C0. Introduction

C0.1

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

We are LyondellBasell – a leader in the global chemical industry creating solutions for everyday sustainable living. Through advanced technology and focused investments, we are enabling a circular and low carbon economy. Across all we do, we aim to unlock value for our customers, investors and society. As one of the world's largest producers of polymers and a leader in polyolefin technologies, we develop, manufacture and market high-quality and innovative products for applications ranging from sustainable transportation and food safety to clean water and quality healthcare. We manage our operations through six operating segments. Our reporting segments are Olefin and Polyolefins (O&P) – Americas; O&P - Europe, Asia and International; Intermediate and Derivatives (I&D); Advanced Polymer Solutions (APS); Refining; and Technology.

We are committed to reducing GHG emissions from our global operations and value chain, and to delivering solutions which advance our customers' climate ambitions and support society's transition to a low carbon world. We believe a commitment to net zero scope 1 and scope 2 emissions by 2050 and a credible pathway to 2030 for scopes 1, 2 and 3 are critical to the long-term success of LyondellBasell. In December 2022, we stepped up our ambition by accelerating our interim targets for 2030 in line with the best available science. We increased our 2030 GHG emissions reduction target for scope 1 and 2 emissions to 42% and established a 2030 scope 3 emissions reduction target of 30%, relative to a 2020 baseline. We submitted a commitment letter to the Science Based Target Initiative (SBTi) for validation of our 2030 goals. The SBTi drives ambitious climate action in the private sector by enabling organizations to set science-based emissions reduction targets. Included in our approach is a commitment to secure at least 50% of our global procured electricity from renewable sources by 2030.

Our production currently results in approximately 22 million metric tons of GHG emissions (scope 1 and 2) annually from the operations under our control, with approximately 75% of these emissions from North American operations and 25% from Europe. The GHG emissions directly emitted from our processes, known as scope 1, are approximately 65% of this total, and the remaining 35% is from the electricity and steam that we procure, otherwise known as scope 2. Our strategy to reach net zero scope 1 and scope 2 emissions from our global operations by 2050 is focused on several levers, including optimising the use of energy in our operations, increasing our use of hydrogen and other lower carbon intensive fuels, electrifying our manufacturing processes, reducing direct emissions by enabling the capture and storage or reuse of CO2 from our operations, developing and utilizing new technologies for the production of olefins, chemicals and polyolefins with a lower carbon footprint compared to traditional processes, and reducing emissions associated with our purchased electricity and steam needs by sourcing electricity from renewable energy projects, and collaborating with utility suppliers to lower the carbon intensity of the energy we purchase.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date
January 1 2022

End date
December 31 2022

Indicate if you are providing emissions data for past reporting years
Yes

Select the number of past reporting years you will be providing Scope 1 emissions data for
1 year

Select the number of past reporting years you will be providing Scope 2 emissions data for
1 year

Select the number of past reporting years you will be providing Scope 3 emissions data for
2 years

C0.3

(C0.3) Select the countries/areas in which you operate.

Australia
Belgium
Brazil
China
France
Germany
India
Indonesia
Italy
Malaysia
Mexico
Netherlands
Poland
Spain
Sweden
Thailand
Turkey
United Kingdom of Great Britain and Northern Ireland
United States of America

C0.4

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

USD

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 chosen approach for consolidating your GHG 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

Lower olefins (cracking)
Aromatics
Ethylene oxide & Ethylene glycol
Ethanol
Methanol
Polymers

Bulk inorganic chemicals

Hydrogen

Other chemicals

Specialty organic chemicals

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	NL0009434992

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 or committee	Responsibilities for climate-related issues
Board-level committee	Recognizing the vital importance of the issue, our climate strategy is embedded in our overall business strategy and managed at the highest levels of our company. Our Board leads our commitment to sustainability and maintains oversight of the Company's environmental, social and governance ("ESG") profile. Management reports on key sustainability topics and initiatives at each regularly scheduled Board meeting, and directors participate in a deep dive on sustainability strategy and actions at least annually. During the Board's meeting in September 2022, the Board focused on the Company's strategy, progress, and programs related to its goals on climate and the circular economy. This included a review of our climate strategy and the Company's plan to accelerate our interim targets to 2030 in line with the best available science. We increased our 2030 GHG emissions reduction target for scopes 1 and 2 to 42% and established a 2030 scope 3 emission reduction target of 30%, relative to a 2020 baseline. The Board's Committees provide guidance regarding specific ESG issues in accordance with their charters and responsibilities, as also described below. The Health, Safety, Environmental & Sustainability (HSE&S) Committee of the Board reviews sustainability risks, trends and impacts; oversees climate initiatives and risk, and monitors the Company's progress on sustainability targets, ambitions and reporting, including the review and approval of the Company's sustainability report each year. The HSE&S Committee comprises five independent directors. As part of its responsibilities, the Compensation & Talent Development (C&TD) Committee of the Board oversees the Company's executive compensation programs and evaluates whether such programs and practices create excessive risk or any changes to those programs. This includes embedding climate related KPIs in our Short-Term Incentive Plan as part of the Company's compensation programs.

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	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding annual budgets Overseeing major capital expenditures Overseeing acquisitions, mergers, and divestitures Reviewing innovation/R&D priorities Overseeing and guiding employee incentives Reviewing and guiding strategy Monitoring the implementation of a transition plan Overseeing the setting of corporate targets Monitoring progress towards corporate targets Reviewing and guiding the risk management process	<Not Applicable>	As described in C1.1.a, Management reports on key sustainability topics and initiatives at each regularly scheduled Board meeting, and directors participate in a deep dive on sustainability strategy and actions at least annually. During its meeting in September 2022, the Board focused on the Company's strategy, progress, and programs related to its goals on climate and the circular economy. This review during its September meeting included a review of the Company's strategy and plan to accelerate our interim targets to 2030 in line with the best available science. We increased our 2030 GHG emissions reduction target for scopes 1 and 2 to 42% and established a 2030 scope 3 emission reduction target of 30%, relative to a 2020 baseline. The Board reviewed our plans of action to reach our increased scope 1 and 2 target and our new scope 3 target. The Board also reviewed capital budgets associated with our plans of action tied to our climate targets.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	Yes	LyondellBasell aims to have a Board that provides effective oversight of the Company through the appropriate balance of experience, expertise, skills, competencies, specialized knowledge, and other qualifications and attributes. Director candidates also must be willing and able to devote the time and attention necessary to engage in relevant, informed discussion and decision-making. Our Nominating and Governance Committee focuses on Board succession planning and refreshment and is responsible for recruiting and recommending nominees to the full Board for election. The Committee considers the qualifications, contributions, and outside commitments of each current director in determining whether he or she should be nominated for re-election, including climate-related competence. Many of our directors serve on the boards and board committees of other companies, and the Committee believes this service provides additional experience and knowledge that improve the functioning of our own Board. For example, one of our Directors is Chairman of the international industry-led Oil and Gas Climate Initiative. Additionally, our Board and its committees evaluate their own effectiveness by participating in a robust annual self-assessment process, which includes an evaluation of whether the Board is composed of members with the right skills and experience and whether the Board devotes sufficient attention to ESG initiatives and sustainability, including climate issues.	<Not Applicable>	<Not Applicable>

C1.2

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

Position or committee
Chief Executive Officer (CEO)

Climate-related responsibilities of this position
Managing annual budgets for climate mitigation activities
Managing major capital and/or operational expenditures related to low-carbon products or services (including R&D)
Managing climate-related acquisitions, mergers, and divestitures
Providing climate-related employee incentives
Developing a climate transition plan
Implementing a climate transition plan
Integrating climate-related issues into the strategy
Conducting climate-related scenario analysis
Setting climate-related corporate targets
Monitoring progress against climate-related corporate targets
Managing public policy engagement that may impact the climate
Managing value chain engagement on climate-related issues
Assessing climate-related risks and opportunities
Managing climate-related risks and opportunities

Coverage of responsibilities
<Not Applicable>

Reporting line
Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line
Quarterly

Please explain
Our Chief Executive Officer (CEO) has overall responsibility for our climate change program as part of our wider sustainability strategy. The CEO heads the company's Executive Committee, many members of which play an active role in addressing strategic or operational matters concerning climate change.

In this role, our CEO oversees our progress through regular reporting and discussion on key topics and initiatives with direct reports. Key items include the development of climate-related corporate strategy including goals, monitoring progress against these goals, approving programs and initiatives towards the achievement of the goals and associated capital expenditure requirements. Along with our Chief Sustainability Officer (CSO), the CEO provides regular briefings to the Board concerning strategy and progress regarding climate initiatives. Monthly meetings are scheduled with the CEO and members of the Executive Committee to review progress against our climate targets and related programs and initiatives.

As part of our new strategy aligned with the company's purpose of creating solutions for everyday sustainable living, several internal organizations were created to manage different climate-related responsibilities. Examples include the creation of our Net Zero organization embedded in our Olefins & Polyolefins business unit responsible for the implementation of our climate transition plan, or the creation of the Circular & Low Carbon Solutions business unit to meet current and future demand for sustainable solutions, which includes managing major capital and operational expenditures related to low carbon products and solutions.

Position or committee
Chief Financial Officer (CFO)

Climate-related responsibilities of this position
Managing annual budgets for climate mitigation activities

Coverage of responsibilities
<Not Applicable>

Reporting line
CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line

More frequently than quarterly

Please explain
Our Chief Financial Officer (CFO) is directly accountable to the CEO for our capital allocation process and our Value Enhancement Program (VEP). Our Value Enhancement Program (VEP) expands capacity through low-cost debottlenecks and improved reliability, reduces costs and emissions by saving energy, and increases margins through improvements in procurement, logistics and customer service.

Position or committee
Other C-Suite Officer, please specify (Executive VP, Sustainability & Corporate Affairs)

Climate-related responsibilities of this position
Developing a climate transition plan
Integrating climate-related issues into the strategy
Setting climate-related corporate targets
Monitoring progress against climate-related corporate targets
Managing public policy engagement that may impact the climate
Managing value chain engagement on climate-related issues

Coverage of responsibilities
<Not Applicable>

Reporting line
CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line
More frequently than quarterly

Please explain
Our Executive VP, Sustainability and Corporate Affairs (S&CA), is directly accountable to the CEO for the steering and monitoring of our sustainability programs, including climate change, at a senior level. Our S&CA EVP is responsible for informing Company leadership, as well as the Board, about sustainability performance, strategy, and programs, including climate-related information.
Supported by the CSO, our S&CA EVP is responsible for the definition of our corporate targets on climate change across scopes 1, 2 and 3, and for integrating climate-related issues to our corporate strategy. Supported by our VP Government Affairs, our S&CA EVP is responsible for the development of our public policy principles and for the overall management of public policy engagement, including on climate-related issues.

Position or committee
Other C-Suite Officer, please specify (Executive VP, Olefins & Polyolefins and Global Procurement)

Climate-related responsibilities of this position
Managing annual budgets for climate mitigation activities
Implementing a climate transition plan

Coverage of responsibilities
<Not Applicable>

Reporting line
CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line
More frequently than quarterly

Please explain
Our Executive VP, Olefins & Polyolefins and Global Procurement is responsible for the execution of our climate strategy to achieve our scopes 1 and 2 targets to 2050, including interim scopes 1 and 2 targets.

Position or committee
Other C-Suite Officer, please specify (Executive VP, Circular and Low Carbon Solutions)

Climate-related responsibilities of this position
Managing major capital and/or operational expenditures related to low-carbon products or services (including R&D)

Coverage of responsibilities
<Not Applicable>

Reporting line
CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line
More frequently than quarterly

Please explain
Our Executive VP, Circular and Low Carbon Solutions is responsible for the development of our circular and low carbon solutions business and execution of our strategy to produce and market at least 2 million metric tons of recycled and renewable-based polymers annually by 2030.

Position or committee
Other C-Suite Officer, please specify (General Counsel)

Climate-related responsibilities of this position
Conducting climate-related scenario analysis
Assessing climate-related risks and opportunities

Coverage of responsibilities
<Not Applicable>

Reporting line
CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line
More frequently than quarterly

Please explain
Supported by our Enterprise Risk Management (ERM) team, the General Counsel is responsible for the assessment of climate-related risks and opportunities across the company. Further information on how we integrate climate-related risks and opportunities in our ERM process is found in C2.

C1.3

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

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	For 2022, ESG metrics accounted for 30% of the total payout under the Short-Term Incentive program (20% Safety and 10% Sustainability), reflecting the Company's ongoing commitment to safety, accountability and timely delivery of our climate and circularity goals. Under our sustainability metric, payout is based on the accomplishment of key milestones approved by the Compensation & Talent Development Committee of the Board. We believe that the sustainability metric ensures accountability and timely delivery of our climate and circularity goals. For 2022, we focused on four milestones: execution of renewable energy power purchase agreements, implementation of CO2 reduction projects, achievement of Circulen sales target, and progression of our MoReTec technology.

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).

Entitled to incentive
Corporate executive team

Type of incentive
Monetary reward

Incentive(s)
Bonus - % of salary

Performance indicator(s)
Achievement of climate transition plan KPI
Implementation of an emissions reduction initiative
Increased share of renewable energy in total energy consumption

Incentive plan(s) this incentive is linked to
Short-Term Incentive Plan

Further details of incentive(s)
Our Short-Term Incentive Plan includes a component tied to corporate performance defined during each year.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
For 2022, ESG metrics accounted for 30% of the total payout under the Short-Term Incentive program (20% Safety and 10% Sustainability), reflecting the Company's ongoing commitment to safety, accountability and timely delivery of our climate and circularity goals. Under our sustainability metric, payout is based on the accomplishment of key milestones approved by the Compensation & Talent Development Committee of the Board. We believe that the sustainability metric ensures accountability and timely delivery of our climate and circularity goals. For 2022, we focused on four milestones: execution of renewable energy power purchase agreements, implementation of CO2 reduction projects, achievement of Circulen sales target, and progression of our MoReTec technology.

Entitled to incentive
All employees

Type of incentive
Monetary reward

Incentive(s)
Bonus - % of salary

Performance indicator(s)
Achievement of climate transition plan KPI
Implementation of an emissions reduction initiative
Increased share of renewable energy in total energy consumption

Incentive plan(s) this incentive is linked to
Short-Term Incentive Plan

Further details of incentive(s)
Our Short-Term Incentive Plan includes a component tied to corporate performance defined during each year.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
For 2022, ESG metrics accounted for 30% of the total payout under the Short-Term Incentive program (20% Safety and 10% Sustainability), reflecting the Company's ongoing commitment to safety, accountability and timely delivery of our climate and circularity goals. Under our sustainability metric, payout is based on the accomplishment of key milestones approved by the Compensation & Talent Development Committee of the Board. We believe that the sustainability metric ensures accountability and timely delivery of our climate and circularity goals. For 2022, we focused on four milestones: execution of renewable energy power purchase agreements, implementation of CO2 reduction projects, achievement of Circulen sales target, and progression of our MoReTec technology.

Entitled to incentive
Other, please specify (Variable Cost Manager)

Type of incentive
Monetary reward

Incentive(s)
Bonus - % of salary

Performance indicator(s)
Implementation of an emissions reduction initiative

Incentive plan(s) this incentive is linked to
Short-Term Incentive Plan

Further details of incentive(s)
Our Short-Term Incentive Plan includes a component tied to individual employee performance and individual objectives defined during each year. Individuals in this group are evaluated based on goals and objectives for meeting energy and emission reduction targets.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
LyondellBasell has a network of energy leads who identify energy saving opportunities, manage energy reduction projects and disseminate best practices through our internal knowledge exchange system. They also provide guidance and assistance to sites that are certified under the ISO 50001 standard. These projects are part of our plan to reach our 2030 and 2050 scope 1 + 2 targets.

Entitled to incentive
Other, please specify (Net Zero VP)

Type of incentive
Monetary reward

Incentive(s)
Bonus - % of salary

Performance indicator(s)
Progress towards a climate-related target
Implementation of an emissions reduction initiative
Increased share of renewable energy in total energy consumption

Incentive plan(s) this incentive is linked to
Short-Term Incentive Plan

Further details of incentive(s)
Our Short-Term Incentive Plan includes a component tied to individual employee performance and individual objectives defined during each year. Our VP, Net Zero is evaluated based on goals and objectives linked to progress of our climate transition plan and related interim targets for scopes 1 and 2. .

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
Our newly created Net Zero organization is responsible for the execution of our climate transition plan for scopes 1 and 2 and the achievement of our interim and long term scopes 1 and 2 targets. The Net Zero leadership has specific individual performance objectives tied to these achievements.

Entitled to incentive
Other, please specify (EVP, Circular and Low Carbon Solutions)

Type of incentive
Monetary reward

Incentive(s)
Bonus - % of salary

Performance indicator(s)
Other (please specify) (volume of sold products from low carbon and circular products)

Incentive plan(s) this incentive is linked to
Short-Term Incentive Plan

Further details of incentive(s)
Our Short-Term Incentive Plan includes a component tied to individual employee performance and individual objectives defined during each year. Our EVP, Circular and Low Carbon Solutions, is evaluated based on goals and objectives linked to progress towards our 2MMt circularity target and associated financial objectives for our newly created Circular and Low Carbon Solutions business.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
Our newly created Circular and Low Carbon Solutions business unit is responsible for delivering on our ambition to produce and market 2 million metric tons of recycled and renewable-based polymers annually by 2030. The leadership for this business unit has specific individual performance objectives tied to these achievements.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?
Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	5	The timeframe is specifically defined for climate-related risks as part of our wider enterprise risk management process. We have defined longer timeframes for climate-related risks than we typically do for Enterprise risks due to the need for longer term forecasts.
Medium-term	5	20	The timeframe is specifically defined for climate-related risks as part of our wider enterprise risk management process. We have defined longer timeframes for climate-related risks than we typically do for Enterprise risks due to the need for longer term forecasts.
Long-term	20		The timeframe is specifically defined for climate-related risks as part of our wider enterprise risk management process. We have defined longer timeframes for climate-related risks than we typically do for Enterprise risks due to the need for longer term forecasts.

