>2</sub>-e)



## 4 Yarwun

- Secondary catalyst optimised on NAP3
- Tertiary catalyst on NAP1 and NAP2 scheduled in 2024
- MoU with H2U – Hydrogen Utility

### Scope 1 and 2 emissions (ktCO<sub>2</sub>-e)



# VALUE CHAIN EMISSIONS

## Scope 3 roadmap

Orica is committed to playing our part in mitigating the impact of our value chain emissions, which formed 82 per cent of our global GHG inventory in FY2023. Over the last three years, our global approach to reducing Scope 3 emissions has focused on understanding the sources of our Scope 3 emissions, reliably quantifying them and identifying pathways for reduction.

In FY2023, Orica continued engaging with our suppliers and customers through regional workshops and targeted discussions and created a new role within our Global Supply Chain to focus on executing our strategy for supply chain decarbonisation. To assist with our supplier engagement activity and facilitate access to supplier-specific climate data, we also participated in the CDP supply chain program. In addition to an ongoing focus on our upstream supply chain, we developed an evidence-based decarbonisation roadmap across our value chain, focusing on upstream and downstream sources, including our most material emissions arising from purchased goods and services and the use of bulk explosive products in blasting activities.

Our value chain decarbonisation roadmap takes account of 12 categories of Scope 3 emissions deemed relevant to Orica<sup>33</sup>,

with modelling guided by Paris-aligned trajectories. FY2022 was established as the baseline year, as it captured the most complete representation of our Scope 3 emissions inventory due to methodology improvements, better accounting of emissions from the use of sold product, and a higher percentage of supplier-specific emission factors used for purchased AN, instead of regional average data.

While our Scope 3 emissions are broadly outside our direct control, a framework for value chain decarbonisation has been built around three core principles of control, partner, and influence. These principles have informed the development of our value chain decarbonisation roadmap and our ambition to reduce Scope 3 emissions by 25 per cent by 2035, from a 2022 baseline<sup>34</sup>.

## Key enablers for our Scope 3 ambition

Our Scope 3 ambition reflects a focus of effort and commitment towards further understanding our roadmap, supporting the development of emerging abatement technologies, and identifying potential barriers and challenges to inform our advocacy and future stakeholder engagement programs.

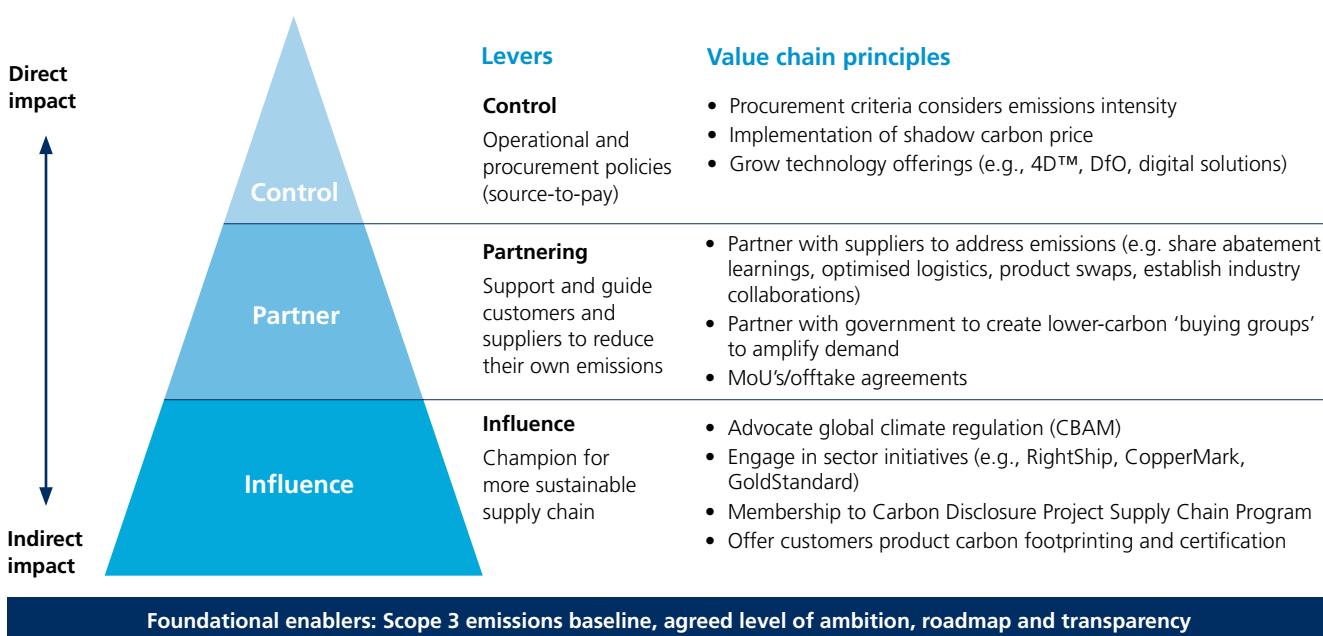
Our roadmap for value chain decarbonisation is reliant on several key enablers, including the emergence of low-carbon feedstocks and renewable fuels at a commercial scale, key suppliers achieving their emissions reduction commitments, alternate sourcing strategies, consideration of product design and internal governance mechanisms that enable supportive decision-making.

Effective government policy and supportive regulation and financial incentives, as well as meaningful and transparent collaboration with value chain partners, and access to new economically viable low-carbon technologies at commercial scale will also be required.

Looking ahead, Orica will continue to focus on further engaging our suppliers and customers and iterating our baseline and roadmap to reflect product-level emissions intensity and decarbonisation pathways. We are also evolving our sourcing policies to take account of GHG emissions and incorporating sustainability considerations into supply contracts.

Deep dives into key Scope 3 categories to further establish emissions baselines, articulate potential abatement levers and better understand commercial viability are also planned.

## Scope 3 decarbonisation strategy: Control, partner and influence

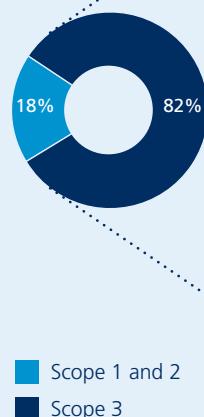


33. Categories 8, 13 and 14 are deemed not relevant to Orica as per GHG Protocol value chain relevance criteria testing.

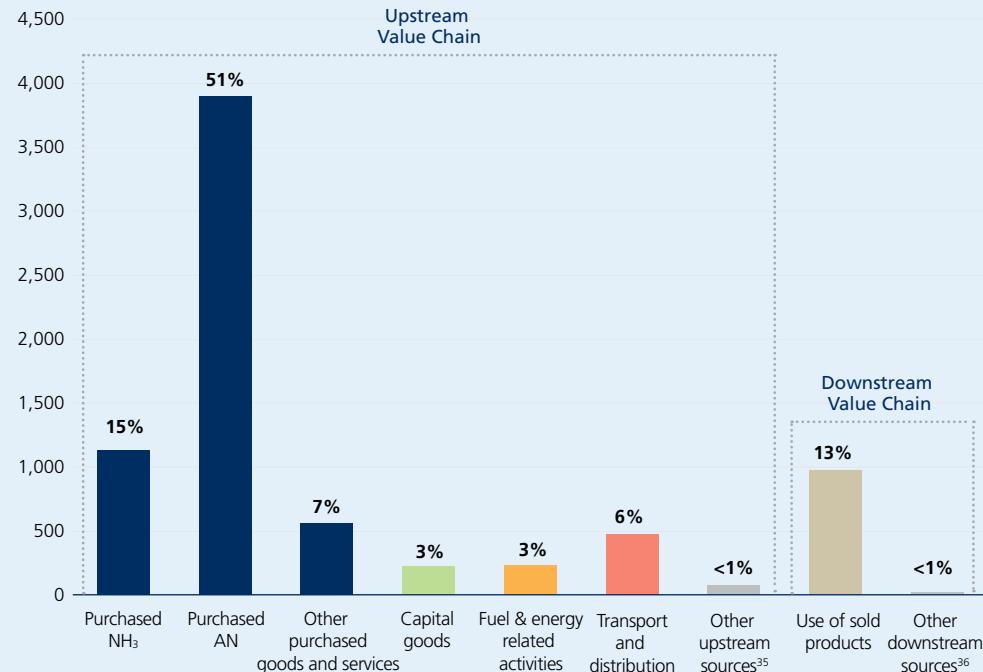
34. Coverage includes all reported Scope 3 emissions across the 12 of the 15 Scope 3 reporting categories deemed relevant to Orica. Base year emissions will be recalculated consistent with GHG Protocol emissions accounting standards if methodology or structural changes occur such as acquisitions or divestments. Achieving the Scope 3 ambition will require effective government policy frameworks, supportive regulation and financial incentives, meaningful and transparent collaboration across value chains and access to new economically viable low-carbon technologies operating at commercial scale.

