

## C0 Introduction

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

As one of the world’s largest producers of plastics and chemicals, our products are used by millions of people around the world, every day. We have the potential—and responsibility—to use this scale and reach to make a positive impact across our value chains. That’s why we are working to deliver meaningful progress to address some of the world’s most pressing challenges such as helping end plastic waste in the environment, mitigating climate change and contributing to a thriving society for our employees, the communities where we operate and the people who depend on our products. Driven by our employees around the globe, we produce materials and products that are key to advancing solutions to modern challenges like enhancing food safety through lightweight and flexible packaging, protecting the purity of water supplies through stronger and more versatile pipes, improving the safety, comfort, and fuel efficiency of many of the cars and trucks on the road, and ensuring the safe and effective functionality of electronics and appliances.

We manage our operations through six operating segments, namely Olefin and Polyolefins (O&P) – Americas; O&P - Europe, Asia and International; Intermediate and Derivatives (I&D); Advanced Polymer Solutions (APS); Refining; and Technology.

Addressing climate change is one of the greatest challenges our world is facing. We recognize its urgency and have accelerated our efforts and enhanced our goals in support of the Paris Agreement which aims to limit climate change by achieving net zero for global greenhouse gas (GHG) emissions by mid-century. We are committed to doing our part and recognize that achieving this objective will require collaboration and collective action by industry, policymakers and all parts of society. That is why we aim to achieve net zero GHG emissions from global operations by 2050 and we set an interim goal to achieve an absolute reduction of 30% in scope 1 and 2 GHG emissions by 2030. We consider a commitment to net zero by 2050 and a credible pathway to 2030 as critical to the long-term operation of LyondellBasell, to advance our customers’ climate ambitions and to support society’s transition toward a net zero future.

Our production currently results in approximately 24 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 70% of our total, and the remaining 30% are from the electricity and steam that we procure, otherwise known as scope 2. As we move toward 2030, we are focused on deploying available technologies and solutions at our highest GHG emitting sites, which are our olefin and I&D plants. These technologies and solutions include reducing flare emissions during routine operations, optimizing the use of energy in our operations and increasing our use of lower carbon intensive fuels. Renewable electricity will also play a key role in achieving our goals. Our plans to cease operations of our Houston Refinery by the end of 2023 will also contribute to reaching our 2030 target. Our ambition to achieve net zero GHG emissions by 2050 will need to be enabled by the deployment of new technologies across the company’s manufacturing footprint, and we are assessing technologies such as cracker electrification, use of hydrogen, carbon capture and storage (CCS) and carbon utilization.

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2021	December 31 2021	No	Not applicable

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

Country/area
Argentina
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) Select the currency used for all financial information disclosed throughout your response.

Currency
USD

(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

Organizational activities: Chemicals

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

**Bulk organic chemicals**

- Lower olefins (cracking)
- Aromatics
- Ethylene oxide & Ethylene glycol
- Ethanol

**Bulk inorganic chemicals**

- Hydrogen

**Other chemicals**

- Specialty organic chemicals

- Methanol
- Polymers

(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

### Board oversight

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

- Yes

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

Position of individual(s)	Please explain
<b>Board-level committee</b>	<p>The Health, Safety, Environmental &amp; Sustainability (HSE&amp;S) Committee of the Board is responsible for reviewing relevant sustainability risks and trends and monitoring the Company's progress on sustainability targets and ambitions, including our climate change programs. As part of its responsibilities on our health, safety and environmental programs, the HSE&amp;S Committee assists the Board in its oversight responsibilities by assessing the effectiveness of climate change programs and initiatives that support Company policies. Our Board oversees our commitment to sustainability and maintains oversight of the Company's environmental, social, and governance ("ESG") profile, including climate change issues.</p> <p>The HSE&amp;S Committee comprises five independent directors. The specific responsibilities of the HSE&amp;S Committee include:</p> <ol style="list-style-type: none"> <li>1) review the status of the Company's climate change policies and performance, including processes to ensure compliance with applicable laws and regulations,</li> <li>2) review and monitor the Company's climate change progress against our targets,</li> <li>3) provide oversight of the Company's programs, initiatives, and activities in the areas of technology and sustainability, and</li> <li>4) review and monitor climate related audit program, associated budget and results.</li> </ol> <p>In 2021, our Board reviewed our climate strategy and the Company's plan to enhance our goals in support of the Paris Agreement, with a commitment to net zero by 2050 and a credible pathway to 2030 to reach an absolute reduction of 30% in our scope 1 and 2 emissions from 2020 levels.</p>

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled - some meetings	<ul style="list-style-type: none"> <li>• Reviewing and guiding strategy</li> <li>• Reviewing and guiding major plans of action</li> <li>• Reviewing and guiding risk management policies</li> <li>• Reviewing and guiding annual budgets</li> <li>• Reviewing and guiding business plans</li> <li>• Setting performance objectives</li> <li>• Monitoring implementation and performance of objectives</li> <li>• Overseeing major capital expenditures, acquisitions and divestitures</li> <li>• Monitoring and overseeing progress against goals and targets for addressing climate-related issues</li> </ul>	<p>Our Board leads our commitment to sustainability and maintains oversight of the Company's 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.</p> <p>During the Board's annual strategy meeting in July 2021, the Board focused on the Company's strategy, progress, and programs related to its goals on climate. This included a review and endorsement of the Company's plan to enhance our climate goals in support of the Paris Agreement, with a commitment to net zero by 2050 and a credible pathway to 2030 to reach an absolute reduction of 30% in our scope 1 and 2 emissions from 2020 levels. The Board also reviewed long-term future scenarios utilizing different assumptions about climate change and industry response, among other global developments, and the potential impacts on the Company's portfolio, operations, and strategic options.</p>

**(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*
Yes	<p>Our Nominating and Governance Committee is responsible for recommending director candidates, with a goal of achieving a Board that provides effective oversight of the Company through the appropriate balance of experience, expertise, skills, and specialized knowledge, including climate-related competence. The Committee considers the qualifications, contributions and outside commitments of directors, including experience and involvement with other organizations which engage with climate-related issues, in determining whether they should be nominated for re-election. For example, one of our Directors, Robert Dudley, is Chairman of the international industry-led Oil and Gas Climate Initiative.</p> <p>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.</p>

**Management responsibility**

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

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	Quarterly
Chief Sustainability Officer (CSO)	Both assessing and managing climate-related risks and opportunities	Quarterly
Leadership Team	Both assessing and managing climate-related risks and opportunities	Quarterly

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

**Chief Executive Officer**

Position in the Company: 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 Leadership Team, many members of which play an active role in addressing strategic or operational matters concerning climate change.

Responsibilities with regards to the assessment and steering of climate-related issues: 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 Leadership Team to review progress against our climate targets and related programs and initiatives.

Rationale for the assignment: The Chief Executive Officer (CEO) has overall responsibility for our climate change program as part of our wider sustainability strategy.

**Chief Sustainability Officer**

Position in the Company: The Chief Sustainability Officer (CSO) role is performed by the Company's Senior Vice President of Research & Development ("R&D"), Technology and Sustainability.

Responsibilities regarding the assessment and steering of climate-related issues: The CSO is responsible for the steering and monitoring of our sustainability programs, including climate change, at a senior level. The CSO is responsible for informing Company leadership, as well as the Board, about sustainability performance, strategy, and programs, including climate-related information. The CSO is supported by a global group of employees led by the Director, Global Sustainability, who is responsible for the management of climate change programs as part of the management of our wider sustainability programs.

Rationale for the assignment: The CSO is responsible for the overall development and deployment of our sustainability strategy. Consequently, the responsibility for climate-related issues has been assigned to this position.

**Leadership Team**

Position in the Company: The Leadership Team is chaired by the Chief Executive Officer, and its membership includes our Chief Sustainability Officer, the heads of each business segment (Olefins and Polyolefins, Advanced Polymers, Refining and Intermediate Chemicals), as well as our finance, manufacturing, business services, legal, public affairs, and Health, Safety and Environmental (HSE) functions.

Responsibilities regarding the assessment and steering of climate-related issues: The Leadership Team meets monthly to align and review our corporate strategy, along with relevant corporate activities. With regards to our climate strategy, this includes the assessment of climate risks and opportunities, the definition of our corporate targets and associated KPIs, monitoring progress against our goals, and providing overall direction on activities that support progress towards our overall climate ambition.

Rationale for the assignment: The Leadership Team is responsible for overseeing and implementing our sustainability strategy within our corporate strategy. Climate-related issues fall under the scope of this assignment as well.

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## Employee incentives

### (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
Yes	

### (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	Type of incentive	Activity incentivized	Comment
Chief Sustainability Officer (CSO)	Monetary reward	Emissions reduction target	A key deliverable of the CSO role includes the formulation of climate strategy, and management of various functions within the company to ensure that the climate strategy is implemented as planned.
Other, please specify (Variable Cost Manager)	Monetary reward	Energy reduction project	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 certify under the ISO 50001 standard. Individuals in this group are evaluated based on goals and objectives for meeting energy reduction targets.
Other, please specify (Research and Development)	Monetary reward	Efficiency project	Individual and groups who work in research and development are incentivized through goal setting and bonuses to create improvements to manufacturing processes to reduce the utilization of resources and environmental impacts and to create products which contribute to solving global issues including climate change.
All employees	Monetary reward	Emissions reduction target	Beginning with annual bonuses for 2022, our Board's Compensation and Talent Development Committee added a new Sustainability metric to our STI program, with payout determined by quantitative and qualitative annual key-performance indicators that tie to primary program areas of our sustainability strategy.
All employees	Non-monetary reward Monetary reward	Other (please specify) (Exceptional individual, team performance)	The Rewards and Recognition system is open to all non-senior management employees and is designed to recognize employees for exceptional individual and team performance. Some of these efforts include the optimization of resources and energy and emissions reductions.
All employees	Non-monetary reward	Other (please specify) (Exceptional individual, team performance)	Every two years, LyondellBasell recognizes and celebrates positive business outcomes and the teamwork behind those achievements with the EXCELLENCE Awards. The awards represent the highest honor an employee or team can receive from the Company, recognizing excellence in advancing sustainability, product innovation, business advancement, operational excellence, customer service, living our values, community engagement, and lifetime achievement. Climate- or energy-related initiatives are eligible to be nominated for an EXCELLENCE Award.

## C2 Risks and opportunities

### Management processes

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

- Yes

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

Time horizon	From (years)	To (years)	Comment
Short-term	0	5	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	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		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) How does your organization define substantive financial or strategic impact on your business?