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

As part of our risk management process, LyondellBasell assesses both the maximum financial impact (worst case scenario) and minimum financial impact (best case scenario). The impacts need to take into account both the immediate consequences of a risk materializing and also the knock-on effects. For purposes of responding to this question 2.1b, a substantive financial or strategic impact on our business at the corporate level is defined as a risk with an EBITDA loss of more than 100MM USD. Beyond financial impacts, we also consider environmental, legislative, reputational, and people-related risks as part of our assessment. We classify risks irrespective of the defined occurrence based on financial and/or strategic impacts starting from insignificant, minor, moderate, major, and substantial.

EBITDA is a “non-GAAP” financial measure as defined in Regulation G under the U S Securities Exchange Act of 1934, as amended. We calculate EBITDA as income from continuing operations plus interest expense (net), provision for (benefit from) income taxes, and depreciation and amortization. This measure, as presented herein, may not be comparable to similarly titled measures reported by other companies due to differences in the way the measures are calculated.

Quantifiable indicators used as part of our assessment include:

1. Substantive financial risk: EBIDTA loss of at least 100MM USD, and/or increase in operating or capital costs of at least 2% of annual budgeted spend,

2. Substantive financial opportunity: Financial gains or increase in savings and efficiencies above 10MM USD

3. Substantive strategic opportunity: Contributes to competitive advantage, and/or progresses a corporate strategic goal

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered
Direct operations
Upstream
Downstream

Risk management process
Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment
More than once a year

Time horizon(s) covered
Short-term
Medium-term
Long-term

Description of process
Process description

1. Integration of the process into overall corporate risk management:
While the Company's CEO is responsible for assessing and managing the Company's day-to-day risks and related control systems, the Board has broad oversight of the Company's risk profile and risk management. In this oversight role, the Board is responsible for satisfying itself that the risk management processes designed and implemented by management are functioning and that necessary steps are taken to foster a culture of risk-adjusted decision-making throughout the organization. These processes and structures include the Company's Enterprise Risk Management (ERM) organization, Code of Conduct and related compliance program, internal controls function and disclosure committee meetings and controls, and a robust internal audit function. The Company believes that this division of responsibilities achieves sound risk management and that the Board's involvement ensures effective oversight. The primary means by which our Board oversees the Company's short-, intermediate-, and long-term risks is through regular communication with management. At each Board meeting, members of management are asked to report to the Board and, when appropriate, specific committees. These presentations provide members of the Board with direct communication with management and the information necessary for a full understanding of the Company's risk profile, including information regarding the Company's specific risk environment, climate scenarios, exposures potentially affecting our operations, and the Company's plans to address such risks. In addition to providing general updates on the Company's operational and financial condition, members of management report to the Board about the Company's outlook, forecasts, and any impediments to meeting them or to successfully pursuing the Company's strategies more generally.

LyondellBasell includes climate related risks and opportunities in its Enterprise Risk Management (ERM) Program managed by its ERM function. The results of the risk management processes and updates on material risks are reported to the Board and its committees on a regular basis. The Audit Committee is responsible for ensuring that an effective risk assessment process is in place, and reports are made to the Audit Committee.

There is, in addition, a dedicated Climate Change Risk Management Process that is a derivative of the overall ERM Program. This means that specific climate related risks are addressed through a structured and formal approach. The Climate Change Risk Management Process is facilitated by the ERM function with participation from various experts across the company. This includes representation from manufacturing, finance, investor relations, legal, supply chain, sustainability, government relations, public affairs, strategy, procurement, R&D, and business segments. The risks are evaluated with input and alignment from the Executive Committee members more frequently than once a year (2-4 times per year). The Climate Change Risk Management Process utilizes the six-step ERM risk management process that includes (for both risks and opportunities):
1) understand objectives, 2) identification, 3) assessment, 4) evaluation, 5) response, and 6) monitoring and reviewing. This is an iterative and dynamic process that is based on the International Standard ISO31000.

2. Process for identifying risks: Climate related risks and opportunities are identified at an enterprise level (i.e., with the Executive Committee), department level (manufacturing sites) and at a program/project level where appropriate. For identification of risks and opportunities that could have a substantive financial or strategic impact, we analyse the nature of the risk and determine the level of risk exposure (both the likelihood of the risk occurring, and the impact if it occurs) against specific time horizons (short, medium and long term). The method to identify risks are undertaken through semi-structured risk interviews, workshop brainstorming with a range of participants, anonymized risk surveys, and input from external subject matter experts.

3. Process for assessing risks: Assessing risks involves likelihood and impact ratings against specific time horizons (short, medium, and long term). The assessment of likelihood considers any previous instances of the risk occurring either internally or externally of LyondellBasell. By analysing historic event data in conjunction with current controls and early warning indicators, an estimated likelihood can be determined. Impact is the effect of the risk occurring. This can be assessed using both financial criteria and non-financial criteria such as regulatory, safety, reputational and people impacts. The impacts consider both the immediate consequences of a risk materializing and also the knock-on effects. The impact is assessed based on the "primary impact category," i.e., what impact is credible and would matter the most if the risk was to ever occur. This likelihood and impact assessment leads to a risk rating.
Further evaluation of the risk establishes whether additional actions are required to meet the aspirational risk exposure. For climate-related risks, the risk assessment process includes consideration of two additional factors - vulnerability and velocity. This helps to determine prioritization of risks. For climate-related risks, the additional factors support prioritization when the likelihood and impact assessment for risks are the same. Risks can then be differentiated based on how quickly they may arise and the ability to address them.

4. Process for managing risks: Each identified and assessed risk is evaluated using defined criteria to determine whether it is within an acceptable level of risk exposure. To reduce risk exposure, potential risk responses are evaluated for feasibility and utilizing a cost-benefits analysis considering short, medium, and long-term horizons. Furthermore, to manage and monitor such risks, early warning indicators which are measurable over time are developed for each risk and actions are tracked with risk owners.

C2.2a

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	As an energy intensive business, LyondellBasell is impacted by existing and emerging energy and climate legislation. For example, the European Union (EU) Emissions Trading System (ETS) has a direct impact on our operational costs. The majority of our European production sites are included in the EU ETS, representing 25% of our total scope 1 emissions. LyondellBasell currently incorporates the allocation of credits and costs associated with the ETS into annual and long-range financial planning, as well as factoring it into analysis or planning carried out by the engineering and manufacturing organizations.
Emerging regulation	Relevant, always included	There has been a broad range of proposed international, national, and state laws focusing on greenhouse gas ("GHG") emission reduction and global climate change. These proposed laws could apply in countries where we have interests or may have interests in the future. Laws and regulations in this field continue to evolve and, while they are likely to be increasingly widespread and stringent, it is not currently possible to accurately estimate either a timetable for implementation or our future related compliance costs. Under the 2015 Paris Agreement, parties to the United Nations Framework Convention on Climate Change agreed to undertake ambitious efforts to reduce GHG emissions and strengthen adaptation to the effects of climate change. Jurisdictions in which we operate, including the European Union (EU), are preparing legislation and protection plans to implement their emission reduction commitments under the Paris Agreement. In May 2023, the EU adopted regulations to support the 2030 climate target, including a revision of the EU ETS, and the introduction of a Carbon Border Adjustment Mechanism (CBAM). While chemicals and polymers are not currently covered by the CBAM, we anticipate the EU will be evaluating their inclusion before the end of 2025. Our operations in Europe participate in the ETS and we meet our obligations through a combination of free and purchased emission allowances. We anticipate the forthcoming regulations will result in an accelerated reduction of our free allowances and higher market prices for purchased allowances. These and other future regulations could result in increased costs, additional capital expenditures, and/or restrictions on operations. In the U.S., addressing climate change is a stated priority of President Biden. In 2021, the U.S. recommitted to the Paris Agreement after having withdrawn in August 2017. The U.S. Environmental Protection Agency as well as several state governments have promulgated regulations directed at GHG emissions reductions from certain types of facilities. Additional regulations could be forthcoming at the U.S. federal or state level that could result in increased operating costs for compliance, required acquisition or trading of emission allowances, or compliance costs associated with additional regulatory frameworks for a range of potential carbon reduction projects, including carbon capture, use, and sequestration projects. Additionally, demand for the products we produce may be reduced.
Technology	Relevant, always included	Risks related to developments in GHG emission reduction technologies may have a direct impact on our ability to meet reduction targets, for example through changes in our production processes and our ability to provide products meeting our customers' climate goals. We strongly believe in the role emerging technologies will have to play to reduce GHG emissions in the chemical sector. Cross functional teams assess new technology developments and their suitability in LyondellBasell's operations and to meet our reduction targets, for example, in the areas of olefin production technology, carbon emission capture, storage and reuse, hydrogen, process electrification including steam crackers, and hydrogen.
Legal	Relevant, always included	LyondellBasell considers the potential for litigation and other legal risks in its climate-related risk assessments. For example, we monitor the development of climate-related litigation in the jurisdictions that are relevant to the company and apply insights from those developments to our risk assessments. A 2021 court ruling in the Netherlands holding that a large global company was required to accelerate GHG reduction efforts because the applicable standard of care incorporates human rights obligations illustrates the potential risk of climate litigation increasing in the future. Should LyondellBasell become subject to a similar court ruling in this type of litigation, it could increase the cost of meeting our climate goals due to an accelerated pace and may also lead to reputational risk or loss of stakeholder confidence.
Market	Relevant, always included	There is an increasing awareness in downstream markets of the overall GHG footprint of products. Changing customer demand related to climate change may also create threats or opportunities based on our speed and ability to respond adequately. For example, should LyondellBasell be considered as insufficient in addressing climate challenges to the expectations of our stakeholders and customers, this could result in adverse financial effects, such as loss of market share from customer deselection, departure of employees, or loss of shareholder support. In 2022, we worked alongside several top businesses to introduce solutions from our Circulen portfolio of polymers derived from mechanical recycling (CirculenRecover), renewable-based feedstocks (CirculenRenew) and advanced recycling (CirculenRevive). As we continue to focus on the future beyond, we took action to establish a Circular and Low Carbon Solutions (CLCS) business to deliver on our ambition to produce and market 2 million metric tons of recycled and renewable-based polymers annually by 2030. Since 2019, we have sold more than 175,000 tons of these polymers.
Reputation	Relevant, always included	There is a risk our response to climate change could impact our reputation with stakeholders including our communities, customers and shareholders. For example, should LyondellBasell be considered as insufficient in addressing climate challenges to the expectations of our stakeholders and customers, this could result in adverse financial effects, such as loss of market share from customer deselection, departure of employees, or loss of shareholder support.
Acute physical	Relevant, always included	Weather and other climatic events may affect our supply chain and our operations, for example in regions that are potentially vulnerable to hurricanes such as the U.S. Gulf Coast. Potential acute physical impacts of climate change include increased frequency and severity of hurricanes and floods as well as drought conditions. Although we have preparedness plans in place designed to minimize impacts and enhance safety, should an event occur, it could have the potential to disrupt our supply chain and operations. For example, a number of our operations are located on the U.S. Gulf Coast, which has been impacted by hurricanes that have required us to temporarily shut down operations at those sites.
Chronic physical	Relevant, always included	Potential chronic physical impacts of climate change include global sea level rise and chronic drought conditions. For example, we have observed restrictions to shipping feedstock due to the depletion of the Rhine River in Germany in times of unseasonal weather variation.

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 & Primary climate-related risk driver

Current regulation	Carbon pricing mechanisms

Primary potential financial impact

Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

LyondellBasell has manufacturing sites in the European Union that fall under the scope of the EU ETS, including in Germany, France, the Netherlands, Italy, and the United Kingdom. The European Union is preparing national legislation and protection plans to implement their emission reduction commitments under the Paris Agreement. In June 2021, the European Climate Law set legally binding targets of net zero GHG emissions by 2050, and a 55% reduction in GHG emissions by 2030. In May 2023, the EU

adopted regulations to support the 2030 climate target, including a revision of the EU Emissions Trading System (ETS), and the introduction of a Carbon Border Adjustment Mechanism (CBAM). While chemicals and polymers are not currently covered by the CBAM, we anticipate the EU will be evaluating their inclusion before the end of 2025. Our operations in Europe participate in the ETS and we meet our obligations through a combination of free and purchased emission allowances. These operations represent 25% of our overall scope 1 emissions, or approximately 3.6 million metric tons of GHG emissions.

LyondellBasell anticipates the forthcoming EU regulations will result in an accelerated reduction of our free allowances and higher market prices for purchased allowances. Based on an estimated reduction in free allowances allocated to LyondellBasell resulting in a projected shortfall of 1-2 million allowances over a 5-year period, and a projected market price of EU ETS allowances (EUAs) of between 80 to 150 EUR per metric ton, we estimate a potential financial impact due increased costs to procure additional EUAs of between 80 to 300 million EUR over a five-year period.

As part of our corporate target to reach net zero GHG emissions in 2050 for scopes 1 and 2, and our interim 2030 target to reduce scopes 1 and 2 GHG emissions by 42%, we have put in place an ambitious emission reduction program, including plans for our European assets, which relies on several levers including improving energy efficiency, switching to lower carbon intensive fuels including hydrogen, electrifying process equipment, and capturing, reusing and/or storing CO2.

Time horizon
Medium-term

Likelihood
About as likely as not

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
80000000

Potential financial impact figure – maximum (currency)
300000000

Explanation of financial impact figure
The breakdown of the financial impact range figure has been developed based on the following considerations and assumptions.

We have taken into consideration several factors, including the increase in the EU's interim emission reduction target from 40% to 55%, the recent regulatory developments that will result in an accelerated reduction in the provision of free allowances, and the impact of the different reduction initiatives we have planned at our manufacturing sites that fall under the scope of the EU ETS. These different reduction initiatives which are at different stages of implementation at our manufacturing sites, may allow us to reduce our total footprint by up to approximately 500,000 metric tonnes of GHG emissions per year, thereby also reducing our exposure to EAU price increases.

Our forecast looks at a five-year period from 2023 to 2027. By the end of this period, we estimate LyondellBasell could have a total shortfall of 1 to 2MM allowances. While current prices average between 80-90EUR per EUA, we expect those prices to increase to between 80 to 150 EUR per ton. This translates into a range of potential increased operating costs by 2027 between:

1 million allowances * 80 EUR certificate price = 80 million EUR (minimum, low end of the range)

and

2 million allowances * 150 EUR certificate price = 300 million EUR (maximum, high end of the range).

Cost of response to risk
28704700

Description of response and explanation of cost calculation
1. Case study
Situation:
We anticipate an increase in our indirect operating costs due to regulatory developments under the EU ETS. As part of our climate ambition, we have committed to reaching net zero emissions in our scopes 1 and 2 by 2050, with an interim target of a 42% reduction by 2030. We have put in place an ambitious reduction program to meet this commitment, including for our European manufacturing assets.
Task:
Our teams in Europe are tasked with the identification, development, and implementation of emission reduction initiatives with the double objective of contributing to meet our 2030 and 2050 targets and reducing our exposure to the risk of increased cost of EU ETS allowances (EUAs), which could negatively impact our indirect operating costs.
Action:
As part of these efforts, our dedicated team at our largest European site in Wesseling has developed a project to phase out the use of coal from our utilities. In parallel, LyondellBasell has been working with Evonik on an agreement to purchase high-pressure steam by Evonik, connecting with their neighboring site and optimizing steam supply and demand between both sites.
Result:
Starting in 2024, we estimate this new steam purchase agreement with Evonik, coupled with the phaseout of the use of coal, will reduce GHG emissions by approximately 150kt per year at our Wesseling site. This project will be an important part of our overall approach to reducing GHG emissions at our Wesseling site and helping meet our corporate 2030 and 2050 goals. This project is also anticipated to reduce our exposure to increased indirect operating costs linked to increases in EUA prices.

2. Explanation and breakdown of cost of response
In this case study, reducing onsite energy production from the phaseout of coal will require an increase in the volume of purchased electricity. We estimate this increase will be approximately 90,000 MWh per year. Assuming an electricity cost of 257.83 USD per MWh (2022 prices), the additional electricity demand will bring an annual cost increase of 23,204,700 USD per year. We also estimate annual cost linked to the purchase of the steam to be approximately 5,500,000 USD per year, bringing the total cost of response to 28,704,700 USD per year. While this number represents an anticipated increased cost associated with the project, the project also allows us to reduce our operating spend on fuels and maintenance and is expected to result in a net cost savings (see C2.4a).

Comment

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?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Use of more efficient production and distribution processes

Primary potential financial impact
Reduced direct costs

Company-specific description
As part of our corporate target to reach net zero GHG emissions in 2050 for scopes 1 and 2, and our interim 2030 target to reduce scopes 1 and 2 GHG emissions by 42%, we have put in place an ambitious emission reduction program, including plans for our European assets, which relies on several levers including improving energy efficiency, switching to lower carbon intensive fuels including hydrogen, electrifying process equipment, and capturing, reusing and/or storing CO2.

As we develop plans to reduce GHG emissions at our sites, projects under these plans will not only contribute toward our 2030 goal, but also, in some cases, reduce our energy and fuel demand, thereby reducing direct operating costs. For example, our site roadmap for Wesseling includes a number of projects to reduce site GHG emissions, including an approximately 150kt per year GHG emission reduction project involving the shutdown of a coal-fueled onsite boiler. We estimate we will reduce our fuel consumption at our power plant in Wesseling by approximately 480,000MWh per year due to this project. Taking into consideration other costs and savings associated with the project, we anticipate this project will result in net savings of approximately 36MMUSD per year.

Time horizon
Medium-term

Likelihood
Likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
35769700

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
The financial impact figure represents the estimated cost savings from reduced energy and fuel demand as well as decreased maintenance needs, less the increase in costs associated with an increase in purchased electricity, associated with anticipated operating changes in conjunction with the emission reduction project at Wesseling described in this case study.

The figure of USD 35,769,700 is based on the following.

We estimate that the implementation of the Wesseling coal-fired boiler shutdown project will result in reduced energy and fuel demand of approximately 480,000 MWh per year. Assuming a fuel market price of 127.03 USD per MWh (based on an average of 2022 market prices across different regions), this reduction in energy and fuel demand would result in a savings of 60,974,400 USD per year.

