

# IPL SUSTAINABILITY REPORT 2022





## ABOUT THIS REPORT

Incitec Pivot Limited (IPL) has produced a stand-alone Sustainability Report, reporting against the Global Reporting Initiative (GRI) Guidelines, since 2010. We report on material sustainability topics in our [Annual Reports](#) and [Climate Change Reports](#), the latest of which were released last November. This 2022 Sustainability Report includes more information on those environmental, social and governance (ESG) issues deemed to have an impact on, and be material to, a broader range of stakeholders. By offering this more detailed analysis, we aim to ensure that stakeholders are better able to understand how we manage these relevant ESG issues in each of our businesses.

This report was published in February 2023 and covers IPL's financial reporting period from 1 October 2021 to 30 September 2022. The content refers to the performance of IPL and its subsidiaries and the activities over which we had operational control for all or part of the IPL 2022 financial year. This period is referred to throughout the report as '2022'. This online interactive report has been prepared in accordance with the latest GRI Standards. For GRI alignment and more detailed information, including ESG data, please see our [GRI Index and Data Supplement](#) here. Please direct any questions or comment about this report to [sustainability.feedback@incitecpivot.com.au](mailto:sustainability.feedback@incitecpivot.com.au)

## BENCHMARKING OUR PERFORMANCE

As part of our commitment to transparent reporting, IPL's sustainability performance is assessed against leading indices. This gives us the opportunity to benchmark our performance against other organisations in our sector, gain insight into areas for improvement, and provide investors and other stakeholders with an objective measure of our environmental, social and governance (ESG) risk management and business practices.

The Dow Jones Sustainability Index (DJSI) is widely recognised as the leading reference point in the growing field of Sustainable Investment due to the robustness of its assessment process. Since 2010, IPL has been included in the DJSI, where our performance is benchmarked against peers in the global Chemicals sector.

The results since 2017 are represented below.

Dimension	2017	2018	2019	2020	2021	2022
Economic	73	71	72	78	81	78
Environmental	61	64	73	71	69	72
Social	68	57	60	58	65	69
<b>Total for IPL</b>	<b>68</b>	<b>65</b>	<b>69</b>	<b>69</b>	<b>72</b>	<b>73</b>
Chemicals sector average	53	44	47	36	30	26

In 2022, the FTSE Group confirmed that IPL has been independently assessed according to the FTSE4Good criteria and has satisfied the requirements to remain a constituent of the FTSE4Good Index Series for the ninth consecutive year. Companies in the FTSE4Good Index Series have met stringent environmental, social and governance criteria.

IPL has been a voluntary CDP (formerly Carbon Disclosure Project) Climate Change reporter since 2009 and a voluntary CDP Water Security reporter since its introduction in 2014. Our most recent CDP reports can be downloaded from our website. Other indices and memberships are shown below.

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DJSI Member since 2010



Member since 2015



Member since 2014



Member since 2019



CDP Climate Change Reporter since 2009  
CDP Water Security Reporter since 2014



# INCITEC PIVOT LIMITED

IPL is a leading technology supplier to the resources and agricultural sectors committed to helping create a sustainable and decarbonised world.

# MANAGING DIRECTOR AND CEO'S REPORT



Sustainability is at the heart of IPL values and purpose – to make people's lives better through unlocking the potential in the Earth. We do this through building each of our two businesses in a way that ensures they will survive and prosper in the long term, while caring for all our stakeholders, including our people, our communities and our environment. It's how we create value, identify external risk factors in a constantly changing world, and measure, monitor, manage and report on the challenges that we encounter along the way.

I am pleased to present this report, which addresses all of the above. In line with our strategic intent to create two great businesses, and the work done this year on the proposed demerger to facilitate this creation, this report explains the value that our explosives and fertiliser businesses create in developing products and services that are vital: they provide food for the world's growing population, along with the raw materials required to shape our cities and create renewable energy infrastructure critical to a decarbonised future. The report also outlines the method we have used to assess each of our businesses' impact on the environment, employees, customers, shareholders, suppliers and the communities we work in. And it describes how we are responding to the risks and opportunities inherent in the current operating environment.

This reporting year, our 2022 financial year, has not been without its challenges. Geopolitical tension and COVID-19 lockdowns placed pressure on global supply chains, and our teams worked diligently to manage geographic risks and reduce reliance on single source suppliers.

As a chemicals manufacturer operating essential, but hard-to-abate, industrial scale processes, climate change is a material and strategic issue for both our businesses, each of which faces a number of transitional and physical risks that will require ongoing and active management.

This year we released our second stand-alone [IPL Climate Change Report](#) which reaffirms our ambition to achieve Net Zero operational emissions by 2050, or earlier if practicable, and provides details on four significant projects toward achieving this. Moranbah tertiary nitrous oxide abatement will be installed in 2024 and underpins our short-term operational GHG reduction target of 5% by 2025. Together with this, projects investigating Waggaman geological sequestration of CO<sub>2</sub>, the conversion of our Gibson Island manufacturing facility to green ammonia, and nitrous oxide abatement for our Louisiana, Missouri, facility aim to deliver in excess of 42% operational GHG emission reductions against our 2020 baseline, for our current portfolio.

While climate change undoubtedly poses risks for IPL, the global decarbonisation and energy transition is presenting multiple opportunities, and we are excited to be part of the solution. Australia's abundant renewable resources make it a prime location for the rapid development of renewable hydrogen. With a core competency in manufacturing, storing and transporting ammonia, we are well placed to play a role in the production of green hydrogen and green ammonia.

While we recognise that the development of new technologies for low carbon ammonia manufacturing is unpredictable, as it is directly affected by government policy and international trade, we are excited to be an early participant in developing these technologies; and we continue to identify projects and products that will bring forward solutions. Our partnerships on green ammonia with Fortescue Future Industries (FFI) at Gibson Island, and with Keppel Infrastructure Holdings Limited (Keppel Infrastructure) and Temasek to investigate producing green ammonia in Queensland and New South Wales (NSW), are two examples.

Our explosives business' products and services will be crucial in providing our customers with efficient access to the minerals and resources necessary for renewable energy infrastructure and new technologies.

Our premium technology solutions also aim to help our customers reduce their carbon footprints.

As Australia's largest onshore manufacturer of plant nutrition products, and with its focus on soil health and precision agriculture, our fertiliser business aims to play an important role in the agriculture industry's target of being a \$100 billion industry by 2030. Equally, our new, more sustainable fertiliser products will look to help feed a growing population while reducing unintentional impacts, such as nutrient losses to waterways and GHG emissions, and will play an increasingly important role in addressing climate change for the agriculture sector.

We also continued to improve environmental outcomes relating to our own operations in 2022. We reduced our Australian municipal water use by 11% through a recycled water project and reduced our solid waste generation by 5% across our fertiliser business and 15% across our explosives business. Our Carthage, Missouri, Initiating Systems manufacturing facility also became ISO 14001 certified in 2022, adding to our list of sites which have achieved this internationally recognised environmental credential.

IPL aspires to be a globally recognised safety leader – it is of utmost importance to us that our people get home safely every day. This goal is supported by our culture of Zero Harm, which fundamentally guides the way we work. In 2022, we focused on creating 'safe ground' to encourage anyone associated with our operations to speak up if they see a safety concern and share their ideas on how we can improve. By watching out for each other and continuing to raise our safety and wellbeing standards, we have been encouraged by our progress and will remain relentless in our pursuit of Zero Harm.

We are proud of the work our team has done in leadership development, diversity, equity and inclusion, and human rights. As a global organisation operating in over 18 countries, we know that a diverse workforce that operates equitably and inclusively is good for our business. It broadens the viewpoints and ideas we need to solve challenges, and gives us a deeper understanding of the customers we serve and the communities we work in.

To support our reconciliation efforts in Australia, we delivered a new cultural awareness program and a series of 'Toolbox Talks' to educate our workforce about Indigenous culture and raise awareness of significant dates for First Nations Peoples. We also established a support helpline in 2022 designed to provide mental health support specifically for Aboriginal and Torres Strait Islander Peoples.

Finally, key employees served on the new IPL Human Rights Working Group, which oversaw an external review of our management of human rights and modern slavery issues across both businesses' supply chains.

Thank you to all our stakeholders who have contributed to the various initiatives we have introduced and implemented during the year – we couldn't have achieved as much as we have without you. We greatly appreciate your support.

I welcome your interest in our 2022 Sustainability Report and invite your feedback as we build on our efforts to contribute to a more sustainable world and provide transparent reporting on our progress.

Jeanne Johns  
Managing Director & CEO

# WHO WE ARE

**IPL is a recognised leader in supplying the resources and agricultural sectors. We have two customer facing businesses: Dyno Nobel, based in the Americas, Europe, Middle East, Africa and Asia Pacific; and the largest fertiliser business on the east coast of Australia, Incitec Pivot Fertilisers.**

Our products and services are vital to providing food for the world's growing population, along with the raw materials required to shape our cities and create renewable energy infrastructure critical to a decarbonised future. The challenge for us at IPL is to continue to unlock the world's natural resources while reducing our environmental footprint and working towards a long-term Net Zero future.

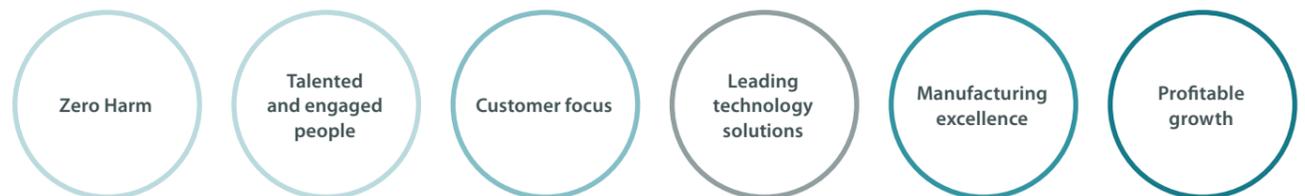
## OUR VALUES

Our values have been developed by our people and endorsed by the executive management team. In guiding our attitudes, decisions and actions every day, they are brought to life throughout our global workforce. These values are:



## STRATEGIC DRIVERS

Our strategy is underpinned by six key drivers which guide our organisational ambition to be a safe, efficient and industry leading Company. The six strategic drivers are:



## GOVERNANCE

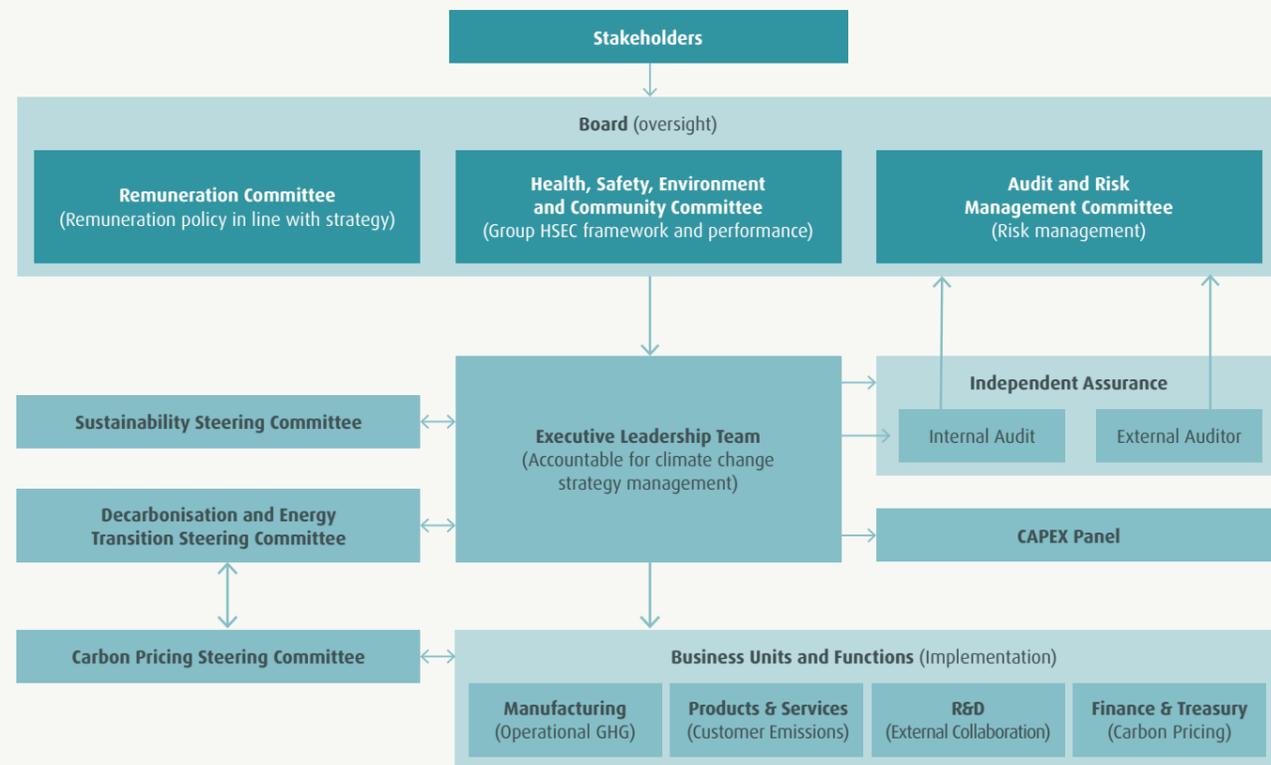
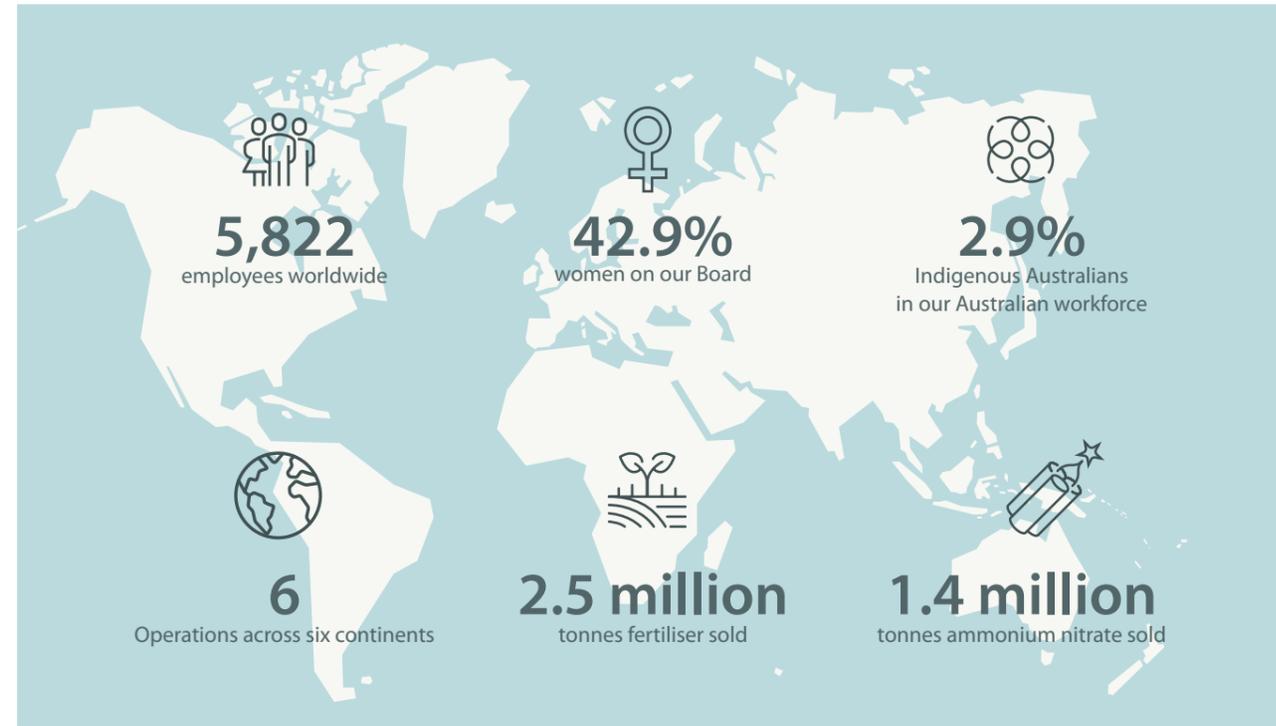
IPL is committed to doing business ethically and in accordance with high standards of corporate governance. Our **Corporate Governance Framework** and practices have been developed in accordance with ASX Corporate Governance Council's Corporate Governance Principles and Recommendations (4th edition) (ASX Recommendations). To ensure alignment with best practice and ethical standards our Board continually reviews our governance policies and practices. The Board's **Health, Safety, Environment and Community Committee** assists the Board in its oversight of health, safety and environment matters arising out of the Group's activities as they may affect employees, contractors, and the local communities in which we operate. For detailed information on corporate governance please visit our [2022 Corporate Governance Statement](#).

Established in 2021, our **Sustainability Steering Committee** is chaired by our Managing Director and CEO (MD&CEO) and comprises members of our executive management team.

The committee provides executive oversight of the sustainability strategy and gives direction on the management of ESG issues material to IPL's long-term financial sustainability.

Additionally, the committee is responsible for driving change across our business, enhancing our sustainability monitoring and exploring trends and opportunities for improvement.

Our **Decarbonisation and Energy Transition Committee**, also chaired by our MD&CEO and comprising members of our Executive Management Team, is responsible for developing our Net Zero Transition Pathway and strategically managing business risks and opportunities relating to climate change. IPL's Climate Change Policy was adopted by the Board in 2019, to oversee climate change strategy, performance and governance responsibilities. For more information on our management of climate change risks and opportunities please visit our [2022 Climate Change Report](#).



Our **Ethics Committee**, comprising executives and senior management from across the business, ensures:

- ethical policies and practices are implemented as a standardised practice;
- changes to policies or standards related to ethical behaviour are discussed and implemented;
- appropriate procedures are in place to monitor and report on compliance with these standards; and
- training needs and materials with respect to ethical standards and behaviour are reviewed.

The Board's **Audit and Risk Management Committee** provides oversight of the effectiveness of our **Information Security Framework**. The Chief Information Officer, who is a member of the Executive Team, is responsible for implementation of the Information Security Framework to ensure effective procedures and training are in place to protect our global information network.

Our **Risk Management Framework and IPL Group Risk Policy** (AS/NZS ISO 31000:2009) sets and controls our risk appetite and approach, and monitors their effectiveness in building a strong organisational risk culture. To help ensure quality and consistency in managing and reporting risk, an online document suite is available to all employees. This is supported by comprehensive online training programs.

To ensure we operate to the highest standards of ethical behaviour and integrity, with full regard for the safety and health of employees, customers, the wider community and the environment, we have clear policies that outline our commitment and expectations. These include:

- **Code of Conduct:** This contains principles and standards of conduct which are based on the Company's values and represent our commitment to uphold ethical business practices and meet applicable legal requirements. Find out more about our Corporate Governance, and Code of Conduct, Anti-Bribery, and Anti-Discrimination and Harassment policies, [here](#).

- **Refusal to Work Policy:** This policy includes consideration of potential risks to sites of cultural significance for Aboriginal and Torres Strait Islander Peoples. Employees who believe that actions about to be undertaken onsite are unethical, or pose any risk to culturally significant sites, have the Company's support to refuse to work until the matter is reported internally and appropriate assessments have been completed.
- **Whistleblower Protection Policy:** Our Whistleblower system is administered by a third party and is available for use by all employees as well as external third parties. The [IPL Global Whistleblower Protection Policy](#) is available on our website as is the [IPL Australian Whistleblower Policy](#), which is consistent with Australian Standard AS 8004.
- **Tax Transparency:** Our annual [Tax Transparency Reports](#) outline our Board-approved strategy in relation to tax and reflect IPL's ongoing commitment to tax transparency.

