

C0. Introduction

C0.1

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

Royal DSM is a global, purpose-led company in Health, Nutrition & Bioscience, applying science to improve the health of people, animals and the planet. DSM's purpose is to create brighter lives for all. DSM's products and solutions address some of the world's biggest challenges while simultaneously creating economic, environmental and societal value for all its stakeholders - customers, employees, shareholders, and society at large. DSM delivers innovative solutions for human nutrition, animal nutrition, personal care and aroma, medical devices, green products and applications, and new mobility and connectivity.

We use our bright science to deliver positive transformations at scale for as many people as possible today and for generations to come, operating within the constraints of the world's finite resources. We aim to redefine how we live and work in order to create a fairer, more prosperous and more sustainable society.

We aspire to be a company for all, creating value for all our stakeholders - customers, employees, shareholders and society - and building a stronger legacy and a brighter future for generations to come.

DSM and its associated companies deliver annual net sales of about €10 billion with approximately 23,000 employees. The company is listed on Euronext Amsterdam. More information can be found at www.dsm.com and in our Integrated Annual Report.

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	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

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

Argentina
Australia
Austria
Belgium
Brazil
Canada
Chile
China
Colombia
Costa Rica
Denmark
Ecuador
France
Germany
Greece
Guatemala
Hungary
India
Indonesia
Italy
Japan
Malaysia
Mexico
Netherlands
New Zealand
Peru
Philippines
Poland
Republic of Korea
Romania
Russian Federation
Singapore
South Africa
Spain
Switzerland
Taiwan, China
Thailand
Turkey
United Kingdom of Great Britain and Northern Ireland
United States of America
Uruguay
Viet Nam

C0.4

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

EUR

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Financial control

C-CH0.7

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

Row 1

Bulk organic chemicals

Please select

Bulk inorganic chemicals

Please select

Other chemicals

Specialty organic chemicals

C0.8

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

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, a Ticker symbol	DSM.AS

C1. Governance

C1.1

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

Yes

C1.1a

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

Position of individual(s)	Please explain
Chief Executive Officer (CEO)	Sustainability falls under the responsibility of the Managing Board. As of 15 February 2020, DSM's COO and CFO are also Co-CEOs of DSM. Their individual responsibilities are mentioned below. In 2021, the Co-CEOs oversaw Sustainability as a key responsibility and company value as well as a driver of business growth. They jointly oversaw our strategic partnership with the World Economic Forum. In addition, each of the specific actions in DSM's climate action agenda are owned by members of the Managing Board and Executive Committee. In their joint responsibility for our strategy and key targets, in mid-2021, our Co-CEOs approved the increase of DSM's Science Based Targets.
Chief Financial Officer (CFO)	In 2021, DSM's Co-CEO / CFO was responsible for integrating Sustainability into financial decision-making. She also oversaw our efforts and commitment toward the Taskforce on Climate-related Financial Disclosures (TCFD) recommendations. Within the climate action agenda, she was responsible for integrating climate risks into our risk management process, TCFD, carbon pricing and developing our engagement with climate-focused investors. For example, after the successful transition risk assessment pilot in 2020, she approved the continuation of the climate risk assessment process. Furthermore, in early 2021, she approved the increase of the internal carbon price from €50/t CO ₂ eq to €100/t CO ₂ eq to better reflect the updated insights on the actual price of CO ₂ to society. This price is also within the ranges of the scenarios we use for assessing climate transition risks.
Chief Operating Officer (COO)	In 2021, DSM's Co-CEO / COO was responsible for Safety, Health and Environment (SHE) and supervised our Sustainable Procurement Program and the sourcing of electricity from renewable sources in his responsibility for the Sourcing function. He managed our engagement with organizations with a primary focus relating to climate. Within the climate action agenda, he was responsible for our product portfolio impact measurement upgrade and climate advocacy efforts, and for reviewing our emissions reduction targets. He was also responsible for overall supervision of the full climate action agenda. For example, in his responsibility for the Sourcing function, he approved DSM's largest PPA to date, which was announced in April 2020. Furthermore, in mid-2021, he approved the increase of DSM's Science Based Targets.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	DSM has developed an 11-point climate action agenda which is actively reviewed by the wider Executive Committee several times a year. The Executive Committee consisted of the two Managing Board members as outlined above, and four additional executives. The topics cover the three domains of (1) reducing and reporting our GHG emissions and climate-related risks, supported by TCFD implementation and advancing our internal carbon price (2) enabling a low-carbon economy by seizing climate-related business opportunities, which is reflected in our policies and activities in the areas of M&A, portfolio steering and investor relations and (3) internal and external engagement and targeted, constructive climate advocacy. Concrete actions within the agenda are owned by individual Executive Committee members including the development of our internal carbon price, advancing our low-carbon portfolio, oversight of our climate advocacy, and engagements with climate-focused investors. Through the agenda, we ensure that the business opportunities related to mitigation and adaptation, and the identified transition and physical risks of climate change, are addressed.

C1.1d

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

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	Yes	<p>Our Supervisory Board has its own Sustainability Committee to oversee progress against targets and to report on the embedding of sustainability, including climate, across the organization. The Sustainability Committee is comprised of four Sustainability Board members - the Chair, with sustainability and innovation experience, and three members, with experience in DSM's business areas, emerging economies and environment - has the responsibility to prepare the Supervisory Board's discussions on sustainability topics. Competences are assessed on the basis of previous professional and personal experience and any additional trainings undertaken by the board members.</p> <p>Furthermore, DSM collaborates with Chapter Zero, a community of non-executive directors helping to build capacity to lead boardroom discussions on the impacts of climate change (www.chapterzero.org.uk) since 2020. Our Supervisory Board members are provided with the resources from Chapter Zero to support their learning and development related to climate-related issues.</p>	<Not Applicable>	<Not Applicable>

C1.2

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Chief Financial Officer (CFO) <i>Note: As of 15 February 2020, DSM's CFO is also Co-CEO of DSM.</i>	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Chief Operating Officer (COO) <i>Note: As of 15 February 2020, DSM's COO is also Co-CEO of DSM.</i>	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Sustainability committee	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Quarterly
Chief Sustainability Officer (CSO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Chief Risks Officer (CRO)	<Not Applicable>	Assessing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Safety, Health, Environment and Quality committee <i>DSM employs 2 groups in this area - the Operations Leadership Team and the Environmental Review Team.</i>	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Chief Procurement Officer (CPO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly

C1.2a

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

DSM sees sustainability, including climate, as not only our core value and a key responsibility, it is increasingly an important business growth driver at DSM that is fully engrained in our strategy. For this reason, it is directly overseen by our Managing Board, our highest executive body. They are supported in this through the supervision of the Supervisory Board and its Sustainability Committee, and advised by the Sustainability Advisory Board. Furthermore, DSM has a Sustainability Leadership Team (SLT), a Safety, Health and Environment Leadership Team (SHE-LT) and Operations Leadership Team (OLT) that steer and execute DSM's sustainability approach.

Managing Board

Sustainability, including climate topics, falls under the responsibility of the Managing Board. While DSM's Co-CEOs are the primary point of contact, other members also chair sustainability topics and initiatives. The Co-CEOs oversee climate topics and strategy as a key responsibility and company value as well as a driver of business growth. They jointly oversaw our strategic partnership with the World Economic Forum.

DSM's Co-CEO/CFO (and member of the Managing Board) is responsible for integrating sustainability into financial decision making and represents DSM in the relevant external networks, including the Accounting for Sustainability (A4S) CFO Leadership Network. The CFO also oversees our efforts and commitment toward the Taskforce for Climate-related Financial Disclosures recommendations, as well as the implementation of an internal carbon price across the company.

DSM's Co-CEO/COO is responsible for Safety, Health and Environment (SHE) and also oversaw our Sustainable Procurement Program and the sourcing of electricity from renewable sources in his responsibility for the Sourcing function. He is also responsible for overall supervision of the full climate action agenda.

Supervisory Board

Our Supervisory Board has its own Sustainability Committee to oversee progress against targets and to report on the embedding of sustainability, including climate, across the organization. The Sustainability Committee is comprised of four Sustainability Board members - the Chair, with sustainability and innovation experience, and three members, with experience in DSM's business areas, emerging economies and environment - has the responsibility to prepare the Supervisory Board's discussions on sustainability topics. The chair of the Supervisory Board has a standing invitation to the Sustainability Committee and participated in all meetings. The feedback from the Committee to the full Board included advice and recommendations regarding topics to be approved by the Supervisory Board. Deep dives were made into several topics including our ESG KPIs. In particular, due to the strategic impact of the step up in the target level, the Sustainability Committee was consulted during the revision of DSM's Science Based Targets.

DSM's Leadership Teams

At a corporate level, sustainability is steered by our Sustainability Leadership Team (SLT), a group of senior executives representing the business groups and contributing corporate functions, which is chaired by the Vice President Sustainability (DSM's equivalent of the Chief Sustainability Officer in C1.2).

DSM employs 2 groups in the area relating to SHEQ Committee - the Operations Leadership Team and the Environmental Review Team.

Our Operations Leadership Team (OLT) consists of all DSM's COOs, and drives our emissions reduction program and activities, supported by our environmental dashboarding system which is prepared by DSM O&RC. The OLT cascades the implementation of the program into the manufacturing organisations. In addition, the 'Environmental Review Team' is composed of the Executive Vice President Operations, the COO's of the Business Groups, the VP Safety, Health and Security, and the VP Sustainable Operations. The Environmental Review Team manages the progress towards climate-related targets (on GHG emissions and energy), manages climate data of the Business Groups based on the official half-yearly reporting.

Our Chief Risk Officer was responsible for integrating physical and transition climate risks into our risk management approach. She was appointed by the CFO to lead a taskforce to address the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD). The taskforce, comprising representatives from finance, risk management, sustainability, and investor relations, works with functions such as strategy, operations and procurement, to define what is needed to meet our commitments toward TCFD. In 2021, our physical and transition risk assessments were expanded, and we continued to further embed climate-related risks into the overall risk management processes. Our Chief Procurement Officer oversees our scope 3 reduction program, C02REDUCE, together with our Supplier Sustainability team.

C1.3

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

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

C1.3a

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

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Board/Executive board	Monetary reward	Emissions reduction target Energy reduction target	The CEO/Managing Board/Executive Committee have long term GHG emission reduction targets and energy efficiency improvement (EEI) targets. The incentivized performance indicators for climate change issues are published in the Remuneration Report in the Integrated Annual Report 2021 (see for example https://annualreport.dsm.com/ar2021/report-by-the-supervisory-board/remuneration-report-2021/remuneration-of-the-managing-board/total-remuneration-2021.html)
Corporate executive team	Monetary reward	Emissions reduction target Energy reduction target	All DSM executives have a climate change target (i.e. GHG emission reduction targets and energy efficiency improvement (EEI) targets) as part of their annual bonus scheme. This includes the members of the Executive Committee, as well as the heads of all DSM businesses and functions.
Environment/Sustainability manager	Monetary reward	Emissions reduction target Energy reduction target Efficiency target	Personal objectives (which determine bonus and/or merit increase) linked to achieving company climate change targets.
All employees	Non-monetary reward	Emissions reduction project Energy reduction project Efficiency project Behavior change related indicator Environmental criteria included in purchases	DSM yearly recognizes excellent SHE performance within our company through the DSM SHE Award (1 winner and 1 runner-up) and SHE Recognition Awards (max 4 winners). The coverage of these awards is 100% of the employees as every location (regardless of the size or its nature) could win one of the awards. The DSM SHE Award is the highest achievable trophy for SHE excellence in DSM. The statue symbolizes DSM, its values, its transparency and its continuous change and improvement spirit . Selection criteria for SHE awards are based on 1. Management of SHE 2. Safety 3. Health 4. Environmental 5. Sustainability performance. Please find below a summary of the relevant criteria: Environment: • Improvements on Environmental performance and their trends. • Initiatives (being in execution) to improve environmental performance such as: 1. Energy saving 2. Greenhouse gas reduction (such as N2O or CO2 reduction) 3. Waste reduction 4. Use of renewable sources 5. Reduction of Priority Substances 6. Use of water (Reduction of quantity or emissions to water) 7. Biodiversity 8. (personal) eco footprint, Sustainability • Diversity / Inclusion in the management team/workforce. • Deployment of DSM Code of Business Conduct, including corruption and bribery policies. • Product stewardship initiatives such as customer relation management on SHE issues, etc. • Quality and effectiveness of stakeholders' management e.g. initiatives to improve corporate citizenship
Procurement manager	Monetary reward	Emissions reduction project Environmental criteria included in purchases Supply chain engagement	The program and procurement managers responsible for managing DSM's scope 3 emissions and CO2REDUCE program have personal targets relating to the execution and progress of the program. This program aims to generate deeper insights into the emission performance of our supplier base, identify the GHG reduction options at key suppliers, and support the collaboration needed to enable these initiatives. On an individual basis, other procurement managers may, where relevant, also have targets relating to scope 3 emissions.
Chief Procurement Officer (CPO)	Monetary reward	Emissions reduction target Supply chain engagement	In addition to the targets as a DSM executive, our CPO has additional targets relating to value chain (scope 3) engagement and emissions reduction.

C2. Risks and opportunities

C2.1

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

Yes

C2.1a

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

	From (years)	To (years)	Comment
Short-term	0	3	Climate related risks related to Climate incidents happening in the world currently
Medium-term	3	10	Climate related risks which currently have no direct impact, but probably developing fast (emerging risks). This aligns to the 2030 horizon considered in our scenario analysis.
Long-term	10	30	Climate risks based on scenario assessments. This aligns to the 2050 horizon considered in our scenario analysis.

C2.1b

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

At DSM, substantive financial impact is defined for Top risks as the exposure on DSM's EBITDA, being an indicative €30 million or more. Strategic impact is defined for Top risks where they have a major non-financial impact such as sustained, global reputational impact . Risks are classified as strategic, operational, financial, compliance, and reputational related. Identification of climate-related risks is subject to the same impact thresholds as for all other risks.

C2.2

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

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

iii) DSM has explicitly integrated climate change risks and business growth opportunities arising from climate change in its long-term Corporate Strategies. The Managing Board is accountable for the management of all risks (including climate-related risks) associated with our company's strategy and activities. To this end, appropriate risk management and internal control systems are in place. The responsibility for identifying and managing risks lies with DSM's individual units.

Risk management at DSM is based upon the COSO-ERM framework. Risk assessments and mitigation plans are carried out at various levels in the organization throughout the year, and potential risks are assessed across the full value chain.

Both short-term risks (up to and including three years) and emerging (medium- and long-term) risks (3–30 years) in the risk categories strategic, operational, financial, compliance, and reputational are the focus of our risk assessments. A Risk Assessment Manual and training is available to give guidance and continuously improve the effectiveness of our risk assessment process.

The units are supported by the Group Risk Management (GRM) department and are regularly assessed by the Corporate Operational Audit (COA) department. Both GRM and COA report directly to the CFO/Co-CEO, and COA has direct access to both Co-CEO's as well as to the Audit Committee of the Supervisory Board.

We take a standard but flexible approach to risk assessments: a) Risk assessment planning; b) preparation; c) Risk identification and clustering; d) Risk rating; e) Evaluation and risk response.

For the risk identification individual input is requested from relevant stakeholders/ knowledge holders. The total input received serves as input to the next step in which all risks are rated along 2 axes: Likelihood and Impact. The combination of these two dimensions results in the Risk Exposure. The Risk Exposure informs us of which of the identified risks are substantive/strategic. The rating is initially done individually, followed by a group discussion in which the final rating takes place and mitigating measures/risk response are defined, if any. The potential costs of additional mitigations are balanced versus the reduction in risk exposure that will be achieved.

Corporate Risk Assessment: We periodically conduct a company-wide Corporate Risk Assessment (CRA), which is the responsibility of the Managing Board. As part of this assessment, the Executive Committee (EC) reviews and agrees on the short-term top risks as well as emerging risks. The EC also agrees on how to mitigate and monitor these. The outcome of the CRA is reported to, and discussed with, the Audit Committee of the Supervisory Board

-Unit Risk Assessments; Across the company, the DSM units (the business groups, support functions, functional excellence departments and regions) also conduct various types of risk assessments. Most risk assessments are carried out by cross-functional, multi-disciplinary teams. These teams include experienced facilitators as well as experts who can challenge assumptions in order to help improve the quality of these risk assessments.

Examples of other risk assessments:

- Business Risk Assessments: focus on risks that could jeopardize the attainment of our strategic goals and business objectives.
- Process Risk Assessments: focus on making our (company-wide or unit-specific) processes more robust and fraud-proof.
- Project Risk Assessments focus on specific projects and are updated throughout project execution to secure successful delivery of project objectives and value creation for the company.

In addition to the above, specific risk assessments may be performed for areas such as Safety, Health, Environment, Climate and (Cyber)security.

Response process; The outcome from the various Risk Assessments at the different levels in the organization serves as input to the Letter of Representation (LoR) process. This is a biannual process whereby DSM's units provide a comprehensive overview of material incidents and material risks to the Managing Board. The units report their identified short-term and emerging risks according to five categories: strategic, operational, financial, compliance, and reputational. The LoR also documents the risk response defined in respect of these risks. A formal sign-off by each unit director is required. The output of the LoR process is discussed in the Executive Committee as well as the Audit Committee of the Supervisory Board.