Since the project will also result in a decrease in onsite electricity production, additional electricity will need to be procured. We estimate the additional purchased electricity need will be approximately 90,000 MWh per year. Assuming an electricity market price of 257.83 USD per MWh (based on average 2022 prices), the additional purchased electricity needs are estimated to cost 23,204,700 USD per year.

The project includes the need to purchase emergency steam from Evonik due to the shutdown of the onsite boiler. We estimate these costs to be approximately 5,500,000 USD per year.

Finally, implementation of the project is estimated to reduce maintenance costs by approximately 3.5MM USD per year.

The total impact figure was calculated as follows: (480,000 MWh * 127.03 USD/MWh) – (90,000 MWh * 257.83 USD/MWh) – 5,500,000 USD + 3.5MM USD = 35,769,700 USD.

Cost to realize opportunity
28704700

Strategy to realize opportunity and explanation of cost calculation
1. Case study

Situation:
We anticipate an increase in our indirect operating costs due to regulatory developments under the EU ETS. As part of our climate ambition, we have committed to reaching net zero emissions in our scopes 1 and 2 by 2050, with an interim target of a 42% reduction by 2030. We have put in place an ambitious reduction program to meet this commitment, including for our European manufacturing assets.
Task:
Our teams in Europe are tasked with the identification, development, and implementation of emission reduction initiatives with the double objective of contributing to meet our 2030 and 2050 targets and reducing our exposure to the risk of increased cost of EU ETS allowances (EUAs), which could negatively impact our indirect operating costs.
Action:
As part of these efforts, our dedicated team at our largest European site in Wesseling has developed a project to phase out the use of coal from our utilities. In parallel, LyondellBasell has been working with Evonik on an agreement to purchase high-pressure steam by Evonik, connecting with their neighboring site and optimizing steam supply and demand between both sites.
Result:
Starting in 2024, we estimate this new steam purchase agreement with Evonik, coupled with the phaseout of the use of coal, will reduce GHG emissions by approximately 150kt per year at our Wesseling site. This project will be an important part of our overall approach to reducing GHG emissions at our Wesseling site and helping meet our corporate 2030 and 2050 goals. This project is also anticipated to reduce our exposure to increased indirect operating costs linked to increases in EUA prices.

2. Explanation and breakdown of cost of response
In this case study, reducing onsite energy production from the phaseout of coal will require an increase in the volume of purchased electricity. We estimate this increase will be approximately 90,000 MWh per year. Assuming an electricity cost of 257.83 USD per MWh (2022 prices), the additional electricity demand will bring an annual cost increase of 23,204,700 USD per year. We also estimate annual cost linked to the purchase of the steam to be approximately 5,500,000 USD per year, bringing the total cost of response to 28,704,700 USD per year.

Comment

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a climate transition plan that aligns with a 1.5°C world?

Row 1

Climate transition plan
Yes, we have a climate transition plan which aligns with a 1.5°C world

Publicly available climate transition plan
Yes

Mechanism by which feedback is collected from shareholders on your climate transition plan
We have a different feedback mechanism in place

Description of feedback mechanism
We recognize the value of regular and consistent communication with our shareholders and we engage with investors on strategy, risk management, sustainability, corporate governance, executive compensation, and other matters. We regularly review general governance trends and emerging best practices and invite feedback from our shareholders and other stakeholders, which is brought to our Board and helps inform its decision-making process and understanding of corporate governance trends and best practices. Engagement with shareholders occurs in one-on-one meetings and calls with shareholder representatives, at our annual general meeting of shareholders, and through our regular participation in industry conferences, investor road shows, and analyst meetings.

In 2022, we discussed the Company's strategy and environmental, social, and governance profile with multiple investors and engaged their questions or concerns on these and other topics. Our Chief Sustainability Officer and our Head of Investor Relations regularly join meetings to discuss our climate, circularity, and sustainability ambitions. In addition, our independent Board Chair has made himself available for these discussions. Management updates the Board regularly on conversations with shareholders and feedback received. We are committed to remaining proactive in our engagement efforts and shareholder outreach.

Frequency of feedback collection
More frequently than annually

Attach any relevant documents which detail your climate transition plan (optional)
2022-lyb-sustainability-report.pdf

Explain why your organization does not have a climate transition plan that aligns with a 1.5°C world and any plans to develop one in the future
<Not Applicable>

Explain why climate-related risks and opportunities have not influenced your strategy
<Not Applicable>

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy	Primary reason why your organization does not use climate-related scenario analysis to inform its strategy	Explain why your organization does not use climate-related scenario analysis to inform its strategy and any plans to use it in the future
Row 1	Yes, qualitative, but we plan to add quantitative in the next two years	<Not Applicable>	<Not Applicable>

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios: IRENA	Company-wide	<Not Applicable>	We have used qualitative scenario analysis for the further development of our climate strategy and as part of our regular risk evaluation process. We developed two scenarios until 2050. The first scenario is a future state up to 2050 with limiting global warming to well below 2°C, and the second scenario looks to a future state in line with 4°C global warming (the business-as-usual scenario). Both the scenarios have been developed based on input and models from IRENA World Energy Transitions Outlook (1.5 C pathway), IPCC RCP 2.6 (well below 2°C), IPCC RCP 8.5 (4°C global warming), as well as the IEA Sustainable Development Scenario 2020. These scenarios are also supported by relevant sector-specific publications. The PESTEL framework (Political, Environmental, Social, Technological, Economical, Legal) has been applied to capture key external driving forces, which are the underlying reasons for change in the magnitude of the probability, consequence, vulnerability, and velocity of the risks. The driving forces have been selected based on potential financial or strategic impact on our organization and the uncertainty involved. Examples of driving forces are government stability, international climate change policy, availability of feedstock and low carbon technologies. Time horizon: The time horizon considered in our scenario exercise extends to 2050, with a mid-point at 2030 to align with the goals of the Paris Agreement on a global decarbonization by 2050. Areas of our organization considered as part of the scenario analysis: The scenario analysis covers all business segments, geographic locations where LyondellBasell operates, and our major production sites. The development of scenarios, inputs, assumptions, and analytical methods used to substantiate each scenario were supported by an external consultant in collaboration with LyondellBasell stakeholders.
Physical climate scenarios: RCP 8.5	Company-wide	<Not Applicable>	We have used qualitative scenario analysis for the further development of our climate strategy and as part of our regular risk evaluation process. We developed two scenarios until 2050. The first scenario is a future state up to 2050 with limiting global warming to well below 2°C, and the second scenario looks to a future state in line with 4°C global warming (the business-as-usual scenario). Both the scenarios have been developed based on input and models from IRENA World Energy Transitions Outlook (1.5 C pathway), IPCC RCP 2.6 (well below 2°C), IPCC RCP 8.5 (4°C global warming), as well as the IEA Sustainable Development Scenario 2020. These scenarios are also supported by relevant sector-specific publications. The PESTEL framework (Political, Environmental, Social, Technological, Economical, Legal) has been applied to capture key external driving forces, which are the underlying reasons for change in the magnitude of the probability, consequence, vulnerability, and velocity of the risks. The driving forces have been selected based on potential financial or strategic impact on our organization and the uncertainty involved. Examples of driving forces are government stability, international climate change policy, availability of feedstock and low carbon technologies. Time horizon: The time horizon considered in our scenario exercise extends to 2050, with a mid-point at 2030 to align with the goals of the Paris Agreement on a global decarbonization by 2050. Areas of our organization considered as part of the scenario analysis: The scenario analysis covers all business segments, geographic locations where LyondellBasell operates, and our major production sites. The development of scenarios, inputs, assumptions, and analytical methods used to substantiate each scenario were supported by an external consultant in collaboration with LyondellBasell stakeholders.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

Scenarios were chosen to assess LyondellBasell's ability to address climate-related risks pertaining to both transition and physical risks.

Transition scenarios

- How could developments in international, national and local laws focusing on greenhouse gas (GHG) emissions impact our company?
- How might consumer demand evolve under different scenarios and what would the impact be to the demand for LyondellBasell's products?
- How might different key low carbon technologies reach the necessary technology and market maturity needed to support LyondellBasell's efforts?

Physical scenarios:

- What should LyondellBasell take into account in our preparedness plans to minimise impacts from an increase in frequency and severity of extreme weather events, such as hurricanes, floods, freezing conditions, droughts, or sea level rise?

Results of the climate-related scenario analysis with respect to the focal questions

Our risk management process analyzed several transition and physical risks including increase in temperature, low water level, water stress, extreme weather events, regulations and standards on carbon emissions and other environmental regulations, low carbon technologies, electrification and green hydrogen, replacement of energy-intensive technology, feedstock availability, shift in expectations from business partners, potential changing market demand, insurance capacity, cost of capital and market demand for transparency. The analysis has been used to classify risks in terms of likelihood and as input into our long term business planning process. The qualitative insights from these scenarios are a starting point for use as inputs into wider business strategy, and will continue to be enriched with a range of inputs.

The scenarios we ran showed that, with respect to physical risk, although we have preparedness plans in place, should an event occur, it could have the potential to disrupt our supply chain and operations. Several of our facilities are located on the U.S. Gulf Coast, which has been impacted by hurricanes. Landslides occurring near key supply arteries could create disruptions to rail networks. Our sites rely on rivers for transportation that may experience restrictions in times of drought or other unseasonal weather variation. In addition, scarcity of water and drought conditions due to climate change could reduce the availability of fresh water needed to produce our products which could increase our costs of operations.

The scenarios we ran showed that, with respect to transition risk, international climate change policy may result in increases in carbon pricing with an indirect impact on the costs of our operations and price of goods. Low carbon technologies may not be commercially mature or available in sufficient capacity to reduce the GHG footprint of our operations. Similarly, alternative feedstocks, whether renewable-based or derived from plastic waste, may also not be available in volumes necessary to sufficiently reduce feedstock-related emissions.

We have revised our corporate targets for 2030 and increased our scope 1 and 2 target to a 42% reduction in absolute emissions from 2020 levels. As we continue to focus on the future beyond, and to meet growing customer demands for low carbon products, we took action in 2022 to establish a Circular and Low Carbon Solutions (CLCS) business to deliver on our ambition to produce and market 2 million metric tons of recycled and renewable-based polymers annually by 2030. CLCS is also responsible for securing access to renewable and circular (plastic waste) feedstock. For example, in 2022, we formed a joint venture with 23 Oaks Investment to build an energy efficient, advanced plastic waste sorting facility in Germany for waste mostly incinerated today that will secure a source of plastic waste feedstock for our advanced recycling plant that we are planning in our Wesseling site.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	LyondellBasell believes that there may be an increase in demand for more sustainable products in the future due to an increasing interest in carbon reduction and circularity from our customers and wider society. In the second half of 2022 we established our Circular and Low Carbon Solutions business unit to address the rapidly growing demand for recycled and renewable-based products. We are securing recycled and renewable feedstocks and building regional hubs to leverage our technologies and provide powerful advantages for our comprehensive business model.
Supply chain and/or value chain	Yes	We have started the evaluation of climate-related risks and opportunities in our supply and value chain. As part of that evaluation, we are working toward establishing an accurate baseline and understanding the impact of emissions from our supply chain on our overall footprint. We consider short-, medium- and long-term impacts to our business objectives in our assessment. In 2022, we continued to engage with our suppliers in the context of our sustainable procurement program, where we aim to assess at least 70% of our key suppliers by 2025. As part of this engagement, we are working with our suppliers to obtain Product Carbon Footprint (PCF) data for our procured goods in line with the guidance developed through Together for Sustainability (TfS), and in particular with our feedstock suppliers which represent a significant portion of our scope 3 category 1 emissions. We have also successfully collaborated with a number of our customers on the development of products with a lower carbon footprint. Successful collaborations with our customers include our collaboration with Nippon Paint China, a top household paint brand among Chinese consumers, creating packaging using our CirculenRecover mechanically recycled polymer resins. In another example of value chain collaboration, LyondellBasell is collaborating with Audi to help close the loop on mixed automotive plastic waste. Audi is installing seatbelt buckle covers in its Q8 e-tron model line. These are made using LyondellBasell polymers that support the sourcing of feedstocks from mixed automotive plastic waste. We also continued to engage with our logistics suppliers to better understand emissions linked to the transportation of our products to our customers, and reviewed opportunities to optimize our distribution routes to reduce GHG emissions. We participated in the development of the Global Logistics Emissions Council (GLEC) guidance for the European Chemical Industry as part of the Smart Freight Centre and are working with logistics suppliers to improve the accuracy of emissions reporting to guide optimization efforts.
Investment in R&D	Yes	International organisations, such as the International Energy Agency, recognise the hard to abate nature of GHG emissions in the chemical industry, in large part because technologies needed to achieve deep emission reductions are not sufficiently mature for large scale deployment. As such, emerging technologies such as low emission hydrogen, CCUS, or process electrification, will play a significant role in the reduction of GHG emissions in the chemical sector, and have the potential to drive the transformational changes needed to enable larger-scale emission reductions. In our evaluation of the abatement potential for each of these technologies, we consider short-, medium- and long-term impacts to our business objectives in our assessment. We have been actively pursuing R&D investments to support the development of these technologies. For example, to further advance the demonstration of our MoReTec technology, we announced a decision in November 2022 to move forward with engineering to build an advanced MoReTec recycling plant at our Wesseling site. This commercial scale advanced recycling plant would convert pre-treated plastic waste into feedstock for new plastic production. The final investment decision is targeted for the end of 2023. In October 2022, we announced the development of a prototype project for a Digital Product Passport (DPP) in collaboration with software provider Circularise, and Neste, QCP, Uponor and Samsonite. This prototype uses Circularise's traceability software to create an unique digital record of a product capable of detailing its environmental impact and recording changes in its physical lifecycle. The ability to share climate-related data across the value chain is critical for the management of scope 3 emissions. In June 2023, we announced the signature of a memorandum of understanding (MOU) with Technip Energies and Chevron Phillips Chemical to potentially design, construct and operate a demonstration unit using Technip Energies' electric steam cracking furnace technology (eFurnace by T.EN™). A joint development agreement is expected to be signed later in 2023. This new eFurnace technology could enable us to use renewable electricity as a heat source for the olefins cracking process in the future, significantly reducing the GHG footprint of the olefins production process and helping us meet our ambitious climate targets.
Operations	Yes	Our European sites are subject to the EU ETS and have already incorporated carbon pricing in their business and financial planning. Similar carbon pricing mechanisms are being implemented in other regions of the world where we have an operational footprint. We consider short, medium, and long-term impacts of existing and emerging carbon pricing regulations in our analyses. In 2022, we announced the creation of our new Net Zero organization responsible for the execution of our strategy to reach our interim and long-term targets for scopes 1 and 2 emissions reduction. This organization is responsible for reducing emissions at our major manufacturing sites as part of our progress against our corporate climate target, thus also helping mitigate the potential financial impact of anticipated regulatory requirements under the EU ETS. We are focused on several different emission reduction levers including energy efficiency; fuel switching; carbon capture, storage, and utilization; electrification; and low carbon energy to reach our climate goals. The cessation of refining operations at our Houston Refinery no later than the first quarter of 2025 will also contribute to reducing GHG emissions.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Indirect costs Capital expenditures Access to capital Assets Liabilities	Our financial planning considers climate-related risks and opportunities related to revenues, costs, capital expenditures, acquisitions and divestments, access to capital, and assets and liabilities over the short, medium and long terms. Our commitment to sustainability and climate action has continued to evolve and is an important consideration in setting corporate strategy. This has led to the development of our climate transition plan for LyondellBasell to achieve its interim and long-term climate targets. To achieve our targets, we expect capital spending in the future will include investments to support lowering emissions in our operations. We also anticipate incurring costs for environmental compliance, including compliance with potential legislation and potential regulation related to climate change. We expect capital spending to support sustainability ambitions, including climate, will represent approximately 15% of total capital expenditures over the next two years. While many of the GHG emissions reduction projects are still in the early stages of development, we will evaluate, pursue and prioritize our GHG emission investments based on a rate of return for the project. Case study on direct costs: Our energy-related costs are a significant portion of our direct operating costs, and, for our European sites under the EU ETS, include the cost of allowances. As such, we saw value in identifying projects that could reduce our energy use and at the same time reduce our CO2 emissions. Our Value Enhancement Program aims in part to optimize the use of feedstock, energy, and other raw materials with the potential to have a significant impact on our operating costs. Projects under this program can also have a direct impact on our scope 1 and 2 emissions, which can allow us to mitigate our risk of increased costs under the EU ETS. Examples include minimizing losses from flaring operations and using advanced controls and energy optimizers to minimize energy use in our sites. Through this program, we continue to optimize our overall energy consumption and minimize CO2e emissions. In 2022, projects under this program reduced energy use by 192,720 MWh and scope 1 emissions by approximately 117,598 metric tonnes of CO2e.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition	Indicate the level at which you identify the alignment of your spending/revenue with a sustainable finance taxonomy
Row 1	Yes, we identify alignment with our climate transition plan	<Not Applicable>

C3.5a

(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization's climate transition.

Financial Metric
CAPEX

Type of alignment being reported for this financial metric
Alignment with our climate transition plan

Taxonomy under which information is being reported
<Not Applicable>

Objective under which alignment is being reported
<Not Applicable>

Amount of selected financial metric that is aligned in the reporting year (unit currency as selected in C0.4)

Percentage share of selected financial metric aligned in the reporting year (%)

Percentage share of selected financial metric planned to align in 2025 (%)

Percentage share of selected financial metric planned to align in 2030 (%)

Describe the methodology used to identify spending/revenue that is aligned
To achieve our targets, we expect capital spending in the future will include investments to support lowering emissions in our operations. We also anticipate incurring costs for environmental compliance, including compliance with potential legislation and potential regulation related to climate change. We expect capital spending to support sustainability ambitions, including climate, will represent approximately 15% of total capital expenditures over the next two years. While many of the GHG emissions reduction projects are still in the early stages of development, we will evaluate, pursue and prioritize our GHG emission investments based on a rate of return for the project.