LyondellBasell integrates climate related risks and opportunities into its Enterprise Risk Management (ERM) Program. A dedicated Climate Change Risk Management Process has been developed and is one of six pillars of our ERM Program. The process includes formal ERM processes, and a framework dedicated to Climate Change Risk Management that is iteratively reviewed and monitored throughout the year. This means that specific climate related risks are addressed through a structured and formal approach. Substantial risks or opportunities for climate related risks are defined by the following thresholds:

- 1) Substantive financial risk: EBITDA loss of >\$500MM and/or increase in operating or capital costs >10% of annual budgeted spend
- 2) Substantive environmental risk: Release of material that causes persistent, substantial off-site environmental damage extending over a large area
- 3) Substantive reputational risk: Brand impairment, loss of stakeholder confidence and long-term damage to enterprise value
- 4) Substantive financial opportunity: Financial gains or an increase in savings and efficiencies of >\$100MM
- 5) Substantive strategic opportunity: Enhancement of competitive advantage or long-term viability through positive national publicity and wide-spread industry recognition, substantial stakeholder confidence and long-term enhancement of our enterprise value

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

Value chain stage(s) covered	Risk management process	Frequency of assessment	Time horizon(s) covered	Description of process
Direct operations Upstream Downstream	Integrated into multi-disciplinary company-wide risk management process	More than once a year	Short-term Medium-term Long-term	<p>Process description</p> <ol style="list-style-type: none"> <li>1. Integration of the process into overall corporate risk management: LyondellBasell includes <b>climate related risks and opportunities</b> in its Enterprise Risk Management (ERM) Program. 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, government relations, public affairs, strategy, procurement, R&amp;D, and business segments. The risks are evaluated with input and alignment from the Leadership Team members 2-4 times per year. The Climate Change Risk Management Process 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.</li> <li>2. Process for identifying risks: Climate related risks and opportunities are identified at an enterprise level (i.e., with the Leadership Team), 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). Climate related risks are identified at the following levels through the dedicated climate change risk management process: 1) relevant enterprise-level risks, 2) appropriate department risks, and 3) whether impactful to specific projects. The method to identify risks are undertaken through semi-structured risk interviews, workshop brainstorming with a range of participants, anonymised risk surveys, and input from external subject matter experts.</li> <li>3. Process for assessing risks: Assessing risks involves likelihood and impact ratings. 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.</li> <li>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 utilising a cost-benefits analysis. 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.</li> </ol>

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

Risk type	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. This policy and legal transition risk has a direct impact on our operational costs. For example, the majority of our European production sites are included in the European Union ("EU) Emissions Trading System ("ETS"), representing 26% 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 organisations. In light of changes resulting from the commencement of ETS Phase IV in 2021, we expect to incur additional costs in relation to future carbon or GHG emission trading schemes (see below).
Emerging regulation	Relevant, always included	We may incur substantial costs to comply with climate change legislation and related regulatory initiatives. There has been a broad range of proposed or promulgated international, national and state laws focusing on GHG reduction. These proposed or promulgated laws apply or 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, at this stage it is not possible to accurately estimate either a timetable for implementation or our future compliance costs relating to implementation. In the U.S., the EPA issued mandatory GHG reporting requirements, requirements to obtain GHG permits for certain industrial plants and has issued or is considering GHG standards for certain sources. Addressing climate change is a stated priority of President Biden and as such additional regulations and legislation are likely to be forthcoming at the U.S. federal or state level that could result in increased operating costs for compliance or required acquisition or trading of emission allowances. Additionally, demand for the products we produce may be reduced.
Technology	Relevant, always included	Risks related to developments in decarbonisation 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. A cross functional team led by R&D assesses new technology developments and their suitability in LyondellBasell's operations and to meet our reduction targets. For example, teams are working on the mitigation of technology risk through constant innovation in the areas of olefin production technology, carbon emission capture, 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 CO2 footprint of products. We regularly engage with customers to understand their climate goals and inform them of developments in our own strategy and progress meeting corporate targets. This was demonstrated for example through the development and launch of our <i>Circulen</i> product line which includes products linked to mechanical recycling, advanced (chemical) recycling, and renewable-based feedstocks from bio-based sources.
Reputation	Relevant, always included	LyondellBasell considers our reputation with our stakeholders as a company committed to sustainability and addressing climate challenges, including our reputation in our communities, and with our customers. We understand the impact our work has on society, and the impact our response to climate change has on stakeholder confidence and viability in the long term. 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.
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. 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, we have observed restrictions to shipping feedstock due to the depletion of the Rhine River in Germany in times of unseasonal weather variation.

## Risk disclosure

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

Identifier	Where in the value chain does the risk driver occur?	Risk type	Primary climate-related risk driver	Primary potential financial impact	Company- specific description			Time horizon
Risk1	Direct operations	Current regulation	Carbon pricing mechanisms	Increased indirect (operating) costs	<p>LyondellBasell faces a regulatory risk from changes in ETS in the EU which may result in an increase in operational costs and higher product pricing, thereby reducing our competitiveness vis-a-vis competitors who are not subject to comparable costs. A significant portion of our European manufacturing plants fall under the ETS, representing approximately 5 million metric tons of CO2e emissions, or 26% of our overall scope 1 emissions.</p> <p>The current legislative packages proposed by the EU Commission (Fit for 55) include an increased emission reduction target from 40% to 55%, and a gradual decrease of free allowances granted, including for industries previously subject to carbon leakage.</p> <p>While LyondellBasell has an ambitious reduction program for our European assets, increasing prices for ETS allowances, combined with a lack of free allowances may negatively impact our competitiveness compared with that of non-European competitors.</p>			Medium term
Likelihood		Magnitude of impact		Are you able to provide a potential financial impact figure?	Potential financial impact figure (currency)	Potential financial impact figure - minimum (currency)	Potential financial impact figure - maximum (currency)	
Likely		Medium		Yes, an estimated range	EUR	150,000,000	200,000,000	
Explanation of financial impact figure				Cost of response to risk	Description of response and explanation of cost calculation			Comment
<p>Based on the proposed increase in the emission reduction target from 40% to 55%, and the reduction in the provision of free allowances, we expect a total shortfall of 1.5 to 2MM allowances to be recognized over a 5-year period. While current prices average between 80-90EUR per EUA, we expect those prices to increase in the current ETS phase to 100EUR per ton.</p> <p>The cost range is calculated as follows: 1.5 million allowance *100 EUR certificate price = 150 million EUR (minimum) and 2 million allowances * 100 million EUR (maximum).</p>				4,881,800	<p>1. Case study</p> <p>Situation: We expect increasing ETS certificate prices due to an increase of the EU 2030 climate targets, leading to higher operating costs for our European manufacturing assets.</p> <p>Task: Our Carbon Reduction Program (CRP) aims to <b>identify and reduce GHG emissions</b> 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 increase in ETS certificate costs.</p> <p>Action: Within our CRP program, we <b>evaluate reduction opportunities</b> 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. Result:</p>			

		<p>For example, in <b>2021</b>, we announced an <b>annual emission reduction of 170kt</b> at our <b>Wesseling site in Germany</b> from the shutdown of an onsite boiler. In addition to contributing to reach our 2030 climate goals, this project will help manage our need for ETS certificates.</p> <p>2. Explanation of cost of response</p> <p>We established cross-functional teams to support the development and deployment of our CRP program as part of our efforts to meet our 2030 climate targets. The figure of approximately 4,881,800EUR corresponds to the total personnel costs in 2021 for our CRP teams, including contractors, for the development of projects for emission reduction opportunities, and doesn't include capital expenditure costs related to the implementation of these projects. The total of 4,881,800EUR is the total amount of hours spent (34,870 hours including contractor hours) multiplied by an average hourly cost (EUR 140).</p>	
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## Opportunity disclosure

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

Identifier	Where in the value chain does the opportunity occur?	Opportunity type	Primary climate-related opportunity driver	Primary potential financial impact	Company-specific description	Time horizon
Opp1	Direct operations	Resource efficiency	Use of more efficient production and distribution processes	Reduced direct costs	<p>LyondellBasell aims to achieve net-zero GHG emissions from global operations by 2050 and we set an interim goal to achieve an absolute reduction of 30% in scope 1 and 2 GHG emissions by 2030. As we move towards 2030, we are focused on deploying technologies and solutions to reduce energy use and GHG emissions in our most energy-intensive sites, which are our olefins and I&amp;D sites.</p> <p>As we develop plans to reduce GHG emissions at our sites, projects under these plans will not only contribute to our progress towards our overall 2030 goal, but they will also, in some cases, reduce our overall energy and fuel demand. For example, our site roadmap for Wesseling includes a number of projects to reduce overall site GHG emissions, including a 170kt GHG emission reduction project from the shutdown of a lignite-fuelled onsite boiler. We were able to reduce our fuel consumption at our power plant in Wesseling by approximately 1,000,000MWh per year.</p>	Medium-term

Likelihood	Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure (currency)	Potential financial impact figure - minimum (currency)	Potential financial impact figure - maximum (currency)
Virtually certain	Medium	Yes, a single figure estimate	USD 45,000,000		

Explanation of financial impact figure	Cost to realize opportunity	Strategy to realize opportunity and explanation of cost calculation	Comment
<p>The financial impact figure represents the estimated cost savings from the energy and fuel savings made from the implementation of the projects mentioned as well as the different decreased maintenance costs from operating changes in our plants.</p> <p>We have been assessing the energy and GHG emissions profiles at our European and North American olefin and I&amp;D sites and are using this work to help us identify GHG reduction opportunities. These opportunities include reducing flare emissions during routine operations, optimizing the use of energy in our operations and increasing our use of lower carbon intensive fuels.</p> <p>While not all projects reduce fuel consumption and energy demand, we estimate an overall reduction in energy demand which we estimate corresponds to savings of USD 45MM. This figure should increase as additional reduction projects advance.</p> <p>The figure of USD 45MM corresponds to reduced energy and fuel demand of at least 2,000,000MWh, which, at 2021 market prices across different regions, corresponds to a saving of 60MMUSD (average price of 30USD per MWh). Additional electricity was necessary to be procured as part of different projects to make up for the decrease in onsite electricity production, at a cost of approximately 20MM USD (230,000MWh at an average 2021 market price of 100USD/MWh). Average maintenance cost savings amounted to 5MM USD.</p> <p>(45 MM USD = 2,000,000MWh * 30USD/MWh – 230,000MWh * 100 USD/MWh + 5MM USD).</p>	4,881,800	<p>1. Case study</p> <p>Situation: We expect increasing ETS certificate prices due to an increase of the EU 2030 climate targets, leading to an opportunity to reduce our direct operating costs by implementing GHG emission reduction projects at our European sites regulated under the EU ETS.</p> <p>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 increase in ETS certificate costs.</p> <p>Action: Within our CRP program, we evaluate 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.</p> <p>Result: For example, in 2021, we announced an annual emission reduction of 170kt at our Wesseling site in Germany from the shutdown of an onsite boiler. We were able to reduce our fuel consumption at our power plant in Wesseling by approximately 1,000,000MWh per year.</p> <p>2. Explanation of cost of response</p> <p>We established cross-functional teams to support the development and deployment of our CRP program as part of our efforts to meet our 2030 climate targets. The figure of approximately 4,881,800EUR corresponds to the total personnel costs in 2021 for our CRP teams, including contractors, for the development of projects for emission reduction opportunities, and doesn't include capital expenditure costs related to the implementation of these projects. The total of 4,881,800EUR is the total amount of hours spent (34,870 hours including contractor hours) multiplied by an average hourly cost (EUR 140).</p>	

## C3 Business strategy

### Business strategy

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

Transition plan	Publicly available transition plan	Mechanism by which feedback is collected from shareholders on your transition plan	Description of feedback mechanism	Frequency of feedback collection	Attach any relevant documents which detail your transition plan (optional)
Yes, we have a transition plan which aligns with a 1.5°C world	Yes	We have a different feedback mechanism in place	<p>We recognize the value of regular and consistent communication with our shareholders and 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.</p> <p>In 2021, 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 Senior Vice President of R&amp;D, Technology and Sustainability, who serves as our Chief Sustainability Officer, regularly joins 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.</p>	More frequently than annually	<a href="#">2021 sustainability report</a>

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

Use of climate-related scenario analysis to inform strategy
Yes, qualitative, but we plan to add quantitative in the next two years

**(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  <b>IRENA</b>	Company-wide	1.6°C – 2°C	<p>Identification process: Following the identification of climate-related risks and opportunities for LyondellBasell's operations, we have analysed the potential exposure of each risk by assessing probability, consequence, vulnerability, and velocity. We developed two scenarios until 2050.</p> <p>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.</p> <p>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.</p>
Physical climate scenarios  <b>RCP 8.5</b>	Company wide	1.6°C – 2°C	<p>Identification process: Following the identification of climate-related risks and opportunities for LyondellBasell's operations, we have analysed the potential exposure of each risk by assessing probability, consequence, vulnerability, and velocity. We developed two scenarios until 2050.</p> <p>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.</p> <p>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.</p>

**(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 the focal questions.**

Focal questions	Results of the climate-related scenario analysis with respect to the focal questions
<ul style="list-style-type: none"> <li>• International climate change policy</li> <li>• Availability of feedstock</li> <li>• Low carbon technologies</li> <li>• Assessment of the physical risks of climate change</li> </ul>	<p><b>Summary of results:</b></p> <ul style="list-style-type: none"> <li>- The climate change risk management process analysed several <b>physical risks</b> including increase in temperature, low water level, water stress and extreme weather events. Increases in temperature could lead to lower plant utilisation and decreased production due to cooling water capacity constraints. Furthermore, severe droughts could lead to lower plant utilization due to cooling capacity and process water constraints and asset damage from potential wildfires. Low water levels at key waterways, such as the Rhine River, may negatively impact our operations and lead to lower plant utilization due to supply disruptions, in particular inability to bring feedstocks to our cracker sites. Low water levels could also impact our ability to delivery our products to our customers, causing further supply disruptions. Extreme weather events were found to potentially impact our business in several ways. The North American power infrastructure can be adversely impaired by extreme weather events such as freezing conditions, hurricanes, and tornadoes, leading to major disruptions to site production, in particular on the Gulf Coast. Extreme heat waves may lead to a reduction in production rates. Landslides occurring near key supply arteries could create disruptions to rail networks (such as the Trans-European network which has bottlenecks in the Alps region).</li> <li>- The climate change risk management process analysed several <b>transition risks</b> including 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.</li> </ul> <p>International climate change policy may result in increases in carbon pricing through carbon taxation, emission trading schemes, emission caps and/or carbon border mechanisms, with an indirect impact on the costs of our operations and price of goods. Low carbon technologies, for example, electrification of different chemical processes such as steam cracking, the availability of hydrogen for use as an industrial fuel, or renewable electricity, may not be commercially mature, or available in sufficient capacity / volumes, to enable decarbonisation 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.</p> <p>The scenario analysis has been used to classify risks in terms of likelihood and as input into LyondellBasell's long term business planning process. The qualitative insights from these scenarios are a starting point for use as inputs into wider business strategy and the planning process. The climate risk assessment and our business strategy will continue to be enriched with a range of inputs.</p>

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

Business area	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. LyondellBasell is responding to this demand by investing in the development of products such as our <i>Circulen</i> portfolio, based on mechanical and advanced recycling and renewable feedstocks. We also continued the development of our new process technology, Hyperzone, which produces tougher and stronger polymers that are more resistant to cracks while using less material. Our Hyperzone polyethylene (PE) plant in La Porte, Texas has achieved commercial volumes utilizing the company's proprietary technology. Such proactive engagement is in line with our long history of pioneering in the development of new polymer materials and will place LyondellBasell at the forefront of an important climate related megatrend and new emerging market potentials. In parallel, we are currently developing the systems and processes needed to assess our current product portfolio against a set of criteria for defining low carbon products and products with other sustainability benefits. We consider short-, medium- and long-term impacts to our business objectives in our assessment.

Business area	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Supply chain and/or value chain	Evaluation in progress	We have started the evaluation of climate-related risks and opportunities in our supply and value chain to identify their impacts to our business objectives. As part of that evaluation, we are working towards establishing an accurate baseline and understanding the impact of our emissions from our supply chain on our overall footprint. We consider short-, medium- and long-term impacts to our business objectives in our assessment. Further to our participation in the Cefic led consortium to develop a practical methodology for GHG accounting in freight operations in the chemical industry, we have engaged with a number of suppliers to deploy this methodology and get better accounting of GHG emissions linked to the transport of our products to our customers.
Investment in R&D	Evaluation in progress	International reports and organisations, such as the International Energy Agency, recognise the hard to abate nature of the chemical industry, largely in part due to the fact that technologies needed to achieve deep emission reductions are still at the pre-commercial or small-scale deployment stages of development for most types of chemicals production. As such, emerging technologies such as low emission hydrogen, carbon capture, storage and utilisation (CCUS), process electrification, and waste stream valorisation, 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 reductions in emissions. 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 recognize the importance of active collaboration with our value chain partners in achieving the necessary development and wide application of these technologies to reduce our carbon footprint. In this way, we are addressing the increasing demand for climate sensitive products in our markets and capitalizing on new business opportunities. One of many examples where this strategy is visible is our collaboration with the Karlsruhe Institute of Technology (KIT) in Germany to develop the efficiency and scalability of advanced recycling. This emerging technology enables new plastic to be made from waste plastic instead of fossil fuel. LyondellBasell's proprietary advanced recycling technology, called <i>MoReTec</i> , uses a catalyst in the pyrolysis process to improve the breakdown of plastic waste. The collaboration with KIT proved the efficiency of our <i>MoReTec</i> technology at laboratory scale. At our <i>MoReTec</i> pilot plant in Ferrara, Italy, we are working to understand the interaction of various waste types in the advanced recycling process and optimize catalysis and operating conditions needed to decompose the plastic waste into molecules. We aim to deploy our <i>MoReTec</i> technology at commercial scale in the second half of the decade.
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. We are implementing our Carbon Reduction Program to reduce emissions at our major manufacturing sites as part of our progress against our corporate climate target and to mitigate the financial impact of our regulatory requirements under the EU ETS. Within this program, we are evaluating and implementing a number of different reduction opportunities around 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. The closure of our Houston Refinery plant by the end of 2023 will also contribute to advancing our decarbonisation goals.

**(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
<ul style="list-style-type: none"> <li>Revenues</li> <li>Direct costs</li> <li>Indirect costs</li> <li>Capital expenditures</li> <li>Capital allocation</li> <li>Access to capital</li> <li>Assets</li> </ul>	Our financial planning considers climate-related risks and opportunities related to revenues, costs, capital expenditures, access to capital, and assets and liabilities. Over recent years, our commitment to sustainability and climate has continued to evolve and is an important consideration in setting corporate strategy. We consider short-, medium- and long-term impacts to our business objectives in our analyses. 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, bring an additional financial impact linked to the cost of allowances. As such, we saw the need to identify projects that could reduce our energy use and consequently reduce our CO2 emissions. Our Variable Cost program aims to optimise 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 also have a direct impact on our scope 1 and 2 emissions, which allow us to mitigate our costs under the EU ETS. This includes minimising losses from flaring operations and using

Financial planning elements that have been influenced	Description of influence
<ul style="list-style-type: none"> <li><b>Liabilities</b></li> </ul>	advanced controls and energy optimisers to minimize energy use in our sites. Through this program, we continue to optimise our overall energy consumption and minimise CO2e emissions. In 2021, projects under this program reduced scope 1 emissions by 230,000t CO2e

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's transition to a 1.5°C world?

- Yes

Financial metric	Percentage share of selected financial metric aligned with a 1.5°C world in the reporting year (%)	Percentage share of selected financial metric planned to align with a 1.5°C world in 2025 (%)	Percentage share of selected financial metric planned to align with a 1.5°C world in 2030 (%)	Describe the methodology used to identify spending/revenue that is aligned with a 1.5°C world
CAPEX				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. Estimates of the capital expenditure necessary to achieve these goals are included in our corporate budget. We do not expect the capital spending to support our ambitions over the next two years will represent a significant amount of our total capital expenditures.

## C4 Targets and performance

### Emissions targets

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

- Absolute target

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

Target reference number	Year target was set	Target coverage	Scope(s)	Scope 2 accounting method	Scope 3 category(ies)	Base year
Abs1	2021	Company-wide	<ul style="list-style-type: none"> <li>• Scope 1</li> <li>• Scope 2</li> </ul>	<ul style="list-style-type: none"> <li>• Market-based</li> </ul>		2020

Base year Scope 1 emissions covered	Base year Scope 2 emissions covered by target (metric tons CO2e)	Base year Scope 3 emissions covered by	Total base year emissions covered by target in all selected	Base year Scope 1 emissions covered by target as % of	Base year Scope 2 emissions covered by target as % of total	Base year Scope 3 emissions covered by target as % of total
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by target (metric tons CO2e)		target (metric tons CO2e)	Scopes (metric tons CO2e)	total base year emissions in Scope 1	base year emissions in Scope 2	base year emissions in Scope 3 (in all Scope 3 categories)
15,556,728	7,623,272	0	23,180,000	67	33	0

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes	Target year	Targeted reduction from base year (%)	Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]	Scope 1 emissions in reporting year covered by target (metric tons CO2e)	Scope 2 emissions in reporting year covered by target (metric tons CO2e)	Scope 3 emissions in reporting year covered by target (metric tons CO2e)
100	2030	30	Auto Calculated	16,183,103.59	7,738,385.11	0

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)	% of target achieved relative to base year [auto-calculated]	Target status in reporting year	Is this a science-based target?	Target ambition*	Please explain target coverage and identify any exclusions	Plan for achieving target, and progress made to the end of the reporting year
23,921,488.7	-3%	New	No, and we do not anticipate setting one in the next 2 years	Well-below 2°C aligned		<p>We are focused on rapidly deploying available technologies and solutions at our olefin and Intermediates &amp; Derivatives (I&amp;D) sites, which represent 90% of our global scope 1 and scope 2 GHG emissions. For the past several years, we have been assessing the energy and emissions profiles at these sites and are using this work to help us identify and implement solutions. These solutions include reducing flare emissions, optimizing the use of energy in our operations and increasing our use of lower carbon-intensive fuels. We anticipate that deploying these technologies and solutions will enable us to achieve a minimum of 50% of our 2030 reduction goal.</p> <p>In 2021, we deployed eight different process optimization and other resource efficiency projects across our global operations that resulted in a reduction in energy use of 3.6 million gigajoules, along with an associated reduction of approximately 230,000 metric tons of GHG emissions.</p> <p>We estimate achieving one-third of our 2030 reduction goal by 2025 through our progress at site reduction projects, securing renewable electricity through PPAs, and the closure of our Houston refinery by the end of 2023, with the remainder achieved through projects tied to our site turn-arounds scheduled for the latter part of the decade.</p>

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

- Target(s) to increase low-carbon energy consumption or production
- Net-zero target(s)

**(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.**

Target reference number	Year target was set	Target coverage	Target type: energy carrier	Target type: activity	Target type: energy source
Low1	2021	Company-wide	Electricity	Consumption	Renewable energy source(s) only

Base year	Consumption or production of selected energy carrier in base year (MWh)	% share of low-carbon or renewable energy in base year	Target year	% share of low-carbon or renewable energy in target year	% share of low-carbon or renewable energy in reporting year	% of target achieved relative to base year[auto-calculated]
2020	9,537,255	1%	2030	50%	1%	Auto Calculated

Target status in reporting year	Is this target part of an emissions target?	Is this target part of an overarching initiative?	Please explain target coverage and identify any exclusions	Plan for achieving target, and progress made to the end of the reporting year
New	Abs1	No, it's not part of an overarching initiative		Based on current forecasts, we expect to decarbonize our electricity consumption through off-site power purchase agreements ("PPAs"), on-site renewables and off-site utility programs and certificates. PPAs, contracts which secure long-term energy supply with large-scale wind or solar projects, are LyondellBasell's preferred approach as they provide scalability and support investment in new renewable energy capacity while lowering our carbon footprint associated with the electricity we consume.

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

Target reference number	Target coverage	Absolute/intensity emission target(s) linked to this net-zero target	Target year for achieving net zero	Is this a science-based target?	Please explain target coverage and identify any exclusions	Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?
NZ	Company-wide	Abs1	2050	No, and we do not anticipate setting one in the next 2 years	We aim to achieve net zero GHG emissions from global operations under our control (scope 1 and scope 2) by 2050. This will require the deployment of new technologies across the company's manufacturing footprint in addition to technologies we are assessing such as cracker electrification, use of hydrogen, carbon capture and storage ("CCS") and carbon utilization.	Unsure

					<p>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.</p> <p>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 will also take part in the Science Based Target Initiative (Sbti) efforts to develop a sectoral decarbonisation 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.</p>	
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## Emissions reduction initiatives

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

Stage of development	Number of initiatives	Total estimated annual CO2e savings in metric tons CO2e (only for rows marked *)
Under investigation	200	7,500,000
To be implemented*	2	255,000
Implementation commenced*	0	0
Implemented*	8	230,765
Not to be implemented	0	0

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

Initiative category	Initiative type	Estimated annual CO2e savings (metric tons CO2e)	Scope(s) or Scope 3 category(ies) where emissions savings occur	Voluntary/ Mandatory
Energy efficiency in production processes	Process optimisation	230,765	Scope 1	Voluntary
Annual monetary savings (unit currency – as specified in C0.4)	Investment required (unit currency – as specified in C0.4)	Payback period	Estimated lifetime of the initiative	Comment
16,281,000	0	No payback	11-15 years	A wide range of projects were implemented in 2021, including process control system and flare optimization, and energy maintenance programs which mean that no single initiative lifetime applies to all projects. These measures require little to no capital investment for their implementation.

(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. Estimates of the capital expenditure necessary to achieve these goals are included in our corporate budget. We do not expect the capital spending to support our ambitions over the next two years will represent a significant amount of our total capital expenditures. Furthermore, climate risk is embedded in our enterprise risk management approach.

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

- Yes

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

Level of aggregation	Taxonomy used to classify product(s) or service(s) as low-carbon	Type of product(s) or service(s)	Description of product(s) or service(s)	Have you estimated the avoided emissions of this low-carbon product(s) or service(s)	Methodology used to calculate avoided emissions	Life cycle stage(s) covered for the low-carbon product(s) or services(s)
Group of products or services	No taxonomy used to classify product(s) or service(s) as low carbon	Other, please specify (Renewable and Circular Polymers)	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 <i>Circulen</i> Renew 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 <i>Circulen</i> Renew product line are certified ISCC PLUS to ensure traceability along our supply chain and enable the application of the mass balance method to attribute renewable-based source material to the final polymer.	Yes	Other, please specify (LCA)	Cradle-to-gate

Functional unit used	Reference product/service or baseline scenario used	Life cycle stage(s) covered for the reference product/service or baseline scenario	Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario	Explain your calculation of avoided emissions, including any assumptions	Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
Kg of polymer produced	Equivalent fossil-based polymer per Plastics Europe eco profile	<b>Cradle-to-gate</b>	<b>3.7</b>	<p>In 2021, we finalised a comparative life cycle assessment study for our <i>Circulen</i>Renew polymers with their fossil-based equivalents. The feedstock used in the manufacture of our <i>Circulen</i>Renew polymers is composed of waste and residue oils, with a waste like approach taken for all raw materials in the LCA study.</p> <p>When comparing with their fossil-based equivalents, the difference in the cradle to gate product carbon footprint between the two products is 3.7 metric tons per Kg of polymer produced, corresponding to the avoided emissions for this product. This is the equivalent of taking one gasoline car off the road for a year, based on the EPA GHG equivalency calculator.</p>	0.13%

## C5 Emissions methodology

### Changes in the reporting year

#### (C5.1) Is this your first year of reporting emissions data to CDP?

- No

#### (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?

Has there been a structural change?	Name of organization(s) acquired, divested from, or merged with*	Details of structural change(s), including completion dates*
Yes, an acquisition	Louisiana Integrated Polyethylene JV, LLC	In December 2020, LyondellBasell formed the Louisiana Integrated Polyethylene Joint Venture with Sasol. Through this joint venture, LyondellBasell acquired a 50% equity interest in the 1.5 million metric ton ethane cracker, 0.9 million metric ton low and linear low density PE plants and associated infrastructure located in Lake Charles, Louisiana. LyondellBasell operates the joint venture assets.

#### (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?
<ul style="list-style-type: none"> <li>• No</li> </ul>

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

Base year recalculation	Base year emissions recalculation policy, including significance threshold
Yes	LyondellBasell is committed to continuous improvement in its reporting and strives to utilize applicable calculation methodologies and emissions factors that represent evolving expert analysis, information and assessment. Refinements made to our scope 1 and scope 2 GHG emissions calculation methodologies and emissions factors in 2021 are also applied to our baseline year data to reflect these approaches.

### Base year emissions

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

Scope	Base year start	Base year end	Base year emissions (metric tons CO2e)	Comment
Scope 1	January 1, 2020	December 31, 2020	15,556,728	
Scope 2 (location-based)	January 1, 2020	December 31, 2020	7,112,280	
Scope 2 (market-based)	January 1, 2020	December 31, 2020	7,623,272	
Scope 3 category 1: Purchased goods and services	January 1, 2020	December 31, 2020	33,017,081	
Scope 3 category 11: Use of Sold Products	January 1, 2020	December 31, 2020	26,073,489	
Scope 3 category 12: End of Life of Sold Products	January 1, 2020	December 31, 2020	13,756,053	

**Emissions methodology**

**(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
- The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
- The Greenhouse Gas Protocol: Scope 2 Guidance
- Other, please specify: American Petroleum Institute Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry, 2021

## C6 Emissions data

### Scope 1 emissions data

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO<sub>2</sub>e?

Year	Gross global Scope 1 emissions (metric tons CO <sub>2</sub> e)	Start date	End date	Comment
Reporting year	16,183,103.59	01/01/2021	31/12/2021	

### Scope 2 emissions reporting

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

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting a Scope 2, location-based figure	We are reporting a Scope 2, market-based figure	

### Scope 2 emissions data

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO<sub>2</sub>e?

Year	Scope 2, location-based	Scope 2, market-based (if applicable)	Start date	End date	Comment
Reporting year	7,117,975	7,738,385	01/01/2021	31/12/2021	

### Exclusions

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

- Yes

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

**Source #1**

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)
Small office facilities and service buildings	Emissions are not relevant	Emissions are not relevant	Emissions are not relevant

Explain why this source is excluded	Estimated percentage of total Scope 1+2 emissions this excluded source represents	Explain how you estimated the percentage of emissions this excluded source represents
Our energy and CO2 data currently only encompasses manufacturing facilities, pipelines, and large regional offices. Small offices are not included as they have been determined to be non-material (less than 0.5% of LyondellBasell emissions).	1%	Estimate obtained from electricity consumption data.

**Source #2**

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)
Motor vehicle fuel	Emissions are not relevant	No emissions from this source	No emissions from this source

Explain why this source is excluded	Estimated percentage of total Scope 1+2 emissions this excluded source represents	Explain how you estimated the percentage of emissions this excluded source represents
LyondellBasell owns vehicles at some manufacturing sites that are used for internal site transportation. The amount of fuel consumed is negligible in comparison to fuel consumed by fired equipment (e.g. steam boilers or furnaces) and represents less than 0.1% of total emissions.	1%	Estimate obtained based on fuel consumption volumes at sites and extrapolated to estimate our global fuel consumption for motor vehicles onsite.

## Scope 3 emissions data

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

Scope 3 category	Evaluation status	Emissions in reporting year (metric tons CO2e)	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Please explain
Purchased goods and services	Relevant, calculated	38,419,546	Average data method	0.02	<p>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, PlasticsEurope, and regional regulatory databases. Methodologies and assumptions CO2e emissions in this category were calculated using an average-data approach, in accordance with the WBCSD/WRI GHG Scope 3 Guidance Document.</p> <p>While we recognise 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 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.</p>
Capital goods	Relevant, calculated	1,388,616	Spend-based method	0	Data relating to capital expenditures for property, plant and equipment (spend \$1.959 billion) for the year ended December 31, 2021, was used as the calculation basis, reflecting the spend on capital projects, equipment upgrades and replacement. Shows Emission factors were sourced from different commercial and public data sources, including ecoinvent, PlasticsEurope, and regional regulatory databases. Methodologies and assumptions The CO2e emissions arising from capital goods was calculated using a Spend-Based approach (in accordance with the WBCSD/WRI GHG Scope 3 Guidance Document).
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	1,173,409	Average data method	0	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, PlasticsEurope, and regional regulatory databases. Methodologies and assumptions CO2e emissions in this category were calculated using an average-data approach, in accordance with the WBCSD/WRI GHG Scope 3 Guidance Document. Primary data was obtained from our internal systems on the quantities fuels used in operations in each region, to which we applied regional emission factors to calculate CO2e emissions.
Upstream transportation and distribution	Relevant, calculated	357,677	Average data method	0	Data on the transportation of our purchased goods, including transport mode, tonnage and distance data, was compiled for each region from our internal management systems. Emission factors were sourced from different commercial and public data sources, including ecoinvent, PlasticsEurope, and regional regulatory databases. Methodologies and assumptions CO2e emissions in this category were calculated using an average-data approach, in accordance with the WBCSD/WRI GHG Scope 3

Scope 3 category	Evaluation status	Emissions in reporting year (metric tons CO2e)	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Please explain
					Guidance Document. Tonnage and distance data was multiplied with specific emission factors for each transport mode to calculate emissions.
Waste generated in operations	Relevant, calculated	902,425	Average data method	0	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, PlasticsEurope, and regional regulatory databases. Methodologies and assumptions CO2e emissions in this category were calculated using an average-data approach, in accordance with the WBCSD/WRI GHG Scope 3 Guidance Document. Waste tonnage data was multiplied with specific emission factors for each type of waste treatment to calculate emissions.
Business travel	Relevant, calculated	584	Average data method	100	LyondellBasell's third-party travel provider supplied emissions data resulting from our business travel arrangements. Due to Covid-19 travel restrictions put in place for most of 2020, our business travel volumes decreased significantly from 2019. The data pertains to travel booked by them, which is comprised of 4MM km of air- and rail-travel. The methodology does not take business travel using private vehicles or rental cars into account, or where employees have booked travel outside of the corporate travel system.
Employee commuting	Relevant, calculated	59,034	Average data method	0	Data on regional employee numbers were compiled from our internal management systems. Emission factors were sourced from different commercial and public data sources, including ecoinvent, PlasticsEurope, and regional regulatory databases. Methodologies and assumptions The approach taken was to estimate emissions based on regional average commuting modes, and applying emission factors specific to each commuting mode.
Upstream leased assets	Not relevant, explanation provided	N/A	N/A	N/A	LyondellBasell does not lease any significant upstream assets
Downstream transportation and distribution	Relevant, calculated	390,812	Hybrid method	25	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. Following the completion of the Cefic GLEC project, we have received emission data from some EU suppliers based on the GLEC methodology. Other emission factors were sourced from different commercial and public data sources, including ecoinvent, PlasticsEurope, and regional regulatory databases. Methodologies and assumptions CO2e emissions in this category were calculated using an average-data approach, in accordance with the WBCSD/WRI GHG Scope 3 Guidance Document. Tonnage and distance data was multiplied with specific emission factors for each transport mode to calculate emissions.
Processing of sold products	Not relevant, explanation provided	N/A	N/A	N/A	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 <i>Guidance for Accounting &amp; Reporting Corporate GHG Emissions in the Chemical Sector Value Chain</i> , "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.

Scope 3 category	Evaluation status	Emissions in reporting year (metric tons CO2e)	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Please explain
Use of sold products	Relevant, calculated	30,909,441	Average data method	0	Data Quantity (mass and volume) of fuel products from our refinery operations and oxyfuels business, was compiled from our internal management systems. Emission factors were sourced from different commercial and public data sources, including ecoinvent, PlasticsEurope, and regional regulatory databases. Methodologies and assumptions CO2e emissions in this category were calculated using an average-data approach, in accordance with the WBCSD/WRI GHG Scope 3 Guidance Document.
End of life treatment of sold products	Relevant, calculated	13,430,630	Average data method	0	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, PlasticsEurope, and regional regulatory databases. Methodologies and assumptions CO2e emissions in this category were calculated using an average-data approach, in accordance with the WBCSD/WRI GHG Scope 3 Guidance Document. 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	Not relevant, explanation provided	N/A	N/A	N/A	LyondellBasell does not lease any significant downstream assets.
Franchises	Not relevant, explanation provided	N/A	N/A	N/A	LyondellBasell has no franchised businesses or assets.
Investments	Relevant, calculated	6,700,400	Spend-based method	0	Data Primary data relating to our equity investments (4,786MM USD) was used as the calculation basis, reflecting our equity investments as of December 31, 2021. CO2 emissions were calculated on the basis of our equity investments using the GHG Protocol Scope 3 calculator.
Other (upstream)	Not relevant, explanation provided	N/A	N/A	N/A	LyondellBasell does not have any further upstream emissions to report.
Other (downstream)	Not relevant, explanation provided	N/A	N/A	N/A	LyondellBasell does not have any further downstream emissions to report.

**(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?**

- No

(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	Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change	Reason for change
0.000835	23,921,478.59	unit total revenue	46,173,000,000	Market-based	-37,79%	Decreased	While total scope 1 and 2 emissions increased slightly by 3% between 2020 and 2021 in absolute terms, our total revenue increased by 66% in 2021 compared to 2020, resulting in a decrease of -37,79% for this metric. A decrease in emissions reported in section C4.3 helped us to reduce our emissions by 230.765 metric tons of CO2e.

## C7 Emissions breakdown

### Scope 1 breakdown: GHGs

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

- Yes

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

Greenhouse gas	Scope 1 emissions (metric tons in CO2e)	GWP Reference
CO2	16,138,976.59	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	5,374	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	15,783	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	23,015	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) Break down your total gross global Scope 1 emissions by country/region.**

Country/Region	Scope 1 emissions (metric tons CO2e)
Americas	11,578,023
Europe	4,605,203
Asia Pacific (or JAPA)	1,536

Scope 1 breakdown: business breakdown

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

- By facility

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

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Akron	17	41.10372	-81.4873
Allentown	0	40.59111	-75.6018
Altamira	0	22.39215	-97.9387
Astorp	0	56.12475	12.91361
Batu Pahat	173	1.853898	102.9935
Bay City	0	43.59068	-84.0008
Bayport - Choate	260,117	29.62001	-95.0419
Bayport - Polyolefins	58,913	29.63178	-95.0463
Bayport - Underwood	38,148	29.62901	-95.0867
Bayreuth	0	49.96958	11.60368
Bedford	0	37.34477	-79.4948
Berre	1,127,235	43.4781	5.1704
Bornem	1,547	51.08737	4.260994

Botlek	395,808	51.93205	4.140828
Brindisi	12,580	40.6321	17.9361
Carpentersville	0	42.11364	-88.2806
Carrington	23,980	53.43022	-2.39743
Castellon	56	39.95725	-0.07652
Cerkezkoy	0	41.29621	27.97326
Changshu	0	31.65661	120.7525
Channelview	4,044,469	29.7895	-95.1247
Chennai	0	12.84831	79.70507
China, TX	0	30.04333	-94.3751
Chocolate Bayou - Polymers	28,107	29.42385	-95.2441
Cincinatti Technical Centre	24	39.27697	-84.3453
Clinton	517,441	41.80737	-90.2856
Corpus Christi	1,206,278	27.82255	-97.5722
Crumlin, UK	0	51.67701	-3.16265
Dalian	0	38.91222	121.6022
Dongguan	16	23.00945	114.027
East Chicago	0	41.63469	-87.4547
East Java	0	-7.59567	112.6905
Edison	6,395	40.49362	-74.3852
Equistar Pipeline	4,038	29.57392	-95.1132
Evansville 1800 Lynch	1	38.01699	-87.5326
Evansville, Columbia	0	37.98648	-87.5506
Evansville, Northbrook	1	38.11462	-87.5573
Evansville, O'Hara	0	38.02429	-87.52
Exeter	0	41.03002	-81.4792

Fairport Harbor	6	41.75487	-81.278
Ferrara	56,006	45.52361	9.231148
Fos-Caban	179,887	43.42539	4.847112
Frankfurt	146	50.09525	8.535962
Gainsborough	0	53.39118	-0.74525
Geelong	1,183	-38.077	144.3797
Geneva	0	41.80649	-80.952
Givet	0	50.15762	4.821837
Gorla	0	45.65976	8.899144
Grand Junction	0	35.04834	-89.1893
Guangzhou/Nansha(BAPG)	0	22.77153	113.5437
Houston Office	0	29.75645	-95.3624
Houston Refinery	1,844,770	29.71023	-95.2363
Jackson	175	35.6274	-88.7776
Kerpen	782	50.89522	6.652803
Knapsack	3,626	50.86374	6.872401
La Porte	1,510,929	29.7208	-95.0691
Lake Charles	199,427	30.19131	-93.324
Lake Charles JV	1,093,283	30.24622	-93.2877
Ludwigshafen	3	49.515	8.420576
Maasvlakte	175,310	51.9651	4.015599
Mansfield	0	32.55891	-97.1105
Matagorda	51,381	28.79366	-95.9434
Mexico City	0	19.50931	-99.153
Milton Keynes	0	52.00719	-0.72857
Moerdijk	5,405	51.67042	4.576996

Mordialloc Victoria	0	-37.9887	145.1042
Morris	505,188	41.4479	-88.3099
Munchsmunster	558,839	48.75573	11.7035
Newark	0	40.72297	-74.1231
North Canton	0	40.90493	-81.445
North Kingsville	0	41.91921	-80.6662
Opglabbeek	0	51.04163	5.543732
Oyonnax	0	46.23314	5.624624
Perrysburg	0	41.54692	-83.6423
Pinda	0	-22.9342	-45.3959
Plock	0		
Plymouth	0	41.35098	-86.3225
Rayong (BAPT)	0	13.01123	101.1933
Rio Claro	0	-22.3685	-47.5541
Rotterdam Office	2,615	51.92478	4.473626
San Luis Potosi	0	22.06395	-100.879
Seevetal	241	53.42403	10.03541
Senai	33	1.623914	103.6709
s'Gravendeel	0	51.78315	4.621429
Sinnar	0	19.96836	74.37364
Sumare	13	-22.7196	-47.2945
Surplast	0	-34.4603	-58.7048
Suzhou (BAPS)	95	31.31768	120.8028
Tarragona	959	41.11332	1.162662
Tuscola	165,523	39.79238	-88.3501
Vadodara	36	22.43835	73.21003

Victoria	43,377	28.68747	-96.9415
Warrington	0	53.4062	-2.53308
Wesseling	2,060,178	50.83317	6.966976
West Chicago	0	41.91401	-88.2358

### Scope 1 breakdown: sector production activities

**(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.**

Sector production activity	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions, metric tons CO2e	Comment
Chemicals production activities	14,339,993	14,339,993	N/A
Oil and gas production activities (downstream)	1,844,770	1,844,770	N/A

### Scope 1 breakdown: sector production activities

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Americas	5,642,263	5,805,872
Europe	1,379,233	1,814,725
Asia Pacific (or JAPA)	96,479	117,788

### Scope 2 breakdown: business breakdowns

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

- By facility

**(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	3,971	4,505
Allentown	1,970	2,234
Altamira	3,825	18,414
Astorp	0	-
Batu Pahat	2,101	2,101
Bay City	494	673
Bayport - Choate	522,842	521,582
Bayport - Polyolefins	133,276	138,420
Bayport - Underwood	192,916	196,204
Bayreuth	12,965	24,101
Bedford	1,572	2,143
Berre	25,875	51,749
Bornem	3,064	2,817
Botlek	280,679	311,725
Brindisi	41,725	54,398
Carpentersville	478	542
Carrington	2,886	2,600
Castellon	924	906
Cerkezkoy	581	883
Changshu	723	733
Channelview	2,132,030	2,169,573
Chennai	571	572
China, TX	5,481	7,401
Chocolate Bayou - Polymers	151,276	153,025
Cincinatti Technical Centre	2,206	2,503
Clinton	166,506	173,925
Corpus Christi	5,292	6,471
Crumlin, UK	1,470	1,348
Dalian	4,882	4,953
Dongguan	6,816	6,816
East Chicago	1,748	3,572
East Java	5,273	5,273
Edison	2,980	3,380
Equistar Pipeline	21,326	22,501

Evansville 1800 Lynch	1,348	4,430
Evansville, Columbia	243	798
Evansville, Northbrook	2,925	9,611
Evansville, O'Hara	8,256	27,125
Exeter	1,186	1,345
Fairport Harbor	2,808	3,185
Ferrara	66,451	88,078
Fos-Caban	49,555	58,945
Frankfurt	15,736	29,252
Gainsborough	1,216	1,096
Geelong	36,690	57,135
Geneva	988	1,230
Givet	1,426	2,852
Gorla	2,339	3,253
Grand Junction	802	641
Guangzhou/Nansha(BAPG)	10,998	10,998
Houston Office	1,932	2,120
Houston Refinery	1,289,212	1,268,493
Jackson	9,066	7,247
Kerpen	5,943	10,117
Knapsack	43,217	41,152
La Porte	226,086	254,833
Lake Charles	27,246	26,819
Lake Charles JV	189,695	186,722
Ludwigshafen	659	294
Maasvlakte	477,695	537,005
Mansfield	12,352	14,299
Matagorda	99,686	115,400
Mexico City	326	99
Milton Keynes	574	517
Moerdijk	40,647	56,633
Mordialloc Victoria	1,201	1,962
Morris	329,005	358,529
Munchsmunster	68,335	127,029
Newark	46	57

North Canton	406	505
North Kingsville	6	8
Opglabbeek	182	167
Oyonnax	213	425
Perrysburg	751	934
Pinda	-	-
Plock	1,227	1,444
Plymouth	219	490
Rayong (BAPT)	3,927	3,936
Rio Claro	-	-
Rotterdam Office	107	107
San Luis Potosi	6,625	6,625
Seevetal	514	875
Senai	4,611	4,611
s'Gravendeel	2,838	4,336
Sinnar	4,245	4,251
Sumare	-	-
Surplast	88	88
Suzhou (BAPS)	10,625	10,625
Tarragona	29,830	29,317
Tuscola	10,089	12,556
Vadodara	3,817	3,823
Victoria	70,362	74,252
Warrington	1,200	1,081
Wesseling	199,159	370,223
West Chicago	321	364

### Scope 2 breakdown: sector production activities

Question C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7 only applies to organizations with activities in the following sectors:

Sector production activity	Scope 2, location-based, metric tons CO2e	Comment
Chemicals production activities	5,828,763	
Oil and gas production activities (downstream)	1,289,212	

## Scope 3 breakdown

Question C7.8 only applies to organizations with activities in the following sectors:

- Chemicals

**(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	<p>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. The following methodology was used to calculate related scope 3 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 both internal and customer LCA studies, and complemented with different commercial and public data sources, including ecoinvent, PlasticsEurope, and regional regulatory databases. Methodologies and assumptions CO2e emissions in this category were calculated using an average-data approach, in accordance with the WBCSD/WRI GHG Scope 3 Guidance Document.</p> <p>While we recognise 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 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.</p>

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

Output product	Sales, metric tons	Comment
Carbon dioxide (CO2)	0	LyondellBasell does not sell carbon dioxide
Methane (CH4)	72,838	
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) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**

- Increased

**(C7.9a) 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.**

Reason	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	N/A
Other emissions reduction activities	230,765	Decreased	1%	Although total scope 1 and scope 2 GHG emissions increased from 2020 to 2021, LyondellBasell saved 230,765t of CO2 in 2021 through the implementation of energy saving and CO2 reduction initiatives. Major projects included waste heat recovery and flare gas management. Our total scope 1 and scope 2 footprint in 2020 was 23,180,000 metric tons, with our reduction activities corresponding to a 1% decrease (230,765 / 23,180,000*100).
Change in output	1,040,765	Increased	4.5%	Increases in production volumes from 2020 resulted in an increase in overall emissions in 2021. Our total scope 1 and scope 2 footprint in 2020 was 23,180,000 metric tons. The emission linked to a change in output corresponded to a 4.5% increase (1,040,765 / 23,180,000 * 100).

**(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

### Energy spend

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

#### Question dependencies

Activity	Indicate whether your organization undertook this energy-related activity in the reporting year
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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) Report your organization's energy consumption totals (excluding feedstocks) in MWh.**

Activity	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable + non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	85,731,744	85,731,744
Consumption of purchased or acquired electricity	N/A	87,169	8,758,966	8,846,135
Consumption of purchased or acquired heat	N/A	0	0	0
Consumption of purchased or acquired steam	N/A	0	23,040,114	23,040,114
Consumption of purchased or acquired cooling	N/A	N/A	N/A	N/A
Consumption of self-generated non-fuel renewable energy	N/A	0	N/A	0
Total energy consumption	N/A	87,169	117,530,824	117,617,993

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

Activity	Heating value	MWh consumed from <u>renewable sources</u> inside chemical sector boundary	MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)	MWh consumed <u>from waste heat/gases</u> recovered from processes using fuel feedstocks inside chemical sector boundary	Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary
Consumption of fuel (excluding feedstocks)	LHV (lower heating value)	0	46,336,328	31,770,768	78,107,096
Consumption of purchased or acquired electricity	N/A	87,169	7,762,846	0	7,850,015
Consumption of purchased or acquired heat	N/A	0	0	0	0
Consumption of purchased or acquired steam	N/A	0	19,788,944	0	19,788,944
Consumption of self-generated non-fuel renewable energy	N/A	0	0	0	0
Total energy consumption	N/A	87,169	73,888,118	31,770,768	105,746,055

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

Fuel application	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) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.**

Fuels (excluding feedstocks)	Heating value	Total fuel MWh consumed by	MWh fuel consumed for	Comment				
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		the organization	self-generation of electricity*	self-generation of heat*	self-generation of steam*	self-generation of cooling*	self-cogeneration or self-trigeneration*	
Coal	LHV	2,684,216	0	0	0	0	0	
Oil	LHV	3,674,693	0	489,223	3,185,470	0	0	
Gas	LHV	64,225,980	83,499	54,569,495	3,548,679	0	5,822,294	
Other non-renewable fuels (e.g. non-renewable hydrogen)	LHV	15,146,854	0	14,875,553	271,301	0	0	
Total fuel	LHV	85,731,744	83,499	69,934,271	9,689,666	0	5,822,294	

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

Energy Carrier	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	1,609,839	1,609,839	0	0
Heat	69,934,271	69,934,271	0	0
Steam	16,039,080	16,039,080	0	0
Cooling	0	0	0	0

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

Energy Carrier	Total gross generation inside chemicals sector boundary (MWh)	Generation that is consumed inside chemicals sector boundary (MWh)	Generation from renewable sources inside chemical sector boundary (MWh)	Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

Electricity	1,609,839	1,609,839	0	495,724
Heat	64,477,626	64,477,626	0	43,324,869
Steam	13,871,078	13,871,078	0	2,333,548
Cooling	0	0	0	0

**(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.**

Sourcing method	Energy carrier	Low-carbon technology type	Country/area of low-carbon energy consumption	
Green electricity products from an energy supplier (e.g. green tariffs)	Electricity	Hydropower (capacity unknown)	Sweden	
Tracking instrument used	Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)	Country/area of origin (generation) of the low-carbon energy or energy attribute	Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)	Comment
No instrument used	1,691			

Sourcing method	Energy carrier	Low-carbon technology type	Country/area of low-carbon energy consumption	
Default delivered electricity from the grid (e.g. standard product offering by an energy supplier), supported by energy attribute certificates	Electricity	Hydropower (capacity unknown)	Brazil	
Tracking instrument used	Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)	Country/area of origin (generation) of the low-carbon energy or energy attribute	Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)	Comment
I-REC	28,584			

Sourcing method	Energy carrier	Low-carbon technology type	Country/area of low-carbon energy consumption	
Green electricity products from an energy supplier (e.g. green tariffs)	Electricity	Wind	United Kingdom	
Tracking instrument used	Low- carbon energy consumed via selected sourcing method in the reporting year (MWh)	Country/area of origin (generation) of the low-carbon energy or energy attribute	Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)	Comment
Contract	54050,25			

**(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.**

Country/area	Consumption of electricity (MWh)	Consumption of heat, steam, and cooling (MWh)	Total non-fuel energy consumption (MWh) [Auto-calculated]
Argentina	303	0	
Australia	57,849	0	
Belgium	20,290	0	
Brazil	28,584	0	
China	55,194	0	
France	738,077	221,904	
Germany	1,027,318	55,595	
India	11,991	0	
Indonesia	6,847	0	
Italy	338,598	160,520	
Malaysia	10,139	0	
Mexico	30,702	0	
Netherlands	509,490	2,962,994	
Poland	1,935	0	
Spain	177,092	21,398	
Sweden	1,691	0	
Thailand	8,321	0	
Turkey	1,391	0	
UK	92,308	0	
United States	5,728,014	19,617,704	

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## Feedstock consumption: Chemicals

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**(C-CH8.3) Does your organization consume fuels as feedstocks for chemical production activities?**

- **Yes**
-

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

Fuels used as feedstocks	Total consumption	Total consumption unit	Inherent carbon dioxide emission factor of feedstock, metric tons CO2 per consumption unit	Heating value of feedstock, MWh per consumption unit	Heating value	Comment
Other, please specify (Total fuel feedstock)	46,820,916	metric tons	3	13.21	LHV	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) State the percentage, by mass, of primary resource from which your chemical feedstocks derive.**

Feedstock source	Percentage of total chemical feedstock (%)
Oil	60
Natural Gas	40

## C9 Additional metrics

### Chemicals production metrics

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

Output product	Production (metric tons)	Capacity (metric tons)	Direct emissions intensity (metric tons CO2e per metric ton of product)	Electricity intensity (MWh per metric ton of product)	Steam intensity (MWh per metric ton of product)	Steam/ heat recovered (MWh per metric ton of product)	Comment
Polymers	9,470,192	13,125,685	0	0	0	0	Intensity ratios are not published as they are regarded as confidential business information
High Value Chemicals (Steam cracking)	10,200,952	14,210,894	0	0	0	0	Intensity ratios are not published as they are regarded as confidential business information
Methanol	1,103,862	1,443,745	0	0	0	0	Intensity ratios are not published as they are regarded as confidential business information
Other base chemicals	8,998,816	12,859,629	0	0	0	0	Intensity ratios are not published as they are regarded as confidential business information
Other, gasoline & distillate	9,865,435	13,266,768	0	0	0	0	Intensity ratios are not published as they are regarded as confidential business information

### Low-carbon investments

(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
Yes	

(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	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Unable to disaggregate by technology area	N/A	≤20%		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 significantly in further developing sustainable and circular solutions such as mechanical and advanced recycling, which minimizes resource use in addition to creating products with an improved carbon footprint.

## C10 Verification

### Verification

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

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

**(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	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported emissions verified (%)
Annual process	Complete	Reasonable assurance	CDP Climate 2022 Verification.pdf	Basell Polyolefins UK Ltd: Page 2 LyondellBasell France (Berre): Page 6 Basell Poliolefine Italia: Page 9 Lyondell Chimie France: Page 12 Lyondell Chemie NL: Page 15 Basell Polyolefin GmbH: Page 20	European Union Emissions Trading System (EU ETS)	27

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## Other verified data

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**(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?**

- No, we do not verify any other climate-related information reported in our CDP disclosure
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## C11 Carbon pricing

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### Carbon pricing systems

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**(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) Select the carbon pricing regulation(s) which impacts your operations.**

- EU ETS
- 

**(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.**

System name	% of Scope 1 emissions covered by the ETS	% of Scope 2 emissions covered by the ETS	Period start date	Period end date	
EU ETS	26	11	January 1 2021	December 31 2021	
Allowances allocated	Allowances purchased	Verified Scope 1 emissions in metric tons CO2e	Verified Scope 2 emissions in metric tons CO2e	Details of ownership	Comment
3640317	1199186	4273598	0	Facilities we own and operate	

**(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. 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. We also participated in the Clean Development Mechanism (CDM). 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 CO<sub>2</sub> focal points to manage compliance obligations.

**Example:**

For example, in 2021, we announced an annual emission reduction of 170,000t at our Wesseling site in Germany from the shutdown of an onsite boiler.

**Situation:** We expect increasing ETS certificate prices due to an increase of the EU 2030 climate targets, leading 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 increase in 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 our Carbon Reduction Program aims to identify and eventually reduce GHG emissions from our highest energy-intensive manufacturing sites as part of our overall strategy to reach our 2030 30% GHG emission reduction target from 2020 levels. Within this program, we evaluate 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:** We identified mitigation potentials at our site in Wesseling (Germany), which is our largest emitting site in Europe. We ultimately managed to address relevant mitigation potentials at that site, thereby also considerably reducing our exposure to carbon pricing in the EU ETS. We approved in 2021 the implementation of a project resulting in the shutdown of a lignite-fuelled boiler in our site in Wesseling, compensated by the supply of steam from their neighbouring site. This allows us to reduce our site's CO<sub>2</sub> emissions by approximately 170,000t CO<sub>2</sub>e per year, at a cost saving of 17 MM EUR assuming an EUA price of 100 EUR per ton.

**Project-based carbon credits**

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

- Yes

**(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.**

Credit origination or credit purchase	Project type	Project identification	Verified to which standard
Credit purchase	<b>Wind</b>	CDM Project: 5173 Yichun Xinqing Laobaishan Windpark First Stage 30MW Wind Power Project	CDM (Clean Development Mechanism)
<b>Number of credits (metric tons CO<sub>2</sub>e)</b>	<b>Number of credits (metric tons CO<sub>2</sub>e): Risk adjusted volume</b>	<b>Credits cancelled</b>	<b>Purpose, e.g. compliance</b>

18,205	18,205	Yes	Compliance
Credit origination or credit purchase	Project type	Project identification	Verified to which standard
Credit origination	Hydro	CDM Project 8761: Stung Tatay Hydroelectric Project	CDM (Clean Development Mechanism)
Number of credits (metric tons CO2e)	Number of credits (metric tons CO2e): Risk adjusted volume	Credits cancelled	Purpose, e.g. compliance
795	795	Yes	Compliance

Credit origination or credit purchase	Project type	Project identification	Verified to which standard
Credit purchase	Hydro	CDM Project 7731: Dapein (1) Hydropower Project in Union of Myanmar	CDM (Clean Development Mechanism)
Number of credits (metric tons CO2e)	Number of credits (metric tons CO2e): Risk adjusted volume	Credits cancelled	Purpose, e.g. compliance
1,304	1,304	Yes	Compliance

## Internal price on carbon

- Yes

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

Objective for implementing an internal carbon price	GHG Scope	Application	Actual price(s) used (Currency /metric ton)	Variance of price(s) used	Type of internal carbon price	Impact & implication
Drive low-carbon investment	Scope 1	Company-wide	25	Differentiated, evolutionary pricing driven by the specific assessment, e.g., geography, applicable legislation, and timeframe of an investment.	Shadow price	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 and are summarized in section C4.3. Estimates of the capital expenditure necessary to achieve these goals are included in our corporate budget. We do not expect the capital spending to support our ambitions over the next two years will represent a significant amount of our total capital expenditures. Furthermore, climate risk is embedded in our enterprise risk management approach.
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## C12 Engagement

### Value chain engagement

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

- Yes, our suppliers
- Yes, our customers/clients

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

Type of engagement	Details of engagement	% of suppliers by number	% total procurement spend (direct and indirect)	% of supplier-related Scope 3 emissions as reported in C6.5	Rationale for the coverage of your engagement	Impact of engagement, including measures of success	Comment
Information collection (understanding supplier behavior)	Collect climate change and carbon information at least annually from suppliers	70	93%	94%	The businesses in our supply chain are an important lever for us to encourage more sustainable practices that will contribute to better outcomes for society. In 2021, we launched a Sustainable Procurement program to improve sustainability performance, including climate related performance, in our supply chain. We engaged with EcoVadis and joined Together for Sustainability	Suppliers are invited to complete an Ecovadis assessment or share their existing scorecard. We plan to initiate an improvement plan if a supplier does not meet a minimum overall score requirement.	

Type of engagement	Details of engagement	% of suppliers by number	% total procurement spend (direct and indirect)	% of supplier-related Scope 3 emissions as reported in C6.5	Rationale for the coverage of your engagement	Impact of engagement, including measures of success	Comment
					(TfS) to support the assessment of our key suppliers using a commonchemical industry approach. We included in our scope of coverage key suppliers that represent a significant procurement volume, or are in strategic procurement areas for our operations (for example feedstock supply).		
Information collection (understanding supplier behavior)	Collect climate change and carbon information at least annually from suppliers	0.01	0.01	0.01	In 2020, LyondellBasell joined a project coordinated by Cefic, the European Industry Chemical Federation, to develop a methodology to better account for freight-related CO <sub>2</sub> e emissions. During this project, we engaged with a number of our freight partners to collect CO <sub>2</sub> e emission data related to the shipment of our products to our customers as a trial to support the development of the methodology. Following the successful completion of the Cefic-led project, we have engaged with a number of suppliers to deploy this methodology and improve accounting of GHG emissions linked to the transport of our products to our customers.	The data collected from our freight partners have allowed us to validate the methodology developed through Cefic to account for freight related emissions. Engaging with some of our suppliers on this methodology has highlighted several gaps, notably around data management, that need to be addressed. We continue to work with those suppliers to improve the accuracy of our data for the calculation of our scope 3 emissions.	
Innovation & collaboration (changing markets)	Other, please specify (Collaboration on innovative low carbon products)	0.01	0.01	0.01	LyondellBasell purchases millions of tons of feedstock annually, however the number of suppliers is comparatively limited. In order to conduct a trial to evaluate the technical and commercial aspects related to the production of polymers made from renewable feedstocks, collaboration with a single supplier was necessary.	Our collaboration with our renewable feedstock partner is supporting the development of the European market for more sustainable polymers and chemicals solutions. An ISO 14040 -44 compliant LCA study demonstrated that our renewable-based polymers delivered a reduction of at least 210% in CO <sub>2</sub> footprint compared with their fossil-based equivalent. We are expanding the geographical scope of this collaboration to cover our American market and include our <i>CirculenRenew</i> products as part of our North American portfolio offering.	

**(C12.1b) Give details of your climate-related engagement strategy with your customers.**

Type of engagement	Details of engagement	% of customers by number	% customer-related Scope 3 emissions	Please explain the rationale for selecting this group of customers and scope of engagement	Impact of engagement, including measures of success
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			as reported in C6.5		
Education/information sharing	Share information about your products and relevant certification schemes (i.e. Energy STAR)	80	80	We include information on our sustainability and climate change programs and product portfolio in our day-to-day business with our customers. Life cycle assessment studies are one of the elements we share with our customers to demonstrate a sustainability or climate benefit of our products to support our customers' needs and sustainability initiatives. This was notably shown during engagements with our customers on our <i>CirculenRenew</i> product, our polymer product offering made from renewable-based feedstock, using a mass balance approach. We estimate that we have engaged with the vast majority of our customer base on sessions to inform them of our climate strategy and lower carbon product portfolio.	Sustainability and climate change are key drivers for us to build and strengthen our relationship with our customers. Our product portfolio has supported our customers in reducing emissions throughout the value chain and in progressing against their climate change related targets. Our analysis shows that our <i>CirculenRenew</i> polymers can help our customers by reducing the carbon footprint of polymers by up to 220% compared with their fossil virgin equivalent, thereby contributing to reduce the overall product carbon footprint of our customers and helping them meet their emission reduction targets.

## Climate-related requirements

### (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) 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	Description of this climate related requirement	% suppliers by procurement spend that have to comply with this climate-related requirement	% suppliers by procurement spend in compliance with this climate-related requirement	Mechanisms for monitoring compliance with this climate-related requirement	Response to supplier non-compliance with this climate-related requirement
Climate-related disclosure through a non-public platform	In 2020, we launched our Supplier Code of Conduct, in which we outline our environmental, health, safety, social, governance and ethical expectations for those with whom we do business.	93%	11%	<ul style="list-style-type: none"> <li>• Supplier scorecard or rating</li> </ul>	<ul style="list-style-type: none"> <li>• Retain and engage</li> </ul>

## Shareholder voting

**(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?**

Direct or indirect engagement that 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?	Attach commitment or position statement(s)	Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy
<ul style="list-style-type: none"> <li>• Yes, we engage directly with policy makers</li> <li>• Yes, we engage indirectly through trade associations</li> </ul>	Yes	<a href="#">LyondellBasell Principles for Public Policy</a>	<p>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 and 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, including climate change, are available publicly, in particular in our document <i>LyondellBasell principles for public policy</i>, and other sources, such as our corporate website, sustainability report, annual proxy statement and press releases. Our engagement activities are aligned with these positions.</p>

**(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?**

Focus of policy, law, or regulation that may impact the climate	Specify the policy, law, or regulation on which your organization is engaging with policy makers	Policy, law, or regulation geographic coverage	Country/region the policy, law, or regulation applies to	Your organization's position on the policy, law, or regulation	Description of engagement with policy makers	Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation	Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?
Climate-related targets	Multiple	<ul style="list-style-type: none"> <li>• Regional</li> <li>• National</li> </ul>	France The Netherlands Germany	Neutral	Discuss decarbonisation roadmaps and what is needed from government to support industry decarbonisation. 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.	Doesn't appear.	Yes, we have evaluated, and it is aligned
Emissions trading schemes	Regulation establishing a Carbon Border	Regional	European Union	Support with minor	Our outreach was with the principal MPs in the European Parliament working on this legislation.	We welcome the proposal for a CBAM as recognition of the need to safeguard the competitiveness of EU industries, if the	Yes, we have evaluated, and it is aligned

Focus of policy, law, or regulation that may impact the climate	Specify the policy, law, or regulation on which your organization is engaging with policy makers	Policy, law, or regulation geographic coverage	Country/region the policy, law, or regulation applies to	Your organization's position on the policy, law, or regulation	Description of engagement with policy makers	Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation	Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?
	Adjustment Mechanism			exceptions		details that are relevant for our product value chains are analyzed and covered as soon as possible. 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 reduction pathway until 2030 with a gradual phaseout of free allowances based on carbon leakage rules. The introduction of a CBAM impacts that pathway by introducing an alternative instrument to carbon leakage.	
Other, please specify: Subsidies	National subsidy instruments linked to GHG-reduction technologies.	<ul style="list-style-type: none"> <li>Regional</li> <li>National</li> </ul>	European Union France The Netherlands Germany	Neutral	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..		Yes, we have evaluated, and it is aligned

**(C12.3b) Provide details of the trade associations your organization engages with which are likely to take a position on any policy, law or regulation that may impact the climate.**

Trade association	Is your organization's position on climate change consistent with theirs?	Has your organization influenced, or is your organization attempting to influence their position?	State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)	Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

American Chemistry Council (ACC)	Consistent	We publicly promote their current position	The American Chemistry Council (ACC) has adopted a set of Climate Policy Principles. 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.	Yes, we have evaluated, and it is aligned
American Fuel and Petrochemical Manufacturers (AFPM)	Mixed	We have already influenced them to change their position	The American Fuel and Petrochemical Manufacturers (AFPM) acknowledges climate change is real and is committed to the development of sound policies that enable their members to supply the fuel and petrochemicals that growing global populations and economies need to thrive, and to do so in an environmentally sustainable way. Policies addressing climate change must be: 1) balanced and measured to improve quality of life, ensuring the long-term economic, energy, and environmental needs of humanity are met, 2) protective of U.S. competitiveness and prevent the shifting of production, jobs, and emissions from the U.S. to other countries, 3) harmonized, pre-emptive, and economy-wide, 4) simple and transparent, and 5) achievable and flexible to adjust as necessary. AFPM supports the aspiration of the Paris Agreement to address climate change through global cooperation and greenhouse gas emissions reductions.	Yes, we have evaluated, and it is aligned
Business Europe	Mixed	We publicly promote their current position	BusinessEurope supports the European Green Deal and is committed to the transition to a climate-neutral economy by mid-century. European industry is ready to take its share of responsibility and to bring solutions. The transition is expected to have positive effects such as growing markets for clean technologies. LyondellBasell's position does not differ from BusinessEurope. BusinessEurope takes position on several policy areas that LyondellBasell does not actively follow (e.g., digital economy, social policies) and on behalf of other sectors than the chemical sector (e.g., aviation, financial sector).	Yes, we have evaluated, and it is aligned
European Chemical Industry Council (Cefic)	Consistent	We publicly promote their current position	Cefic supports the European Green Deal and Europe's ambition to become climate neutral by 2050. As recognized in the European Green Deal Communication, energy-intensive industries, such as chemicals, are indispensable to Europe's economy, as they supply key value chains. Cefic has the ambition to become climate neutral by 2050. Cefic welcomes the European Commission's 'Fit for 55' package. This package consists of a set of interconnected proposals, which drive the EU towards reducing net emissions by at least 55% by 2030 compared to 1990 and being the first climate-neutral continent by 2050. Fit for 55 needs to secure Europe as a destination for investments into climate-neutral and circular technologies. To accelerate the industrial electrification business case, the package needs to ensure huge volumes of renewable and low carbon energy become available as soon as possible. In addition, the revised ETS has to set the framework for emission reduction measures in the next five years as well as help create the breakthrough technologies in the years after. The EU Industrial Strategy package should lay the foundations to deploy radical industrial policies to accelerate Europe's industrial transformation.	Yes, we have evaluated, and it is aligned

			Moreover, while preserving intra-EU competition, EU policies should also equip European industry to compete on a global scale.	
China Petroleum and Chemical Industry Association (CPCIF)	Consistent	We publicly promote their current position.	<p>In 2021, CPCIF published the “Declaration of Carbon Peak and Carbon Neutrality in China Petroleum and Chemical Industry”, a joint announcement with 17 petrochemical companies and industry zones. The declaration includes the following commitments: 1) promote decarbonized energy and developed natural gas industry with low carbon density, 2) strongly improve energy efficiency and improve full process energy management, 3) increase the supply of high level petrochemical products, develop recyclable and reusable products, developed products with low carbon intensive over the whole supply chain, 4) fasten the construction of CCUS facilities, 5) develop new energy saving technology and production process, and 6) largely increase investment on carbon management process.</p> <p>In 2021 and 2022, CPCIF submitted proposals to the Chinese People’s Political Consultative Conference for government consideration on circular economy and carbon reduction, including, plastic waste recycling, eco-design in plastic package, and plastic waste collection model.</p> <p>Since 2021, CPCIF led the preparation of the carbon emission calculation methodology standard and LCA methodology standard of products in the petrochemical industry. And they will provide fundamental support and help the petrochemical industries to enter the China carbon trading market in 2023–2025. The support will include: the carbon emission allocation and refreshing method for petrochemical industry; carbon trading operation test for petrochemical industry; monitoring, reporting and auditing; enhance basic capability for carbon trading market; coordinating the solution of dispute between companies and government offices.</p>	Yes, we have evaluated, and it is aligned
European Petrochemical Association	Consistent	We publicly promote their current position	<p>The EU chemical industry has the ambition to become climate neutral by 2050. Four main challenge areas / “twin transition” between now and 2030-2050 as an energy and GHG intense industry are climate neutrality, circular economy, digital transformation, and chemicals strategy for sustainability. Key to the sector’s environmental strategy is reducing its energy requirements, in particular the energy intensity levels. LyondellBasell is fully aligned with these generally described challenges.</p>	Yes, we have evaluated, and it is aligned
International Council of Chemical Associations (ICCA)	Consistent	We publicly promote their current position	<p>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.</p> <p>ICCA welcomes the pledges from chemical companies, along with local and regional associations, to work toward climate neutrality, showing the</p>	Yes, we have evaluated, and it is aligned

			<p>industry is already on the path to address the climate predictions of the August 2021 report from the Intergovernmental Panel on Climate Change (IPCC).</p> <p>ICCA believes that a combination of technology, market-based and policy solutions are necessary to achieve climate neutrality. Internationally harmonized rules and public support will be needed to create a level-playing field for companies to sustain the additional cost of R&amp;D investments and capital and operational expenditures. Enhanced transparency to demonstrate achieved emission reductions along the value chain will be a key contributor to a climate neutral economy.</p> <p>A strong collaboration between the whole value chain, industry, governments, stakeholders, consumers, and communities at local, regional, and global level is necessary to identify and overcome technological, economic and infrastructural challenges to the net zero future which we all aspire. All parties need to cooperate to promote an enabling and open international economic system, which contributes to the sustainable economic growth and development of all parties, especially developing countries. Sharing knowledge and providing training on sustainable operations, processes and equipment, will be indispensable in the pursuit of our common ambition.</p>	
National Association of Manufacturers (NAM)	Consistent	We publicly promote their current position	<p>The NAM agrees with the conclusion of the most recent National Climate Assessment by the U.S. Global Change Research Program that the earth is warming, and human activities are causing it. Further, our rapidly changing climate poses significant threats to human health, natural resources, biodiversity, infrastructure, food supply, economic growth and many other necessities. The NAM supports the Paris Agreement but believes that more is needed, namely an international, rules-based system that is consistently applied to bind all emitters and ensure a level playing field, and a unified U.S. framework that applies economy-wide to all emitters and harmonizes GHG regulation. NAM believes the U.S. should also invest heavily in energy and water efficiency solutions, clean energy R&amp;D, modernization of the electric grid and carbon reduction technologies such as carbon capture, utilization and storage. Finally, NAM believes U.S. domestic policy must work in lockstep with a global framework to avoid carbon leakage.</p>	Yes, we have evaluated, and it is aligned
Plastics Europe	Consistent	We publicly promote their current position	<p>Plastics improve the quality of life for millions of people across the globe and are key to accelerating the European transition to a low-carbon circular economy where resources and energy are utilized in the most effective way – but we will not be able to achieve the full potential of these materials if the global challenges linked to their impact when they end-up in the environment are not tackled. Most plastic materials are currently fossil based and are produced from oil or gas. PlasticsEurope, and its members including LyondellBasell, believe that in the long-term, plastics production should be decoupled from fossil feedstock, and that, in the future, the vast majority of plastics will be produced from alternative feedstocks, such as recycled oils or secondary plastics, responsibly sourced biomass, or even CO<sub>2</sub>.</p>	<ul style="list-style-type: none"> <li>• Yes, we have evaluated, and it is aligned</li> </ul>

**(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	Status	Attach the document	Page/Section reference	Content elements	Comment
In mainstream reports	Complete	<a href="#">2021 annual report</a>	<ul style="list-style-type: none"> <li>• Page 6</li> <li>• Page 3</li> <li>• Page 20</li> <li>• Page 5</li> </ul>	<ul style="list-style-type: none"> <li>• Governance</li> <li>• Strategy</li> <li>• Risks &amp; opportunities</li> <li>• Emissions figures</li> <li>• Emission targets</li> </ul>	
In voluntary sustainability report	Complete	<a href="#">2021 sustainability report</a>	<ul style="list-style-type: none"> <li>• Page 4</li> <li>• Page 10</li> <li>• Page 23 – 29</li> <li>• Page 65-67</li> </ul>	<ul style="list-style-type: none"> <li>• Governance</li> <li>• Strategy</li> <li>• Emissions figures</li> <li>• Emission targets</li> </ul>	

## C16 Signoff

Signoff

**(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

Job title	Corresponding job category
Chief Executive Officer (CEO)	Chief Executive Officer (CEO)

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## SC Supply chain

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### Supply chain introduction

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**(SC0.0)** If you would like to do so, please provide a separate introduction to this module.

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**(SC0.1)** What is your company's annual revenue for the stated reporting period?

Annual revenue
46,173,000,000

### Allocating your emissions to your customers

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**(SC1.1)** Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

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**(SC1.2)** Where published information has been used in completing SC1.1, please provide a reference(s).

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**(SC1.3)** What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

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**(SC1.4)** Do you plan to develop your capabilities to allocate emissions to your customers in the future?

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### Collaborative opportunities

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**(SC2.1)** Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

**(SC2.2)** Have requests or initiatives by CDP Supply Chain members prompted your organization to undertake organizational-level emissions reduction initiatives?

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Action Exchange

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Product (goods and services) level data

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**(SC4.1) Are you providing product level data for your organization's goods or services?**