### Environmental risk management and performance

We target Zero Significant Environmental Incidents and are pleased to report this was achieved in 2022. To read more about how environmental risk management is treated in our [Health, Safety, Environment and Community Management System \(HSECMS\)](#), please visit the Our commitment to Zero Harm section of our [2022 GRI Index and Data Supplement](#).

We also implemented a new environmental licence compliance procedure in 2022 that is now a standard operating procedure at IPL. The procedure will help raise awareness and improve the management of our environmental obligations.

### Material Topics related to Governance

As shown under 'Material Topics' on pages 12-13, there are several issues material to the sustainability of our businesses which fall under 'Governance' in 'ESG'. These are discussed under Governance Topics in the Dyno Nobel and Incitec Pivot Fertilisers sections on pages 39 and 65.

# OUR SUSTAINABILITY SCORECARD

✔ Well progressed or target achieved    ➡ Steady progress    ✖ Below expected progress

CATEGORY	MATERIAL ISSUE	INDICATOR	TARGET/COMMITMENT	2022	
<b>ENVIRONMENTAL TOPICS</b>	<b>REDUCING OUR ENVIRONMENTAL IMPACT</b>				
	Navigating the transition to a low carbon economy	Capital projects to achieve Net Zero Pathway	Project underway by 2023 to achieve our short-term 5% absolute GHG reduction by 2025 NEW TARGET: Installation in 2024	Moranbah N <sub>2</sub> O Tertiary Abatement project approved and underway	✔
	Sustainable plant-nutrition solutions	Number of soils and crop plant tests	20% increase by 2023 against 2020 baseline	29% in 2022	✔
	Soil biodiversity	New class of sustainable fertilisers	Investment to enable 2023 construction of Australia's first large-scale Bio-Fert plant	Steady progress	➡
	Sustainable use of water	Australian municipal water use	25% reduction by 2023	11% reduction in 2022	➡
<b>SOCIAL TOPICS</b>	<b>SAFE, DIVERSE AND ENGAGING WORKPLACE</b>				
	Cultural renewal for a fit-for purpose business	Employee engagement scores	Meaningful improvement (+0.1) by 2023	+0.16 in pulse survey of senior leaders in 2022	✔
		Gender Diversity	10% year-on-year increase in % of female employees	Up 0.8 percentage points, equating to a 4.5% year-on-year increase	✖
		Indigenous Australian employees	3% by 2022	2.9%	➡
	Zero Harm ambition: Safety and wellbeing	TRIFR	0.7	0.89	✖
		Tier 1 & 2 process safety incidents	Year-on-year reduction	25 (-34%)	✔
	<b>RECIPROCAL PARTNERSHIPS WITH CUSTOMERS AND SUPPLIERS</b>				
	Customer partnerships	Maintaining NPS scores using annual customer engagement action plans	Between 30-40	Maintained	✔
	Innovation in responsible and sustainable products and services	Percentage of new products introduced which improve sustainability outcomes	100%	100% (see page 35 for a list of these with the sustainability benefits)	✔
	Sustainable supply chain	Number of New Suppliers Assessed for ESG (including Modern Slavery)	10 per year	41	✔
Number of Deep Dive ESG Audits		5 per year	1	✖	
<b>RELATIONSHIPS WITH OUR COMMUNITIES THAT BUILD TRUST AND RESILIENCE</b>					
Community safety, support and connection	Compliance with Community Safety Communications	100%	100%	✔	
	Promotion and celebration of Australian Aboriginal and Torres Strait Islander events and dates of significance	Deliver the outcomes on page 18 of our Innovate RAP by 2023	Celebration of NAIDOC Week, Mabo Day and other events of significance	✔	
<b>GOVERNANCE TOPICS</b>	<b>GOOD GOVERNANCE THAT DRIVES SUSTAINABLE RETURNS</b>				
	Industry and government collaboration on green technology towards Net Zero	Partnerships to investigate emerging green technologies	Completion of two hydrogen feasibility study partnerships by 2023	Steady progress	➡
	Technology as an enabler and disruptor	Number of new products introduced to customers	3 per year	7 in 2022 (see page 35 for a list of these)	✔
	Active engagement in ESG issues	Frequency of ESG communications to investors and other stakeholders	Year-on-year increase	Increase in investor presentations, proxy meetings, and one-on-one communications on ESG issues	✔
	Regulatory Risk Management	Significant Environmental Incidents	Zero	Zero	✔

## ALIGNING WITH THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

The UN SDGs are a set of 17 goals and 169 targets adopted by world leaders at the United Nations to end poverty, fight inequality and tackle climate change by 2030.

Although primarily designed for governments, the SDGs call for action by all countries and stakeholders and we recognise that we can contribute. During 2020, IPL conducted an analysis of our business strategy and material sustainability issues to identify our priority SDG goals and targets.

	SDG Target	IPL alignment
 <b>5 GENDER EQUALITY</b>	<b>ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS</b> 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life.	<b>IPL target</b> To achieve a 10% increase in the participation rate of female employees across our global workforce annually.
 <b>2 ZERO HUNGER</b>	<b>END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE</b> 2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and that progressively improve land and soil quality.	<b>IPL target</b> 20% increase in soils and plant testing by 2023 to promote sustainable use of fertilisers to our customers.  <b>IPL target</b> 2023 construction of Australia's first large-scale Bio-fert plant to deliver a new category of sustainable fertilisers.
 <b>6 CLEAN WATER AND SANITATION</b>	<b>ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER FOR ALL</b> 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity.	<b>IPL target</b> 25% reduction in IPL Australian municipal water use by 2023.
 <b>13 CLIMATE ACTION</b>	<b>TAKE URGENT ACTION TO TACKLE CLIMATE CHANGE AND ITS IMPACT</b> 13.1 Strengthen resilience and adaptive capacity to climate-related disasters.  13.2 Integrate climate change measures into policies, strategies and planning.	<b>IPL target</b> Comprehensive physical and transitional risk assessment against 1.5°C, 2°C, 3+°C and Inevitable Policy Response future climate-related scenarios, refreshed three-yearly.  <b>IPL target</b> Absolute GHG reduction of 5% by 2025 <sup>1</sup> , 25% by 2030 <sup>1</sup> and Net Zero by 2050 Ambition. In 2022 we progressed four projects which provide a pathway to a >42% reduction by 2030 and will review our targets following the release of the SBTi Chemicals Sector Methodology for Paris aligned targets, expected in 2023.
 <b>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</b>	<b>ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS</b> 12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.	<b>IPL strategy</b> Innovative products and services which encourage and enable our customers to adopt more sustainable consumption and production practices.  <b>IPL target</b> Annual Sustainability Reporting to Global Reporting Initiative (GRI) Standards.
 <b>11 SUSTAINABLE CITIES AND COMMUNITIES</b>	<b>MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE</b> 11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage.	<b>IPL target</b> Deliver the outcomes on page 35 of our Innovate RAP by 2023.

1 Our short- and medium-term targets are absolute reductions against our 2020 FY baseline year operational (Scope 1 and Scope 2) emissions of 3,991,396 tCO<sub>2</sub>e.



# MATERIALITY ASSESSMENT

To identify the topics most material for our stakeholders and our business, we conduct a biennial materiality review. Our most recent materiality assessment was conducted in 2021 by an expert third party and followed Global Reporting Initiative (GRI) guidelines.

## MEGATREND ANALYSIS

The assessment began with the drafting of an extensive global megatrends analysis. Megatrends are large, transformative global forces that shape the future by having a far-reaching impact on businesses, economies, industries, societies and individuals. A megatrend is distinguished from other trends in that it cannot be stopped or significantly altered, even by powerful players such as governments.

The analysis provided an understanding of how changes in the environment, society and governance are impacting IPL's strategy and operating environment, today and in the future. It also provides a context to review, identify and prioritise the environmental, social and governance (ESG) risks and opportunities we need to manage and report on.

Eleven megatrends of most relevance to IPL in the medium to long term were identified. Their identification followed a thorough assessment, in which food security and stewardship and circular economy were deemed emerging megatrends; increased environmental regulation was incorporated into the transition to a low carbon economy; and growing demand for sustainable investment was incorporated into active engagement in ESG issues.

## MATERIAL TOPICS

Interviews with 20 internal subject matter experts and four external stakeholders were then conducted. Insights from these stakeholder interviews, the megatrends analysis, and a review of our relevant policies and reporting disclosures allowed us to group topics that were material to the sustainability of our business, and those which were emerging.

Twelve topics were ultimately identified as potentially material, all of which were aligned with various external reporting frameworks and standards, including the Global Reporting Initiative (GRI) Standards, the Sustainability Accounting Standards Board (SASB), and the UN Sustainable Development Goals (SDGs). A summary of the megatrends and material topics can be found on pages 12 and 13.

## DOUBLE MATERIALITY

The shortlist of material topics was then presented to IPL's Executive Team for their consideration. In line with the concept of 'double materiality', ET members were asked to rank topics in order of their importance to IPL, both from an 'impact' perspective, as well as their potential to financially impact the Company by creating or eroding enterprise value.

In the prioritisation workshop, the ET split the topic 'Customer and community support and connection' into 'Customer partnerships' and 'Community support and connection' to reflect the nuanced difference between the two, and better reflect the nature of our businesses. The 12 material topics were aligned with IPL's Value Creation Model, providing a clear understanding of how we create value, and for whom.

## 2022 UPDATE

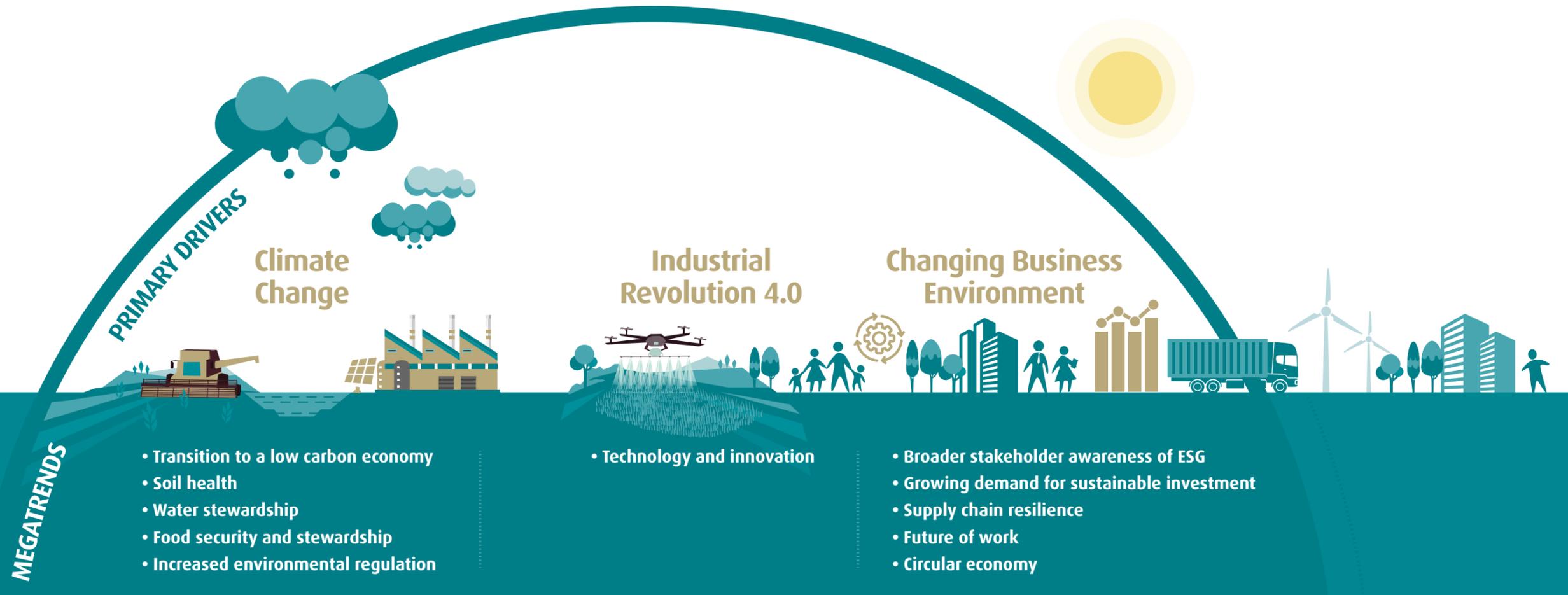
Given our two businesses face increasingly divergent issues and impacts, we reviewed the results of our materiality assessment in 2022 and created Value Creation Models for our explosives and fertiliser businesses. In doing so, we also reviewed the alignment of the material topics to stakeholder impacts, interests and outcomes relevant to each business.

These reviewed topics were confirmed in interviews with 29 internal subject matter experts and in some cases rephrased to reflect the current operating environments.

This review also resulted in a split of prioritised material topics listed under the pillar Reducing our Environmental Impact. Navigating the transition to a low carbon economy was reframed slightly for Dyno Nobel with the addition of 'through reducing our GHG emissions'. For IPF, two additional topics, specifically material to the fertiliser business, were added to Navigating the transition to a low carbon economy and Sustainable use of water. These were: Sustainable plant-nutrition solutions and Soil biodiversity.

The Value Creation Models for each business can be found on pages 24 and 44 and can be used to navigate the material topics relevant to each business.

# OUR MATERIAL TOPICS





# ZERO HARM

Zero Harm is our number one Company Value and has always been central to our operations and culture. Our commitment to safety encompasses our people, our customers and our communities. We extend Zero Harm to encompass the environment we work in and to include mental as well as physical safety – what we call ‘Safe Ground’.

## ZERO HARM AMBITION: SAFETY AND WELLBEING

Zero Harm has always been central to our operations and culture, and our commitment to safety and the environment encompasses our people, our customers, our communities and the environments where we operate.

As an organisation aspiring to be a globally recognised safety leader, it is of utmost importance to us that our people get home safely every day. This goal is supported by our culture of Zero Harm, which fundamentally guides the way we work and operate as an organisation.

In 2022, we continued our focus on improving safety and wellbeing standards and raised hazard awareness across the organisation. Our focus on ‘Safe Ground’ ensures that we create a workplace where our people are encouraged to be leaders in Zero Harm and ultimately increases our psychological safety at work.

Targeted initiatives encompassing a variety of safety and wellbeing topics such as workplace safety, safety related to commuting to and from work, and mental health, were carried out targeting the understanding a wider range of issues and expanding safety to overall wellbeing. This included:

- raising awareness about mental health and wellbeing among employees during a month-long R U OK? campaign across our global business;
- holding ‘Tool Box’ conversations about Men’s mental health;
- celebrating World Gratitude Day and learning about the well documented benefits of practicing gratitude;
- celebrating World Safety Day, with events held globally focused on our strategic theme of Strengthening our Learning Culture;
- celebrating Earth Day at our Chile plant;
- establishing a helpline specifically for Indigenous and Torres Strait Islander employees;
- planning the 2023 implementation of our new regionally specific fatigue management procedures across our Dyno Nobel Asia Pacific business, which completes the global roll-out. The procedure aims to monitor and manage the impacts of chronic changes in temperature on employee health and safety.



### Work/life balance for our employees

As the influence of COVID-19 as a direct threat to health reduces, we have been focusing on facilitating return to the office. As we do, we are placing a particular focus on the mental and physical health of staff as they deal with both the psychological and physical after-effects of COVID-19, the associated lockdowns, and other restrictions.

The COVID-19 Crisis Management Team was wound down in March 2022. However, COVID-19 systems and processes are embedded so that they can be re-established quickly, should the pandemic again become an increased threat to our employees.

In the aftermath of COVID-19, we have been working to adapt our workplace flexibility approach to better align with our team members' needs and new expectations for better work/life balance. For employees in operational roles, we continue to seek opportunities to provide greater flexibility. For employees in non-operational roles, we have a hybrid model allowing for office and home-based working arrangements (depending on the nature of the role). Our approach to flexible work is also underpinned by Flexible Work policies, enabling collaboration between leaders and employees to determine flexibility that works for the business and the employee.

### Creating a safe culture

In addition to providing access to an Employee Assistance Program, which promotes and supports mental health and wellbeing, SafeTEAMS is a Company-wide safety training program, with expanded focus on creating a safe culture, nurturing psychological safety and 'Safe Ground'. It is being rolled out globally and Dyno Nobel's Carthage plant in Missouri US, which has 300 team members, has already achieved a 100% completion, demonstrating an outstanding commitment to safety.

### 2022 Zero Harm performance

To monitor our performance against our Zero Harm Ambition and our Company-wide Zero Harm Strategy, we monitor our Zero Harm Performance through a balanced scorecard which provides insights across key leading and lagging metrics of personal safety, process safety and environment.

While the number of 'Serious Harm' incidents has decreased since 2020, our Total Recordable Incidents Frequency Rate (TRIFR) has remained higher than our targeted 0.7, at 0.87 in 2021 and 0.89 this year. To improve this, our 2023 Zero Harm Plan relating to personal safety will focus on Effective Safety Leadership, including SafeTEAMS training delivery and embedding, integration of our systems and processes for acquisitions, risk management, and a refresh of our Safe Act Observation (SAO) procedure to support visible leadership and the creation of Safe Ground.

The number of Process Safety Incidents recorded decreased from 38 in 2021 to 25 in 2022. We are committed to keep lowering this number through our ongoing focus on loss-of-containment process safety events, and monitoring improvement plans to continuously improve our operations risk management activities for high consequence, low probability process safety incidents.

We have been able to sustain our excellent Environmental performance with zero Significant Environmental Incidents reported through implementation of key environmental compliance initiatives and proactively monitoring the delivery of our environmental compliance activities. See the Environmental Topics sections for each of our businesses for more details.

Zero Harm – Key Metrics	FY22	FY21	FY20
TRIFR <sup>1</sup>	0.89	0.87	0.58
Significant Environmental Incidents <sup>2</sup>	0	0	1
Process Safety Incidents <sup>3</sup>	25	38	24

### Learning from Significant Events

Over the last three years we have increased our focus on learning from events which have a high potential for harm to people or the environment. Transport-related Significant Events, for example, fell as a result of controls and intervention strategies that were implemented during 2022. As a direct result of achieving our targeted performance in SIGNIFICANT EVENT MANAGEMENT, we have seen a significant increase in the hazard/near miss to incident ratio and an improvement in investigations completed within 30 days. The results of our Significant Event Management process demonstrate continuous improvement in hazard awareness and reporting, and active learning from potentially significant events.

Significant Event Management <sup>4</sup>	2022	2021	2020
Hazard/Near Miss: Incident Ratio	0.71	0.63	0.36
Investigations Complete within 30 days (%)	89	87	
Actions Complete by original due date (%)	85	96	



### MENTAL HEALTH A FOCUS AT PHOSPHATE HILL

Due to its remote location in north-west Queensland, Phosphate Hill is a dedicated fly-in fly-out (FIFO) site. In 2022 a psychosocial risk assessment of the site identified the need for a counsellor to support our people and their families working at Phosphate Hill. Everyone on site was invited to complete Mental Health General Awareness Training, with some employees taking on the roles of Peer-to-Peer Support Personnel.

Robert Mossop, Senior Site Executive at Phosphate Hill, said he was, "glad to see that the benefits of the program are being shared widely with the site team and, in many cases, extended families." On 1 October Phosphate Hill was recognised as a 'Skilled Workplace' by the Mental Health First Aid Workplace Recognition Program. This is a first for IPL.



### WELLBEING BLAST CHALLENGE TAKES OFF

The health, safety and wellbeing of our people are of paramount importance, and we think of health in a holistic way. To emphasise this, IPL promoted a four-week 'Wellbeing Blast Challenge' in 2022. The initiative focused on a new health and wellbeing topic each week and encouraged our people to share their thoughts and stories. Every week employees could choose from a different set of activities – for example meditation or breathing exercises – and log their personal accomplishments in the 'MyWellPortalApp'.

We encouraged participation by providing prizes each week for people who had logged at least three activities per week. The Blast challenge is part of a Company-wide initiative to make health and wellbeing a common theme at IPL.

Total Recordable Injury Frequency Rate (TRIFR)<sup>1</sup>



1 TRIFR is calculated as the number of recordable injuries per 200,000 hours worked and includes contract workers.  
 2 Significant Environmental Incidents as assessed against IPL's internal risk matrix with consequences of 5 or higher on a 6-level scale.  
 3 Tier 1 and 2 Process Safety Incidents as defined by the Centre for Chemical Process Safety.  
 4 This data is based on significant events only.



# PEOPLE

In a changing global economy, it is vital we build a culture that is both fit for our changing times and protects and promotes the welfare of our people. We aim to meet both these goals through enacting a people strategy that supports diversity, inclusion and agility.

## SAFE, DIVERSE AND ENGAGING WORKPLACE

### Cultural renewal for a fit-for-purpose business

Our 'People First Strategy', which places people at the centre of everything we do, is based on four strategic focus areas: Engaging Leaders, Talented People, Inclusive Workplace and Partnerships. It has been developed using a set of human principles that aim to bring meaning and purpose to people's work. Its strategic commitments seek to provide employees with an experience that is inclusive, collaborative and offers growth opportunities that inspire and engage.

At IPL we believe the whole is greater than the sum of its parts and we encourage our people to partner with teams across our global footprint to share experiences and ideas at all levels of our organisation.

Some of the core programs that advance us towards our goals include My Potential, a program which was recently revised and is designed to strengthen female leadership. Similarly, our Leadership Foundations Program was rolled out during 2022 to frontline leaders in our US manufacturing sites and Australian operational sites and offices. Both programs are helping us build a global leadership cohort that is connected and aligned. The success of these and prior leadership development programs can be seen in our internal promotion numbers – up by nearly 12.6% this year, highlighting the number of people across our two businesses who were ready to take the 'next step'.

The following table summarises the range of initiatives and updates we have undertaken this year to support our People First Strategy.

**People First Strategy**

People First Strategic focus area	Engaging Leaders	Talented People	Inclusive Workplace	Partnership
2022 Highlights	<p>In 2022 we reviewed the female leadership program, My Potential, to ensure it continues to engage and develop our female employees in a meaningful way.</p> <p>We rolled out the Leadership Foundations program, which is specifically designed for frontline leaders, at US manufacturing sites and Australian operational sites and offices.</p>	<p>We provided opportunities to internal talent to retain skills and knowledge and continued to offer attractive career paths.</p> <p>Our internal promotions increased by 12.6% demonstrating the depth of expertise and capability we have amongst our people.</p> <p>The Americas region launched a centralised Internship Academy as part of the Nobel Academy program, with 67% of the interns diverse in at least one known category and 43% women.</p> <p>Nearly 60% of the 2022 Australian Graduate Program intake were female engineers. Since 2018, this program has run with zero turnover.</p>	<p>To further foster an inclusive workplace, new Inclusive Leader and Respect in the Workplace programs were rolled out in the Americas region and the Upstander program continued to be rolled out in Australia.</p> <p>Our first cultural inclusion survey was piloted in the Americas region to better understand our workplace culture as it relates to Diversity, Equity and Inclusion. We are monitoring the progress of this program to see if it should be rolled out to other regions.</p> <p>In 2022 we matured our approach to work flexibility, to enable the balance between workplace collaboration and the shift in employees' expectations of work-life balance.</p> <p>In 2022, across the overall business, 18.5% of our global workforce was female, a 0.8 percentage point increase on last year's figure.</p> <p>In the US, our Dyno Nobel Graham Kentucky site made the list for one of Kentucky's 2022 Best Places to Work.</p>	<p>In July 2022 we celebrated the anniversary of our ammonia plant coming into operation and 10 years being part of the Moranbah (Queensland, Australia) community. IPL donated two paintings by Barada Barna Traditional Owner Benjamin Isaacs to Moranbah East Primary School and Moranbah State Primary School.</p> <p>We continued our collaboration with the American Australian Association Veteran's Scholarship providing education opportunities for veterans with future employment possibility.</p>

**DIVERSITY, EQUITY AND INCLUSION**

Our focus on diversity, equity and inclusion in our workforce strengthened further during the year. As a global organisation operating in over 18 different countries, we know a diverse workforce that is treated equitably and inclusively is good for our team and our business. It broadens the viewpoints and ideas brought to solving our customers' and our businesses' challenges, and gives us a deeper understanding of the customers we serve and the communities we work in.

The percentage of female employees in our global workforce increased by 0.8 percentage points to 18.5% in 2022. The number of female employees in management positions has also increased to 20.1% in 2022. We aim to increase the representation of women in leadership roles in the coming financial year and, as indicated, are committed to supporting female employees in their leadership journey through programs such as My Potential. For more information on diversity please access our Diversity Policy [here](#).

	FY22	FY21	FY20
Women on our Board	42.9%	42.9%	50.0%
Women on our Executive Team	30.0%	37.5%	20.0%
Women in Senior Management	21.0%	20.5%	20.2%
Women in Management	20.1%	19.0%	16.4%
Women in Professional Roles	23.7%	21.1%	20.1%
Women in our Global Workforce*	18.5%	17.7%	17.6%
Indigenous Australians in our Australian Workforce	2.9%	2.5%	2.7%

\* Includes all IPL's geographies.

**RECONCILIATION**

Our Innovate Reconciliation Action Plan (RAP), released in 2021, guides our actions in support of reconciliation work across our businesses. As part of the RAP, we worked with the University of Queensland to launch an Indigenous Scholarship Program. The scholarship gives Aboriginal and Torres Strait Islander students the chance to start their working life in one of our operations or offices in Queensland.

During the year we delivered a new cultural awareness program via our e-learning portal in Australia. We also delivered a series of 'Toolbox Talks' to support our reconciliation efforts by focusing on educating our people about Indigenous culture and raising awareness about significant dates for First Nations Peoples, such as National Sorry Day (26 May) and Mabo Day (3 June). The initiatives have seen excellent participation across the Australian business over 2022.

IPL also promotes and celebrates National Aborigines and Islander Day Observance Committee (NAIDOC) Week with special events held across different sites. One such event was held at the Helidon site, where the local Yuggara people were invited to celebrate NAIDOC Week with an acknowledgement and Welcome to Country and an afternoon tea. NAIDOC Week is celebrated in the first week of July each year in Australia and celebrates and recognises the history, culture and achievements of Aboriginal and Torres Strait Islander Peoples.

Further initiatives introduced during the year included targeted support for Indigenous Mental Health First Aid and a helpline which provides mental health support specifically for Aboriginal and Torres Strait Islander Peoples.

In 2022, we saw a 0.4 percentage point increase of Indigenous Australians in our Australian workforce. The number increased from 2.5% in 2021 to 2.9% in 2022.



**MY POTENTIAL – A LEADERSHIP PROGRAM FOR IPL WOMEN**

Our leadership program for female employees, My Potential, explores an individual's strengths and areas for development, assesses the opportunities and challenges they face and encourages them to look at their own mindset and behaviours. It's designed to enhance their leadership experience and consists of online and in-person coaching.

The program gives participants the opportunity to connect and learn from each other and gives them a broader business perspective. We revised the program in 2022 with pilots commencing in September 2022 in both the Americas and the Asia Pacific regions.



**CRISIS SUPPORT SERVICE FOR FIRST NATIONS PEOPLE**

13Yarn is a crisis support service for Aboriginal and Torres Strait Islander people, offering clinical and cultural support for mental health issues around the clock in a first-of-its-kind, culturally safe initiative. Introduced in 2022, it employs a 'conversational approach', using the power of storytelling in the healing process and offering a judgement-free place for Aboriginal and Torres Strait Islander people to express themselves.

13Yarn is an element of IPL's RAP and is also one of the resources in our Mental Health Support Pathway. It represents an important commitment to our Aboriginal and Torres Strait Islander colleagues.



# OUR EXPLOSIVES BUSINESS

Dyno Nobel is IPL's global explosives business. It is the second-largest industrial explosives distributor in North America and the second-largest industrial explosives distributor in Australia.

In the **Americas** the business provides ammonium nitrate based industrial explosives, initiating systems and services to the quarry and construction sector primarily in the Southern US, North-east US and Canada; the base and precious metals sector in the US mid-West, US West and Canada; and the coal sector in the Powder River Basin, Illinois Basin and Appalachia.

In the **Asia Pacific** it provides ammonium nitrate based industrial explosives, initiating systems and services to the metallurgical coal and base and precious metals sectors in Australia, and internationally to several countries including Indonesia, Papua New Guinea and Turkey through its subsidiaries and joint ventures.

In 2022, IPL purchased Titanobel in **Europe**, entering the French quarry and construction market and providing access to West African markets with future facing mineral opportunities. When combined with the existing Nitromak business in Turkey, this provides a compelling foundation to grow the business across Europe, the Middle East and Africa.

## Global Manufacturing

In North America, Dyno Nobel manufactures ammonium nitrate at its Cheyenne, Wyoming and Louisiana, Missouri plants. Initiating systems are manufactured at facilities in Connecticut, Kentucky, Illinois, Missouri, Chile and Mexico, and are also sourced from DetNet South Africa Pty Ltd (DetNet), an IPL electronics joint venture.

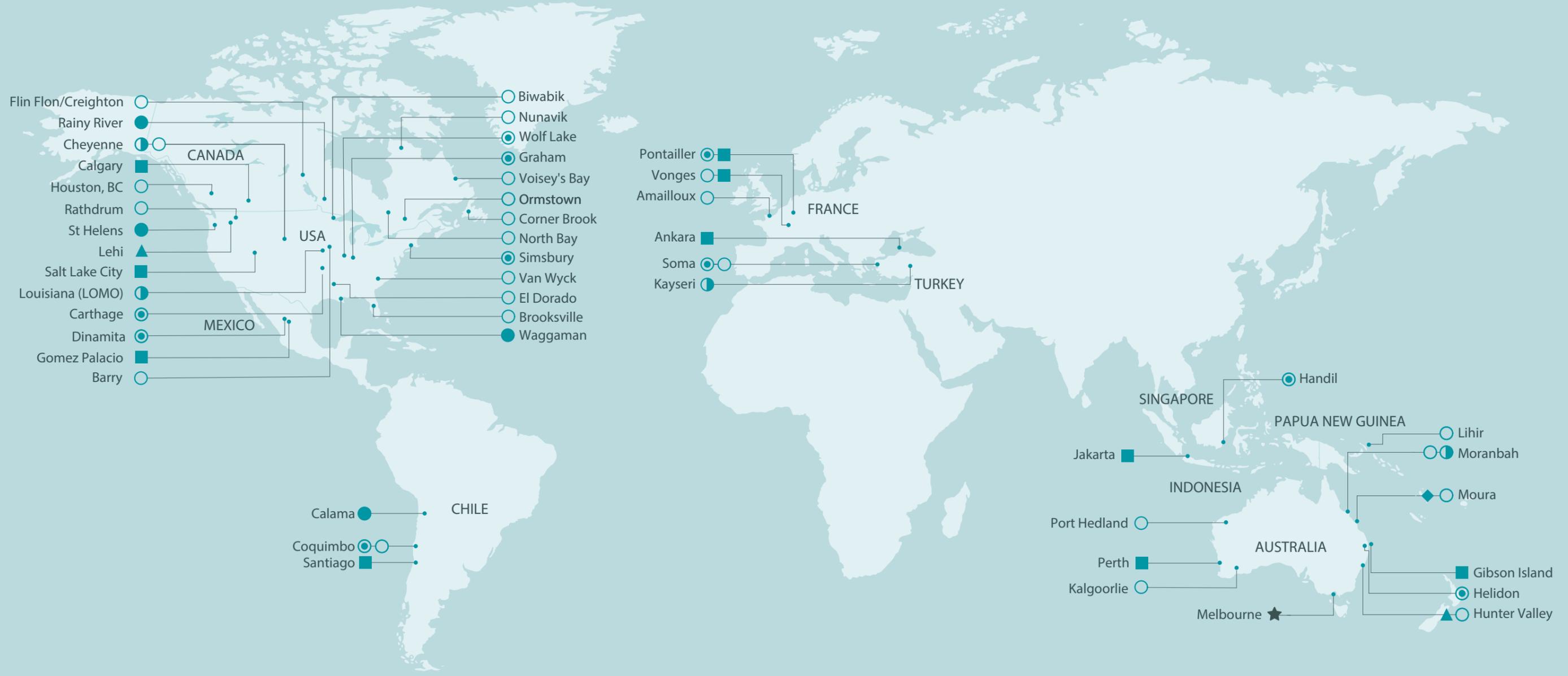
The business operates its state-of-the-art ammonia plant in Waggaman, Louisiana. In addition, the business wholesales agricultural products produced at its St Helens facility and its Cheyenne facility.

In Australia, the business manufactures ammonium nitrate at its Moranbah plant in the Bowen Basin, the world's premier metallurgical coal region. It also has a 50% interest in the ammonium nitrate facility near Moura in Central Queensland. Initiating systems are manufactured at Dyno Nobel's Helidon facility in Queensland and are also sourced from IPL facilities in the Americas and its joint ventures.

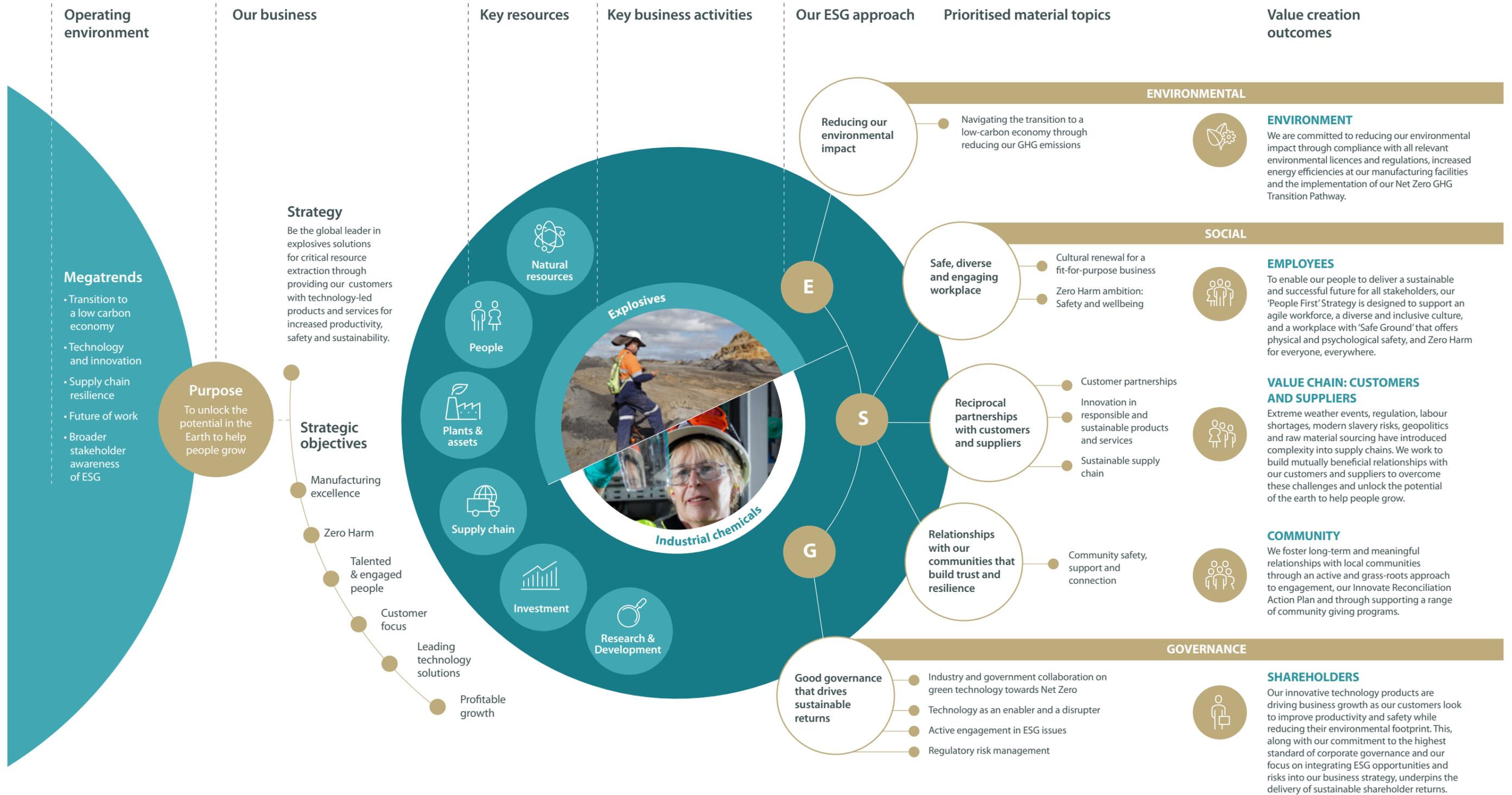
# OUR DYNO NOBEL OPERATIONS

**Incitec Pivot Limited**  
 ★ Company Headquarters

- Dyno Nobel**
- Corporate Office
  - Manufacturing/Distribution
  - Emulsions
  - ⊙ Initiation Systems
  - Ammonium Nitrate
  - ▲ R&D Laboratories



# How we create value





# ENVIRONMENTAL TOPICS

We are committed to reducing our environmental impact through compliance with all relevant environmental licences and regulations, increased energy efficiencies at our manufacturing facilities and the implementation of our Net Zero GHG Transition Pathway.

## REDUCING OUR ENVIRONMENTAL IMPACT

We seek to play our part in a world that is both more prosperous and more sustainable: reducing our environmental impact by driving increased energy efficiency in our manufacturing and steadily advancing along our Net Zero Pathway.

Dyno Nobel exists to help our mining customers unlock the minerals and resources we need to underpin human security and prosperity. We hold to this vision, with the knowledge that our skills, products and services can help our customers do this with an ever-lower impact on the environment.

We believe these skills will be even more important in a future impacted by climate change as we help our customers drive the development of future facing commodities that in turn enable electrification and the global energy transition. These trends represent a significant opportunity for Dyno Nobel. We expect to see demand for energy transition minerals grow at a 10% CAGR<sup>1</sup> through to 2030 (in value terms). Similarly, our future climate-related scenarios predict demand for electric vehicles to grow at a 17% CAGR over the next eight years.<sup>2</sup>

<sup>1</sup> International Energy Association, The Role of Critical Minerals in the Clean Energy Transition. Revenue for energy transition minerals includes only the volume required for clean energy technologies, not total demand.

<sup>2</sup> Holman, J. (2022) Global light duty EV sales to rise to 26.8 mil by 2030: Platts Analytics, S&P Global Commodity Insights, Electric/Power/Oil/Metals, 16 Feb 2022. <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/021622-global-light-duty-ev-sales-to-rise-to-268-mil-by-2030-platts-analytics>.

### Navigating the transition to a low carbon economy

Like all businesses around the globe, we face risks associated with climate change – but there are also opportunities associated with building a more sustainable future for both our business and for the world at large. We are excited to be part of the solution. At Dyno Nobel we are investing in decarbonisation for a sustainable business, allocating between A\$100m and \$A140m through until 2030 in decarbonisation projects globally. This pathway aims to deliver a reduction greater than 42% in operational (Scope 1 and 2) emissions by 2030 against our 2020 Dyno Nobel baseline, through the following projects:

- Moranbah Tertiary N<sub>2</sub>O abatement**  
 This abatement project has been approved, with installation planned for 2024. The Moranbah site was built in 2012 with secondary abatement. However, the installation of tertiary abatement will significantly enhance the abatement performance. It is expected to deliver a **7% reduction** in Dyno Nobel's operational GHG emissions against its 2020 baseline.
- Carbon Capture and Storage (CCS) at Waggaman, Louisiana (WALA)**  
 In August 2022, a FEED study for a Carbon Capture Facility at WALA was approved. This CCS facility aims to capture the pure stream of carbon dioxide (CO<sub>2</sub>) created during the ammonia manufacturing process. While the FEED study is yet to be completed, there are a range of favourable factors that point to the success of a CCS project at WALA. Due to its high concentration, the WALA CO<sub>2</sub> stream is much more economic to process than many other industries' carbon streams, with only drying and compression required before transport via pipeline to a permanent geological sequestration site. Louisiana's geology is well mapped and suitable for CCS, there is existing carbon pipeline infrastructure and the region boasts a range of potential partners with the experience, technology and management skills required to meet the EPA's very stringent regulatory requirements for Class VI injection wells. Subject to the successful completion of the FEED study and a final investment decision, construction of the carbon capture unit at WALA could begin in 2023 and be completed by the end of 2025. This would **decrease Dyno Nobel's operational GHG emissions by 30%** against its 2020 baseline.
- Louisiana, Missouri (LOMO) nitric acid plant N<sub>2</sub>O abatement**  
 Currently, LOMO is Dyno Nobel's only plant with no nitrous oxide (N<sub>2</sub>O) abatement. We are currently exploring options for an abatement project at this site similar to that being implemented at Moranbah. Abatement has the potential to **decrease Dyno Nobel's operational GHG emissions by up to 15%**.

In addition to these initiatives, Dyno Nobel is working with a range of firms and agencies around the world who are focused on green energy, green ammonia and green hydrogen. One such partnership is with Keppel Infrastructure and Temasek where we are investigating the feasibility of green hydrogen production in Queensland and New South Wales with a focus on carbon-free energy exports.

The range and geographical spread of our operations makes us an attractive partner for many organisations innovating in this space.

### Products that reduce customer emissions

We are reducing our customers' environmental impact through continual technology innovation in our explosive products. Our Delta-E product is one example. The technology helps our mining customers reduce emission of GHG and nitrous oxide, cuts ground vibration, dust, noise and flyrock and increases safety. We are working with our customers to quantify the reductions.

We believe this continuing focus on product innovation will help us reduce our environmental impact, have a similar positive effect on our clients and help differentiate our product offerings.

Dyno Nobel has also integrated Scope 3 emissions management into its ongoing business strategies, and we are targeting FY23 delivery of a management framework that tracks and manages Scope 3 by FY25. We have also contracted a supply chain partner with experience in Scope 3 to identify supplier-specific emissions factors and work with value chain partners on reducing Scope 3.



### DeltaE™

Dyno Nobel's Differential Energy (DeltaE™) is a novel explosives method that facilitates precise placement of energy, which can lead to reductions in energy use, oxides of nitrogen (NOx) and GHG emissions associated with blasting.

DeltaE™ is a proprietary technology that allows the density of explosives to be varied within a single borehole, meaning the energy can be matched to the varying geology in each hole. The system enables users to send the blasting load plans and instructions directly to the loading equipment and captures accurate blast information that can be used for reporting. DeltaE™ has been used in blasting applications in the US and Indonesia for many years and has been very successful in replacing large volumes of less efficient conventional explosives. We are continuing the roll-out in our global markets, including Australia and Latin America, where significant progress was made during 2022. The use of DeltaE™ continues to result in reduced NOx emissions, reduced energy use and GHG, less dust, noise and ground vibration and increased productivity while reducing overall cost for our mining customers.

### Reducing our impact site-by-site

In 2022 there were no Significant Environmental Incidents. Our performance across Level 2, 3 and 4 incidents shows either stable or improved performance.

Over the past two years Dyno Nobel has been working to standardise our environmental compliance procedures. This work helps us increase awareness of our environmental obligations and improve how we manage those obligations.

An important part of this enhanced process is the use of new iAuditor software to manage environmental inspections at our sites, which we are continuing to roll out. iAuditor helps simplify and standardise the inspection process and delivers more transparency to key stakeholders so they can better understand our performance.

Our Carthage, Missouri, Initiating Systems manufacturing facility passed audit to become ISO 14001 certified in 2022. ISO 14001 is an internationally agreed standard that sets out the requirements for an environmental management system. It helps companies improve their environmental performance through more efficient use of resources and reduction of waste.

### Where water is a material issue

Most of our Dyno Nobel manufacturing sites which use high volumes of cooling water are located close to rivers in the US where water supplies are plentiful and water is extracted under EPA licence. However, at our ammonia manufacturing site at Laramie County, Cheyenne, Wyoming, USA, water resources are of particular concern and management involves multiple stakeholders. The site is located in a semi-arid area which the WRI Water Tool has identified as an area of high baseline water stress<sup>1</sup>.

Water for the site is drawn from an underground aquifer which is recharged each year by precipitation, including snowmelt. We engage with key stakeholders including the Wyoming State Engineer's Office (SEO) which manages stakeholder access to the aquifer and maintains databases for ground water levels, along with the Ground Water Division of the US Geological Survey, and our Cheyenne site monitors wells through totalising flowmeters and water level measurements and reports to the SEO annually.

Water saving initiatives at the site include:

- The monitoring and maintenance of steam traps and condensate systems to reduce water loss.
- Operation of a brine concentrator unit which recycles approximately 100 gallons of water per minute.
- A new reverse osmosis water treatment unit was purchased in 2020 with 209,786 kL of waste water recycled in 2021 and 186,386 kL recycled in 2022, for reuse via the RO unit and a vapour recompression unit.
- Communication to personnel through daily reports to watch for, and prevent, excess water from running.
- Visual management board for water reduction projects and efforts.
- The position of Focused Improvement Engineer to implement an overall strategy of increasing the recycling of waste water streams and reducing waste water volumes.

Our water use and discharge is reported on the following pages.



### AUTONOMOUS AND ELECTRIC TRUCKS TO BOOST SAFETY AND EFFICIENCY

Since 2021, Dyno Nobel has been testing our prototype semi-autonomous mobile processing units (MPUs) to fill blast holes with explosives. These units were designed and built inhouse, and in 2022 have been deployed to customer sites for field trials.

This year we have made further progress in our goal to develop fully autonomous MPUs. Autonomous MPUs have the potential to take people out of harm's way while improving operational efficiency.

Also in 2021, we began the development of emissions-free electric MPU vehicles. In 2022, we worked on designing approximately 40 tonne MPU vehicles to run on battery power delivered from renewable energy depots, which will be located on customer mine sites. The components for building a prototype unit have been ordered with the first prototype due for testing in 2023.

<sup>1</sup> The WRI Aqueduct Water Tool identifies 'Baseline water stress' by measuring the ratio of total annual water withdrawals to total available annual renewable supply, accounting for upstream consumptive use. Higher ratings indicate more competition among users, with 'High' being 40-80%.

### Water and Waste

During the year under review, we conducted waste analyses in our initiation systems business across two sites and two processes to assess exactly where waste streams occur. This analysis included water use, energy use and waste generation. As a result, these sites now have action plans to reduce waste and aim to roll these insights into other plants and processes as applicable.

### Water use and discharge

In 2022, Dyno Nobel used 34,674 megalitres of water. Over 91% of that water was surface water. Our water discharge was 28,872 megalitres and more than 90% of that water was discharged as clean water.

### Increasing the recycling and reuse of solid waste

In 2022, Dyno Nobel reduced overall solid waste by over 15%, generating 5,187 tonnes of solid waste compared to 6,312 tonnes in 2021. Over 2022 we more than halved the amount of hazardous waste produced when compared to 2021. As a business, Dyno Nobel now recycles more than 50% of its solid waste compared to around 30% in 2019.

### Liquid waste

In 2022, Dyno Nobel sites generated 4,926 kilolitres of liquid waste. That is a reduction of around 30% on our 2021 liquid waste total of 7,040 kilolitres. In 2022 we cut our output of hazardous liquid waste by over 30%. We now recycle over 96% of our liquid waste.



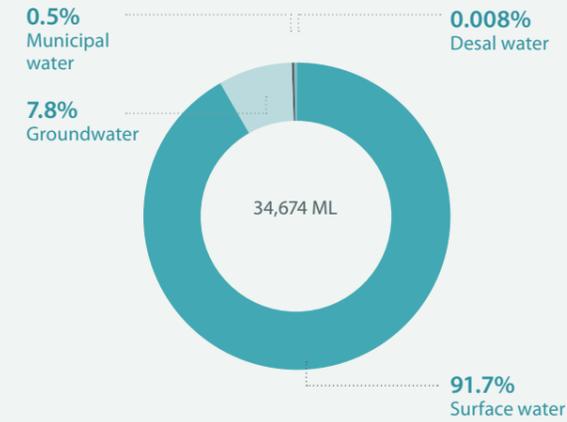
### OIL RECYCLING CUTS COSTS AND BENEFITS THE ENVIRONMENT

Dyno Nobel is dedicated to reducing waste in mining operations and has introduced an innovative technology that uses mine waste oil in blasting agents via circular economy-style systems. Reusing waste oil reduces the cost of blasting and improves a number of outcomes for our mining customers, where costly or undesirable disposal methods for waste oil have historically been used. The initiative boosts environmental outcomes by eliminating the storing, handling or shipping of used oil to a third party for refining or disposal.

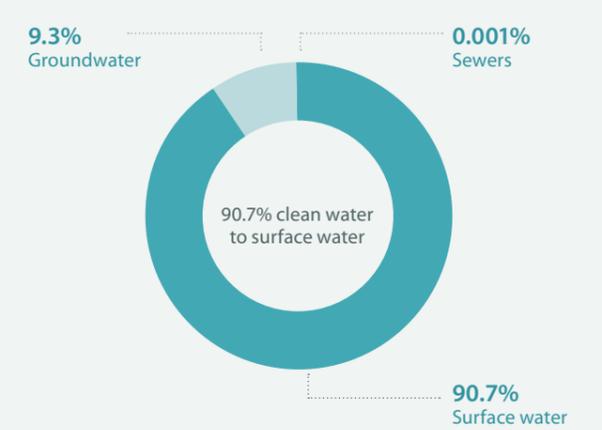
Savings achieved through this approach can include up to 50% reduction of diesel use in ANFO (an industrial explosive consisting of ammonium nitrate and fuel oil). This delivers an immediate reduction in blasting costs to mining customers.

The technology has been integrated into the daily operations of many Dyno Nobel customers in Asia Pacific and the Americas.

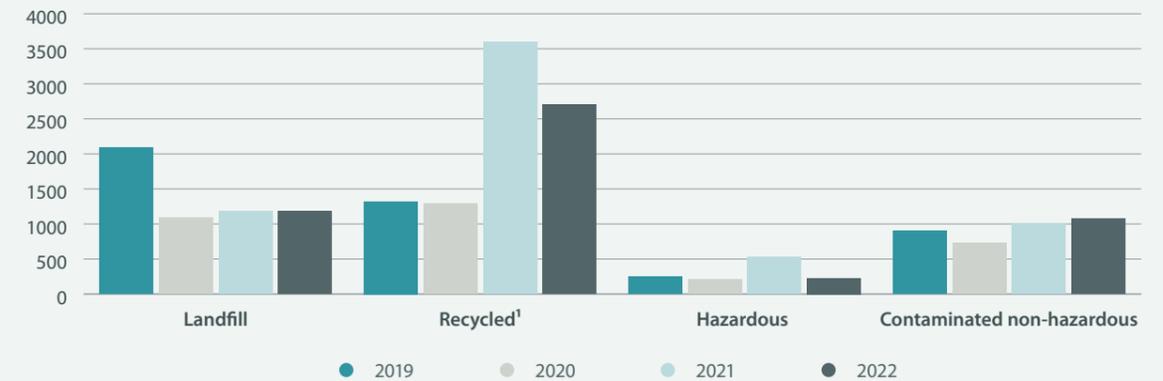
### Dyno Nobel Water Use by Source (megalitres)



### Dyno Nobel Water Discharge by Destination

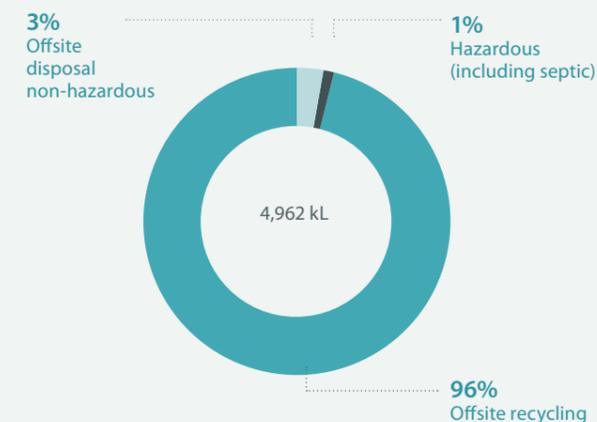


### Dyno Nobel Solid Waste (metric tonnes)



<sup>1</sup> Dyno Nobel has recycled less waste in 2022 compared to 2021 because we have reduced the total volume of solid wastes created across the business in 2022 compared to 2021. In 2022, we recycled more than 50% of our solid waste.

### Dyno Nobel Liquid Waste by Destination (kilolitres)





# SOCIAL TOPICS

Dyno Nobel works across more than nine countries and six continents. Around 60% of Dyno Nobel’s R&D work is devoted to assisting our customers with their individual site challenges. We have a unique relationship with each of our customers and work closely with teams on customer mining sites to deliver solutions tailored specifically to each site’s needs.

## RECIPROCAL PARTNERSHIPS WITH CUSTOMERS AND SUPPLIERS

### Customer partnerships

We work with our customers on site to solve operational challenges, engage in collaborative problem-solving and deploy dedicated Customer Relationship Managers to harness and focus our resources and expertise to help customers.

In addition, we run technical workshops and invest in collaborative R&D. Our customers in the mining sector are focused on reducing their environmental footprint and improving their sustainability – including their own plans to achieve Net Zero. As we have a focus on reducing our Scope 3 emissions – which include GHG emissions from the manufacture of the goods they purchase from us – our ability to innovate in this space works for both partners.

### Innovation in responsible and sustainable products and services

Our focus on innovation and technology helps us achieve better environmental and social outcomes. For example, our DeltaE™ has been shown to create less flyrock, less dust and noise – all of which is an improvement for communities located near our mining customers. It also reduces NOx and GHG emissions. See the Case Study on page 30. Our development of automated MPU trucks also aims to remove workers from the more hazardous areas of operational mine sites, reducing risk to workers.

Our broad range of advanced electronic initiation systems gives users much greater control over the blast management and execution process. The systems facilitate significant improvements in blast execution efficiency, minimising operator time on each blast, lowering exposure to higher-risk activities and can be triggered remotely from a distance, leading to further safety improvements for mine workers.

Dyno Nobel growth strategies include expansion into new geographies where sophisticated explosive technologies such as ours are still underused. As a result, the successful growth of our business should result in more optimal environmental outcomes whilst generating productivity, safety and profitability benefits for customers.

The development of new products often occurs in response to specific customer needs. As a result, our innovative technologies are trialled collaboratively at customer mine sites during their development, which ensures they are fit-for-purpose and will be deployed. Our technology collaboration pipeline is structured using seven gates ranging from Idea Capture (Gate 1) to Commercialisation (Gate 7).

During 2022, seven new products passed through Gate 7 to the commercialisation stage. These were:

- Our CyberDet I unidirectional wireless detonator which allows for safer mining methods in challenging mining situations.
- Ranger Electronic Initiation System Ranger with ViewShot Lite software which improves safety through precise and reliable blasting in quarries and small mines.
- Alternate Sensitisation of Site Mixed Explosive (SME). This is a new mechanical gassing technology, replacing chemical gassing. It improves the safety of depot and loading operations and reduces chemicals usage.
- Nobel Fire software upgrades including 2D Blast Design which supports record keeping and monitoring of blasts and can improve fragmentation and vibration outcomes.
- Shock Resistant Shell and Trojan Shield which improve safety through reduction in misfires.
- Next Gen Reactive and Hot Ground emulsions, which increase safety through avoidance of unplanned detonation.
- BlastWeb II – designed to improve safety through remote (surface) activation of precise and reliable blasting in underground mines.

### Sustainable supply chain

The IPL Supplier Code of Conduct supports our commitment to a sustainable and inclusive supply chain that opens opportunities to Indigenous businesses.

We have incorporated this approach into our procurement processes and are now a member of [Supply Nation](#), who provide businesses with Australia’s leading database of verified Indigenous businesses. Access to this database means we can employ their approved suppliers in our operations.

We are also increasingly focused on building supply chain resilience. Issues such as geopolitical tension and the pressures COVID-19 lockdowns put on global supply chains have heightened discussion around the value of domestic manufacturing. Dyno Nobel supply chain teams have been working to broaden our supply chain, address geographic risks and reduce reliance on single suppliers.

During 2022, key Dyno Nobel employees served on the new IPL Human Rights Working Group. This group was responsible for an external review of the Company’s efforts to manage human rights and modern slavery across the supply chains of both key IPL businesses.

As part of that work the Company completed its first ‘deep dive’ ESG supplier. This is important work for Dyno Nobel, as some of our products are used in markets and countries where there is a risk of human rights concerns. Some of the measures rolled out to address these risks include a new modern slavery general awareness e-learning module across our global operations and specialised training for our procurement and supply chain teams.

As discussed in our [2022 Modern Slavery Report](#), we are building our overall capacity and capability to understand, identify and manage modern slavery risks.

### RELATIONSHIPS WITH OUR COMMUNITIES THAT BUILD TRUST AND RESILIENCE

#### Community safety, support and connection

Our Sustainable Communities Policy outlines our commitment to:

- listen to and work with the community;
- strive to be a valued corporate citizen;
- respect our neighbours, their values and cultural heritage; and
- be considerate of them in carrying out our operations.

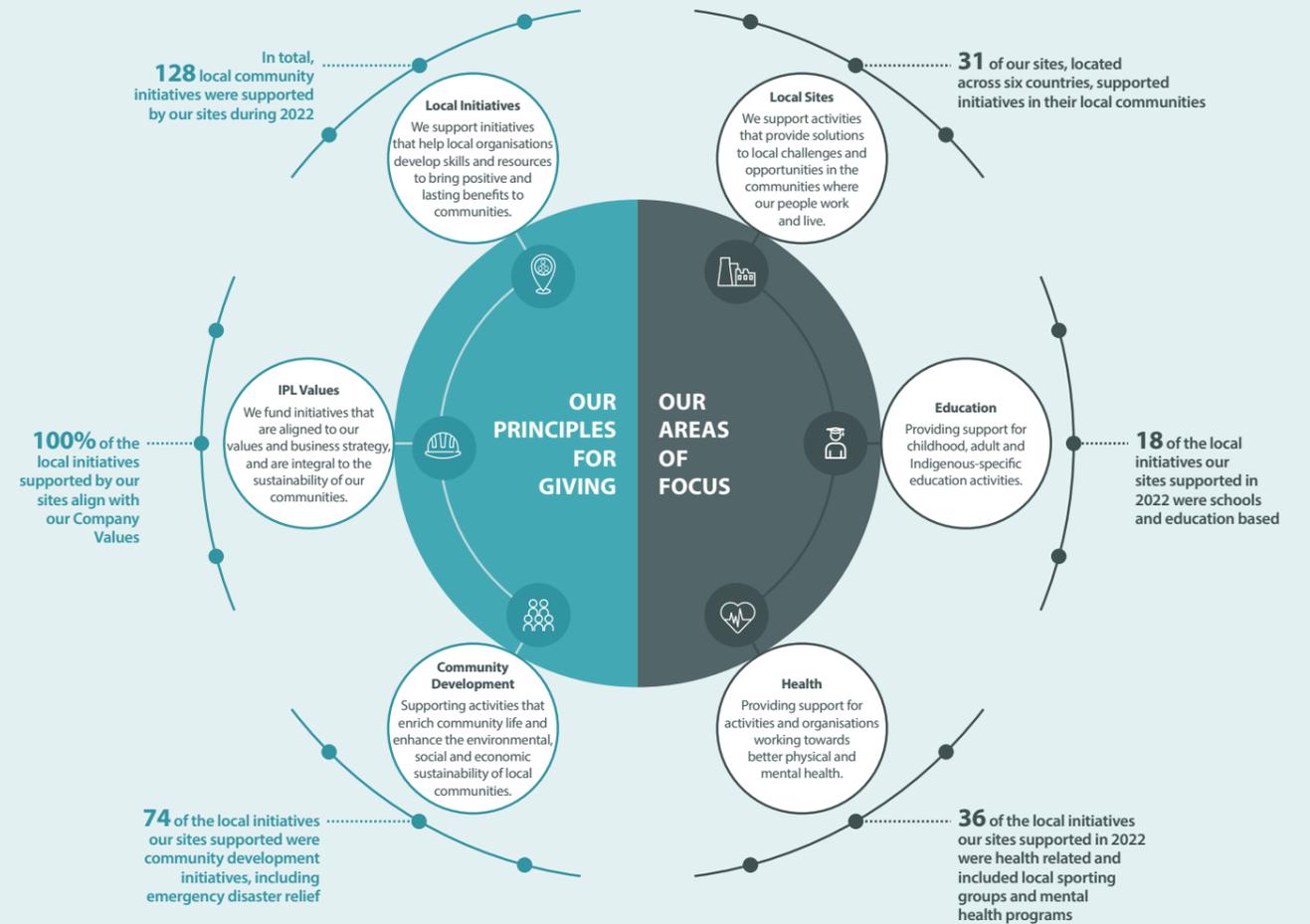
Day-to-day responsibility for assessing our community impacts and implementing community engagement programs rests with local management at each of our sites, as our site managers best understand their needs and concerns. Local priorities are informed by our Community HSEC Standard, which sets our minimum requirements for engagement.