C4. Targets and performance

C4.1

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

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number
Abs 1

Is this a science-based target?
Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

Target ambition
1.5°C aligned

Year target was set
2021

Target coverage
Company-wide

Scope(s)
Scope 1
Scope 2

Scope 2 accounting method
Market-based

Scope 3 category(ies)
<Not Applicable>

Base year
2020

Base year Scope 1 emissions covered by target (metric tons CO2e)

15556728

Base year Scope 2 emissions covered by target (metric tons CO2e)
7623272

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year total Scope 3 emissions covered by target (metric tons CO2e)
<Not Applicable>

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)
23180000

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1
100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2
100

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)
<Not Applicable>

Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)
<Not Applicable>

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes
19

Target year
2030

Targeted reduction from base year (%)
42

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]
13444400

Scope 1 emissions in reporting year covered by target (metric tons CO2e)
14718006

Scope 2 emissions in reporting year covered by target (metric tons CO2e)
7375819

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)
22093825

Does this target cover any land-related emissions?
No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

% of target achieved relative to base year [auto-calculated]
11.1567340482353

Target status in reporting year
Revised

Please explain target coverage and identify any exclusions
The reporting boundary is company-wide. Our company 2030 target is across scopes 1, 2, and 3. Our scope 3 target is reported separately here due to a different targeted reduction between scopes 1 and 2 (42% reduction) and scope 3 (30% reduction).

Plan for achieving target, and progress made to the end of the reporting year
Our 2030 strategy for scope 1 and 2 emissions includes a portfolio of projects categorized under the levers listed below. We take into account organic growth and divestitures and previously announced closures of assets. We have accounted for the additional emissions from our new PO/TBA plant in Channelview, Texas, commissioned in March 2023. As announced in May 2023, we plan to cease refining operations at the Houston refinery no later than the end of first quarter 2025. This is expected to reduce scope 1 and scope 2 emissions by more than 3 million metric tons annually.

Levers for reducing scope 1 and scope 2 emissions by 2030 include: Electrification, Fuel switching (the use of hydrogen and other fuels with low carbon intensity to displace higher carbon intensive fuels), Carbon capture storage and utilization, and low Carbon Energy (reducing emissions associated with our purchased electricity and steam needs by sourcing electricity from renewable energy projects, and collaborating with utility suppliers to lower the carbon intensity of the energy we purchase).

As part of our efforts to reduce the emission footprint of our purchased electricity, we have committed to procure at least 50% of our electricity from renewable sources by 2030, based on 2020 procured levels. Through the signing of several power purchase agreements (PPAs) in 2022 and 2023, the majority of which are virtual PPAs, LyondellBasell has achieved 70% of this goal. In total, these PPAs will reduce our company's scope 2 emissions by more than 1 million metric tons per year when the projects are operational.

List the emissions reduction initiatives which contributed most to achieving this target
<Not Applicable>

Target reference number
Abs 2

Is this a science-based target?
Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

Target ambition
Well-below 2°C aligned

Year target was set
2022

Target coverage
Company-wide

Scope(s)
Scope 3

Scope 2 accounting method
<Not Applicable>

Scope 3 category(ies)
Category 1: Purchased goods and services
Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2)
Category 4: Upstream transportation and distribution
Category 11: Use of sold products
Category 15: Investments

Base year

2020

Base year Scope 1 emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 2 emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)
27355369

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)
2020382

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)
989893

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)
42994244

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)
2497208

Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year total Scope 3 emissions covered by target (metric tons CO2e)
75857096

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)
75857096

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1
<Not Applicable>

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2
<Not Applicable>

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)
100

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)
100

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e)
100

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO2e)
100

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)
100

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)
<Not Applicable>

Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)
79.5

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes
63.96

Target year
2030

Targeted reduction from base year (%)
30

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]
53099967.2

Scope 1 emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 2 emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)
28352035

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)
2706944

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)
1026353

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)
46708904

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)
2240505

Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)
81034741

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)
81034741

Does this target cover any land-related emissions?
No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

% of target achieved relative to base year [auto-calculated]
-22.7517497725812

Target status in reporting year
New

Please explain target coverage and identify any exclusions
Company-wide

Plan for achieving target, and progress made to the end of the reporting year
Several reduction levers are important for achieving scope 3 reductions, including the exit from our refining business, with the corresponding exit from the sale of refined products and use of associated raw materials such as crude oil volumes; use of circular and renewable feedstocks in line with our commitment to produce and market at least 2 million metric tons of renewable and recycled polymers by 2030; engaging with suppliers, especially feedstock suppliers, to reduce the carbon footprint of the goods we procure for our operations; lowering the amount and switching to lower carbon intensive fuels; and finally engaging with our logistic suppliers to reduce the carbon footprint linked to the delivery of our products to our customers.

In May 2023, we updated our plans to delay the closure of our Houston refinery and exit from our refining business to no later than the first quarter of 2025, which accounts for approximately 40 million tons of GHG scope 3 emissions across all categories.

List the emissions reduction initiatives which contributed most to achieving this target
<Not Applicable>

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?
Net-zero target(s)

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number
NZ1

Target coverage
Company-wide

Absolute/intensity emission target(s) linked to this net-zero target
Abs1

Target year for achieving net zero
2050

Is this a science-based target?
Yes, we consider this a science-based target, but we have not committed to seek validation of this target by the Science Based Targets initiative within the next two years

Please explain target coverage and identify any exclusions
We aim to achieve net zero GHG emissions from global operations under our control (scope 1 and scope 2) by 2050. The reporting boundary is company-wide.

Our net zero 2050 target currently does not include scope 3 emissions in its coverage. There are many industry-wide challenges to the definition of scope 3 targets, including the lack of a uniform calculation methodology for scope 3 emissions, and the lack of sectoral guidance for target setting for the chemical industry. Rigorous emissions accounting is a prerequisite for the definition of a reliable baseline and the definition of a scope 3 target. LyondellBasell is part of several sectoral initiatives through its engagement with the World Economic Forum (WEF) and Together for Sustainability (TfS) to further understand and act upon the common challenges of the chemical industry in dealing with scope 3 emissions. LyondellBasell is also taking part in the Science Based Target Initiative (SBTi) efforts to develop a sectoral decarbonization approach for the chemical industry which we expect will take into account the specific challenges the chemical industry is facing, as a hard to abate sector, in its journey to reaching a state of net zero GHG emissions

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?
Unsure

Planned milestones and/or near-term investments for neutralization at target year
<Not Applicable>

Planned actions to mitigate emissions beyond your value chain (optional)

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	97	7866641
To be implemented*	2	89190
Implementation commenced*	10	1220555
Implemented*	11	117598
Not to be implemented	0	0

C4.3b

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

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)
117598

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
4483000

Investment required (unit currency – as specified in C0.4)
20160000

Payback period
4-10 years

Estimated lifetime of the initiative
11-15 years

Comment
A wide range of projects were implemented in 2022, including process control system and flare optimization, and energy maintenance programs which mean that no single initiative lifetime applies to all projects.

C4.3c

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

Method	Comment
Financial optimization calculations	Energy and CO2 reduction projects are subject to the standard LyondellBasell capital allocation and evaluation processes, which include a financial analysis of the project payback period as well as a sensitivity analysis.
Compliance with regulatory requirements/standards	Several LyondellBasell manufacturing sites operate under the EU ETS regulations. The increasing costs associated with compliance act as a financial driver for investment in low-carbon technology and R&D activities
Internal price on carbon	Integrating climate into our business planning is a crucial step in our journey. We are integrating an internal carbon pricing mechanism to support capital allocation processes and developing policy positions to drive cost effective climate action. To achieve our goals, we expect capital spending in the future will include investments to support lowering emissions in our operations. These projects are currently at various stages of evaluation or progress. To achieve our targets, we expect capital spending in the future will include investments to support lowering emissions in our operations. We also anticipate incurring costs for environmental compliance, including compliance with potential legislation and potential regulation related to climate change. We expect capital spending to support sustainability ambitions, including climate, will represent approximately 15% of total capital expenditures over the next two years. While many of the GHG emissions reduction projects are still in the early stages of development, we will evaluate, pursue and prioritize our GHG emission investments based on a rate of return for the project.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?
Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation
Group of products or services

Taxonomy used to classify product(s) or service(s) as low-carbon
The EU Taxonomy for environmentally sustainable economic activities

Type of product(s) or service(s)

Chemicals and plastics	Other, please specify (Renewable and Circular Polymers)

Description of product(s) or service(s)
Our product portfolio contains a number of different solutions that provide GHG benefits through a lower cradle to gate GHG footprint, and/or climate benefits in the product's use. For example, our CirculenRenew polymers are made from renewable feedstocks based on waste and residue bio-based oils, using a mass balance approach, and have a wide range of end-use applications Our manufacturing sites producing our CirculenRenew products maintain ISCC PLUS certification to ensure traceability along the supply chain and enable the application of the mass balance method to attribute renewable-based source material to the final polymer.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
Yes

Methodology used to calculate avoided emissions
Other, please specify (LCA ISO 14040-44 & 14067)

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
Cradle-to-gate

Functional unit used
Metric ton polymer produced

Reference product/service or baseline scenario used
Equivalent fossil-based polymer from LyondellBasell manufacturing asset; reference period for data collection 2021

Life cycle stage(s) covered for the reference product/service or baseline scenario
Cradle-to-gate

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
3.45

Explain your calculation of avoided emissions, including any assumptions
We finalised an ISO 14040/44 compliant comparative life cycle assessment study for our CirculenRenew polymer grades with their fossil-based equivalents in June 2023. Our CirculenRenew polymer grades are manufactured using a feedstock composed of bio-based waste and residue oils. When compared with their fossil-based equivalents, the difference in the cradle-to-gate product carbon footprint between the two products is up to 3.45 metric tons per metric ton of polymer produced, corresponding to the avoided emissions for the CirculenRenew product. This savings for every 4 tons of polymer produced is the equivalent of taking three gasoline cars off the road for a year, based on the EPA GHG equivalency calculator. The revenue disclosed is related to our total 2022 sales of recycled and renewable-based products and is equivalent to less than 1% of our global revenues.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
1

Level of aggregation
Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon
The EU Taxonomy for environmentally sustainable economic activities

Type of product(s) or service(s)

Chemicals and plastics	Other, please specify (Propylene Oxide)

Description of product(s) or service(s)
We produce propylene oxide (PO) through two distinct technologies, one of which yields tertiary butyl alcohol (TBA) as the co-product and the other which yields styrene monomer (SM) as the co-product. The two technologies are mutually exclusive with dedicated assets for manufacturing. PO is an intermediate commodity chemical and is a precursor of polyols, propylene glycol, propylene glycol ethers, and butadienol. PO and derivatives are used in a variety of durable and consumable items with key applications such as polyurethanes used for insulation, automotive/furniture cushioning, coatings, surfactants, synthetic resins and several other household usages.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
Yes

Methodology used to calculate avoided emissions
Other, please specify (LCA ISO 14040-44 & 14067)

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
Cradle-to-gate

Functional unit used
Metric ton of Propylene Oxide (PO) produced

Reference product/service or baseline scenario used
Equivalent of publicly available data for PO from Sphera Solutions, LCA for Experts, database version 2022.2. Reference period for data collection 2020.

Life cycle stage(s) covered for the reference product/service or baseline scenario
Cradle-to-gate

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
1.42

Explain your calculation of avoided emissions, including any assumptions
We finalized an ISO 14040/44 compliant comparative life cycle assessment study for our PO and derivatives portfolio In December 2022. The reported estimated avoided emissions and generated revenue relate to our PO produced via our proprietary PO/TBA and POSM technologies. When compared with publicly available LCA data averaged for other conventional production routes the difference in the cradle-to-gate product carbon footprint between the products is 1.42 metric tons per metric ton PO produced.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
6.1

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?
No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?
Yes, a divestment

Name of organization(s) acquired, divested from, or merged with
LyondellBasell Australia Geelong manufacturing polymer plant

Details of structural change(s), including completion dates
In April 2022, LyondellBasell Australia (LBA) fully divested its Geelong polymer manufacturing facility to Viva Energy

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	No	<Not Applicable>

C5.1c

(C5.1c) Have your organization's base year emissions and past years' emissions been recalculated as a result of any changes or errors reported in C5.1a and/or C5.1b?

	Base year recalculation	Scope(s) recalculated	Base year emissions recalculation policy, including significance threshold	Past years' recalculation
Row 1	No, because the impact does not meet our significance threshold	<Not Applicable>	Recalculation of our baseline year emissions shall occur in the event of structural changes to our corporate structure or changes in calculation methodology or in data accuracy that have a material impact on base year emissions data, in accordance with the accounting rules defined in the GHG Protocol. Baseline year and all subsequent year GHG emissions data are to be adjusted in order to determine changes in energy use and GHG emissions over a given period.	No

C5.2

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

Scope 1

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
15556728

Comment

Scope 2 (location-based)

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
7112280

Comment

Scope 2 (market-based)

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
7623272

Comment

Scope 3 category 1: Purchased goods and services

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
27355369

Comment

Scope 3 category 2: Capital goods

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
1380110

Comment

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
2020382

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
989893

Comment

Scope 3 category 5: Waste generated in operations

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
309599

Comment

Scope 3 category 6: Business travel

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
1055

Comment

Scope 3 category 7: Employee commuting

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
59034

Comment

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
687695

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 11: Use of sold products

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
42994244

Comment

Scope 3 category 12: End of life treatment of sold products

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
17327312

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start
January 1 2020

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
2497208

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.
European Union Emission Trading System (EU ETS): The Monitoring and Reporting Regulation (MMR) – General guidance for installations
IPIECA's Petroleum Industry Guidelines for reporting GHG emissions, 2nd edition, 2011
Smart Freight Centre: GLEC Framework for Logistics Emissions Methodologies
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
The Greenhouse Gas Protocol: Scope 2 Guidance
The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Standard
Other, please specify (American Petroleum Institute Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry, 2021)

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)
14718006

Start date
January 1 2022

End date
December 31 2022

Comment

Past year 1

Gross global Scope 1 emissions (metric tons CO2e)
16313032

Start date
January 1 2021

End date
December 31 2021

Comment

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 are reporting 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
6939829

Scope 2, market-based (if applicable)
7375819

Start date
January 1 2022

End date
December 31 2022

Comment

Past year 1

Scope 2, location-based
7083652

Scope 2, market-based (if applicable)
7547818

Start date
January 1 2021

End date
December 31 2021

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 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, Scope 2, or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source of excluded emissions
Small office facilities and service buildings

Scope(s) or Scope 3 category(ies)
Scope 2 (location-based)
Scope 2 (market-based)

Relevance of Scope 1 emissions from this source
<Not Applicable>

Relevance of location-based Scope 2 emissions from this source
Emissions are not relevant

Relevance of market-based Scope 2 emissions from this source
Emissions are not relevant

Relevance of Scope 3 emissions from this source
<Not Applicable>

Date of completion of acquisition or merger
<Not Applicable>

Estimated percentage of total Scope 1+2 emissions this excluded source represents
0

Estimated percentage of total Scope 3 emissions this excluded source represents
<Not Applicable>

Explain why this source is excluded
These emissions are immaterial against total scope 1 and 2 emissions. There are no scope 1 emissions associated with these sites.

Explain how you estimated the percentage of emissions this excluded source represents
We assessed energy consumption and associated scope 2 emissions from our small office facilities based on utility invoices and compared them with our total scope 2 emissions.

Source of excluded emissions
Combustion related to emissions from LyondellBasell owned or leased motor vehicles

Scope(s) or Scope 3 category(ies)
Scope 1

Relevance of Scope 1 emissions from this source
Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source
<Not Applicable>

Relevance of market-based Scope 2 emissions from this source
<Not Applicable>

Relevance of Scope 3 emissions from this source
<Not Applicable>

Date of completion of acquisition or merger
<Not Applicable>

Estimated percentage of total Scope 1+2 emissions this excluded source represents
0

Estimated percentage of total Scope 3 emissions this excluded source represents
<Not Applicable>

Explain why this source is excluded
These emissions are immaterial against total scope 1 emissions from the combustion of fuel used in our manufacturing processes.

Explain how you estimated the percentage of emissions this excluded source represents
We assessed fuel consumption volumes for non-stationary equipment at our largest European site and compared them with our total fuel consumption figures for our production assets and associated scope 1 emissions.

Source of excluded emissions
Combustion related to emissions from non-stationary leased and rented equipment such as temporary air compressors and pumps, welding machines, and mobile light plants used onsite

Scope(s) or Scope 3 category(ies)
Scope 1

Relevance of Scope 1 emissions from this source
Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source
<Not Applicable>

Relevance of market-based Scope 2 emissions from this source
<Not Applicable>

Relevance of Scope 3 emissions from this source
<Not Applicable>

Date of completion of acquisition or merger
<Not Applicable>

Estimated percentage of total Scope 1+2 emissions this excluded source represents
0

Estimated percentage of total Scope 3 emissions this excluded source represents
<Not Applicable>

Explain why this source is excluded
These emissions are immaterial against total scope 2 emissions from the procurement of steam and electricity.

Explain how you estimated the percentage of emissions this excluded source represents
We assessed fuel consumption volumes for non-stationary equipment at our largest European site and compared them with our total fuel consumption figures for our production assets and associated scope 1 emissions.

Source of excluded emissions
District heating and cooling

Scope(s) or Scope 3 category(ies)
Scope 2 (location-based)
Scope 2 (market-based)

Relevance of Scope 1 emissions from this source
<Not Applicable>

Relevance of location-based Scope 2 emissions from this source
Emissions are not relevant

Relevance of market-based Scope 2 emissions from this source
Emissions are not relevant

Relevance of Scope 3 emissions from this source
<Not Applicable>

Date of completion of acquisition or merger
<Not Applicable>

Estimated percentage of total Scope 1+2 emissions this excluded source represents
0

Estimated percentage of total Scope 3 emissions this excluded source represents
<Not Applicable>

Explain why this source is excluded
These emissions are immaterial against total scope 2 emissions from the procurement of steam and electricity.