C2.2a

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	<p>Compliance with current regulations is always included in DSM's climate related risk assessments, as it could affect both the operating costs and our license to operate.</p> <p>(i) Example of the risk type relevant to DSM: One example of a considered potential risk from current regulation specific to DSM is through our sites that are subject to Carbon Pricing schemes. The risk assessment related to this is executed by the Global Operations team, in close collaboration with the impacted sites. Example of such a site is our site in Delft, Netherlands which is subject to the EU ETS. Monitoring is conducted on a frequent basis of the actual and planned emissions, free allowances, purchased allowances, forecasting of external developments and the total cost resulted. Through this approach, the impact of taken and upcoming emissions reduction activities is closely integrated to the regulatory compliance plan.</p>
Emerging regulation	Relevant, always included	<p>Governments around the world are focusing increasingly on the environmental footprint of their domestic industries. DSM operations cover some 100+ sites and offices in 41 countries. Compliance with emerging regulations is always included in DSM's risk assessments, as it affects both the operating costs and our license to operate.</p> <p>(i) Example of the risk type relevant to DSM: One example of a considered potential risk from emerging regulation specific to DSM is through our sites expected to be subjected to emerging Carbon Pricing schemes. Example of such sites are selected sites in China. DSM has currently 20 manufacturing sites in China. While the impact to our sites may vary regionally, the sites together with our Global Operations team are already preparing the needed documentation and assessment of the financial impacts to business. These assessments take into consideration how the emerging schemes will impact direct costs, and compliance costs from monitoring, reporting and verification.</p> <p>Furthermore, all investment proposals need to be carbon neutral When investments would "over achieve" and have a negative CO2 emission, extra revenues of €100 per ton CO2e saved can be added in the business case proposal. The same internal carbon price is also included in Profit and Loss statements of the business groups for internal management reporting. The internal carbon price increases the visibility of, and encourages accountability for, the impact of carbon on the business.</p>
Technology	Relevant, always included	<p>The continuous assessment of technology developments is key for considering maintaining our competitiveness in our markets, costs of operations, and meeting our GHG reduction targets.</p> <p>j) Example of the risk type relevant to DSM: A potential risk from technology specific to DSM is the development of alternative protein production technologies substituting animal proteins from livestock or new competing alternative proteins technologies, which could potentially reduce market demand for some of our current animal feed or plant-based solutions. DSM is mitigating the risk by diversifying our solutions portfolio in this area using our unique competences in biotechnology, for example through the following innovations and continuously monitoring the technology developments:</p> <ol style="list-style-type: none"> 1. Plant-based proteins, e.g. from rapeseed (CanolaPRO®) or peas/beans (Vestkorn Milling) 2. Fermentation-based proteins e.g., for dairy proteins and egg white replacement 3. Cellular agriculture, where DSM is an investor in and development partner of Meatable
Legal	Relevant, always included	<p>DSM is risk averse when it comes to legal and compliance risks, and the risks coming from litigation cases (existing ones and potential new ones) is always included in risk assessments. In addition to the standard reporting process for risks via the LoR process, we also maintain a separate reporting process on existing, open litigation cases, which have an uncertain outcome.</p> <p>(i) An example risk that we monitor in this space externally relates to legal action against companies regarding their (inadequate) GHG emission reductions targets and ambitions. This could pose a risk for our target setting and consequently, for our manufacturing sites globally. However, we do not expect this to represent a material risk to DSM.</p>
Market	Relevant, always included	<p>DSM identified market risk as an emerging risk, when our end-markets may be disrupted by longer-term changes related to the transition to a net-zero world faster than our ability to adapt.</p> <p>(i) Example of the risk type relevant to DSM: Due to changes in consumer preferences, the dairy market is moving into plant-based alternatives like soy milk. This could impact the demand for our dairy enzymes and cultures. DSM is mitigating the risk by diversifying our portfolio towards plant-based dairy alternatives, offering solutions to tailor the taste and texture of these products, e.g. with our Delvo® Plant portfolio of enzymes</p>
Reputation	Relevant, always included	<p>Although considered unlikely, DSM considers the risk of reputation loss due to the potential gap between our communication and commitments made externally, compared to the actual or perceived ESG performance.</p> <p>(i) Example of the risk type relevant to DSM: DSM is a globally active, purpose-led company that is very vocal on climate change related issues and as such exposed to risks if DSM fails (or is perceived to fail) to deliver sufficiently on its climate change expectations, such as our proportional contribution to meet the Paris Agreement goals (our Science Based emissions reduction Targets).</p> <p>We are taking several steps to mitigate this risk.</p> <ol style="list-style-type: none"> 1. It is crucial to deliver against any targets and commitments we make. For this purpose, we have several dedicated programs in place to address both operational emissions and value chain emissions, ensuring annual emissions reductions are in line with our science-based targets 2. We monitor the level of our targets to ensure they are considered ambitious enough and regularly update them (in 2021 and 2022) 3. We perform risk assessments on physical and transition climate risks and act upon them 4. DSM has an Issue Management System in place that helps it track, monitor and engage on any perception that could negatively influence the company's reputation
Acute physical	Relevant, always included	<p>As an essential complement to our efforts to cut emissions, we also apply an integrated strategy of climate adaptation measures. For example, we conducted a risk assessment of our top 30 sites. Three acute risks were included (flooding, wildfire, cyclones), three time horizons (present, 2030 and 2050) and 3 scenarios (1.5°C, 2°C, and 3-4°C).</p> <p>(i) Example of the risk type relevant to DSM: The results of the physical risks assessment indicates that of the assessed acute physical hazards, flooding could potentially cause major business disruption, due to damage to equipment, interruptions in feedstock or utility supply, and limitations in site accessibility. Different mitigation measures (e.g. flood barriers) have already been put in place, either by DSM or municipality/governments.</p>
Chronic physical	Relevant, always included	<p>As an essential complement to our efforts to cut emissions, we also apply an integrated strategy of climate adaptation measures. For example, to improve the resilience of our assets and supply chains against potential physical impacts of climate change, we apply scenario analysis to assess our physical risks for our top 30 sites. Two chronic risks were included (extreme heat, water scarcity), three time horizons (present, 2030 and 2050) and 3 scenarios (1.5°C, 2°C, and 3-4°C).</p> <p>(i) Example of the risk type relevant to DSM is water scarcity (the ratio of total water withdrawals to total water renewable supply in a given area as DSM's sites require fresh water for manufacturing, and use water for cooling). Increased temperatures could reduce cooling capacity in summer by limitations on water intake (physically or by authorities) leading to reduced production capacity. The short-term/medium-term risk is managed via the Water Risk Assessments that have been ongoing for a few years now and have resulted in water reduction measures in several sites. The long-term focus was added for the 30 material sites via the scenario analysis that was completed.</p>

C2.3

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

Yes

C2.3a

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

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation	Carbon pricing mechanisms
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Primary potential financial impact

Increased direct costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

As a result to the Paris COP21 agreement, governments around the world are focusing increasingly on the environmental footprint of their domestic industries. While we strongly support the development of carbon pricing schemes, the risks deriving from uncertainty from developments in existing carbon pricing schemes (e.g. EU ETS) and emerging new cap & trade or carbon tax systems in other jurisdictions are closely monitored as these could result in increased operating costs.

i) DSM operations cover 100+ sites and offices in more than 40 countries. Emerging and developing carbon pricing (either cap&trade or carbon tax) mechanisms are likely to affect DSM's cost base directly (eg. in EU, Switzerland, UK, and China) as a result of having to purchase emissions allowances at higher price or indirectly through costs passed through from energy providers (DSM is fairly energy intensive), or from raw material suppliers (some feedstocks used have high upstream carbon footprint). DSM operating sites subjected to current carbon price schemes are in Europe (Netherlands, UK, France, Germany, Switzerland). In the EU there is a certain level of uncertainty of the future design of EU ETS (with uncertainty itself considered a risk), but main impacts for DSM sites likely to be affected, Dalry (UK ETS), Village Neuf, Delft, Grenzach, Lalden, Emmen, Geleen (EU ETS) and Sisseln (Swiss/EU ETS) are expected in the form of increased price of allowances, and/or lower the amount of free allowances granted or country specific carbon pricing schemes on top of the ETS systems. For example, DSM's site in Dalry, Scotland is the only western production site for Vitamin C. Major changes to production cost resulting from carbon pricing could play also a role for the competitiveness of the production against other regions, although DSM view still is that carbon price is only one of many competitiveness factors.

In the other parts of the world, new carbon pricing policies also covering DSM industry sector are planned or under implementation, such as in China (DSM has currently 20 manufacturing sites in China). Direct impacts are likely to result in increased operating costs and compliance costs from monitoring, reporting and verification (to a limited extend). Other regions in the globe are also working on carbon pricing mechanisms, such as North America and South America (i.e. Brazil), where DSM also has operations

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

33000000

Potential financial impact figure – maximum (currency)

120000000

Explanation of financial impact figure

ii) The potential annual financial impact can range from €33 million - €120 million annually depending on the magnitude of changes/increase of carbon prices across jurisdictions and complementary policy measures. In 2021 the price per ton of CO₂ has more than doubled in EU, Switzerland and UK. However, it remained low in other jurisdictions. Although free allowances significantly reduced in 2021 in EU, Switzerland and UK, the ETS design in other regions seem to contemplate a significant portion of free allowances. As part of our regular monitoring, short-medium and longer-term pricing scenarios are drawn. For example, for 2025 we would expect carbon liability of €20-25 million but in 2050-2030 timeframe the range estimate spreads broadly due to uncertainties in revisions of carbon pricing schemes.

The lower end for the potential financial impact is based on the following internal assumptions:

- 1) sites expected to be subject to an ETS
- 2) a carbon price of around €100/tCO₂e in 2025 in Europe/UK
- 3) reduced quantities of free allowances,
- 4) Estimated emissions for sites in scope, covering business growth and GHG reduction roadmaps.

On top of above, the potential financial impact figure foresees a possibly accelerated reduction of free allowances in EU, Switzerland and UK (zero free allowances by 2030), which could result from measures derived by current EU proposal of Carbon Border Adjustment Mechanism (CBAM).

The higher end for the potential financial impact figure has been calculated for illustrative purposes. For the example, with a price of €100/tCO₂e, the level of our Internal shadow Carbon Price, we would be liable for our current Scope 1 emissions approximately €62 million (620 kt CO₂e * €100/tCO₂e), assuming no free allowances are available, and all our global operations are subject to some form of ETS. In addition, we could reasonably expect costs to be passed onto us related to our scope 2 market based emissions. This would amount to an additional approximately €60 million (600 kt CO₂e * €100/tCO₂e), subject to the same assumptions as above. This brings the total to approximately €120 million. Due to the uncertainty around scope 3 emissions, these have not been accounted for in this calculation.

The risk level is also naturally depending on the speed by which DSM is able to reduce the actual emissions; our current GHG target is to reduce Scope 1 and 2 emissions in absolute terms with 50% by 2030 which will impact on the above calculations

Cost of response to risk

21500000

Description of response and explanation of cost calculation

iii) Firstly, DSM's total exposure will be reduced through the implementation of our GHG reduction targets (for direct operations 50% reduction in absolute terms by 2030 from 2016), and our net-zero roadmap. Since 2019, business growth projects must either be GHG-neutral or else be compensated for within the same business. GHG reductions are supported by Corporate targets for Energy Efficiency and 100% renewable electricity. These targets are part of the Long-Term Incentives of the Managing Board and are included in the personal targets of all executives in the company.

Secondly, changes to carbon pricing systems worldwide are closely monitored. Site managers, with Global Sourcing monitor on frequent basis the resulted emissions, free allowances, purchased allowances, forecasting of developments and the total cost resulted. DSM also uses Internal Carbon Pricing (globally) to already stress test and ensure any new investments are viable event with developing regulatory environment. Internal carbon price of €100/t CO2e is always applied in large investments and reported in the P&L of the businesses of DSM.

A case study where DSM's internal carbon pricing scheme has been a supporting driver for an emissions reduction investment is the biomass project in Switzerland, which was an opportunity to renew an old installation with limited investments in a cost neutral way. While the Swiss ETS prices at the time were not sufficiently high to fully support the business case, we applied our internal carbon price (€ 50/mt CO2e at time of investment) to prepare for future carbon prices. Timescale: Project reached full year capacity in 2020 and has been successfully running for over 2 years now, realizing a total of 46kt CO2e annual reduction of emissions for DSM.

iv) Explanation of cost : The estimated costs are ~€21.5 million/year, comprising from GHG reduction investment budget (20 000 000), and the FTEs (1 500 000) required to manage the GHG program and to monitor longer-term developments. An annual investment budget of €20-25 million is available for the GHG reduction program's 30-40 projects annually depending on the availability and feasibility of projects with low-end figure €20 million used for illustrative purposes. The FTE costs are estimated at an annual €1 million for FTEs from 18 sites where significant time is dedicated to the program , and €0.5 million from other functions, such as sourcing and sustainability, supporting the delivery and monitoring.

Comment

DSM is also in favor of the expansion and linking of carbon pricing systems as a way to improve the long-term certainty of the policy environment, and visibly advocating for the topic using various platforms to engage with key stakeholders and policymakers.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Chronic physical	Precipitation and/or hydrological variability
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Primary potential financial impact

Decreased revenues due to reduced production capacity

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

i) DSM applies a methodology to assess long-term physical risks in a systematic way using scenario analysis, with an initial focus on the top 30 main operating sites. The hazard assessment was undertaken considering the extent of (1) the existing hazard at the sites and (2) the future hazard at the 2030 and 2050 timeframes. The assessment was conducted for three future scenarios, the IPCC 'RCP 2.6' comparable to a "global 1.5 degrees warming by 2100" scenario; the IPCC 'RCP 4.5' comparable to a "global 2 degrees warming by 2100" scenario and to WRI Optimistic Scenario; and the IPCC 'RCP 8.5' comparable to a "global 4 degrees warming by 2100" scenario, i.e. business as usual scenario and WRI Pessimistic Scenario. The site locations assessed span across Europe (14 sites), China (4 sites), North America (9 sites) and South America (3 sites). One of the chronic hazards assessed was water scarcity (the ratio of total water withdrawals to total water renewable supply in a given areas). DSM's sites require fresh water for manufacturing, and use water for cooling, with limitations on water intake (physically or by authorities) could lead to reduced production capacity. The results of the assessment indicates that from the assessed chronic hazards water scarcity could have significant potential financial impact within the medium-term, i.e. 2030 time-frame.

Three of the DSM high-impact sites are identified as being in already in a water scarce/stressed areas. These include our sites in Belgium, France and Peru. In these sites, the risk of water scarcity in all 3 assessed scenarios (RCP 2.6, RCP 4.5 and RCP 8.5) in the 2030 time-frame is stable with measures already taken to mitigate the risk. Three additional key sites (one in Netherlands, two in China) show significantly increased risk of water scarcity in both RCP 4.5 and RCP 8.5 scenarios by 2030.

Time horizon

Long-term

Likelihood

Likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

40000000

Potential financial impact figure – maximum (currency)

100000000

Explanation of financial impact figure

ii) The financial impact are indicative numbers based on the first high-level assessments. Potential financial loss due to water scarcity are based on the three additional key sites showing significantly increased risk of water scarcity in both RCP 4.5 and RCP 8.5 scenarios. The losses are calculated based on a potential production capacity reduction of between 10 and 25 percent due to the non-availability of water (either water is not available, or use is restricted by governments), resulting in an impact on contribution margin of between €40 and 100 million.

Cost of response to risk

30000000

Description of response and explanation of cost calculation

iii) Water management is integral to our risk mitigation and environmental impact reduction strategies. We believe that water risks are local by nature. As such, we focus on local water risk assessments and thorough follow-up. Water risk assessments have been completed at 100% of our material water sites. For the major sites, in-depth water audits are conducted to tailor local management methods. These include improvements to reduce water consumption (such as cooling equipment to reduce water use),

diversify sources of water, and close monitoring of the evolution of the local regulation and other users.

Case study: The water risk assessment performed for site in Pune (India) indicated that the site could experience water shortages due to external infrastructure limitations and regulatory requirements, which would be further exacerbated by drought. A water stream mapping identified several responses that would lead to improvements:

- (1) the installation of an Effluent Treatment Plant, Effluent Storage tank and a new Process Vacuum Pump on-site enabled the treatment and storage of effluent for reuse
- (2) a new cooling tower fan automation was installed to reduce evaporation losses
- (3) extensive education campaigns to instill a Zero Leakage culture

Timescale: Water consumption was reduced in 10 years (2009-2019), from above 5 m³/ton to significantly below 1 m³/ton, reducing potential long-term risks relating to water and climate change. We estimate the total cost of these measures at €5-10 million. The cost of the measures were economically feasible with a short pay back time and spanned across several years.

iv) Cost to respond is site specific and the cost calculations are indicative only. Of the 6 at-risk major sites (3 current and risk of increase, 3 potential), all have taken significant steps to reduce water consumption with further assessment ongoing. Based on the case study in Pune (with similar measures taken at other sites) we know that water consumption reduction measures can be done cost effectively, and often with reduced energy costs and CO₂ emissions. For illustrative purposes, the cost of response is calculated by multiplying the high-end cost of management measures (of the example actions 1-3 listed above in the Pune case study at €10 million) for 3 DSM sites with emerging potential water scarcity risks (€10m x 3 = €30 million).

Comment

C2.4

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

Yes

C2.4a

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

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Use of more efficient production and distribution processes

Primary potential financial impact

Reduced direct costs

Company-specific description

i) DSM's total energy consumption in 2021 was 5,618,100 MWh. DSM has a dedicated Energy Efficiency program to help reduce emissions and energy costs within DMS's GHG reduction program umbrella ("Target 30"), which is ensuring the delivery against our Science Based Targets (-50% Scope 1 and 2 emissions by 2030 in absolute terms). This results in cost savings as it reduces our energy consumption. In addition, it will reduce (existing or future) liabilities for sites subjected to carbon pricing schemes, further reducing our operating costs.

In this program, emissions reduction roadmaps for short, medium and long-term, are developed for our (20+) major sites globally, with recent years increased focus in China. In the program we use both a vertical (bottom-up) approach as well as a horizontal approach to map new process innovations and which sites would most benefit from these (e.g. best available and replicable technologies on MRV, heat pumps, membranes and biogas). A large part of the initiatives proposed annually in the roadmaps are energy-efficiency related. Projects under this DSM program include improvements of steam and hot oil systems (such as leakage repairs, condensate return, heat recovery on furnaces and insulation), replacement of steam-driven chillers by electricity (partially renewable), replacement of low-efficiency chillers, and increasing the efficiency of our compressed air and nitrogen systems at various locations through leakages repair and equipment upgrades. Some new instalments could in the future also benefit from regional investment support, accelerating the implementation and leading up to operational cost savings in addition to GHG reductions.

The program has a dedicated annual investment budget of €20 - 25 million. In 2021, there were over 50 initiatives under the program either implemented or ongoing resulting in CO₂ savings

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

16000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

ii) The financial impact figure represents approximate annual saving of approximately 16 million EUR with 50 million EUR investment over the course of 3 years (2019-2021). The financial impact estimate represents those DSM projects that are centrally funded under the Energy Efficiency Program running until 2030.

The financial impact estimate is related to those DSM projects that are centrally funded under the Energy Efficiency Program running until 2030. In 2021, there were over 50 either implemented or ongoing projects resulting at CO2 savings through increase efficiency under the Program. The current improvement projects have high overall Internal Rate of Return, for most estimated at approximately 30%, calculated from the 2019 investment figures, with an average payback time of less than 3 years (ranging from about one year to more than 10 years). Detailed statements on the exact financial implications cannot be made for business sensitive reasons.

Cost to realize opportunity

50000000

Strategy to realize opportunity and explanation of cost calculation

iv) Explanation of cost calculation: The 50 million EUR is the overall CAPEX budget allocated to DSM's GHG/Energy Efficiency program over the period 2019-2021 to help reduce emissions and energy costs. The dedicated annual investment budget includes projects on process optimization, machine replacement and heat recovery as well as HVAC and solar installations. The Energy Efficiency Investment project funds approximately 30-40 projects annually with investment costs varying significantly from under a hundred thousand to few million euros per project. The focus is on finding new opportunities with a high financial benefit and attractive payback period (on average 3 years), targeting at least a 20 million EUR/yr CAPEX. For example, in 2021, this program received almost 80 submissions, of which 50 projects meet the investment criteria or warrant further investigation. If all of these projects are successfully implemented, the total required CAPEX in 2022 amounts to approx. 25 million EUR.