## Orica's Value Chain Emissions (Scope 3) Roadmap

### Orica's global GHG emissions profile



### Sources of Scope 3 emissions



#### Cat. 1 Purchased goods and services

Our upstream value chain is dominated by purchased AN, ammonia, and other major chemicals to support our global manufacturing and blasting services. Our supplier engagement activity is focused on better understanding the decarbonisation pathways of our suppliers and exploring opportunities to accelerate progress through partnership and collaboration. Evolution of our sourcing strategies to enable access to lower-carbon feedstocks and supporting the development of emerging technologies is also key.

#### Cat. 3 Fuel and energy related activities

Scope 3 emissions from fuel and energy-related activities arise primarily from natural gas consumption at our Kooragang Island ammonia plant, global electricity usage, and combustion of other fuels for process heat and transport. Sourcing of renewable electricity across our operations and displacement of natural gas with renewable hydrogen will be key levers to address this emissions source.

#### Cat. 4 Transport and distribution

Emissions arising from our transport and distribution are dominated by our global shipping movements and road transport of bulk AN and emulsion products. We are working with our transport providers to better understand decarbonisation pathways and initiatives within their individual sectors.

#### Cat. 11 Use of sold products

Downstream value chain emissions arise primarily from the use of Orica's products, particularly direct emissions from blasting activities. Our 4D™ product offering can achieve accurate, automated and efficient energy control, resulting in reduced overall explosives consumption and associated emissions. Beyond optimising existing product design, we are also considering the role of alternate/renewable fuels within our bulk explosive products.

### Key levers for Scope 3 decarbonisation



#### Supplier engagement



#### Sourcing strategies enabling access to low-carbon feedstocks



#### Customer partnerships



#### Support commercialisation of decarbonisation technologies at scale



#### Product design and development

<sup>35</sup>. Other relevant upstream Scope 3 categories including waste generated in operations, business travel, and employee commuting.

<sup>36</sup>. Other relevant downstream Scope 3 categories including processing of sold products, end-of-life treatment of sold products, and investments.

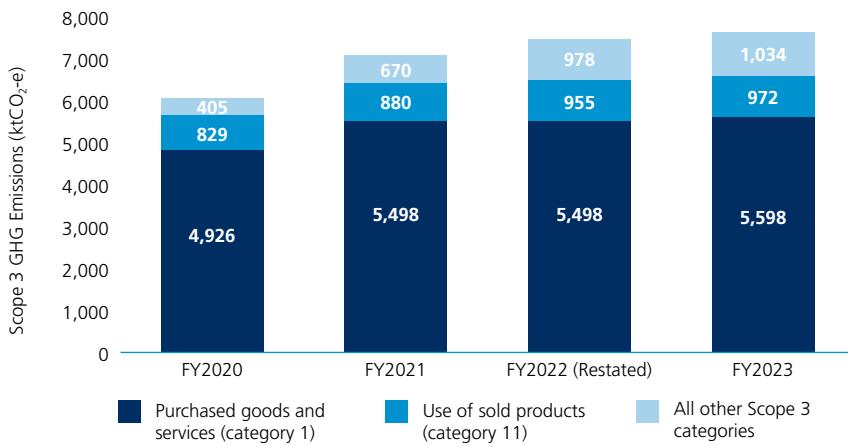
# VALUE CHAIN EMISSIONS

## Value chain emissions performance

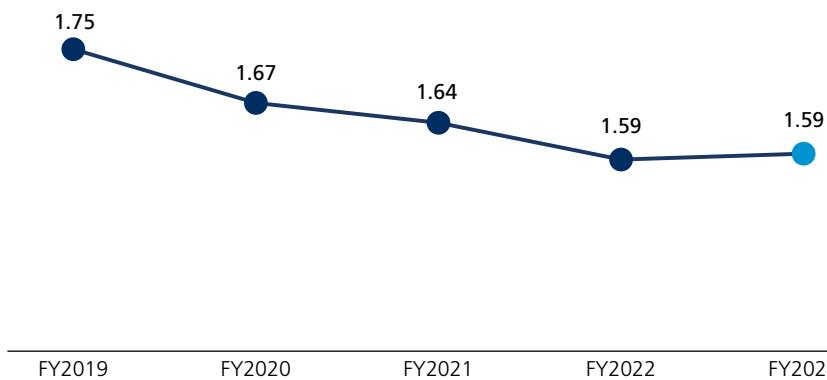
Through FY2023, our focus on establishing an accurate Scope 3 baseline highlighted an opportunity to review our approach for collating activity data associated with our purchased raw materials, primarily AN and ammonia. We also continued to engage our suppliers to enable better coverage of our purchased AN with supplier-specific emissions intensity factors. These processes identified some improvements in methodology, which have been applied retrospectively to FY2022.

Using the updated methodology, in FY2023 our global Scope 3 emissions were 7,604 ktCO<sub>2</sub>-e, representing a two per cent increase on our restated FY2022 Scope 3 emissions. Emissions from purchased AN and ammonia (as a subset of category 1) were 5,040 ktCO<sub>2</sub>-e, a three per cent increase from FY2022. The increase in Scope 3 emissions was primarily driven by increased global production and associated raw material requirements (including purchased ammonia and ammonium nitrate).

### Global Scope 3 emissions



### Global emissions intensity (net Scope 1, 2 and 3<sup>36</sup>) (tCO<sub>2</sub>-e/t AN sold)



37. FY2022 data includes Russian AN volumes.

38. Restated FY2022 Scope 3 emissions is 7,431 ktCO<sub>2</sub>-e.

39. Only includes Scope 3 emissions from purchased ammonia and AN.

## Innovation and smarter solutions

### Research and innovation partnerships

Opportunities to participate in industry research and development partnerships are part of our climate change strategy, to advance hard-to-abate decarbonisation initiatives, learning and progress.

This year, Orica has continued to take demonstrable steps to commercialise negative emissions technology. Together with MCi Carbon (MCi) we are supporting a demonstration-scale plant at Kooragang Island. MCi has developed a scalable carbon capture technology that reacts waste carbon dioxide with alkaline materials to produce carbonate products for use in construction, manufacturing and consumer markets. Plant construction is expected in 2024.

Orica's Technology and Innovation team continued to implement their Clean Technology Roadmap. Several novel and commercial-in-confidence initiatives are being pursued to progress early technological development for decarbonised explosives to help our customers meet their sustainability goals.

For more information, refer to the Customer, Technology and Innovation section of the 2023 Annual Report.

### Smarter solutions for our customers

Orica is working to help our customers responsibly extract critical resources for a lower-carbon economy, while creating commercial advantage and enabling the resource industry to fulfil its ESG aspirations. This year, with the aid of in-house expertise, Orica facilitated engagements with key mining customers to provide an understanding of GHG emission hotspots along the value chain of AN bulk explosives, and potential decarbonisation levers to reduce Orica's and our customers' carbon footprint.

Orica's goal is to deliver smarter solutions and technology to our customers across our core blasting and digital solutions businesses that:

- improve safety outcomes by removing people from dangerous zones
- increase productivity and reduce operational costs as reserves become more difficult and expensive to exploit and the total cost of ownership increases for customers
- improve recovery of ore as ore grades diminish across key commodities, including those essential to the transition
- lower customer emissions as customers strive towards low-carbon mining and reducing their impacts on the climate

- help maintain and manage social license to operate as community and regulatory constraints and reputational risk increases as do societal expectations for our industry
- reduce the impact on the environment and biodiversity as customers look to reduce the on the natural environment around their operations.