Explain how you estimated the percentage of emissions this excluded source represents
LyondellBasell does not purchase district heating or cooling.

Source of excluded emissions
Cooling water and chilled water purchased from third party suppliers

Scope(s) or Scope 3 category(ies)
Scope 2 (location-based)
Scope 2 (market-based)

Relevance of Scope 1 emissions from this source
<Not Applicable>

Relevance of location-based Scope 2 emissions from this source
Emissions are not relevant

Relevance of market-based Scope 2 emissions from this source
Emissions are not relevant

Relevance of Scope 3 emissions from this source
<Not Applicable>

Date of completion of acquisition or merger
<Not Applicable>

Estimated percentage of total Scope 1+2 emissions this excluded source represents
0

Estimated percentage of total Scope 3 emissions this excluded source represents
<Not Applicable>

Explain why this source is excluded
These emissions are immaterial against total scope 2 emissions from the procurement of steam and electricity.

Explain how you estimated the percentage of emissions this excluded source represents
We assessed the number of sites with no cooling water onsite facilities and used as proxy the associated fuel consumption from our own cooling facilities. Given the number of sites with no cooling water onsite facilities, associated emissions were found immaterial against total scope 2 emissions.

Source of excluded emissions
Compressed air or nitrogen purchased from third party suppliers

Scope(s) or Scope 3 category(ies)
Scope 2 (location-based)
Scope 2 (market-based)

Relevance of Scope 1 emissions from this source
<Not Applicable>

Relevance of location-based Scope 2 emissions from this source
Emissions are not relevant

Relevance of market-based Scope 2 emissions from this source
Emissions are not relevant

Relevance of Scope 3 emissions from this source
<Not Applicable>

Date of completion of acquisition or merger
<Not Applicable>

Estimated percentage of total Scope 1+2 emissions this excluded source represents
0

Estimated percentage of total Scope 3 emissions this excluded source represents
<Not Applicable>

Explain why this source is excluded
These emissions are immaterial against total scope 2 emissions from the procurement of steam and electricity.

Explain how you estimated the percentage of emissions this excluded source represents
We assessed the number of sites with no compressed air onsite facilities, and used as proxy the associated fuel consumption from our own compressed air facilities. Given the number of sites with no compressed air onsite facilities, associated emissions were found immaterial against total scope 2 emissions.

Source of excluded emissions
Procurement of services and packaging

Scope(s) or Scope 3 category(ies)
Scope 3: Purchased goods and services

Relevance of Scope 1 emissions from this source
<Not Applicable>

Relevance of location-based Scope 2 emissions from this source
<Not Applicable>

Relevance of market-based Scope 2 emissions from this source
<Not Applicable>

Relevance of Scope 3 emissions from this source
Emissions are not relevant

Date of completion of acquisition or merger
<Not Applicable>

Estimated percentage of total Scope 1+2 emissions this excluded source represents
<Not Applicable>

Estimated percentage of total Scope 3 emissions this excluded source represents
0

Explain why this source is excluded
These emissions are immaterial against total scope 3 category 1 emissions, in particular from the procurement of feedstocks.

Explain how you estimated the percentage of emissions this excluded source represents
We assessed spend volumes for procurement of services which were found to be immaterial against larger spend areas such as feedstock procurement.

Source of excluded emissions
Category 3 emissions linked to scope 2 exclusions

Scope(s) or Scope 3 category(ies)
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)

Relevance of Scope 1 emissions from this source
<Not Applicable>

Relevance of location-based Scope 2 emissions from this source
<Not Applicable>

Relevance of market-based Scope 2 emissions from this source
<Not Applicable>

Relevance of Scope 3 emissions from this source
Emissions are not relevant

Date of completion of acquisition or merger
<Not Applicable>

Estimated percentage of total Scope 1+2 emissions this excluded source represents
<Not Applicable>

Estimated percentage of total Scope 3 emissions this excluded source represents
0

Explain why this source is excluded
Associated scope 3 emissions linked to excluded scope 2 emission sources were not included in our scope 3 inventory.

Explain how you estimated the percentage of emissions this excluded source represents
We assessed scope 2 emission sources against our total emissions for several sites and found them to be immaterial. This follows the logic of excluding these emissions sources from our scope 2 inventory.

Source of excluded emissions
Transportation of non feedstock related raw materials

Scope(s) or Scope 3 category(ies)
Scope 3: Upstream transportation and distribution

Relevance of Scope 1 emissions from this source
<Not Applicable>

Relevance of location-based Scope 2 emissions from this source
<Not Applicable>

Relevance of market-based Scope 2 emissions from this source
<Not Applicable>

Relevance of Scope 3 emissions from this source
Emissions are not relevant

Date of completion of acquisition or merger
<Not Applicable>

Estimated percentage of total Scope 1+2 emissions this excluded source represents
<Not Applicable>

Estimated percentage of total Scope 3 emissions this excluded source represents
0

Explain why this source is excluded
These emissions are immaterial against total scope 3 emissions.

Explain how you estimated the percentage of emissions this excluded source represents
Estimates were conducted for the emissions linked to the transportation of non feedstock related raw materials which was found to be immaterial against total scope 3 emissions.

Source of excluded emissions
Business travel linked to use of personal vehicles

Scope(s) or Scope 3 category(ies)
Scope 3: Business travel

Relevance of Scope 1 emissions from this source
<Not Applicable>

Relevance of location-based Scope 2 emissions from this source
<Not Applicable>

Relevance of market-based Scope 2 emissions from this source
<Not Applicable>

Relevance of Scope 3 emissions from this source
Emissions are not relevant

Date of completion of acquisition or merger
<Not Applicable>

Estimated percentage of total Scope 1+2 emissions this excluded source represents
<Not Applicable>

Estimated percentage of total Scope 3 emissions this excluded source represents
0

Explain why this source is excluded
These emissions are immaterial against total scope 3 emissions.

Explain how you estimated the percentage of emissions this excluded source represents
Estimates were conducted for the amount of fuel spent on business travel and was found to be immaterial against total scope 3 emissions.

C6.5

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

Purchased goods and services

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
28352035

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0.02

Please explain
Data Quantity (mass and volume) of the goods and services, namely refining and petrochemical feedstocks, additives, chemicals, and catalysts were obtained from our internal management systems. Emission factors were sourced from internal and customer LCA studies, and complemented by different commercial and public data sources, including ecoinvent, Gabi, PlasticsEurope, and regional regulatory databases.

While we recognize the materiality, and importance of procured goods and services, and feedstocks in particular, on our scope 3 and overall emissions, it is important to note that the chemical industry lacks today a rigorous emission accounting methodology for scope 3 emissions, a prerequisite for the calculation of emissions in all 15 categories of scope 3, and for the definition of a reliable baseline. LyondellBasell has participated alongside our industry peers in Together for Sustainability in the development of the Product Carbon Footprint Guideline, which we are working to deploy with our suppliers today. LyondellBasell is engaged alongside our industry peers in several initiatives, including in Together for Sustainability, to further understand, and act upon, the common challenges of the chemical industry in accurately quantifying and dealing with scope 3 emissions.

Capital goods

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
1339706

Emissions calculation methodology
Spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Data relating to capital expenditures for property, plant and equipment for the year ended December 31, 2022, was used as the calculation basis, reflecting the spend on capital projects, equipment upgrades and replacement.

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

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
2706944

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Data Quantity (mass and volume) of fuels used in our operations were obtained from our internal management systems. Emission factors were sourced from different commercial and public data sources, including ecoinvent, Gabi, PlasticsEurope, and regional regulatory databases

Upstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
1026353

Emissions calculation methodology
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Data on the transportation of our purchased goods and sold products, including transport mode, tonnage and distance data, was compiled for each region from our internal management systems. Emission factors were sourced primarily from the GLEC framework for the chemical industry that was developed in a joint study led by Cefic and the Smart Freight Centre.

Waste generated in operations

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
223333

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Waste tonnage data for each type of waste treatment (incineration, recycling, landfill, etc) was compiled from our internal management systems for all our operations. Emission factors were sourced from different commercial and public data sources, including ecoinvent, Gabi, PlasticsEurope, and regional regulatory databases.

Business travel

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
3068

Emissions calculation methodology
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
LyondellBasell's third-party travel provider supplied emissions data resulting from our business travel arrangements. Excluded from this data set are business travel using private vehicles or rental cars, or where employees have booked travel outside of the corporate travel system. These emissions are considered immaterial when measured against the whole of our scope 3 emissions.

Employee commuting

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
59639

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Data on regional employee numbers was compiled from our internal management systems. The approach taken was to estimate emissions based on regional average commuting modes and applying emission factors specific to each commuting mode. Emission factors were sourced from regional databases.

Upstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
LyondellBasell does not lease any significant upstream assets.

Downstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
641987

Emissions calculation methodology
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
25

Please explain
Data on the transportation of our finished goods, including transport mode, tonnage, and distance data, was compiled for each region from our internal management systems. Emission factors were sourced from the GLEC framework for the chemical industry that was developed in a joint study led by Cefic and the Smart Freight Centre. For some transport modalities, we receive GHG data directly from our freight supplier, using the same GLEC methodology.

Processing of sold products

Evaluation status
Relevant, not yet calculated

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
LyondellBasell does not calculate scope 3 emissions linked to the processing of sold products. Given the many end use applications for our products, and as stated in the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain, “chemical companies are not required to report scope 3, category 10 emissions, since reliable figures are difficult to obtain due to the diverse application and customer structure”. Our portfolio of products includes a diverse range of products, from polymers to different intermediate chemicals, with reliable data difficult to obtain.

This absence of a standard methodology for accounting is a recognized gap that we are working towards addressing as part of industry led efforts through Cefic.

Use of sold products

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
46708904

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Data Quantity (mass and volume) of fuel products from our refinery operations, olefin operations and oxyfuels business, was compiled from our internal management systems. Emission factors were sourced from different commercial and public data sources, including ecoinvent, Gabi, PlasticsEurope, and regional regulatory databases.

End of life treatment of sold products

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
16050641

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Data Quantity (mass and volume) for our products, including sold-to region and application, was compiled from our internal management systems. Emission factors were sourced from different commercial and public data sources, including ecoinvent, Gabi, PlasticsEurope, and regional regulatory databases. We considered the product volumes sold in each region for specific applications to calculate emissions in this category. We then applied specific emission factors for each waste treatment type.

Downstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
LyondellBasell does not lease any significant downstream assets

Franchises

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
LyondellBasell has no franchised businesses or assets.

Investments

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
2240505

Emissions calculation methodology
Spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Primary data relating to our equity investments was used as the calculation basis, reflecting our equity investments as of December 31, 2022. CO2 equivalent emissions were calculated on the basis of our equity investments using the GHG Protocol Scope 3 calculator.

Other (upstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
LyondellBasell does not have any further upstream emissions to report.

Other (downstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
LyondellBasell does not have any further downstream emissions to report.

C6.5a

(C6.5a) Disclose or restate your Scope 3 emissions data for previous years.

Past year 1

Start date
January 1 2021

End date
December 31 2021

Scope 3: Purchased goods and services (metric tons CO2e)
30347225

Scope 3: Capital goods (metric tons CO2e)
1388616

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)
2351442

Scope 3: Upstream transportation and distribution (metric tons CO2e)
1020128

Scope 3: Waste generated in operations (metric tons CO2e)
306352

Scope 3: Business travel (metric tons CO2e)
569

Scope 3: Employee commuting (metric tons CO2e)
59034

Scope 3: Upstream leased assets (metric tons CO2e)

Scope 3: Downstream transportation and distribution (metric tons CO2e)
561775

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)
45642449

Scope 3: End of life treatment of sold products (metric tons CO2e)
18113710

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)
2718073

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment

Past year 2

Start date
January 1 2020

End date
December 31 2020

Scope 3: Purchased goods and services (metric tons CO2e)
27355369

Scope 3: Capital goods (metric tons CO2e)
1380110

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)
2020382

Scope 3: Upstream transportation and distribution (metric tons CO2e)
989893

Scope 3: Waste generated in operations (metric tons CO2e)
309599

Scope 3: Business travel (metric tons CO2e)
1055

Scope 3: Employee commuting (metric tons CO2e)
59034

Scope 3: Upstream leased assets (metric tons CO2e)

Scope 3: Downstream transportation and distribution (metric tons CO2e)
687695

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)
42994244

Scope 3: End of life treatment of sold products (metric tons CO2e)
17327312

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)
2497208

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment
We revised previously disclosed values for scope 3 to adjust for double counting that had been identified in different categories, including categories 1 and 15. We also adjusted our breakdown of emissions linked to the transportation of our sold products between categories 4 and 9 in line with the guidance of the GHG Protocol. Previously, those emissions were fully accounted for in category 9 irrespective whether the transportation was directly paid for by LyondellBasell or by our customers.

C6.7

(C6.7) Are carbon dioxide emissions from biogenic 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
0.000436978

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
22093825

Metric denominator
unit total revenue

Metric denominator: Unit total
50451000000

Scope 2 figure used
Market-based

% change from previous year
15.26

Direction of change
Decreased

Reason(s) for change
Other emissions reduction activities
Change in output

Please explain
Our total scope 1 + 2 emissions decreased by 7% between 2021 and 2022, while our total revenue increased by 9% in the same time period. We also implemented emission reduction projects that resulted in a decrease in 117,598 metric tons in 2022.

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	14648183	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	16536.14	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	27182.43	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	26104.63	IPCC Fifth Assessment Report (AR5 – 100 year)
PFCs	0	IPCC Fifth Assessment Report (AR5 – 100 year)
SF6	0	IPCC Fifth Assessment Report (AR5 – 100 year)
NF3	0	IPCC Fifth Assessment Report (AR5 – 100 year)

C7.2

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

Country/area/region	Scope 1 emissions (metric tons CO2e)
Americas	10928202.93
Europe	3745481.8
Asia Pacific (or JAPA)	602.83

C7.3

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

C7.3b

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

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Akron, OH, US	0	41.103721	-81.487345
Allentown, PA, US	0	40.59111	-75.601806
Altamira	0	22.39215	-97.93867
Astorp, Sweden	0	56.124747	12.913611
Batu Pahat, Malaysia	158.37	1.853898	102.993484
Bay City, MI, US	0	43.59068	-84.00077
Bayport - Choate	264702.56	29.62001	-95.041931
Bayport - Polyolefins	40685.89	29.631784	-95.046348
Bayport - Underwood	54259.75	29.629006	-95.086683
Bedford, VA, US	0	37.344774	-79.494812
Bayreuth	0	49.96958	11.60368
Berre	567591.48	43.4781	5.1704
Bornem, Belgium	1196.59	51.087365	4.260994
Botlek	349741.53	51.932054	4.140827
Brindisi	10007.13	40.6321	17.9361
Carpentersville, IL, US	0	42.113637	-88.280577
Carrington	21450.41	53.430217	-2.397428
Castellon, Spain	52.8	39.957251	-0.076519
Cerkezkoy, Turkey	0	41.296207	27.973264
Changshu, China	0	31.656613	120.752454
Channelview - North	2790117.95	29.789498	-95.124701
Chennai	0	12.84831	79.705073
China, TX	0	30.043333	-94.375128
Chocolate Bayou - Polymers	36306.78	29.423847	-95.2441
Cincinatti Technical Centre	8.72	39.276971	-84.345252
Clinton	516136.21	41.807367	-90.285637
Corpus Christi	1269870.61	27.822545	-97.572225
Crumlin, UK	0	51.677005	-3.162651
Dalian	0	38.91222	121.60222
Dongguan, China	15.84	23.009454	114.027025
East Java, Indonesia	0	-7.595665	112.690506
Edison	9869.91	40.493622	-74.385234
Equistar Pipeline	5796.75	29.573915	-95.113165
Evansville 1800 Lynch, IN, US	0.28	38.01699	-87.532564
Evansville, Columbia, IN, US	0.03	37.986475	-87.55064
Evansville, Northbrook, IN, US	4.82	38.114618	-87.557262
Evansville, O'Hara, IN, US	0.21	38.024291	-87.519999
Exeter, OH, US	368.56	41.030021	-81.479169
Fairport Harbor	7.63	41.754874	-81.277955
Ferrara	49208.28	45.523611	9.231148
Fos-Caban	213415.47	43.425387	4.847112
Frankfurt	290.75	50.095245	8.535962
Gainsborough, UK	0	53.391176	-0.745247
Geelong	295.5	-38.077027	144.379651
Givet, France	0	50.157619	4.821837
Gorla, Italy	0	45.659755	8.899144
Grand Junction, TN, US	0	35.048337	-89.189319
Guangzhou/Nansha(BAPG)	0	22.771534	113.54372
Houston Office	0	29.756449	-95.362397
Houston Refinery	1989763.32	29.710227	-95.236299
Jackson	51.46	35.627401	-88.777608
Kerpen, Germany	561.86	50.895219	6.652803
Knapsack	1444.08	50.863739	6.872401
La Porte	1297875.37	29.720803	-95.069126
Lake Charles	152158.31	30.191308	-93.323954
Ludwigshafen	2.96	49.514995	8.420576
Maasvlakte	46045.21	51.965098	4.015599
Mansfield	76.66	32.558912	-97.110507
Matagorda	49886.89	28.793661	-95.943373
Mexico City, Mexico	0	19.509305	-99.152983
Milton Keynes	0	52.007188	-0.728571
Moerdijk	9663.52	51.670417	4.576996
Morris	396235.83	41.447901	-88.309867
Munchsmunster	539328.54	48.755734	11.703499

