Welcome to your CDP Climate Change Questionnaire 2019

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Incitec Pivot Limited (IPL) is a global diversified industrial chemicals company that supplies explosives, industrial chemicals, fertilisers and related services to the mining, infrastructure & construction, chemicals and agriculture industries. IPL has extensive operations throughout Australia, the United States, Canada, Mexico, Turkey and Indonesia, including over 30 manufacturing plants, scores of distribution centres and well-established channels to market. The Company employs over 4,700 staff worldwide, including almost 2,000 staff in Australia and over 2,400 staff in North America. IPL manufactures a range of fertiliser inputs and products including ammonium phosphates, ammonia, urea, sulphuric acid and superphosphates at five manufacturing sites across eastern Australia and is the only manufacturer of ammonium phosphates and urea in Australia.

Through the Incitec Pivot Fertilisers brand (IPF) IPL is Australia's largest supplier of fertilisers, dispatching approximately two million tonnes each year for use in the grain, cotton, pasture, dairy, sugar and horticulture industries. It operates through a comprehensive network of distributors who supply the product to Australian farmers. IPL has a long-term commitment to investment in soil nutrition research and its Nutrient Advantage laboratory is industry accredited. As a leading provider of nutrition advice to farmers and customers, IPL promotes the sustainable use and safe handling of its fertiliser products to customers and farmers.

Through the Dyno Nobel brand, IPL is the second largest supplier of explosives in Australia and is a market leader in North America. Dyno Nobel branded products include a complete range of commercial explosives including ammonium nitrate, bulk explosives, packaged emulsions and dynamite as well as a range of initiating systems. Services provided include expert technical consulting to customers such as mining companies and their suppliers, quarries and companies supporting the construction industry. In addition, IPL manufactures various industrial chemical products used in water treatment, process manufacturing and other industrial applications.

IPL recognises that building a sustainable future requires the sustainable management of the production of infrastructure, food, clothing, shelter and energy that people need every day. As a manufacturer and supplier of fertilisers, which are used to grow more food and fibre on existing land, and explosives products, which are used for mining, construction and quarrying, we recognise that our role in value creation relates directly to several UN Sustainability Goals, including 'Responsible Consumption and Production', 'Decent Work and Growth' and the production of food for a growing population ('Zero Hunger').

We also recognise the need to balance our economic performance with our environmental and social responsibilities. Those responsibilities include being a good corporate citizen and operating ethically. They include ensuring good governance in our day-to-day business activities and behaving with honesty and integrity in our interactions with communities, employees, customers, and the environment.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years
Row 1	October 1, 2017	September 30, 2018	No

C0.3

(C0.3) Select the countries/regions for which you will be supplying data.

Australia
Canada
Mexico
Turkey
United States of America

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

AUD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.

Operational control

C-CH0.7

(C-CH0.7) Which part of the chemicals value chain does your organization operate in?

Row 1

Bulk organic chemicals

Bulk inorganic chemicals

Ammonia

Fertilizers

Nitric acid

Other chemicals

Other, please specify

Ammonium nitrate (explosives)

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Board Chair	The Company's highest governing body, the Board of Directors, is responsible for charting the direction, policies, strategies and financial objectives of the Company. The Board operates in accordance with the principles set out in its Board Charter. Day-to-day management of Company affairs and the implementation of the corporate strategy and policy initiatives are formally delegated to the Managing Director & CEO, and her direct reports form the Executive Team. Committees of the Board with additional responsibility for specific issues related to climate change include the HSEC Committee of the Board and the Audit and Risk Management Committee of the Board (ARMC). The Board Chairman is a member of the ARMC. During 2018, climate change issues, including those relating to financial risks and opportunities, were managed by the Executive Team. The Executive team member with formal responsibility for managing climate-change related financial risks and opportunities is the CFO. The CFO is a member of the IPL Corporate Strategy Team. Two positions which report to the CFO, specifically, the Corporate Sustainability Manager and the Chief Risk Officer also manage issues related to climate change. Each of these positions also reports to the Board either directly, or through committees of the Board, such as the HSEC Committee and the Audit and Risk Management Committee.

Director on board	The Company's highest governing body, the Board of Directors, is responsible for charting the direction, policies, strategies and financial objectives of the Company. The Board operates in accordance with the principles set out in its Board Charter. Day-to-day management of Company affairs and the implementation of the corporate strategy and policy initiatives are formally delegated to the Managing Director & CEO, and her direct reports form the Executive Team. Committees of the Board with additional responsibility for specific issues related to climate change include the HSEC Committee of the Board and the Audit and Risk Management Committee of the Board (ARMC). During 2018, climate change issues, including those relating to financial risks and opportunities, were managed by the Executive Team. The Executive team member with formal responsibility for managing climate-change related financial risks and opportunities is the CFO. The CFO is a member of the IPL Corporate Strategy Team. Two positions which report to the CFO, specifically, the Corporate Sustainability Manager and the Chief Risk Officer also manage issues related to climate change. Each of these positions also reports to the Board either directly, or through committees of the Board, such as the HSEC Committee and the Audit and Risk Management Committee.
Chief Executive Officer (CEO)	The Company's highest governing body, the Board of Directors, is responsible for charting the direction, policies, strategies and financial objectives of the Company. The Board operates in accordance with the principles set out in its Board Charter. Day-to-day management of Company affairs and the implementation of the corporate strategy and policy initiatives are formally delegated to the Managing Director & CEO, and her direct reports form the Executive Team. Committees of the Board with additional responsibility for specific issues related to climate change include the HSEC Committee of the Board and the Audit and Risk Management Committee of the Board (ARMC). The CEO is a member of the HSEC Committee of the Board. During 2018, climate change issues, including those relating to financial risks and opportunities, were managed by the Executive Team, including the Chief Financial Officer (CFO) and the Executive Commercial Officer (ECO - Commercial Strategy). The Executive Team member with formal responsibility for managing climate-change related financial risks is the CFO. The Executive Team member with responsibility for commercial strategy (including in the context of identified climate change-related risks and opportunities) is the ECO. Both the CFO and ECO are members of the IPL Corporate Strategy Team, along with the CEO. In addition, two positions which report to the CFO, specifically, the Corporate Sustainability Manager and the Chief Risk Officer, also manage issues related to climate change. Each of these positions also reports to the Board either directly, or through committees of the Board, such as the HSEC Committee and the ARMC.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Overseeing major capital expenditures, acquisitions and divestitures	Climate-related issues are integrated into 'reviewing and guiding major plans of action' and 'decision making processes regarding major capital expenditures, acquisitions and divestitures'. This is due to both the nature of our markets (mining, quarry & construction and agriculture, which can be impacted by extreme weather events) and the nature of our main manufacturing process which requires long term access to both gas supply and large volumes of high quality fresh water (for cooling purposes), as well as the management of the physical impacts of extreme weather events. Due to the use of gas as a feedstock, the manufacturing process is also carbon intensive. For these reasons, investment decisions regarding long term capital projects take into account an assessment of likely carbon regulation, changing market forces and market sentiment (which can influence regional gas and water supplies) and possible impacts on customer demand from either market changes or extreme weather events. In addition, the IPL Board receives several briefings a year regarding progress against the IPL 3-year TCFD Plan.
Scheduled – some meetings	Setting performance objectives Monitoring implementation and performance of objectives Monitoring and overseeing progress against goals and targets for addressing climate-related issues	Due to the significant proportion of energy cost in our manufacturing processes, energy efficiency/intensity (and therefore greenhouse gas emissions intensity) has been a major focus in our manufacturing operations for many years. KPIs associated with energy intensity are therefore integrated into our performance metrics at many levels of the organisation. For example, see table on p. 32 of the IPL 2018 Annual Report, which summarises the Strategic Initiatives Condition component for the LTI 2015/18, the LTI 2016/19 and the LTI 2017/20. These include an energy efficiency KPI which supports (and supported) the 2017, 2018, 2019

		and 2020 IPL global greenhouse gas intensity reduction targets, set against a 2015 baseline. In addition, the IPL Board receives several briefings a year regarding progress against the 3-year IPL TCFD Plan.
Scheduled – some meetings	Reviewing and guiding risk management policies	Climate change-related issues are integrated into IPL's risk management processes and reported on in the Principal Risks section of the IPL Annual Reports. During 2018, these included additional risks identified by a comprehensive risk and opportunity analysis using two future climate-related scenarios (a 2 Degree scenario and a 4 Degree scenario). These additional climate-related risks were reviewed in detail by the Audit and Risk Management Committee of the Board and formally assigned to the ET for management. Risk controls and risk control owners are being identified in 2019 and will be reported on to the Board through the established risk management reporting process.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	As important matters arise
Chief Financial Officer (CFO)	Both assessing and managing climate-related risks and opportunities	As important matters arise
Chief Risks Officer (CRO)	Both assessing and managing climate-related risks and opportunities	As important matters arise
Environment/ Sustainability manager	Both assessing and managing climate-related risks and opportunities	As important matters arise

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

The Company's highest governing body, the Board of Directors, is responsible for charting the direction, policies, strategies and financial objectives of the Company. The Board operates in accordance with the principles set out in its Board Charter. Day-to-day management of Company affairs and the implementation of the corporate strategy and policy initiatives are formally delegated to the Managing Director & CEO, and her direct reports form the Executive Team. Committees of the Board with additional responsibility for specific issues related to climate change include the HSEC Committee of the Board and the Audit and Risk Management Committee of the Board (ARMC).

The Executive Team (IPL management) is responsible for the overall design, implementation, management and coordination of the Group's commercial strategy and risk management & internal control system, including the risks and opportunities related to climate change. The Executive Team member with formal responsibility for managing climate-change related financial risks is the CFO. The Executive Team member with responsibility for commercial strategy (including in the context of IPL's identified climate change-related risks and opportunities) is the ECO. Both the CFO and ECO are members of the IPL Corporate Strategy Team, along with the CEO.

During 2018, the Executive Team received reports from, and gave management directives to, several finance team members who assist the ET in managing specific climate change-related issues. These roles are the Corporate Sustainability Manager (CSM) and the Chief Risk Officer (CRO). While each of these positions reports directly or indirectly to the CFO, each also reports to the Executive Team and the IPL Board (either directly or through committees of the Board) throughout the year. These responsibilities of these two positions in relation to climate change are described below:

1. The Corporate Sustainability Manager (CSM) manages the global IPL data base and monitors the energy use, greenhouse gas emissions, water use and discharge of the Company globally (including the management of annual third party carbon and energy audits in Australia and the annual completion of the WRI Aqueduct Water Tool) and engages with site managers and energy engineers regarding site based opportunities for reduction target setting, developments in carbon regulation, and opportunities and applications for energy efficiency and carbon reduction grants. The CSM also engages with external and internal research and development teams on new technologies and products being developed for customers, as well as engaging directly with government departments on the development of carbon regulation in Australia, while monitoring developments in international legislation on carbon and international carbon markets.

2. The Chief Risk Officer (CRO) manages risk, including climate-related financial risks and opportunities (see the Principal Risks section of the 2018 IPL Annual Report, which discusses those climate-related financial risks identified as 'Principal Risks'). The CRO also reviews the WRI Aqueduct Water Tool completed each year by the CSM.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

Yes

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Who is entitled to benefit from these incentives?

Corporate executive team

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

Executive remuneration for members of the Executive Team includes non-financial performance measures relating to Business Excellence, productivity and efficiency/intensity: specifically, 15% of the performance rights in a grant for the LTI 2015/18 include a performance condition which is stated as of "Plant efficiency: As per Project business case (32GJ of gas per metric tonne of ammonia" for the Louisiana Ammonia Project on(see page 32 of the Director's Report: Remuneration Report in the IPL 2018 Annual Report at https://www.incitecpivot.com.au/~/media/Files/IPL/Sustainability/2018%20Sustainability%20Report/IPL_2018_Annual%20Report.pdf). This targeted efficiency/intensity (32 MMBTu of gas per metric tonne of ammonia) supports IPL's 2020 global greenhouse gas emissions targets, which are global emissions intensities of 2.00 tCO2e and 0.4 tCO2e per tonne of ammonia and nitric acid produced respectively by 2020.