As part of our value chain decarbonisation strategy, throughout FY2023 Orica further developed initiatives to assess and better understand how we can enable lower embodied emissions products to our customers as well as leverage the chemical energy in explosives to improve ore

fragmentation and deliver a step change in downstream mine processing efficiency. Quantifying the low-carbon benefits of specific product lines remains a focus.

In our core mining, quarrying and construction business, our key blasting technologies are focused on optimised blasting to drive safety, productivity and sustainability outcomes for customers. Our innovative digital blasting solutions, such as OREPro™ 3D, BlastIQ™, and FRAGTrack™, are helping increase efficiency and reduce the operational footprints of our customers.

## Optimising extraction through orebody intelligence

Upstream from blasting, Orica is helping our customers better understand their ore bodies in real-time, to drive more informed decisions downstream.

Our newly acquired orebody intelligence solutions in Axis™ can help accelerate the exploration phase with increased precision and certainty.

Customers can combine this intimate knowledge of the orebody with our 4D™ bulk explosive technology to match the rock conditions within a blast.

4D™ is an advanced bulk system that supports surface and underground blasting operations and improves orebody recovery, overall explosive consumption and improved fume, vibration and nitrate leaching control.

In FY2023, a case study on one of our customer sites revealed a 12 per cent volume reduction in bulk explosive consumption using 4D™ Technology compared to conventional pumped emulsion.

Overall this ensures optimal energy use and blast outcomes while reducing overall cost, improving recovery of ore and better exploitation of existing reserves.

## Improving mining efficiency, safety and recovery

When miners can measure the value of their decisions, they can close the continuous improvement loop and further drive safety, productivity and sustainability outcomes.

WebGen™ is Orica's world-first and patented wireless initiating system designed to improve mining efficiency, safety and recovery by physically disconnecting the blasting and mining processes and allowing mining to occur independently of the blast. This is especially beneficial for underground mining, where the stope extraction process can be optimised, resulting in more ore extracted with the same mining intensity. Likewise in surface mining, no physical connection allows loaded blasts to be used and the mine to use the most economical haul route directly to reduce the amount of energy used to haul ore and waste.

Orica is also leveraging cloud-based software platforms such as Design for Outcome and Integrated Extraction Simulator (IES) to help customers reduce the use of energy and water through simulation, optimisation and machine learning across the value chain.

## Cyclo™ treatment and recycling of used mine oil

Our innovative Cyclo™ service provides a more sustainable circular economy approach to waste management. Using a modular, relocatable and automated processing system, Cyclo™ enables used oil to be recycled directly onsite, replacing up to 50 per cent of the virgin diesel used to make an emulsion explosive.

Cyclo™ can displace the required virgin diesel consumption for explosives manufacture for customers, depending on bulk explosive consumption, by approximately 250 to 800 kL per year per site when operational. Estimated GHG emissions reduced from the reduction in virgin diesel consumption range from 167 to 534 tCO<sub>2</sub>-e per year per site, depending on the bulk explosive consumption.

Cyclo™ also reduces truck movements and associated GHG emissions to transport the displaced diesel to the mine site and waste oil to the disposal site.

# ADVOCACY AND INDUSTRY ASSOCIATIONS

## Investor engagement

Orica continues to engage proactively and transparently with our shareholders and through highly focused sustainability dialogue initiatives. Further information is provided in the stakeholder engagement section of our 2023 Annual Report.

CA100+ tracks the progress of focus companies against several key indicators through regular engagement, progress reporting and benchmarking. The framework has provided a useful proxy on which to benchmark and improve our climate performance over time.

We executed strong governance and robust investor engagement over the management-proposed advisory resolution this year by:

- ensuring periodic Board and shareholder engagements sought feedback on Say on Climate proposals, and our climate strategy, performance and disclosure
- understanding shareholder and proxy advisor feedback and evaluation approaches for Say on Climate proposals
- supporting Board oversight and providing updates on the interests of shareholders in relation to material climate change-related risks, areas of debate or challenges to management assumptions, and considerations for company strategy, risk oversight and disclosure
- undertaking a sustainability investor day followed by a tour of our Kooragang Island facility

Orica's management proposal for Say on Climate is reflective of investor feedback obtained during the year.



CA100+ tracks the progress of companies against several key indicators through regular engagement, progress reporting and benchmarking.

The positive dialogue maintained this year with Orica has been acknowledged by our lead investor, Australian Retirement Trust (ART). ART's latest Sustainable Investment Report published on 31 October 2022, highlights Orica's progress in setting a short-term Scope 1 and 2 GHG emissions target, establishing a Scope 3 emissions ambition and value chain decarbonisation roadmap, and broadening the coverage of net zero emissions ambition to include all upstream purchased goods and services and downstream use of sold products.

The CA100+ Net Zero Company Benchmark covers a range of indicators for assessing company performance against the initiative's goals and those of the Paris Agreement.

Our engagement with CA100+ will further improve investor understanding of our climate strategy and bring focus to chemical sector-based decarbonisation approaches consistent with the second phase of CA100+ company engagement.



**Learn more**  
[orica.com/  
Sustainability/  
esg-data-  
centre](http://orica.com/Sustainability/esg-data-centre)

## Advocacy

Orica supports efforts by governments to reduce economy-wide GHG emissions and agree that the industrial sector has a role to play.

We actively engage in climate-related advocacy on behalf of the Company and broader industry. Where Orica participates in sub-national and national policy development, we advocate in line with our [Climate Change Policy](#) which includes support for the goals of the Paris Agreement. The focus of our advocacy pertains to regions where we have a material GHG emissions footprint and are regulated by jurisdictional climate policies.

In FY2023, governments within Orica's operating regions called for submissions (via open consultation) on newly proposed legislation and reviews of existing policy. We submitted commercial-in-confidence and public responses to a range of material public policy reviews including:

- **Safeguard Mechanism and Carbon Farming Initiative reforms, including giving evidence at a public Senate inquiry (Australia)**

Consistent with our Climate Change Policy, we support efforts by the Australian Government to reduce economy-wide GHG emissions in line with its 2030 emissions reduction target, and improve integrity and transparency within the Australian carbon market. Our advocacy focused on the implementation of a simple and equitable approach, and protection of early-movers delivering real abatement outcomes.

- **Powering the Regions Fund, Safeguard Transformation Stream and National Reconstruction Fund (Australia)**

In line with our efforts to bring forward industrial abatement outcomes, we welcome the Australian Government's efforts to support the development and decarbonisation of Australian industry through financial incentives. Our experience in partnering with the NSW Government and CEFC on our Kooragang Island Decarbonisation Project demonstrates the importance of timely government support for hard-to-abate sectors.

- **Guarantee of Origin scheme covering hydrogen and renewable electricity (Australia)**

We support the Australian Government's effort to establish a Guarantee of Origin (GO) scheme in line with international accounting frameworks, to help unlock opportunities for Australian industry to meet the growing demand for lower-carbon products and verified renewable electricity. We believe this is critical for the development of renewable hydrogen, and its derivatives, including ammonia, and the decarbonisation of existing manufacturing assets.

- **Clean Electricity Regulations (Canada)**

Together with Fertiliser Canada, Orica sought federal regulatory certainty to ensure the need for stable, consistent and affordable power supplies for industry whilst considering the timeline for achieving a net zero grid and market technology readiness.

Our engagement with the Australian Clean Energy Regulator's Corporate Emissions Reduction Transparency (CERT) pilot continued. This is a proposed voluntary initiative disclosing progress on emissions reduction targets under the *National Greenhouse and Energy Reporting Act 2007*.

We supported Bioenergy Australia's Renewable Gas Challenge seeking action from the Australian Government to introduce policy initiatives to drive the development of biomethane projects on a commercial scale, which will provide low-carbon heat generating alternatives for the manufacturing industry.

## Industry associations

Orica is a member of a range of business and industry associations around the world.

Industry plays an important role in helping formulate effective climate policy frameworks, standards and practices to facilitate a lower-carbon economy. There can be a wide range of views within the membership of each association and members and Orica may not always agree with every position or approach. This is especially the case when the association's membership is large and the mandate is broad, covering a wide range of issues.

In FY2023, Orica committed at our sustainability investor day that it will advocate in a manner that is aligned with our positions on climate change, which includes supporting the goals of the Paris Agreement within the industry associations of which we are a member. Where alignment with Orica's climate position cannot be achieved, and where we are unable to positively influence an association, Orica will leave.

This year, Orica undertook a strategic review of our memberships to industry associations. The review found that our membership with the World Coal Association (WCA) no longer aligns with Orica's values and position on energy and climate change; therefore, after careful consideration Orica made the decision to conclude our membership with the WCA.

While Orica is concluding our membership with the WCA, our commitment to fostering meaningful partnerships in the coal industry remains. Orica acknowledges the significant economic transition taking place and the requirement for many communities around the world to still have access to affordable and reliable energy. Orica continues to service our coal customers, while also seeking opportunities to become a partner in our customers' efforts to transition to a lower-carbon economy.

Orica made further changes to our membership of industry associations during the year, joining the Australian Hydrogen Council. A [FY2023 Industry Association Review](#) is available on our website.

## Cross-industry collaboration examples

[Global Mining Guidelines Group](#) is an open platform to facilitate global mining collaboration. In FY2023, Orica continued participation in a range of working groups. A key objective is to develop a suite of guidelines for the global mining industry to embed new practices and technologies in mining operations to meet zero emissions targets.

Orica was a founding member of the [Australian Industry Energy Transitions Initiative](#) launched in July 2020. Participants across Australia's critical supply chains came together to evaluate market, technology, finance and decarbonisation opportunities, understand barriers and challenges and identify areas of mutual interest. A final report was launched in February 2023, [Pathways towards industrial decarbonisation](#), which found it is possible for five of Australia's most significant heavy industry supply chains to transition to net zero, consistent with global efforts to limit warming to 1.5°C. Key decarbonisation enablers including competitively priced renewables, effective policy, technological advancement and government incentives are necessary for a net zero emissions transition.

For more information on other collaborations, refer to Orica's 2023 Annual Report.

# GOVERNANCE

The management of foreseeable and material business risks, including climate-related financial risks, requires strong corporate governance and managerial oversight. Our expectations for all employees and contractors are outlined in [Our Charter](#), [Code of Business Conduct](#), and [Climate Change Policy](#), including responsible business practices and our decisions and actions to address climate change.

## CLIMATE CHANGE GOVERNANCE FRAMEWORK



## Board Governance

Climate change is a material governance and strategic risk routinely overseen by the Orica Board.

Climate-related topics are considered during Board strategy discussions, strategic risk management oversight and monitoring, policy implementation and performance updates. The Board monitors the implementation of our Climate Change Policy to support the execution of the business strategy.

Climate change strategic risk updates are provided to the Board annually, with climate risk deep dives provided every two years.

In FY2023, the Board:

- considered our planned responses following strategic and financial analysis with reference to material business risks (including climate change, commodity demand and energy markets) and an update on scenarios analysis underway
- considered ESG mandatory reporting trends, shareholder and CA100+ feedback
- approved Orica's accelerated climate change commitments
- noted the development of Orica's carbon market strategy
- received capability building through Orica's Director Understanding Program – evolving ESG reporting landscape, mandated climate reporting, director duties
- approved management's recommendation to hold a 'Say on Climate' vote at the 2023 AGM.

The Board delegates powers and oversight of climate-related considerations to its various committees.

In FY2023, the Board Audit Risk Committee (BARC) considered strategic risk updates on climate change, commodity demand and energy markets among other climate-related risks, and evaluated the approach and assumptions made about climate risks in the assessment of asset impairment testing.

In FY2023, the Safety and Sustainability (S&S) Committee endorsed Orica's accelerated GHG emissions reductions targets and ambitions. Oversight of Orica's 2023 Annual Reporting Suite including this Climate Action Report was provided by the Chair's of BARC, S&S Committee, Technology and Innovation Committee and People and Remuneration Committee.

managing foreseeable and material financial risks, including climate change. Our Managing Director and CEO is a director of Orica Limited.

Key management decisions by Orica's Executive Committee are made in accordance with their delegated authority, including the governance of climate-related risks and opportunities.

Our Chief Development and Sustainability Officer is responsible for developing and overseeing Orica's sustainability and climate change strategy. A dedicated global sustainability team, reporting to the Chief Development and Sustainability Officer, advises the Executive Committee, Board committees and the Board on our climate response.

Strong operational governance is essential for delivering on our climate change commitments. Since FY2022, the Climate Change Committee (CCC) has governed and directed the evolution and continuous improvement of our operational climate change performance.

The Committee provides oversight and alignment on:

- Orica's enterprise-wide climate change strategy
- GHG emissions performance and meeting existing ambitions, commitments and targets
- monitoring of global climate change external developments and the pace of the energy transition
- technical assessment of emerging opportunities across our operations, customers and supply chain
- supporting the Sustainability function in setting and delivering climate-related corporate policies and goals
- endorsing strategic plans, financial investments (in accordance with delegated authorities) and roadmaps to progress implementation of climate-related initiatives.

## Executive Governance and the Climate Change Committee

Orica's Managing Director and Chief Executive Officer (CEO) is responsible for climate change as part of directing and promoting the profitable operation and development of the Orica Group, consistent with the primary objective of enhancing long-term shareholder value. This includes

**The Board recognises the importance of accountability and transparency for our shareholders, and as a result, Orica is putting its FY2023 Climate Action Report to a non-binding advisory vote at this year's Annual General Meeting. Orica's Climate Action Report articulates how we aim to navigate and capture opportunities in the transition to a lower-carbon economy.**

# GOVERNANCE

## Remuneration

Our remuneration framework is linked to the drivers of our business strategy, helping to create long-term success for shareholders. Strategic drivers are reflected in short-term incentive (STI) and long-term incentive (LTI) performance measures linking executive incentives to actual performance.

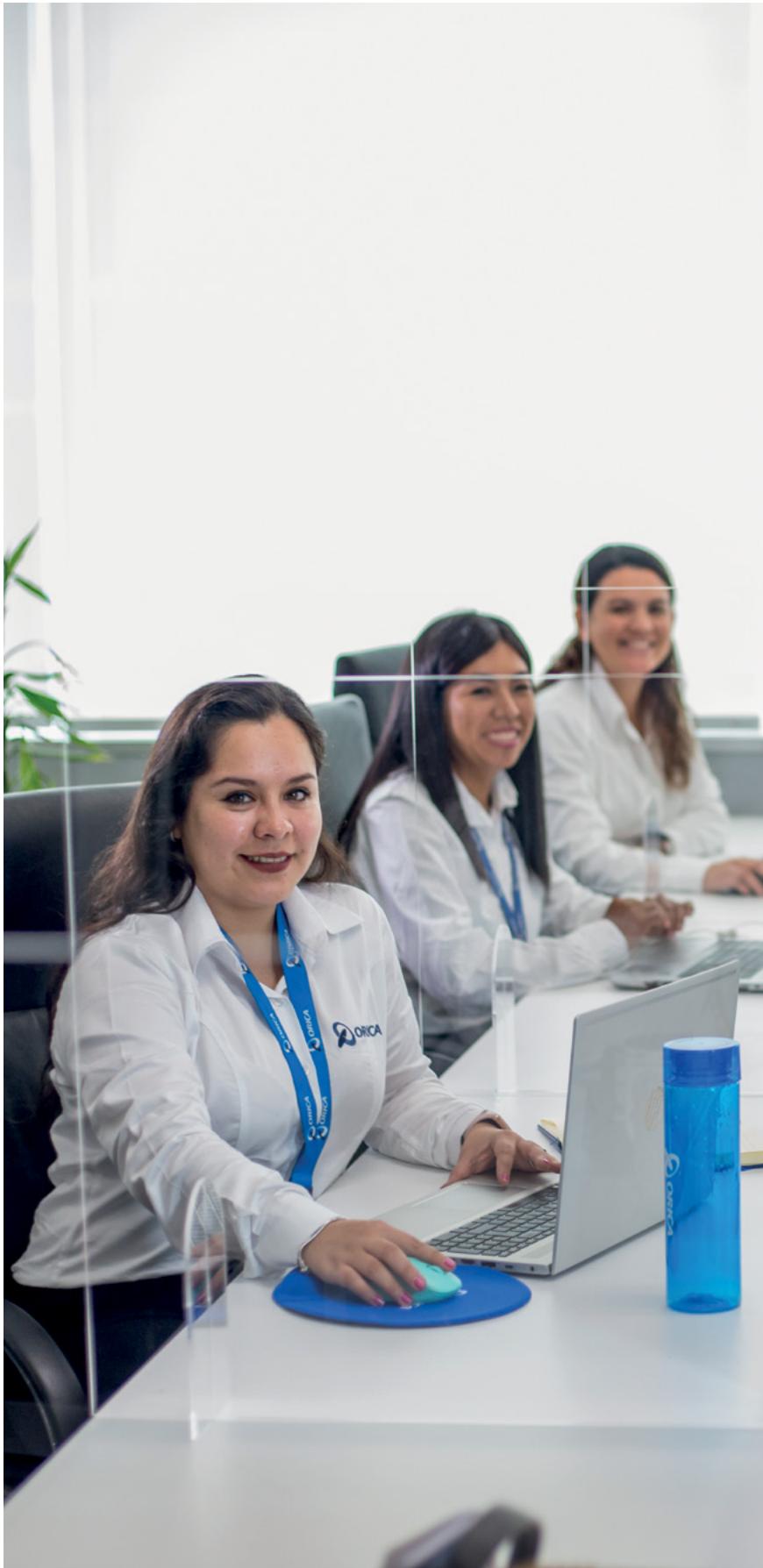
Our remuneration policy is managed and overseen by the People and Remuneration Committee.

In FY2021, the Board approved the strengthening of STI links between climate change and remuneration for the CEO, Executive Committee and employees for implementation from FY2022 onwards. Performance based on progress towards achieving our targets to reduce operational emissions is incentivised and includes a climate change metric with a 10 per cent weighting. STI climate-related incentivisation will be further enhanced from FY2024, with an expansion of the existing Scope 1 and 2 emissions reduction metric to include an assessment of the delivery of key Net Zero Program initiatives viewed as critical to meeting Orica's stated targets.

As part of our refreshed strategy, this year Orica introduced a new Business Sustainability metric for long-term performance measures. The new FY2024-26 LTI metric will be specifically focused on Portfolio Resilience and Diversification, rewarding the delivery of initiatives and outcomes that strengthen the resilience and sustainability of Orica's portfolio in alignment with our strategic plan. This includes:

- increasing our exposure to key emerging markets within Asia, Africa and LATAM
- growth in Orica Digital Solutions through the accelerated adoption of innovative blasting technologies and expansion in high-growth Mining Chemicals markets, balancing our core blasting business and fast-tracking customer usage of more sustainable solutions
- moving towards more progressive and sustainable commodities that are essential to a broader energy transition, including rebalancing our portfolio mix towards gold, copper, future-facing commodities and the Q&C vertical.

Further details on our FY2023 remuneration results, including climate change incentivised performance, can be found in our Remuneration Report of the 2023 Annual Report.



# INDEPENDENT LIMITED ASSURANCE REPORT

## SELECTED PERFORMANCE METRICS



Building a better  
working world

### Independent Limited Assurance Report to the Management and Directors of Orica Limited

#### Our Conclusion:

Ernst & Young ('EY', 'we') were engaged by Orica Limited ('Orica') to undertake a limited assurance engagement as defined by International Auditing Standards, hereafter referred to as a 'review', over the selected disclosures ('Selected Performance Disclosures') defined below for the year ended 30 September 2023. Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe the Selected Performance Disclosures have not been prepared, in all material respects, in accordance with the Criteria defined below.

#### What our review covered

We reviewed the Selected Performance Disclosures in Orica's Annual Report 2023 and Climate Action Report 2023 (collectively the 'Report') as presented in Table 1 below.

Table 1 – Selected Performance Disclosures

Selected Performance Disclosures	Value
► Gross* Scope 1 and 2 greenhouse gas (GHG) emissions in kilotonnes of carbon dioxide equivalent (ktCO <sub>2</sub> -e)	1,704
► Gross* Scope 3 GHG emissions associated with purchased ammonium nitrate (AN) and ammonia (ktCO <sub>2</sub> -e)	5,040
► Scope 1, 2 and 3 (Scope 3 purchased volumes of AN and ammonia only) GHG emissions intensity per tonne AN product sold (tCO <sub>2</sub> -e/t)	1.59
► Gross* Scope 1 and 2 emissions reduction, from FY2019 levels (%)	22
► Potable water consumption intensity per tonne of AN manufactured for six material sites (kL/t)	1.57
► Women in senior leadership (%)	34.8

\* In FY2023 gross and net emissions are equivalent.

Other than as described in the preceding paragraphs, which set out the scope of our engagement, we did not perform assurance procedures on the remaining information included in the Report, and accordingly, we do not express an opinion or conclusion on this information.

#### Criteria applied by Orica

In preparing the Selected Performance Disclosures, Orica applied the following Criteria:

- National Greenhouse and Energy Reporting Act 2007
- National Greenhouse and Energy Reporting Regulations 2008
- National Greenhouse and Energy Reporting (Measurement) Determination, as compiled 1 July 2022
- International Greenhouse Account Factors, equivalent to the Australian National Greenhouse Account Factors, February 2023
- Orica's methodology for reporting Scope 3 emissions, progress against emissions reduction targets, potable water consumption intensity and women in senior leadership

#### Key responsibilities

##### Orica's responsibility

Orica's management is responsible for selecting the Criteria, and for presenting the Selected Performance Disclosures in accordance with that Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the subject matter, such that it is free from material misstatement, whether due to fraud or error.

##### EY's responsibility and independence

Our responsibility is to express a conclusion on the Subject Matter based on our review.

We have complied with the independence and relevant ethical requirements, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

The firm applies Auditing Standard ASQM 1 *Quality Management for Firms that Perform Audits or Reviews of Financial Reports and Other Financial Information, or Other Assurance or Related Services Engagements*, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

#### Our approach to conducting the review

We conducted this review in accordance with the International Auditing and Assurance Standards Board's *International Standard on Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* ('ISAE3000') and the terms of reference for this engagement as agreed with Orica on 18 May 2023. That standard requires that we plan and perform our engagement to express a conclusion on whether anything has come to our attention that causes us to believe that the Subject Matter is not prepared, in all material respects, in accordance with the Criteria, and to issue a report.

#### Summary of review procedures performed

A review consists of making enquiries, primarily of persons responsible for preparing the Selected Performance Disclosures and related information and applying analytical and other review procedures.

# INDEPENDENT LIMITED ASSURANCE REPORT



Page 2

The nature, timing, and extent of the procedures selected depend on our judgement, including an assessment of the risk of material misstatement, whether due to fraud or error. The procedures we performed included, but were not limited to:

- ▶ Conducted interviews with personnel to understand the business and reporting process
- ▶ Conducted interviews with key personnel to understand the process for collecting, collating and reporting the Subject Matter during the reporting period
- ▶ Conducted site visits to the Yarwun, Kooragang Island and Deer Park facilities
- ▶ Assessed that the calculation criteria have been correctly applied in accordance with the methodologies outlined in the Criteria
- ▶ Undertook analytical review procedures to support the reasonableness of the data
- ▶ Identified and tested assumptions supporting calculations
- ▶ Tested, on a sample basis, underlying source information to assess the accuracy of the data
- ▶ Checked the presentation of the Subject Matter in the Report

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our review conclusion.

## Inherent limitations

Procedures performed in a review engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a review engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

While we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to assessing aggregation or calculation of data within IT systems.

The greenhouse gas quantification process is subject to scientific uncertainty, which arises because of incomplete scientific knowledge about the measurement of greenhouse gases. Additionally, greenhouse gas procedures are subject to estimation and measurement uncertainty resulting from the measurement and calculation processes used to quantify emissions within the bounds of existing scientific knowledge.

## Other matters

We have not performed assurance procedures in respect of any information relating to prior reporting periods, including those presented in the Selected Performance Disclosures. Our report does not extend to any disclosures or assertions made by Orica relating to future performance plans and/or strategies disclosed in Orica's Annual Report 2023, Climate Action Report 2023 and supporting disclosures online.

## Use of our Assurance Report

We disclaim any assumption of responsibility for any reliance on this assurance report to any persons other than management and the Directors of Orica, or for any purpose other than that for which it was prepared.

Our review included web-based information that was available via web links as of the date of this statement. We provide no assurance over changes to the content of this web-based information after the date of this assurance statement.

*Ernst & Young*  
Ernst & Young  
Melbourne, Australia  
08 November 2023

# DEFINITIONS AND GLOSSARY OF TERMS

<b>1.5°C world</b>	According to the Intergovernmental Panel on Climate Change. Knowledge-base and assessment approaches used to understand the impacts of 1.5°C global warming above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development and efforts to eradicate poverty.
<b>ACCU</b>	Australian Carbon Credit Unit – the name of carbon credits generated in the Australian carbon market. See definition for ‘carbon credits’ for more information.
<b>Ambition</b>	Refers to a goal Orica is aiming to achieve, have an indicative pathway but intend to better understand the delivery prior to committing to make it a target.
<b>AN</b>	Ammonium nitrate (AN) is an industrial chemical commonly used in fertilisers and as a commercial explosive for quarrying and mining. AN is typically produced as small porous pellets, or ‘prills’. It is one of the world’s most widely used fertilisers and the main component in many types of commercial explosives. In explosives, its use is critical as an oxidising agent in the explosion reaction. Orica manufactures AN at our four continuous manufacturing plants and where required, sources it from third parties across our operating regions for use in our blasting and drilling services.
<b>Business as usual (BAU)</b>	The projected impact under a baseline scenario in which no additional mitigation policies or measures are implemented beyond those that are already in force, legislated or planned to be adopted.
<b>Carbon</b>	At times used instead of greenhouse gases.
<b>Carbon credit</b>	A carbon credit represents GHG abatement activities which have occurred from carbon credit projects – that is specific projects with the aim to avoid or sequester GHG emissions from the atmosphere. Carbon credit projects create eligible carbon credit units which have been measured, verified, and assigned a certificate in a registry for trading in carbon markets. One carbon credit unit represents one tonne of carbon dioxide equivalent (tCO <sub>2</sub> -e) stored or avoided by a carbon credit project. Carbon credits are commonly referred to as ‘carbon offsets’ in markets.
<b>CCS</b>	Carbon, capture and storage.
<b>CCUS</b>	Carbon capture, utilisation and storage.
<b>CDP</b>	Formerly the Carbon Disclosure Project, CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts. Orica responds to the annual Climate Change Questionnaire.
<b>DfO</b>	Design for Outcome.
<b>Environmental, social, and corporate governance (ESG)</b>	ESG is a set of non-financial standards and frameworks for a company’s operations that lead to corporate responsibility and sustainability outcomes. Investors are growingly assessing their portfolios based on ESG criteria, to identify material risks and/or growth opportunities.
<b>Financial year</b>	For Orica, this is an accounting year ending 30 September which is also known as a fiscal year.
<b>Future-facing commodities (FFC)</b>	Includes copper, nickel, lithium, cobalt and other metals and minerals. As much of the world continues to move towards an energy transition, demand for future-facing commodities will grow. These commodities are crucial to the manufacture of low emissions technologies that enable a transition such as batteries for electric vehicles (e.g., nickel, lithium, cobalt), solar panels (e.g., copper, silicon) and wind turbines (e.g., rare earth materials, copper) for renewable energy. To achieve the goals of the Paris Agreement, production and supply of these commodities will need to scale and increase at pace.
<b>Greenhouse gases (GHG)</b>	Gases which absorb and re-emit infrared radiation, thereby trapping heat in the earth’s atmosphere. Includes carbon dioxide (CO <sub>2</sub> ), water vapor, methane (CH <sub>4</sub> ), nitrous oxide (N <sub>2</sub> O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF <sub>6</sub> ), and nitrogen trifluoride (NF <sub>3</sub> ). The GHG applicable to Orica’s operations are CO <sub>2</sub> , CH <sub>4</sub> , and N <sub>2</sub> O.

# DEFINITIONS AND GLOSSARY OF TERMS

<b>GHG Protocol</b>	The GHG Protocol supplies the world's most widely used greenhouse gas accounting standards, which inform multiple jurisdictional regulatory emissions accounting and reporting frameworks, voluntary corporate reporting standards and product lifecycle greenhouse gas accounting. Orica uses the Corporate Accounting and Reporting Standard as well as the Corporate Value Chain (Scope 3) Standard.
<b>GJ</b>	Gigajoule, a unit of measurement of energy consumption.
<b>Renewable hydrogen</b>	Hydrogen produced by splitting water into hydrogen and oxygen using renewable electricity. Renewable electricity may be sourced directly (e.g. solar generation) or via grid-connected supply supported with the retirement of renewable energy certificates. Also referred within the sector to as green hydrogen.
<b>Gross GHG emissions</b>	Reported GHG emissions in a reporting period (Orica financial year) prior to applying claimable emissions reductions or surrenders from carbon credit units.
<b>Global warming potential (GWP)</b>	Factors describing the radiative forcing impact (degree of harm to the atmosphere) of one unit of a given greenhouse gases relative to one unit of CO <sub>2</sub> . The factors convert values into tCO <sub>2</sub> -e, to allow comparison between greenhouse gases inventories.
<b>Intergovernmental Panel on Climate Change (IPCC)</b>	An intergovernmental body of the United Nations responsible for advancing knowledge on human-induced climate change. It provides policymakers with regular scientific assessments on climate change, its implications, and potential future risks, as well as putting forward adaptation and mitigation options. Through its assessments, the IPCC determines the state of knowledge on climate change.
<b>kL</b>	Kilolitres.
<b>kt</b>	Kilotonnes.
<b>ktCO<sub>2</sub>-e</b>	Kilotonnes of carbon dioxide equivalent.
<b>Low-carbon ammonia</b>	Ammonia manufactured using 100% renewable hydrogen or low carbon hydrogen, or a blend of both.
<b>Low-carbon AN</b>	An internal definition covering ammonium nitrate (AN) products manufactured with nitric acid from plants utilising catalytic abatement technology eliminating at least 95% of nitrous oxide emissions, and/or a low-carbon ammonia feedstock.
<b>Low-carbon hydrogen</b>	Broad grouping for both 'green' and 'blue' hydrogen sources. Renewable (green) hydrogen is made via electrolysis using 100% renewable electricity; blue hydrogen is made using a fossil fuel feedstock (e.g. gas steam methane reforming or gasification of coal) in addition to using CCS to capture and sequester ~90% of emissions generated.
<b>Material</b>	In the context of the International Integrated Reporting (IR) Framework, a matter is material if it could substantively affect the organisation's ability to create value in the short, medium, and long term. The process of determining materiality is entity specific and based on industry and other factors, as well as multi-stakeholder perspectives.
<b>Mt</b>	Megatonnes.
<b>NAP</b>	Nitric Acid Plant.
<b>Net GHG emissions</b>	Reported GHG emissions in a reporting period (Orica financial year) after applying claimable emissions reductions or surrenders from carbon credit units. Includes generated carbon credits which have not been surrendered but sold on to a third party or banked in a carbon credit registry.
<b>Net zero</b>	Net zero refers to achieving an overall balance between greenhouse gas (as defined in this Glossary) emissions produced and greenhouse gas emissions taken out of the atmosphere.
<b>NGER</b>	National Greenhouse and Energy Reporting Act 2007 (Federal Government, Australia).

<b>Operational emissions</b>	Refers to Scope 1 and Scope 2 greenhouse gas emissions.
<b>Paris Agreement</b>	Convened by the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016.
<b>Paris Agreement goals</b>	The central objective of the Paris Agreement is to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C above pre-industrial levels. Additionally, the agreement aims to increase the ability of countries to deal with the impacts of climate change, and at making finance flows consistent with a low GHG emissions and climate-resilient pathway.
<b>Paris aligned</b>	Aligned to the Paris Agreement goals.
<b>Power purchase agreement (PPA)</b>	A type of contract that allows a consumer, typically large industrial or commercial entities, to form an agreement with a specific energy generating unit. The contract itself specifies the commercial terms including delivery, price, payment, etc. In many markets, these contracts secure a long-term stream of revenue for an energy project. In order for the consumer to say they are buying the electricity of the specific generator, attributes shall be contractually transferred to the consumer with the electricity.
<b>Renewable hydrogen</b>	Hydrogen produced via electrolysis of water, using renewable electricity. Renewable electricity may be sourced directly (e.g. solar generation) or via grid-connected supply supported with the retirement of renewable energy certificates. Also referred within the sector to as green hydrogen.
<b>Scope 1 greenhouse gas emissions</b>	Scope 1 greenhouse gas emissions are direct emissions from operations that are owned or controlled by the reporting company. For Orica, these are primarily emissions from industrial manufacturing processes and natural gas feedstocks.
<b>Scope 2 greenhouse gas emissions</b>	Scope 2 greenhouse gas emissions are indirect emissions from the generation of purchased or acquired electricity, steam, heat, or cooling that is consumed by operations that are owned or controlled by the reporting company.
<b>Scope 3 greenhouse gas emissions</b>	Scope 3 greenhouse gas emissions are all other indirect emissions (not included in Scope 2) that occur in the value chain. For Orica, these are primarily emissions resulting from purchased goods and services which account for around two-thirds of our global Scope 3 GHG emissions.
<b>Supply chain</b>	A sub-set of our wider value chain, our supply chain consists of the network of entities which source inputs and materials for our operations (upstream supply chain) and then the distribution of our finished goods and services to our customers and/or end-users (downstream supply chain). Orica is considered to have a vertically integrated supply chain.
<b>Surrenders</b>	The surrendering of carbon credit units in a registry (and/or delivery of generated units to government through regulatory schemes) to make claimable emissions reductions in a GHG emissions inventory, leading to a reported net GHG emissions figure.
<b>Target</b>	Refers to a goal Orica aiming to achieve where we have developed a delivery pathway.
<b>tCO<sub>2</sub>-e</b>	Tonne of carbon dioxide equivalent.
<b>TIER</b>	Technology Innovation and Emissions Reduction Regulation (Government of Alberta, Canada).
<b>Value chain</b>	A value chain describes the full chain of a business's activities in a specific industry to create and deliver a product or service to an end-customer. A supply chain sits within the wider value chain. Our value chain includes our suppliers (and potentially their suppliers), our operations, our distribution channels, and our customers, who are the end users of our products.

# APPENDIX: ENERGY AND EMISSIONS DATA

## GHG emissions inventory and boundary

Several metrics are used to measure our GHG emissions and impact, which Orica discloses publicly to investors and other stakeholders through our Annual Report, Climate Action Report, ESG Data Centre and by responding to CDP's Climate Change Questionnaire. Orica also reports energy and GHG emissions as required by law in relevant jurisdictions where we operate.

Our GHG emissions inventory has been prepared with reference to the World Resources Institute and the World Business Council for Sustainable Development GHG Protocol 'Corporate Accounting and Reporting Standard' and 'Corporate Value Chain (Scope 3) Accounting and Reporting Standard'. The Australian Government's *National Greenhouse and Energy Reporting Act 2007*, supporting regulations and relevant guidelines are applied. In accordance with these regulations and standards, facilities not meeting minimum consumption thresholds are not captured in the inventory.

This report and our GHG emissions inventory boundary cover Orica operations worldwide over which, unless otherwise stated, Orica has operational control for the financial year ending 30 September 2023. Operational control means facilities where Orica has the overall authority to introduce and implement operating policies, health and safety policies, and environmental policies. Alternative GHG emissions consolidation approaches, including equity share or financial control, is not reported.

Data presented in this report covers our performance for FY2023. Certain values in the data below may be subject to rounding differences. Where applicable with respect to our non financial metrics, prior period information has been restated to align with the presentation in the current period to reflect updated methodologies or classifications. Disclosure of our remaining sustainability performance is in our ESG Data Centre.

		FY2019 <sup>40, 41</sup>	FY2020 <sup>41</sup>	FY2021	FY2022	FY2023
<strong>SCOPE 1 EMISSIONS</strong>						
<strong>Global Scope 1</strong>	<strong>ktCO<sub>2</sub>-e</strong>	<strong>2,092</strong>	<strong>1,849</strong>	<strong>1,628</strong>	<strong>1,678</strong>	<strong>1,448</strong>
Global CH <sub>4</sub>	ktCO <sub>2</sub> -e	–	0.58	0.58	0.59	<strong>0.59</strong>
Global CO <sub>2</sub>	ktCO <sub>2</sub> -e	–	682	685	708	<strong>711</strong>
Global N <sub>2</sub> O	ktCO <sub>2</sub> -e	–	1,163	942	970	<strong>737</strong>
<em>Breakdown by country:</em>						
Australia	ktCO <sub>2</sub> -e	–	1,606	1,376	1,459	<strong>1,333</strong>
Indonesia	ktCO <sub>2</sub> -e	–	125	116	150	<strong>48</strong>
Canada	ktCO <sub>2</sub> -e	–	103	108	43	<strong>44</strong>
Rest of world	ktCO <sub>2</sub> -e	–	13	28	23	<strong>27</strong>
Percentage of Scope 1 emissions subject to carbon regulations <sup>42</sup>	–	88%	87%	84%		<strong>90%</strong>
<strong>SCOPE 2 EMISSIONS</strong>						
<strong>Global Scope 2</strong>	<strong>ktCO<sub>2</sub>-e</strong>	<strong>242</strong>	<strong>267</strong>	<strong>271</strong>	<strong>256</strong>	<strong>256</strong>
<em>Breakdown by country:</em>						
Australia	ktCO <sub>2</sub> -e	–	172	174	171	<strong>167</strong>
Indonesia	ktCO <sub>2</sub> -e	–	33	32	29	<strong>30</strong>
Canada	ktCO <sub>2</sub> -e	–	47	44	42	<strong>43</strong>
Rest of world	ktCO <sub>2</sub> -e	–	18	21	17	<strong>15</strong>
<strong>Gross Global Emissions (Scope 1 &amp; 2)</strong>	<strong>ktCO<sub>2</sub>-e</strong>	<strong>2,334</strong>	<strong>2,116</strong>	<strong>1,898</strong>	<strong>1,935</strong>	<strong>1,704</strong>
<strong>CARBON CREDITS</strong>						
Carbon credits surrendered	ktCO <sub>2</sub> -e	–	–	–	(60)	–
<strong>Net Global Emissions (Scope 1 &amp; 2)</strong>	<strong>ktCO<sub>2</sub>-e</strong>	<strong>2,334</strong>	<strong>2,116</strong>	<strong>1,898</strong>	<strong>1,875</strong>	<strong>1,704</strong>
<strong>SCOPE 3 EMISSIONS</strong>						
<strong>Global Scope 3<sup>43</sup></strong>	<strong>ktCO<sub>2</sub>-e</strong>	<strong>4,615</strong>	<strong>6,153</strong>	<strong>7,048</strong>	<strong>7,431<sup>44</sup></strong>	<strong>7,604</strong>
<em>Breakdown by material sources:</em>						
Purchased ammonia (NH <sub>3</sub> )	ktCO <sub>2</sub> -e	722	962	973	1,055	<strong>1,139</strong>
Purchased ammonium nitrate (AN)	ktCO <sub>2</sub> -e	3,892	3,321	3,834	3,847	<strong>3,902</strong>
Other Scope 3	ktCO <sub>2</sub> -e	–	1,870	2,241	2,529	<strong>2,564</strong>

40. Where data has not been presented, this is due to historical data breakdowns not being available.

41. For the purpose of assessing performance against targets and due to changes in global warming potentials, FY2019 and FY2020 global Scope 1 and 2 emissions are restated as 2,183 ktCO<sub>2</sub>-e and 2,116 ktCO<sub>2</sub>-e respectively.

42. Regulated Scope 1 emissions from our manufacturing facilities in Canada (Carseland, Alberta) and Australia (Kooragang Island, NSW and Yarwun Nitrates, QLD).

43. Full Scope 3 inventory disclosed for the first time in FY2021.

44. Restated FY2022 Scope 3 emissions previously reported as 6,541 ktCO<sub>2</sub>-e.

		FY2019 <sup>40, 41</sup>	FY2020 <sup>41</sup>	FY2021	FY2022	FY2023
<i>Breakdown by value chain category<sup>45</sup>:</i>						
1. Purchased goods and services	ktCO <sub>2</sub> -e	–	4,926	5,498	5,498	<b>5,598</b>
Purchased ammonia (NH <sub>3</sub> )	ktCO <sub>2</sub> -e	722	962	973	1,055	<b>1,139</b>
Purchased ammonium nitrate (AN)	ktCO <sub>2</sub> -e	3,892	3,321	3,834	3,847	<b>3,902</b>
Other purchased goods and services	ktCO <sub>2</sub> -e	–	643	691	596	<b>558</b>
2. Capital goods	ktCO <sub>2</sub> -e	–	26	159	202	<b>226</b>
3. Fuel and energy-related activities not included in Scope 1 and 2	ktCO <sub>2</sub> -e	–	96	93	233	<b>231</b>
4. Upstream transportation and distribution	ktCO <sub>2</sub> -e	–	229	367	481	<b>480</b>
5. Waste generated in operations	ktCO <sub>2</sub> -e	–	17	21	11	<b>35</b>
6. Business travel	ktCO <sub>2</sub> -e	–	11	6	11	<b>21</b>
7. Employee commuting	ktCO <sub>2</sub> -e	–	14	17	20	<b>19</b>
8. Upstream leased assets	ktCO <sub>2</sub> -e	–	Not relevant Included in category 4 above	Not relevant Included in category 4 above	Not relevant Included in category 4 above	<b>Not relevant Included in category 4 above</b>
9. Downstream transportation and distribution	ktCO <sub>2</sub> -e	–	6	7	10	<b>11</b>
10. Processing of sold products	ktCO <sub>2</sub> -e	–	829	880	955	<b>972</b>
11. Use of sold products	ktCO <sub>2</sub> -e	–	0.4	0.4	0.1	<b>0.1</b>
12. End-of-life treatment of sold products	ktCO <sub>2</sub> -e	–	Not relevant	Not relevant	Not relevant	<b>Not relevant</b>
13. Downstream leased assets	ktCO <sub>2</sub> -e	–	Not relevant	Not relevant	Not relevant	<b>Not relevant</b>
14. Franchises	ktCO <sub>2</sub> -e	–	Not relevant	Not relevant	Not relevant	<b>Not relevant</b>
15. Investments <sup>46</sup>	ktCO <sub>2</sub> -e	–	–	–	10	<b>10</b>
<b>Gross Global Emissions (Scope 1, 2 &amp; 3)</b>	<b>ktCO<sub>2</sub>-e</b>	<b>6,949</b>	<b>8,269</b>	<b>8,947</b>	<b>9,365</b>	<b>9,308</b>
<b>Net Global Emissions (Scope 1, 2 &amp; 3)</b>	<b>ktCO<sub>2</sub>-e</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>9,305</b>	<b>9,308</b>
<b>EMISSIONS INTENSITY</b>						
Global emissions intensity <sup>47</sup>	tCO <sub>2</sub> -e/t AN sold	1.75	1.67	1.64	1.59 <sup>50</sup>	<b>1.59</b>
Ammonia emissions intensity <sup>48</sup>	tCO <sub>2</sub> -e/tNH <sub>3</sub>	1.81	1.86	1.77	1.79	<b>1.81</b>
Nitric acid emissions intensity <sup>49</sup>	tCO <sub>2</sub> -e/tHNO <sub>3</sub>	1.09	0.99	0.83	0.82	<b>0.59</b>
<b>ENERGY</b>						
<b>Total stationary energy</b>	<b>TJ</b>	<b>9,856</b>	<b>8,611</b>	<b>8,603</b>	<b>8,902</b>	<b>8,877</b>
<i>Breakdown by stationary energy source:</i>						
Electricity	TJ	1,261	1,177	1,195	1,165	<b>1,194</b>
Renewable electricity (generated by Orica)	TJ	–	2.2	1.9	1.3	<b>1.2</b>
Natural gas	TJ	7,562	6,368	6,131	6,429	<b>6,423</b>
Steam	TJ	645	786	894	892	<b>925</b>
Diesel	TJ	220	192	292	326	<b>245</b>
Petrol/gasoline	TJ	0.06	0.07	5.3	5.4	<b>5.5</b>
LPG	TJ	3.2	3.2	2.6	2.3	<b>2.3</b>
Other	TJ	165	83	82	82	<b>82</b>
<b>Total transport energy</b>	<b>TJ</b>	<b>196</b>	<b>184</b>	<b>228</b>	<b>245</b>	<b>235</b>
<i>Breakdown by transport energy source:</i>						
Diesel	TJ	187	178	218	235	<b>229</b>
Petrol/Gasoline, including E10 and PULP	TJ	3.3	2.3	6.8	7.7	<b>6.1</b>
LPG	TJ	5.6	3.7	3.5	1.6	<b>0.1</b>
<b>Fuel used as feedstocks</b>	<b>TJ</b>	<b>9,235</b>	<b>9,731</b>	<b>9,610</b>	<b>10,205</b>	<b>9,846</b>
<b>Energy intensity</b>	<b>GJ/t AN sold</b>	<b>5.9</b>	<b>5.7</b>	<b>5.5</b>	<b>5.3</b>	<b>5.4</b>

45. To identify relevant emissions sources and the boundary for our Scope 3 inventory, Orica assesses emissions activities using relevance criteria according to the GHG Protocol's *Corporate Value Chain (Scope 3) Accounting and Reporting Standard*. Scope 3 categories which were deemed not relevant based on this assessment are shown as "not relevant".

46. Data collation ongoing.

47. On a net emissions basis. Scope 3 emissions from purchased AN and ammonia only included in emissions intensity metric.

48. Total Scope 1 and 2 emissions from ammonia manufacturing facility per tonne of ammonia produced.

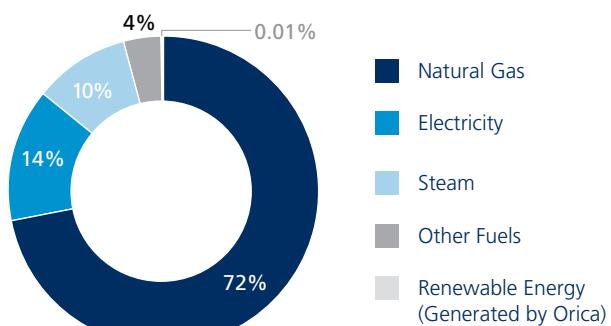
49. Scope 1 emissions (nitrous oxide only) from nitric acid manufacture per tonne of nitric acid produced.

50. FY2022 data includes Russian AN volumes.

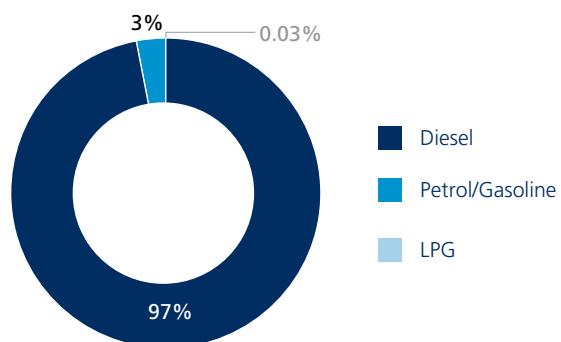
# APPENDIX: ENERGY AND EMISSIONS DATA

## Energy consumption by source – Orica Group

### Stationary energy



### Transport energy



## Accounting for the use of offsets

Orica is committed to transparency around how we manage and account for carbon credits, particularly given our unique position originating carbon credits in markets where we also have compliance obligations.

To avoid double counting<sup>51</sup> of carbon credits:

- annual emissions reductions can be claimed where unit surrender has occurred, or it can be demonstrated that carbon credits sold are cancelled by the Authority so they cannot be attributed twice
- annual emissions reductions cannot be claimed for carbon credits that are sold in voluntary secondary markets.

Globally, Orica reports emissions according to legislated jurisdictional guidelines. In Australia, the Department of Climate Change, Energy, the Environment and Water (DCCEEW) has issued guidance for Safeguard Mechanism facilities on the use of offsets and the avoidance of double counting ACCUs created by eligible Emissions Reduction Fund (ERF) projects<sup>52</sup>. From FY2024, our Australian facilities will be generating Australian Carbon Credit Units and our net emissions position will be reported accordingly.



51. An organisation selling a carbon credit might claim the underlying emissions reduction for itself, while at the same time, another organisation buying the credit also claims the same emissions reduction.

52. [DCCEEW guidance for Safeguard Mechanism facilities on the use of offsets and the avoidance of double counting ACCUs](#).

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