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Newark	0.14	40.722974	-74.123066
North Kingsville, OH, US	895.29	41.919206	-80.666168
Opglabbeek, Belgium	49.58	51.041632	5.543732
Oyonnax, France	0	46.233143	5.624624
Pinda	0	-22.934222	-45.395899
Plymouth, IN, US	0.43	41.350982	-86.322454
Rayong (BAPT)	0	13.011232	101.193333
Rio Claro, Brazil	0	-22.368499	-47.554095
Rotterdam Office	0	51.924784	4.473625
San Luis Potosi, Mexico	0	22.063946	-100.878546
Seevetal, Germany	241.33	53.424034	10.03541
Senai, Malaysia	0	1.623914	103.670859
s'Gravendeel, Holland	0	51.783154	4.621429
Sinnar	0	19.968362	74.373642
Sumare, Brazil	23.56	-22.719558	-47.294468
Suzhou (BAPS)	96.7	31.317678	120.802769
Tarragona	5836.2	41.113317	1.162662
Tuscola	38530.87	39.792375	-88.350139
Vadodara, India	36.42	22.438352	73.210025
Victoria	42255.42	28.687473	-96.941459
Warrington, UK	0	53.406197	-2.533082
Wesseling	1925222.59	50.83317	6.966976
West Chicago, IL, US	0	41.914009	-88.235828
East Chicago, IN, US	0	41.634689	-87.454736
Perrysburg, OH, US	0	41.546921	-83.642284
Lake Charles JV	1206885.73	30.24622	-93.2877
Victoria, Australia	0	-37.9887	145.1042
Plock, Poland	0	52.58749	19.649317
Channelview - South	765426.99	29.789498	-95.124701

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	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	12684524.24	<Not Applicable>	
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

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

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Americas	5571873.05	5625404.2
Europe	1319522.98	1696441.04
Asia Pacific (or JAPA)	48433.2	53974.1

C7.6

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

By facility

C7.6b

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

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Akron, OH, US	3241.85	3672.98
Allentown, PA, US	2537.95	2875.47
Altamira	3837.71	18493.67
Astorp, Sweden	33.26	0
Batu Pahat, Malaysia	1986.59	1986.29
Bay City, MI, US	507.35	690.65
Bayport - Choate	552437.55	550926.73
Bayport - Polyolefins	130748.08	135671.1
Bayport - Underwood	191926.34	195272.55
Bayreuth	12325.24	22557
Bedford, VA, US	1883.05	2563.4
Berre	10576.01	24921.69
Bornem, Belgium	3195.51	2932.03
Botlek	274945.49	212997.12
Brindisi	34434.21	41245.58
Carpentersville, IL, US	430.37	487.6
Carrington	9321.73	8403.65
Castellon, Spain	938.81	918
Cerkezkoy, Turkey	705.65	1071.22
Changshu, China	631.28	640.53
Channelview - North	1271206.15	1281458.69
Chennai	964.04	964.7
China, TX	6564.67	8854.82
Chocolate Bayou - Polymers	66246.26	68102.73
Cincinatti Technical Centre	2054.4	2327.61
Clinton	163554.46	170646.95
Corpus Christi	0	0
Crumlin, UK	1496.82	1372.8
Dalian	4863.37	4934.66
Dongguan, China	7204.98	7204.98
East Chicago, IN, US	1766.72	3605.03
East Java, Indonesia	0	0
Edison	3325.65	3767.93
Equistar Pipeline	15297.83	16122.32
Evansville 1800 Lynch, IN, US	1155.62	3792.7
Evansville, Columbia, IN, US	235.6	773.23
Evansville, Northbrook, IN, US	3269.23	10729.5
Evansville, O'Hara, IN, US	6760.97	22189.25
Exeter, OH, US	1114.27	1262.46
Fairport Harbor	2555.12	2894.92
Ferrara	50631.55	59947.2
Fos-Caban	46795.71	60203.97
Frankfurt	27686.48	39974.09
Gainsborough, UK	934.89	842.81
Geelong	0	0
Givet, France	1417.09	2806.11
Gorla, Italy	2135.1	2676.11
Grand Junction, TN, US	978.67	712.22
Guangzhou/Nansha(BAPG)	9337.51	9337.51
Houston Office	2159.42	2156.95
Houston Refinery	1297598.22	1243775.48
Jackson	9663.33	7032.39
Kerpen, Germany	4731.25	8050.98
Knapsack	40885.5	64914.51
La Porte	257973.37	270286.9
Lake Charles	29598.99	26524.21
Ludwigshafen	650.05	289.28
Maasvlakte	438880.96	565843.61
Matagorda	117700.06	124043.57
Mexico City, Mexico	0	0
Milton Keynes	2268.52	2045.09
Moerdijk	40802.35	56697.37
Morris	334509.27	348844.28

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Munchsmunster	64011.14	118713.79
Newark	37.84	42.88
North Kingsville, OH, US	6.62	7.5
Opglabbeek, Belgium	183.96	168.79
Oyonnax, France	179.31	355.06
Perrysburg, OH, US	764.74	866.44
Pinda	1463.78	0
Plymouth, IN, US	222.01	453.02
Rayong (BAPT)	3798.07	3802.09
Rio Claro, Brazil	248.49	0
Rotterdam Office	249.88	249.96
San Luis Potosi, Mexico	7397.67	7403.99
Seevetal, Germany	4955.02	9674.02
Senai, Malaysia	5025.92	5025.16
s'Gravendeel, Holland	1777.26	2715.98
Sinnar	4777.61	4780.92
Sumare, Brazil	977.3	0
Suzhou (BAPS)	925.93	818.86
Tarragona	29525.62	27713.18
Tuscola	7357	8335.41
Vadodara, India	3733.3	3735.89
Victoria	69594.89	71159.02
Warrington, UK	1008.46	909.14
Wesseling	214801.53	362826.77
West Chicago, IL, US	344.95	390.83
Mansfield	13832.04	14577.53
Victoria, Australia	1155.51	1887.34
Plock, Poland	1067.69	1259.28
Lake Charles JV	202485.65	181451.18
Channelview - South	784301.55	810158.11

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?
Yes

C7.7a

(C7.7a) Break down your gross Scope 1 and Scope 2 emissions by subsidiary.

Subsidiary name
Equistar Chemicals, LP

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
7907017

Scope 2, location-based emissions (metric tons CO2e)
2889667

Scope 2, market-based emissions (metric tons CO2e)
2928562

Comment

Subsidiary name
Basell Polyolefine GmbH

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
2466289

Scope 2, location-based emissions (metric tons CO2e)
348035

Scope 2, market-based emissions (metric tons CO2e)
586718

Comment

Subsidiary name
Houston Refining LP

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
1989763

Scope 2, location-based emissions (metric tons CO2e)
1297598

Scope 2, market-based emissions (metric tons CO2e)
1243775

Comment

Subsidiary name
Lyondell Chemical Company

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
1030130

Scope 2, location-based emissions (metric tons CO2e)
1338899

Scope 2, market-based emissions (metric tons CO2e)
1363242

Comment

Subsidiary name
Basell Polyolefines France S.A.S.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
567591

Scope 2, location-based emissions (metric tons CO2e)
10576

Scope 2, market-based emissions (metric tons CO2e)
24922

Comment

Subsidiary name
Lyondell Chemie Nederland B.V.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
349742

Scope 2, location-based emissions (metric tons CO2e)
274945

Scope 2, market-based emissions (metric tons CO2e)
212997

Comment

Subsidiary name
Lyondell Chimie France SAS

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
213415

Scope 2, location-based emissions (metric tons CO2e)
46796

Scope 2, market-based emissions (metric tons CO2e)
60204

Comment

Subsidiary name
Basell Poliolefine Italia S.r.l.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
59215

Scope 2, location-based emissions (metric tons CO2e)
85066

Scope 2, market-based emissions (metric tons CO2e)
101193

Comment

Subsidiary name
LyondellBasell Covestro Manufacturing Maasvlakte VOF

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
46045

Scope 2, location-based emissions (metric tons CO2e)
438881

Scope 2, market-based emissions (metric tons CO2e)
565844

Comment

Subsidiary name
Basell Polyolefins UK Limited

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
21450

Scope 2, location-based emissions (metric tons CO2e)
11590

Scope 2, market-based emissions (metric tons CO2e)
10449

Comment

Subsidiary name
Basell Benelux B.V.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
9664

Scope 2, location-based emissions (metric tons CO2e)
40802

Scope 2, market-based emissions (metric tons CO2e)
56697

Comment

Subsidiary name
Basell Poliolefinas Iberica S.L.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
5836

Scope 2, location-based emissions (metric tons CO2e)
29526

Scope 2, market-based emissions (metric tons CO2e)
27713

Comment

Subsidiary name
A. Schulman Plastics BV

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
1197

Scope 2, location-based emissions (metric tons CO2e)
3196

Scope 2, market-based emissions (metric tons CO2e)
2932

Comment

Subsidiary name
LYB Premix LLC

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
895

Scope 2, location-based emissions (metric tons CO2e)
7

Scope 2, market-based emissions (metric tons CO2e)
8

Comment

Subsidiary name
A. Schulman GmbH

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
562

Scope 2, location-based emissions (metric tons CO2e)
4731

Scope 2, market-based emissions (metric tons CO2e)
8051

Comment

Subsidiary name
LyondellBasell Advanced Polymers Inc.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
374

Scope 2, location-based emissions (metric tons CO2e)
30506

Scope 2, market-based emissions (metric tons CO2e)
62363

Comment

Subsidiary name
LyondellBasell Australia Pty Limited

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
296

Scope 2, location-based emissions (metric tons CO2e)
0

Scope 2, market-based emissions (metric tons CO2e)
0

Comment

Subsidiary name
tetra-DUR Kunststoff-Produktion GmbH

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
241

Scope 2, location-based emissions (metric tons CO2e)
4955

Scope 2, market-based emissions (metric tons CO2e)
9674

Comment

Subsidiary name
LyondellBasell Advanced Polyolefins (Malaysia) Sdn. Bhd.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
158

Scope 2, location-based emissions (metric tons CO2e)
7013

Scope 2, market-based emissions (metric tons CO2e)
7011

Comment

Subsidiary name
Basell Advanced Polyolefins (Suzhou) Co. Ltd.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
97

Scope 2, location-based emissions (metric tons CO2e)
926

Scope 2, market-based emissions (metric tons CO2e)
819

Comment

Subsidiary name
A. Schulman Castellon S.L

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
53

Scope 2, location-based emissions (metric tons CO2e)
939

Scope 2, market-based emissions (metric tons CO2e)
918

Comment

Subsidiary name
A Schulman Belgium BVBA

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
50

Scope 2, location-based emissions (metric tons CO2e)
184

Scope 2, market-based emissions (metric tons CO2e)
169

Comment

Subsidiary name
A. Schulman Plastics India Private Limited

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
36

Scope 2, location-based emissions (metric tons CO2e)
3733

Scope 2, market-based emissions (metric tons CO2e)
3736

Comment

Subsidiary name
A. Schulman Plasticos do Brasil LTDA.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
24

Scope 2, location-based emissions (metric tons CO2e)
977

Scope 2, market-based emissions (metric tons CO2e)
0

Comment

Subsidiary name
LyondellBasell Advanced Polymer (Dongguan) Co. Ltd

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
16

Scope 2, location-based emissions (metric tons CO2e)
7205

Scope 2, market-based emissions (metric tons CO2e)
7205

Comment

Subsidiary name
Bulk Molding Compounds Do Brasil Industria De Plasticos Reforcados LTDA

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
248

Scope 2, market-based emissions (metric tons CO2e)
0

Comment

Subsidiary name
Basell Sales & Marketing Company B.V.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
250

Scope 2, market-based emissions (metric tons CO2e)
250

Comment

Subsidiary name
Basell Advanced Polyolefins (Dalian) Co., Ltd

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
4863

Scope 2, market-based emissions (metric tons CO2e)
4935

Comment

Subsidiary name
A. Schulman Inc. Limited

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
1497

Scope 2, market-based emissions (metric tons CO2e)
1373

Comment

Subsidiary name
A Schulman Polska Sp. z o.o.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
1068

Scope 2, market-based emissions (metric tons CO2e)
1259

Comment

Subsidiary name
A Schulman Plastik Sanayi ve Ticaret Anonim Sirketi

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
706

Scope 2, market-based emissions (metric tons CO2e)
1071

Comment

Subsidiary name
Basell Poliolefinas S. de R.L. de C.V

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
3838

Scope 2, market-based emissions (metric tons CO2e)
18494

Comment

Subsidiary name
LyondellBasell Advanced Polyolefins Pty Lt

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
1156

Scope 2, market-based emissions (metric tons CO2e)
1887

Comment

Subsidiary name
Basell Polyolefins India Private Limited

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
5742

Scope 2, market-based emissions (metric tons CO2e)
5746

Comment

Subsidiary name
Bulk Molding Compounds, Inc.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
765

Scope 2, market-based emissions (metric tons CO2e)
866

Comment

Subsidiary name
LyondellBasell Advanced Polymer (Changshu) Co., Ltd

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
631

Scope 2, market-based emissions (metric tons CO2e)
641

Comment

Subsidiary name
Quantum Composites, Inc.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
507

Scope 2, market-based emissions (metric tons CO2e)
691

Comment

Subsidiary name
Basell Advanced Polyolefins (Thailand) Company Ltd.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
3798

Scope 2, market-based emissions (metric tons CO2e)
3802

Comment

Subsidiary name
A. Schulman Gainsborough Ltd

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
935

Scope 2, market-based emissions (metric tons CO2e)
843

Comment

Subsidiary name
Elian S.A.S.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
179

Scope 2, market-based emissions (metric tons CO2e)
355

Comment

Subsidiary name
Basell Poliolefinas Ltda.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
1464

Scope 2, market-based emissions (metric tons CO2e)
0

Comment

Subsidiary name
PT LyondellBasell Advanced Polyolefins

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
0

Scope 2, market-based emissions (metric tons CO2e)
0

Comment

Subsidiary name
Guangzhou Basell Advanced Polyolefins Co., Ltd

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
9338

Scope 2, market-based emissions (metric tons CO2e)
9338

Comment

Subsidiary name
A. Schulman de Mexico, S.A. de C.V.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
7398

Scope 2, market-based emissions (metric tons CO2e)
7404

Comment

Subsidiary name
A. Schulman Plastics S.r.l.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
2135

Scope 2, market-based emissions (metric tons CO2e)
2676

Comment

Subsidiary name
A. Schulman Nordic AB

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
33

Scope 2, market-based emissions (metric tons CO2e)
0

Comment

Subsidiary name
A. Schulman 's-Gravendeel B.V.

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
1777

Scope 2, market-based emissions (metric tons CO2e)
2176

Comment

Subsidiary name
A. Schulman Thermoplastic Compounds Limited

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
1008

Scope 2, market-based emissions (metric tons CO2e)
909

Comment

Subsidiary name
A. Schulman Plastics SAS

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
1417

Scope 2, market-based emissions (metric tons CO2e)
2806

Comment

Subsidiary name
Basell Bayreuth Chemie GmbH

Primary activity
Please select

Select the unique identifier(s) you are able to provide for this subsidiary
Please select

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
0

Scope 2, location-based emissions (metric tons CO2e)
12325

Scope 2, market-based emissions (metric tons CO2e)
22557

Comment

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

(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
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	5642231	6132043.86	
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

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
Other (please specify) (Total feedstock mixture)	94	We calculated the scope 3 emissions arising from purchased feedstocks as a portion of the total scope 3 emissions from purchased goods and services, which resulted in a total of 94%. We do not segregate between feedstock types as we consider this to be company sensitive information. We followed the following methodology to calculate our scope 3 category 1 emissions: Data Quantity (mass and volume) of the goods and services, namely refining and petrochemical feedstocks, additives, chemicals, and catalysts were obtained from our internal management systems. Emission factors were sourced from internal and customer LCA studies, and complemented by different commercial and public data sources, including ecoinvent, Gabi, PlasticsEurope, and regional regulatory databases. While we recognize the materiality, and importance of procured goods and services, and feedstocks in particular, on our scope 3 and overall emissions, it is important to note that the chemical industry lacks today a rigorous emission accounting methodology for scope 3 emissions, a prerequisite for the calculation of emissions in all 15 categories of scope 3, and for the definition of a reliable baseline. LyondellBasell has participated alongside our industry peers in Together for Sustainability to the development of the Product Carbon Footprint Guideline, which we are working to deploy with our suppliers today. LyondellBasell is engaged alongside our industry peers in several initiatives, including in Together for Sustainability, to further understand, and act upon, the common challenges of the chemical industry in accurately quantifying and dealing with scope 3 emissions.

C-CH7.8a

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

	Sales, metric tons	Comment
Carbon dioxide (CO2)	0	LyondellBasell does not sell carbon dioxide
Methane (CH4)	66598	
Nitrous oxide (N2O)	0	LyondellBasell does not sell nitrous oxide
Hydrofluorocarbons (HFC)	0	LyondellBasell does not sell hydrofluorocarbons.
Perfluorocarbons (PFC)	0	LyondellBasell does not sell perfluorocarbons.
Sulphur hexafluoride (SF6)	0	LyondellBasell does not sell sulphur hexafluoride.
Nitrogen trifluoride (NF3)	0	LyondellBasell does not sell nitrogen trifluoride.

C7.9

(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?

Decreased

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 in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	6931.9	Increased	0.03	LyondellBasell did not purchase renewable electricity credits at its UK manufacturing sites, resulting in an increase of of 6931.9 metric tonnes. Our 2021 total scope 1 and 2 footprint was 23,860,850 metric tonnes. This increase in emissions corresponded to a 0.03% increase (6931.9 /23,860,850 * 100).
Other emissions reduction activities	117598	Decreased	0.49	LyondellBasell avoided 117,598 metric tonnes of GHG emissions through the implementation of energy saving and GHG emission reduction initiatives. Our 2021 total scope 1 and 2 footprint was 23,860,850 metric tonnes. The decrease in emissions linked to the implementation of these initiatives corresponded to a 0.49% decrease (117,598 /23,860,850 * 100).
Divestment	58022.8	Decreased	0.24	In April 2022, LyondellBasell Australia (LBA) fully divested its Geelong polymer manufacturing facility to Viva Energy. Our 2021 total scope 1 and 2 footprint was 23,860,850 metric tonnes. The decrease in emissions linked to this divestment corresponded to a 0.24% decrease (58,022.8 / 23,860,850 * 100).
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output	1935713.3	Decreased	8.09	Decreases in production volumes in 2022 compared to 2021 (2021 total scope 1 and 2 footprint was 23,860,850 metric tonnes. led to a decrease in emissions of 8.09% (1,9305,713.30/23,860,850 * 100).
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

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?