Timescale: 2019-2021. For illustrative purposes, the overall program budget allocation over the period 2019-2021 is matched with the financial impact explanation above for the selected years of projects implemented between 2019-2021. The GHG program is ongoing (supporting the realization of DSM's Science Based Targets -50% Scope 1 and 2 emissions by 2030 in absolute terms.)

iii) Case study: One of the projects implemented and completed within the program in 2021 (i.e. within the timescale 2019-2021) is a process optimization in Jiangshan, China, where a pre-concentration step, using a nano-filtration membrane, was installed upstream of an evaporative water removal step from an intermediate product. The newly added membrane unit reduces the amount of energy used for the water evaporation considerably, hence reducing the GHG emission by approximately 3,800 tons CO2e per year, and resulting in associated annual savings of approximately €260,000.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

i) DSM Animal Nutrition & Health (ANH) is a business representing 3,502 million of net sales in 2021. This business provides nutritional solutions for sustainable animal farming through precision nutrition and feed. The ANH business is strategically focused around 6 sustainability platforms that are aligned with the UN's Sustainable Development Goals 2, 3, 12, 13 (Climate Action), and 14, that address the major challenges facing the animal farming industry, including reducing emissions from livestock.

Animal farming accounts for an estimated 14.5% of all human-derived GHG emissions globally which is set to rise as demand for animal-based foods increases. These emissions relate to animal feed, followed by methane naturally produced by ruminants, and manure. DSM has multiple nutritional solutions that target livestock emissions, such as Bovaer® (reduces methane emissions from ruminants by at least 30%), and feed enzymes such as ProAct (improves protein feed utilization in poultry and reduces nitrogen emissions to the environment).

Developments in biosciences and the broad adoption of digital solutions and data-based outcomes is becoming a rapidly emerging business area for ANH and is opening new opportunities for innovation-based growth via our Precision & Personalization business model. We expect increased revenues from developing these types of low emissions products, as well as from the development of Sustell™, our new intelligent sustainability service that drives improvements in the environmental footprint & profitability of animal protein production by being end-market focused and providing case-specific and precision solutions for our customers (animal farming companies and the associated value chain) so that they can make tangible improvements down to the individual farm level.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

50000000

Potential financial impact figure – maximum (currency)

100000000

Explanation of financial impact figure

ii) DSM's Nutrition & Health business is built on a 'global products, local solutions' business model, which focuses on our global products and innovation portfolio applied to the local customers' farming conditions coupled with our solution-selling capabilities that are end-market-focused according to the particular segments. In addition, developments in biosciences and the broad adoption of digital solutions and data-based outcomes is becoming a rapidly emerging business area for ANH and is opening

new opportunities for innovation-based growth via our Precision & Personalization business model. The launch of Sustell™ to drive improvements in the environmental footprint and profitability of animal protein production at the farm-level (using actual farm and feed data) is a key driver and enabler towards this Precision & Personalization business model and DSM's organic growth ambitions of mid-single-digit sales growth, as well as the six ANH sustainability business drivers (one of which is to Reduce Emissions from Livestock).

We have calculated the estimated financial impact range by positioning Sustell™ as a new precision service that is an integral part of ANH's growth strategy, particularly with respect to Precision Nutrition and the need for greater sustainability in the animal protein food chain. Sustell™ is one of several key enablers for DSM to achieve its strategic organic growth ambitions. We have assumed that Sustell™ will accelerate and increase the sales of our sustainable animal farming solutions. With DSM achieving its mid-single-digit organic growth ambitions, we estimate the contribution of Sustell™ at €50-100m. Calculation for illustrative purposes: assuming 4% and 7% organic growth for the minimum and maximum, and assuming that Sustell™ impacts approximately 35-40% of ANH sales, this would come to 4%*35%*€3,502m = ~€50m and 7%*40%*€3,502m = ~€100m.

Cost to realize opportunity
10000000

Strategy to realize opportunity and explanation of cost calculation

iii) Case study: Developed in 2020 & rolled out in 2021, Sustell™ is an intelligent sustainability service to drive improvements in the environmental footprint & profitability of animal protein production, and is a strategic opportunity for DSM's Nutrition & Health business' 'global products, local solutions' business model. Sustell™ was developed in partnership with Blonk, an independent expert in Life Cycle Analysis (LCA) & sustainability in food & agriculture. We partner with farmers, assessing the baseline environmental footprint of their animal production using actual farm and feed data rather than industry averages and proxy data sets, & developing case-specific intervention scenarios to make measurable sustainability improvements.

Sustell™ analyses 19 environmental categories including climate change, & corresponds to impact assessment method Environmental Footprint 2.0, providing global recognition for the results. Animal farming companies and the associated value chain have, for the 1st time a solution to measure, compare & improve the sustainability of animal protein production through accurate measurement down to the individual farm, and to then make tangible improvements to the impact categories measured.

Some cases where Sustell has been used to address our customers' (animal protein companies) varied & highly nuanced questions, thus adding value for the customer and DSM:

- customers who have been pushed by ESG investors and food retailers to become more sustainable & report their progress accordingly;
- customers requiring sustainability plans & footprinting to secure financing, as well as to add value to their brands;
- customers requiring footprint documentation to unlock national government carbon credits or tax incentives for more sustainable animal production.

Timescale: 2020-2021

iv) Explanation of cost calculation: cost breakdown created here for illustrative purposes consists here mainly of (1) internal resources, e.g., time from a dedicated (FTE) senior position on sustainability in ANH & support from other functions, e.g., DSM experts for the 'Expert Center' (2) partnering with 3rd party experts to build the IT system connected to the Blonk APS-footprint tool, (3) partnering with Blonk to further develop the APS-footprint tool, (4) Marketing : creating tangible tools & marketing support to engage with customers, (5) Cost associated with training & educating employees (sales & marketing).

Comment

C3. Business Strategy

C3.1

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

Row 1

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

Publicly available transition plan
Yes

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

Description of feedback mechanism
In DSM's annual public disclosures, such as IAR, DSM transparently shares its strategic plans, key indicators and actions taken to align DSM's operations and business model with the transition to global net-zero economy by 2050.

DSM presents our business strategy during Investor Days and at the AGM, which includes our emissions reduction targets and our roadmaps, as well as our remuneration policy, which has a clear link to emissions reduction (greenhouse gas reduction, energy efficiency and renewable electricity).

DSM does not intend to present a separate low-carbon transition plan as a separate resolution item to the AGM as we have an integral approach toward Triple P, as for us these go hand in hand - Our People and Planet goals are an integral part of our business strategy, contributing to the Profit dimension. We don't believe it would be fitting for DSM to single out climate for the AGM. Sustainability is part of our strategy, it contributes to the success of that strategy and is at the core of how we've executed that strategy, and as such, it is fully reflected in the annual results that shareholders get to vote on.

Furthermore, DSM regularly discusses our transition plan bilaterally with investors and NGO's. As an example, recently DSM engaged with Friends of the Earth Netherlands (FEN) and NewClimateInstitute to present elements of our transition plan

Frequency of feedback collection
More frequently than annually

Attach any relevant documents which detail your transition plan (optional)

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

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

C3.2

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

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

C3.2a

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

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios RCP 2.6	Facility	<Not Applicable>	Scenario analysis is an iterative process at DSM. The systematic process was started in 2020, when we performed a desk study on physical risks for our key sites that could lead to material financial impact in case of a prolonged shutdown. We mapped five emerging hazards (flooding, cyclones, wildfire, extreme heat, and water scarcity) against three IPCC climate temperature scenarios (RCP 2.6, RCP 4.5, and RCP 8.5), using three different time horizons (present, 2030, and 2040/2050). These scenarios were supplemented with additional data from example from Aqueduct (from WRI) and Climate Knowledge Portal (from the World Bank). In 2021, the results from that study were validated with these sites in order to understand our risk exposure and resilience taking into account local circumstances and existing mitigations. The validations demonstrated that we already have mitigations in place for several of the risks identified through the desk study. We have concluded that water scarcity is the most material risk and needs to be actively monitored and managed. All sites with an increased water risk profile were already in scope of our water stewardship program.
Physical climate scenarios RCP 4.5	Facility	<Not Applicable>	Scenario analysis is an iterative process at DSM. The systematic process was started in 2020, when we performed a desk study on physical risks for our key sites that could lead to material financial impact in case of a prolonged shutdown. We mapped five emerging hazards (flooding, cyclones, wildfire, extreme heat, and water scarcity) against three IPCC climate temperature scenarios (RCP 2.6, RCP 4.5, and RCP 8.5), using three different time horizons (present, 2030, and 2040/2050). These scenarios were supplemented with additional data from example from Aqueduct (from WRI) and Climate Knowledge Portal (from the World Bank). In 2021, the results from that study were validated with these sites in order to understand our risk exposure and resilience taking into account local circumstances and existing mitigations. The validations demonstrated that we already have mitigations in place for several of the risks identified through the desk study. We have concluded that water scarcity is the most material risk and needs to be actively monitored and managed. All sites with an increased water risk profile were already in scope of our water stewardship program.
Physical climate scenarios RCP 8.5	Facility	<Not Applicable>	Scenario analysis is an iterative process at DSM. The systematic process was started in 2020, when we performed a desk study on physical risks for our key sites that could lead to material financial impact in case of a prolonged shutdown. We mapped five emerging hazards (flooding, cyclones, wildfire, extreme heat, and water scarcity) against three IPCC climate temperature scenarios (RCP 2.6, RCP 4.5, and RCP 8.5), using three different time horizons (present, 2030, and 2040/2050). These scenarios were supplemented with additional data from example from Aqueduct (from WRI) and Climate Knowledge Portal (from the World Bank). In 2021, the results from that study were validated with these sites in order to understand our risk exposure and resilience taking into account local circumstances and existing mitigations. The validations demonstrated that we already have mitigations in place for several of the risks identified through the desk study. We have concluded that water scarcity is the most material risk and needs to be actively monitored and managed. All sites with an increased water risk profile were already in scope of our water stewardship program.
Physical climate scenarios Customized publicly available physical scenario	Facility	3.1°C - 4°C	Scenario analysis is an iterative process at DSM. The systematic process was started in 2020, when we performed a desk study on physical risks for our key sites that could lead to material financial impact in case of a prolonged shutdown. We mapped five emerging hazards (flooding, cyclones, wildfire, extreme heat, and water scarcity) against three IPCC climate temperature scenarios (RCP 2.6, RCP 4.5, and RCP 8.5), using three different time horizons (present, 2030, and 2040/2050). These scenarios were supplemented with additional data from example from Aqueduct (from WRI) and Climate Knowledge Portal (from the World Bank). In 2021, the results from that study were validated with these sites in order to understand our risk exposure and resilience taking into account local circumstances and existing mitigations. The validations demonstrated that we already have mitigations in place for several of the risks identified through the desk study. We have concluded that water scarcity is the most material risk and needs to be actively monitored and managed. All sites with an increased water risk profile were already in scope of our water stewardship program.
Transition scenarios IEA NZE 2050	Business division	<Not Applicable>	Scenario analysis is an iterative process at DSM. In parallel to physical risk assessment, we piloted a transition risk assessment approach in two different businesses, one from the Materials cluster and one from the Nutrition cluster, covering more than a third of total sales. Using external data sources, such as International Energy Agency – World Energy Outlook (NZE2050 and 2DS), World Bank, and sector-specific sources such as the FAIRR initiative, we built forward-looking scenarios aligned with the IPCC temperature models and time horizons used for the physical risk assessments (RCP 2.6, RCP 4.5, and RCP 8.5 and using three different time horizons (present, 2030, and 2040/2050). Key assumptions included in the analysis were for example, population/GDP growth, GHG pricing, certain commodity prices, consumption and dietary shifts and innovation/technology developments. In the scenarios, Shared Socioeconomic Pathways (SSP) 1, 2 and 3 were used. Scenarios are evolving depending on external data availability and by adding parameters relevant for the businesses under review. Through the assessments both risks and opportunities are captured. The scope is not limited to our own operations but includes the full value chain impact on our business.
Transition scenarios IEA 2DS	Business division	<Not Applicable>	Scenario analysis is an iterative process at DSM. In parallel to physical risk assessment, we piloted a transition risk assessment approach in two different businesses, one from the Materials cluster and one from the Nutrition cluster, covering more than a third of total sales. Using external data sources, such as International Energy Agency – World Energy Outlook (NZE2050 and 2DS), World Bank, and sector-specific sources such as the FAIRR initiative, we built forward-looking scenarios aligned with the IPCC temperature models and time horizons used for the physical risk assessments (RCP 2.6, RCP 4.5, and RCP 8.5 and using three different time horizons (present, 2030, and 2040/2050). Key assumptions included in the analysis were for example, population/GDP growth, GHG pricing, certain commodity prices, consumption and dietary shifts and innovation/technology developments. In the scenarios, Shared Socioeconomic Pathways (SSP) 1, 2 and 3 were used. Scenarios are evolving depending on external data availability and by adding parameters relevant for the businesses under review. Through the assessments both risks and opportunities are captured. The scope is not limited to our own operations but includes the full value chain impact on our business.
Transition scenarios Bespoke transition scenario	Business division	3.1°C - 4°C	Scenario analysis is an iterative process at DSM. In parallel to physical risk assessment, we piloted a transition risk assessment approach in two different businesses, one from the Materials cluster and one from the Nutrition cluster, covering more than a third of total sales. Using external data sources, such as International Energy Agency – World Energy Outlook (NZE2050 and 2DS), World Bank, and sector-specific sources such as the FAIRR initiative, we built forward-looking scenarios aligned with the IPCC temperature models and time horizons used for the physical risk assessments (RCP 2.6, RCP 4.5, and RCP 8.5 and using three different time horizons (present, 2030, and 2040/2050). Key assumptions included in the analysis were for example, population/GDP growth, GHG pricing, certain commodity prices, consumption and dietary shifts and innovation/technology developments. In the scenarios, Shared Socioeconomic Pathways (SSP) 1, 2 and 3 were used. Scenarios are evolving depending on external data availability and by adding parameters relevant for the businesses under review. Through the assessments both risks and opportunities are captured. The scope is not limited to our own operations but includes the full value chain impact on our business.

C3.2b

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

Row 1

Focal questions

The starting point for scenario analysis for DSM was to gain deeper understanding on the impacts of climate change on DSM. The purpose is to understand (i.e. the focal questions the process aims to answer):

- i) how the future could look like following a certain (temperature) pathway(s) and reaching a certain end-state(s)
- ii) what would be the implications for DSM business operations, supply chain and end-markets

The process also helps to formulate and respond to more detailed questions such as

- iii) when mitigating measures might be (most cost-effectively) taken
- iv) what variables are needed to support decision-making

The chosen scenarios, described in 2.3a were designed to provide us an overview of the plausible but sufficiently different pathways to capture implications of varying speeds of transformation. The hypothesis was that faster transition to net-zero economy would prompt greater changes to business models and slow transition leading to more prominent physical impacts (and resulting local regulations).

Refining the scenarios, including sources, assumptions and variables continues to be an iterative process. DSM is also part of a coalition within WBCSD working to develop a set of robust, consistent and regionally granular climate transition scenarios for land use in the food, agriculture and forest products sectors.

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

With respect to the focal questions used as the starting point for the analysis, the preparation process and mapping out potential scenarios is one of the tools supporting DSM key decision makers to gain deeper understanding of concrete and detrimental impacts of climate change under various temperature pathways, and in particular the complexity and interlinkages between physical and transition risks in the context of food systems (focal question i).

At this moment, no material short-term climate risks have been identified through specific climate risk assessments or regular risk assessments. Physical and transition risks are seen as emerging, with transition risks still expected to materialize this decade. Various climate-related opportunities are foreseen to have a meaningful contribution as well, such as methane reducing ruminant solution Bovaer® and Sustell™, an intelligent sustainability service to drive improvements in the environmental footprint & profitability of animal protein production (focal question ii). The material risks identified through the climate risk assessments were integrated and are managed as part of our regular risk management processes (focal question iii)

We will continue to expand and update our physical risk assessments for our own operations as well as the rest of our value chains. With the help of external parties, we are also exploring different approaches to assess vulnerabilities caused by climate change and increase our resilience. This will address both our own sites and our end-markets. Furthermore, we will roll out the transition risk assessments in the remaining businesses and continue to update our scenarios to reflect latest external insights (focal question iv).

C3.3

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

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>i) Sustainability is DSM's core value as well as a business driver and enables the company to provide higher-margin products and solutions. We enable our customers in their sustainability endeavors with our innovative solutions, and also see continued growth of demand for solutions that address sustainability challenges. We measure and develop these products through our Brighter Living Solutions program, which are products and services that have specific environmental or social benefits compared to mainstream reference solutions. These solutions now make up 64% of DSM's total sales and around 90% of the products in DSM's innovation pipeline are considered BLS.</p> <p>Our innovation pipeline is focused on three strategic domains: Nutrition & Health, Climate and Nature, and includes for example our Bovaer®, Veramaris®. These solutions are either already in the markets, or expected to be introduced to the market in the timeframe toward 2025. These enable customers to reduce their GHG emissions, are bio-based or in some cases circular and/or recycled-based/products. The climate related benefits of DSM products are either in the form of lower carbon footprint, or supporting our customers directly in climate mitigation or adaptation activities within their operations or further in the value in use phase ('Avoided emissions')</p> <p>ii) Case study of a major, sustainability-driven, innovation projects we have advanced well is Project Clean Cow (under the product name Bovaer®): Bovaer® is a feed additive for cows (and other ruminants, such as sheep, goats, and deer). It is the most extensively studied and scientifically proven solution to the challenge of burped methane from ruminants to date. This long-term opportunity was identified approximately 10 years ago, and since then, 42 on-farm beef and dairy trials have been conducted across the globe and in the context of various feeding systems, with regulatory approval in several markets such as Brazil and Europe received in 2021-2022 and expected in further markets going forward. The trials show that a reduction in enteric methane of approximately 30% can be consistently achieved for dairy cows and even higher percentages (up to 90%) for beef cows. Methane is extremely potent GHG responsible of a significant proportion of emissions from agriculture.</p>
Supply chain and/or value chain	Yes	<p>Supply-chain-related climate risks influence both availability of raw materials (due to flooding, extreme temperatures) and logistics routes. For example, DSM currently uses limited amounts of at-risk bio-based feedstocks. With future efforts to substantially increase the proportion of bio-based products in the portfolio, the sustainability of value chains and availability of raw materials is under review.</p> <p>DSM's Sustainable Procurement Program screens for potential risks in this area through assessments and audits, and value-chain mapping. Since 2015, DSM is a member of Together for Sustainability (TfS), which allows us to screen and address sustainability performance and risks for a high number of our suppliers. Assessments are conducted at supplier level through EcoVadis. DSM expects its suppliers to have a minimum score ("Engaged" score). If they receive a lower score they will require to go through a re-assessment or audit. In 2021, DSM assessed 411 suppliers of which 272 were re-assessments. Of the re-assessed suppliers, 65% received an improved sustainability score.</p> <p>In addition, DSM engages with its strategic suppliers through the CO2REDUCE program which aims to generate deeper insights into emissions profile and associated risk and opportunities of our supplier base.</p> <p>ii) Value-chain mapping is conducted based on our current and potential exposure to at-risk supply chains and feedstocks (as a contributor to, or impacted by climate change). For our bio-based feedstocks, DSM applies value chain screening of raw materials to palm oil and soy derivatives, sugar, fish oils and other at-risk primary raw materials. This includes mapping back to the country of origin of the primary feedstock to understand potential risks. The initial screening was completed in 2022 and is further refined by the end of 2022. With DSM's circular economy ambitions, including an increase in bio-based raw materials, our exposure to bio-based supply chains may increase in the coming years. While current exposure is limited, DSM is also working to ensure deforestation-free primary supply chains by 2030 at the latest via high-quality certification schemes. This target covers the Tier 1 supply chain for any of used deforestation-risk crops: palm-derivative products, sugarcane, and direct soy and corn products</p>
Investment in R&D	Yes	<p>i) We leverage our unique scientific technology capabilities to drive transition through R&D from two aspects:</p> <p>1) developing innovative sustainable solutions in our three interlinked growth domains. The climate-related benefits of our solutions take the form of lower carbon footprint, supporting our customers with climate mitigation or adaptation activities, or use-phase reductions ('Avoided emissions'). In 2020, innovation sales amounted to 20% of sales, in line with our aspiration of around 20%. We invest ~5% (4.7% in 2020) of sales in R&D to develop differentiating science and technology (with drivers including Climate Mitigation and Climate Adaptation potential). Furthermore, a strong and refocused innovation pipeline was created to enhance long-term growth including, for example, Bovaer®, Veramaris®</p> <p>2) our R&D is an integrated part of our GHG reduction roadmap process, both to meet our medium-term Science Based Targets, as well as meeting NetZero emissions by 2050. In particular, the long-term technology transition involves strong R&D efforts, as some of the processes and feedstocks will still need significant technological breakthroughs. Scaling up some of these innovations will also need significant investment and collaboration.</p> <p>ii) An example of a major collaborative R&D investment is the 'Collaborative Innovation for Low-Carbon Emitting Technologies' (LCET) initiative. It is the first CEO-led chemical industry coalition for the transformation toward a net-zero and circular future. LCET aims to accelerate the development and upscaling of low-carbon emitting technologies for chemical production and related value chains, with support from policy and financing enablers. We contribute man hours and funding (approx. €50k p.a. and separate for pilot facilities/projects) to the LCET initiative in two key activities:</p> <p>1) Contribution to phase two strategy plan for LCET toward formalization into a project development company for R&D and piloting projects (since 2021 and executed from mid 2022 onwards)</p> <p>2) Executing a study within the LCET biomass cluster on two flagship biomass processes, via ethanol to ethylene and derivatives, and via syngas to methanol and derivatives combined with CCU. There is significant greenhouse gas reduction potential, however financial solutions and policies are needed to make it economically favourable.</p>
Operations	Yes	<p>i) As described in question 2.2a DSM has identified risks that could have an impact on our direct operations, such as increased pricing of GHG emissions and other increased operating costs due to changes in local legislation.</p> <p>Most visible strategic response is DSM's commitment and early overperformance towards delivering our Science Based Targets, part of DSM's core strategy. Our SBT comprise a greenhouse gas (GHG) scope 1 + 2 emission absolute reduction of 50% and a GHG scope 3 intensity reduction of 28% by 2030 versus our 2016 baseline.</p> <p>Each year, DSM implements and commits to various investments projects with major positive impacts on DSM's GHG emissions in the short term and in the long term. Many of which are related to renewable energy and energy efficiency, but also to innovation and new business ventures. GHG emissions are addressed in all new business cases, and the use of Internal Carbon Pricing was instrumental to integrate GHG emissions into long-term investment decisions. DSM's Internal Carbon Price (ICP) of €100/ton CO2e saving is included in the NPV of several projects.</p> <p>ii) Case study example: Replacing fossil-fuel-based energy production on site with purchased renewable energy results in significant emissions reductions -The biomass project in Switzerland completed its first full year of operations in 2020. This plant was needed to replace the site's former natural gas-fired cogeneration plant. The business case for a new co-gen plant was presented including and excluding the internal carbon price. The application of the internal carbon price in the business case for this was instrumental in the decision to choose for a biomass heat and power plant. The plant delivered approximately 50 kt CO2eq reduction as of 2020.</p>

C3.4

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Capital expenditures Access to capital	<p>Capital expenditures:</p> <p>Since 2017, we have installed a dedicated, earmarked annual investment budget from capital investments to support those emissions reduction projects that have a longer payback period than typical business projects, currently at approximately €20-25m p.a.</p> <p>DSM's Science Based GHG target for Scope 1 and 2 emission is an absolute reduction of 50% of GHG emissions in 2030. To deliver on this target a program is put in place to identify, prioritize and manage GHG reduction projects. A long-term forecast is made of the total investment amount needed to realize the GHG reduction projects. This forecast is continuously being updated using new information becoming available and this forecast is included in the multi-year cash flow planning of the company.</p> <p>Furthermore, we require all business growth projects to be carbon neutral, or else compensated for in the same business. In 2016 DSM also introduced an internal carbon price (ICP) on all large investments. It serves as a useful model for redirecting and scaling up investments towards low-carbon technologies and driving operational efficiencies. At DSM, using an internal carbon price incorporates the cost of GHG emissions decision-making processes requiring significant capital expenditure; in the business case of the project this carbon penalty has to be included as a cash outflow. In 2021, €100 per ton CO2 equivalents was applied (increased to €100 from €50 in 2021). The effectiveness of application and price level will be periodically reviewed and updated. We apply the ICP in all key investments, acquisitions and in our internal management reporting.</p> <p>In 2021, there were approx. 25 energy efficiency projects under the capital expenditures program. An example of where the internal carbon price has had an effect include the priority setting of energy efficiency improvement projects vs other projects. In the selection and priority setting of projects to be funded out of this special budget business cases are used, which include positive cash flows from internal carbon pricing of avoided emissions.</p> <p>Access to capital: DSM has concluded a €1 billion Revolving Credit Facility that links the interest rate of this Facility to DSM's Greenhouse Gas (GHG) emission reduction. The deal was concluded with a syndicate of 15 banks and replaces two existing Revolving Credit Facilities of in total €1 billion, maturing in 2018 and 2020. To underline its commitment to tackling climate change, DSM has linked the interest rate of this Facility to its performance on the reduction of GHG emissions, consisting of three performance improvement elements: cumulative GHG efficiency improvement, improving the Energy Efficiency Index (EEI) and increasing the electricity sourced from renewable resources. The €1 billion Revolving Credit Facility underpins DSM's strong liquidity profile, and is intended for general business purposes. The Facility has a maturity of five years which may be extended by a further two years</p>

C3.5

(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

C3.5a

(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization's transition to a 1.5°C world.

Financial Metric

CAPEX

Percentage share of selected financial metric aligned with a 1.5°C world in the reporting year (%)

4

Percentage share of selected financial metric planned to align with a 1.5°C world in 2025 (%)

5

Percentage share of selected financial metric planned to align with a 1.5°C world in 2030 (%)

5

Describe the methodology used to identify spending/revenue that is aligned with a 1.5°C world

Since 2017, a dedicated, earmarked annual investment budget for capital investments has been installed in DSM's GHG reduction program to support those emissions reduction projects that have a longer payback period than typical business projects, currently at approximately €20-25m p.a. In addition, there are several other emissions reduction projects funded from the CAPEX budget of DSM Business Units. Please note the % are highly indicative and conservative from total DSM investments with only the specific GHG reduction program investments included. The estimated investment budgets are expected to remain fairly constant, although an average has been used to estimate the budget for 3+ years budget as the investment plans are refined at annually.

C4. Targets and performance

C4.1

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

Absolute target

Intensity target

C4.1a

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

Target reference number

Abs 1

Year target was set

2018

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

<Not Applicable>

Base year

2016

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

1045800

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

616200

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

<Not Applicable>

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

1662000

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

100

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

100

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

<Not Applicable>

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

100

Target year

2030

Targeted reduction from base year (%)

50

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

831000

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

613300

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

591700

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

<Not Applicable>

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

1210000

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

54.3922984356197

Target status in reporting year

Underway

Is this a science-based target?

Yes, and this target has been approved by the Science Based Targets initiative

Target ambition

Well-below 2°C aligned

Please explain target coverage and identify any exclusions

DSM's Scope 1 + 2 target is a 50% absolute reduction by 2030 versus 2016.

In 2021, DSM increased its GHG emissions reductions target for scope 1+2 for 2030, moving from a target level of 30% to 50% absolute reduction by 2030 (versus 2016 baseline). The update brings DSM in line with the well-below 2°C trajectory, building on the good reduction progress so far. In 2021, baseline GHG emissions figure of 2016 (1.50 million tons CO2eq) was increased to 1.66 million tons CO2eq, due to the inclusion of 14 acquired sites in our reporting scope for the period 2017–2021, the divestment of Resins and Functional Materials and associated businesses (pro-rata), and the impact of methodology changes. Four newly built sites were also added to the reporting scope, however as they were constructed after 2016, have no impact on the baseline correction.

Plan for achieving target, and progress made to the end of the reporting year

The absolute reduction in scope 1 + 2 GHG emissions was 27% compared to the corrected baseline of 2016. We estimate that of the 27% absolute reduction in scope 1 + 2

GHG emissions compared to baseline 2016, 23% is due to structural improvements. This is due to projects in our greenhouse gas reduction program, ranging from relatively easy-to-implement modifications in operations, such as improving the insulation around hot parts, to installing advanced energy metering systems, up to the installation of best available technologies (for example, heating and cooling equipment). Significant year-on-year GHG reduction at our existing sites compensated for the expected GHG increase from inorganic growth

List the emissions reduction initiatives which contributed most to achieving this target

<Not Applicable>

Target reference number

Abs 2

Year target was set

2022

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

<Not Applicable>

Base year

2016

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

1045800

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

616200

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

<Not Applicable>

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

1662000

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

100

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

100

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

<Not Applicable>

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

100

Target year

2030

Targeted reduction from base year (%)

59

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

681420

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

613300

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

591700

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

<Not Applicable>

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

1210000

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

46.0951681657794

Target status in reporting year

Revised

Is this a science-based target?

Yes, we consider this a science-based target, and the target is currently being reviewed by the Science Based Targets initiative

Target ambition

1.5°C aligned

Please explain target coverage and identify any exclusions

We have defined a revised target of 59% reduction in absolute terms as this is aligned with a 1.5°C pathway, providing a firm foundation for our long-term ambition to reach net-zero across value chains by 2050 if not sooner.

We have submitted this new Scope 1&2 target to SBTi for validation and hope to get our GHG targets verified by the SBTi as soon as possible.

Plan for achieving target, and progress made to the end of the reporting year

The absolute reduction in scope 1 + 2 GHG emissions was 27% compared to the corrected baseline of 2016. We estimate that of the 27% absolute reduction in scope 1 + 2 GHG emissions compared to baseline 2016, 23% is due to structural improvements. This is due to projects in our greenhouse gas reduction program, ranging from relatively easy-to-implement modifications in operations, such as improving the insulation around hot parts, to installing advanced energy metering systems, up to the installation of best available technologies (for example, heating and cooling equipment). Significant year-on-year GHG reduction at our existing sites compensated for the expected GHG increase from inorganic growth

List the emissions reduction initiatives which contributed most to achieving this target

<Not Applicable>

C4.1b

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

Target reference number

Int 1

Year target was set

2019

Target coverage

Company-wide

Scope(s)

Scope 3

Scope 2 accounting method

<Not Applicable>

Scope 3 category(ies)

Category 1: Purchased goods and services

Category 4: Upstream transportation and distribution

Category 5: Waste generated in operations

Intensity metric

Metric tons CO2e per metric ton of product

Base year

2016

Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in base year for Scope 3 (metric tons CO2e per unit of activity)

3.26

Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)

3.26

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

<Not Applicable>

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

<Not Applicable>

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure

72

% of total base year emissions in all selected Scopes covered by this intensity figure

100

Target year

2030

Targeted reduction from base year (%)

28

Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]

2.3472

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

8

Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in reporting year for Scope 3 (metric tons CO2e per unit of activity)

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

3

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

28.4837861524978

Target status in reporting year

Underway

Is this a science-based target?

Yes, and this target has been approved by the Science Based Targets initiative

Target ambition

2°C aligned

Please explain target coverage and identify any exclusions

DSM set our scope 3 Science Based Target in 2019, which is an intensity reduction target of 28% per unit of product in 2030 versus the base year of 2016. The categories in scope for this Target are Purchased goods and services, Upstream transportation and distribution and Waste generated in operations.

A yearly recalculation of our 2016 scope 3 emissions was performed to increase accuracy based on the latest insights from suppliers and updates of the most relevant emission factors according to our defined standard. In addition, baseline adjustments have taken place due to acquisitions and divestments within DSM according to the baseline policy. This recalculation covers the categories in scope for the Target and will be used solely for reporting performance against the Science Based Target. In future years, further recalculations and adjustments of the baseline are expected and will be performed on a similar basis.

Plan for achieving target, and progress made to the end of the reporting year

In our Nutrition business, the inclusion of the learnings from the CO2REDUCE program into the supplier selection process resulted in an improved emission profile and reductions for several key raw materials. Overall, the sourcing mix of raw materials for the nutrition business showed an increased carbon intensity as other more advanced raw materials and ingredients with a higher carbon footprint were also sourced.

In 2021, the supplier engagement program CO2REDUCE continued to build on agreed roadmaps and progressed as planned. The focus was twofold.

Firstly, we obtained new insights, datapoints and reduction opportunities through our collaboration with suppliers for key contributing raw materials. Together with our suppliers, reduction action plans were developed based on product carbon footprint data. In 2021, we continued to explore new opportunities for scope 3 emissions reductions through multiple supplier emissions plans.

Secondly, we identified low-carbon opportunities for several of our products using insights from the CO2REDUCE program regarding supplier emission plans and the associated emissions reduction potential. This served as essential input into the further development of our business strategy.

List the emissions reduction initiatives which contributed most to achieving this target

<Not Applicable>

C4.2

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

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

Net-zero target(s)

C4.2a

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

Target reference number

Low 1

Year target was set

2018

Target coverage

Company-wide

Target type: energy carrier

Electricity

Target type: activity

Consumption

Target type: energy source

Renewable energy source(s) only

Base year

2015

Consumption or production of selected energy carrier in base year (MWh)

3540

% share of low-carbon or renewable energy in base year

0

Target year

2030

% share of low-carbon or renewable energy in target year

100

% share of low-carbon or renewable energy in reporting year

72

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

72

Target status in reporting year

Underway

Is this target part of an emissions target?

yes, 4.1a. One of the ways we reduce our own greenhouse-gas emissions is by sourcing more electricity from renewable resources

Is this target part of an overarching initiative?

RE100

Please explain target coverage and identify any exclusions

Our renewable electricity target - 100% of purchased electricity to be sourced from renewables by 2030 - supports the scope 1 + 2 component of our Science Based Targets. This target is an update of our previous renewable electricity target of 75% by 2025 set in 2020.

Plan for achieving target, and progress made to the end of the reporting year

In our renewable electricity strategy we prioritize pursuing available (e.g. on-site solar/wind, retail offers, hydro power) and emerging options (pilots) supporting DSM's additionality principle, meaning that the assets commence production of electricity after the applicable agreement with DSM is signed and may include assets that are newly constructed, refurbished or otherwise new on the market.

Progress made in 2021:

-In Europe, we maintained 100% renewable electricity through existing agreements and additional guarantees of origin from the new PPA in Spain.

-In the US, a new PPA was concluded in 2021 adding to the two existing PPAs.

-For the first time in China, we concluded renewable electricity contracts for 2021 in Shandong and Jiangsu provinces.

-Besides the above, three-quarters of our purchased electricity in Brazil is from renewable sources, and we have several local renewable electricity contracts around the world

List the actions which contributed most to achieving this target

<Not Applicable>

C4.2c

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

Target reference number

NZ1

Target coverage

Company-wide

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

Abs1

Int1

Target year for achieving net zero

2050

Is this a science-based target?

Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next 2 years

Please explain target coverage and identify any exclusions

We were one of the first companies to align our efforts with the latest science as presented in the IPCC Special Report 'Global Warming of 1.5°C' by setting a long-term pathway to reach net-zero GHG emissions across our operations and value chains (scope 1, 2 and 3) by 2050 at latest. Our Science Based Targets are our foundation to achieve this goal, supported by our ambitions on renewable electricity and energy efficiency, and working intensively with our key suppliers through our CO2REDUCE program. We have been working with long-term innovation roadmaps to map pathways toward net-zero emissions in the coming decades since 2020. For DSM, net-zero means deep decarbonization of our assets and portfolio, at least 90% absolute GHG reduction from the base year across our value chain with any remaining residue emissions neutralized via permanent carbon removals.

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

Yes

Planned milestones and/or near-term investments for neutralization at target year

DSM intends to neutralize any residual emissions (max 10%) via permanent carbon removals latest on the net-zero target year (at the moment 2050 at latest). These removals are like to be technical, with DSM continuously monitoring the development and investment needs for novel technologies.

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

As a complementary and additional effort to our holistic strategy to reduce our own climate impact, DSM is also exploring the options for highest impact contributions outside our value chain, as a means to accelerate the global net-zero transition. These contributions can include, but are not limited to, purchasing of high-quality carbon credits. This complementary mitigation portfolio extending beyond our own value chain, will include a mix of GHG reduction/avoidance/carbon storage projects critical in the short term to scale up innovations, and selected nature-based projects to simultaneously complement our nature stewardship agenda and help to close the finance gap for nature. DSM aims to disclose further details on our contribution actions within 2023

C4.3

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

Yes

C4.3a

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

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	28	
To be implemented*	39	88000
Implementation commenced*	33	31000
Implemented*	29	24000
Not to be implemented	8	

C4.3b

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

Initiative category & Initiative type

Energy efficiency in buildings	Insulation
--------------------------------	------------

Estimated annual CO2e savings (metric tonnes CO2e)

200

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

Scope 1

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

51000

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

107000

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

This is a group of 2 insulation projects that were carried out, with a total investment of 107 thousand euros. Payback period of approximately two years.

Initiative category & Initiative type

Energy efficiency in buildings	Heating, Ventilation and Air Conditioning (HVAC)
--------------------------------	--

Estimated annual CO2e savings (metric tonnes CO2e)

2900

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

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

196000

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

885000

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment**Initiative category & Initiative type**

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

0

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

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

63000

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

456000

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

This lighting project resulted in an energy saving of 5 TJ per year, however as the site runs on renewable electricity, it did not result in GHG reductions.

Initiative category & Initiative type

Energy efficiency in production processes	Waste heat recovery
---	---------------------

Estimated annual CO2e savings (metric tonnes CO2e)

1300

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

Scope 1

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

323000

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

1120000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

This is a group of 3 Waste heat recovery projects that were carried out, with a total investment of just over 1 million euros. The payback period of the projects is around 3.5 years.

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
---	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

13800

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

Scope 1

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

1245000

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

4303000

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

This is a group of 16 other process optimization projects that have a payback period of one year to more than 10 years. Total investment of approximately 4.3 million euros.

Initiative category & Initiative type

Energy efficiency in production processes	Machine/equipment replacement
---	-------------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

5100

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

Scope 1

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

1245000

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

3115000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

This is a group of machine upgrade improvement projects that were carried out, with a total investment of 3.1 million euros. Payback period varies from two to three years.

Initiative category & Initiative type

Low-carbon energy generation	Solar PV
------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

900

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

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

131000

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

638000

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

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

Method	Comment
Dedicated budget for energy efficiency	DSM has allocated dedicated investment budget for energy savings and GHG reduction projects.
Internal price on carbon	DSM has introduced a mandatory internal carbon price of €100 /t (increased from €50 in 2021) that is applied in the financial evaluation of large investments and energy improvement projects and is internally reported in the P&L of our businesses. Starting in 2019, business growth projects must either be GHG-neutral, or else be compensated for.
Internal incentives/recognition programs	Throughout the DSM organisation incentives are given when targets on DSM's climate change strategy are met. The CEO/Managing Board/Executive Committee have long term GHG emission reduction targets and energy efficiency improvement (EEI) targets. The incentivized performance indicators for climate change issues are published in the Integrated Annual Report 2021 (https://annualreport.dsm.com/ar2021/report-by-the-supervisory-board/remuneration-report-2021/remuneration-of-the-managing-board/total-remuneration-2021.html) All DSM executives have a climate change target (i.e. Energy & GHG efficiency improvement) as part of their annual bonus scheme. Personal objectives (which determine bonus and/or merit increase) linked to achieving company climate change targets. DSM has an 2 internal awards were emission reduction is part of the selection criteria: DSM SHE Award and DSM SHE Recognition Award. Those awards can be won by all employees of DSM (production sites as well as offices and labs).
Dedicated budget for other emissions reduction activities	DSM has allocated dedicated investment budget for other environmental projects like VOC reduction. Dedicated resources (significant OPEX) for GHG reduction program.
Employee engagement	Throughout DSM employee engagement is stimulated to contribute to DSM's climate change objectives. For many years in a row DSM has organized Earth Day at over 100 locations worldwide to engage the workforce further. In many continuous improvement events, driven by blue collar workers, energy reduction is addressed and improved.

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

Yes

C4.5a

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

Level of aggregation

Group of products or services

Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify (Our low carbon products are determined by their Life Cycle Assessment (LCA).)

Type of product(s) or service(s)

Other	Other, please specify (Various)
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Description of product(s) or service(s)

DSM develops and produces a wide range of low-carbon and avoided emissions products. Our low carbon products are determined by their Life Cycle Assessment (LCA). Those products where the environmental benefit is realized during their production phase are classified as low carbon products, and our low carbon products are those with lower carbon footprints in their cradle-to-gate life-cycle than the mainstream competing solution. For example almost all our Vitamins are produced using processes that have a higher yield and lower energy consumption than the competition (based on LCAs). Note: some products are both low-carbon and avoided emissions products. Avoided emissions products are solutions that offer superior performance with a lower carbon-footprint, as assessed with LCA, compared to competing mainstream solutions that fulfill the same function.

DSM has numerous products across all business that help avoid emissions.

For illustrative purposes, one of our Brighter Living Solutions (DSM's solutions delivering high performance while providing additional benefits to our society and environment) utilizes combination of vitamins, enzymes and eubiotics and represents 1% of our poultry business. This combination increases performance of broiler production and reduces the carbon footprint by more than 8% compared to non-use. In 2020, this enabled avoided GHG emissions of approximately 1,200 kt CO2eq. In total, Brighter Living Solutions represents 64% of our revenue.

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

No

Methodology used to calculate avoided emissions

<Not Applicable>

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

<Not Applicable>

Functional unit used

<Not Applicable>

Reference product/service or baseline scenario used

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

Explain your calculation of avoided emissions, including any assumptions

<Not Applicable>

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

64

C5. Emissions methodology

C5.1

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

No

C5.1a

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

Row 1

Has there been a structural change?

Yes, an acquisition
Yes, a divestment

Name of organization(s) acquired, divested from, or merged with

Acquisitions - Glycom (Denmark), Royal CSK (Netherlands), SRF (India) and Nenter (China).
Divestment - DSM Resins and Functional Materials and associated businesses

Details of structural change(s), including completion dates

In 2021, four sites were added to the reporting scope. These comprise the acquisitions of Glycom in Denmark (completed in April 2020), Royal CSK in the Netherlands (completed in December 2019), and SRF in India (completed in September 2019), and the creation of the joint venture with Nenter in China (completed in August 2019). In 2021, the divestment of DSM Resins and Functional Materials and associated businesses was completed in the first quarter. The emissions from this divestment were removed from the baseline on a pro-rata basis.

C5.1b

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

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	Yes, a change in methodology	An updated emission factor was applied for purchased heat for multiple locations in our scope 2 emissions.

C5.1c

(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
Row 1	Yes	DSM's non-financial reporting policy on acquisitions and divestments is that Environment data for companies acquired in the first half of a given year ('year x') are included in the reporting scope of the year after acquisition ('year x+1'), and companies acquired in the second half of a given year ('year y') are included in the reporting scope of the year following the first full year after acquisition ('year y + 2'). Environment data are reported until the moment control of the company is transferred.

C5.2

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

Scope 1

Base year start

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

1045800

Comment

In 2021, the 2016 baseline was updated due to the inclusion of 14 acquired sites in our reporting scope in the period 2017–2021, the divestment of Resins and Functional Materials and associated businesses (pro-rata), and the impact of methodology changes. Four newly built sites were also added to the reporting scope; however, as they were constructed after 2016, they have no impact on the baseline correction.

Scope 2 (location-based)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Our Science-Based Targets are based on our market-based Scope 2 baseline. No location-based baseline is provided.

In 2021, the 2016 baseline was updated due to the inclusion of 14 acquired sites in our reporting scope in the period 2017–2021, the divestment of Resins and Functional Materials and associated businesses (pro-rata), and the impact of methodology changes. Four newly built sites were also added to the reporting scope; however, as they were constructed after 2016, they have no impact on the baseline correction.

Scope 2 (market-based)**Base year start**

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

616200

Comment

In 2021, the 2016 baseline was updated due to the inclusion of 14 acquired sites in our reporting scope in the period 2017–2021, the divestment of Resins and Functional Materials and associated businesses (pro-rata), and the impact of methodology changes. Four newly built sites were also added to the reporting scope; however, as they were constructed after 2016, they have no impact on the baseline correction.

Scope 3 category 1: Purchased goods and services**Base year start**

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

8590000

Comment**Scope 3 category 2: Capital goods****Base year start****Base year end****Base year emissions (metric tons CO2e)****Comment****Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)****Base year start****Base year end****Base year emissions (metric tons CO2e)****Comment****Scope 3 category 4: Upstream transportation and distribution****Base year start**

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

118000

Comment**Scope 3 category 5: Waste generated in operations****Base year start**

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

111900

Comment**Scope 3 category 6: Business travel****Base year start****Base year end****Base year emissions (metric tons CO2e)****Comment****Scope 3 category 7: Employee commuting****Base year start****Base year end****Base year emissions (metric tons CO2e)****Comment**

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

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

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

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

Reporting year

Gross global Scope 1 emissions (metric tons CO₂e)

613300

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

C6.2

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

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

DSM has reported Scope 2 market-based emissions since 2016. Our Science-Based Targets are calculated against our market-based scope 1 + 2 emissions.

C6.3

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

Reporting year

Scope 2, location-based

846900

Scope 2, market-based (if applicable)

591700

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

C6.4

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

Yes

C6.4a

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

Source

CO2 Emissions related to recent acquisitions

Relevance of Scope 1 emissions from this source

Emissions excluded due to a recent acquisition or merger

Relevance of location-based Scope 2 emissions from this source

Emissions excluded due to a recent acquisition or merger

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

Emissions excluded due to a recent acquisition or merger

Explain why this source is excluded

Newly acquired companies acquired in the first half of a given year ('year x') are included in the reporting scope of the year after acquisition ('year x+1'). Acquisitions in the second half of a given year ('year y') are included in the reporting scope of the year following the first full year after acquisition ('year y + 2'). This period is used to align to and implement DSM's reporting procedures. This is part of the non-financial reporting policy of DSM as disclosed in the Integrated Annual Report.

This includes the previously announced acquisitions of Erber Group (October 2020), expected to be in the reporting scope as of 2022, and Midori (July 2021), First Choice Ingredients (October 2021) and Vestkorn (December 2021), expected to in the reporting scope as of 2023.

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

<Not Applicable>

Explain how you estimated the percentage of emissions this excluded source represents

<Not Applicable>

Source

CO2 emissions from R&D and administrative buildings

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Emissions are not relevant

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

Emissions are not relevant

Explain why this source is excluded

DSM stand-alone offices and R&D units are excluded from the reporting scope as their emissions are not relevant. If DSM offices or R&D units are part of the reporting unit, where commercial production occurs, then they are included.

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

1

Explain how you estimated the percentage of emissions this excluded source represents

The majority of DSM's stand-alone offices and R&D locations run on 100% renewable electricity and are small in size, so have scope 1 & 2 emissions close to zero. The emissions of the largest location still on grey electricity represents significantly less than 1% of total scope 1 & 2 emissions, with the emissions of other grey-electricity locations contributing even less. The estimated total contribution is below one percent.

C6.5

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

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

9378900

Emissions calculation methodology

Hybrid method

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

29

Please explain

DSM's scope 3 emissions are calculated according to the Greenhouse Gas Protocol Corporate Value Chain (scope 3) standard and the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain (further referred to as the WBCSD Chemical Guidelines).

Spend and purchased volumes were obtained from DSM's ERP systems. Most of the Direct spend emission factors are based on industry average databases such as EcoInvent or PlasticsEurope, or expert estimates. If available, emission factors are based on supplier specific data based on information obtained from suppliers. For Indirect spend, emission factors are derived from the American, European, DEFRA input output tables. Emissions are calculated by (for Direct spend) multiplying the standardized quantity of item (in kgs) with the emission factor per kg of the item and (for Indirect spend) multiplying the spend of the item with the emission factor per currency of the item.

Confirmed supplier specific emission factors validated by external auditor based on materiality meeting our reasonable assurance quality requirements for reporting. Emission factors were developed in close collaboration with our key supply partners.

Capital goods

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

147600

Emissions calculation methodology

Average product method

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

0

Please explain

DSM's scope 3 emissions are calculated according to the Greenhouse Gas Protocol Corporate Value Chain (scope 3) standard and the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain (further referred to as the WBCSD Chemical Guidelines).

Spend and purchased volumes were obtained from DSM's ERP systems for the items relevant to this category. Emission factors are derived from the American, European, DEFRA input output tables. Where no emission factor is available, it is assumed the capital good is made from 25% concrete and 75% steel (in line with the WBCSD Chemical Guidelines). Emissions are calculated by multiplying the spend of the item with the emission factor per currency of the item.

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

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

204100

Emissions calculation methodology

Average data method

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

0

Please explain

DSM's scope 3 emissions are calculated according to the Greenhouse Gas Protocol Corporate Value Chain (scope 3) standard and the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain (further referred to as the WBCSD Chemical Guidelines).

3 components are calculated - Upstream emissions of purchased fuels, Upstream emissions of purchased electricity, and Transport and distribution losses. The energy data is obtained from DSM's environmental monitoring system. Emission factors are derived from Ecolnvent and IEA 2016. The world average transmission and distribution loss rate of electricity is estimated to be 7% and the world average transmission and distribution loss rate of heat estimated to be 10%. Emissions are calculated by multiplying the energy consumed per component with the emission factor per component.

Upstream transportation and distribution

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

177000

Emissions calculation methodology

Spend-based method

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

0

Please explain

DSM's scope 3 emissions are calculated according to the Greenhouse Gas Protocol Corporate Value Chain (scope 3) standard and the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain (further referred to as the WBCSD Chemical Guidelines).

Road transportation, Air freight, Marine transportation and Rail/warehouses emissions factors are obtained from validated databases such as Ecolnvent. Emissions are calculated by multiplying shipment spend data with the appropriate factors. An 80% share of the outgoing transportation and distribution is taken as reference for the incoming transport and distribution from suppliers.

Waste generated in operations

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

189700

Emissions calculation methodology

Waste-type-specific method

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

0

Please explain

DSM's scope 3 emissions are calculated according to the Greenhouse Gas Protocol Corporate Value Chain (scope 3) standard and the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain (further referred to as the WBCSD Chemical Guidelines).

Each type of waste has four different treatment methods: (1) landfill, (2) off-site incineration with heat recovery, (3) off-site incineration without heat recovery and (4) off-site recovery. Process related non-hazardous waste and non-process related waste have an extra disposal method (land) farming. The amount of waste per treatment method is derived from DSM's environmental monitoring system. Emission factors are derived from IPCC. Carbon content is estimated based on expert judgement. Inorganic waste is considered 0% carbon. Emissions are calculated by multiplying per method, the sum of waste by method with the carbon content and the emission factor per kg.

Business travel

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO₂e)

7200

Emissions calculation methodology

Distance-based method

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

70

Please explain

DSM's scope 3 emissions are calculated according to the Greenhouse Gas Protocol Corporate Value Chain (scope 3) standard and the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain (further referred to as the WBCSD Chemical Guidelines).

Business travel is the sum of the emission from Business travel by air, Business travel by rail, Business travel by car and Hotels. Emissions were provided by major service providers for air and rail and extrapolated to 100% of DSM's usage. Emission factors for car and hotels are derived from United States Environmental Protection Agency (EPA), UK Department of Environment, Food, and Rural Affairs (DEFRA) and from the latest American input output table. Distance by car is the sum of taxi, rental and own car/public transport, derived from DSM's ERP system and Travel and Expense system. Hotel nights are derived from DSM's Travel and Expense system. Emissions by car and hotel are calculated based on distance and nights respectively multiplied by emission factor.

Employee commuting

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO₂e)

34000

Emissions calculation methodology

Distance-based method

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

0

Please explain

DSM's scope 3 emissions are calculated according to the Greenhouse Gas Protocol Corporate Value Chain (scope 3) standard and the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain (further referred to as the WBCSD Chemical Guidelines).

Distance travelled is calculated using averages and assumptions aligned with the WBCSD Chemical Guidelines and based on total employees, working days and distance travelled. Emission factors are derived from DEFRA. Emissions are the multiple of #employees, distance, #working days, #trips per day and emission factor. An adjustment was made based on an estimate of operations vs office personnel to reflect the impact of people working from home as a consequence from the COVID-19 pandemic.

Upstream leased assets

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO₂e)

14600

Emissions calculation methodology

Average data method

Asset-specific method

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

0

Please explain

DSM's scope 3 emissions are calculated according to the Greenhouse Gas Protocol Corporate Value Chain (scope 3) standard and the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain (further referred to as the WBCSD Chemical Guidelines).

This category comprises 2 components - leased buildings and leased cars. Emission factor for leased buildings is based on the WBCSD Chemical Guidance. Emissions are calculated based on the number of employees multiplied with the average office space per employee and the emission factor for leased buildings. Emissions for leased cars are provided by the suppliers based on primary data and estimates.

Downstream transportation and distribution

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO₂e)

221000

Emissions calculation methodology

Spend-based method

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

0

Please explain

DSM's scope 3 emissions are calculated according to the Greenhouse Gas Protocol Corporate Value Chain (scope 3) standard and the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain (further referred to as the WBCSD Chemical Guidelines).

Road transportation, Air freight, Marine transportation and Rail/warehouses emissions factors are obtained from validated databases such as EcoInvent. Emissions are calculated by multiplying shipment spend data with the appropriate emission factors.

DSM is actively promoting and stimulating sustainable transportation and continues to engage in joint initiatives with suppliers that lead to environmental benefits in the value chain. Several additional initiatives have been successfully deployed such use of alternative fuels, reducing transportation movements and asset utilization optimization and rigorous challenging of modality choices.

Transportation details further downstream in the value chain beyond our customers are not known to DSM and figures are unreliable to obtain due to the diverse application range, global customer base and very broad customer structure in various steps in the value chain.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO₂e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Reason of exclusion: This category has been excluded from the scope 3 inventory. This is based on the reasoning provided in the Calculation Guidance of the WBCSD Chemical Guidance that "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".

Use of sold products

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO₂e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Reason of exclusion: This category has been excluded from the scope 3 inventory. This is based on the reasoning provided in the Description of Category and Calculation Guidance of the WBCSD Chemical Guidelines. The Description of Category includes direct use-phase emissions from Combusted fuels and products that contain or form greenhouse gases, neither of which are applicable to DSM. The Calculation Guidance states that "Chemical companies should not include indirect use-phase emissions in the inventory, unless the end use of chemical products is known", which is the case for DSM.

End of life treatment of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

1087400

Emissions calculation methodology

Waste-type-specific method

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

0

Please explain

DSM's scope 3 emissions are calculated according to the Greenhouse Gas Protocol Corporate Value Chain (scope 3) standard and the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain (further referred to as the WBCSD Chemical Guidelines).

Emissions are calculated by multiplying the mass of finished goods with the product (group)-specific carbon content and the treatment-specific emission factors. Carbon content is derived from the product specifications of the main products sold in each business and end-of-life emission factors are derived from the WBCSD Chemical Guidance, IPCC and DSM expert guidance. Mass of finished goods is derived from DSM's ERP system.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

DSM applies the WBCSD 'Guidance for Accounting & Reporting Corporate GHG emissions in the Chemical Sector Value Chain' for Scope 3 GHG reporting. This guidance states that category Downstream leased assets is not relevant for the chemical sector. DSM does not have Downstream leased assets.

Franchises

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

DSM applies the WBCSD 'Guidance for Accounting & Reporting Corporate GHG emissions in the Chemical Sector Value Chain' for Scope 3 GHG reporting. This guidance states that category Franchises is not relevant for the chemical sector. DSM does not engage in Franchising activities.

Investments

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

249500

Emissions calculation methodology

Average data method

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

0

Please explain

DSM's scope 3 emissions are calculated according to the Greenhouse Gas Protocol¹ Corporate Value Chain (scope 3) standard and the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain (further referred to as the WBCSD Chemical Guidelines).

Emission factor for an investment is derived from European and DEFRA input output tables based on the sector for each investment. Emissions per investment are calculated by multiplying investment revenue by DSM's share and the emission factor.

Other (upstream)

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Other (downstream)

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

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

No

C6.10

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

Intensity figure

0.000131

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

1205000

Metric denominator

unit total revenue

Metric denominator: Unit total

9204000000

Scope 2 figure used

Market-based

% change from previous year

4.3

Direction of change

Decreased

Reason for change

Our GHG emissions intensity versus total revenue decreased by 4.3%. This was due to a significant year-on-year GHG reduction at our existing sites, which compensated for the expected GHG increase from inorganic growth. Therefore, our scope 1 + 2 absolute reduction versus the baseline 2016 (corrected) improved to 27%, with the portion attributable to structural improvement increasing from 18% to 23%.

The DSM GHG reduction program ensures our year-on-year delivery against our Science Based Emissions reduction targets with a key focus on structural emissions reductions, i.e. projects that will deliver emissions reductions regardless of production volumes, product mixes etc. in 2021, GHG reduction projects that contributed to this improvement include improvements of steam and hot oil systems (such as leakage repairs, condensate return, heat recovery on furnaces and insulation), replacement of steam-driven chillers by electricity (partially renewable), replacement of low-efficiency chillers, and increasing the efficiency of our compressed air and nitrogen systems at various locations through leakages repair and equipment upgrades.

Intensity figure

0.5063

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

1205000

Metric denominator

metric ton of product

Metric denominator: Unit total

2380000

Scope 2 figure used

Market-based

% change from previous year

3.7

Direction of change

Decreased

Reason for change

Our GHG emissions intensity per ton of product decreased by 3.7%. This was due to a significant year-on-year GHG reduction at our existing sites, which compensated for the expected GHG increase from inorganic growth. In 2021, 6 acquired sites were included in our reporting scope, Resins and Functional Materials and associated businesses was removed from the reporting scope (pro-rata), and four newly built sites were also added to the reporting scope. For continuing operations, our GHG efficiency (year-on-year) improved by 15% in 2021.

The DSM GHG reduction program ensures our year-on-year delivery against our Science Based Emissions reduction targets with a key focus on structural emissions reductions, i.e. projects that will deliver emissions reductions regardless of production volumes, product mixes etc. in 2021, GHG reduction projects that contributed to this improvement include improvements of steam and hot oil systems (such as leakage repairs, condensate return, heat recovery on furnaces and insulation), replacement of steam-driven chillers by electricity (partially renewable), replacement of low-efficiency chillers, and increasing the efficiency of our compressed air and nitrogen systems at various locations through leakages repair and equipment upgrades.

C7. Emissions breakdowns

C7.1

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

Yes

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

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	593200	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	7400	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	2200	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	6900	IPCC Fifth Assessment Report (AR5 – 100 year)
Other, please specify (CFCs and HCFCs)	3500	IPCC Fifth Assessment Report (AR5 – 100 year)

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

Country/Region	Scope 1 emissions (metric tons CO2e)
China	60900
United States of America	117000
Netherlands	73700
Switzerland	66800
Germany	118000
Other, please specify (Rest of world)	174900

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

By business division

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

Business division	Scope 1 emissions (metric ton CO2e)
Nutrition	554700
Performance Materials	53700
Other	4900

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

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	613300	<Not Applicable>	
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
China	517600	482200
United States of America	139700	5500
Netherlands	71700	20000
Switzerland	61200	57000
Germany	2700	0
Other, please specify (Rest of world)	52400	27000

C7.6

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

By business division

C7.6a

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

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Nutrition	677900	527200
Performance Materials	164000	63900
Other	5000	700

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

(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	746900	591700	
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C-CH7.8

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

Purchased feedstock	Percentage of Scope 3, Category 1 tCO2e from purchased feedstock	Explain calculation methodology
Adipic acid	1.5	Emission factor for Adipic acid is obtained directly from supplier (in CO2eq). Purchased volumes are obtained from DSM's ERP system. Scope 3 emissions as reported elsewhere.
Caprolactam	12.4	Emission factor for Caprolactam is derived from SimaPro databases (in CO2eq). Purchased from DSM's ERP system. Scope 3 emissions as reported elsewhere.

C-CH7.8a

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

	Sales, metric tons	Comment
Carbon dioxide (CO2)	0	DSM does not sell greenhouse gases.
Methane (CH4)	0	DSM does not sell greenhouse gases.
Nitrous oxide (N2O)	0	DSM does not sell greenhouse gases.
Hydrofluorocarbons (HFC)	0	DSM does not sell greenhouse gases.
Perfluorocarbons (PFC)	0	DSM does not sell greenhouse gases.
Sulphur hexafluoride (SF6)	0	DSM does not sell greenhouse gases.
Nitrogen trifluoride (NF3)	0	DSM does not sell greenhouse gases.

C7.9**(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**

Decreased

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

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	114000	Decreased	9.4	<p>In 2021, we continued to make significant steps towards our purchased renewable electricity target. The percentage of purchased electricity from renewable sources increased globally from 60% in 2020 to 72% in 2021, equalling a GHG emission reduction year-on-year in purchased non-renewable electricity (corrected for production volume and acquisitions) of 88 kt CO2eq.</p> <p>In addition to renewable electricity, we also look into opportunities for the broader use in renewable energy sources. In 2021, our site in Chifeng replaced coal-based steam with purchased steam produced from local biomass residues. This contributed an additional 26 kt CO2eq (corrected for production volume and acquisitions).</p> <p>The 114kt decrease is divided by our total 1.21 million tons scope 1 + 2 emissions, resulting in a 9.4% decrease</p>
Other emissions reduction activities	71000	Decreased	5.9	<p>We executed a variety of GHG reduction projects in 2021. The execution of the 2021 program will have an impact of approximately 71 kt CO2eq on our GHG reductions (corrected for production volume and acquisitions). The projects range from relatively easy-to-implement modifications in operations, such as improving the insulation around hot parts, to installing advanced energy metering systems, up to the installation of best available technologies (for example, heating and cooling equipment).</p> <p>The 71kt decrease is divided by our total 1.21 million tons scope 1 + 2 emissions, resulting in a 5.9% decrease</p>
Divestment	41000	Decreased	3.4	<p>The divestment of Resins and Functional Materials and associated businesses was closed in early 2021. The divestment resulted in a decrease in emissions of approximately 41kt.</p> <p>The 41kt decrease is divided by our total 1.21 million tons scope 1 + 2 emissions, resulting in a 3.4% decrease.</p>
Acquisitions	89000	Increased	7.4	2021 was the first year of reporting for companies acquired in 2020. The total contribution of these new acquisitions had a material impact on our emissions of 89 kiloton, which when compared to our total 1.21 million tons scope 1 + 2 (market-based) emissions resulted in a 7.4% increase.
Mergers	0	No change		
Change in output	101000	Increased	8.3	<p>Production volumes increased year on year, as well as business variations and product mix changes (Nutrition volumes increased by 8%, while Materials volumes increased by 14%) resulted in an estimated increase in emissions of approximately 101 kt.</p> <p>The 101kt increase is divided by our total 1.21 million tons scope 1 + 2 emissions, resulting in a 8.3% increase.</p>
Change in methodology	0	No change		
Change in boundary	0	No change		
Change in physical operating conditions	0	No change		
Unidentified	0	No change		
Other	0	No change		

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

Market-based

C8. Energy

C8.1

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

More than 0% but less than or equal to 5%

C8.2

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

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

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	82100	2725400	2807500
Consumption of purchased or acquired electricity	<Not Applicable>	961200	371500	1332700
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	198100	1275700	1473800
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	4100	<Not Applicable>	4100
Total energy consumption	<Not Applicable>	1245500	4372600	5618100

C-CH8.2a

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

Consumption of fuel (excluding feedstocks)

Heating value

LHV (lower heating value)

MWh consumed from renewable sources inside chemical sector boundary

82100

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

2725400

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

0

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

2807500

Consumption of purchased or acquired electricity

Heating value

<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary

961200

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

371500

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

0

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

1332700

Consumption of purchased or acquired steam

Heating value

<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary

198100

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

1275700

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

0

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

1473800

Consumption of self-generated non-fuel renewable energy

Heating value

<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary

4100

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

0

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

0

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

4100

Total energy consumption

Heating value

<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary

1245500

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

4372600

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

0

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

5618100

C8.2b

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

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

C8.2c

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

Sustainable biomass

Heating value

LHV

Total fuel MWh consumed by the organization

47000

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

47000

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Biogas

Other biomass

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Other renewable fuels (e.g. renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

35100

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

35100

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Coal

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Oil

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment

Gas**Heating value**

LHV

Total fuel MWh consumed by the organization

2402600

MWh fuel consumed for self-generation of electricity

568900

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

1833700

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment**Other non-renewable fuels (e.g. non-renewable hydrogen)****Heating value**

LHV

Total fuel MWh consumed by the organization

322700

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

322700

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment**Total fuel****Heating value**

LHV

Total fuel MWh consumed by the organization

2807500

MWh fuel consumed for self-generation of electricity

568900

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

2238600

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Comment**C8.2d**

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	435900	239300	4100	3900
Heat	0	0	0	0
Steam	1598700	1496300	69500	65500
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.

Electricity

Total gross generation inside chemicals sector boundary (MWh)

435900

Generation that is consumed inside chemicals sector boundary (MWh)

239300

Generation from renewable sources inside chemical sector boundary (MWh)

4100

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

0

Heat

Total gross generation inside chemicals sector boundary (MWh)

0

Generation that is consumed inside chemicals sector boundary (MWh)

0

Generation from renewable sources inside chemical sector boundary (MWh)

0

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

0

Steam

Total gross generation inside chemicals sector boundary (MWh)

1598700

Generation that is consumed inside chemicals sector boundary (MWh)

1496300

Generation from renewable sources inside chemical sector boundary (MWh)

69500

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

0

Cooling

Total gross generation inside chemicals sector boundary (MWh)

0

Generation that is consumed inside chemicals sector boundary (MWh)

0

Generation from renewable sources inside chemical sector boundary (MWh)

0

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

0

C8.2g

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

Country/area

China

Consumption of electricity (MWh)

356800

Consumption of heat, steam, and cooling (MWh)

942200

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

1299000

Is this consumption excluded from your RE100 commitment?

No

Country/area

United States of America

Consumption of electricity (MWh)

373400

Consumption of heat, steam, and cooling (MWh)

20500

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

393900

Is this consumption excluded from your RE100 commitment?

No

Country/area

Netherlands

Consumption of electricity (MWh)

139800

Consumption of heat, steam, and cooling (MWh)

108300

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

248100

Is this consumption excluded from your RE100 commitment?

No

Country/area

Switzerland

Consumption of electricity (MWh)

173800

Consumption of heat, steam, and cooling (MWh)

374700

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

548500

Is this consumption excluded from your RE100 commitment?

No

Country/area

Germany

Consumption of electricity (MWh)

8000

Consumption of heat, steam, and cooling (MWh)

0

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

8000

Is this consumption excluded from your RE100 commitment?

No

Country/area

Other, please specify (Rest of World)

Consumption of electricity (MWh)

281000

Consumption of heat, steam, and cooling (MWh)

28000

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

309000

Is this consumption excluded from your RE100 commitment?

No

C8.2h

(C8.2h) Provide details of your organization's renewable electricity purchases in the reporting year by country

Country/area of renewable electricity consumption

United States of America

Sourcing method

Direct procurement from an offsite grid-connected generator e.g. Power Purchase Agreement (PPA)

Renewable electricity technology type

Wind

Renewable electricity consumed via selected sourcing method in the reporting year (MWh)

152670

Tracking instrument used

US-REC

Total attribute instruments retained for consumption by your organization (MWh)

152670

Country/area of origin (generation) of the renewable electricity/attribute consumed

United States of America

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

2018

Vintage of the renewable energy/attribute (i.e. year of generation)

2021

Brand, label, or certification of the renewable electricity purchase

Other, please specify (NAR registry)

Comment

Country/area of renewable electricity consumption

United States of America

Sourcing method

Unbundled Energy Attribute Certificate (EAC) purchase

Renewable electricity technology type

Solar

Renewable electricity consumed via selected sourcing method in the reporting year (MWh)

100000

Tracking instrument used

US-REC

Total attribute instruments retained for consumption by your organization (MWh)

100000

Country/area of origin (generation) of the renewable electricity/attribute consumed

United States of America

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

2022

Vintage of the renewable energy/attribute (i.e. year of generation)

2021

Brand, label, or certification of the renewable electricity purchase

Other, please specify (NAR registry, WECC registry)

Comment

Country/area of renewable electricity consumption

United States of America

Sourcing method

Green electricity products from an energy supplier (e.g. Green Tariffs)

Renewable electricity technology type

Wind

Renewable electricity consumed via selected sourcing method in the reporting year (MWh)

13176

Tracking instrument used

US-REC

Total attribute instruments retained for consumption by your organization (MWh)

13176

Country/area of origin (generation) of the renewable electricity/attribute consumed

United States of America

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

2021

Vintage of the renewable energy/attribute (i.e. year of generation)

2021

Brand, label, or certification of the renewable electricity purchase

Other, please specify (PJM GATS registry)

Comment

Country/area of renewable electricity consumption

Netherlands

Sourcing method

Direct procurement from an offsite grid-connected generator e.g. Power Purchase Agreement (PPA)

Renewable electricity technology type

Wind

Renewable electricity consumed via selected sourcing method in the reporting year (MWh)

139767

Tracking instrument used

GO

Total attribute instruments retained for consumption by your organization (MWh)

139767

Country/area of origin (generation) of the renewable electricity/attribute consumed

Netherlands

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

2018

Vintage of the renewable energy/attribute (i.e. year of generation)

2021

Brand, label, or certification of the renewable electricity purchase

Other, please specify (CertiQ registry)

Comment**Country/area of renewable electricity consumption**

Switzerland

Sourcing method

Green electricity products from an energy supplier (e.g. Green Tariffs)

Renewable electricity technology type

Large hydropower (>25 MW)

Renewable electricity consumed via selected sourcing method in the reporting year (MWh)

75336

Tracking instrument used

GO

Total attribute instruments retained for consumption by your organization (MWh)

75336

Country/area of origin (generation) of the renewable electricity/attribute consumed

Switzerland

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

2018

Vintage of the renewable energy/attribute (i.e. year of generation)

2021

Brand, label, or certification of the renewable electricity purchase

Other, please specify (Pronovo registry)

Comment

This is a consolidated figure for several locations in Europe, South America and Asia

Country/area of renewable electricity consumption

Switzerland

Sourcing method

Green electricity products from an energy supplier (e.g. Green Tariffs)

Renewable electricity technology type

Renewable electricity mix, please specify (Various methods)

Renewable electricity consumed via selected sourcing method in the reporting year (MWh)

12903

Tracking instrument used

GO

Total attribute instruments retained for consumption by your organization (MWh)

12903

Country/area of origin (generation) of the renewable electricity/attribute consumed

Switzerland

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

2018

Vintage of the renewable energy/attribute (i.e. year of generation)

2021

Brand, label, or certification of the renewable electricity purchase

Other, please specify (Pronovo registry)

Comment**Country/area of renewable electricity consumption**

Switzerland

Sourcing method

Unbundled Energy Attribute Certificate (EAC) purchase

Renewable electricity technology type

Wind

Renewable electricity consumed via selected sourcing method in the reporting year (MWh)

76569

Tracking instrument used

GO

Total attribute instruments retained for consumption by your organization (MWh)

76569

Country/area of origin (generation) of the renewable electricity/attribute consumed

Spain

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

2018

Vintage of the renewable energy/attribute (i.e. year of generation)

2021

Brand, label, or certification of the renewable electricity purchase

Other, please specify (CNMC registry)

Comment

Guarantees of Origin from our Spanish VPPA

Country/area of renewable electricity consumption

Switzerland

Sourcing method

Unbundled Energy Attribute Certificate (EAC) purchase

Renewable electricity technology type

Wind

Renewable electricity consumed via selected sourcing method in the reporting year (MWh)

8444

Tracking instrument used

GO

Total attribute instruments retained for consumption by your organization (MWh)

8444

Country/area of origin (generation) of the renewable electricity/attribute consumed

Netherlands

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

2018

Vintage of the renewable energy/attribute (i.e. year of generation)

2021

Brand, label, or certification of the renewable electricity purchase

Other, please specify (CertiQ registry)

Comment

Guarantees of Origin from our Dutch PPAs

Country/area of renewable electricity consumption

Switzerland

Sourcing method

Green electricity products from an energy supplier (e.g. Green Tariffs)

Renewable electricity technology type

Renewable electricity mix, please specify (Hydro, solar, wind)

Renewable electricity consumed via selected sourcing method in the reporting year (MWh)

277309

Tracking instrument used

GO

Total attribute instruments retained for consumption by your organization (MWh)

277309

Country/area of origin (generation) of the renewable electricity/attribute consumed

Switzerland

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

2018

Vintage of the renewable energy/attribute (i.e. year of generation)

2021

Brand, label, or certification of the renewable electricity purchase

Other, please specify (Various)

Comment

This is a consolidated figure for several locations in Europe, South America and Asia

C8.2i

(C8.2i) Provide details of your organization's low-carbon heat, steam, and cooling purchases in the reporting year by country.

Country/area of consumption of low-carbon heat, steam or cooling

Switzerland

Sourcing method

Heat/steam/cooling supply agreement

Energy carrier

Steam

Low-carbon technology type

Sustainable biomass

Low-carbon heat, steam, or cooling consumed (MWh)

116000

Comment

Our sustainability criteria to use biomass for thermal energy is in line with recommendations from Roundtable on Sustainable Biomass (RSB), among other organizations, and has been incorporated into our agreements.

Our primary focus is on the use of local waste and residues for the (co)generation of energy, including organic solid/liquid waste, agricultural residues and forestry management residues at end of product lifecycle. In consultation with NGO's and leading standard setting bodies, we have also developed provisional guidance for further safeguards related to carbon payback times, minimum GHG reduction potential and management of soil health, water and biodiversity impacts.

The biobased steam purchased by Sisseln is contractually limited to the use of forest harvesting residues and residues from forest industries located within a radius of 100 km from the point of cogeneration. Supplier requests contractors to follow French national guidelines for soil protection when residues from forests are harvested.

Country/area of consumption of low-carbon heat, steam or cooling

China

Sourcing method

Heat/steam/cooling supply agreement

Energy carrier

Steam

Low-carbon technology type

Sustainable biomass

Low-carbon heat, steam, or cooling consumed (MWh)

56000

Comment

Our sustainability criteria to use biomass for thermal energy is in line with recommendations from Roundtable on Sustainable Biomass (RSB), among other organizations, and has been incorporated into our agreements.

Our primary focus is on the use of local waste and residues for the (co)generation of energy, including organic solid/liquid waste, agricultural residues and forestry management residues at end of product lifecycle. In consultation with NGO's and leading standard setting bodies, we have also developed provisional guidance for further safeguards related to carbon payback times, minimum GHG reduction potential and management of soil health, water and biodiversity impacts.

Our hydrocolloids site in Chifeng (Inner Mongolia, China) replaced its self-produced steam based on coal with purchased steam produced from local biomass residues (residues from forest management, short rotation coppice willow and residues of corn starch). The Chifeng biomass plant is a cogeneration system that supplies steam to our DSM site and other industrial park users via a long-term contract with ENN Energy, while the electricity is sold to the grid. By introducing this contract, Chifeng was able to avoid ~25 kt CO₂eq in 2021 (its first fully operational year), of which around 9 kt CO₂eq is a structural improvement from 2020 to 2021.

C8.2j

(C8.2j) Provide details of your organization's renewable electricity generation by country in the reporting year.

Country/area of generation

China

Renewable electricity technology type

Solar

Facility capacity (MW)

2

Total renewable electricity generated by this facility in the reporting year (MWh)

1900

Renewable electricity directly consumed by your organization from this facility in the reporting year for which certificates were not issued (MWh)

1900

Renewable electricity directly consumed by your organization from this facility in the reporting year for which certificates were issued and retired (MWh)

0

Renewable electricity sold to the grid in the reporting year (MWh)

0

Certificates issued for the renewable electricity that was sold to the grid (MWh)

0

Certificates issued and retired for self-consumption for the renewable electricity that was sold to the grid (MWh)

0

Type of energy attribute certificate

<Not Applicable>

Total self-generation counted towards RE100 target (MWh) [Auto-calculated]

1900

Comment

Country/area of generation

India

Renewable electricity technology type

Solar

Facility capacity (MW)

1

Total renewable electricity generated by this facility in the reporting year (MWh)

1500

Renewable electricity directly consumed by your organization from this facility in the reporting year for which certificates were not issued (MWh)

1500

Renewable electricity directly consumed by your organization from this facility in the reporting year for which certificates were issued and retired (MWh)

0

Renewable electricity sold to the grid in the reporting year (MWh)

0

Certificates issued for the renewable electricity that was sold to the grid (MWh)

0

Certificates issued and retired for self-consumption for the renewable electricity that was sold to the grid (MWh)

0

Type of energy attribute certificate

<Not Applicable>

Total self-generation counted towards RE100 target (MWh) [Auto-calculated]

1500

Comment

C8.2k

(C8.2k) Describe how your organization's renewable electricity sourcing strategy directly or indirectly contributes to bringing new capacity into the grid in the countries/areas in which you operate.

In our renewable electricity strategy we prioritize pursuing available (e.g. on-site solar/wind, retail offers, hydro power) and emerging options (pilots) supporting DSM's additionality principle, meaning that the assets commence production of electricity after the applicable agreement with DSM is signed and may include assets that are newly constructed, refurbished or otherwise new on the market.

C8.2l

(C8.2I) In the reporting year, has your organization faced any challenges to sourcing renewable electricity?

	Challenges to sourcing renewable electricity	Challenges faced by your organization which were not country-specific
Row 1	No	<Not Applicable>

C-CH8.3

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

No

C9. Additional metrics

C9.1

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

C-CH9.3a

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

Output product

Specialty chemicals

Production (metric tons)

2380000

Capacity (metric tons)

2380000

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

0.51

Electricity intensity (MWh per metric ton of product)

0.56

Steam intensity (MWh per metric ton of product)

0.62

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

0

Comment

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	

C-CH9.6a

(C-CH9.6a) Provide details of your organization's investments in low-carbon R&D for chemical production activities over the last three years.

Technology area	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
Process step integration	Large scale commercial deployment	≤20%		DICI (DSM Integral Continuous Improvement journey) guides DSM Operations on a "Culture of Continuous Improvement". Through DICI plant and equipment opportunities for improvements are identified and executed. This program is material in identifying and initiating low-carbon investments on our production sites through for instance value chain optimization and energy reduction by optimizing production processes. The investment figure given above only reflects the external costs. There are significant internal costs related to dedicated roles within the DICI organization. DICI offers an integrated approach to continuous improvement that provides: * Insights by assessing best practice status against world class standards, establishing in- and external benchmarking and measuring progress * Shaping by developing a step-by-step integrative improvement plan supported with a proven integrated implementation methodology * Connecting by building capabilities at all levels in Operations and creating the platform and networks to leverage the knowledge pool in DSM. DSM creates a common Continuous Improvement Culture in Operations by: * Harmonizing all improvement initiatives within DSM Operations and generating maximized value by having one approach which is leveraged by all BGs * Creating maximum learning in our organization through this shared approach and the use of the same practices * Unleashing the collective power of the Operations community by shared skill and capability building, and leveraging this power through active sharing of DSM best practices and digitalization in Operations * Delivering an annual value contribution of approximately 2% CoGS (Cost of Goods Sold) which would translate into ca. €70 million YoY (year-on-year) for DSM.
Process step integration	Large scale commercial deployment	≤20%		Our Energy Efficiency Improvement program consists of a range of reduction proposals from the business groups, encompassing projects for saving heat, fuel and electricity with an expected total of GHG improvement potential of approximately 20 kt in GHG reductions and 2% of energy efficiency savings annually. . Most projects also deliver additional benefits such as cost savings or water savings. This program is centrally funded. Projects finalized in 2020 began delivering full benefits in 2021Examples of projects resulting in lower energy use are improvements of steam and hot oil systems (such as leakage repairs, condensate return, heat recovery on furnaces and insulation) at various locations (~6 kt CO ₂ eq reduction); the replacement of steam-driven chillers by electricity (partially renewable) operated in Jiangshan (Jiangsu province, China), contributing ~7 kt CO ₂ eq; and the replacement of low-efficiency chillers in León (Spain), contributing ~1 kt CO ₂ eq reduction). Besides improving heating and cooling equipment, we also increased the efficiency of our compressed air and nitrogen systems at various locations through leakages repair and equipment upgrades. Another focus area is heat integration, which we applied on various locations such as Lalden (Switzerland), Village-Neuf (France) and Dalry (UK).

C10. Verification

C10.1

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

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

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

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

2021-DSM-Annual-Report.pdf

Page/ section reference

p66-69 Planet - in our IAR, scope 1 + 2 emissions are reported in aggregate
p289-292 Assurance report of the independent auditor

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1b

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

Scope 2 approach

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

2021-DSM-Annual-Report.pdf

Page/ section reference

p66-69 Planet - in our IAR, scope 1 + 2 emissions are reported in aggregate

p289-292 Assurance report of the independent auditor

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

Scope 2 approach

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

2021-DSM-Annual-Report.pdf

Page/ section reference

p289-292 Assurance report of the independent auditor

p300 - DSM figures: 5-year summary - Planet - in our IAR, scope 1 + 2 emissions are reported in aggregate

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category

Scope 3: Purchased goods and services
Scope 3: Capital goods
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
Scope 3: Upstream transportation and distribution
Scope 3: Waste generated in operations
Scope 3: Business travel
Scope 3: Employee commuting
Scope 3: Upstream leased assets
Scope 3: Downstream transportation and distribution
Scope 3: End-of-life treatment of sold products

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

2021-DSM-Annual-Report.pdf

Page/section reference

p66, 72- 74 Planet -scope 3 emissions
p289-292 Assurance report of the independent auditor

Scope 3 emissions are reported as follows:

- Purchased goods and services
- Other upstream categories (Capital goods, Fuel and energy-related activities, Upstream transportation and distribution, Waste generated in operations, Business travel, Employee commuting and Upstream leased assets)
- End-of-life treatment
- Investments
- Other downstream categories (Downstream transportation and distribution)

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.2

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

Yes

C10.2a

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

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Other, please specify (All emissions data points and target information)	Dutch Standard 3810N 'Assurance-opdrachten inzake maatschappelijke verslagen' (Assurance engagements relating to sustainability reports), which is a specified Dutch standard that is based on the International Standard on Assurance Engagements (ISAE) 3000 'Assurance Engagements Other than Audits or Reviews of Historical Financial Information'.	All information relating to our targets and performance as detailed in our Integrated Annual Report, as well as the data points that are used to calculate the targets and performance are subject to audit.

C11. Carbon pricing

C11.1

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

Yes

C11.1a

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

EU ETS
Switzerland ETS
UK ETS

C11.1b

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

EU ETS

% of Scope 1 emissions covered by the ETS

22

% of Scope 2 emissions covered by the ETS

11

Period start date

January 1 2021

Period end date

December 31 2021

Allowances allocated

84056

Allowances purchased

87255

Verified Scope 1 emissions in metric tons CO2e

134305

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

In the figures, a minor proportion of the data covers sites we own but do not operate, and facilities we operate but do not own, for example industrial park(s) where we consume energy and obligations & free allowances are distributed internally within all the companies in the park but we do not own or operate the thermal facility formally.

Switzerland ETS

% of Scope 1 emissions covered by the ETS

0

% of Scope 2 emissions covered by the ETS

15

Period start date

January 1 2021

Period end date

December 31 2021

Allowances allocated

99544

Allowances purchased

6373

Verified Scope 1 emissions in metric tons CO2e

0

Verified Scope 2 emissions in metric tons CO2e

88603

Details of ownership

Facilities we own but do not operate

Comment

Other ownership: industrial parks from which we purchase energy; obligations & free allowances are distributed internally among industrial park users. We do not own nor operate the thermal facility

UK ETS

% of Scope 1 emissions covered by the ETS

18

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1 2021

Period end date

December 31 2021

Allowances allocated

43708

Allowances purchased

62664

Verified Scope 1 emissions in metric tons CO₂e

106372

Verified Scope 2 emissions in metric tons CO₂e

0

Details of ownership

Facilities we own and operate

Comment

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

DSM's strategy to comply with the schemes comprises of:

1) Reducing emissions and (future) compliance costs by working with our Science Based Targets, i.e., reducing our total Scope 1 & 2 GHG emissions by 50% in absolute terms by 2030 (compared to 2016). We have developed detailed roadmaps for the most relevant sites, which cover potential initiatives to reduce emissions, expected business growth and ETS exposure projections. We are working to reduce emissions for example by improving energy efficiency by 1% per year and implementing specific process emission reduction programs in line with our targets as well as moving to renewable Electricity (100% by 2030). In addition, all new investments need to be also effectively carbon neutral within business groups.

The strategy has been very successfully applied since the start of the program in 2016, with DSM Scope 1&2 emissions having reduced by 27% in absolute terms so far (within the timescale 2016-2021, with the current program running until 2030), which also effectively reduces DSM exposure and direct compliance cost for the ETS systems

2) Long-term decarbonization of assets: To encourage investments in low-carbon and carbon-free technologies, we use an internal carbon price in the valuations of key investment projects and in the Profit and Loss (P&L) statements of the business groups for internal management reporting. Since 2019, business growth projects must either be GHG-neutral or else be compensated for within the same business. This increases the visibility of, and encourages accountability for, the impact of carbon on the business. In 2021, we increased the internal carbon price from to € 100/mt CO₂e to better reflect the updated insights on the expected carbon price scheme developments. This price is also within the ranges of the scenarios we use for assessing climate transition risks (in the time scale until 2030).

3) Monitoring: Internally monitoring external carbon pricing schemes & developments on a quarterly basis based on scenarios, alongside to monitoring the need for balancing purchased and allocated allowances on quarterly basis. This includes assessing impacts and preparing documentation well in advance even on locations with emerging liabilities, such as China (details and communication with authorities yet to be finalized), up until 2030

C11.2

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

No

C11.3

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

Yes

C11.3a

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

Objective for implementing an internal carbon price

Navigate GHG regulations
Stakeholder expectations
Change internal behavior
Drive energy efficiency
Drive low-carbon investment
Stress test investments
Identify and seize low-carbon opportunities

GHG Scope

Scope 1
Scope 2

Application

Business Units

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

100

Variance of price(s) used

Uniform pricing: a single price that is applied throughout the company independent of geography, business unit, or type of decision
As of March 2021, DSM internal carbon price increased to € 100/mt CO₂ eq from the previously used €50/mt CO₂ eq

Type of internal carbon price

Shadow price

Impact & implication

DSM has two types of carbon prices:

1. In business cases for new investments/ acquisitions (CAPEX)
2. In the P&L (OPEX)

1) Since 2016 DSM has included a carbon price for each ton of GHG additionally generated as a result of an investment project. In the business case of the project this carbon penalty has to be included as a cash outflow. In practice, for each large investment two business cases have to be presented. One with an internal carbon price of €100 /mt CO₂e, and one with the real carbon price (which tends to be much lower or even zero depending on the region). The above is not only valid for capital investment projects but also to acquisition projects. We review the internal carbon prices levels periodically, with latest update to €100/mt CO₂ in March 2021, from the original ICP of € 50/mt CO₂.

As an example where Internal Carbon Price has been a supporting driver for a emissions reduction investment is a biomass project in Switzerland, which was an opportunity to renew an old installation with limited investments in a cost neutral way. While the Swiss ETS prices at the time were not sufficiently high to fully support the business case, we applied our internal carbon price (€50/mt CO₂e at time of investment) to prepare for future carbon prices. The project reached full year capacity in 2020, with a total of 46kt CO₂e annual reduction of emissions for DSM.

2) DSM has also continued to explore expanding and deepening the used of carbon pricing and in 2019 has included an internal carbon "penalty" in the P&L of the different units. This penalty is calculated at €100/mt of CO₂e (as of January 2022) multiplied by the actual emissions (Scope 1&2) in the previous period. The charge is only included in the internal management reporting and does not trigger any cash flows between entities but will help to increase the awareness and further drive emissions reductions.

Recent internal analysis confirms that Internal Carbon Pricing (ICP) has been instrumental tool to integrate GHG emissions into long-term investment decisions, encouraging low-carbon solutions. The Internal Carbon Price also serves to prepare DSM for the financial impact of an external carbon price, as we are anticipating further regulation to emerge and develop in the regions we operate and also strongly support this.

C12. Engagement

C12.1

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

Yes, our suppliers
Yes, our customers/clients

C12.1a

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

Type of engagement

Engagement & incentivization (changing supplier behavior)

Details of engagement

Run an engagement campaign to educate suppliers about climate change
Provide training, support, and best practices on how to make credible renewable energy usage claims
Climate change performance is featured in supplier awards scheme

% of suppliers by number

10

% total procurement spend (direct and indirect)

34

% of supplier-related Scope 3 emissions as reported in C6.5

72

Rationale for the coverage of your engagement

i) While carbon footprint reduction is a prime responsibility of any supplier and also part of the scope of our Sustainable Procurement Program (SSP) and TFS, mentioned above, DSM's scope 3 emission reduction program, called the CO2REDUCE supplier engagement program, has a targeted focus on high-impact suppliers and the top 30 contributing raw material to achieve DSM's science based target on scope 3.

The program focus is three-fold; engage with suppliers on the necessity of greenhouse gas emission reduction in the value chain, collect primary data at the level of the raw materials procured by DSM, and facilitate, encourage and collaborate with suppliers by developing roadmaps consisting of specific emissions reduction projects. This program has around 500+ suppliers from material categories in scope, whereby we focus on the the 100+ highest upstream carbon emission and purchase volume suppliers across DSM, covering more than two thirds of the emissions in purchased goods and services

Impact of engagement, including measures of success

ii) The primary measure of success is to meet DSM's science-based scope 3 target: -28% per ton of product produced (by 2030) vs. baseline 2016 while focusing on the most scope 3 emission contributing suppliers.

DSM's Science Based Target for Scope 3 is an intensity target, expressed in kg CO2eq/kg produced, which in 2021 decreased by an additional 3% compared to 2020 resulting in a 8% total reduction against the baseline in 2016. Some examples are: the positive development of a greatly improved carbon footprint from one of our main suppliers. Additionally, the supplier to our Nutrition business with the second-highest level of emissions made a significant investment to reduce its emissions through the use of a catalytic conversion technology.

iii) We engage with our suppliers by sharing our own experiences, helping them to embark on emissions reduction programs in their operations, switch to renewable energy and investigate low carbon feedstocks. Collaboration with suppliers typically involves the exchange of life cycle assessment data to establish the specific situation of a supplier. Through the many engagement moments, multiple supplier action plans have been developed that strengthened our relationships with suppliers.

Some specific 2021 engagements & measures of success in the program:

1) One of the ways to inspire suppliers in their reduction journey is through webinars on options for scope 3 emission reductions. In 2021, we organized a webinar on energy efficiency with a full value chain approach. A supplier, a customer and DSM shared their approach to energy efficiency with a group of Chinese suppliers active in the engagement program. The webinar (in Mandarin) and the program were well received, and discussions were continued in the subsequent supplier programs.

2) Presentations as well as recordings from this webinar, previous webinars and new ones to come are provided free of charge on our website dsm.com/suppliers.

3) We played an active role in TFS regarding scope 3 program development in the newly inaugurated workstream on scope 3, with some of the suppliers in our CO2REDUCE program also participating. We actively share our experiences from the CO2REDUCE program with the aim to define best practices in supplier engagement and scope 3 calculations within the industry, while also serving as an inspiration to improve the program further

Comment

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

10

% total procurement spend (direct and indirect)

34

% of supplier-related Scope 3 emissions as reported in C6.5

72

Rationale for the coverage of your engagement

i) Our broader Sustainable Procurement Program (SSP) ensures that we deliver together with our suppliers on our promise to reduce our environmental footprint and improve lives through our activities, products and innovations. The SSP particularly focuses on sharing our expectations to our suppliers and collecting information from suppliers, and comprises of:

- Supplier code of conduct: The business principles most relevant for the supply chain are brought together in the Supplier Code of Conduct (SCoC) and structured along the three sustainability dimensions of People, Planet and Profit. The Supplier Code of Conduct forms the basis on how we choose to do business and interact with our suppliers.

- Supplier development & evaluation: assessing, auditing & improving our suppliers' sustainability performance through Together for Sustainability (TfS) & EcoVadis by actively developing and following up on corrective actions (see comment for further details)

- Scope 2 program: reducing GHG emissions from purchased electricity. Since 2020, in addition to renewable electricity, DSM procurement is also working to enable sustainable decarbonization of heat via renewable fuels.

- Scope 3 'CO2REDUCE' supplier engagement program: reducing GHG emissions throughout our value chain, working together with suppliers on collective carbon footprint & emissions reduction. This program has around 500+ suppliers from material categories in scope, whereby we focus on the 100+ highest upstream carbon emission and purchase volume suppliers across DSM, covering more than two thirds of the emissions in purchased goods and services. We engage suppliers on GHG emissions reduction, by collecting supplier and product specific emissions data at the raw materials level procured by DSM, & collaborate with suppliers by developing roadmaps consisting of specific emissions reduction projects. The stated % coverage refers to the scope of activities to collect primary information on GHG emissions and reduction activities under DSM's 'CO2REDUCE' supplier engagement program.

Impact of engagement, including measures of success

ii) Insights from the data collection & compliance program enabled us to clearly define how we choose to do business with suppliers and steer further engagement efforts to influence suppliers' GHG performance. The primary measure of success is to connect, engage and collaborate with all high-impact suppliers to collect supplier specific product carbon footprint primary data, insights and reduction options, and to define pathway to meet DSM's science-based scope 3 target: -28% per ton of product produced by 2030 vs 2016. DSM's Science Based Target for Scope 3 is an intensity target, expressed in kg CO2eq/kg produced, which in 2021 decreased by an additional 3% compared to 2020 resulting in a 8% total reduction against the baseline in 2016.

iii) Calculation and tracking of our scope 3 emissions developed further in 2021 to efficiently harness and utilize the insights gained in the program. Digitalization of the reporting enabled further transparency and better program steering. The reported emissions reflect the latest insights and are based on an increased share of supplier-specific emissions instead of using industry average figures. The program continued using last year's successfully developed roadmaps in which collaboration with high

impact suppliers is core. As a consequence, CO2REDUCE is well established in our businesses and we expanded the reach to more targeted suppliers that contribute the highest GHG emissions in our value chain.

In 2021, we continued to explore new opportunities for scope 3 emissions reductions through multiple (around 100) supplier emissions roadmaps for key GHG contributing raw materials. The obtained new insights, datapoints and reduction action plans were developed based on product carbon footprint data. Decisions on choice of supplier are also defined by other procurement factors. Several cases have been identified whereby supplier selection drives emission reduction.

Secondly, we identified low-carbon opportunities for several of our products using insights from the CO2REDUCE program regarding supplier emission plans and the associated emissions reduction potential. This served as essential input into the further development of our business strategy.

Scope 3 emissions at DSM are reported at reasonable assurance, as verified by our external corporate auditors

Comment

We also collect climate information from suppliers through TFS, a joint initiative of 31 chemical companies which DSM joined in 2015. Founded in 2011, TFS has developed and implemented a global assessment & audit program to improve sustainability practices within the chemical industry's supply chain. Members can share all assessments and audit reports, which allows DSM to screen and address sustainability performance and risks for a high number of suppliers. The EcoVadis assessment focuses on 21 criteria in four themes: Environment, Labor & Human Rights, Ethics and Sustainable Procurement. DSM expects suppliers to have a minimum "Engaged" score on their EcoVadis assessment; a lower received score will be required to go through a re-assessment or audit. We assessed 411 suppliers in 2020 through TFS, of which 373 were re-assessments. 65% of re-assessed suppliers received an improved sustainability score, compared to 60% last year, which indicates that our suppliers are further engaging and measurably improving in sustainability.

C12.1b

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

Type of engagement & Details of engagement

Education/information sharing	Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services
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% of customers by number

100

% of customer - related Scope 3 emissions as reported in C6.5

0

Please explain the rationale for selecting this group of customers and scope of engagement

i) Sustainability, including climate related information and performance, is included in all standard business communications and marketing in our various Business Groups. DSM is active in a wide variety of markets and is dedicated to reducing GHG emissions across the various value chains in which it is active.

In addition to standard, integrated communications on our performance and strategy, we are also running several engagement campaigns with selected clients to share our approach to meet our Science Based Emissions reduction targets and NetZero emissions, focusing on those clients that are also working with their SBTs and &/or NetZero emission targets across their value chains. We also have a number of LCA data based information sharing campaigns, e.g. on the lower carbon footprint of our products (our client's Scope 3 emissions) or properties of our products helping our customers to reduce their Scope 1 and 2 footprint. Furthermore, customer engagement also includes responding to specific customer information requests, including, but not limited to the CDP Supply Chain Program.

One case study example of a specific engagement campaign towards our clients is for from DSM Personal Care & Aroma Ingredients business: in 2019 the PCA team launched Sustainability Imp'Act Card™ for a first wave of +10 key products (with a second wave of +10 products in 2020 followed by another 10+ in consecutive half years to 2021). The Sustainability Imp'Act Card™ provide specific, tangible information at the product level around 4 pillars: environmental and social impacts, traceability and identity. Through this card, we offer our customers the access to carbon and water footprint values, the level of naturality in our ingredients and all related certifications.

Please note on the % coverage of Scope 3 emissions for C 6.5: We have excluded the category "Processing and Use of Sold Products" from our Scope 3 inventory in Question C6.5 (based on the reasoning provided in the WBCSD/GHG protocol Chemical Guidelines for intermediate producers since reliable figures are difficult to obtain due to the diverse application and customer structure),

Impact of engagement, including measures of success

ii) The primary measure of success is retaining our clients, increasing sales/ gaining market share, and in some cases also contributing to encouraging our clients to be more ambitious in their emissions reductions journey by not just being considered as a supportive partner but even as an advisor to guide their starting path. Furthermore, an additional, complementary way of measuring the success of our customer engagement is the overall demand for our Brighter Living Solutions (BLS) portfolio. Through our Brighter Living Solutions, we enable our customers in their sustainability endeavors, as these products are measurably better than the mainstream solution on the market in terms of their environmental (ECO+ i.e. CO2 emissions, resource extraction, waste etc.) and/or social impact (People+, i.e. criteria such as health). The sustainability assessments to support the qualification for Brighter Living Solutions are required to be made by internal Life Cycle Assessment (LCA) experts and reviewed using the four-eyes principle with at least one internal, independent senior LCA consultant.

The threshold for success is to achieve 65% if our sales from the BLS solutions portfolio. We see continued demand for solutions that address sustainability challenges. In 2021, 64% of our sales came from BLS products (compared to 63% in 2020)

iii) the impact of engagement: While we recognize some of the positive impacts of these engagements will take a longer time to materialize, we have seen significant positive impact also on short term from some of the campaigns. For example, the PCA business Imp'Act Card™ tool translated in a couple of months into various qualitative and quantitative successes on the market. For example, being acknowledged a sustainable leader or the number 1 in sustainability in the annual suppliers assessment and consequently increased market share or retained market share despite a more competitive price, by demonstrating that we had the lowest carbon footprint in the industry.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

Yes, climate-related requirements are included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement

Implementation of emissions reduction initiatives

Description of this climate related requirement

The business principles most relevant for the supply chain are brought together in the Supplier Code of Conduct (SCoC) and structured along the three sustainability dimensions of People, Planet and Profit – including DSM ambitions on climate action and how we can only work with partners supporting and also acting with us on this journey. The Supplier Code of Conduct forms the basis on how we choose to do business and interact with our suppliers. In 2021, we met our target level of 95% of our supplier spend covered by the SCoC

% suppliers by procurement spend that have to comply with this climate-related requirement

95

% suppliers by procurement spend in compliance with this climate-related requirement

34

Mechanisms for monitoring compliance with this climate-related requirement

Other, please specify (The % of compliance is conservative but presented as the % of the primary data received through DSM 'CO2REDUCE' supplier CO2REDUCE engagement program elaborated in 12.1.)

Response to supplier non-compliance with this climate-related requirement

Retain and engage

C12.3

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

Row 1

Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers
Yes, we engage indirectly through trade associations

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

DSM Information request for trade associations.pdf

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy

Our climate change strategy is fully integrated into our business strategy, and as such regularly reviewed and discussed via business line management which ensures full awareness and commitment in the line. Climate advocacy activities globally are discussed several times a year among the Executive Committee. Additionally, the DSM Sustainability Leadership Team, bringing the different functional areas together, supports the development and deployment of the Corporate Sustainability Strategy which includes climate change advocacy. Within each functional area additional global teams, we have regular engagement and explicit discussions on the climate positions of the key associations that are most influential and where we are active members (e.g. on the board).

i) In 2019 DSM started to define a processes to assess and engage with global trade associations to ensure aligned climate policy from "mainstream" business associations, which we are supporting through membership contributions and who might advocate on our behalf on (business) relevant topics, including climate related topics.

The aim is to increase climate ambition by informing and influencing high-impact business organizations with our expectations – also by making the link with "mainstream" trade and climate policies more visible. A cross functional team, led by Global Public Affairs and Sustainability was set up, to execute pilot screening and define long term approach in close collaboration with regional offices and Business groups, as both constituents have traditionally independently liaised with local trade associations.

In the pilot phase, an initial screening of the climate positions of selected key associations (40 globally) was conducted to 1) test the availability of data, 2) suitability of the pre-defined climate positions criteria and 3) develop a process manual (including training) to support regions and business groups in future assessment and engagement. The process was followed up with detailed engagements with broader set of the associations to further share DSM ambitions, and where differences arise, seek opportunities to influence from within or collectively with other companies, and ultimately bring persistent differences back to the review team for assessment of next steps. The work is still ongoing but the first screening revealed that the assessed organizations were able to provide sufficient information on their Paris alignment or took the steps to develop positions.

Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

Focus of policy, law, or regulation that may impact the climate

Other, please specify (Carbon Pricing)

Specify the policy, law, or regulation on which your organization is engaging with policy makers

(EU/Swiss/UK) ETS, other regional carbon pricing schemes

Policy, law, or regulation geographic coverage

Global

Country/region the policy, law, or regulation applies to

<Not Applicable>

Your organization's position on the policy, law, or regulation

Support with minor exceptions

Description of engagement with policy makers

DSM is actively engaged in the efforts to further design and development of ETS Systems and Carbon Pricing. DSM openly explains its position at public meetings and discussions and in conversations with individual political decision makers and other stakeholders, whether on highest impact design or expansion to other sectors or GHG emissions beyond CO2 or industrial applications of other GHGs.

As a member and long-term supporter of the Carbon Pricing Leadership Coalition (CPLC) CPLC's long-term objective is for a meaningful carbon pricing to be applied throughout the global economy. In addition to facilitating leadership dialogues, the CPLC also mobilizes support among investors and companies in general, to engage in policy dialogues and to stimulate the corporate use of internal carbon prices. Furthermore we have also heavily contributed to Carbon Pricing being raised on the engagement agenda of World Economic Forum CEO Climate Leaders and IBC

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

The CPLC and DSM are supportive of both carbon taxes and ETS. The CPLC and its private sector members (including DSM) advocate that – in order for carbon pricing to be a meaningful policy instrument - carbon pricing must be 1) expanded (i.e. more emissions must be covered); 2) it should be deepened (i.e. the price level should be effective); 3) connected (i.e. systems must be linked, over time).

Furthermore, we strongly advocate that competitiveness concerned should not hinder adoption of carbon pricing and for example EU CBAM design can be used as effective climate diplomacy tool even though the design should prevent further complexity. DSM, in the capacity of DSM's honorary Chairman has also co-lead and supported the work of WB CPLC High-Level Commission on Carbon Pricing and Competitiveness, which concluded that while in certain conditions the competitiveness concerns are real, risks should not be overstated and used as a reason not to act on climate change - the risks can be managed with parallel policies; additional costs created by carbon pricing are often small relative to other variables that impact the investment decisions and competitiveness, such as corporate tax rates differences, wage arbitrage, regulations, availability of labor, infrastructure, exchange rates and more such as commodity prices.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Focus of policy, law, or regulation that may impact the climate

Other, please specify (Net Zero global economy by 2050)

Specify the policy, law, or regulation on which your organization is engaging with policy makers

For parties UNFCCC to commit to halve emissions by 2030 and reach net-zero economies by 2050, and to reflect key, detailed action plans in their Nationally Determined Contributions submitted to UN coupled with long-term, industry specific roadmaps to reach net-zero emissions by 2050, including roadmap on enabling policy environment

Policy, law, or regulation geographic coverage

Global

Country/region the policy, law, or regulation applies to

<Not Applicable>

Your organization's position on the policy, law, or regulation

Support with no exceptions

Description of engagement with policy makers

Throughout 2021, in and in the the leadup to COP26 an, DSM demonstrated and actively engaged in business leadership in climate action via events, meetings and support of various open letters to governments, including, but not limited to:

- April 2021: We Mean Business & Ceres open letter to Biden, to support the Biden administration's commitment to climate action, and for setting a federal climate target to reduce emissions.
- June 2021: Alliance of CEO Climate Leaders open letter to call on the G7, as well as, other worlds leaders, to take actions that will accelerate efforts to halve emissions by 2030 and reach net-zero economies by 2050

Climate Advocacy is an important part of DSM's climate agenda, as we believe in positive feedback loops in which bold government policies and private sector leadership reinforce each other, and together take climate action to the next level (= "Ambition loops"). In our view, broad collaboration across the value chains, peers and with policymakers is needed to rapidly redesign the economy. We believe that as an active part of society, it is our responsibility to help shape and amplify the pressure for systemic change and show policymakers that companies are ready for more ambitious climate policies to help raising government ambition (this creating a positive 'Ambition Loop'). In this capacity, we are advocating a progressive agenda in discussions about climate change and energy in industry associations, other industry initiatives and business organizations and take a leading role in teaming up with other ambitious companies (e.g. through WBCSD, WEF, WEF CEO Climate Alliance etc, WeMeanBusiness, CLG Europe, RE100, COP26 Business Leaders Group).

The overall priority for us is to support long-term policies that enable a low-carbon economy. For example, but not limited to, carbon pricing and removal of fossil fuel subsidies; policies that are incentivizing low carbon innovations and scaling of renewable energy; policies increasing transparency and awareness of the impacts of climate change. DSM supports and leads advocacy initiatives which encourage climate action by governments to enable the shift to a low-carbon economy; help us drive concrete actions, to improve the carbon footprint in our own operations; catalyze an action-oriented movement among companies from all industry sectors, and connect well with our core value and moral obligation to take care of the planet.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

<Not Applicable>

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Focus of policy, law, or regulation that may impact the climate

Other, please specify (Clean energy generation)

Specify the policy, law, or regulation on which your organization is engaging with policy makers

DSM has advocated (among other through the World Economic Forum CEO Climate Leaders, spearheaded by DSM's CEO, WeMeanBusiness, CLG Europe and RE100) that governments should have a strategic action agenda, in which development and scaling of sustainable renewable energy technologies and access infrastructure should

be a key priority and harmful subsidies to fossil energy rapidly phased out acting as negative price signals.

Policy, law, or regulation geographic coverage

Global

Country/region the policy, law, or regulation applies to

<Not Applicable>

Your organization's position on the policy, law, or regulation

Please select

Description of engagement with policy makers

Across regions, DSM actively engages with policymakers on supportive policies for renewable energy, including those enhancing the availability of sustainable bio-fuels (such as steam) and renewable electricity. One recent example of specific legislation is RePowerEU proposal for which DSM via CLG Europe campaign and directly provided several comments in 2022.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

<Not Applicable>

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.3b

(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

European Chemical Industry Council (CEFIC)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change 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)

Cefic supports the European ambition to become climate neutral by 2050. They raise awareness for the specific ways in which the chemical industry can support GHG emissions reduction for mitigation of and adaptation to climate change and to advocate for realization of a business environment in which the chemical industry can realize this potential best.

DSM participates in internal working groups by providing challenge and solution focused improvement proposals. DSM advocates for increased sustainability ambitions particularly on topics related to climate change, and challenges decisions when not aligned with a progressive sustainability agenda. Since September 2018 DSM took over the chairmanship of Cefic Sustainability Forum. The Chair, one of the DSM Co-CEO's, also sits on the board and executive committee of Cefic

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify (VNCI (Dutch chemical industry association))

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We are attempting to influence them to change 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)

VNCI advocates for a European level playing field. VNCI published a Roadmap (2021) aiming at a climate-neutral & circular chemical industry by 2050. DSM advocates for increased sustainability ambitions particularly on topics related to climate change, and challenges decisions when not aligned with a progressive sustainability agenda. The president of DSM Netherlands sits in the VNCI board

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify (EuropaBio)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current 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)

DSM is chair of the board and we engage via board, working groups and active engagement in the drafting of positions. Europa Bio Promotes Climate Change solutions and Bioeconomy.

Overview of factsheets:

<http://www.europabio.org/filter/industrial/type/fact>

Example on climate: http://www.europabio.org/sites/default/files/reducing_greenhouse_gas_emissions_with_the_bioeconomy.pdf

Example on how biotechnology contributes towards achieving the UN Sustainable Development Goals:

http://www.europabio.org/sites/default/files/Digital%20version%20-%20IB%20and%20SDGs_0.pdf

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify (Holland Bio)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current 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)

Advocate; Biotechnology for better health, greater sustainability and economic growth. DSM is chair on the board of Holland Bio.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify (FoodDrinkEurope)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current 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)

DSM holds the position of Board observer and sits in various working groups. FoodFrinkEurope is Committed to the EU's target for a carbon-neutral Europe by 2050 and advances the development of e.g. sustainability, transparency and labelling of food and transparency in food value chain.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.4

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

Publication

In mainstream reports, incorporating the TCFD recommendations

Status

Complete

Attach the document

2021-DSM-Annual-Report.pdf

Page/Section reference

TCFD references: p192-194

Governance: p129-131 (Sustainability Governance Framework), p157-8 (Sustainability Committee)

Strategy: p14-25 (Strategy), p65-82 (Planet)

Risks and opportunities: p136-143 (Risk Management), p91-118 (Review of Business - opportunities)

Emissions figures and targets: p65-82 (Planet)

Other metrics: p65-82 - Our emissions targets are supported by other ambitions, including the purchase of electricity from renewable sources and our energy efficiency improvement.

Content elements

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

Comment

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	Yes, executive management-level responsibility	DSM's EVP Operations, who is also a member of DSM's Executive Committee and reports to one of our co-CEOs has responsibility for biodiversity-related issues within DSM. Our EVP Operations is the owner of DSM's Responsible Care Plan (DRCP) 2022-24, whereby DSM's objectives for this time period relating to the environment (including on Nature & Biodiversity) are outlined.	<Not Applicable>

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Other, please specify (Deforestation-free in our primary supply chains by 2030 at the latest. This target covers the Tier 1 supply chain for our deforestation-risk crops: palm-derivative products, sugarcane, and direct soy and corn products.)	CBD – Global Biodiversity Framework SDG Other, please specify (- Business for Nature - One Planet Business for Biodiversity - Science-Based Targets Network)

C15.3

(C15.3) Does your organization assess the impact of its value chain on biodiversity?

	Does your organization assess the impact of its value chain on biodiversity?	Portfolio
Row 1	No, but we plan to assess biodiversity-related impacts within the next two years	<Not Applicable>

C15.4

(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Education & awareness

C15.5**(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?**

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	Response indicators Other, please specify (Protected areas (sites in or adjacent to protected areas) Protected areas (Sites in registered protected areas) Deforestation: Proportion of deforestation-risk raw materials from certified sources)

C15.6**(C15.6) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In mainstream financial reports	Content of biodiversity-related policies or commitments Details on biodiversity indicators	p77-78 2021-DSM-Annual-Report.pdf
Other, please specify (Biodiversity position paper)	Content of biodiversity-related policies or commitments	all position-paper-biodiversity.pdf

C16. Signoff**C-FI**

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

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

	Job title	Corresponding job category
Row 1	Co-CEO and COO	Chief Executive Officer (CEO)

SC. Supply chain module**SC0.0**