### Community building highlights

Across the global Dyno Nobel business we have seen multiple examples of an active and grassroots approach to community engagement in 2022.

- Dyno Nobel’s Helidon site in Queensland celebrated NAIDOC Week by gathering at the site’s new explosive finished goods magazine. The theme for NAIDOC Week 2022 was Get up! Stand up! Show up!
- Representatives of the local Yuggara people were on site for Welcome to Country and a local elder performed a Smoking Ceremony. A Welcome to Country is a ceremony performed by Traditional Custodians to welcome visitors to their ancestral land. These ceremonies were followed by an afternoon tea with a cake baked by a Helidon employee, Amanda Mailman, that included each Indigenous employee’s country symbol.
- At our Planta Austral site in Chile, Dyno Nobel staff and members of the local community got together on World Children’s Day, the anniversary of the United Nations Universal Declaration of the Rights of the Child. At the Las Barrancas School, Dyno Nobel staff presented gifts for the school and the children.
- In 2022, our employees in Louisiana, Missouri supported a range of health and wellbeing activities in their local community. These included sponsoring a golf team for the Pike County Memorial Hospital Foundation’s ‘Tee Off Fore Tots’ Golf Tournament which raises funds to support the health of local children.
- At our Cheyenne, Wyoming plants employees work with Court Appointed Advocates For Children, or CASA of Laramie County, a non-profit organisation that advocates for children in their local community. With CASA’s help, they identify families needing support and our staff deliver a full Thanksgiving meal to around 15 local families each November.
- July marked the 10th anniversary of our Moranbah site in Queensland. To celebrate, Dyno Nobel gave paintings by Barada Barna Traditional Owner Benjamin Isaacs to two local primary schools and donated welders and a lathe to the Moranbah State High School. IPL’s MD&CEO Jeanne Johns, DNAP President Greg Hayne and IPL CFO Paul Victor attended a dinner celebrating the 11 employees who have worked at the facility since Day 1.
- Dyno Nobel’s Helidon Initiating Systems manufacturing site continued the tradition of hosting the annual Porgera Memorial Golf Day on 6 May, which drew 110 players and raised a net \$18,000 to donate to Autism Spectrum Australia and to the Salvation Army Christmas Food Appeal. For the Salvation Army Christmas Food Appeal, many of our Helidon employees volunteer to shop for and pack food hampers, then deliver them to families experiencing hardship. This year Dyno Nobel staff were packing the hampers alongside the Salvation Army Team in Toowoomba. Key executives from across the wider business, including CEO Jeanne Johns, were there to support them.

### IPL’S COMMUNITY INVESTMENT FRAMEWORK





# GOVERNANCE TOPICS

Dyno Nobel has a 180-year history. That history proves that good corporate governance is an essential element of commercial success.

## GOOD GOVERNANCE DRIVES SUSTAINABLE RETURNS AND LEADS TO BETTER SOLUTIONS

Our shareholders, our customers and our employees want us to be a good corporate citizen, growing our shareholders' wealth whilst contributing to the society and the communities we work in and protecting our planet and its people.

We recognise that good corporate governance, the G in ESG, includes the strategic management of our interactions with a wide range of external stakeholders, including governments, business partners, customers and shareholders. Our stakeholder engagement strategies are reported in the [2022 GRI Index and Data Supplement](#) on page 18. The issues which fall into this governance category, and our strategic management of them for better, more sustainable outcomes, are discussed below.

For more information on governance, see the [2022 IPL Corporate Governance Statement](#).

### Active engagement in ESG issues

Dyno Nobel is committed to engaging with and delivering for our stakeholders across a range of ESG issues.

During 2022, IPL became a participant in the United Nations Global Compact (UNGC). We will be reporting annually on our progress in implementing the UNGC's Ten Principles on human rights, labour, environment and anti-corruption. We are also participating in the Global Compact Network Australia's (UNGCNA) Modern Slavery Community of Practice (CoP).

### Industry and government collaboration on green technology towards Net Zero

The path towards the greener energy that will power the world towards Net Zero is a shared path and Dyno Nobel is working with the Australian Government to explore that opportunity. We have expertise in the manufacture, storage and transportation of ammonia and are well placed to play a role in 'green hydrogen' and green ammonia projects aimed at building a low carbon economy.

Projects coming out of the Inflation Reduction Act in the US offer the prospect of more technology and manufacturing partnerships in areas such as blue ammonia, green ammonia and green hydrogen. Similarly, there are opportunities available to partner with other entities and we are exploring the most efficient and effective ways to evaluate and contribute to these partnerships.

### Keppel/Temasek partnership

Dyno Nobel is currently engaging with the New South Wales and Queensland governments and partnering with Keppel Infrastructure Partners and Temasek to assess a green ammonia export opportunity. The two Singaporean giants have proposed the development of a green ammonia supply chain to meet demand for carbon-free energy. Singapore has identified green ammonia as a key element of its energy transition goals and it will be a core market. Dyno Nobel and our partners are currently evaluating infrastructure and approval pathways and a decision to move to a pre-FEED status is expected by the end of first-quarter 2023.

### Technology as an enabler and disruptor

Technology is a key commercial differentiator for Dyno Nobel and the technology advancements we achieve are often the result of partnerships with our customers. We are seeing evidence every day that this approach also delivers innovation that improves sustainability outcomes. Indeed, we are strategically focused on delivering products that improve on multiple metrics – productivity, efficiency, safety and reduced environmental impacts.

### Layers of innovation

- In 2022, Dyno Nobel launched seven new products, which are described under '[Innovation in responsible and sustainable products and services](#)'. As described, all of them are designed to help our mining customers deliver better results through the technologies we use. In addition, a recent trial of our DeltaE™ technology in partnership with a mining customer showed initial results indicating a 25% reduction in GHG emissions. We have engaged a third party to independently verify these results.

The business works to ensure it has systems in place to both understand our regulatory obligations and to execute against those obligations.

- There are a range of innovation projects across Dyno Nobel involving our Mobile Processing Units (MPUs), which are vehicles used to carry, blend and deliver explosives to boreholes at customer mining operations. We have a semi-automated MPU in field trials which offers the prospect of reducing human exposure to hazardous mine locations. Similarly, we are developing electric MPUs and MPUs with flexible use bins. At this early stage it appears these innovations may lead to as much as a 20% reduction in trips. Reduced trips mean less human risk, less energy use, lower GHG emissions and increased productivity.
- Our sites which service the Florida quarry markets in the US have seen a big demand for the use of clean fuels, as all the oils we use must be free of trace contamination from specific aromatic hydrocarbons due to Florida’s high water table. In response to this challenge, we moved to using recycled waste oils some years ago. We also recycle emulsions and are exploring the use of renewable diesel – a process improvement that is popular amongst our customers.

**Regulatory risk management**

Part of being a responsible corporate citizen is complying with relevant laws and regulation. For Dyno Nobel – which works across multiple jurisdictions – this can be a complex task.

The business works to ensure it has systems in place to both understand our regulatory obligations and to execute against those obligations.

The business also does significant ‘boundary riding’ work – assessing upcoming/proposed regulations and how they might impact our industry and our operations. This precautionary principle is also built into our self-assessment, such as site inspections, where we look for potential as well as current environmental impacts.

To enhance our regulatory risk management effort, Dyno Nobel works with specialist providers who give us an additional layer of insight. This level of commitment to regulatory risk management is necessitated by the layers of regulation in many of our jurisdictions – such as Federal legislation in the US and State rules in its 50 States. The provider analyses both proposed bills and changes and updates to extant legislation.

Dyno Nobel also participates in trade and industry organisations such as the IME (Institute of Makers of Explosives). These professional and industry connections are important to our regulatory risk management, and we ensure that key employees across our business, those who are closest to our customers and markets, are kept abreast of regulatory developments.



**DIGISHOT PLUS ENHANCEMENTS ALLOW FOR SAFER BLASTING**

Dyno Nobel is dedicated to ongoing product innovation that helps our customers operate more safely and sustainably. The newly developed enhancements to our electronic blasting system, ‘DigiShot Plus’, include differential GPS and new features that allow for a wireless blast controlled through a tagger. The product has easy-to-use, menu-driven software that is updated regularly, and gives customers a wide range of specialised blasting configurations. The technology saves customers time spent on the bench and reduces misfires, cutting the costs of blasting.

The BHP-Mitsubishi Alliance’s Caval Ridge Mine in the Bowen Basin used DigiShot’s electronic blasting technology to create the world’s largest electronic blast, recording significant safety, efficiency and cost improvements.

In October 2022, the recently acquired **Titanobel** represented IPL at the **Minerals Industry Congress in Marseilles** and used the opportunity to promote the **DigiShot system**.



**CYBERDET: FIRST WIRELESS DETONATOR BLAST IN WESTERN AUSTRALIA**

In 2021 Dyno Nobel completed the first underground wireless detonator blast using its new technology ‘CyberDet I’. The underground blast was completed at Westgold Resources’ Big Bell gold mine in Western Australia and produced outstanding results.

We introduced this technological innovation after customer feedback highlighted the need for improved safety in underground mining operations. ‘CyberDet I’ is a wireless initiation system that communicates through the rock strata without the use of a physical downline (harness line in the hole) or external connecting wires (lead line). The portable design allows operators to work in a safer environment during the loading process, keeping them away from open brows and improving efficiency. The successful blast in Western Australia represents a significant milestone in Dyno Nobel’s commitment to improve safety in hazardous underground mining environments.

We are planning further technology development and are trialling the application at other sites around the world.





# OUR FERTILISER BUSINESS

Incitec Pivot Fertilisers' long history in the Australian fertiliser industry goes back over 100 years, demonstrating its resilience through variable weather conditions, and agricultural and economic cycles.

With an unrivalled position across Eastern Australia, it is one of the largest domestic manufacturers and suppliers of fertilisers by volume produced from its domestically located manufacturing facilities, including the ammonium phosphate fertiliser plant at Phosphate Hill, complemented by the world-scale sulphuric acid plant at Mount Isa, the Gibson Island ammonia manufacturing plant, where conversion to green ammonia is being investigated, and the Geelong Single Super Phosphate (SSP) manufacturing plant.

Its distribution network includes 18 primary distribution centres and stretches from Cairns in North Queensland down the eastern and southern Australian coasts to Port Lincoln in South Australia.

During 2022, IPF acquired the Easy Liquids (formerly Yara Nipro) liquid fertiliser business and invested in Australian Bio Fert (ABF). Internationally, IPF sells to major offshore agricultural markets in Asia Pacific, the Indian subcontinent, Brazil and the United States. IPF also procures fertilisers from overseas manufacturers to meet domestic seasonal peaks for its customers' diversified crops.

# OUR INCITEC PIVOT FERTILISERS OPERATIONS

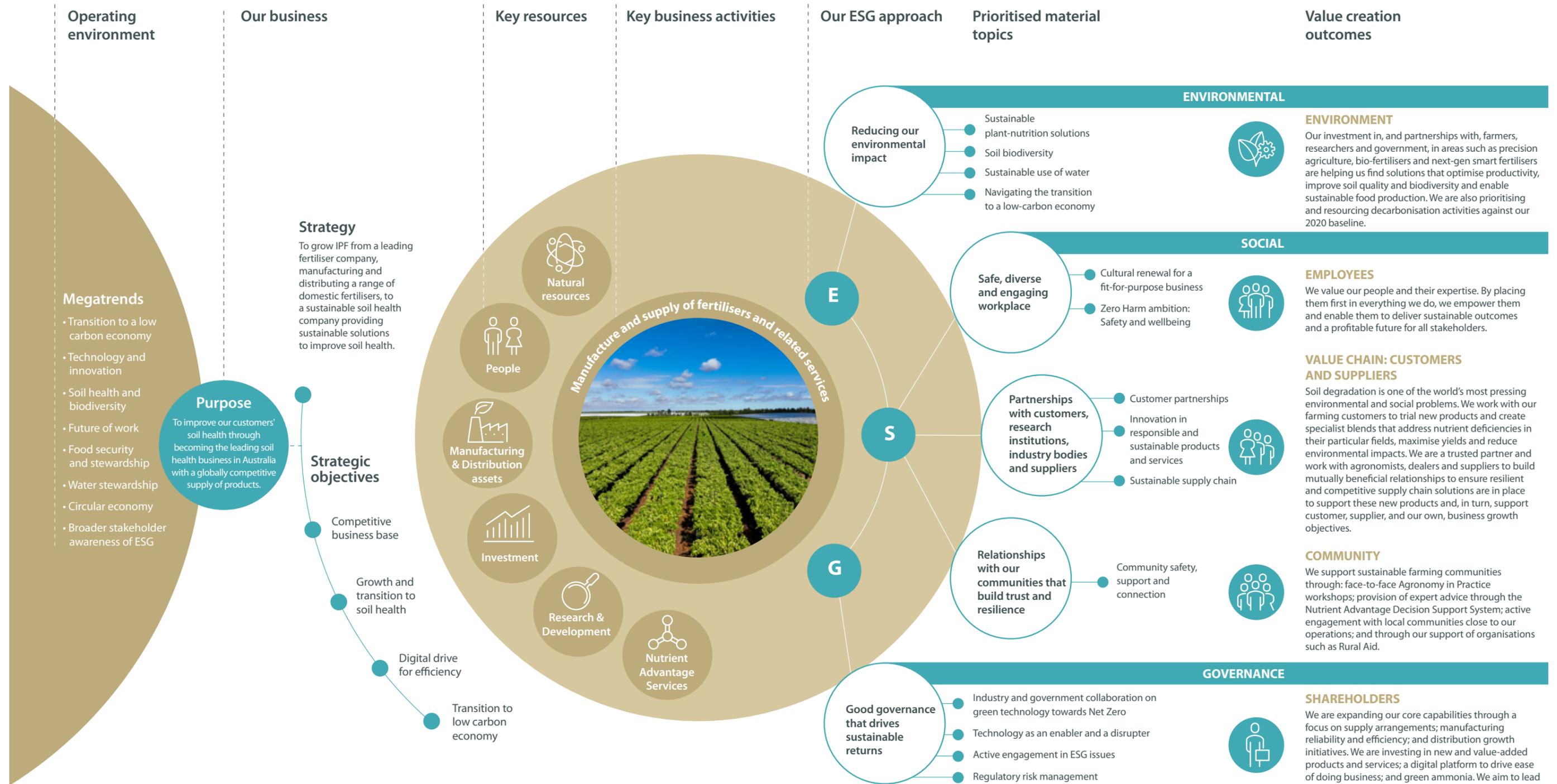
<b>3</b> Manufacturing facilities	<b>1</b> Soil and plant testing laboratory
<b>18</b> Primary Distribution Centres (PDCs)	<b>9</b> Export regions
<b>&gt;800kt</b> Fertiliser storage	<b>&gt;1mt</b> Produced
<b>39.7%</b> of east coast fertiliser market supplied	<b>&gt;1.8mt</b> Distributed

**Incitec Pivot Fertilisers**

- Primary Distribution Centres
- ① Regional Service Centres
- ⊙ Regional Offices
- Soil treating and plant testing laboratory
- ▲ Manufacturing site
- ★ Headquarters



# How we create value





# ENVIRONMENTAL TOPICS

We understand the urgency driving decarbonisation and are actively seeking ways to reduce the greenhouse gas (GHG) emissions from our manufacturing and distribution operations, as well as those arising from our supply chain and the use of our products.

## SUSTAINABLE PLANT-NUTRITION SOLUTIONS

Rising food insecurity, particularly across Asia, and the diminishing volume and quality of arable land available to produce food and fibre is driving a heightened need for land to be more productive, and farm production methods to be more sustainable. This, in turn, is driving the increasing demand for more efficient and sustainable fertiliser products that support greater crop yields and quality, while reducing environmental impacts.

Fertilisers are added to soil to supply essential plant nutrients which promote plant growth, improve disease resistance and enhance yields. It is estimated that almost half of the world's population is currently fed from the increased yields achieved using fertilisers<sup>1</sup>.

We are investing in next generation sustainable fertilisers to maintain food security as the world is increasingly required to produce more food on less cleared land, while reducing GHG emissions and maintaining soil health. Our most recent investments include acquiring the Easy Liquids (formerly Yara Nipro) liquid fertiliser business and investing in Australian Bio Fert Pty Ltd (ABF) to develop a new category of sustainable fertilisers made from recycled poultry waste.

### Liquid fertilisers

Easy N<sup>®</sup>, the centrepiece of IPF's range of 'Easy Liquids', contains a high concentration of nitrogen in the form of urea ammonium nitrate (UAN). Easy N<sup>®</sup> offers a flexible way to apply nitrogen (such as through a boom spray), and can be easily stored in on-farm tanks, with a lower volatilisation potential, reducing the amount of ammonia lost to the atmosphere.

Liquid fertilisers offer significant sustainability and productivity benefits for farmers and agronomists. As well as providing a convenient storage option without the risk of deterioration and reducing the need for manual handling, they allow for custom and precision application of nutrients, leading to more cost effective and sustainable plant nutrition solutions.

Additionally, liquid fertilisers can be applied in any season, wet or dry, enabling flexibility for farmers when planning their programs. This is a crucial benefit, as the ability to adapt to changing environmental conditions has become a key issue for Australian farmers to manage the impacts of climate change.

The recently acquired liquid fertiliser business has operations in Moree and Whitton in New South Wales, and Boundary Bend in Victoria, and will help us meet growing demand, provide us with additional liquid fertiliser options, add expertise to our team and enhance supply security for farmers across the east coast of Australia.

### Key Brands



<sup>1</sup> Ritchie, H (2017) How many people does synthetic fertilizer feed? Our World in Data, Global Change Data Lab, [How many people does synthetic fertilizer feed? - Our World in Data](#). Easy N is a registered trademark of IPL.

### Fertilisers made from recycled organic waste

In 2022, we invested in Australian Bio Fert who is seeking to build Australia's first large-scale plant to deliver a new category of fertilisers for Australian farmers, made from recycled organic waste materials and mineral fertilisers. The plant, near Lethbridge Victoria, is targeted to be complete in 2024 and, at full production, could produce up to 75,000 tonnes a year. It will use a process where organic waste materials sourced predominantly from the poultry industry are heated to high temperatures in a confined chamber with little or no oxygen to produce a dry, friable product which is free of harmful pathogens. This safe organic material can be compounded with other fertilisers to streamline traditional practices of separate fertiliser and compost applications. It will not only enable our fertiliser business to create safe bio-fert products with consistent and guaranteed quality, but, importantly, it will also create regional jobs.

The investment marks a significant contribution for more circular and environmentally friendly products and is part of IPF's plan to transform its fertiliser business into a leading soil health company.

### An important role in the agriculture industry

As Australia's largest onshore manufacturer of plant nutrition products, we aim to play an important role in the agriculture industry's target of being a \$100 billion industry by 2030. Equally, we believe our Enhanced Efficiency Fertiliser (EEF) range will play an important role in decarbonising the agriculture sector, underpinned by:

- the expectation for strong growth of EEFs, globally and in Australia, as GHG emission reduction targets are extended to agriculture. EEFs contain nitrification and/or urease inhibitors which have been shown to reduce GHG emissions as N<sub>2</sub>O from fields by up to 70%<sup>2</sup>;
- the trend of countries, New Zealand and the UK being two examples, in either limiting application rates of nitrogen or considering mandating the use of nitrogen inhibited fertilisers; and
- the development of methods to quantify the GHG reductions associated with EEFs, which could provide farmers with financial incentives to switch to these fertilisers.

**Our soil health strategy is to deliver market leading products and services that provide farmers with more sustainable plant nutrition solutions, help manage input costs, increase productivity and crop yields and improve the health of their most valuable asset, their soil.**

2 Results from a field trial conducted in a ryegrass pasture system in south-western Victoria show the application of EEF with the inhibitor DMPP reduced N<sub>2</sub>O emissions by 73% when compared to urea application alone. See the Australian Government Department of Agriculture, Water and the Environment Climate Research Program: Reducing Nitrous Oxide Emissions, p.5. See also: Suter, H., Lam, S. K., Walker, C., & Chen, D. (2020). Enhanced efficiency fertilisers reduce nitrous oxide emissions and improve fertiliser 15N recovery in a Southern Australian pasture. The Science of the total environment, 699, 134147. <https://doi.org/10.1016/j.scitotenv.2019.134147>. Trigger is a registered trademark of IFO.

### SOIL HEALTH AND BIODIVERSITY

The importance of soil health is becoming recognised as a key farming priority. As such, we are seeing increasing demand for solutions that address challenges faced by growers, such as variations and declines in soil health across arable land, which are impacting yields.

To this end, we are investing in various soil health initiatives such as expanding our soil testing and fertiliser blend recommendation services through our analytical laboratory, Nutrient Advantage, which offers specialist soil, plant and water testing to advisors and farmers.

The laboratory on the east coast of Australia has an outstanding track record and tests around 200,000 samples every year in its purpose-built facility in Werribee, Victoria. It has been widely regarded as one of Australia's leading nutrient testing laboratories for almost 60 years and has a broad range of National Association of Testing Authorities (NATA) accredited soil and plant tests.

During 2021, the laboratory launched a new soil health package to provide farmers with precise objective analysis and industry leading agronomic advice to help build healthier soils. The package includes tests for total carbon (C), total nitrogen (N), C:N ratio, aggregate slaking and dispersion, active (labile) carbon and microbial respiration (activity estimation).

In addition to our experienced agronomists, Nutrient Advantage uses a digital platform to generate data-driven insights and recommendations for growers based on laboratory test results, local growing conditions and farm management practices. Recommendations include customised fertiliser blends and practices for optimising nutrient efficiency and yields. Since 2020, we have provided an online and mobile service that allows data from soil or plant tissue to be updated in real time so test results are available as soon as they are completed.

To further help farmers improve the health and quality of their soils, we have introduced granular humate to our range of products, which can be co-located with applied fertilisers. Trigger<sup>®</sup>, an air-dried, low-dust product, has a high concentration of humic acid, which not only improves soil health and quality, but also imparts its benefits directly into the root zone, increasing nutrient availability, which can lead to increased yield and crop quality.

### Advancing understanding

Our strategic alliance with Precision Agriculture represents a combined investment to better understand and improve soil health and find sustainable plant-nutrition solutions. Together with Precision Agriculture, we are collecting, curating and interpreting soil data to achieve a better understanding of nutrient distribution in soils. This enables a more advanced understanding and management of paddocks, allowing farmers to adapt fertiliser application as soil characteristics change across a field.

The result is application of the right product at the right place to achieve maximum yields while reducing the total amount of fertiliser applied, reducing the potential for nutrient losses to the environment. We are currently also consulting with a range of institutions to find additional, innovative solutions to enhance soil health. Our research partnerships are listed on page 19 of our 2022 GRI Index and Data Supplement.

IPF's laboratory testing facilities and services play a key role in supporting the partnership with Precision Agriculture. Our soil health strategy is underpinned by the following approach to fertiliser use:

#### USE ONLY WHAT IS NEEDED



#### Nutrient Advantage

**Soil health starts with building a strong base of soil, crop and nutrient knowledge.**

- We operate Australia's largest state-of-the-art soil, plant and water testing laboratory.
- Our soil testing, undertaken by experienced agronomists, generates customised fertiliser-blend recommendations for our farming customers to optimise nutrient efficiency and yields.
- Our aim is to expand our existing advisor network and service offering to double the number of tests over the next five years by adding capacity and enhancing testing ranges.

#### USE IT WHERE IT IS NEEDED



#### Partnering with Precision Agriculture

**Variation in yields and soil is not addressed by conventional application. Technology and automation can enable variable rate application, delivering precise quantities to each location.**

- IPF is the exclusive supplier of laboratory services to Precision Agriculture.

#### USE IT EFFICIENTLY



#### Liquid fertilisers

**These are a proven, easy, safe and more precise way to deliver large-scale applications.**

- We have access to large storage capacity and logistics capability for distribution of liquids on the east coast of Australia and run Agronomy workshops to share our knowledge.

#### Australian Bio-Fertilisers

**Investing in creating a new category of organo-mineral fertilisers produced from processed poultry waste and mineral fertiliser. The resulting pelletised product allows farmers to apply both organic and traditional applications in a single pass and fits the circular economy megatrend.**

- We have invested in Aust Bio Fert which has plans to build Australia's first large-scale bio-fertiliser plant to develop this new fertiliser category.

#### USE IT, DON'T LOSE IT



#### Enhanced Efficiency Fertilisers (EEFs)

**These products help minimise nutrient losses to waterways and to the atmosphere as GHG emissions.**

- We have leading proprietary inhibitor brands coating and continue to invest in capacity and capability to develop, support and drive growth in EEF products as the drive to decarbonise intensifies.

## SUSTAINABLE USE OF WATER

Data is fundamental to understanding water-related risks, where they are highest, and what drives them. In addition to IPL's comprehensive annual risk management process, to measure, map and mitigate our water risks, we conduct an annual water risk assessment for our major manufacturing sites, using the World Resources Institute (WRI) Aqueduct Water Tool. The Tool provides projections of rainfall, population and expected baseline water stress for each region to 2025, 2030 and 2040, and has identified several sites in Australia which may experience water stress by 2025. In light of this, IPF has set a target of a 25% reduction in Australian municipal water use by 2025.

### Gibson Island

The Water Tool identified our Gibson Island ammonia manufacturing site, which uses high volumes of cooling water, as being located in a catchment currently subject to high (40-80%) baseline water stress and high 'physical risk – water quantity' due to a relatively large local population and high inter-annual variability in rainfall.

The Water Tool also predicts that baseline water stress in the catchment will double by 2030 due to climate change and a growing population. We have worked with Seqwater, the Queensland Bulk Water Supply Authority, and Urban Utilities to enable the supply of recycled water to the site. We have also invested \$4 million in infrastructure, including a dedicated pipeline, to ultimately enable around 6,000 kL a day of recycled water to be delivered to the site for use. During 2022, 799,674 kL of recycled water was used, replacing 32% of the site's municipal water use and reflecting an 11% reduction compared to last year.

This project will not only help provide an uninterrupted supply in the event that municipal water supplies become restricted, but will also leave around 6,000kL per day in municipal water supply dams for our communities.

### Phosphate Hill

Our Phosphate Hill manufacturing plant is located in the Georgina Basin in remote North-west Queensland close to a natural phosphate rock deposit. While the WRI Water Tool identifies this site as being at 'low-to-medium' overall water risk, it is classified as being in an area of high inter-annual variability of rainfall.

To ensure supply, we draw groundwater under licence from the phosphate orebody, which is porous and contains an aquifer called the Duchess Embayment Aquifer (DEA).

We conduct modelling, using 39 monitoring bores, to assess any potential changes across the embayment. We also submit an annual performance report to the Queensland Government Department of Natural Resources and Mines each year, as well as completing an annual aquifer review.

Our Phosphate Hill site's commitment to reducing water usage wherever possible includes reclaiming water from waste gypsum stacks, as well as reusing process water to allow phosphates to be recaptured and the extraction of fresh groundwater to be reduced. Our major use of water is for cooling. As with Gibson Island, our major use of water at Phosphate Hill is for cooling and at both these sites, cooling water is recycled multiple times until it evaporates.

### Geelong

The process used to manufacture the single super phosphate fertilisers that our Geelong site in Victoria produces requires much less water than ammonia manufacture. However, the site has been identified by the WRI Water Tool as being in a water catchment subject to high baseline water stress and of 'medium-to-high' overall water risk.

The site obtains its water from the Victorian government's largest regional urban water management body, Barwon Region Water Corporation. Barwon water is predominantly sourced from forested catchments on the upper Barwon and Moorabool rivers, but during periods of prolonged drought, water is sourced from underground aquifers via the Barwon Downs and Anglesea bore fields. In extreme drought, the water management body can also access supply from the City of Melbourne's water grid via the Melbourne-to-Geelong pipeline, a 59-kilometre underground pipeline which is part of the State's long-term plan to secure the region's water supply into the future.

Water saving strategies at the site include capturing, treating and reusing large volumes of stormwater. In 2022, 9,683 kL was treated and re-used. Because of its high nutrient content, as a result of the fertiliser dust it collects, we cannot allow it to run into local waterways. Treating and reusing it in the plant means we reduce the impact of high nutrient runoff, as well as reducing the use of municipal water.

We also undertook a site-wide project to identify further potential water savings. Collecting rooftop rainwater and using rainfall prediction models to more closely manage levels and capacities of water storage ponds were identified as options to reduce reliance on municipal water supplies by up to 7,000 kL per year, and increase the amount of stormwater collected and recycled.

### Mount Isa

With an estimated population of 22,000, the mining town of Mount Isa is the administrative, commercial and industrial centre for Queensland's vast north-western region. Our Mount Isa site manufactures sulphuric acid using waste sulphur obtained from a nearby metal ore smelter. This process uses less water than ammonia manufacture, however steam is also used at the site to generate electricity from the waste heat captured from the sulphuric acid-making process.

Water for the site is obtained through the Mount Isa Water Board which manages supply for the region from two man-made lakes. Water is drawn mostly from Lake Moondarra, owned by a metal ore mining company, but transported by the Mount Isa Water Board 13 kilometres downstream of Mount Isa, and pumped 60 kilometres up from Lake Julius in times of extreme drought to ensure supply is maintained.

Although identified by the WRI Water Tool as being located in a catchment where overall water risk is 'low-to-medium' and baseline water stress is 'low' (due to the small population), Mount Isa is also identified as an area of extremely high inter-annual variability.

In addition to condensing all steam used in the on-site electricity generation turbine, to save water we also return any water drained from our cooling towers to the nearby metal ore mine as process water.

While total rainfall is expected to increase across the north of Australia due to climate change, our analysis to manage climate-related issues at the site identified that pre-emptive actions to secure access to water in advance of potential future water restrictions should be investigated and implemented.

### Townsville

Our Townsville site is a fertiliser bulk blending and bagging facility which has operated for more than 25 years. It supplies local farmers with over 75,000 tonnes of customer blends each year, using a combination of ammonium phosphate, sulphur and urea-based fertilisers. Due to the impacts that these essential plant nutrients can have on local waterways, many of our fertiliser sites operate under environmental licence conditions which limit stormwater nutrient levels.

To go beyond compliance and minimise risks to the environment, at our Townsville site we have:

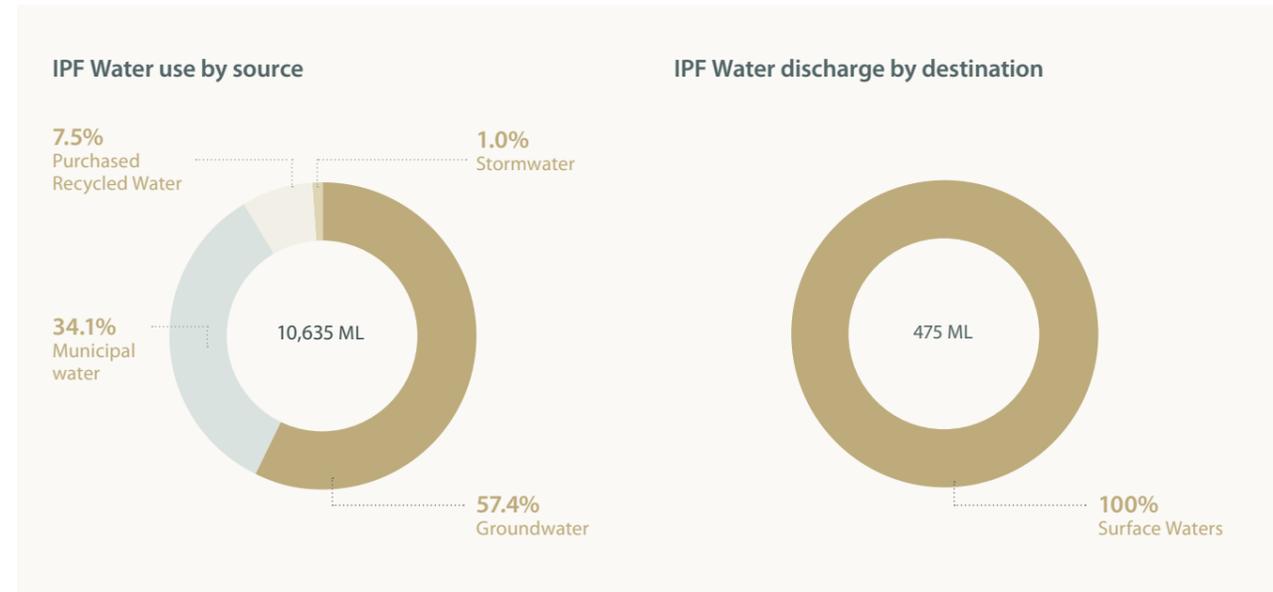
- implemented bulk truck 'doorway wheel washing' to mitigate tracking of residual fertiliser outside sheds;
- erected new awning, cleaning and collection facilities at the bulk shed exit door;
- installed a permanent wheel-wash bath before the site's exit;
- resealed the bagging tower to prevent dust escaping and settling on site surfaces, where it could wash into drains during rain;

- installed a permanent stormwater cut-off gate;
- increased our capacity to collect and store 'first flush' rainwater, with a new 200,000 litre catchment tank farm;
- obtained EPA approval to reuse this captured water for cleaning activities and the site wheel bath, reducing site water use; and
- obtained EPA approval to allow captured nutrient rich water to be applied to land and used as a liquid fertiliser, diverting it away from waste streams to a beneficial use and saving A\$2m annually.

As a result of our site staff developing, implementing and proudly owning leading practice environmental solutions, the risk of environmental licence non-compliance and environmental harm has been significantly decreased and in 2020 the site's operational areas released zero stormwater to the environment.

### Water use and discharge

In 2022, IPF used 10,635 megalitres of water. Most of our fertiliser sites are zero discharge sites, except for Gibson Island and Geelong, where discharge is released after treatment and under licence.



### Increasing the recycling and reuse of solid waste

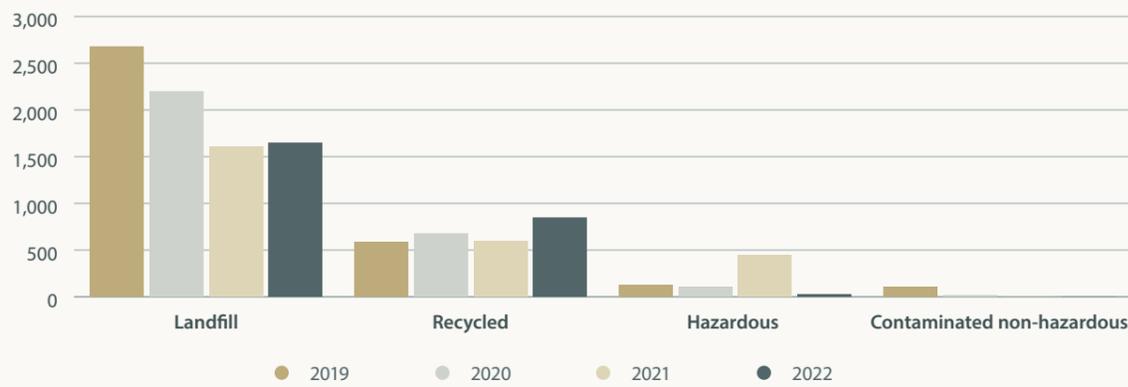
In 2022, IPF reduced overall solid waste by 5%, generating 2,520 tonnes of solid waste compared to 2,644 tonnes in 2021. Over 2022 we significantly reduced the amount of hazardous waste we produced, from more 443 tonnes in 2021 to 25 tonnes in 2022. Our fertiliser business now recycles 846 tonnes or 34% compared to around 17% in 2019. Our Phosphate Hill site generated 2,561,843 tonnes of solid chemical waste in 2021, a 19% decrease from the previous year. This was directly due to decreased production at the site.

### Liquid waste by destination

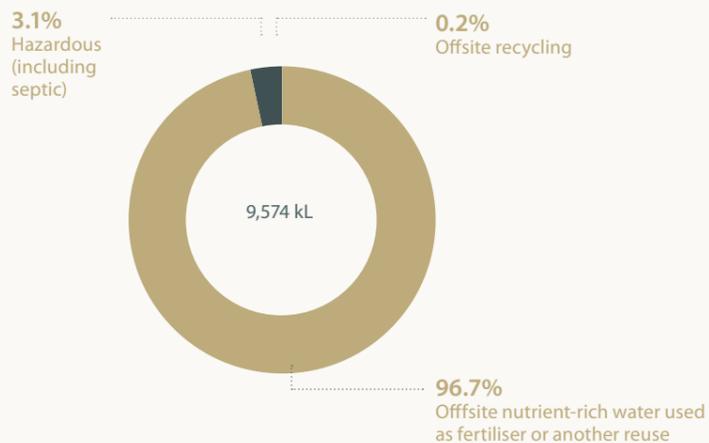
In 2022, of the 9,574 kilolitres of liquid waste sent offsite, 9,256 kilolitres or 96.7% of this nutrient-rich water was repurposed as a fertiliser product by farmers or used for another purpose downstream; as a woodchip additive, for example.

Our 2022 liquid waste total includes 295 kilolitres, or 3.1%, that is hazardous liquid waste.

IPF solid waste (metric tonnes)



IPF liquid waste by destination (kilolitres)



### NAVIGATING THE TRANSITION TO A LOW CARBON ECONOMY

Climate change is a material and strategic issue for our fertiliser business, which faces a number of transitional and physical risks that will require ongoing and active management. On the positive side however, the global decarbonisation and energy transition that is occurring in response to climate change has not only increased awareness of sustainability issues more broadly but is also presenting multiple opportunities for our fertiliser business.

An increased focus on sustainable soil health, restoring soil biodiversity and soil carbon, increasing demand for bio-fertilisers, and demand for products that result in lower GHG emissions, such as our EEF range, all offer opportunities for growth. Soil health services include soil and plant testing, Nutrient Advantage software and precision application of fertilisers which means less nutrients are required to maximise yields, further reducing farming impacts on nearby waterways and the environment.

The IPL Board is fully committed to working with all stakeholders to create a greener, more sustainable world. In November 2022, we released our second standalone TCFD aligned Climate Change Report outlining our short-term absolute reduction target of 5% by 2025, 25% by 2030 with pathway to >42% and our ambition to reach Net Zero emissions by 2050, or sooner if practicable.

These targets are supported by a number of decarbonisation projects across IPL's global businesses.

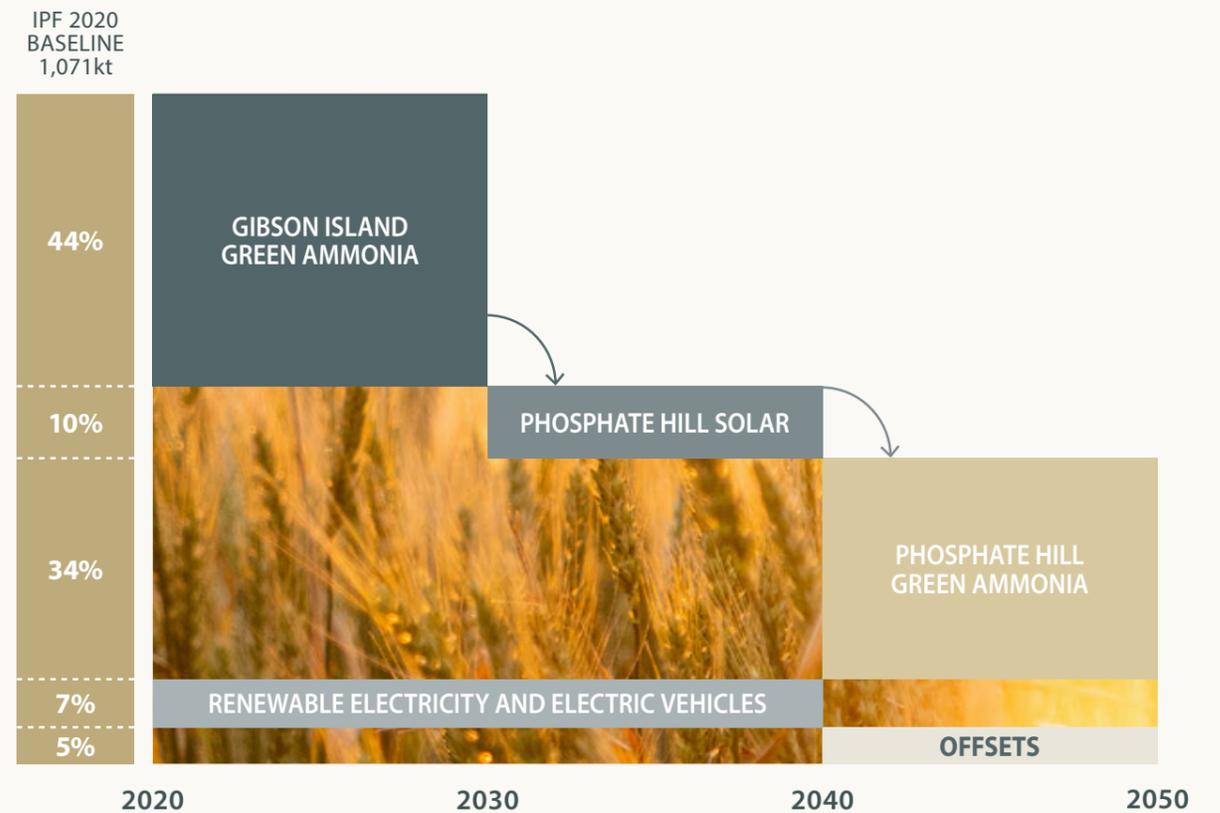
We are currently reviewing our Scope 3 emissions baseline to inform the prioritisation and resourcing of decarbonisation activities. As indicated previously, we have already identified several strategic levers including:

- our focus on soil health and precision agriculture, which aims to help farmers increase yields of food and fibre on their existing cleared land;
- EEFs, which have been shown to reduce customer GHG from fertiliser use by between 70% to 86%;
- bio-ferts which use organic waste material;
- working with Fertiliser Australia to develop a method to recognise the GHG reductions associated with EEFs so as to financially incentivise the uptake of these fertilisers; and
- GHG emissions reduction opportunity of 44% by 2030 – underpinned by green ammonia potential at Gibson Island.

Our target is to have a framework and systems in place by 2023 to allow us to track and manage Scope 3 GHG by 2025.

A detailed discussion of both the risks and opportunities identified for Incitec Pivot Fertilisers can be found in the [IPL Climate Change Report \(2022\)](#).

Scope 1 and 2: Emissions reduction pathway





# SOCIAL TOPICS

Food and agribusiness are critical to Australia’s economy. The agriculture sector employs around 280,000 people, and is forecast to have a total value of \$80.4 billion in 2022-23, with aims to achieve \$100 billion in farm gate output by 2030<sup>1</sup>. Increased efficiency and productivity are essential to the sector’s international competitiveness. Through investment, expansion and partnerships, our fertiliser business has an opportunity to play a leading role in helping Australian farmers improve profitability and, importantly, minimise their environmental impact.

## CUSTOMER PARTNERSHIPS

Our customers are increasingly focused on technical innovation to drive yield and manage cost and environmental impact. We are well positioned to provide leading technology solutions to meet their needs.

Our third Enhanced Efficiency Fertiliser, eNpower<sup>®</sup>, was first released to market in 2019. Since then, our total EEF revenues increased from \$17.6m in 2020 to \$20.1m in 2021 and to \$27.8m in 2022. This marks a growth of 38% in revenue since 2021 and a 58% growth rate over the past two years. Like our Green Urea<sup>®</sup> and Entec<sup>®</sup> products, eNpower<sup>®</sup> is specially formulated to retain nutrients in more stable forms for longer periods, increasing plant nutrient uptake and reducing the likelihood of denitrification losses to the atmosphere as N<sub>2</sub>O (a GHG) and leaching to waterways as nitrate nitrogen.

In addition to reducing the direct nutrient losses, less fertiliser needs to be applied because more of the nitrogen is held in the soil for plant uptake, further reducing potential GHG losses and leaching to waterways. We have invested \$4.3m across Tasmania and the mainland to expand our EEF product coating capacity.

We are also funding partnerships to trial a variety of products across a range of farming types and sizes and to date have provided more than 30 tonnes of products for evaluation on-farm.

We intend to further leverage our strong existing distribution network to provide specialty blends, liquid fertilisers and EEFs across the broadacre grain, cotton, pasture and horticulture segments. We are also upgrading our physical and digital networks to differentiate our product and service offers and enhance the customer experience.

<sup>1</sup> Australian Government Department of Agriculture Fisheries and Forestry (2022) Agricultural Workforce at <https://www.agriculture.gov.au/agriculture-land/farm-food-drought/agricultural-workforce>. eNpower is a registered trademark of IPL. Entec is a registered trademark of Eurochem.



## FERTILISERS THAT REDUCE GHG EMISSIONS

Easy N<sup>®</sup> is a liquid fertiliser with a high nitrogen concentration (42.5% nitrogen w/v). The nitrogen in Easy N is present as a mix of urea, ammonium and nitrate forms, providing the benefit of rapidly available plant nutrition for winter and spring applications when soil conditions are cool and mineralisation rates of nitrogen are low.

N<sub>2</sub>O is lost from the soil under high moisture conditions where bacteria use nitrate nitrogen as an oxygen source. This process is termed denitrification and can also result in significant nitrogen losses. Aside from contributing to GHG, denitrification also denies crops and pastures valuable nitrogen, potentially impacting farm production and quality.

eNpower<sup>®</sup> is a product containing IPF's patented dimethyl pyrazole glycolate (DMPG) formulation, which is a nitrification inhibitor. DMPG works by inhibiting nitrifying bacteria in the soil, slowing down the conversion of ammonium N to nitrate which is more prone to losses like denitrification and leaching.

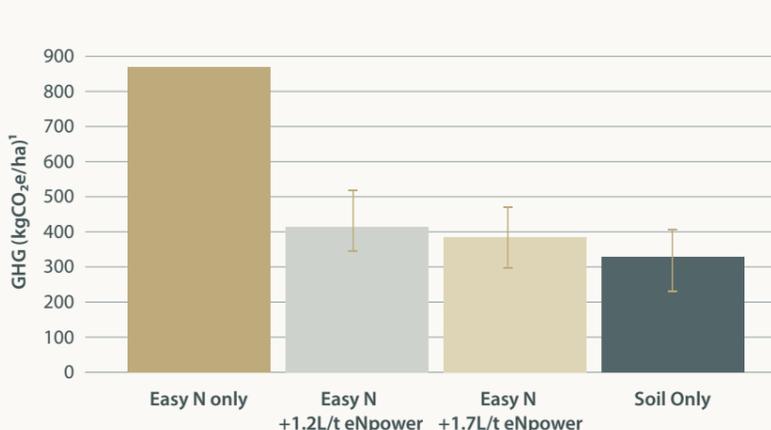
New research has shown that a combined application of Easy N and eNpower<sup>®</sup> gives grain growers, graziers and horticulturalists the ability to reduce greenhouse gas (GHG) emissions associated with nitrogen fertilisation.

Results showed N<sub>2</sub>O equivalent GHG emissions (kg/ha) more than halved over 36 days as a result of applying eNpower<sup>®</sup> on Easy N applied soil, compared to just using Easy N.

This latest research into DMPG further adds to previous research which has been undertaken by other sectors into the impacts of EEFs on reducing N<sub>2</sub>O emissions in sugarcane, cotton and vegetable crops. Research conducted in the sugar industry by Wang et al (2016) showed DMP decreased annual fertiliser-induced N<sub>2</sub>O emissions by approximately 83%.

Easy N also offers flexibility and logistical benefit with respect to application. The product offers the ability to be applied in combination with other products such as trace elements and pest control, combining two farm operations into a single pass application. It can also be applied through a boom spray, allowing a more even application of the product. Additionally, Easy N does not degrade over time which means it can be stored easily on the farm. The results of a recent trial are presented below.

Effect of eNpower<sup>®</sup> on greenhouse gas emissions from Easy N applied soil



Carbon dioxide equivalent greenhouse gas emissions (kg/ha) over 36 days after fertiliser addition.

Soil parameters	Value
pH (1.:5 Water)	5.9
NO <sup>3+</sup> (mg/kg)	30
NH <sup>4+</sup> (mg/kg)	4.6
P (Colwell, mg/kg)	81
Soil Texture	Clay

<sup>1</sup> CO<sub>2</sub> equivalent greenhouse gas emissions is the sum of CO<sub>2</sub> and 'CO<sub>2</sub> equivalent N<sub>2</sub>O emissions'. N<sub>2</sub>O has 265-298 times higher global warming potential than CO<sub>2</sub> in 100 years time horizon which has been taken into account in the calculations. Easy N is a registered trademark of IPL. eNpower is a registered trademark of IPL.



## EVALUATING NEW FERTILISER TECHNOLOGIES

The soil immediately around plant roots – the rhizosphere – is an especially active zone, populated by billions of fungi, bacteria and other microbes. These microorganisms break down organic matter in the soil to produce nutrients that help plants grow, improve their immunity to diseases and promote their resistance to drought, salinity and nitrogen stresses.

Research shows that plants influence how fungi and bacteria behave via chemical signals like sugars, organic acids, lipids and proteins, especially when they lack a specific nutrient or are under stress.

One of the Australian Research Council (ARC) Research Hub projects is focusing on identifying and incorporating these messengers into the coating of fertiliser beads. Beneficial microbes are then attracted by these messengers to the plant root, improving its ability to absorb nitrogen and strengthening resistance to environmental stresses.

Enhanced Efficiency Fertiliser (EEF) coatings may also be able to be designed to include sensors that respond to the signaling molecules released by plants suffering from nitrogen stress. When the sensors detect these stress molecules in the soil, the fertiliser is then released via the coating.

Measuring the nitrogen-loss pathways and yield benefits of existing and newly developed products in field trials will allow the hub to evaluate the agronomic and environmental benefits of new fertiliser technologies. Developing indicators of nitrogen loss will also allow farmers to understand the full impact of their fertiliser management practices on both production and the environment.

## INNOVATION IN RESPONSIBLE AND SUSTAINABLE PRODUCTS AND SERVICES

Worldwide the agricultural sectors use around 135 million tonnes of nitrogen annually, costing farmers around \$US450 billion each year. In Australia farmers pay more than \$4 billion a year for fertilisers, with some of these nutrients potentially being lost to the environment without making it into the crop.

Our commitment to continue the development of new, sustainable fertiliser products that address the sector's impacts, such as nutrient losses to waterways and GHG emissions, while increasing fertiliser efficiency, is demonstrated by our participation as the lead industry partner in the ARC funded Hub for Smart Fertilisers (the Hub).

The aim of the Hub for Smart Fertilisers is to transform nitrogen efficiency by developing new knowledge about the way plants capture nutrients, and the impacts this data will have both on fertiliser design and on the creation of decision-making tools to better manage fertiliser use.

The Hub is a five-year partnership between IPL and Elders Rural Services and the University of Melbourne and La Trobe University. The Hub's \$11.35 million funding includes an investment of \$4.95 million from the Australian Research Council, \$3.8 million from Incitec Pivot Fertilisers, \$2 million from the University of Melbourne, \$100,000 from La Trobe University and \$500,000 from Elders Rural Services Australia.

### Progress to date

During 2022, the Hub has continued its research on the design and development of EEFs. Taking a multidisciplinary approach, the research integrates agronomy and soil science with synthetic chemistry, chemical engineering, plant physiology, plant biochemistry and economics.

IPF's investment in its liquid fertiliser business, together with the soil testing and analysis capabilities of its Nutrient Advantage Laboratory and investment in the ARC Research Hub for Smart Fertilisers, aligns with the Federal Government's National Soil Strategy.

A primary research focus is engineering new fertiliser coatings for the controlled release of nutrients and inhibitors in a range of soil types, climatic conditions and diverse agroecosystems and land uses.

Granular urea is the most widely used form of nitrogen fertiliser in agriculture. Urea is rapidly converted to ammonia through a reaction with water in the soil, and then to nitrate, which plants can then take up. However, if the conversion to ammonia occurs before urea is fully dissolved in the soil, ammonia can be lost to the atmosphere before plants can use it.

A recent study that included researchers from the Hub showed that metal-phenolic networks (shapeless materials that can be used to engineer functional films and particles) can provide a physical barrier against water. This controls the dissolution of urea and its release into soil, thereby reducing the risk of nitrogen losses. This simple MPNs fabrication method is a new chapter in creating environmentally-friendly materials in controlled-release fertilisers.

Another research focus is on developing a new suite of nitrification inhibitors, which are synthetic molecules that slow the conversion of ammonium to nitrate nitrogen. Nitrate nitrogen is subject to denitrification as the GHG N<sub>2</sub>O and N<sub>2</sub> gas. It is also subject to leaching losses into ground water and waterways where it may lead to eutrophication. The aim is to retain desirable forms of nitrogen in the soil for the plant and limit its losses.

These new inhibitors are intended to be tailored to different soils, climates and cropping systems, at the same time ensuring that their eventual degradation in the soil is environmentally benign.

The Hub already has a range of IP under development, including the framework of a smart engineering coating and eco-friendly metal-phenolic networks (MPNs). A new bio-fertiliser research theme and industry placement program have also been established.

It is also developing evidence-based estimates of environmental and health costs of nitrogen losses and the social benefits of new fertilisers which will be an important source to inform government policy, industry and the community.



### GROWING CELERY USING NITRIFICATION INHIBITORS

We are evaluating our new ABF products on a commercial celery farm at Baxter, Victoria. The current study is comparing ABF products with current fertiliser practices including aged manure and conventional fertilisers. The products in the trial contain carbon and nitrification inhibitors aimed at reducing GHG emissions including nitrous oxide (N<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) which are associated with growing crops.

Our R&D agronomists have been collecting GHG samples to test the efficiency of the new product. In previous studies, our nitrification inhibitors have been shown to significantly reduce N<sub>2</sub>O emissions. We are looking forward to further results from this trial study.



### SUSTAINABLE SUPPLY CHAIN

Global supply for fertilisers and commodities continues to be impacted by a number of factors. These include disruption from Russia's invasion of Ukraine; China's fertiliser export restrictions; higher natural gas prices in Europe; supply chain disruption driven by COVID-19; reliance on limited foreign supply sources of phosphate rock; and reduced investment in fertiliser manufacturing capacity globally.

While these externalities are beyond our control, we have undertaken several initiatives to build short and long term resilience in our supply chain and mitigate supply risk. These include:

- Diversifying supply source: A significant supply chain commodity is urea, the most commonly traded nitrogenous fertiliser. To diversify our supply source, in 2021 we announced that we had entered into a 20-year off-take agreement with Perdaman Industries, a Western Australian based multinational group which is currently focused on the production of urea. Perdaman is proposing to build a urea plant in Karratha, Western Australia in 2027. While the project remains conditional on Perdaman reaching a final investment decision, if the project proceeds the offtake agreement will allow us to take up to 2.3 million tonnes a year of granular urea fertilisers, thus securing a competitive long-term domestic supply of urea and helping us meet strong demand from Australian customers and international markets.
- Stress-testing alternatives: A major focus this year has been robustly stress-testing alternative suppliers to counter concentration risk in categories where there are limited supplier pools. Building strategic partnerships and qualifying potential suppliers and their supply chains can take round 24-36 months before a robust, stress-tested alternative is brought on board.

- Building capabilities in modern slavery: Another focus this year has been building our internal capacity and capabilities to identify, assess and manage modern slavery and other human rights risks in the supply chain. To this end, we have:
  - Rolled out a new MS e-learning module and started specialised training for our procurement and supply chain teams to deepen their understanding around risk management, as well as enabling them to conduct comprehensive due diligence and issues-remediation with suppliers.
  - Established a Human Rights Working Group to collaborate across the business to manage human rights issues, champion what we are doing in this space and encourage better representation from different departments across the business.
  - Joined the UN Global Compact, to participate in its Modern Slavery Community of Practice initiative to ensure we apply best practice.
  - Developed a three-year roadmap and implementation plan, following a review of our progress by an external ESG consultancy.
- Moving operations from road to rail: IPF transports approximately 100,000 tonnes of sulphur to Mt Isa a year. We have moved this 900-kilometre road operation to rail, thereby saving costs, removing around 38 heavy vehicles movements per week from a major highway, and reducing weekly emissions by 60 tonnes.
- Improving vetting of information: We have updated our tender documents to collect ESG information on suppliers. We also continue to refine our processes vetting shipping vessels' to better manage counterparty risk. We are more closely measuring metrics in such areas as the number of people attending training courses and completing e-learning modules, the number of suppliers responding to our self-assessment questionnaires, and the number of grievances, including how many related to modern slavery and human rights and how these were resolved.

### Our manufacturing facilities: a critical source of supply

In addition to these initiatives, our large-scale manufacturing facilities provide a critical source of security of supply for our distribution business. This is because they enable greater flexibility to manufacture and distribute product, while at same time affording the ability to respond to changes in the demand from different agriculture regions.

**Phosphate Hill** is Australia's largest fertiliser manufacturing plant and is the only domestic source of Monoammonium Phosphate (MAP) and Diammonium Phosphate (DAP) product in Australia. It is integrated 'from mine to production' with domestic access to sulphuric acid and natural gas in addition to phosphate rock which is mined on-site.

In 2019, we launched a Manufacturing Excellence program, which involved investing substantial capital to address historical production reliability issues and improve future resilience to flood disruption.

While the site itself is not located in the flood zone, a single third-party operated rail line is used for supply into, and product transport out of, the site. Disruptions to this rail line have increased in recent years due to flooding associated with the summer monsoon. In 2016, flood waters caused a derailment of sulphuric acid supply to the site, resulting in a A\$10m impact on EBIT, and in 2019, a one-in-one-hundred-year flooding event damaged third-party rail infrastructure, interrupting rail services to the site for three months. This rail outage required a change from rail to road transport of product for the three months. Production was also halted once product storage was at capacity resulting in a total EBIT impact of A\$115m.

Following this event, a detailed review of contingency plans for rail interruptions at the site was completed. As a result, investments have been made in additional on-site and contingency storage so that future flooding events are less likely to result in production interruptions.

Several other process changes have been implemented which will allow better preparation, management and mitigation of the risks associated with rail interruptions in the future. Had these contingencies been in place before the 2019 flooding event, it is estimated that the impact would have been reduced from A\$115m to approximately A\$30m at 2019 product prices.

Our **Geelong facility**, which began operations in 1924, is Australia's largest producer of Single Superphosphate (SSP) fertiliser. It manufactures quality granulated SSP via its granulation and drying plant. SSP is manufactured using sulphuric acid which is sourced domestically and phosphate rock.

Phosphate rock is a naturally occurring mineral rock and is an internationally traded commodity, with pricing based on international benchmarks, and affected by global supply and demand forces and fluctuations in foreign currency exchange rates. Specific grades are available from limited foreign supply sources.



We have not sourced phosphate rock from Western Sahara since December 2016, securing it instead from locations such as Togo, China and more recently Vietnam. However, in 2022, following disruption of phosphate rock exports from Vietnam, and our inability to source a rock blend that meets stringent composition requirements from alternative sources, we had to rely on a shipment from Western Sahara to support manufacturing at our Geelong site, and ensure the continued supply of essential product to our farming customers.

With regard to the UN Global Compact's ten principles, OECD Guidelines for Multinational Enterprises, as well as relevant provisions of international law and Australian law, we were not in breach of either Australian law or International law, as there has been no determination by the UN or any other competent legal authority that the production and use of phosphate rock from the Non Self Governing Territory of Western Sahara is in violation of any applicable laws. However, we also take our ethical responsibilities very seriously, and are continuing to monitor both the complex situation regarding the Kingdom of Morocco and the status of the Non Self Governing Territory of Western Sahara, which is managed under the auspices of the United Nations, and the availability of alternative rock sources.

Geelong is also the largest of our 18 primary distribution centres, dispatching around 29% of our total fertiliser volume. It comprises two closely located sites, North Shore and Oyster Cove, and is strategically positioned near pastures in Victoria and southern New South Wales, where soils require phosphorous and sulphur for pasture to be productive (superphosphate is the most commonly used fertiliser for improving pastures).

Our 17 other product distribution centres are equally strategically located, being close to key agriculture regions across the Australian eastern seaboard, from Cairns in north Queensland to Port Lincoln in South Australia. Each has access to infrastructure such as ports, unloading facilities and bulk storage to support coastal and international shipping requirements, and many have on-site blending, coating and bagging capabilities.

We also operate seven regional supply centres, which provide distribution support and are responsible for 'just-in-time' dispatch for farmers and short-term finished goods storage. Of the seven, six have on-site blending capabilities.

## RELATIONSHIPS WITH OUR COMMUNITIES THAT BUILD TRUST AND RESILIENCE

### Community safety, support and connection

We are committed to building long-term and meaningful relationships with the communities in which we operate. Our [Sustainable Communities Policy](#) defines our approach to community relations and our Community Investment Framework (see page 37) preferences local approaches, enabling each of our sites to respond to the distinct needs of those who live in and around our areas of operations.

### Sponsorships

- Phosphate Hill is the major sponsor of the Dajarra Campdraft, Rodeo and Gymkhana held annually in September. This year a team of 11 IPF employees volunteered to support the canteen for the three-day event. The whole school (14 students) celebrated their end-of-year fun day at the site and enjoyed a swim, lunch and movie together before they headed back to Dajarra in the afternoon.
- Phosphate Hill was also the major sponsor of the Royal Flying Doctor Service Gala in Mount Isa this year.

### Community donations

In March 2022 IPL donated \$200,000 to support Queensland and New South Wales communities impacted by the devastating floods that raged through Australia in 2022. The donation was equally split between the national non-profit organisation GIVIT and rural charity Rural Aid. In addition to this, IPL employees generously contributed \$10,354, which included fund matching by IPL's Dollar for Dollar matching donation program.

IPL also hosted Australia's Biggest Morning Tea at its head office in Southbank. The event helped the Cancer Council raise funds for vital cancer research, support services, prevention programs and advocacy.



## SERVING THE COMMUNITY THROUGH THE PHOSPHATE HILL EMERGENCY RESPONSE TEAM

Due to the remote location of this site in the Queensland desert, the nearest available State Emergency Services (SES) response team is a minimum two hours away, making it difficult for them to respond to incidents in a timely manner. For this reason, the Phosphate Hill site employs four dedicated professional Emergency Response employees and has approximately 30 volunteer employees who form the IPL Phosphate Hill Emergency Response Team.

At the request of the SES agencies, the team has responded to multiple incidents within the district. Since 2018, these have included a fatal heavy vehicle incident and a cattle road-train roll-over, both on Cloncurry Duchess Road, a light vehicle roll-over northwest of Dajarra, and a missing person/flooded vehicle incident related to flooding of the Burke River.

Due to their valuable service in the remote community, the team became members of the formal Dajarra SES unit within the Queensland Northern Region SES in 2019.

The Phosphate Hill ERT team recently completed its first Cert III mines rescue course with all candidates performing well above expectations. The newly acquired knowledge will not only improve safety at Phosphate Hill but also increase safety on public roads and other sites for the surrounding community.



# GOVERNANCE TOPICS

We recognise that the management of new risks and opportunities, new technologies, emerging sustainability issues and regulatory risks requires sound, strategic governance, including interaction with a wide range of external stakeholders, to achieve sustainable outcomes.

## INDUSTRY AND GOVERNMENT COLLABORATION ON GREEN TECHNOLOGY TOWARDS NET ZERO

Australia's abundant renewable resources make it a prime location for the rapid development of renewable hydrogen. With a core competency in manufacturing, storing and transporting ammonia, we are well placed to play a role in the production of green hydrogen and green ammonia.

While recognising that the development of these green technologies is unpredictable due to direct linkages with government policy and international trade, we aim to be an early participant in these new industry opportunities. We are proactively identifying projects and products that align with our existing competencies and enhance our core business. However, key to success will be building partnerships with credible counterparties throughout the supply chain.

The Gibson Island Green Ammonia project is a partnership between IPL and Fortescue Future Industries (FFI) to investigate green ammonia production at our Gibson Island site. The site has used natural gas to produce hydrogen (H<sub>2</sub>) for the manufacture of ammonia (NH<sub>3</sub>) since it was built in 1969 (obtaining the nitrogen (N) required from the air). The proposal under investigation is for FFI to construct an on-site water electrolysis plant to produce hydrogen from the electrolysis of water (H<sub>2</sub>O) using renewable electricity, thereby dramatically reducing GHG emissions.

It is currently proposed that FFI will build the water electrolysis plant on adjacent land to the ammonia plant, which we will operate.

Already found to be technically feasible, in October 2022 the project secured a A\$13.7m Australian Renewable Energy Agency (ARENA) grant to proceed to Front End Engineering Design (FEED) stage. This will confirm technical specifications and cost, underpin procurement, and prepare it for Final Investment Decision (FID), which is targeted for 2023. Should the project proceed, the first production of green ammonia could occur in 2025.

If successful, this would be Australia's first industrial scale green ammonia production facility, demonstrating existing infrastructure can be retrofitted to use zero-emissions energy sources.

The proposed water electrolysis facility would produce up to 70,000 tonnes of renewable hydrogen per year and replace all of Gibson Island's current gas feedstock for more than 99% of its natural gas energy use. Since natural gas-based ammonia manufacture dominates our GHG profile, if approved this project will reduce IPL's operational GHG by 44% against our 2020 baseline.

The Gibson Island Green Ammonia project could play an important role in developing Australia's hydrogen potential. While green hydrogen is not expected to be competitive with natural gas for ammonia made for traditional uses until around 2040<sup>1</sup>, ammonia made with green hydrogen has the potential to contribute significantly to the decarbonisation of energy systems, by offering a practical carbon-free hydrogen storage and transportation vector as well as a green fuel in its own right.

We are also currently in the process of upgrading Gibson Island's distribution centre facilities, including storage, blending, wharf and product coating capability. The upgrade is scheduled to be completed in 2025, with an expected 300kt per annum throughout, which will make it our second-largest distribution centre.

<sup>1</sup> See our scenarios in Chapter 4 of the 2022 IPL Climate Change Report.



## TECHNOLOGY AS AN ENabler AND DISRUPTOR

In line with our Leading Technology Solutions strategic driver, we continue to invest in a range of research projects to assess the technical and commercial readiness of new technologies. These include: fertiliser technologies for sustained food security, healthy soils for sustainable food production, the development of novel urea coatings and the testing of silicon fertilisers which have been shown to increase heat stress resistance in crops.

Our long-term strategy is to grow from a leading fertiliser Company, manufacturing and distributing a range of domestic fertilisers, to a sustainable soil health Company providing sustainable plant nutrition solutions to improve soil health. This strategy will be leveraged through our expansive distribution footprint to drive new growth products and services towards soil health and changing growing conditions.



## ACTIVE ENGAGEMENT IN ESG ISSUES

ESG is increasingly recognised as core to Company strategy and performance. In the case of our fertiliser business, key Australian agriculture industry groups are aligning to global sustainability targets. Supermarkets are responding to increased consumer demand for low carbon footprint products. There are emerging markets for carbon and ecosystem services for farmers, and others throughout the food value chain.

Environmental regulations are tightening, and farmers and partners in our upstream value chain are preparing to track, and in some cases already tracking and tracing, GHG emissions, exploring sustainable growing practices and finding ways to prevent leaching to rivers and creeks. While some view this as mitigating regulatory risk, early adopters are looking at it as a future-proofing opportunity. Some Australian farmers are also gaining income from carbon sequestration programs, although methodologies and government regulations to support this market are still under development.

Finally, there is a growing movement towards a circular economy with nutrients being extracted from waste sources.

In the face of this rapidly changing landscape, actively managing ESG issues can enhance financial performance, minimise regulatory and legal interventions, improve employee productivity and help companies allocate their investment and capital expenditures more effectively.

We place significant emphasis on the way in which we engage with shareholders and stakeholders on ESG. This Sustainability Report is an important channel of communication and engagement, structured according to the ESG issues most material to each of our businesses and providing stakeholders with a transparent explanation of how we are responding to them. In November last year we released our second TCFD-aligned [Climate Report](#). Our external facing communications, investor presentations, our [2022 Annual Report](#) and our [Corporate Governance Statement](#) all include ESG-related information, creating a more holistic picture of our Company performance.

In August 2022, IPL became a participant in the United Nations Global Compact (UNGC), the world's largest corporate sustainability initiative. As a participant, we will be reporting annually on our progress towards implementing the UNGC's Ten Principles on human rights, labour, the environment and anti-corruption. We are also participating in the Global Compact Network Australia's Modern Slavery Community of Practice.

We are committed to the UNGC's 10 Principles:

### Human Rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2: Make sure that they are not complicit in human rights abuses.

### Labour

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4: The elimination of all forms of forced and compulsory labour;

Principle 5: The effective abolition of child labour; and

Principle 6: The elimination of discrimination in respect of employment and occupation.

### Environment

Principle 7: Business should support a precautionary approach to environmental challenges;

Principle 8: Undertake initiatives to promote greater environmental responsibility; and

Principle 9: Encourage the development and diffusion of environmentally friendly technologies.

### Anti-Corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

## REGULATORY RISK MANAGEMENT

Our businesses, and those of our customers and suppliers, are subject to health, safety and environmental laws and regulations that require specific operating licences and impose various requirements and standards.

Risk management, including regulatory and reputational risk management, is central to our continued growth and success, and the achievement of the Company's objectives and strategy.

To ensure we have the procedures and systems in place to not only determine what our regulatory obligations are, but how we carry them out, we:

- Receive monthly legislative updates, provided by a third-party service provider for all States in Australia. As well as updates on existing legislation, this includes updates on proposed bills and changes, all of which feeds into our assessment of how legislation or upcoming changes could potentially impact our business and/or operations. Additionally, rather than taking a top-down approach, we encourage our site and environmental managers to stay on top of regulatory developments and to have processes to manage environmental legislation within the business.
- Rolled out the iAuditor tool which has improved the quality of site inspections and resulting actions, as well as an understanding of expected standards.



## BAG RECYCLING ANOTHER STEP ON THE ROAD TO A CIRCULAR ECONOMY

Incitec Pivot Fertilisers is incorporating circular economy systems into its operations wherever possible. In 2015 we supported a trial fertiliser bag recycling program (Sugarcane Fertiliser Bag Recovery Trial), partnering with packaging suppliers, recycling companies, councils and government departments to reduce farm waste. The successful trial resulted in the development of the Farm Waste Recovery program, which transitioned into the Big Bag Recovery program in 2021 – an Australian Government accredited product stewardship scheme – to recycle and recover our fertiliser bags.

Eighty-five percent of IPL's products are delivered in bulk and require no packaging but our one-tonne and 25kg bags are made from woven polypropylene (WPP) and low-density polypropylene (LDPE). To divert these bags from landfill, we encourage customers to return them to us, or drop them at the nearest Big Bag Recovery collection point. Participation in the program allowed Big Bag Recovery to recover 305,077 kilograms of waste farm plastic from our customers in 2022. Recycling this packaging waste also avoided an estimated 448 tCO<sub>2</sub>e in GHG and around \$2,500 in landfill costs.



## ENVIRONMENTAL PENALTIES IN 2022

During the 2022 financial year our fertiliser business received five penalty infringement notices, totalling \$65,000, all of which related to pipe leakages at our Mount Isa, Phosphate Hill and Gibson Island sites. The leakages, most of which occurred in sections of the pipe network connecting plants on IPF sites, caused no significant environmental harm. IPF employees identified the leaks and reported them to the appropriate regulatory body. To mitigate the risk of this reoccurring we are conducting more regular inspections of the pipe networks and more clearly identifying and assigning responsibility to site owners.



# GLOSSARY

**Carbon dioxide equivalent (CO<sub>2</sub>e):** The universal unit of measurement to indicate the global warming potential (GWP) of each of the six greenhouse gases, expressed in terms of the GWP of one unit of carbon dioxide. It is used to evaluate releasing (or avoiding releasing) different greenhouse gases against a common basis.

**Cation:** A positively charged atom or molecule. The five most abundant exchangeable cations in soil are calcium (Ca<sup>++</sup>), magnesium (Mg<sup>++</sup>), potassium (K<sup>+</sup>), sodium (Na<sup>+</sup>) and aluminium (Al<sup>+++</sup>).

**Climate:** The weather conditions prevailing in an area/region in general or over a long period.

**Future Climate Related Scenario:** A scenario describes a path of development leading to a particular outcome. A climate change scenario describes a path of development leading to a set degree of rise in temperature above pre-industrial global average temperatures. Our climate scenarios are described in Chapter 4 of the [IPL Climate Change Report \(2022\)](#).

**Global Reporting Initiative (GRI):** a leading organisation in the sustainability field, promoting the use of sustainability reporting as a way for organisations to become more sustainable and contribute to sustainable development. GRI has pioneered and developed a comprehensive Sustainability Reporting Framework that is widely used around the world. To see the GRI indicators covered by our sustainability webpages and publications, see [IPL's GRI Index and Data Supplement](#).

**Group:** The IPL Group, collectively comprising IPL and its subsidiaries.

**Material:** In the context of the GRI Reporting Framework, 'material' topics for a reporting organisation are those topics that have a direct or indirect impact on an organisation's ability to create, preserve or erode economic, environmental and social value for itself, its stakeholders and society at large.

**Megatrend:** Our materiality assessment defines a megatrend as a large, transformative global force that defines the future by having a far-reaching impact on business, economies, industries, societies and individuals. A megatrend is distinguished from other trends in that it cannot be stopped or significantly altered, even by powerful actors such as governments.

**NAIDOC Week:** An Australian observance lasting from the first Sunday in July until the following Sunday. The acronym NAIDOC stands for National Aboriginals and Islanders Day Observance Committee.

**Near miss:** An unplanned event that did not result in injury, illness or damage – but had the potential to do so. The aim of the investigation of 'near miss' events is to identify and mitigate root causes, providing a focus for improvement.

**NOx:** a generic term for the mono-nitrogen oxides NO and NO<sub>2</sub> (nitric oxide and nitrogen dioxide).

**N<sub>2</sub>O:** Nitrous oxide (di-nitrogen oxide), listed as one of six greenhouse gases covered by the Kyoto Protocol and the Greenhouse Gas Protocol.

**Paris Agreement:** A global climate agreement that was reached under the United Nations Framework Convention on Climate Change (UNFCCC) at the 21st Conference of the Parties (COP21) in Paris (30 November to 12 December 2015) to limit average global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

**Physical risks** resulting from climate change can be event driven (acute) or longer-term shifts (chronic) in climate patterns. Physical risks may have financial implications for organisations, such as direct damage to assets and indirect impacts from supply chain disruption. Organisations' financial performance may also be affected by changes in water availability, sourcing and quality; food security; extreme temperature changes impacting organisations' premises, operations, supply chain, transport needs, and employee safety.

**Plant:** The equipment used to manufacture a specific product e.g. ammonia. There may be several plants on a single IPL site.

**Safe Ground:** IPL seeks to create a culture of Safe Ground, which we define as 'an environment of psychological safety in which people feel safe to raise concerns and make suggestions'. It is an essential part of a safety culture.

**Scope 1 emissions:** Direct GHG emissions which occur from sources that are owned or controlled by the Group, for example emissions from combustion in owned or controlled boilers, furnaces, vehicles etc, and emissions from chemical production in owned or controlled process equipment.

**Scope 2 emissions** are GHG emissions which arise from the generation of purchased electricity consumed by the Group. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the Group. Scope 2 emissions physically occur at the facility where this electricity is generated.

**Scope 3 emissions:** A GHG emissions reporting category that allows for the treatment of indirect emissions (other than Scope 1 & 2 emissions). Scope 3 emissions are a consequence of the activities of the Group, but occur from sources not owned or controlled by the Group. Our Scope 3 emissions and calculation methodology are reported in Appendices 3 and 4 of the [IPL Climate Change Report \(2022\)](#).

**Significant Environmental Incident:** Environmental Incidents as assessed against IPL's internal risk matrix with actual consequences of 5 or higher on a 6-level scale. A Category 5 environmental incident is 'a major event or Environmental repeat non-compliance with regulatory, licence or permit conditions leading to prosecution or restriction of operations' and a Category 6 environmental incident is one which results in 'permanent or long-term impacts to water, land, biodiversity, air or ecosystems and requires significant remediation, rectification or investment in mitigation'.

**Site:** A single geographic location where IPL operations take place.

**SOx:** Sulphur oxide emissions, for example, sulphur dioxide (SO<sub>2</sub>). Sulphur oxides arise from the burning of fossil fuels that contain sulphur and during the burning of sulphur to make sulphuric acid.

**Supply chains:** A sub-set of our value chain, referring to the companies who supply the inputs to our operations, such as raw materials for manufacturing, service providers and providers of other inputs such as electricity and water.

**Transition Risk:** Transitioning to a lower-carbon economy may entail extensive policy, legal, technology and market changes to address mitigation and adaptation requirements related to climate change. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial and reputational risk to organisations.

**TCFD:** The Financial Stability Board Task Force on Climate-related Financial Disclosures (TCFD) is a market-driven initiative, set up to develop a set of recommendations for voluntary and consistent climate-related financial risk disclosures in mainstream filings.

**TRIFR:** Total Recordable Injury Frequency Rate – the number of recordable incidents per 200,000 hours worked; includes contractors unless otherwise indicated.

**UN SDGs:** The UN SDGs are a set of 17 goals and 169 targets adopted by world leaders at the United Nations to end poverty, fight inequality and tackle climate change by 2030. Although primarily designed for governments, the SDGs call for action by all countries and stakeholders.

**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. Our supply chain (described above) is a subset of this.