Market-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 undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes
Consumption of purchased or acquired steam	Yes
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 (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	76406110.15	76406110.15
Consumption of purchased or acquired electricity	<Not Applicable>	30622.77	8529812.63	8560435.4
Consumption of purchased or acquired heat	<Not Applicable>	0	0	0
Consumption of purchased or acquired steam	<Not Applicable>	0	21987775.15	21987775.15
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	30622.77	106923702.93	106954325.7

C-CH8.2a

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

Consumption of fuel (excluding feedstocks)

Heating value
LHV (lower heating value)

MWh consumed from renewable sources inside chemical sector boundary
0

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)
42877656.37

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary
25124641.05

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary
68113297.42

Consumption of purchased or acquired electricity

Heating value
<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary
30622.77

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)
7498725.63

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary
0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary
7529348.4

Consumption of purchased or acquired heat

Heating value
<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary
0

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)
0

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary
0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary
0

Consumption of purchased or acquired steam

Heating value
<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary
0

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)
18854223.15

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary
0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary
18854223.15

Consumption of self-generated non-fuel renewable energy

Heating value
<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary
0

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)
0

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary
0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary
0

Total energy consumption

Heating value
<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary
30622.77

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)
69341605.15

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary
25124641.05

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary
94496868.97

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	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

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

Sustainable biomass

Heating value
LHV

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment

Other biomass

Heating value
LHV

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment

Other renewable fuels (e.g. renewable hydrogen)

Heating value
LHV

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment

Coal

Heating value
LHV

Total fuel MWh consumed by the organization
2705904

MWh fuel consumed for self-generation of electricity
811771

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
1894133

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment

Oil

Heating value
LHV

Total fuel MWh consumed by the organization
5411631

MWh fuel consumed for self-generation of electricity
954189

MWh fuel consumed for self-generation of heat
2231002

MWh fuel consumed for self-generation of steam
2226440

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment

Gas

Heating value
LHV

Total fuel MWh consumed by the organization
53587583

MWh fuel consumed for self-generation of electricity
21966

MWh fuel consumed for self-generation of heat
45204664

MWh fuel consumed for self-generation of steam
5582820

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
2778133

Comment

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value
LHV

Total fuel MWh consumed by the organization
14700991

MWh fuel consumed for self-generation of electricity
29916

MWh fuel consumed for self-generation of heat
14601271

MWh fuel consumed for self-generation of steam
69804

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment

Total fuel

Heating value
LHV

Total fuel MWh consumed by the organization
76406110

MWh fuel consumed for self-generation of electricity
1817842

MWh fuel consumed for self-generation of heat
62036938

MWh fuel consumed for self-generation of steam
9773198

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
2778133

Comment

C8.2d

(C8.2d) 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	930279	930279	0	0
Heat	62036938	62036938	0	0
Steam	14890581	14890581	0	0
Cooling	0	0	0	0

C-CH8.2d

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

Electricity

Total gross generation inside chemicals sector boundary (MWh)
930279

Generation that is consumed inside chemicals sector boundary (MWh)
930279

Generation from renewable sources inside chemical sector boundary (MWh)
0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)
698400

Heat

Total gross generation inside chemicals sector boundary (MWh)
55744807

Generation that is consumed inside chemicals sector boundary (MWh)
55744807

Generation from renewable sources inside chemical sector boundary (MWh)
0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)
22796640

Steam

Total gross generation inside chemicals sector boundary (MWh)
14890581

Generation that is consumed inside chemicals sector boundary (MWh)
14890581

Generation from renewable sources inside chemical sector boundary (MWh)
0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)
1629600

Cooling

Total gross generation inside chemicals sector boundary (MWh)
0

Generation that is consumed inside chemicals sector boundary (MWh)
0

Generation from renewable sources inside chemical sector boundary (MWh)
0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)
0

C8.2e

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

Country/area of low-carbon energy consumption
Sweden

Sourcing method
Retail supply contract with an electricity supplier (retail green electricity)

Energy carrier
Electricity

Low-carbon technology type
Hydropower (capacity unknown)

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)
1569

Tracking instrument used
GO

Country/area of origin (generation) of the low-carbon energy or energy attribute
Sweden

Are you able to report the commissioning or re-powering year of the energy generation facility?
Yes

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)
1926

Comment
The electricity supply for our Astorp, Sweden site is produced in Vattenfall's Nordic hydro power plants. Vattenfall owns several hydro power plants, all with different commissioning years. The year disclosed in our report is provided as an example, using the Lilla Edet power plant, which is situated on the Göta Älv river.

Country/area of low-carbon energy consumption
Brazil

Sourcing method
Default delivered electricity from the grid (e.g. standard product offering by an energy supplier), supported by energy attribute certificates

Energy carrier
Electricity

Low-carbon technology type
Hydropower (capacity unknown)

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)
29970

Tracking instrument used
I-REC

Country/area of origin (generation) of the low-carbon energy or energy attribute
Brazil

Are you able to report the commissioning or re-powering year of the energy generation facility?
Yes

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)
2021

Comment

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area
Australia

Consumption of purchased electricity (MWh)
1764

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
1764

Country/area
Belgium

Consumption of purchased electricity (MWh)
20951

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
20951

Country/area
Brazil

Consumption of purchased electricity (MWh)
56802

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
56802

Country/area
China

Consumption of purchased electricity (MWh)
37399

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
37399

Country/area
France

Consumption of purchased electricity (MWh)
436779

Consumption of self-generated electricity (MWh)
37674

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
203927

Consumption of self-generated heat, steam, and cooling (MWh)
2700451

Total non-fuel energy consumption (MWh) [Auto-calculated]
3378831

Country/area
Germany

Consumption of purchased electricity (MWh)

1095322

Consumption of self-generated electricity (MWh)
421286

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
89321

Consumption of self-generated heat, steam, and cooling (MWh)
1276601

Total non-fuel energy consumption (MWh) [Auto-calculated]
2882530

Country/area
India

Consumption of purchased electricity (MWh)
13151

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
13151

Country/area
Italy

Consumption of purchased electricity (MWh)
247667

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
174583

Consumption of self-generated heat, steam, and cooling (MWh)
142093

Total non-fuel energy consumption (MWh) [Auto-calculated]
564343

Country/area
Malaysia

Consumption of purchased electricity (MWh)
10591

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
10591

Country/area
Mexico

Consumption of purchased electricity (MWh)
32037

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
32037

Country/area
Netherlands

Consumption of purchased electricity (MWh)
549226

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
2924808

Consumption of self-generated heat, steam, and cooling (MWh)
1032733

Total non-fuel energy consumption (MWh) [Auto-calculated]
4506767

Country/area
Poland

Consumption of purchased electricity (MWh)
1688

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
1688

Country/area
Spain

Consumption of purchased electricity (MWh)
165105

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
30043

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
195148

Country/area
Sweden

Consumption of purchased electricity (MWh)
3138

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
3138

Country/area
Thailand

Consumption of purchased electricity (MWh)
8038

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
8038

Country/area
Turkey

Consumption of purchased electricity (MWh)
1687

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
1687

Country/area
United Kingdom of Great Britain and Northern Ireland

Consumption of purchased electricity (MWh)
78324

Consumption of self-generated electricity (MWh)
0

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
78324

Country/area
United States of America

Consumption of purchased electricity (MWh)
5800112

Consumption of self-generated electricity (MWh)
467538

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
18565094

Consumption of self-generated heat, steam, and cooling (MWh)
9738691

Total non-fuel energy consumption (MWh) [Auto-calculated]
34571435

C-CH8.3

(C-CH8.3) Does your organization consume fuels as feedstocks for chemical production activities?

Yes

C-CH8.3a

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

Fuels used as feedstocks

Other, please specify (Total fuel feedstock)

Total consumption

36660320

Total consumption unit

metric tons

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

3

Heating value of feedstock, MWh per consumption unit

12.21

Heating value

LHV

Comment

Feedstock composition is considered to be confidential information, and therefore a total of all feedstock volumes has been provided. The heating value of the feedstock is based on a weighted average of heating values for the total feedstock mix. Please also note that the majority of our feedstock is converted into chemicals and polymer products, rather than combusted, and therefore there are no direct CO2 emissions associated with these products.

C-CH8.3b

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

	Percentage of total chemical feedstock (%)
Oil	60
Natural Gas	40
Coal	0
Biomass	0
Waste (non-biomass)	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.

C-CH9.3a

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

Output product

Polymers

Production (metric tons)

7098027

Capacity (metric tons)

13145713

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

0

Electricity intensity (MWh per metric ton of product)
0

Steam intensity (MWh per metric ton of product)
0

Steam/ heat recovered (MWh per metric ton of product)
0

Comment
Intensity ratios are not published as they are regarded as confidential business information

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Output product
High Value Chemicals (Steam cracking)

Production (metric tons)
9248274

Capacity (metric tons)
14210894

Direct emissions intensity (metric tons CO2e per metric ton of product)
0

Electricity intensity (MWh per metric ton of product)
0

Steam intensity (MWh per metric ton of product)
0

Steam/ heat recovered (MWh per metric ton of product)
0

Comment
Intensity ratios are not published as they are regarded as confidential business information.

Output product
Methanol

Production (metric tons)
1080446

Capacity (metric tons)
1443745

Direct emissions intensity (metric tons CO2e per metric ton of product)
0

Electricity intensity (MWh per metric ton of product)
0

Steam intensity (MWh per metric ton of product)
0

Steam/ heat recovered (MWh per metric ton of product)
0

Comment
Intensity ratios are not published as they are regarded as confidential business information.

Output product
Other base chemicals

Production (metric tons)
7702430

Capacity (metric tons)
11319633

Direct emissions intensity (metric tons CO2e per metric ton of product)
0

Electricity intensity (MWh per metric ton of product)
0

Steam intensity (MWh per metric ton of product)
0

Steam/ heat recovered (MWh per metric ton of product)
0

Comment
Intensity ratios are not published as they are regarded as confidential business information.

Output product
Other, please specify (Gasoline and distillate)

Production (metric tons)
9545704

Capacity (metric tons)
13266768

Direct emissions intensity (metric tons CO2e per metric ton of product)
0

Electricity intensity (MWh per metric ton of product)
0

Steam intensity (MWh per metric ton of product)
0

Steam/ heat recovered (MWh per metric ton of product)
0

Comment
Intensity ratios are not published as they are regarded as confidential business information.

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	

C-CH9.6a

(C-CH9.6a) Provide details of your organization's investments in low-carbon R&D for chemical production activities over the last three years.

Technology area
Unable to disaggregate by technology area

Stage of development in the reporting year
<Not Applicable>

Average % of total R&D investment over the last 3 years
7

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)

Average % of total R&D investment planned over the next 5 years
11

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan
Our R&D activities are designed to improve our existing products and processes, and discover and commercialize new materials, catalysts, and processes. We are currently investing in further developing sustainable and circular solutions such as mechanical and advanced recycling, which minimize resource use and result in products with an improved carbon footprint.

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	Third-party verification or assurance process in place

C10.1a

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

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
LyondellBasell FY22 Assurance Report (Signed).pdf

Page/ section reference
P. 1-2

Relevant standard
Attestation standards established by AICPA (AT105)

Proportion of reported emissions verified (%)
100

C10.1b

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

Scope 2 approach
Scope 2 location-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
LyondellBasell FY22 Assurance Report (Signed).pdf

Page/ section reference
P. 1-2

Relevant standard
Attestation standards established by AICPA (AT105)

Proportion of reported emissions verified (%)
100

Scope 2 approach
Scope 2 market-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
LyondellBasell FY22 Assurance Report (Signed).pdf

Page/ section reference
P. 1-2

Relevant standard
Attestation standards established by AICPA (AT105)

Proportion of reported emissions verified (%)
100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category
Scope 3: Purchased goods and services
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
Scope 3: Upstream transportation and distribution
Scope 3: Investments
Scope 3: Use of sold products
Scope 3: End-of-life treatment of sold products

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

Page/section reference

Relevant standard
Attestation standards established by AICPA (AT105)

Proportion of reported emissions verified (%)
98

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	Energy consumption	Attestation standards established by AICPA (AT105)	We publish our global energy consumption figures as part of our annual sustainability report in line with the guidance set forth in the Global Reporting Initiative (GRI) standard 302 and CDP question C8.2a. This figure is part of the scope of our limited assurance verification process which we conducted for the first time in 2023.

LyondellBasell FY22 Assurance Report (Signed).pdf

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.
EU ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

EU ETS

% of Scope 1 emissions covered by the ETS
25

% of Scope 2 emissions covered by the ETS
0

Period start date
January 1 2022

Period end date
December 31 2022

Allowances allocated
3423892

Allowances purchased
1117200

Verified Scope 1 emissions in metric tons CO2e
3624483

Verified Scope 2 emissions in metric tons CO2e
0

Details of ownership
Facilities we own and operate

Comment

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

LyondellBasell complies with emission trading schemes by pursuing the lowest cost solutions, considering both near-term and future anticipated costs under these systems. This may involve either minimizing internal emissions or purchasing allowances/compliance instruments to satisfy compliance obligations. If allowances allocated to the company exceed the current compliance obligations, allowances are retained for future compliance needs. LyondellBasell has established procedures to ensure compliance with regulatory requirements and reporting, and to monitor deadlines and regulatory updates. We also have systems in place at EU ETS sites to ensure timely surrendering of certificates for compliance. We have been involved in industry associations at the national or European level to address the effectiveness of the ETS and to reduce carbon leakage. The company has created a global energy management group, supported by a network of energy management specialists at each manufacturing site to pursue energy reduction measures. European sites also have CO2 focal points to manage compliance obligations.

Example:

For example, in 2021, we announced an anticipated annual GHG emission reduction of 150,000t at our Wesseling site in Germany from the planned shutdown of an onsite boiler.

Situation: We expect increasing ETS certificate prices due to an increase of the EU's ambition for its 2030 climate targets, which could lead to higher operating costs for our European manufacturing assets.

Task: Our Carbon Reduction Program (CRP) aims to identify and reduce GHG emissions from our highest energy-intensive manufacturing sites as part of our overall strategy to reach our 2030 goal to reduce scope 1 and 2 GHG emissions by 30%, relative to a 2020 baseline, and also serves to manage our exposure to this risk of increased ETS certificate costs.

Action: Firstly, we have a dedicated purchasing strategy that hedges against the volatility in market prices to help avoid cost spikes for credits. Secondly within our CRP program, we evaluate GHG emission reduction opportunities such as process optimisation (e.g., heat integration, waste heat to power, flare gas recovery or fuel switch to lower carbon intensive fuels), energy management systems to monitor and control energy streams, and process electrification.

Results: Our CRP program identified emission reduction potentials at our site in Wesseling (Germany), our largest GHG-emitting site in Europe, which also reduce our exposure to increased carbon pricing in the EU ETS. We approved in 2021 the implementation of a project that will result in the shutdown of a lignite-fuelled boiler in our site in Wesseling, compensated by the supply of steam from their neighbouring site. This will allow us to reduce the site's CO2 emissions by approximately 150,000t CO2e per year. The potential annual cost savings linked to this reduction initiative once it is complete is approximately 12 to 22.5MM EUR assuming an EUA price ranging between 80 to 150 EUR per ton.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?
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.

Type of internal carbon price
Shadow price

How the price is determined
Alignment with the price of allowances under an Emissions Trading Scheme
Benchmarking against peers

Objective(s) for implementing this internal carbon price
Drive energy efficiency
Drive low-carbon investment
Navigate GHG regulations

Scope(s) covered
Scope 1

Pricing approach used – spatial variance
Differentiated

Pricing approach used – temporal variance
Evolutionary

Indicate how you expect the price to change over time
We are integrating an internal CO2 pricing to support capital allocation processes and to develop policy positions to drive cost effective climate action. To achieve our targets, we expect capital spending in the future will include investments to support lowering emissions in our operations. We also anticipate incurring costs for environmental compliance, including compliance with potential legislation and potential regulation related to climate change. We expect capital spending to support sustainability ambitions, including climate, will represent approximately 15% of total capital expenditures over the next two years. While many of the projects are in early stages of development, we will evaluate, pursue and prioritize our investments based on a rate of return per project. Project costs and IRR are assessed using, in part, our shadow CO2 price, which takes into account several factors, including regional differences such as forecasted EUA prices under ETS for our sites in the EU.

Actual price(s) used – minimum (currency as specified in C0.4 per metric ton CO2e)
25

Actual price(s) used – maximum (currency as specified in C0.4 per metric ton CO2e)
150

Business decision-making processes this internal carbon price is applied to
Capital expenditure
Product and R&D

Mandatory enforcement of this internal carbon price within these business decision-making processes
Yes, for some decision-making processes, please specify (Emission reduction projects)

Explain how this internal carbon price has contributed to the implementation of your organization's climate commitments and/or climate transition plan
LyondellBasell supports a carbon pricing scheme that effectively facilitates a transition to a net zero economy. We have implemented differentiated carbon pricing levels taking into account regional context. In the European Union, we take into account projected EUA prices under the EU ETS, using CO2 price forecasts in our capital expenditure decisions to inform low carbon and energy efficiency investments at our manufacturing sites. In the US, we define anticipated carbon pricing levels over time using a global and regional benchmark of our peers.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?
Yes, our suppliers
Yes, our customers/clients

C12.1a

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

Type of engagement
Engagement & incentivization (changing supplier behavior)

Details of engagement
Run an engagement campaign to educate suppliers about climate change

% of suppliers by number
22

% total procurement spend (direct and indirect)
12

% of supplier-related Scope 3 emissions as reported in C6.5
1

Rationale for the coverage of your engagement
LyondellBasell established in 2021 a sustainable procurement initiative, with the objective of assessing 70% of key suppliers by 2025.