Who is entitled to benefit from these incentives?

Chief Executive Officer (CEO)

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

Executive remuneration for members of the Executive Team includes non-financial performance measures relating to Business Excellence, productivity and efficiency/intensity: specifically, 15% of the performance rights in a grant for the LTI 2015/18 include a performance condition which is stated as of "Plant efficiency: As per Project business case (32GJ of gas per metric tonne of ammonia" for the Louisiana Ammonia Project on (see page 32 of the Director's Report: Remuneration Report in the IPL 2018 Annual Report at https://www.incitecpivot.com.au/~/media/Files/IPL/Sustainability/2018%20Sustainability%20Report/IPL_2018_Annual%20Report.pdf)
This targeted efficiency/intensity (32 MMBTu of gas per metric tonne of ammonia) supports IPL's 2020 global greenhouse gas emissions targets, which are global emissions intensities of 2.00 tCO2e and 0.4 tCO2e per tonne of ammonia and nitric acid produced respectively by 2020.

Who is entitled to benefit from these incentives?

Energy manager

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

95% of the company's emissions related to the use of gas as a feedstock and an energy source. Energy is a significant material cost to the business and energy use is closely managed as part of the corporate financial management. Energy efficiency/intensity targets underpin IPL's greenhouse gas intensity reduction targets.

Who is entitled to benefit from these incentives?

Environment/Sustainability manager

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

95% of the company's emissions related to the use of gas as a feedstock and an energy source. Energy is a significant material cost to the business and energy use is closely managed as part of the corporate financial management. Energy efficiency/intensity targets underpin IPL's greenhouse gas intensity reduction targets.

Who is entitled to benefit from these incentives?

Facilities manager

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

95% of the company's emissions related to the use of gas as a feedstock and an energy source. Energy is a significant material cost to the business and energy use is closely managed as part of the corporate financial management. Energy efficiency/intensity targets underpin IPL's greenhouse gas intensity reduction targets.

C2. Risks and opportunities

C2.1

(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.

	From (years)	To (years)	Comment
Short-term	1	3	Assessed annually and addressed in the 'Principal Risks' section of the IPL Annual Reports. IPL has historically made use of a three-year commodity cycle to define 'short-term'.
Medium-term	3	6	Relates to two cycles of the three-year commodities cycle. Medium-term risks associated with climate change were initially assessed in 2010 by an executive cross functional committee established for this specific purpose as part of IPL's Sustainability Strategy, which was formed and approved by the Board in that year. During 2018, IPL engaged a specialist third party to conduct a detailed assessment of the medium-term risks and opportunities associated with climate change using two future climate related scenarios: a 2-degree scenario and a 4-degree scenario.
Long-term	6	22	Long-term risks associated with climate change were initially assessed in 2010 by an executive cross functional committee established for this specific purpose as part of IPL's Sustainability Strategy, which was formed and approved by the Board in that year. During 2018, IPL engaged a specialist third party to conduct a detailed assessment of the medium-term risks and opportunities associated with climate change using two future climate related scenarios: a 2-degree scenario and a 4-degree scenario. The scenarios used longer term horizons to 2040.

C2.2

(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

C2.2a

(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Annually	>6 years	IPL's main manufacturing process currently relies on sustainable access to natural gas and water, and is GHG emissions intensive. In addition, our farming and mining customers, and therefore our markets, can be impacted by extreme weather events such as droughts, floods, hurricanes and tropical cyclones, as can our own manufacturing facilities. For these reasons, the risks associated with these physical aspects of climate change, as well as transitional risks such as market impacts, have been integrated into IPL's existing risk management processes and corporate strategy for many years. In 2018, this comprehensive risk management process was strengthened with the engagement of an expert third party to conduct a detailed assessment of IPL's risks and opportunities using two future climate related scenarios (a 2-degree scenario and a 4-degree scenario). The identified risks are being incorporated into IPL's risk management processes during 2019 using bow-tie analyses to identify risk controls and risk control owners. Control measures include the management of strategic risks and opportunities by the IPL Strategy team. These will be reviewed annually as part of IPL's annual risk review.

C2.2b

(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.

In addition to IPL's comprehensive annual risk management process, the physical and transitional risks and opportunities associated with climate change were initially assessed by a high-level cross functional committee which operated in 2010 for this specific purpose as part of IPL's Sustainability Strategy, which was formed and approved by the Board that year. Physical risks identified at that time include, but are not limited to, impacts from extreme weather events on our farming and mining customers, our assets and our supply chain (including logistics). Impacts relating to transitional risks identified at that time include, but are not limited to, compliance, regulatory and legal risk, reputational risk, and changing market sentiment

impacting on our markets. The opportunities identified are associated with the development of new products, including our enhanced efficiency fertilisers which aim to reduce emissions of N2O (a potent greenhouse gas) and energy efficient explosives technologies which aim to reduce greenhouse gas emissions by using less fossil fuel energy to displace overburden and access ore. These risks and opportunities have been monitored, reviewed and reported on annually in our CDP reports, and the WBCSD Water Tool (now the WRI Aqueduct Water Tool) was completed annually and was reviewed by the Chief Risk Officer.

With the release of the G20 Financial Stability Board Task Force on Climate-related Financial Disclosures (TCFD) report, IPL recognised the need to review our processes in assessing and managing climate change related financial risks and opportunities, and in formulating the related disclosures which inform our investors. In 2018, IPL engaged a specialist third party to create two detailed climate-related future scenarios, to assess the financial risks and opportunities for IPL against these , and to review IPL's risk processes with a view to including the longer term risk horizons associated with climate change. The 2 Degree and 4 Degree future scenarios developed specifically for IPL used the following references:
• The International Energy Agency World Energy Outlook 2017 and 2018 and associated scenarios;
• The Bloomberg New Energy Finance New Energy Outlook 2018 (BNEF NEO);
• The Climate Futures Tool developed by the CSIRO and the Australian Bureau of Meteorology;
• The Climate Explorer Tool developed by the National Oceanographic and Atmospheric Association (NOAA), the WRI Aqueduct Tool developed by the World Resources Institute;
• Inputs from the Intergovernmental Panel on Climate Change (IPCC AR5);
• Inputs from the Louisiana Coastal Protection and Restoration Authority; and
• Inputs from peer reviewed scientific journals from sources including the Proceedings of the National Academy of Sciences of the United States of America (PNAS).

The scenarios each describe how physical climate change and efforts to reduce emissions would impact on areas including carbon pricing and carbon market development, the overall economy, the development of technology, people's consumption patters and social structures, the physical environment, energy and power, agriculture, mining, infrastructure and transport, with the risk assessments considering the financial risks and opportunities for IPL in these areas under each scenario. The scenario based risk assessments also considered the physical and transitional impacts on IPL's 13 major manufacturing operations on an individual and detailed basis.

The identified risks are being incorporated into IPL's risk management processes during 2019 using bowtie analyses to identify risk controls and risk control owners. Control measures include the management of strategic risks and opportunities by the IPL Strategy team.

C2.2c

(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	The current Australian Federal Government 'Direct Action' policy includes IPL facilities under the ERF Safeguard Mechanism
Emerging regulation	Relevant, always included	IPL has manufacturing facilities across various geographical locations that may be impacted by regulatory changes aimed at reducing the impact of, or otherwise addressing, climate change. Any changed regulation could result in an increase to the cost base or operating cost of these plants, and it may not be possible to alter sales prices to offset these cost increases. This includes, but is not restricted to, any regulations relating to reducing carbon emissions. Alternatively, any such regulatory changes may potentially impact the ability of these plants to continue functioning as currently operated. This risk would be heightened if regulatory changes are implemented inconsistently across regions or countries so that IPL's facilities (principally located in Australia and North America) are impacted by regulatory changes while manufacturing facilities of competitors operating in other jurisdictions are less impacted. Carbon pricing currently applies in Australia, and under a 2-degree scenario, rapid action to limit climate change would include a global carbon price by 2020 (short-term risk: 1-3 years). Carbon pricing would increase operational costs as well as costs to transport products, which could impact until 2025, when most shipping options would be retrofitted with zero or low carbon mobility options (e.g. hydrogen). The transition to a global carbon price may give rise to a period of volatility where IPL would not be able to pass through the immediate carbon costs to customers, who may choose to source products more locally where available to avoid these carbon costs.
Technology	Relevant, always included	In the 2 Degree future scenario developed for IPL, the global economic and political environment is highly supportive of investment, deployment and trade of no and low carbon technologies, including in transport, energy, agriculture and new infrastructure builds, whereas in the 4 degree scenario, many regions start to focus on adaptation technologies, especially related to food and water security, and defence related to the protection of these resources. IPL is currently highly dependent on the availability of affordable natural gas, both as a feedstock for hydrogen and as a fuel source. IPL

		continues to monitor developments in the renewables and low carbon energy space, including solar hydrogen (making use of solar energy to manufacture hydrogen from water) production.
Legal	Relevant, always included	A range of legal implications related to climate change are considered, including regulations and carbon pricing.
Market	Relevant, always included	The impacts of climate change on IPL's major markets (mining, quarry & construction, and agriculture) are considered in some detail, and include not only the direct acute and chronic physical impacts, but also the indirect impacts associated with the expected trends of increased recycling of metals, changes in mining trends away from coal towards the minerals required for new technologies, changes in crop growing regions and impacts on global trade and regions as described in the Climate Risk Index (CRI). See https://www.incitecpivot.com.au/sustainability/ipl-online-sustainability-report/sustainability-report/managing-climate-change
Reputation	Relevant, sometimes included	Reputational risks relate to IPL's reporting of the management of climate change related issues.
Acute physical	Relevant, always included	Impacts on Operations (including supply chain): Some of IPL's manufacturing plants are located in areas that are susceptible to extreme weather events, such as hurricanes, tropical storms and tornadoes. An increase in the severity and/or frequency of these extreme weather events as a result of climate change may cause more frequent disruption to IPL's operations directly or as a result of supply chain disruption, which includes transportation of raw materials and finished product via road, rail and water. Impacts such as these may increase in the short term (1-3 years). Under this scenario, insurance premiums would be expected to increase along with a possibility that some events may be excluded from cover. Interruptions to logistics from extreme weather events could result in financial loss if product cannot be stored effectively and degrades.
Chronic physical	Relevant, always included	IPL provides products and services to end markets, individual customers and suppliers that may be impacted by changes to weather patterns resulting from climate change. Changes to the number and/or intensity of storms, hurricanes and other extreme weather events may impact IPL's end markets, primarily mining and agriculture. Water is a key raw material for manufacturing, with the majority used for cooling purposes. In the 4D scenario, it is predicted that average annual rainfall will be reduced, and longer periods of prolonged drought will be created, especially in

		Eastern Australia. Several manufacturing sites are located on coasts and are very close to sea level. A significant rise in sea level combined with a king tide may cause flooding events at these sites from 2030 onwards (considered a long-term risk) particularly with increased storm activity causing storm surges to become more intense.
Upstream	Relevant, always included	Natural gas supply and price risk: Natural gas is one of the major inputs required for the production of ammonia and therefore is a critical feedstock for IPL's nitrogen manufacturing operations. Availability and quality of natural gas are both key factors when sourcing supply. Potential disruption of supply also poses a risk. The Group has various natural gas contracts and supply arrangements for its plants. In respect of the Australian fertiliser operations, there is a risk that a reliable, committed source of natural gas at economically viable prices may not be available following the expiry of current contractual arrangements. The cost of natural gas impacts the variable cost of production of ammonia and can influence the plants' overall competitive position. An increase in the severity and/or frequency of extreme weather events as a result of climate change may interrupt IPL's supply chain, which includes transportation of raw materials and finished product via road, rail and water.
Downstream	Relevant, always included	An increase in the severity and/or frequency of extreme weather events as a result of climate change may interrupt IPL's supply chain, which includes transportation of raw materials and finished product via road, rail and water. Seasonal conditions (particularly rainfall), are a key factor for determining demand and sales of explosives and fertilisers. Any prolonged adverse weather conditions, including the potential impacts of climate change, could impact the future profitability and prospects of IPL. IPL provides products and services to end markets, individual customers and suppliers that may be impacted by changes to weather patterns resulting from climate change. Changes to temperature, the amount of rainfall or the number and/or intensity of storms and other weather events may impact IPL's end markets, primarily mining and agriculture.

C2.2d

(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

The physical and transitional risks and opportunities for IPL associated with climate change, which have been identified during 2018 using scenario analyses, will be incorporated into IPL's existing risk management processes during 2019. IPL uses Bowtie analyses to identify risk controls and risk control owners and, in the case of emerging risks, risk controls include monitoring to identify specific triggers which indicate that the status of a risk has

changed, and specific actions should be taken.Current and emerging risks, such as those related to climate change, and appropriate treatment strategies are monitored on an ongoing basis and reported on to the Board through the established risk management process. These include:
• Management, through the Managing Director & CEO and the Chief Financial Officer, is responsible for the overall design, implementation, management and coordination of the Group's risk management and internal control system, including legal and regulatory risks.
• Each business unit has responsibility for identification and management of risks specific to the business. This is managed through an annual risk workshop, risk register and internal audits aligned to the material business risks.
• Corporate functions are in place to provide sufficient support and guidance to ensure regulatory risks are identified and addressed within the business well in advance.
• Country regulatory risk is regularly reviewed through the Group's risk management framework.
• Where possible, IPL appoints local business leaders and management teams who bring a strong understanding of the local operating environment and strong customer relationships.
• IPL engages with governments and other key stakeholders to ensure potential adverse impacts of proposed fiscal, tax, infrastructure access and regulatory changes are understood and, where possible, mitigated.
• Control measures include the management of strategic risks and opportunities by the IPL Strategy team.

Identified risks, risks descriptions, potential consequences and treatment strategies employed by IPL are reported in the Principal Risks section of IPL's annual reports where they have been identified as such.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Acute: Increased severity of extreme weather events such as cyclones and floods

Type of financial impact

Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions)

Company- specific description

Impacts on Operations (including supply chain): Some of IPL's manufacturing plants are located in areas that are susceptible to extreme weather events, such as hurricanes, tropical storms and tornadoes. An increase in the severity and/or frequency of these extreme weather events as a result of climate change may cause more frequent disruption to IPL's operations directly or as a result of supply chain disruption, which includes transportation of raw materials and finished product via road, rail and water. Impacts such as these may increase in the short term (1-3 years). Under this scenario, insurance premiums would be expected to increase along with a possibility that some events may be excluded from cover.

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

10,000

Potential financial impact figure – maximum (currency)

100,000,000

Explanation of financial impact figure

IPL reported a AUD$20 million impact from flood waters which caused a derailment (North West Queensland) in 2016, and a AUD$10 million impact from floods associated with Cyclone Debbie (Queensland, Australia) in 2017. The higher potential financial impact figure takes into account the impact of a one-in-one hundred year flooding event in the north of Australia, where the intensity of rainfall events are expected to increase.

Management method

• Geographic and market diversification
• IPL's own manufacturing facilities are considered resilient to the anticipated acute physical impacts of climate change, with measures currently in place to manage exposure where sites are located in tornado or hurricane zones.
• Due to its location in a hurricane zone, the Waggaman Louisiana plant was built to comply with wind codes set out by the International Building Code Design Standard IBC 20 and Minimum Design Loads for Buildings and Other Structures ASCE 7-05. The design was signed off by a Louisiana based certified Professional Engineer with experience in design standards for the region, where the impacts of future hurricanes must be considered.
• Safety and evacuation plans are in place for all personnel and sites.
• The Group endeavours to include force majeure clauses in agreements where relevant.
• Insurance policies are in place across the Group.
• The location of the Moranbah facility close to high quality metallurgical coal producers would provide IPL with a strategic advantage over its competitors in the event of supply chain disruption due to extreme weather events.

• Domestic co-location of critical products and diversification away from single source suppliers, already being managed, will assist in managing supply chain interruption.

Cost of management

Comment

See Management Method above: these actions are difficult to quantify.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Customer

Risk type

Physical risk

Primary climate-related risk driver

Acute: Increased severity of extreme weather events such as cyclones and floods

Type of financial impact

Reduced revenues from lower sales/output

Company- specific description

IPL provides products and services to end markets, individual customers and suppliers that may be impacted by changes to weather patterns resulting from climate change. Changes to temperature, the amount of rainfall or the number and/or intensity of storms and other weather events may impact IPL's end markets, primarily mining and agriculture.

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Management method

• The S&OP process incorporates forecasting which enables upcoming seasonal scenario planning and some supply flexibility. Forecasts are based on typical weather conditions and are reviewed on an ongoing basis as the seasons progress to help align supply to changing demand.
• Geographic and market diversification: IPL's Australian fertilisers business operates in all Australian States other than Western Australia. In addition to geographical diversity, there is also diversity across crops – IPL supplies fertilisers for a wide range of agricultural applications – and customers serviced.
• The explosives business operates across North America and Asia Pacific, and in Europe, and is primarily aligned to customers with tier 1 assets, being those with the most efficient operations and best resources. Also, there is diversity in customer base, with products and services supplied for iron ore, base and precious metals, quarry and construction, and thermal and MET coal customers, as well as geographic spread of markets.
• IPL also has the competitive advantage of having explosives and fertiliser manufacturing sites located primarily in Australia and the US, which

will provide the competitive advantage of being able to continue to supply domestic markets. In addition, these are wealthy countries which can afford to rebuild their port infrastructure in the event of rising sea-levels and damage from storm surges and other acute climate changes. For this reason, it is anticipated that IPL will be able to ship to other offshore markets which retain demand in the event that current export regions are impacted.

Cost of management

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Customer

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

Type of financial impact

Reduced revenues from lower sales/output

Company- specific description

A 4-degree climate change scenario indicates fertiliser demand increasing in the short to medium term, as emerging markets demand more meat, before a significant downturn associated with the economic impacts of acute extreme weather events and chronic changes in climatic conditions impacting the ability to grow crops. IPL's Asia-Pacific fertiliser revenue from exports may be impacted in the long-term (6+ years) by a decline in offshore market demand with most South-east Asian countries, which currently are IPL's predominant fertiliser export market, and small island developing states being ranked among the most vulnerable in the world by the Climate Risk Index (CRI).

IPL currently sells up to 15% of its Asia Pacific explosives into international markets, with most of these countries considered emerging or developing. Under a 4-degree climate change scenario, explosives demand in the Asia Pacific region may be impacted in the long term (6+ years) by reduced demand in climate vulnerable nations, as indicated by the (CRI).

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Unknown

Are you able to provide a potential financial impact figure?

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Management method

• Fertiliser demand is likely to grow due to restoration of degraded land to meet growing population needs for food and increased meat and dairy consumption.

• IPL currently exports fertilisers from Australia and may be able to ship to other locations where demand is retained as markets are impacted by chronic changes in climate.

• IPL currently sells fertilisers on the spot market to a geographically diverse group of customers and has no long-term reliance on a particular customer segment.
• IPL also has the competitive advantage of having manufacturing sites located primarily in Australia and the US. These are wealthy countries which can afford to rebuild their port infrastructure in the event of rising sea-levels and damage from storm
surges and other acute climate changes. For this reason, it is anticipated that IPL will be able to ship to other offshore markets which retain demand in the event that current
export regions are impacted by chronic climate change.
• Under a 4-degree climate scenario, the physical impacts of climate change mean that the Quarry & Construction sector is likely to assume a portion of the demand that was
previously taken by climate vulnerable nations in the Asia Pacific region. Many new mines are expected to be developed to supply “new world commodities” for batteries,
renewables and mobility options, however, “new world commodities” are not expected to require the same quantity of explosives as bulk commodities. Therefore, overall explosive volumes would be expected to decrease.

Cost of management

Comment

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Market: Increased cost of raw materials

Type of financial impact

Abrupt and unexpected shifts in energy costs

Company- specific description

Natural Gas supply and price risk: Natural gas is one of the major inputs required for the production of ammonia and therefore is a critical feedstock for IPL's nitrogen manufacturing operations. Availability and quality of natural gas are both key factors when sourcing supply. Potential disruption of supply also poses a risk.

Time horizon

Current

Likelihood

Very likely

Magnitude of impact

Unknown

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

In Australia, several market forces have interacted to affect both natural gas pricing and supply. The situation may be temporary or long term and the impacts may range from a marginal increase in costs to closure of sites and/or transitioning to new technologies.

Management method

• Global geographic diversification of major manufacturing sites
• The Group has short and medium term gas contracts in place for its Australian manufacturing sites, with the exception of Gibson Island. The contracts have various tenures and pricing mechanisms. As part of normal operations, IPL explores new gas supply arrangements where appropriate.
• The US natural gas market is a liquid market, with offtake facilitated by an extensive pipeline infrastructure and pricing commonly referenced to a quoted market price. The Americas business has short term gas supply arrangements in place for its gas needs with market referenced pricing mechanisms.
• Gas supply has been substantially contracted for the Waggaman, Louisiana ammonia plant through to 2021, with pricing determined by reference to the price for gas traded
through the Henry Hub.
• In respect of the Americas business (including the Waggaman, Louisiana ammonia plant), there is an ability to hedge gas prices and the Group reviews its approach to gas hedging in the US on a regular basis.

Cost of management

Comment

Identifier

Risk 5

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Increased pricing of GHG emissions

Type of financial impact

Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

IPL has manufacturing facilities across various geographical locations that may be impacted by regulatory changes aimed at reducing the impact of, or otherwise addressing, climate change. Any changed regulation could result in an increase to the cost base or operating cost of these plants, and it may not be possible to alter sales prices to offset these cost increases. This includes, but is not restricted to, any regulations relating to reducing carbon emissions. Alternatively, any such regulatory changes may potentially impact the ability of these plants to continue functioning as currently operated. This risk would be heightened if regulatory changes are implemented inconsistently across regions or countries so that IPL's facilities (principally located in Australia and North America) are impacted by regulatory changes while manufacturing facilities of competitors operating in other jurisdictions are less impacted.

Carbon pricing currently applies in Australia, and under a 2-degree scenario, rapid action to limit climate change would include a global carbon price by 2020 (short-term risk: 1-3 years). Carbon pricing would increase operational costs as well as costs to transport products, which could impact until 2025, when most shipping options would be retrofitted with zero or low carbon mobility options (e.g. hydrogen). The transition to a global carbon price may give rise to a period of volatility where IPL would not be able to pass through the immediate carbon costs to customers, who may choose to source products more locally where available to avoid these carbon costs.

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Unknown

Are you able to provide a potential financial impact figure?

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Management method

• IPL has a large, diverse supplier group, which would assist in avoiding carbon pricing pass through in the short-term.
• IPL customer agreements provide for the pass through of carbon pricing where possible.
• Domestic co-location of critical products will reduce carbon costs associated with transport. Diversification away from single source suppliers, already being managed, will also assist in managing the potentially volatile/variable costs associated with increased regulation, including carbon pricing, in the period between 2030 and 2040.
• IPL's Strategic Drivers include the development of leading technology solutions which aim to support greenhouse gas reductions for both our manufacturing facilities and our customers.

Cost of management

Comment

Identifier

Risk 6

Where in the value chain does the risk driver occur?

Customer

Risk type

Transition risk

Primary climate-related risk driver

Market: Changing customer behavior

Type of financial impact

Reduced demand for goods and/or services due to shift in consumer preferences

Company- specific description

Under a 2-degree scenario, transitioning away from fossil fuels is likely to significantly decrease demand for thermal coal, with impacts beginning in the short term (1-3 years). However, the technologies associated with renewable energy such as electric vehicles and largescale batteries are likely to expand dramatically, with World Bank estimates indicating that demand for the metals required for these technologies could grow by 1000% under a 2-degree scenario. While these mining operations (which use explosives) mitigate the loss of revenue from the thermal coal market, “new world commodities” do not require the same quantity of explosives as bulk commodities, resulting in lower overall demand and potentially leading to a supply/demand imbalance.

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Unknown

Are you able to provide a potential financial impact figure?

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Management method

• IPL seeks to maintain competitive cost positions in its chosen markets, whilst maintaining quality product and service offerings. This focus on cost and quality positions its business units to compete over the medium to longer term in changing and competitive environments.
• In the 2-degree scenario the reduction in demand for explosives supplying the thermal coal markets will be partly offset by the mining of new world commodities required for
renewable technologies which could be higher margin activity.
• IPL currently buys in a portion of its ammonium nitrate to fulfil current demand and could manage the rapid market change away from thermal coal through reduced purchasing of third-party ammonium nitrate.
• Where practical, IPL prefers to engage in long term customer and supply contractual relationships.
• Pricing and risk management processes exist in all businesses.

Cost of management

Comment

Identifier

Risk 7

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Rising sea levels

Type of financial impact

Other, please specify

CAPEX required for construction of sea-walls

Company- specific description

Several manufacturing sites are located on coasts and are very close to sea level. A significant rise in sea level combined with a king tide may cause flooding events at these sites from 2030 onwards (considered a long-term risk) particularly with increased storm activity causing storm surges to become more intense.

Time horizon

Long-term

Likelihood

More likely than not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Costs to manage sea-level rise at two identified sites are not considered to be material.

Management method

• Geographic and market diversification

• The construction of sea-level management infrastructure (levies, etc.) will be considered in the long-term where required for the identified sites to manage the risk of flooding due to storm surges associated with sea level rise.

Cost of management

Comment

Costs to manage sea-level rise at two identified sites are not considered to be material.

Identifier

Risk 8

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

Type of financial impact

Increased costs and/or reduced demand for products and services resulting from fines and judgments

Company- specific description

Water is a key raw material for manufacturing, with the majority used for cooling purposes. Under a 4-degree climate change scenario, it is predicted that average annual rainfall will be reduced, and longer periods of prolonged drought will be created, especially in Eastern Australia. While this may be offset somewhat by increased 1 in 20-year flooding events at some locations, and up to 15% more rainfall than historical averages in each single rain event, water restrictions may become more frequent in some areas. In addition, the possibility of less frequent, higher intensity rainfall events may lead to the risk of storm water pond overflows. These impacts could occur in the short-term (1-3 years), with very low dam levels being recorded near some sites in the recent past.

Time horizon

Short-term

Likelihood

Unlikely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

30,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Fines for 2 pond overflows at a site in Northern Australia during the reporting period were approximately AUD$25,000.

Management method

• Geographic and market diversification
• Water scarcity concerns could prompt the need for additional storage. The cost of creating additional storage (dams) in these locations is considered immaterial. Water restrictions as a result of longer periods of drought and therefore increased regulation, may also prompt IPL to seek alternative water sources. At present, no operations have been identified where sourcing of new water is considered to be too costly or unavailable.
• Ongoing and long-term water management strategies are in place to ensure overflows of storm water ponds due to higher intensity rainfall events are avoided.

Cost of management

Comment

The cost of managing stormwater ponds is not considered material. At present, no operations have been identified where sourcing of new water is considered to be too costly or unavailable.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Type of financial impact

Increased revenue through demand for lower emissions products and services

Company-specific description

Increased market share through continued development of enhanced efficiency and low emissions explosives and fertilisers, including Differential Energy explosives, Green Urea NV fertilisers and ENTEC fertilisers.

Fertiliser demand grows in both the 2D and 4D scenarios, although domestic demand becomes more important as the physical impacts of climate change impact on international trade. The 2D scenario describes a rise in fertiliser use overall from 2025 due to increased focus on restoring the large proportion of the world's degraded agricultural land and unused land close to urban centres in order to provide food and fibre for a growing population. Artificial growing environments may be developed to meet growing demand while avoiding additional land clearing. Higher yields will need to be obtained from smaller land plots. New farms are expected to be built around urban centres, using highly controlled environments (i.e. vertical and high-density farms with unique soil mixes). Products that are lower carbon and environmentally friendly (e.g. slow release fertilisers) will have a significant competitive advantage in this scenario.

Time horizon

Current

Likelihood

Likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Future financial impact is difficult to quantify. Customer uptake of enhanced efficiency fertilisers, which have been shown to reduce nitrogen losses as N2O (a greenhouse gas) and enhanced efficiency explosives, which reduce fossil fuel use (and therefore also GHG) continues to grow.

Strategy to realize opportunity

During 2018, IPL reviewed its strategy, governance and funding of research and development. The position of Chief Technology Officer was added to the IPL Executive Leadership Team and six core technology programs were identified to advance IPL's ability to strategically partner with customers to improve their productivity and safety and reduce their environmental and social impacts. Collaborative research and product development, both with our customers and with recognised research bodies, is a core strategy and we aim to be well placed to meet any changed growing conditions which emerge, such as those described by the 2D and 4D scenarios. Projects in 2018 included our continued work on the Australia-China Joint Research Centre of Healthy Soils for Sustainable Food Production and Environmental Quality. We also actively promote the best practice use of our fertiliser and explosives products.

Cost to realize opportunity

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Markets

Primary climate-related opportunity driver

Other

Type of financial impact

Other, please specify

Use of supportive policy incentives

Company-specific description

Market changes: Both the 2D and 4D scenarios describe conditions in which demand for explosives in the Quarrying and Construction sector will increase. In the 2D scenario, steady urbanisation rates and enough global wealth to support stable development will likely lead to the building, reinforcing and repairing of roads, buildings and other infrastructure. As only 1 percent of all residential buildings and commercial buildings in the USA are certified ‘green’, an enormous opportunity presents itself for retrofitting of buildings in a future which addresses climate change. Although not as severe as in the 4D scenario, physical impacts are still expected to occur, and rebuilding is required. While this will be completed in a resource efficient way, the scale of the transition is large and generates increased demand for aggregate, even though the use of recycled aggregate and re-use of building materials occurs.

The 4D scenario describes a future in which natural disasters severely impact on cities, towns and infrastructure, particularly along coasts due to sea level rise. An immense quantity of aggregate and other quarried materials is required in this scenario to rebuild, and to build new climate resilient infrastructure. This scenario describes the Quarrying and Construction sector expanding between 2020 and 2040 as the world (and the USA in particular) seeks to rebuild and protect itself from the physical impacts of climate change. From 2035, the scenario describes decreasing

demand from many emerging and developing economies which cannot afford to rebuild after the cumulative losses from both the acute and chronic physical impacts of climate change.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Strategy to realize opportunity

Our Dyno Nobel business is the second largest industrial explosives distributor in North America by volume, providing ammonium nitrate, initiating systems and services to the Quarry & Construction sector in the southern US, northeast midwest US and Canada. In 2018, 40 percent of Dyno Nobel Americas Explosives revenue was generated from this sector with strong growth due to both market and share growth.

We have a leading position in this end market, which benefits from a favourable mix of our high-grade explosives, proprietary initiating systems and services. We continue to leverage our premium technology platform throughout and beyond the sector, including our proprietary Differential Energy offering. DeltaE has been in operation across the USA over the last three years and is well established in the quarry and construction and hard rock segments where customers value its safety, environmental, and efficiency benefits, including reduced GHG emissions due to reduced energy use. This technology is now being rolled out in the Asia Pacific business with trials being completed during 2018.

Dyno Nobel Americas also operates a Quarry Academy training centre for stone quarry operators.

Cost to realize opportunity

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of supportive policy incentives

Type of financial impact

Reduced exposure to future fossil fuel price increases

Company-specific description

Carbon pricing and other policy support for transitioning to the low carbon future described in the 2D scenario may create opportunities for IPL related to funding for investment in new technologies which reduce GHG emissions.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Strategy to realize opportunity

IPL is closely monitoring both policy developments and the development of new technologies and has successfully registered one project to earn Australian Carbon Credit Units (ACCUs) under the current Australian Federal Government Emissions Reduction Fund.

Cost to realize opportunity

Comment

Identifier

Opp4

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of lower-emission sources of energy

Type of financial impact

Reduced exposure to future fossil fuel price increases

Company-specific description

IPL is currently highly dependent on the availability of affordable natural gas, both as a feedstock for hydrogen and as a fuel source. IPL continues to monitor developments in the renewables and low carbon energy space, including solar hydrogen (making use of solar energy to manufacture hydrogen from water) production.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Strategy to realize opportunity

IPL has a core competency in the manufacture, storage and transportation of ammonia and is well placed to play a role in the 'green hydrogen' (and therefore green ammonia) and low carbon economy. Feedstock and energy options, including solar hydrogen, are constantly assessed for viability as part of IPL's overall capital management framework, supported by two of our strategic values drivers, Leading Technology Solutions and Manufacturing Excellence.

Cost to realize opportunity

Comment

The cost to change to solar hydrogen production at scale would be considerable.

C2.5

(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

	Impact	Description
Products and services	Impacted for some suppliers, facilities, or product lines	Enhanced efficiency, lower emissions fertilisers and explosives products have been developed and marketed. These continue to be developed.
Supply chain and/or value chain	Impacted for some suppliers, facilities, or product lines	Extreme weather events caused disruption to logistics (rail and road) during 2016 and 2017.
Adaptation and mitigation activities	Impacted for some suppliers, facilities, or product lines	Due to its location in a hurricane zone, the new Waggaman, Louisiana ammonia plant was built to comply with wind codes set out by the International Building Code Design Standard IBC 20 and Minimum Design Loads for Buildings and Other Structures ASCE 7-05 which include the relevant standards for wind load, occupancy categories, basic wind speed and exposure. The design was signed off by a Louisiana based certified Professional Engineer with experience in these design standards for the region, where the impacts of future hurricanes must be considered. The required permits also included ensuring that the plant was built at a height above Louisiana's expected future inundation levels.
Investment in R&D	Impacted for some suppliers, facilities, or product lines	Enhanced efficiency, lower emissions fertilisers and explosives products have been developed, and continue to be developed, as part of the R&D budget. During 2018, IPL reviewed its strategy, governance and funding of research and development. The position of Chief Technology Officer was added to the IPL Executive Leadership Team and six core technology programs were identified to advance IPL's ability to strategically partner with customers to improve their productivity and safety and reduce their environmental and social impacts. Collaborative research and product development, both with our customers and with recognised research bodies, is a core strategy and we aim to be well placed to meet any changed growing conditions which emerge, such as those described by the 2D and 4D scenarios. Projects in 2018 included our continued work on the Australia-China Joint Research Centre of Healthy Soils for Sustainable Food Production and Environmental Quality. We also actively promote the best practice use of our fertiliser and explosives products.

Operations	Impacted for some suppliers, facilities, or product lines	N2O (nitrous oxide) is a greenhouse gas which arises from the chemical production of nitric acid, which is used to make ammonium nitrate explosives at our Moranbah explosives manufacturing site in Australia. Due to an unexpected equipment failure which reduced the efficiency of the greenhouse gas abatement unit at the plant, the facility exceeded its baseline set under the ERF Safeguard Mechanism and was required to surrender 40,724 ACCUs to the Federal Government in 2018. New equipment to address this issue has been fabricated and delivered, and will be installed at the Moranbah site during 2019 to enable 2020 GHG intensity reduction targets to be met.
Other, please specify		

C2.6

(C2.6) Describe where and how the identified risks and opportunities have been factored into your financial planning process.

	Relevance	Description
Revenues	Impacted for some suppliers, facilities, or product lines	Sales of increased efficiency, reduced emissions fertilisers and reduced energy explosives has been factored into revenues.
Operating costs	Impacted for some suppliers, facilities, or product lines	Insurances against impacts associated with extreme weather events (to the extent that these can be insured against) have been factored into operating costs. The development and manufacture of high efficiency, reduced emissions fertilisers and reduced energy explosives has also been factored into operating costs.
Capital expenditures / capital allocation	Impacted for some suppliers, facilities, or product lines	The development and manufacture of increased efficiency, reduced emissions fertilisers and reduced energy explosives has been factored into capital allocation. (Some sites have recently factored in new operational practices, such as running down product stockpiles at certain times of the year to prepare for potential logistics interruption associated with increasingly extreme seasonal weather events. One example of this occurs at our remote Phosphate Hill site in Australia where more extreme flooding events associated with the summer monsoon have interrupted rail services which transport product out of the site. Running down stockpiles ahead of these events reduces the chance that production will need to be interrupted due to a lack of storage. This management strategy does not impact on capital expenditures).

Acquisitions and divestments	Impacted	Diversification across markets and geographical locations helps spread exposures. This has been a long-term strategy for IPL due to the nature of our markets: both agriculture and mining are affected by weather and extreme weather events, and there exists volatility in the Australian mining sector.
Access to capital	Not impacted	
Assets	Not impacted	
Liabilities	Impacted for some suppliers, facilities, or product lines	Anticipated carbon pricing (cost of ACCUs for the unexpected Safeguard Mechanism exceedance at the Moranbah facility, which extended across the 2018 and 2019 NGER years) has been factored into financial planning for the 2019 year.
Other	Not impacted	

C3. Business Strategy

C3.1

(C3.1) Are climate-related issues integrated into your business strategy?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?

Yes, qualitative and quantitative

C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b

) Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.

No, we do not have a low-carbon transition plan

C3.1c

(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

IPL's main manufacturing process currently relies on sustainable access to natural gas and water, and is energy and GHG emissions intensive. In addition, our farming and mining customers, and therefore our markets, can be impacted by extreme weather events such as droughts, floods, hurricanes and tropical cyclones, as can our own manufacturing facilities. For these reasons, the risks associated with emissions (and regulation of these), access to natural gas and water, and the physical impacts of extreme weather events have been integrated into IPL's existing risk management processes and corporate strategy for many years, with geographical and market diversification remaining a key management strategy. Emerging risks, such as climate change, and appropriate treatment strategies are monitored on an ongoing basis and reported to the Board through the established risk management process. Risks are reported in our Annual Report under 'Principal Risks' where they have been identified as such: see the 2018 IPL Annual Report, Principal Risks, pages 18-21 (pages 30-33 of the pdf).

During 2018, two actions were taken which further progressed the integration of climate related issues into IPL's strategic agenda. Firstly, IPL's Purpose Statement was defined, along with six core Strategic Drivers to achieve it. Secondly, we engaged a specialist third party to conduct a detailed assessment of the risks and opportunities associated with climate change against two future climate-related scenarios which were created specifically for IPL. The concurrent work on these two projects allowed the Company to integrate climate related issues into IPL's key strategic drivers as they were being defined. During 2019, two further actions will be taken: 1. The integration of the identified risks and opportunities into IPL's risk management process through Bowtie analyses which will identify risk controls and risk control owners, with many of the latter being members of IPL's Executive Strategy team; and 2. The finalising of the IPL Climate Change Policy which describes how climate related issues are integrated into IPL's key Strategic Drivers.

C3.1d

(C3.1d) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios	Details
IEA Sustainable development scenario IEA NPS BNEF NEO Other, please specify See references included in 'Details' box	IEA Sustainable development Scenario IEA New Policies Scenario BNEF NEO IPCC Other: Please specify 1 Moise, A. et al. 2015, Monsoonal North Cluster Report, Climate Change in Australia, CSIRO and Bureau of Meteorology, Australia. 2 Coastal Protection and Restoration Authority, 2017 Coastal Master Plan: C2-3: Tropical Storm Intensity and Frequency, Baton Rouge, Louisiana. 4 Trapp, R. J. et al. 2007, Changes in severe thunderstorm environment frequency during the 21st century caused by anthropogenically enhanced global radiative forcing, PNAS December 11, 2007. 104 (50); https://doi.org/10.1073/pnas.0705494104 5. The Climate Futures Tool developed by the CSIRO and the Australian Bureau of Meteorology; 6. The Climate Explorer Tool developed by the National Oceanographic and Atmospheric Association (NOAA), 7. The WRI Aqueduct Tool developed by the World Resources Institute All of these sources were used to together to create two future climate related scenarios (a 2-Degree and a 4-Degree scenario) which each describes how physical climate change and transitional changes (efforts to reduce emissions around the world) would impact on areas relating to IPL, including; carbon pricing and carbon market development; the overall economy; the development of technology; people's consumption patterns and social structures; the physical environment; energy and

	power; agriculture; mining; infrastructure; and transport, with the accompanying assessments considering the financial risks and opportunities for IPL in each of these areas under each scenario. The scenario-based risk assessments also considered the physical and transitional impacts on IPL's 13 major manufacturing operations on an individual and detailed basis. The scenarios are described in summary at https://www.incitecpivot.com.au/sustainability/ipl-online-sustainability-report/sustainability-report/managing-climate-change More specific uses of each reference are described in the rows below.
IEA Sustainable development scenario	The IEA Sustainable Development Scenario 2017 and 2018 were flexed to meet scientific consensus on credibly avoiding 2 Degrees of warming to arrive at a 2-Degree scenario regarding the likely global energy mix generation in 2025, 2030 and 2040.
IEA NPS	The IEA new policies scenario was used to arrive at a 4-Degree scenario regarding the likely global energy mix generation in 2025, 2030 and 2040.
IEA Sustainable development scenario BNEF NEO Other, please specify IPCC AR5	BNEF NEO 2018 was used as the base scenario and flexed with IEA and IPCC inputs to credibly avoid 2 Degrees of warming to arrive at a 2-Degree scenario regarding the likely natural gas and energy mix (including gas pricing, solar hydrogen, peaking capacity and penetration of renewables in the electricity generations sector) in the USA and Australia in 2025, 2030 and 2040. Natural gas (CH4) is presently used by IPL as a feedstock for explosives and fertiliser manufacture (to make hydrogen for ammonia – NH3 - production). Both gas price and new (alternative) technologies to manufacture hydrogen for ammonia are key strategic considerations for IPL.
IEA Sustainable development scenario	The IEA New Policies Scenario was used to arrive at a 4-Degree scenario regarding the likely natural gas and energy mix (including gas pricing, solar hydrogen, peaking capacity and penetration of renewables in the electricity generations sector) in the USA and Australia in 2025, 2030 and 2040. Natural gas (CH4) is presently used by IPL as a feedstock for explosives and fertiliser manufacture (to make hydrogen for

	ammonia – NH3 - production). Both gas price and new (alternative) technologies to manufacture hydrogen for ammonia are key strategic considerations for IPL.
Other, please specify 1 Moise, A. et al. 2015, Monsoonal North Cluster Report, Climate Change in Australia, CSIRO and Bureau of Meteorology, Australia.	This reference was one of three used as an input to arrive at 2-Degree and 4-Degree scenarios regarding tropical cyclones (hurricanes) tornadoes and 1 in 20-year rainfall events in Australia and the USA during the period 2020-2050.
Other, please specify Coastal Protection and Restoration Authority, 2017 Coastal Master Plan: C2-4: Tropical Storm Intensity and Frequency, Baton Rouge, Louisiana.	This reference was the second of three used as an input to arrive at 2-Degree and 4-Degree scenarios regarding tropical cyclones (hurricanes) tornadoes and 1 in 20-year rainfall events in Australia and the USA during the period 2020-2050.
Other, please specify Trapp, R. J. et al. 2007, Changes in severe thunderstorm environment frequency during the 21st century caused by anthropogenically enhanced global radiative forcing, PNAS December 11, 2007. 104 (50); https://doi.org/10.1073/pnas.0705494104	This reference was the third of three used as an input to arrive at 2-Degree and 4-Degree scenarios regarding tropical cyclones (hurricanes) tornadoes and 1 in 20-year rainfall events in Australia and the USA during the period 2020-2050.
Other, please specify 1. The Climate Futures Tool developed by the CSIRO and the Australian Bureau of Meteorology; 2. The Climate Explorer Tool developed by the National Oceanographic and Atmospheric Association (NOAA); 3. The WRI Aqueduct Tool developed by the WRI	1 The Climate Explorer tool utilises National Oceanographic and Atmospheric Association (NOAA) data to project climate in the mid- and long term and can be accessed at: https://crt-climate-explorer.nemac.org/ 2 The Climate Futures tool has been developed by the CSIRO and the Australian Bureau of Meteorology and can be accessed at: https://www.climatechangeinaustralia.gov.au/en/ 3 The WRI Aqueduct tool presents change in water stress compared to a baseline of 1986-2005. Data is available at http://www.wri.org/our-work/project/aqueduct/ These were used to create 2-Degree and 4-Degree scenario climates at the geographic locations of IPL's 13 major manufacturing facilities (which are in Australia and the USA) for the years 'Baseline', 2030 and 2050. The future 2-D and 4-D climate scenarios included: • Mean Daily Max Temperature (°c) (Annual)

	• Monthly - Summer - (°c) • Monthly - Autumn - (°c) • Monthly - Winter - (°c) • Monthly - Spring - (°c) • Days above 35°C (in a year) • Mean Daily Min Temperature (°c) (Annual) • Monthly - Summer - DJF (°c) • Monthly - Autumn - MAM (°c) • Monthly - Winter - JJA (°c) • Monthly - Spring - SON (°c) • Days below 4°C • Days below 0°C • Max 24-hour rainfall - 1 in 10 or 20-year event (mm) • Water stress in year (percentage) • Percentage of time spent in drought • Duration of time spent in extreme drought (months per 20 years) These were used to identify risks relating to physical impacts at the sites including supply chain interruptions and effects on employees, equipment and some chemical products, which are impacted by temperature and humidity.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Intensity target

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Scope

Scope 1

% emissions in Scope

71

Targeted % reduction from base year

5

Metric

Metric tons CO2e per unit of production

Base year

2015

Start year

2015

Normalized base year emissions covered by target (metric tons CO2e)

2.14

Target year

2018

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

% of target achieved

100

Target status

Replaced

Please explain

A reduction in CO2e per tonne of ammonia produced globally from 2.15 to 2.04 (5%) by 2018 was set in 2017 against a 2015 baseline. This was achieved in 2018. The new target set in 2018 is an intensity of 2.00 by 2020.

% change anticipated in absolute Scope 1+2 emissions

5

% change anticipated in absolute Scope 3 emissions

0

Target reference number

Int 2

Scope

Scope 1

% emissions in Scope

29

Targeted % reduction from base year

3

Metric

Metric tons CO2e per unit of production

Base year

2015

Start year

2015

Normalized base year emissions covered by target (metric tons CO2e)

0.44138

Target year

2018

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

% of target achieved

Target status

Replaced

Please explain

A 3% reduction in CO2e per tonne of nitric acid produced globally was achieved in 2017 against a 2015 baseline, however, a 2% increase on 2017 intensities was recorded in 2018, due an unexpected equipment failure at Moranbah, Australia. A new target of an intensity of 0.4tCO2e per tonne of nitric acid by 2020 was set in 2018. This is a reduction of 9% against 2015 baseline intensities.

% change anticipated in absolute Scope 1+2 emissions

5

% change anticipated in absolute Scope 3 emissions

0

Target reference number

Int 3

Scope

Scope 1

% emissions in Scope

71

Targeted % reduction from base year

0

Metric

Metric tons CO2e per unit of production

Base year

2015

Start year

2018

Normalized base year emissions covered by target (metric tons CO2e)

2.14

Target year

2020

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

% of target achieved

50

Target status

Underway

Please explain

Maintain 2017 global intensity of 2.0 t CO2e per tonne of ammonia reached produced globally through to 2020.

% change anticipated in absolute Scope 1+2 emissions

5

% change anticipated in absolute Scope 3 emissions

0

Target reference number

Int 4

Scope

Scope 1

% emissions in Scope

29

Targeted % reduction from base year

9

Metric

Metric tons CO2e per unit of production

Base year

2015

Start year

2018

Normalized base year emissions covered by target (metric tons CO2e)

0.44138

Target year

2020

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

% of target achieved

0

Target status

Underway

Please explain

Intensity of 0.40 tCO2e per tonne of nitric acid produced globally by 2020. Intensity was 0.42 in 2018.

% change anticipated in absolute Scope 1+2 emissions

5

% change anticipated in absolute Scope 3 emissions

0

C4.2

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation		
To be implemented*		
Implementation commenced*		
Implemented*	14	21,037
Not to be implemented		

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative type

Energy efficiency: Processes

Description of initiative

Machine replacement

Estimated annual CO2e savings (metric tonnes CO2e)

4,706

Scope

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

406,000

Investment required (unit currency – as specified in C0.4)

421,950

Payback period

1-3 years

Estimated lifetime of the initiative

16-20 years

Comment

A boiler replacement at our Donora manufacturing site will reduce gas consumption by 86,899 91,683 GJ per year and also reduce water consumption and electricity consumption (unquantified)

Initiative type

Energy efficiency: Processes

Description of initiative

Machine replacement

Estimated annual CO2e savings (metric tonnes CO2e)

6.72

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

1,680

Investment required (unit currency – as specified in C0.4)

50,000

Payback period

1-3 years

Estimated lifetime of the initiative

16-20 years

Comment

This project will save 6,000 kWh per annum. The financial benefit has only been quantified as it relates to energy savings. Further financial benefits, which relate to reduced maintenance, improve the payback to between 1-3 years.

Initiative type

Energy efficiency: Processes

Description of initiative

Machine replacement

Estimated annual CO2e savings (metric tonnes CO2e)

702

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

261,000

Investment required (unit currency – as specified in C0.4)

1,500,000

Payback period

4 - 10 years

Estimated lifetime of the initiative

16-20 years

Comment

At our Mount Isa acid plant, a converter catalyst partial replacement will result in an annual reduction of 900,000 kWh in purchased electricity.

Initiative type

Energy efficiency: Processes

Description of initiative

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

1,102

Scope

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

87,000

Investment required (unit currency – as specified in C0.4)

153,990

Payback period

1-3 years

Estimated lifetime of the initiative

16-20 years

Comment

At our ammonia plant in Cheyenne, Wyoming a high emissivity coating applied to the primary reformer furnace will reduce fuel usage by approximately 26824 GJ per year.

Initiative type

Energy efficiency: Processes

Description of initiative

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

1,377

Scope

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

185,000

Investment required (unit currency – as specified in C0.4)

108,750

Payback period

<1 year

Estimated lifetime of the initiative

16-20 years

Comment

Process optimisation at our Cheyenne, Wyoming ammonia and nitric acid plants allowed purge gas from the ammonia plant to be reused in the nitric acid plant, reducing natural gas use by 26,825 GJ each year.

Initiative type

Other, please specify

Fleet upgrade

Description of initiative

Estimated annual CO2e savings (metric tonnes CO2e)

815.4

Scope

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

290,000

Investment required (unit currency – as specified in C0.4)

784,450

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

A light vehicle replacement program across Dyno Nobel America will increase the fuel efficiency of the fleet by 25% and save 303 kL of fuel each year.

Initiative type

Energy efficiency: Building services

Description of initiative

Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

22.3

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

29,750

Investment required (unit currency – as specified in C0.4)

Payback period

1-3 years

Estimated lifetime of the initiative

16-20 years

Comment

At our Louisiana, Missouri manufacturing facility, 617 lighting fixtures throughout the plant were rewired to use LED bulbs, improving lighting, reducing annual energy use by 28,700 kWh and reducing annual costs by $29,750. The site has not been able to quantify spend.

Initiative type

Energy efficiency: Processes

Description of initiative

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

110

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

12,800

Investment required (unit currency – as specified in C0.4)

Payback period

1-3 years

Estimated lifetime of the initiative

16-20 years

Comment

At Carthage, Missouri, an explosives manufacturing optimisation project reduced annual energy use by 160,000 kWh and annual scope 2 GHG emissions by 110 tCO2e. The site has not been able to quantify spend.

Initiative type

Energy efficiency: Processes

Description of initiative

Compressed air

Estimated annual CO2e savings (metric tonnes CO2e)

39

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

5,800

Investment required (unit currency – as specified in C0.4)

126,150

Payback period

21-25 years

Estimated lifetime of the initiative

16-20 years

Comment

Air compressor replacement at our Simsbury, Connecticut site will save 50,000 kWh annually at the site.

Initiative type

Energy efficiency: Processes

Description of initiative

Compressed air

Estimated annual CO2e savings (metric tonnes CO2e)

6.8

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

30,000

Investment required (unit currency – as specified in C0.4)

250,000

Payback period

4 - 10 years

Estimated lifetime of the initiative

16-20 years

Comment

Air compressor replacement at our Gibson Island, Australia site will save 8,700 kWh annually at the site.

Initiative type

Energy efficiency: Processes

Description of initiative

Compressed air

Estimated annual CO2e savings (metric tonnes CO2e)

312

Scope

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

18,300

Investment required (unit currency – as specified in C0.4)

538,000

Payback period

>25 years

Estimated lifetime of the initiative

16-20 years

Comment

Air compressor replacement at our Moranbah, Australia site will save 400,000 kWh annually at the site. This is a scope 1 saving relating to electricity generated in the on-site gas fired power plant.

Initiative type

Energy efficiency: Processes

Description of initiative

Compressed air

Estimated annual CO2e savings (metric tonnes CO2e)

2.6

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

39,000

Investment required (unit currency – as specified in C0.4)

350,000

Payback period

4 - 10 years

Estimated lifetime of the initiative

16-20 years

Comment

Air compressor replacement at our Carthage, Missouri site will save 3,375kWh annually at the site.

Initiative type

Energy efficiency: Processes

Description of initiative

Compressed air

Estimated annual CO2e savings (metric tonnes CO2e)

437

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

30,000

Investment required (unit currency – as specified in C0.4)

348,000

Payback period

11-15 years

Estimated lifetime of the initiative

16-20 years

Comment

Air compressor replacement at our Geelong, Australia site will save 390,000 kWh annually at the site.

Initiative type

Energy efficiency: Processes

Description of initiative

Compressed air

Estimated annual CO2e savings (metric tonnes CO2e)

409

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

141,000

Investment required (unit currency – as specified in C0.4)

368,000

Payback period

1-3 years

Estimated lifetime of the initiative

16-20 years

Comment

Air compressor replacement at our Phosphate Hill, Australia site will save 470,000 kWh annually at the site. This is a Scope 1 emissions reduction due to the use of electricity from a gas fired power plant on the site.

Initiative type

Process emissions reductions

Description of initiative

Other, please specify

CO2 capture for industrial use

Estimated annual CO2e savings (metric tonnes CO2e)

10,990

Scope

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

0

Investment required (unit currency – as specified in C0.4)

0

Payback period

<1 year

Estimated lifetime of the initiative

Ongoing

Comment

During 2018, IPL's Waggaman, Louisiana ammonia plant captured 10,990 tCO2e for use by a neighbouring melamine manufacturing plant, avoiding the release of these GHG emissions to air.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for low-carbon product R&D	Our fertiliser and explosives manufacturing businesses have a dedicated R&D budget for product development which includes research and development of slow release (reduced nitrous oxide emitting) fertiliser products and reduced energy explosives products and delivery systems.
Internal incentives/recognition programs	Consistent improvement in energy efficiency, which also reduces IPL's greenhouse gas emissions, is a key part of BEx (Business Excellence) process reviews across our manufacturing business, with quarterly MD&CEO Values Awards program recognising team and individual efforts. Annual bonuses are also linked to the performance goals of energy managers, facility managers and Executive Team members.
Employee engagement	Consistent improvement in energy efficiency is a key part of BEx (Business Excellence) process review across our manufacturing business. BEx (Business Excellence) is IPL's continuous improvement system and engages our employees by involving them directly in the implementation of ‘best practice’ in their own work areas. Employees at all levels of our business are encouraged to think laterally, to share their experiences and ideas, and to participate in implementing improvements, resulting in outcomes which are highly valued by both the business and our employees.
Financial optimization calculations	Due to the high cost of energy to our business, which includes the use of gas as both an energy source and a feedstock, consistent improvement in energy efficiency not only reduced greenhouse gas emissions, but also delivers costs savings.
Other	The use of best available energy efficiency technologies in plant upgrades and the design and construction of new manufacturing facilities. This reduces both our energy use, which is a major cost to our business, and the greenhouse gases associated with this energy use. The technology used in the new Waggaman, Louisiana Ammonia Plant underpinned IPL's intensity reduction target of a 2% reduction in tCO2e per tonne of ammonia produced in 2017 against a 2015 baseline.

C4.5

Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Group of products

Description of product/Group of products

Green Urea NV products contain urea treated with the urease inhibitor, N-(n-butyl) thiophosphoric triamide (NBPT), which delays hydrolysis of urea into unstable forms that may be lost to the atmosphere, thereby reducing emissions related to fertiliser usage.

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify

www.piccc.org.au/research/project/269

% revenue from low carbon product(s) in the reporting year

Comment

Losses of N2O (a potent greenhouse gas) to the atmosphere are estimated to be reduced by a conservative 50%, but are difficult to quantify due to being affected by precipitation and application techniques. Agronomy services and education are provided to customers to increase knowledge and maximise emissions reductions.

Level of aggregation

Product

Description of product/Group of products

Entec® is a fertiliser treatment that retains nitrogen in the stable ammonium form for an extended period. This reduces nitrogen losses to leaching (waterways) and denitrification (losses to the atmosphere as the GHG N2O) while conserving more nitrogen for plant uptake. Both trials and customer use continue to demonstrate the potential for significant reductions in GHG as well as yield increase with the use of Entec (see pages 35-42 of the Australian Sugarcane Annual 2016 and Less Nitrogen Lost is More Gain in Cane, also in the Australian Canegrower, Sept 2017).

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify

www.piccc.org.au/research/project/269

% revenue from low carbon product(s) in the reporting year

Comment

Losses of N2O (a potent greenhouse gas) to the atmosphere are estimated to be reduced by a conservative 50%, but are difficult to quantify due to being affected by precipitation and application techniques. Agronomy services and education are provided to customers to increase knowledge and maximise emissions reductions. See also ‘Case Study: ENTEC use means peace of mind, less nitrogen losses and more gain in cane’ at https://www.incitecpivot.com.au/sustainability/ipl-online-sustainability-report/products-and-services/fertiliser-research-and-development in the online 2017 IPL Sustainability report.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

October 1, 2014

Base year end

September 30, 2015

Base year emissions (metric tons CO2e)

2,349,535

Comment

Scope 2 (location-based)

Base year start

October 1, 2014

Base year end

September 30, 2015

Base year emissions (metric tons CO2e)

355,916

Comment

Scope 2 (market-based)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.

Australia - National Greenhouse and Energy Reporting Act
IPCC Guidelines for National Greenhouse Gas Inventories, 2006
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

3,423,867

Start date

October 1, 2017

End date

September 30, 2018

Comment

This period is the 2018 IPL Financial Year (2018 IPL FY)

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We have operations where we are able to access electricity supplier emission factors or residual emissions factors, but are unable to report a Scope 2, market-based figure

Comment

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

327,536

Start date

October 1, 2017

End date

September 30, 2018

Comment

This period is the 2018 IPL Financial Year (2018 IPL FY)

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source

Emissions from offsite transport of product in North America

Relevance of Scope 1 emissions from this source

Emissions are not evaluated

Relevance of location-based Scope 2 emissions from this source

Emissions are not evaluated

Relevance of market-based Scope 2 emissions from this source (if applicable)

Emissions are not evaluated

Explain why this source is excluded

Data is presently unavailable. Very low materiality (estimated to be less than 1% of total emissions).

Source

Emissions from electricity used in small remote offices and despatch sites in North America.

Relevance of Scope 1 emissions from this source

Emissions are not evaluated

Relevance of location-based Scope 2 emissions from this source

Emissions are not evaluated

Relevance of market-based Scope 2 emissions from this source (if applicable)

Emissions are not evaluated

Explain why this source is excluded

Data is presently unavailable. Very low materiality (estimated to be less than 1% of total emissions).

Source

Emissions from operations in Chile.

Relevance of Scope 1 emissions from this source

Emissions are not evaluated

Relevance of location-based Scope 2 emissions from this source

Emissions are not evaluated

Relevance of market-based Scope 2 emissions from this source (if applicable)

Emissions are not evaluated

Explain why this source is excluded

Very low materiality (estimated to be less than 1% of total emissions).

C6.5

(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, not yet calculated

Explanation

Capital goods

Evaluation status

Relevant, not yet calculated

Explanation

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, not yet calculated

Explanation

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

73,142

Emissions calculation methodology

Standard approach and verification – EN16258:2012

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

As part of our engagement with our global shipping suppliers we are able to quantify the Scope 3 emissions associated with our global shipping. Through an opportunity provided by Rightship and CBL Markets in 2017, we are pleased to report that we were also able to offset these emissions through the purchase of verified voluntary carbon credits in both the 2017 and 2918 IPL financial years.

Waste generated in operations

Evaluation status

Relevant, not yet calculated

Explanation

Business travel

Evaluation status

Relevant, not yet calculated

Explanation

Employee commuting

Evaluation status

Relevant, not yet calculated

Explanation

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Explanation

IPL has no upstream leased assets.

Downstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Explanation

Processing of sold products

Evaluation status

Not relevant, explanation provided

Explanation

There is no further processing for 99% of IPL's products (by weight).

Use of sold products

Evaluation status

Relevant, not yet calculated

Explanation

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Explanation

There is no end of life treatment required for 99% of IPL's products (by weight). The products are consumed during use by the customer.

Downstream leased assets

Evaluation status

Relevant, not yet calculated

Explanation

Franchises

Evaluation status

Not relevant, explanation provided

Explanation

IPL has no franchises

Investments

Evaluation status

Not evaluated

Explanation

Other (upstream)

Evaluation status

Not evaluated

Explanation

Other (downstream)

Evaluation status

Not evaluated

Explanation

C6.7

(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.0009728

Metric numerator (Gross global combined Scope 1 and 2 emissions)

3,751,403

Metric denominator

unit total revenue

Metric denominator: Unit total

3,856,300,000

Scope 2 figure used

Location-based

% change from previous year

11.4

Direction of change

Increased

Reason for change

IPL's total global emissions increased due to two main contributing factors:
1. Increased production at the new Waggaman, Louisiana plant, which was completed late in the 2016 IPL FY, came under IPL's operational control early in the 2017 IPL FY and was ramped up to full production in the 2018 IPL FY, which is this reporting period; and
2. An unexpected equipment failure which reduced the efficiency of the greenhouse gas abatement unit at the Moranbah, Australia nitric acid plant, which caused the facility to increase its emissions of N2O. New equipment to address this issue has been fabricated and delivered and will be installed at the Moranbah site during 2019 to enable 2020 GHG targets to be met.

These two factors increased IPL's total global GHG emissions by 21.5% and emissions intensity per tonne of product manufactured for sale by 8% against the 2017 FY. While emissions per tonne of nitric acid increased by 2% (still a 7% decrease against IPL's 2015 baseline year), emissions per tonne of ammonia produced fell by 1% (a 6% decrease against IPL's 2015 baseline year).

Intensity figure

10,798.51

Metric numerator (Gross global combined Scope 1 and 2 emissions)

3,751,403

Metric denominator

Other, please specify

AUD$ Net Profit

Metric denominator: Unit total

347.4

Scope 2 figure used

Location-based

% change from previous year

11

Direction of change

Increased

Reason for change

Net profit increased by 9% while emissions increased by 21.5%.

Intensity figure

0.9379

Metric numerator (Gross global combined Scope 1 and 2 emissions)

3,751,403

Metric denominator

Other, please specify

metric tonne of product manufactured for sale

Metric denominator: Unit total

4,000,000

Scope 2 figure used

Location-based

% change from previous year

12

Direction of change

Increased

Reason for change

Production increased by 8% while emissions increased by 21.5%.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	2,884,186.3	IPCC Fourth Assessment Report (AR4 - 20 year)
CH4	3,465	IPCC Fourth Assessment Report (AR4 - 20 year)
N2O	536,205.4	IPCC Fourth Assessment Report (AR4 - 20 year)
SF6	10	IPCC Fourth Assessment Report (AR4 - 20 year)

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
Australia	1,763,274
North America	1,660,247
Turkey	347

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Incitec Pivot Fertilisers	953,611
Dyno Nobel Explosives	2,470,256

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Comment
Chemicals production activities	2,470,256	The amount reported here includes emissions from activities at facilities operated by IPL which supported chemicals production and distribution. These include IPL administration buildings, and fertiliser distribution sites under IPL operational control.

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Australia	171,138		203,370	
North America	155,869		382,558	
Turkey	529		1,100	

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Incitec Pivot Fertilisers	168,383	
Dyno Nobel Explosives	159,153	

C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7

Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Chemicals production activities	327,536		The amount reported here includes emissions from activities at facilities operated by IPL which supported chemicals production and distribution. These include IPL administration buildings, and fertiliser distribution sites under IPL operational control.

C-CH7.8

(C-CH7.8) Disclose the percentage of your organization's Scope 3, Category 1 emissions by purchased chemical feedstock.

Purchased feedstock	Percentage of Scope 3, Category 1 tCO2e from purchased feedstock	Explain calculation methodology

C-CH7.8a

(C-CH7.8a) Disclose sales of products that are greenhouse gases.

	Sales, metric tons	Comment
Carbon dioxide (CO2)	118,968	
Methane (CH4)	0	
Nitrous oxide (N2O)	0	
Hydrofluorocarbons (HFC)	0	
Perfluorocarbons (PFC)	0	
Sulphur hexafluoride (SF6)	0	
Nitrogen trifluoride (NF3)	0	

C7.9

How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	
Other emissions reduction activities	21,037		0.7	Total efficiency projects of (21,037/3,086,552)*100 = 0.7%
Divestment	0	No change	0	
Acquisitions	0	No change	0	
Mergers	0	No change	0	
Change in output	397,628	Increased	12.9	Increase in production (397,628/3086552)*100 = 12.9%
Change in methodology	0	No change	0	
Change in boundary	0	No change	0	
Change in physical operating conditions	0	No change	0	
Unidentified	0	No change	0	
Other	309,023	Increased	10	Equipment failure in GHG abatement unit at Moranbah Australia (309023/3086552)*100 = 10%

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 5% but less than or equal to 10%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertakes this energy-related activity
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)			5,742,936	5,742,936
Consumption of purchased or acquired electricity			587,032	587,032
Consumption of self-generated non-fuel renewable energy				
Total energy consumption			6,329,968	6,329,968

C-CH8.2a

(C-CH8.2a) Report your organization's energy consumption totals (excluding feedstocks) for chemical production activities in MWh.

	Heating value	Total MWh
Consumption of fuel (excluding feedstock)		5,742,936
Consumption of purchased or acquired electricity		587,032
Consumption of self-generated non-fuel renewable energy		0
Total energy consumption		6,329,968

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	No
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)

Natural Gas

Heating value

Total fuel MWh consumed by the organization

5,651,404

MWh fuel consumed for self-generation of electricity

817,595.47

MWh fuel consumed for self-generation of heat

0

Comment

Fuels (excluding feedstocks)

Diesel

Heating value

Total fuel MWh consumed by the organization

88,249

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Fuels (excluding feedstocks)

Petrol

Heating value

Total fuel MWh consumed by the organization

2,188

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Fuels (excluding feedstocks)

Propane Gas

Heating value

Total fuel MWh consumed by the organization

99

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Fuels (excluding feedstocks)

Fuel Oil Number 1

Heating value

Total fuel MWh consumed by the organization

95

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

C8.2d

(C8.2d) List the average emission factors of the fuels reported in C8.2c.

Diesel

Emission factor

2,691.19

Unit

metric tons CO2e per liter

Emission factor source

National Greenhouse and Energy Reporting Scheme Measurement: Technical Guidelines for the estimation of emissions by facilities in Australia (Applies to the estimation of emissions in the 2016-17 reporting year) p.146

Comment

The emissions factor reported in column 2 is metric tonnes of CO2e per litre of diesel combusted. MWh values for diesel reported throughout Question 8 are kL diesel x 38.6 (NGER Energy Content Factor in GJ/kL) =GJ converted directly to MWh (GJ x 0.277778). The default emission factor (Method 1 under NGER) for diesel under NGER is 2709.72 tCO2e per litre of diesel burned for ‘stationary’ energy purposes (defined as ‘on-site’ uses).

Fuel Oil Number 1

Emission factor

2,931.448

Unit

metric tons CO2e per liter

Emission factor source

National Greenhouse and Energy Reporting Scheme Measurement: Technical Guidelines for the estimation of emissions by facilities in Australia (Applies to the estimation of emissions in the 2016-17 reporting year) p.146

Comment

The emissions factor reported is metric tonnes of CO2e per litre of fuel oil combusted. MWh values for fuel oil reported throughout Question 8 are kL fuel oil x 39.7 (NGER Energy Content Factor in GJ/kL) converted directly to MWh (GJ x 0.277778). The default emission factor (Method 1 under NGER) for fuel under NGER is 2931.448 tCO2e per litre of fuel oil burned.

Natural Gas

Emission factor

0.05133

Unit

metric tons CO2e per GJ

Emission factor source

National Greenhouse and Energy Reporting Scheme Measurement: Technical Guidelines for the estimation of emissions by facilities in Australia (Applies to the estimation of emissions in the 2016-17 reporting year) p.549

Comment

The emissions factor reported in column 2 is metric tonnes of CO2e per GJ of gas combusted. MWh values for natural gas reported throughout Question 8 are GJ gas converted directly to MWh (GJ x 0.277778). The default emission factor (Method 1 under NGER) for natural gas under

NGER is 0.05133 tCO2e per GJ gas burned. This has been used for natural gas combusted for energy (as opposed to natural gas chemically separated for use as a hydrogen feedstock) in all plants except three in Australia, which use emission factors derived from continuous chromatic gas analysis (Method 2 under NGER). These emission factors were 0.049563, 0.050234and 0.0503274.

Petrol

Emission factor

2,230.94

Unit

metric tons CO2e per liter

Emission factor source

National Greenhouse and Energy Reporting Scheme Measurement: Technical Guidelines for the estimation of emissions by facilities in Australia (Applies to the estimation of emissions in the 2016-17 reporting year) p.146

Comment

The emissions factor reported in column 2 is metric tonnes of CO2e per litre of petrol combusted. MWh values for petrol reported throughout Question 8 are kL petrol x 33.1 (NGER Energy Content Factor in GJ/kL) converted directly to MWh (GJ x 0.277778). The default emission factor (Method 1 under NGER) for petrol under NGER is 2230.94 tCO2e per litre of petrol burned.

Propane Gas

Emission factor

1,557.42

Unit

metric tons CO2e per liter

Emission factor source

National Greenhouse and Energy Reporting Scheme Measurement: Technical Guidelines for the estimation of emissions by facilities in Australia (Applies to the estimation of emissions in the 2016-17 reporting year) p.146 (LPG)

Comment

The emissions factor reported is metric tonnes of CO2e per litre of LPG combusted. MWh values for LPG reported throughout Question 8 are kL LPG x 25.7 (NGER Energy Content Factor in GJ/kL) converted directly to MWh (GJ x 0.277778). The default emission factor (Method 1 under NGER) for fuel under NGER is 1557.42 tCO2e per litre of LPG burned.

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	313,436	313,436	0	0
Heat				
Steam				
Cooling				

C-CH8.2e

(C-CH8.2e) Provide details on electricity, heat, steam, and cooling your organization has generated and consumed for chemical production activities.

	Total gross generation (MWh) inside chemicals sector boundary	Generation that is consumed (MWh) inside chemicals sector boundary
Electricity	313,436	313,436
Heat		
Steam		
Cooling		

C8.2f

(C8.2f) Provide details on the electricity, heat, steam and/or cooling amounts that were accounted for at a low-carbon emission factor in the market-based Scope 2 figure reported in C6.3.

C-CH8.3

(C-CH8.3) Disclose details on your organization's consumption of feedstocks for chemical production activities.

Feedstocks

Natural gas

Total consumption

34,564,866

Total consumption unit

GJ

Inherent carbon dioxide emission factor of feedstock, metric tons CO2 per consumption unit

0.05133

Comment

The consumption unit reported is GJ of natural gas. The emission factor reported is t CO2e per GJ gas. The default emission factor (Method 1 under NGER) for natural gas used as a feedstock for making ammonia under NGER is 0.0512 tCO2e per GJ gas consumed. This has been used for natural gas chemically separated for use as a hydrogen feedstock in all plants except three in Australia, which use emission factors derived from continuous chromatic gas analysis (Method 2 under NGER). In 2018 these emission factors were 0.04943, 0.050104 and 0.050197. These lower emission factors are due to the natural gas being coal seam methane which has a lower carbon content.

C-CH8.3a

(C-CH8.3a) State the percentage, by mass, of primary resource from which your chemical feedstocks derive.

	Percentage of total chemical feedstock (%)
Oil	0
Natural Gas	100
Coal	0
Biomass	0
Waste	0
Fossil fuel (where coal, gas, oil cannot be distinguished)	0
Unknown source or unable to disaggregate	0

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Metric value

Metric numerator

Metric denominator (intensity metric only)

% change from previous year

Direction of change

Please explain

C-CH9.3a

(C-CH9.3a) Provide details on your organization's chemical products.

Output product

Ammonia

Production (metric tons)

1,713,358

Capacity (metric tons)

Direct emissions intensity (metric tons CO2e per metric ton of product)

1.9

Electricity intensity (MWh per metric ton of product)

Steam intensity (MWh per metric ton of product)

Steam/ heat recovered (MWh per metric ton of product)

Comment

This is an 6% reduction in GHG emissions intensity against baseline year (2015) intensity.

Output product

Nitric acid

Production (metric tons)

896,080

Capacity (metric tons)

Direct emissions intensity (metric tons CO2e per metric ton of product)

0.42

Electricity intensity (MWh per metric ton of product)

Steam intensity (MWh per metric ton of product)

Steam/ heat recovered (MWh per metric ton of product)

Comment

This is an 7% reduction in GHG emissions intensity against baseline year (2015) intensity.

C-CH9.6

(C-CH9.6) Disclose your organization's low-carbon investments for chemical production activities.

Investment start date

January 1, 2007

Investment end date

Investment area

R&D

Technology area

Other, please specify

Low GHG emitting fertilisers

Investment maturity

Applied research and development

Investment figure

1,200,000

Low-carbon investment percentage

81 - 100%

Please explain

IPL has been developing and marketing enhanced efficiency fertilisers which have been shown to reduce GHG emissions to the atmosphere (as nitrous oxide) for approximately 10 years, with applied research currently ongoing.

Investment start date

January 1, 2007

Investment end date

Investment area

Products

Technology area

Other, please specify

Low GHG emitting fertilisers

Investment maturity

Large scale commercial deployment

Investment figure

3,000,000

Low-carbon investment percentage

81 - 100%

Please explain

IPL estimates a capital investment of approximately $1million, with training and promotional costs of approximately $2million (when employee costs are included) in the large scale commercial deployment of our Green Urea NV and Entec products, which continue to demonstrate the potential for significant reductions in GHG during their use.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	No emissions data provided

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 and/or Scope 2 emissions and attach the relevant statements.

Scope

Scope 1

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for reporting year-previous statement of process attached

Type of verification or assurance

Limited assurance

Attach the statement

IPL 2018 NGER Assurance_Limited Assurance Statement_final_concise version.pdf

Page/ section reference

Relevant standard

ASAE3000

Proportion of reported emissions verified (%)

51

Scope

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for current reporting year – first year it has taken place

Type of verification or assurance

Limited assurance

Attach the statement

IPL 2018 NGER Assurance_Limited Assurance Statement_final_concise version.pdf

Page/ section reference

Relevant standard

ASAE3000

Proportion of reported emissions verified (%)

52

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C8. Energy	Other, please specify Australian energy	ASAE3000	48% of IPL's energy use (100% of our Australian energy use) is verified as part of the Limited Assurance Opinion provided by Deloitte on an annual basis for our National Greenhouse and Energy Report (NGER). Since this is completed on a June 30 year-end, and the CDP reporting year is the Company financial year (Sept 30 year-end), this assurance is currently partially completed for the data in this report. The assurance statement attached at CC10.1a includes this energy assurance.

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

Australia ERF Safeguard Mechanism

C11.1b

(C11.1b) Complete the following table for each of the emissions trading systems in which you participate.

Australia ERF Safeguard Mechanism

% of Scope 1 emissions covered by the ETS

43

Period start date

July 1, 2017

Period end date

September 30, 2018

Allowances allocated

40,724

Allowances purchased

40,724

Verified emissions in metric tons CO2e

11,742,574.56

Details of ownership

Facilities we own and operate

Comment

Three of IPL's manufacturing facilities in Australia are captured under the Australian ERF Safeguard Mechanism, a part of the 'Direct Action' policy. These three sites make up more than 99% of IPL's Australian Scope 1 emissions. One of these facilities exceeded its Safeguard Mechanism baseline in 2018 due to an unexpected equipment failure which reduced the efficiency of the greenhouse gas abatement unit. New equipment to address this issue has been fabricated and delivered and will be installed at the Moranbah site during 2019 to enable 2020 GHG targets to be met.

C11.1d

(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?

Day-to-day management of Company affairs and the implementation of the corporate strategy and policy initiatives are formally delegated to the Managing Director & CEO by the IPL Board. The Managing Director & CEO and his/her direct reports form the Executive Team. Both responsibility for the management of compliance with carbon pricing policies and financial risk management (inclusive of the Australian ERF Safeguard Mechanism) resides with the Chief Financial Officer who is an Executive Team Member. The Corporate Sustainability Manager coordinates carbon emissions reporting and assurance, and the applications process for registration of projects to earn Australian Carbon Credit Units (ACCUs) under the ERF. This position also advises the Corporate Finance and Treasury functions, who are specifically responsible for the carbon cost management strategy and carbon permit surrender, respectively. The Corporate Sustainability Manager is part of the finance team who reports to the Chief Financial Officer, thereby providing alignment with the financial performance for the Company and overall risk management. The CFO is also part of the IPL Executive Strategy Team.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Objective for implementing an internal carbon price

Navigate GHG regulations

Other, please specify

Assess CAPEX applications

GHG Scope

Scope 1

Application

Facilities

Actual price(s) used (Currency /metric ton)

15

Variance of price(s) used

Market (supply and demand)

Type of internal carbon price

Implicit price

Impact & implication

Under the Australian ERF, ACCUs can be earned by facilities through registered energy efficiency projects. Where eligible, the potential value of credits earned is included in CAPEX applications. Credits are owned by the IPL facility/business unit which has conducted the project which earns them. Credits can be traded on the open market (Australian: price set by supply and demand) or between IPL facilities/business units in the event of a future carbon liability by an IPL facility under the Safeguard Mechanism.
The internal carbon price is also included in CAPEX applications where the project will increase emissions at facilities covered by the Australian ERF Safeguard Mechanism.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

% total procurement spend (direct and indirect)

5

% Scope 3 emissions as reported in C6.5

Rationale for the coverage of your engagement

Collection of carbon emission information from our global shipping supplier enabled us to calculate, reduce and offset the GHG emissions associated with our global shipping for the second year in a row in 2018.

Impact of engagement, including measures of success

IPL's use of the Greenhouse Gas (GHG) Emissions Rating introduced by RightShip allows us to demonstrate our commitment to seeing GHG emissions reductions in the shipping industry.

Comment

IPL's use of the Greenhouse Gas (GHG) Emissions Rating introduced by RightShip allows us to demonstrate our commitment to seeing GHG emissions reductions in the shipping industry.

Type of engagement

Innovation & collaboration (changing markets)

Details of engagement

Run a campaign to encourage innovation to reduce climate impacts on products and services

% of suppliers by number

% total procurement spend (direct and indirect)

5

% Scope 3 emissions as reported in C6.5

Rationale for the coverage of your engagement

Rightship has conducted a media campaign to promote IPL's action across the shipping industry, using interviews with IPL employees in this campaign. IPL also collaborated with our global shipping supplier, RightShip, to voluntarily offset the Scope 3 emissions associated with our shipping, with a Case Study of this action being included in Rightship's media campaign.

Impact of engagement, including measures of success

Number of tonnes of CO2e voluntarily offset by IPL. Number of major shipping magazines who ran the press release (Case Study of the carbon offsetting) as an article.

Comment

To our knowledge, IPL is the first company to voluntarily offset the Scope 3 carbon emissions associated with global shipping.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

Trade associations

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

No

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

Our highest governing body is the Board of Directors. The Board is responsible for charting the direction, policies, strategies and financial objectives of the Company. Our sustainability strategy, encompassing our strategy on climate change, was endorsed by the Board. Day-to-day management of Company affairs and the implementation of the corporate strategy and policy initiatives are formally delegated to the Managing Director and CEO. Responsibility for sustainability strategy and governance resides with the Executive Team, advised by the Corporate Sustainability Manager. The Corporate Sustainability Manager is part of the finance team which reports to the Chief Financial Officer, thereby providing alignment with the financial performance and financial processes for the Company. As per IPL Policy, no statements are made to external parties without IPL legal review. This legal review ensures that all statements align with IPL strategies approved by the Board. These statements include, but are not limited to, formal submissions regarding proposed government policies, statements to media organisations and formal statements to trade associations.

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In mainstream reports

Status

Complete

Attach the document

IPL_2018_Annual Report.pdf

Page/Section reference

Pages 10-12 of the pdf (pages viii to x as labelled in the document)
AND
Pages 31-33 of the pdf (19-21 as labelled in the document)

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures

Comment

Publication

In voluntary sustainability report

Status

Complete

Attach the document

2018 IPL Sustainability Report.pdf

Page/Section reference

See 'Managing Climate Change' pp. 13-19
See 'Energy and greenhouse gas emissions' p. 54
See 'Our Targets' p. 10

Content elements

Governance

Strategy
Risks & opportunities
Emissions figures
Emission targets

Comment

C14. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C14.1

(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Corporate Sustainability Manager	Environment/Sustainability manager

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	Public or Non-Public Submission	I am submitting to
I am submitting my response	Public	Investors

Please confirm below

I have read and accept the applicable Terms