In 2022, we advanced the implementation of our Sustainable Procurement strategy, leveraging on EcoVadis assessments and our membership in Together for Sustainability (TfS). As a member of TfS, LyondellBasell has access to over 10,000 existing EcoVadis supplier sustainability ratings and 700 TfS audits. Participating companies also share best practices to drive continuous improvement.

Supplier GHG emissions and measures related to climate are assessed as part of the EcoVadis survey. The EcoVadis survey takes into account different climate-related elements in its assessment as part of its overall environmental assessment, including the definition of quantitative objectives on energy consumption & GHG and whether they are science-based, renewable electricity purchased, the implementation of GHG emission reduction initiatives, and external disclosures on GHG emissions.

In addition to using EcoVadis assessments, we held our second annual Advancing Strategic Potential (ASP) Forum with some of our strategic key suppliers. Through this engagement, we explored with our suppliers the importance of driving successful change, identifying opportunities where innovation and sustainability can intersect, and how to find mutually beneficial relationships for both parties. Panel discussions also included our updated sustainability targets, including on scope 3, how we can better work with suppliers to achieve these goals and how to address scope 3 emissions.

Rationale for engagement coverage

LyondellBasell works with approximately 16,600 Tier 1 suppliers for the procurement of different goods and services needed for the manufacture of our products. We derived our scope of coverage and associated target from a holistic assessment of our supplier risk profiles (country and industry risk) and procurement risk (spend and category criticality), to define a population of key suppliers to focus on in this initial phase of our sustainable procurement program. This population includes a total of approximately 3,500 suppliers which we have rated as key, representing 93% of our procurement spend and estimated to cover more than 94% of our scope 3.1 emissions.

Impact of engagement, including measures of success
Measures of success including thresholds

To make progress toward our 2025 goal of assessing 70% of our key suppliers, we set a target to assess 470 suppliers globally in 2022. We derived the target from a holistic assessment of our supplier risk profiles (country and industry risk) and procurement risk (spend and category criticality). We exceeded our plan and achieved 140% of our 2022 supplier assessment goal. A supplier whose EcoVadis assessment does not meet our minimum score requirement is given the opportunity to improve performance within an appropriate timeframe. LyondellBasell reserves the right to terminate a supplier relationship if no acceptable improvement is made.

Impact of supplier engagement strategy

The impact of our sustainable procurement strategy is demonstrated through the improvement of EcoVadis scores on a year to year basis. EcoVadis scores can be improved through a number of measures that are relevant to climate, including external reporting on GHG emissions , implementation of emission reduction initiatives, and committing to science-based targets with the SBTi. In 2022, we saw that our suppliers' EcoVadis scoring improved from an average rating of 54.5% in 2021 to 57.8% in 2022, with 31% of our suppliers obtaining advanced scores (65-84%), compared to 22% receiving advanced scores in 2021.

Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Education/information sharing	Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services

% of customers by number

100

% of customer - related Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement

At LyondellBasell, our purpose is creating solutions for everyday sustainable living. In March of 2023, we announced our new company strategy focused on three key elements, one of which is building a profitable Circular & Low Carbon Solutions business. Therefore, engaging with our customers not just to deliver products but create solutions that deliver sustainability benefits is central to our purpose and strategy. For example, we are collaborating with a number of customers to develop end products based on circular and renewable material. The development of these end products has resulted in bringing to the market products that have a lower carbon footprint compared to similar products manufactured from non-circular and non-renewable materials.

Rationale for customer engagement coverage

We aim for 100% coverage for this engagement as collaboration with our customers on sustainable solutions is core to our purpose. By 2030, our goal is to produce and market 2 million metric tons of recycled and renewable-based polymers, which represents approximately 20% of our 2022 total polyethylene and polypropylene sales. As we market and sell circular and low carbon solutions, we thereby help drive emissions down within our organization and for our clients.

Impact of engagement, including measures of success

The success of our new corporate strategy to build a profitable Circular & Low Carbon Solutions business can be measured by incremental EBITDA generated. We are expecting our CLCS business to grow to at least 1 billion USD in incremental normalized EBITDA by 2030. CLCS incremental normalized EBITDA is incremental to LyondellBasell's fossil-based Olefins & Polyolefins Americas and Olefins & Polyolefins Europe, Asia, International. Normalized EBITDA is EBITDA assuming portfolio normalizations including benefits associated with the following strategic initiatives: Grow & Upgrade the Core, Building a Profitable CLCS Business and Step Up Performance & Culture. Portfolio normalizations reflect a 2022 year end asset portfolio with 2013-2022 historical average margins and operating rates. Incremental normalized EBITDA related to CLCS cannot be reconciled to net income due to the inherent difficulty in quantifying certain amounts that are necessary for such reconciliation at the strategic initiative and business unit level, including adjustments that could be made for interest expense (net), provision for (benefit from) income taxes and depreciation & amortization, the amounts of which, based on historical experience, could be significant.

Impact of customer engagement strategy: The roll-out of our corporate strategy and Circular & Low Carbon Solutions business supports low carbon innovation in close collaboration with our customers. As a result, the carbon footprint of our products is reduced, as are related climate impacts throughout the value chain.
Successful collaborations with our customers include our collaboration with Nippon Paint China, a top household paint brand among Chinese consumers, creating packaging using our CirculenRecover mechanically recycled polymer resins, and our collaboration with TSL, a sports equipment specialist, on the creation of an innovative snowshoe with recycled content. In another example, LyondellBasell is collaborating with Audi to help close the loop on mixed automotive plastic waste. Audi is installing seatbelt buckle covers in its Q8 e-tron model line. These are made using LyondellBasell polymers that support the sourcing of feedstocks from mixed automotive plastic waste. In each of these examples, the use of recycled material can help our customers reduce the carbon footprint of their products.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

Yes, climate-related requirements are included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement
Climate-related disclosure through a non-public platform

Description of this climate related requirement
LyondellBasell expects all suppliers to read and accept the Supplier Code of Conduct, which includes an expectation that our suppliers responsibly manage and seek to prevent or reduce greenhouse gas emissions.

The LyondellBasell contractual terms and conditions also include requirements for suppliers to participate in ESG assessments and/or be audited by third parties as requested, share the assessment results with TfS and its members, and, for key suppliers, to complete the EcoVadis ESG assessment.

% suppliers by procurement spend that have to comply with this climate-related requirement
100

% suppliers by procurement spend in compliance with this climate-related requirement
12

Mechanisms for monitoring compliance with this climate-related requirement
Certification
Off-site third-party verification
On-site third-party verification
Grievance mechanism/Whistleblowing hotline
Supplier scorecard or rating
Other, please specify (Ecovadis assessments and TfS supplier audits including corrective action plans)

Response to supplier non-compliance with this climate-related requirement
Retain and engage

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
Yes, we engage directly with policy makers
Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?
Yes

Attach commitment or position statement(s)
climate-advocacy-report.pdf

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan
Our public engagement activities are directed towards advancing LyondellBasell's business and strategic interests and are consistent with our public policies on addressing climate change. We have an established practice to determine which public policy issues an related activities are important to the company. This process includes soliciting input from relevant business and functional departments. Key issues are discussed and prioritized by members of senior management. Our positions on key issues involving climate change are available publicly through our climate advocacy report and other sources, such as our corporate website, sustainability report, annual proxy statement and press releases. Our engagement activities are aligned with these positions.

Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
<Not Applicable>

Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
<Not Applicable>

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Multiple legislations related to climate targets.

Category of policy, law, or regulation that may impact the climate
Climate change mitigation

Focus area of policy, law, or regulation that may impact the climate
Climate-related targets

Policy, law, or regulation geographic coverage
National

Country/area/region the policy, law, or regulation applies to
France
Germany
Netherlands

Your organization's position on the policy, law, or regulation

Neutral

Description of engagement with policy makers
Discuss GHG-emission reduction roadmaps and what is needed from government to support GHG-emission reduction industry initiatives. This involves different policies from the national governments of France, Germany and Netherlands, all aimed at GHG-reduction potential from large industrial sites. All 3 countries want to realize (extra) GHG-reduction from industry nationally.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation
<Not Applicable>

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
We have developed GHG emission reduction plans for our major sites including in France, Germany, and The Netherlands. Legislative developments in countries who aim to establish GHG reduction targets for industry, along with financial support in the form of subsidies or tax credits, are key for us to realise those reduction plans.

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Regulation establishing a Carbon Border Adjustment Mechanism

Category of policy, law, or regulation that may impact the climate
Carbon pricing, taxes, and subsidies

Focus area of policy, law, or regulation that may impact the climate
Emissions trading schemes

Policy, law, or regulation geographic coverage
Regional

Country/area/region the policy, law, or regulation applies to
Europe

Your organization's position on the policy, law, or regulation
Support with minor exceptions

Description of engagement with policy makers
We have supported the introduction of a CBAM as a tool to fight carbon leakage in Europe. We have indicated the challenges around including the chemical sector, linked to circumvention risks and the complexity of value chains. Our outreach was with the principal MPs in the European Parliament working on this legislation

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation
We welcome the proposal for a CBAM as recognition of the need to safeguard the competitiveness of EU industries, if the details that are relevant for our product value chains are analyzed and covered as soon as possible in line with the timeline established by the European Commission. The key challenge ahead is achieving climate neutral operations in 2050. The phaseout of free allowances will be a crucial factor defining our scope for investment. The current EU ETS provides a GHG- emission reduction pathway until 2040 and a gradual phaseout of free allowances based on carbon leakage rules. The introduction of a CBAM impacts the phaseout of free allowances by introducing an alternative instrument to carbon leakage.

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
The phaseout of free allowances will be a crucial factor defining our scope for investment. The introduction of a CBAM impacts the phaseout of free allowances by introducing an alternative instrument to carbon leakage.

Specify the policy, law, or regulation on which your organization is engaging with policy makers
EU Renewable Energy Directive

Category of policy, law, or regulation that may impact the climate
Climate change mitigation

Focus area of policy, law, or regulation that may impact the climate
Renewable energy generation

Policy, law, or regulation geographic coverage
Regional

Country/area/region the policy, law, or regulation applies to
Europe

Your organization's position on the policy, law, or regulation
Support with major exceptions

Description of engagement with policy makers
We have supported regulatory initiatives increasing the availability of high quality low carbon hydrogen as well as renewable hydrogen specifically under the Renewable Energy Directive.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation
We have supported legislative initiatives to increase the availability of high quality low carbon hydrogen irrespective of its production route to support the reduction of GHG emissions at industrial sites, which we see key in order to develop a hydrogen economy and ensure the volumes necessary for GHG emission reductions at the scale necessary. Particularly, in the revision of the European Renewable Energy Directive (REDIII), this position was endorsed by allowing for an exemption of hydrogen derived from decarbonizing industrial gases in the preliminary agreement.

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
The availability of low carbon hydrogen is a central component of our plans to reach our GHG emission reduction targets in Europe, and in particular our high emission intensive plants (olefin steam cracking plants and I&D chemical plants).

Specify the policy, law, or regulation on which your organization is engaging with policy makers
National subsidy instruments linked to GHG-reduction technologies.

Category of policy, law, or regulation that may impact the climate
Carbon pricing, taxes, and subsidies

Focus area of policy, law, or regulation that may impact the climate
Other, please specify (Subsidies)

Policy, law, or regulation geographic coverage
National

Country/area/region the policy, law, or regulation applies to
France
Germany
Netherlands
United States of America
Europe

Your organization's position on the policy, law, or regulation
Neutral

Description of engagement with policy makers
LyondellBasell is engaging with governments on EU- and national level to discuss how (future) funding schemes can support our future investments aimed at reducing GHG-emissions at sites.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation
<Not Applicable>

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
Subsidies are important to support the high capital investments needed to deploy emission reduction technologies at sites and with our suppliers.

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association
American Chemistry Council

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
The American Chemistry Council (ACC) has adopted a set of Climate Policy Principles which state that a combination of technology, market-based, and policy solutions will be necessary to reduce GHG emissions and achieve climate goals, such as those of the Paris Agreement. To support climate progress, the ACC calls on the US Congress to enact legislation to: 1) increase government investment and scientific resources to develop and deploy low emissions technologies in the manufacturing sector, 2) adopt transparent, predictable, technology- and revenue-neutral, market-based, economy-wide carbon price signals, and 3) encourage adoption of emissions-avoiding solutions and technologies throughout the economy to achieve significant emissions savings. ACC has also indicated support for net zero economy-wide by 2050.

Our evaluation has shown that their positions around hydrogen and low carbon fuels, CCUS, emerging technologies, renewable and low carbon electricity, and carbon pricing are consistent with ours.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
American Fuel & Petrochemical Manufacturers

Is your organization's position on climate change policy consistent with theirs?
Inconsistent

Has your organization attempted to influence their position in the reporting year?
Yes, we attempted to influence them but they did not change their position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
The American Fuel and Petrochemical Manufacturers (AFPM) states support for "the aspiration of the Paris Accord to address climate change through global cooperation and greenhouse gas emissions reductions" but does not specify support for the goals of the Agreement to limit global temperature rise to well below 2oC above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5oC. AFPM is opposed to EV mandates and bans that would impact their refining members. AFPM is leading litigation efforts to oppose federal and state laws/regulations designed to reduced GHG emissions from the transportation sector by supporting zero emissions vehicles, which play a key role in the U.S. meeting its climate targets.

AFPM has not taken a public advocacy position for or against hydrogen or other low carbon fuels as a way to support industrial decarbonization, but they opposed the

Inflation Reduction Act, which provides a source of funding to incentivize and accelerate investment in hydrogen.

They do not have any stated positions around emerging technologies, renewable and low carbon electricity, or carbon pricing.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
BusinessEurope

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
BusinessEurope supports the European Green Deal and is committed to the transition to a climate-neutral economy by mid-century.

Our evaluation has shown that their positions around hydrogen and low carbon fuels, CCUS, emerging technologies, renewable and low carbon electricity, and carbon pricing are consistent with ours.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
European Chemical Industry Council (CEFIC)

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
Cefic supports the European Green Deal and Europe's ambition to become climate neutral by 2050.

Our evaluation has shown that their positions around hydrogen and low carbon fuels, CCUS, emerging technologies, renewable and low carbon electricity, and carbon pricing are consistent with ours.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
Other, please specify (International Council of Chemical Associations (ICCA))

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
ICCA, the global voice of the chemical industry, fully supports the Paris Agreement and the ambition to achieve a climate neutral world by mid-century. The chemicals and materials manufacturers ICCA represents are committed to being part of the solution to global climate change in two ways: 1) working to reduce GHG emissions associated with our own operations, and 2) enabling the entire manufacturing value chain to reduce their own GHG footprints through the use of the energy-saving and emissions-reducing technologies and materials produced or made possible by chemical innovations.

Our evaluation has shown that their positions around hydrogen and low carbon fuels, CCUS, emerging technologies, renewable and low carbon electricity, and carbon pricing are consistent with ours.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
National Association of Manufacturers

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
The National Association of Manufacturers (NAM) states support for the goals of the Paris Agreement: "Climate change is happening. Human activities are contributing. The NAM supports the objectives of the Paris Climate Agreement to significantly reduce the risks and impacts of global climate change." NAM has also stated: "A global consensus has emerged that we must restrict global temperature rise to 2 degrees Celsius above preindustrial levels and strive to limit the rise to 1.5 degrees. Either scenario will require massive reductions in GHG emissions over the next 30 years and would likely require net emissions to reach zero in the coming decades."

Our evaluation has shown that their positions around hydrogen and low carbon fuels, CCUS, emerging technologies, and renewable and low carbon electricity are consistent with ours.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
Other, please specify (Plastics Europe)

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
PlasticsEurope states support for the Paris Agreement, stating "we therefore support the EU's ambition to become climate-neutral by 2050, contributing to global climate objectives of the Paris Agreement.

Our evaluation has shown that their positions around hydrogen and low carbon fuels, CCUS, emerging technologies, renewable and low carbon electricity, and carbon pricing are consistent with ours.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

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
2022-annual-report.pdf

Page/Section reference
Page 3
Page 5
Page 21
Page 131

Content elements
Governance
Strategy
Risks & opportunities
Emission targets

Comment

Publication
In voluntary sustainability report

Status
Complete

Attach the document
2022-lyb-sustainability-report.pdf

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Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	International Sustainability & Carbon Certification (ISCC) Task Force on Climate-related Financial Disclosures (TCFD) UN Global Compact World Business Council for Sustainable Development (WBCSD) Other, please specify (World Economic Forum)	We have committed to aligning our disclosures with the recommendations from the Task Force for Climate-related Financial Disclosures (TCFD), and we publish a TCFD index along with our CDP report on our website. As a signatory of the United Nations Global Compact, LyondellBasell affirms Principle 15 of the 1992 Rio Declaration that states "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. To ensure the integrity of our products made from circular or renewable-based feedstocks, we offer third-party ISCC PLUS certification (International Sustainability & Carbon Certification). This approach verifies our processes meet sustainability and traceability requirements throughout the supply chain. ISCC PLUS certification is a globally recognized system for providing traceability of recycled and renewable-based materials and verifies that mass balance accounting follows predefined and transparent rules. Customers can use these certificates to verify compliance with sustainability and traceability requirements. Through the WBCSD, we are exploring opportunities to become involved in their CFO Redefining Value Network and Circular Chemical, Nature and Climate Action platforms. We joined the World Economic Forum Low Carbon Emitting Technologies (LCET) group to help accelerate the development and upscaling of the low carbon emitting technologies required for the chemical industry and related value chains to reach net zero emissions by 2050.

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	Please select	<Not Applicable>	<Not Applicable>

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Please select	<Not Applicable>	<Not Applicable>

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment

Value chain stage(s) covered
<Not Applicable>

Portfolio activity
<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity
<Not Applicable>

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)
<Not Applicable>

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment

Value chain stage(s) covered
<Not Applicable>

Portfolio activity
<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity
<Not Applicable>

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)
<Not Applicable>

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity- sensitive areas in the reporting year?

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Please select	<Not Applicable>

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Please select	Please select

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located

C16. 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.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Chief Executive Officer (CEO)	Chief Executive Officer (CEO)

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

Please select

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms