

C0. Introduction

C0.1

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

Lundbeck is a global pharmaceutical company highly committed to improving the quality of life of people living with brain diseases. For this purpose, Lundbeck is engaged in the research, development, manufacturing, marketing and sale of pharmaceuticals across the world. The company's products are targeted at the disease areas within psychiatry and neurology.

Focus on R&D is the most important pillar in Lundbeck's ambition to improve treatment for people living with brain diseases. We are specialists in our area and have a state-of-the-art research facility in Denmark, and more than 800 employees work in our R&D units. We cooperate closely with strategic partners all over the world, ensuring the best possible foundation for innovation and the development of new treatment solutions.

Lundbeck employs approximately 5,000 people worldwide. We have employees in more than 50 countries, and our products are registered in more than 100 countries. We have production facilities in Denmark, France and Italy and our research center is based in Denmark. Lundbeck generated revenue of DKK 18.1 billion in 2018.

Corporate Responsibility: Our Corporate Responsibility approach takes in our business responsibilities, environmental impact and social influence:

- Our business responsibilities are about being fair, transparent and accountable. Lundbeck systematically monitors, evaluates and acts on opportunities and risks to our company in order to develop best practices and business standards.
- Lundbeck works systematically to minimise our environmental impact. The precautionary principle guides our efforts, and we ensure continuous improvements in research, development and production, applying certified environmental management systems.
- We acknowledge our social influence on people, the community and society, and strive to be known as a company that advances responsible social relations. Internally, Lundbeck provides sound people policies covering the Lundbeck Group. Internationally, we promote agreed conventions on human and labour rights and promote access to health through the Lundbeck Institute as well as by donations. By generating profit, we contribute to The Lundbeck Foundation, one of the largest private contributors to public research in health and natural sciences in Denmark.

Our Health Safety and Environmental efforts are developed, conducted and controlled through our corporate HSE system that is certified according to ISO 14001 and the Danish law about energy efficiency.

Climate strategy: In 2007 Lundbeck developed our first Climate strategy, making a firm commitment to minimizing CO₂ emissions, and confirming our ambition to be among the leaders within the pharmaceutical industry. In 2018 we renewed our long term target for the forth time: We will reduce our scope 1 and 2 CO₂ emission by 30% in 2026 compared to 2016. Because scope 3 emissions are the largest contributor to our CO₂ emission, (around 90%) we have also developed a scope 3 target, that includes that we will engage with a large number of our suppliers to motivate them to develop climate targets.

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
Row 1	January 1 2018	December 31 2018	No	<Not Applicable>

C0.3

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

Denmark
France
Italy

C0.4

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

DKK

C0.5

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

Operational control

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 Operating Officer (COO)	The Board of Directors consist of 5 external members and 3 elected Lundbeck group representatives. Due to this The Chief Operating Officer (COO) is not an official member of the board but is attending all board meetings. Lundbecks Audit Committee has the highest responsibility for reporting and advising the Board about business risks including climate risks and report on regular basis to the board. The chairman of the board, two other board members and our COO are members of this committee. Our COO is member the Executive Management group (EM) that also reports to the board of Directors. Our COO is appointed by the Chief Executive Officer (CEO) to have the corporate responsibility on climate issues and to chair The Health Safety and Environmental Council. This Council has the highest level of responsibility for climate change and decide our climate targets and strategy. The COO has direct access to present climate topics for decision to both the board, EM and the audit committee.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Sporadic - as important matters arise	Reviewing and guiding strategy Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<p>Due to climate risks in general are considered low compared to other business risks, climate related issues have only been discussed at board meetings sporadically when the COO consider it relevant. Due to climate risks in general are considered low compared to other business risks, climate related issues have only been discussed at board meetings sporadically when the COO consider it relevant. But due to the rising awareness on climate changes, our climate performance will be at the agenda on the board meetings on a quarterly basis starting medio 2019. Status on our climate performance will also be included in our quarterly financial announcements. These announcements are carefully reviewed at board meetings. The COO is responsible for this input at the board meetings. The CEO has appointed the COO to have the highest responsibility on climate performance and management and to chair the HSE council, which is the committee with the highest responsibility on climate performance and management. This means the COO has the overall responsibility of defining and evaluating corporate policies, strategies, guidelines and corporate activities and monitoring progress against targets concerning HSE aspects including climate change. The HSE Council have 1 meeting every quarter of the year where e.g. status on climate targets are discussed. Climate change issues are one of the significant environmental issues in Lundbeck and are therefore managed and controlled by the HSE Council. This means that Lundbecks Climate Strategy and our long-term CO2 emission target is decided by the HSE Council and aligned with the business strategy.</p>

C1.2

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

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Operating Officer (COO)	Both assessing and managing climate-related risks and opportunities	As important matters arise
Other committee, please specify (Lundbecks Audit Committee has the highest responsibility for reporting and advising the Board about business risks. They get input about climate risks from the COO, the Risk Committee and the annual Business Impact Analysis Report.)	Assessing climate-related risks and opportunities	Annually
Other, please specify (The Senior Vice President for Supply Chain & Facility Management)	Both assessing and managing climate-related risks and opportunities	Annually
Safety, Health, Environment and Quality committee	Both assessing and managing climate-related risks and opportunities	Not reported to the board
Environmental, Health, and Safety manager	Both assessing and managing climate-related risks and opportunities	Not reported to the board

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).

Our Executive Vice President of Global Product Development and Supply (COO) is appointed by our Chief Executive Officer (CEO) to be the person that has the highest responsibility on climate related issues. The reason for appointing him is, that he has the overall responsibility for all production and facility management and the overall responsibility for Lundbecks energy costs. The Senior Vice President for Supply Chain & Facility Management and the Director of the Corporate HSE department is also referring to the COO. The Senior Vice President for Supply Chain & Facility Management is responsible for preparing the annual Business Impact Analysis report to the COO, the audit committee and the board once a year. The Business Impact Analysis report focus on business interruption impact and mitigation of risks related to suppliers, interruption of key processes and risk for loss of key assets including climate risks. The Director of the Corporate Health, Safety and Environment (HSE) department is responsible for monitoring current and emerging legislation, suggesting future climate related initiatives and targets, identifying climate risks and opportunities, reporting to CDP and are also reporting relevant issues to the COO. Both the COO and The Senior Vice President for Supply Chain & Facility Management report at least annually in the corporate risk register.

Our COO is member of the Audit Committee and the Executive Management (EM). Lundbecks Audit Committee has the highest responsibility for reporting and advising the Board about business risks including climate risks and report on regular basis to the board. The Executive Management group (EM) also reports to the board of Directors. Our COO can via his membership of EM and the audit committee bring up climate related issues in these fora and when significant further on to the board.

Our COO is also appointed by the CEO to be chairman for Lundbecks Health, Safety and Environment (HSE) Council. Apart from the Chairman the HSE Council consists of 3 managers (2 senior Vice Presidents and 1 Vice President) appointed by the chairman and 3 employees elected by and among HSE representatives in the organization. Through this all parts of the company (Global Product Development and Supply, Research & Development and Administrative areas) are represented in the HSE Council. The Director of the Corporate HSE department is secretary for the HSE Council and prepare information and suggestions for decision to the HSE council.

The HSE Council acts on behalf of EM in respect to HSE matters including climate change. Decisions in the HSE Council cover all Lundbeck.

The role of the HSE Council is to:

- Define and evaluate corporate policies, strategies, guidelines and corporate activities and targets concerning HSE aspects including climate change and climate targets.
- Evaluate Lundbecks HSE performance quarterly and annually at the meetings. This includes status on our climate targets.
- Communicate corporate decisions to managers and employees at all sites.

Climate change issues are considered to be one of the significant environmental issues in Lundbeck and are therefore managed and controlled by the HSE Council. This means that Lundbecks Climate Strategy and our long-term CO2 emission target is decided and approved by the HSE Council.

The Council have 1 meeting every quarter of the year.

Our COO can through his position in the Line organization and as chairman of the HSE council bring relevant climate related issues like targets and strategy to EM for information or final decision making. Following the audit committee can be informed and when relevant the board.

C1.3

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

Yes

C1.3a

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

Who is entitled to benefit from these incentives?

Chief Operating Officer (COO)

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction target

Comment

In our Performance Management System all managers and employees have individual goals, including climate related goals. Once a year the performance is evaluated and scored and the score is determining the size of the bonus. Our COO has the corporate responsibility for climate targets and from 2019 our COO had our emission reduction targets (scope 1 and 2) included in his bonus goals. This means that evaluation of our fulfillment of the climate related short term and long-term targets is influencing the size of the bonus for our COO. The short term target (3% CO2 reduction in 2019 compared to 2018) are created partly by breaking down the corporate long term target about GHG emission and partly by looking into energy forecasts.

Who is entitled to benefit from these incentives?

President

Types of incentives

Monetary reward

Activity incentivized

Energy reduction target

Comment

There is an annual bonus for meeting short term targets related to energy reduction and emission reduction targets that affect scope 1 and 2 emissions. The short-term target is based on our long-term target. The size of the bonus is managed in our Performance Management System. In the Performance Management System all managers and employees have individual goals. Where relevant climate related goals are included. Once a year the performance is evaluated and scored and the score is determining the size of the bonus.

Who is entitled to benefit from these incentives?

Facilities manager

Types of incentives

Monetary reward

Activity incentivized

Energy reduction target

Comment

There is an annual bonus for meeting short term targets related to energy reduction and emission reduction targets that affect scope 1 and 2 emissions. All sites are defining a site specific energy target. The size of the bonus is managed in our Performance Management System. In the Performance Management System all managers and employees have individual goals, including climate related goals. Once a year the performance is evaluated and scored and the score is determining the size of the bonus.

Who is entitled to benefit from these incentives?

Environmental, health, and safety manager

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction target

Comment

There is an annual bonus for meeting short term targets related to GHG emission reduction targets. The Environmental/Sustainability managers and specialists are rewarded monetary if they complete activities that supports development of our climate strategy and targets. For instance the new long-term and short-term targets were developed and presented for the management in 2018. Other initiatives like preparation of materials for management decisions on e.g. increase the use of renewables are also included in the bonus system. The size of the bonus is managed in our Performance Management System where Environmental/Sustainability managers and specialists have individual climate related goals. Once a year the performance is evaluated and scored and the score is determining the size of the bonus.

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Monetary reward

Activity incentivized

Energy reduction project

Comment

All employees in Lundbeck are covered by a Performance Management System. Through this system individual goals, including eventually climate related goals can be set. Especially employees that are a part of the local energy team can have individual energy goals. The employee participates twice a year in performance dialogues. Once a year the employee performance is evaluated and scored and good initiatives are recognized through the scoring system. The score is used as input to the bonus system and salary adjustments.

Who is entitled to benefit from these incentives?

Other, please specify (All employees (900 people) in SOE)

Types of incentives

Monetary reward

Activity incentivized

Efficiency project

Comment

Every year an implemented initiative is rewarded by a monetary gift. The initiative must support Lundbecks Business principles. Energy reducing activities supports many of these Business principles and can therefore also be rewarded.

Who is entitled to benefit from these incentives?

Other, please specify (All employees (900 people) in SOE)

Types of incentives

Other non-monetary reward

Activity incentivized

Energy reduction project

Comment

Every month an implemented initiative is rewarded and communicated to all employees in Supply Operations and Engineering. The initiative must support Lundbecks Business principles. Energy reducing activities supports many of these Business principles and can therefore also be rewarded.

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Other non-monetary reward

Activity incentivized

Behavior change related indicator

Comment

All employees can be recognized with a story in Lundbecks HSE Newsletter. The criteria is, that they have participated in implementing a good HSE initiative this also includes energy reducing initiatives.

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Other non-monetary reward

Activity incentivized

Energy reduction project

Comment

An annual HSE award, including a gift, is given to a good HSE initiative. Energy reducing initiatives can be chosen as well as other HSE initiatives. The area that win the prize get a trophy and a gift. In 2018 an initiative about optimizing a big cooling plant resulting in a big energy reduction (400 MWh per year) was nominated for the award.

C2. Risks and opportunities

C2.1

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

	From (years)	To (years)	Comment
Short-term	0	3	The local business plans for the individual business units uses typically 1 – 2 year for short-term planning and definition of annual goals.
Medium-term	3	10	Lundbeck do not use the term "medium". Lundbecks long-term financial business planning and long term climate target runs from 3 – 10 years.
Long-term	10	20	Due to the long perspective for climate risks and the existence of climate scenarios, we are looking further than the ordinary used 10 year planning. Through our assessment of future climate risks, we do know what risks we need to mitigate. Our major future climate risks coincide with some of the risks already identified today as business risks. For example, the risk of accidental fire or floodings on our own sites. Mitigating actions are therefore already initiated.

C2.2

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

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

C2.2a

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

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	The risk management system includes our global operations in all countries we are operating in. The principal aim of our risk management is to strike the right balance between risk exposure and value generation. The process starts in the decentralized Business Units and Corporate Functions, which have extensive knowledge of the risks within their areas of responsibility. They systemically identify, quantify, respond to and monitor risks. Business Units and Corporate Functions report to the central Risk Office on a six-monthly basis. The central Risk Office facilitates workshops for managers from Business Units and Corporate Functions and risk responsible individuals to align the risks. The Risk Office assesses the likelihood of an event occurring and the potential impact in terms of financial loss, and identifies the key risks. The key risk overview is presented to Executive Management for their assessment, before it is reported to the Audit Committee and the Board of Directors.

C2.2b

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

Identification of risks at company and asset level:

RISKS on both COMPANY and ASSET level are identified and managed in a common risk management system. Our fundamental risk management principle is that risks, in addition to central monitoring and coordination, must be managed by decentralized business units as they have the most extensive knowledge of such risks and the best possibility of mitigating the exposure. The individual business units take a systematic approach to monitor, identify, quantify and respond to risks. Furthermore, we have defined reporting, decision-making and follow-up procedures and routines. The decentralized risk evaluation in the business units is regularly reported and processed by the risk management organization and evaluated by our central Risk Office. The manager of the Corp. HSE dep. has a specific focus on climate change risks at company level eg regulatory risks, and the site facility managers have focus on risks at asset level. Two important input to risks is our regularly insurance inspections and our materiality assessment that confirms our focus on actions to mitigate climate change. Climate change risks and opportunities, at both COMPANY and ASSET level, are also identified by the Corporate Health, Safety and Environment department and reported at the quarterly HSE Council meetings. E.g. are current and emerging legislation followed monthly and social/reputational trends and physical risks are evaluated annually. The HSE council discuss and decide if follow-up actions are needed and if considered significant the Chairman of the HSE Council reports to the Executive Management group and into the risk management system.

Processes for assessing size and scope of risks and how relative significance is being determined:

The principal aim of the risk management is to strike the balance between risk exposure and value creation. Materiality of the risks is determined by combining the individual risks probability and impact. RISKS are assessed both as gross risks and net risks. The assessment of gross risk assumes that no mitigating actions have been implemented, whereas net risk assessment takes into account implemented mitigating actions and their anticipated effect. Lundbeck strives to have as many risks mitigated as possible. Lundbecks corporate risk register provides a consolidated picture of our risk exposure by detailing each risk, risk category and type. The risk descriptions give details of the event, its current status, the status of the response, an assessment of likelihood and potential impact, and the person responsible for managing the risk.

Risk terminologies:

Our reporting process defines 6 risk categories: 1. Research and Development 2. Market and Commercial 3. Supply, Quality and Product Safety 4. IT security 5. Legal and Compliance 6. Currency. Risks related to climate change issues, including reputational, regulatory, physical and other climate related risks, is categorized under 3. Supply, Quality and Product Safety or 5. Legal and compliance. The risk categories are defined into three risk types: external, actionable or strategic. Climate change risks are typically defined as external or actionable risks. Using this information, the Risk Office assesses the overall risk exposure and discusses it with the Executive Management. Finally a key risk overview is reviewed by our audit committee and shared with the Board of Directors annually.

Definition of substantial financial and strategic impact:

By combining the individual risks probability and impact the final risk is determined as low, medium or high. Both low, medium and high risk level can be considered as substantial for the company. Depending on the probability risks from EBIT value 50MDKK and up can be categorized from low to high. Risks with an EBIT value from 500MDKK are always as minimum considered medium risks even though the situation is unlikely to happen.

C2.2c

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	All environmental and climate related regulations are followed monthly by the Corporate HSE department. E.g. regulations concerning energy and carbon taxes are always considered since this influences our revenue. At the moment, our total energy costs constitute a very small part of our revenue (0.4%), so the risk related to increasing prices and taxes is considered low. Other environmental regulations like the requirements about best available technologies (BAT) are currently affecting our operational costs in Denmark, because we have to implement a new air treatment system at our chemical site. This is an investment on app. 20 MDKK and discussed on the management boards in the line organization and included in the budget process that are approved by our CFO and finally our CEO.
Emerging regulation	Relevant, sometimes included	All emerging regulation concerning environmental and climate related issues is followed monthly by the Corporate HSE department. At least once a year, in connection with the update of the Corporate HSE strategy, risks and opportunities related to emerging regulation are considered in the HSE Council. This is followed by plans for preparing and implementing new requirements in the organization. Energy costs, reporting requirements and energy efficiency requirements are examples on typical climate related areas that are risk assessed. In 2018 the most significant changes in the European environmental regulation have been the emerging regulation on microplastic. We expect that we will be required to label those of our products that contain microplastic and report about the use. Another emerging regulation affecting our business is the extended producer responsibility on packaging materials, where we expect to be required to pay a fee to national collection schemes. Both regulations are still to be determined in more detail, both the scope and the national implementation before the affect on our operational costs can be estimated.
Technology	Not relevant, explanation provided	Lundbeck do not develop new technologies. Therefore our interest in technology lies in the opportunities for optimizing the energy consumption related to our production or other possibilities for optimization of production efficiency at our sites. All technologies that can contribute to reduction of our energy consumption present an opportunity for the company to reduce our risk related to increasing energy prices and taxes. The development in technologies that we are using are therefore followed regularly and opportunities included in the future business planning. E.g. we are investigating the possibility for using parts of our solvent waste as fuel in a new air treatment system, that are expected to be installed during 2019 at our chemical site in Denmark. This initiative will reduce a huge increase in our fuel consumption. Apart from this initiative we always switch to more energy efficient equipment, when we are renewing old equipment like pumps and the like.
Legal	Relevant, sometimes included	One of our business principles is to be responsible. It is therefore a high priority to be in compliance with all legislation. We continuously follow and implement new legislation in the organization. An example is our implementation of the directive on energy efficiency (Directive 2012/27/EU) on all sites that need to comply with the directive. The Energy directive has negligible financial impact on our business. Legal changes giving rise to increasing energy prices and taxes are always considered since this influences our revenue. At the moment, our total energy costs constitute a very small part of our revenue (0.4%), so the risk related to increasing prices and taxes is considered low. We do believe that our efforts to reduce our energy consumption and our focus on increased use of renewable energy, will keep this risk at a low level. To strengthen our work with compliance we always cooperate with the European Foundation of Pharmaceutical Industries Association (EFPIA), to identify risks related to emerging regulations in order to influence the regulation and prepare Position papers for the pharmaceutical industry. An example on a previously prepared Position paper for EFPIA members is the Position paper on Climate where EFPIA encourage members to develop Science based targets. By developing Science based targets we increase our cooperation with our suppliers including downstream suppliers and through this reduce climate related risks at both our own sites but also at our suppliers.
Market	Not relevant, explanation provided	We do not expect shifts in demand for our products due to climate change. We only make medicines for disease areas within psychiatry and neurology. We do not assume that these disease areas are impacted by climate changes during the next 10 years. Neither do we expect changes in our supply needs. Our products are solely based on chemicals and chemical synthesis and not dependent on biological raw materials, that could be affected by climate changes. Therefore market risks related to climate change are not included in Lundbecks overall risk register yet.
Reputation	Relevant, sometimes included	Our reputation concerning all HSE and ethical issues are of great importance for the organization. It influences our ability to attract employees and our cooperation with the authorities. All our production sites are covered by environmental approvals and therefore affected by our relation to the authorities. Potential less confidence at authorities can potentially delay approvals of future production and through this delay our launch of new products. A delay on 1 - 6 month is estimated to cost 500 - 3,000 MDKK and can be used as an indicator on the magnitude of this risk. So far we have not experienced delays in our approvals due to bad climate related reputation, but we do experience delays at one of our sites due to bad reputation in the local community on other environmental issues. Currently Risks for delays due to bad climate related reputation is considered actionable and unlikely to happen. We have considered if there also could be a reputational risk related to customers and stakeholders belief and thinking that Lundbeck is not dedicated to support the international agenda on climate change. We have not yet found any significant risks related to this, but we cannot exclude a potential for this risk in the future. However we believe that our focus on continuously developing our climate target in accordance with the Paris agreement, will maintain this risk as unlikely. Reputational risks related to climate issues are always included in our climate related risk assessment. The risks are typically identified by the Corporate HSE departments and reported and evaluated with relevant managers in the line organization. Key managers are our Senior Vice President for Supply chain and facility management, our Chief Compliance Officer, our Vice President for investor relations and our COO that has the corporate responsibility for climate issues. The result of the evaluation determines if the risk must be reported in our risk register.
Acute physical	Relevant, always included	Acute physical risks including extreme weather events resulting in loss of production capacity are relevant for both our own sites and certain groups of our suppliers and are considered as medium risks. Every year a Business Impact Analysis report is prepared. This report includes physical risks at our own sites and the risk of lack of supply from our suppliers. Due to this analysis we do have several mitigating actions like dual sourcing and back up production possibilities in place. A worst case scenario related to missing deliveries from suppliers is estimated to 800 MDKK, a medium risk in our risk register. At our headquarter we have established catch basins because we about 6 years ago experienced big damages due to heavy rain. The total cost for repairs was app. 8 MDKK. With all our current mitigating actions in place the identified current worst case scenario would be a big damage at our production facilities at our headquarter site due to a fire caused by lightning. Such a damage is estimated to cost 2,400 MDKK and therefore considered a high risk in our risk management system.

	Relevance & inclusion	Please explain
Chronic physical	Relevant, always included	To estimate Chronic physical risks at both our own and suppliers sites, we use the Aqueduct tool. Chronic physical risks like drought and rising temperatures are primarily relevant for certain groups of our suppliers situated in India and China, but because eg. increasing temperatures can affect the stability of the weather at many other geographic locations, we cannot exclude the risk of more frequent extreme weather events at our own sites as well. The risks are missing deliveries or loss of production capacity and comparable with the risk mentioned for acute physical risks. A worst case scenario related to missing deliveries is estimated to app. 800 MDKK and considered a medium risk. Scenarios related to our own sites could be either a damage at our production facilities at our headquarter site due to flooding estimated to cost 8 - 20 MDKK and therefore considered an infrastructural low risk in our risk management system. Or a worst case scenario could be a big damage caused by lightning followed by a big fire estimated to 2,400 MDKK and considered a high risk in our risk management system.
Upstream	Relevant, always included	Upstream risks are representing a complex picture of risks. Significant are risks related to our suppliers for the production, but also partners and suppliers for our research and development activities can experience different climate risks mainly related to acute physical risks like floodings and storms. This can affect the reliability of our suppliers. Risks related to reliability at our suppliers are identified via our Business Impact Analysis and our risk management system and following necessary mitigating actions implemented. A worst case scenario due to missing deliveries are estimated to app. 800 MDKK and therefore registered as a medium risk in our risk register.
Downstream	Relevant, sometimes included	Downstream risks are representing a complex picture of risks. Many of these risks are related to environmental and climate regulation. We monitor all relevant European environmental regulations that could impact our products and the distribution of our products. An example on existing regulation is the situation that our Headquarter functions including pharmaceutical production facilities are situated in an environmental zone. To drive in this zone you must comply with specific engine requirements and have particle filters on the engine. This requirement is implemented in our contract with our transportation suppliers. Other examples are the emerging regulation on the use of microplast and the extended producer responsibility on packaging materials. These regulations can affect the way we have to label our products, our reporting requirements and the costs for putting our products on the market. We follow the development in these regulations closely and cooperate with the European Foundation of Pharmaceutical Industries Association (EFPIA), to identify risks related to these regulations in order to influence the regulation and prepare Position papers for the pharmaceutical industry. An example on a previously prepared Position paper for EFPIA members is the Position paper on Climate where EFPIA encourage members to develop Science based targets. By developing Science based targets we increase our cooperation with our suppliers including downstream suppliers and through this reduce climate related risks at these suppliers. This Position Paper was prepared due to the increasing international debate about climate changes. Lundbeck participated actively in the wording of this Position. It is likely that climate related requirements for transportation will increase eg. to the type of used fuel or the type of used transportation (road, sea, air) due to the increased focus on climate changes. The magnitude of these risks goes in many directions. The trend on fuel costs points towards increasing costs while potential requirements related to more freight on sea will reduce the cost.

C2.2d

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

RISKS on both COMPANY and ASSET level are identified and managed in a common risk management system. Our fundamental risk management principle is that risks, in addition to central monitoring and coordination, must be managed by decentralized business units as they have the most extensive knowledge of such risks and the best possibility of mitigating the exposure. The individual business units take a systematic approach to monitor, identify, quantify and respond to risks. Furthermore, we have defined reporting, decision-making and follow-up procedures and routines. The decentralized risk evaluation in the business units is reported semi annually in our risk register and processed by the risk management organization and evaluated by our central Risk Office. The Risk Office assesses the overall risk exposure and discusses it with the Executive Management. Finally a key risk overview is reviewed by our audit committee and shared with the Board of Directors. Parallely a Business Impact Analysis Report is being prepared and also reported to the audit Committee and the board. Especially physical risks at our own sites and risks related to suppliers reliability are evaluated in this report.

OPPORTUNITIES are identified and managed by the organisations decentralized business units as they have the most extensive knowledge. Evaluation of opportunities and decisions are taken in the units. Some opportunities are implemented immediately eg. most energy reducing activities are identified and implemented in the units. Strategic opportunities are reported up in the line organization following defined procedures for decision making. Climate change OPPORTUNITIES are decided on the basis of the priorities in our business strategy. On the short timeline 1-2 years many decisions are taken in the decentralized units eg. energy reduction plans. On the long timeline, more than 2 years, opportunities are evaluated and decided according to our Financial Long-term plan.

Climate change risks and opportunities, at both COMPANY and ASSET level, are also identified by the Corporate Health, Safety and Environment department and reported at the quarterly HSE Council meetings. Eg. are current and emerging legislation followed monthly and social/reputational trends and physical risks are evaluated annually. The HSE Council discuss and decide if follow-up actions are needed and if considered significant the Chairman of the HSE Council reports to the Executive Management group and into the risk management system.

An example on a physical risk is the risk for serious weather events that affect production capacity at our own sites or at our suppliers and partners. This type of risk are analyzed in our Business Impact Analysis Report and mitigating actions are performed eg. we have established catch basins at our headquarter site, prepared possibilities for transferring of production to another site and prepared dual sourcing options. Additionally, we have been developing a supplier evaluation process during the last 10-15 years. It covers all our first-tier suppliers globally and includes questionnaires and evaluation of the responses. Our most critical suppliers undergo an extended evaluation with audits and follow up visits. Our supplier evaluation process is continuously being updated. Two years ago, we expanded our standard questionnaires to our suppliers with questions concerning their climate policy and target. And in 2018 we decided a scope 3 target which means that the collaboration with suppliers on setting up climate goals is significantly increased. This improves our possibility to map our supplier's climate performance and hopefully motivate them to make climate targets.

We believe that our mitigating actions can turn into opportunities in the future because we have reduced the impact of a breakdown on our own sites or at our suppliers' sites and through our increased collaboration with our suppliers they will be more prepared for climate risks and opportunities.

An example on a transitional risk is our reputation concerning environmental and ethical issues. It influences our ability to attract employees and our cooperation with the authorities. All our production sites are covered by environmental approvals and therefore affected by our relation to the authorities. Potential less confidence at authorities can delay approvals of future production and through this delay our launch of new products. A delay on app 6 month is estimated to cost app. 3,000 MDKK. The risk is considered as a medium risk but actionable in our risk register.

Of transitional opportunities, we consider that changes in international agreements can affect the regulation e.g. on energy and carbon pricing and taxes and raise the prices. Since we in many years have worked focused on minimizing our energy consumption and following reduced our operational costs, we believe this can turn into an opportunity in the future.

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

Transition risk

Primary climate-related risk driver

Policy and legal: Increased pricing of GHG emissions

Type of financial impact

<Not Applicable>

Company- specific description

Lundbeck is influenced by changing in prices on GHG emissions and other climate related regulations. Lundbeck is not covered by the EU ETS but we are influenced by other regulations that can affect the price on GHG emissions. E.g. we do expect that new European and international agreements like the Paris Agreement will result in new regulation like renewed cap and trade schemes, increased carbon taxes, increased energy prices and requirements about the use of renewable energy and the like. Also regulatory incentives towards favoring renewable energy will be introduced. E.g. in Denmark, where our headquarter functions and large parts of our production are situated, differentiation between night and day prices for electricity are currently being implemented in order to motivate the use of energy at night time where there is excess of wind energy. This means that the price for energy used in daytime will increase. Lundbeck cannot move our electricity consumption to night time. Therefore this initiative will mean increased operational costs because the electricity will be more expensive during daytime where we produce. Due to the Paris agreement and the political agenda in EU and in Denmark and the fact that Lundbeck want to be a responsible company, we are increasing our sourcing of renewable electricity, this also increases our energy costs. In 2018 our energy costs increased with 57,000 DKK due to sourcing of renewable electricity. Another example on an energy and climate related regulation is the implementation of the directive on energy efficiency (Directive 2012/27/EU) that require companies to optimize their energy consumption. All Lundbecks sites need to comply with this directive. Both at our Danish sites and at our Italian site the directive has resulted in slightly increased operational costs to internal resources, consultancy costs and installation of meters on steam installations at our Danish sites.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Low

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)

63000000

Potential financial impact figure – maximum (currency)

64000000

Explanation of financial impact figure

Today our total energy costs only constitute about 0.4% of our revenue (app. 63 MDKK compared to our revenue at 18,117 MDKK). In Denmark a part of the energy cost is a carbon tax currently on app. 3 MDKK a year. We expect that energy prices and

taxes will rise in the future in most parts of the world. Our increased sourcing of renewable energy has also increased energy costs by 57000 DKK in 2018. Even though our energy costs are increasing, risks from these changes are considered low. Even though our energy costs were doubled to around 126 MDKK (an increase on 63 MDKK), the energy cost will still be low compared to our revenue. Costs related to other legislations like the directive on energy efficiency are considered low compared to our energy costs, because we have had focus on energy optimizations for many years and due to this, prioritized to use man hours, consultancies, install meters etc. The extra costs for implementing and comply with the directive is app. 200,000 DKK/year.

Management method

Risks for increasing energy costs caused by changing in legislation or the political agenda are identified systematically. Lundbecks sites have procedures to identify changes in HSE legislation, incl. legislation related to climate issues. When changes is identified, Lundbeck consider what consequences the regulation may have, and following the best implementation path is decided. The most important method to keep the financial risks from increased energy prices and GHG taxes low, is our CO2 strategy and our focus on year on year energy optimizations. Our strategy has both long-term and annual targets. Due to this focus we have reduced our annual electricity costs with app. 27 MDKK since 2006. We also seek to reduce the financial impact of changing energy prices by making contracts with our energy suppliers with fixed energy prices for e.g. 3 years. Early tracking of legislation has also been beneficial in our implementation of the EU energy efficiency directive. The directive gives companies the possibility of integrating energy reviews in existing systems instead of paying external consultants for this work. We used this possibility and saved app. 2 MDKK per 4 year. Costs associated with our CO2 strategy and energy savings were in 2018 app. 2 MDKK in energy reducing activities and app 1 MDKK on internal resources. Costs related to identifying new legislation are considered necessary for having an efficient business and not as extra cost for the management method.

Cost of management

3000000

Comment

The costs associated with energy saving activities differ from year to year. In 2018 we invested app. 2 MDKK in energy reducing activities. Additionally we spend app 1 MDKK on internal resources, because we have dedicated teams of internal engineering and maintenance employees that spent a part of their working hours on energy optimizations. In 2019 we expect to spend approximately the same. Costs related to tracking new and coming legislation, National, European and International plans and our reporting activities are considered as ordinary costs that is necessary for having an efficient business. It is costs we have, because it is activities we have as a part of our general attitude and strategies and necessary for driving our business efficiently and can therefore not be calculated as extra cost for the management method.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

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

Type of financial impact

Increased capital costs (e.g., damage to facilities)

Company- specific description

A variety of extreme weather situations that damage buildings in more or less severe degree can occur at Lundbecks own sites. 6 years ago we experienced several serious damages at our headquarter site due to floodings and storms. The total cost for repairs was app 8 MDKK. This initiated several activities that secured our production facilities and other buildings to better resist similar situations with heavy rainfall or storms. E.g. we have established catch basins at two locations at our headquarter site.

Time horizon

Current

Likelihood

Very unlikely

Magnitude of impact

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)

8000000

Potential financial impact figure – maximum (currency)

2400000000

Explanation of financial impact figure

Lundbecks own sites are located in low and medium risk areas. Nevertheless we have experienced weather situations during the last 6 years at two sites affecting our business in minor degree. A few years ago in USA we had to shut down a previous site for a few days due to a heavy storm, and in Denmark heavy rain and storm caused damage to our buildings 6 years ago. To estimate a financial range we can use the cost of repairs we already have experienced 6 years ago on 8 MDKK. And then a worst case scenario including a complete damage of our production facilities at our headquarter site in Denmark due to a fire caused by lightning. A loss related to such a situation is estimated to 1400 MDKK in lost sales and 1000 MDKK in repairs.

Management method

Risks for severe weather events that damages our facilities are reduced by securing our sites. We have made a criticality analysis at our headquarter in DK, identifying the biggest risks and what buildings that are most exposed to damages from extreme weather situations. The analysis resulted in implementation of several activities that secure our buildings towards heavy rainfall, storms etc. Eg. our park area containing a catch basin and our underground catch basin under a building consuming twice the amount of water from a normal rainwater incident. We have also implemented pump installations and secured fragile installations like power stations. In 2019 we will install a fire hydrant to minimize damages from a fire. To identify potential risks, we have insurance inspections and annual risk assessment workshops covering all production areas, warehouses, contract manufacturers (CMO) and suppliers. These activities give valuable input to our annual Business Impact Analysis that present risks for business interruptions and mitigating actions. The analysis includes estimated property and inventory losses. The result from this analysis determines the size of our property and business interruption insurance. From 2013 to 2016 we spent app. 5 MDKK on preventive activities. In 2019 we will install a fire hydrant (expected costs 0,15 MDKK). Our Property and Business interruption insurance costs 5 MDKK annually.

Cost of management

10000000

Comment

In 2012 and 2013 the total cost for repairs was around 8 MDKK. From 2013 to 2016 we did spend app. 5 MDKK on preventive activities. Following new buildings and equipment are secured when they are established and therefore integrated in the total cost for the project. In 2019 we will install a fire hydrant with expected costs 0,15 MDKK. Our combined Property and Business interruption insurance costs 5 MDKK annually. The spend on preventive activities and our insurance can be used as an indication of the cost of management.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Supply chain

Risk type

Physical risk

Primary climate-related risk driver

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

Type of financial impact

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

Company- specific description

Physical risks like exposure to extreme weather events can affect Lundbecks partners and suppliers. Most of our suppliers and partners are situated in Europe and USA at locations where extreme weather situations rarely have a character that affect product reliability. A part of our suppliers and partners are located outside Europe and USA, typically in India and China, primarily at locations that are considered to have a high or medium risk for acute physical risks like extreme weather events and/or chronic physical risks like drought and temperature rise. So far we have not experienced damaging weather events at our suppliers and partners, but we do know from our own sites, that extreme weather events do happen more often, even at locations with low or medium risk. Eg. we have experienced damaging weather events twice (Storm and extreme rain) at our headquarter site in Denmark (low risk area) 6 years ago. Also at our previous site in USA located in a medium risk area we have experienced a damaging storm 6 years ago. Due to this, we must expect that extreme weather situations can affect the sites of our suppliers and partners and the reliability of their supply.

Time horizon

Current

Likelihood

Unlikely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

800000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Until now Lundbeck have not experienced problems with suppliers and partners reliability due to extreme weather situations. Because we cannot exclude, that extreme weather situations can affect supplier reliability we have very strong methods in place to manage such situations. In a worst case scenario the financial impact due to missing deliveries is estimated to app. 800 MDKK.

Management method

To reduce risks from supply chain interruptions Lundbeck has a risk management process. It includes that all our partners prepare Factory risk assessments that describes factory risks, including climate risks and how they are mitigated. We also ensure suppliers and partners adherence to our company's ethical standards by conducting multiple audits. This include evaluation of their exposure to physical risks. Audit activities are planned in accordance with the current risk picture. All suppliers must sign a mutual commitment in our contracts to comply with environmental law and to have a precautionary approach to environmental challenges like climate change. In 2018 we conducted 157 audits at suppliers and partners. Other mitigating activities: - Monitoring of supply to help us overcome any breakdown in production. - Dual sourcing for critical raw materials so we can switch to another supplier if needed. - Production and packaging facilities at our 4 independent sites which enhance our production flexibility. Eg. our chemical sites can manufacture the active ingredients we source at our suppliers. - Property and Business Interruption insurance. It is difficult to separate activities that mitigates supply chain interruptions solely caused by physical climate risks. Most activities are performed due to a mix of different risks. To indicate a size we can use the cost for performing audits in 2018 app 5 MDKK and our insurance premium on 5 MDKK.

Cost of management

10000000

Comment

Lundbeck do have operational costs related to mitigating risks related to our suppliers and partners, but it is difficult to separate activities that are solely carried out due to climate risks. Most activities are performed due to a mix of several different risks. To indicate the size of the cost we can use the cost for performing 157 audits in 2018 estimated to around 5 MDKK and our insurance premium on 5 MDKK.

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

Type of financial impact

Reduced operating costs (e.g., through efficiency gains and cost reductions)

Company-specific description

International agreements and European and national legislation are expected to favour renewables rather than fossil fuels. This is expected to increase energy prices and carbon taxes on energy based on fossils. In Denmark differentiated pricing are also being implemented, again favouring energy based on renewables. At Lundbeck we already focus on minimizing our energy consumption and through this we keep energy costs at a low and competitive level. Since 2006 we have reduced our energy consumption by 34%. We are also increasing the use of energy based on renewables. At our chemical sites in Denmark the main energy consumption in scope 1 is based on biooil equivalent to app. 25% of our total energy consumption in scope 1. In 2018 we decided a new climate target that complies with the Science Based Target requirements for scope 1 and 2. Along with this decision it was decided to gradually increase the use of energy based on renewables in scope 2. We believe that our combined focus on energy reductions and the increased use of energy based on renewables will be an advantage compared to companies not having this focus.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

27000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We believe that reduced operational costs affect our revenue positively. If we did not implement energy savings our operational costs would increase because of increased taxes and prices and through this reduce our revenue. Due to our work with energy savings we have reduced our energy consumption by 34% since 2006 and our annual energy costs with app. 27 MDKK and through this reduced the operational costs. We will continue to reduce our energy consumption and the following costs/revenue in the coming years. Implementation of renewable energy in scope 1 has so far only had positive financial impact, because the price of bio fuel has been lower than the gasoil we used previously. Bio fuel has therefore contributed to reduced operational costs. Last year we initiated purchase of electricity based on renewables, this only increased our energy costs insignificantly.

Strategy to realize opportunity

The price on energy, especially energy based on fossil fuels are expected to increase in the future. Eg. it is a fact that Danish energy prices will evolve towards a favoring of renewable energy. This will influence our two biggest sites located in Denmark. Therefore, it is good business to reduce the energy consumption and increase the use of renewable energy. This combined with Lundbecks value about being a responsible company initiated our first climate target in 2006. We have revised our target several times, because we continuously have achieved our target ahead of time. Our current targets comply with the scope 1 and 2 requirements in Science based targets. The targets include a continuous focus on energy efficiency of equipment and facilities and a gradually increase of renewable energy. Since 2006 we have reduced our energy consumption with 34% and a 66% reduction in CO2 emissions. This has reduced our annual energy costs with 27 MDKK. The annual costs for driving and developing our climate targets have in 2018 included 3 MDKK on energy savings and internal resources and app. 100,000 DKK for development of climate targets and sourcing of renewables. We expect this to continue in the years to come. This shows that our climate strategy focusing on energy reductions and increased use of renewables have strengthened our resistance towards increased energy prices. And can become an advantage compared to companies, who has not prepared for increased energy prices.

Cost to realize opportunity

3100000

Comment

The annual costs on energy saving activities differ. In 2018 we did spend 2 MDKK and in 2019 we expect to spend 2 MDKK again on energy savings. Apart from that we spend around 1 MDKK/year on internal resources, because we have dedicated energy teams at all sites that carry out energy screenings and -savings. The annual cost for development of climate targets and sourcing of renewables is app. 100,000 DKK.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resilience

Primary climate-related opportunity driver

Other

Type of financial impact

Other, please specify (Increased reliability at employees, authorities and stakeholders)

Company-specific description

High reliability and a good reputation are important for our competitiveness and the continuous development of the company. As a company in the Healthcare sector it is expected that we are a responsible company both in relation to healthcare but also when it comes to the environment, because the environment affect the wellness of people. We believe that reliability and a good reputation can increase our ability to attract and retain talented employees and increase confidence at our stakeholders e.g. the authorities confidence in our capabilities. Especially the environmental authorities confidence in our capabilities is important because it improves the communication with the authorities and following increases flexibility and reduces processing time for necessary approvals. Production of our pharmaceuticals require use of several chemicals. Due to this all our production sites are covered by several environmental approvals. We are therefore affected by our relation to the environmental authorities, because it is a prerequisite for our production to have the environmental approvals in place. Additionally we believe, that even though we haven't met it yet, we will be met by requirements from investors and banks concerning climate risk management in the future. Voluntary agreements and voluntary analyses made for investors, like UN Global Compact, CDP and FTSE4GOOD and the development of the TCFD guidelines are all initiatives that support our believe in the importance of having control of our climate risk and disclosure.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Low

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)

5000000

Potential financial impact figure – maximum (currency)

500000000

Explanation of financial impact figure

If our reputation deteriorates it can lead to loss of talented employees and loss of confidence in our capabilities at our stakeholders. Loss of employees is around 5 MDKK (estimated on the basis that 1% of our vacancies cannot be filled again). Strong confidence and communication with authorities can increase flexibility and shorten the time defining and issuing approvals. As an indication of the financial impact the impact of delayed approval followed by lost sales for a period of 1 months can be used. This is estimated to 500MDKK. We have not yet experienced climate related requests from either investors or banks, so until now a potential financial impact in this context is not calculated.

Strategy to realize opportunity

High reliability including a good reputation is important for our competitiveness and driving an efficient business. We believe that good performance and openness can improve our reputation. Lundbeck have stated in both our corporate responsibility strategy and in our CO2 strategy, that we want to be a responsible company and report publicly about our initiatives concerning climate

changes. We follow the development in voluntary questionnaires and legal requirements and implement relevant initiatives and procedures in our business. E.g. we have implemented a corporate procedure about collecting HSE data including energy data. The data is used for internal and external voluntary and compulsory reporting. We communicate publicly about climate changes on our homepage, in our CDP response and in our annual Global Compact Progress report. Lundbeck is also recognized by the FTSE4Good index series and comply fully with the Climate Change Criteria. In 2017/2018 we developed our first qualitative scenario analysis in order to be prepared for potential future requirements from stakeholders and banks. The cost for our CDP response is estimated to 0.15 MDKK and the cost for driving our climate target is estimated to 3.1 MDKK. Our other public reporting activities are not considered extra costs due to climate change issues. All these initiatives aim to show potential employees, authorities and other stakeholders how we manage climate changes and that we are a responsible company.

Cost to realize opportunity

3250000

Comment

Except from our response to CDP our public reporting activities are not considered extra costs due to climate change issues. The cost for the CDP work is estimated to 0.15 MDKK. The costs associated with climate target and strategy differ from year to year. In 2018 we spent 2 MDKK and in 2019 we expect to spend 2 MDKK on energy savings. Apart from that we spend around 1 MDKK/year on internal resources that carry out energy screenings and -savings and 100,000 DKK on development of climate targets and sourcing of renewables.

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resilience

Primary climate-related opportunity driver

Other

Type of financial impact

Increased reliability of supply chain and ability to operate under various conditions

Company-specific description

Lundbecks own sites, suppliers and partners can be affected by extreme weather situations. All Lundbecks own sites and suppliers are located in low to medium climate risk areas and we have experienced weather situations during the last 6 years at two of our sites affecting our business in minor degree. A few years ago in USA we had to shut down a previous site for a few days due to a heavy storm, and in Denmark heavy rain and storm on our headquarter site caused damage to our buildings 6 years ago. The cost of the repairs were 8 MDKK. Such damages can in worst cases lead to interruptions in the production or the supply chain and potentially to lost sales. Lundbeck has set up several systems to mitigate these risks and we believe that by having these systems we have an advantage on the long run because we can avoid stock outs and because of that be more attractive to our customers.

Time horizon

Long-term

Likelihood

More likely than not

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)

800000000

Potential financial impact figure – maximum (currency)

2400000000

Explanation of financial impact figure

To estimate a financial impact range, we have looked into the costs related to repairs and lost sales we can avoid by having a strong risk management process and several mitigating actions in place. Our Business Impact Analysis have identified a worst case

scenario including a complete damage of our production facilities at our headquarter site in Denmark. A loss related to such a situation is estimated to 1400 MDKK in lost sales and 1000 MDKK in repairs. A worst case scenario concerning missing deliveries in our supply chain is estimated to app. 800 MDKK. So by having mitigating actions we can believe in our forecast for our revenue and secure that our customers trust on our ability to deliver medicines as needed.

Strategy to realize opportunity

Extreme weather events can happen at Lundbecks own sites, suppliers and partners. The strategy to avoid property and business interruptions caused by extreme weather is to have a strong Risk Management process, that increases our opportunities to develop our business and maintain our customers trust in our ability to deliver medicines. The risk management system includes annual Business Impact Analysis focusing on business interruptions at our own sites and in our supply chain and Factory risk assessments at our partners. Via these analysis we develop our mitigating actions that currently include e.g.: - Securing our buildings against heavy rainfall, storms etc. Eg. our catch bassins in a park area and under a large office building at our headquarter. - Supplier evaluations that ensure suppliers and partners adherence to our company's ethical standards. - Monitoring of supply and maintaining an inventory to overcome breakdown in production. - Second sources for critical raw materials. - Production and packaging facilities at our four independent sites to enhance production flexibility. And the ability to manufacture the active ingredients we source at our own sites. - Property and Business Interruption insurance. It is difficult to separate activities that are solely carried out due to climate related opportunities. To indicate a size of the cost we can use our activities to secure our sites (5 MDKK/3 years), Audits in 2018 (5 MDKK) and our insurance premium (5MDKK)

Cost to realize opportunity

15000000

Comment

Lundbeck do have costs related to our strategy for avoiding property and business interruptions and following retain the opportunities we have to maintain the development of our business and maintain our customers trust in our ability to deliver medicines. Nevertheless it is difficult to separate activities that are solely carried out due to climate related opportunities. Most activities are performed due to a mix of several different causes. To indicate the size of the cost we can use the cost for: - Securing our site against weather events. In the period from 2013 to 2016 we did spend app. 5 MDKK - Performing 157 audits in 2018 estimated to around 5 MDKK - Our insurance premium on 5 MDKK.

C2.5

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

	Impact	Description
Products and services	Not yet impacted	All our products are made via chemical synthesis and not yet dependent on natural resources. Due to this we do not expect, that our existing products will be impacted by climate changes. Our products are pharmaceutical products that must follow strict medical regulation and neither our products or the packaging materials are allowed to change due to climate risks or opportunities. It is possible that a few future products will be developed based on biologics that potentially are impacted by climate changes. If this becomes a reality, we will consider the type and magnitude of the climate related risk for the relevant products. The type and magnitude of such risk depends on the product and the sales, but a worst case scenario could be missing deliveries estimated to have medium impact. The timescale for this risk is long 10+ years, because development of pharmaceutical products up to market launch takes 10 -15 years. We do not expect that consumer trends will point towards patients considering environmental impact in their top choices for drugs. The top concerns for our patients are effectiveness of the treatment and cost.
Supply chain and/or value chain	Impacted for some suppliers, facilities, or product lines	For critical suppliers, we have insurance coverage and dual source in place to reduce the impact related to missing deliveries in our supply chain. Every year our suppliers risks and reliability is evaluated via our Business risk analysis, our risk management process and our mitigating actions like dual sourcing and stock buffers are improved. Additionally all our partners prepare Factory risk assessments that describes factory risks, including climate risks and how they are mitigated. E.g. are one of our critical partners building a new production site so they in the future will have two sites that can produce our products and through this reducing the risk in their supply chain and following in ours. We also have a thorough evaluation process of all our suppliers that include audits at critical suppliers. These activities increase our operational costs but reduces our insurance costs and most important reduce risks of production delays. In 2018 we decided our new climate targets that include an increased cooperation with our suppliers and partners concerning climate targets. This will give us more information about our suppliers' climate performance and preparedness towards climate changes. A worst case scenario in our supply chain is missing deliveries estimated to have medium impact up to 800 MDKK.
Adaptation and mitigation activities	Impacted	We have had several adaptation and mitigation activities running the last 5-10 years like building two catch basins, reduction of our office square meters with 33,000 m2 and sold buildings with a requirement for energy optimization. We have also prepared 20 parking slots for electrical vehicles and are planning to prepare more parking slots for electrical vehicles. Latest we are planning a new air treatment system which will partly be fueled by our own solvent waste instead of newly purchased fuel. This is beneficial for business, but it also reduces the expected increase in our GHG emissions due to implementation of the new equipment. Our ability to move production from one of our own sites to another are also mitigating activities that are evaluated and improved every year via our Business impact analysis and our risk management process. Our mitigating actions affect our business positively in many ways. The most severe risk we reduce by the mitigating actions is a complete damage of our production facilities at our headquarter site in Denmark. A loss related to such a situation is estimated to have high impact, up to 2,400 MDKK.
Investment in R&D	Impacted for some suppliers, facilities, or product lines	The way our investment in Research and Development are affected is through requirements to our CRO's to comply with our code of conduct and by our audits: Both activities have the purpose to ensure proper conditions at their sites. In the coming years they will also be enrolled in our scope 3 target and by this increase their focus on climate targets and adaptation to climate changes. In the future some of our products can be based on biological raw materials that potentially can be impacted by climate changes. If so our investments in R&D can be impacted in new ways depending on the character of the raw material. The magnitude of impact can be from low to medium.
Operations	Impacted	The cost for producing our products can be affected if e.g. energy prices increases all over the world. We are reducing this risk because we continuously optimize our production. Since 2006 we have reduced our energy consumption with 34%. We screen our facilities systematically to identify new ways to optimize the energy consumption. When we renovate our buildings, we implement energy efficient solutions like mechanical ventilation where the building is ventilated with a minimum of energy consumption. When we are renewing equipment, we prioritize energy efficient and low carbon solutions. These activities affect the financial planning by needs for investments in new solutions, but it often also reduces the operational cost on the long run because the overall energy consumption decrease. The impact is considered to be low because our energy costs today only constitute 0.4% of our revenue.
Other, please specify	Impacted	Our reporting activities are impacted by the increasing focus on the rising need for taking action on climate changes. Especially through our Carbon Disclosure Project reporting, we are continuously increasing our disclosure and reporting activities on climate change issues. We believe these activities strengthen our stakeholders eg. the environmental authorities confidence in our capabilities. Potential less confidence at authorities can potentially delay approvals of future production and through this delay our launch of new products. A delay on 1 - 6 month is estimated to cost 500 - 3,000 MDKK and can be used as an indicator on the magnitude of this risk.

C2.6

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

	Relevance	Description
Revenues	Not yet impacted	So far our revenue has not been impacted by the identified risks and opportunities related to climate change. We have implemented several mitigating actions that required investments, but in most cases these activities are also closely related to other business risks, e.g. can interruptions in supply chain occur due to many different reasons. Eg. a fire can occur both as a result of lightning strikes but also for many other reasons. Nevertheless, the mitigating actions also reduce the identified climate risks. The impact on our revenue can therefore not be connected directly with climate risks, but we are certain that our mitigating actions secure our revenue and business development. So far we have managed to increase our revenue and our mitigating actions at the same time. If some of our products in the future will be based on biologics that are fragile towards climate changes we cannot exclude that our revenue will be affected due to investments in new mitigating actions related to new risks related to biologics. The financial magnitude of such new processes are difficult to estimate, since the processes cannot be defined before we know the risk. The timescale for this scenario is long 10+ years, because development of pharmaceutical products up to market launch takes 10 -15 years.
Operating costs	Impacted for some suppliers, facilities, or product lines	Operating costs can be affected by changes in energy and carbon pricing and taxes, but because our energy costs only constitute app. 0.4% of our revenue the impact is low. Additionally we have implemented energy reducing activities that have reduced our total annual energy costs by 27 MDKK and through this reduced our operational cost. Another significant area is our mitigating actions to avoid interruptions in our supply chain and to secure stable production capacity. We have many mitigating actions in place that require internal resources (man hours) like driving our risk management process, securing our sites towards weather events, securing second sources and stock buffers. Our preventive audit activities also affect our operating costs. These mitigating actions are initiated to secure general business continuity and to avoid not only climate risks but many different risks related to interruptions in our supply chain. So far we have not experienced problems with deliveries and production stability due to climate risks. The magnitude of impact is therefore currently considered low.
Capital expenditures / capital allocation	Impacted for some suppliers, facilities, or product lines	Capital expenditures and allocations is affected by transitional risks like requirements to new buildings, increasing energy prices and reputation. When buildings are renovated or new buildings are raised energy considerations are integrated in the decision process for choosing solutions and design. At the moment, an old factory building at our Italian site is being strongly renovated and new energy efficient solutions are implemented in the new design. Another example is the planned installation of a new air emission system at our chemical site in Denmark. This system will be installed solely due to new regulation. To reduce the operating costs the fuel for the system will partly consist of our own solvent waste and partly newly purchased fuel. This reduces costs for new fuel and costs for waste handling. This moves our CO2 emissions from waste handling in scope 3 to direct scope 1 emissions from our factory. In both cases the new solutions require investments and increases capital expenditures. The magnitude of impact differs from case to case eg. the new air emissions system is expected to require an investment on up to 20 MDKK. Compared to our revenue 20 MDKK is low, but because the installation of the air treatment system is a prerequisite for getting our production approved by the environmental authorities, the impact would be high, if we did not install the system.
Acquisitions and divestments	Impacted for some suppliers, facilities, or product lines	In the recent years more than 700 employees have been relocated with the purpose of housing employees at less squaremeters. This has made it possible to sell off a large office building, reduce the office area with 33,000 m2 and following reduce energy consumption. To secure the sold-off building for future use, it has been sold with the condition that it must be energy-optimized along with the forthcoming reconstruction of the building. A similar exercise was performed some years ago, where Research and Development activities in USA was insured to our Danish Research and Development facilities. This made it possible to sell off the building for other purposes and hereby lower our energy consumption without reducing our activities. These activities are considered to have medium impact on our financial planning.
Access to capital	Not yet impacted	We have not experienced, that climate issues have affected our access to capital. Our company, and the pharmaceutical sector in general is considered having low to medium climate risks. Therefore we do not expect that our access to capital will be affected in the nearest future but maybe on the long run 10 - 20 years. Eg. it is likely that banks will ask for scenario analysis prior to lending out capital. In order to meet this potential requirement we have prepared a qualitative scenario analysis. We continuously follow the development in new climate change related requirements both compulsory and voluntary requirements like CDP and FTSE4Good. So far this have had negligible impact on our financial planning.
Assets	Impacted for some suppliers, facilities, or product lines	Our assets have already been impacted by climate events. E.g. our headquarter functions has experienced heavy rain and following flooding. Repairs and following mitigating actions amounted app. 13 MDKK. The mitigating actions included e.g. to establish two large catch basins at the site. One was established underneath a building that was being completely re-built and the other is made as an outside park area in several levels. The park area will apart from water from our own site be collecting water from the surrounding municipal roads and neighboring companies. Both basins were gradually implemented over a 4 year period and integrated in the financial planning process. The mitigating actions has reduced the likelihood of a damaging situation to happen, but a worst-case scenario would be a damage in our production area due to flooding. A loss related to such a scenario is estimated to 10 - 20 MDKK. Other scenarios like a big fire due to lightning can potentially have even higher impact on our assets. This scenario is unlikely to happen, because we have several mitigating actions in place. Latest we are planning to install a fire hydrant on the site. A worst-case scenario on a fire is complete break down of our production buildings at our headquarter site estimated to 1,000 MDKK in repairs and 1,400 MDKK in lost sales.
Liabilities	Not yet impacted	In general, all our investments and other costs specifically related to climate issues are low compared to our revenue and our liabilities. Due to the increased concerns about climate risks it is possible that our costs due to climate related issues will increase in the future. Eg we expect that our energy costs will increase due to sourcing of renewable electricity and we are considering installation of equipment that can use bio fuels instead of fossil fuels. Sourcing of renewable electricity will have low impact since it constitutes a very small part of our operating costs. Replacement to equipment that can use bio fuels instead of fossil fuels on our sites in I and F is only possible if biofuels are available nearby the sites (up to 100 km). If investigations show, that biofuels are available, and it is decided to replace the existing equipment, it will require investments on app. 50 MDKK. The replacement would probably be realized when the life of the old equipment expires app. 10 – 20 years ahead.
Other	Please select	

C3. Business Strategy

C3.1

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

Yes

C3.1a

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

Yes, qualitative

C3.1c

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

i.

The therapeutic areas Lundbeck serve as a pharmaceutical company is only marginally dependent on climate change. However, our contribution to mitigating climate change influences the way we conduct our business. At Lundbeck it is primarily about acting responsibly and reducing costs. Both are integrated in our business strategy; In our principles and in our objectives. Our focus has been on reducing energy consumption and integrating renewable energy solutions. From 2006 to 2017 we reduced our energy consumption by 35%. Expansions of our manufacturing and laboratory facilities combined with new quality requirements makes it difficult to maintain this development. In 2018 we increased our energy consumption by 1% and we expect this slight increase to continue in the years to come. Therefore, our focus on renewable energy will increase. In 2018 we also included increased supplier engagement in our climate target.

When making important business decisions, climate change issues are also included through our risk management system. Eg. significant risks are included in our scenario analysis like risks for acute weather events at our own sites and at our suppliers. Results from the risk management process are reported to executive management and the board. Mitigating actions like dual sourcing are initiated.

ii.

In 2018 we defined a new climate target covering scope 1, 2 and 3. In 2026 we will reduce our CO2 emissions by 30% compared to 2016. Additionally we will motivate app. 2/3 of our biggest suppliers by emission to set climate targets, and we will reduce specified parts of our scope 3 emissions through process optimizations. Primo 2019 we decided to add a long-term scope 2 target: In 2040 we will have zero scope 2 emissions from our own sites.

iii.

The most substantial business decisions in 2018 were to:

- Decide our new climate target including all three scopes. This target strongly supports our business strategy about being a responsible company.

- Include energy efficient solutions in a big renovation of an old production building at our site in Italy and by this keep the energy consumption at a minimum.

- Include the possibility for partly fueling a planned air emission system with our own solvent waste instead of newly purchased fuel. This will reduce the expected increase in our total (scope 1, 2, 3) CO2 emissions.

iv.

Following Climate change aspects have influenced the business strategy:

- Adaptation: Our continuous focus on efficiency in our production supports our work with "energy on demand", reduced energy consumption and GHG emissions. By reducing energy costs we optimize the resilience of our operations towards rising energy prices and taxes. On the long run we expect our increased use of renewable energy will be beneficial, because we expect that energy prices and carbon taxes will develop to favor renewables.

- Regulatory changes: Legislation about Energy review, building efficiency and Best Available Technology set up requirements to companies. The planned installation of a new air emissions system fed partly with our own solvent waste is an example of this.

Changes in guidelines like CDP, Science based targets and the increased focus on the Paris agreement are influencing our climate target. We do want to be a responsible company and therefore we need to develop our climate target to reflect society expectations. Our newly decided climate target is an example of this.

- Experienced physical climate changes like heavy rainfall, lightning and storms have influenced our strategy on adaptation of our buildings to withstand these weather events. Since 2012 we have invested app 13 MDKK in repairs and climate adaptation of our buildings. Latest we are planning to establish a fire hydrant at our headquarter site to reduce the damage of a fire e.g. caused by lightning.

V.

Our short term business strategy i.e. 1-2 years has been influenced by climate change.

- The most important component of the short term strategy is reducing GHG emissions. For 2019 our annual target is a 3% CO₂ reduction compared to 2018.

- Our focus on integrating energy considerations in our building and maintenance activities continuously help to identify new ways to reduce energy use. In 2018 we optimized a cooling plant and achieved an annual saving on 400 MWh.

Vi.

Our long-term business strategy i.e. +3 years has been influenced by climate change:

- The most important component is the development of our new climate target covering scope 1, 2 and 3. Our new target has required decisions concerning introduction of certificates of origins for renewable electricity and increased supplier engagement on climate targets. Primo 2019 we decided to add a long-term scope 2 target including zero scope 2 emissions from our own sites in 2040.

- Another component is our focus on production efficiency where we produce more with less. An example is our use of Green Chemistry principals in our development of new medicinal products. This enables us to produce more with less raw materials resulting in reduced scope 3 emissions. In our new climate target we have included a scope 3 reduction due to process optimizations.

vii.

The overall focus on production efficiency and energy savings reduces GHG emissions and operational costs. It secures our ability to produce more efficiently and thereby support our future business. This combined with our increased focus on renewable energy, will provide us with a strategic advantage to our competitors because we anticipate that fossil fuels will be regulated leading to increasing prices. Our focus on energy savings has reduced our annual energy costs in with around 27 MDKK compared to 2006.

Our risk management process with focused mitigating actions to avoid interruptions at our own sites and at our suppliers, like securing our sites against weather events, having dual sourcing and inventories are considered necessary. It secures our ability to produce and deliver medicine to patients on time and through this secure patient trust in our products and business.

Finally we believe that by acting responsibly and continuously develop our climate target we strengthen our general reputation and our investors and authorities trust in our business.

viii.

Both the Paris agreement and the Danish Intended Nationally Determined Contribution influence our business by guiding our ambitions, when we develop our climate target. Being responsible is one of Lundbecks business principles and taking voluntary action to reduce our GHG emissions, is considered an act of responsibility. Our new climate target is aligned with the principles in the Paris agreement, UN Climate Change Conference of the Parties (COP-21). The target's level of reduction (Scope 1 and 2) corresponds to the reduction required by all nations to keep the global warming below two degrees in 2100.

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

Climate-related scenarios	Details
IEA 450 RCP 2.6	<p>To supports the Paris agreement we have chosen IEA450 and RCP2.6. The RCP2.6 corresponds to the SDA method we have used for our scope 1 and 2 target. Boundaries: Our scenario analysis cover our value chain from research to sales activities including upstream and downstream suppliers. We have also made considerations related to changing needs for our pharmaceuticals at our customers due to climate changes. Time horizon: Our 4 productions sites are situated in Denmark, Italy and France. Both DK and EU are operating with climate targets in 2030 and 2050. Due to this we have used 2030 and 2050 as time horizons when we consider the transition scenarios. For the physical scenarios, we have used the forward looking scenarios in 2020 and 2040 from Aquaduct atlas from WRI. Our business long-term planning runs up to 10 years ahead, therefore the 2030 scenarios are weighted highest. Input: The most important inputs are: Guidance documents on scenario analysis from TCFD and CDP, the public scenarios, our already identified risks and opportunities. Assumptions and methods: We have followed the TCFD guideline and used a top-down approach: 1. Decided with relevant managers that we prepare scenario analysis 2. Looked into identified risks and opportunities covering both transitional and physical changes. 3. Decided on public scenarios and identified the potential impact on: CO2 taxes, energy pricing, policy regulation, technology, reputation, production disruptions, supply chain disruptions, physical damage to assets and changes in demand for our products. 4. Compared the scenarios with our identified risks and opportunities. In this process, we did not find any major new risks, but we did have to reconsider the impact of the change. Eg. the increase in energy prices in the RCP 2.6 scenario were higher than the one we had estimated. 5. Compared the result with our business strategies and mitigating actions and input in our risk management system to evaluate if adjustments were needed. Changes from the reference scenarios: Since our long-term business planning only runs up to 10 years ahead, we have adjusted the consequences in the 2040 and 2050 scenarios. Results and outcomes: We have not identified new actions we need to implement, but been affirmed, that we must continue to (in prioritized order): 1. Develop our climate strategy to apply with plans and guidelines to reduce the impact of e.g. increasing energy prices and carbon taxes. 2. Implement energy efficient solutions at our 4 sites especially when renovating and building new. 3. Secure our 4 sites against eg. flooding. 4. Prepare our site parking slots for electrical vehicles and include electrical vehicles in our company car policy to adjust to future regulations. In 2018 the Danish government published a plan to phasing out vehicles running on fossils fuels in 2030. 5. Secure our supply chain to ease change of production site, and have dual sourcing for critical raw materials and services, to mitigate impact from extreme weather events. 6. Increase engagement with suppliers concerning climate performance to apply with e.g. SBT requirements. Influence on business strategy: The results of our scenario analysis emphasize the importance of our continuous development of our climate targets according to the SBT guideline, including an increased focus on the use of renewables for powering facilities and company cars. In 2018 we decided a new target, based on the SBT guideline, including increased supplier engagement and increased use of renewable electricity. We also initiated an update of our company car policy and expect to include electrical vehicles due to the expected phase out of traditional vehicles. Monitoring procedures: Once a year the scenario analysis is updated and significant changes reported to relevant managers and in the risk management system. So far we are using the analysis internally, but will develop it if investors and banks shows interest in it.</p>
RCP 8.5	<p>In order to choose a scenario that represent business as usual we have chosen RCP8.5. In reality we will probably end up somewhere between RCP2.6 and 8.5, but by using these two scenarios we believe we cover the full picture of possible changes. Boundaries: Our scenario analysis cover our value chain from research to sales activities including upstream and downstream suppliers. We have also made considerations related to changing demands of our pharmaceuticals from customers due to climate changes. Time horizon: Our 4 productions sites are situated in Denmark, Italy and France. Both DK and EU are operating with climate targets in 2030 and 2050. Due to this we have used 2030 and 2050 as time horizons when we consider the transition scenarios. For the physical scenarios, we have used the forward looking scenarios in 2020 and 2040 from Aquaduct atlas from WRI. Our business long-term planning runs up to 10 years ahead, therefore the 2030 scenarios are weighted highest. Input: The most important inputs are: Guidance documents on scenario analysis from TCFD and CDP, the public scenarios, our already identified risks and opportunities. Assumptions and methods: We have followed the TCFD guideline and used a top-down approach: 1. Decided with relevant managers that we prepare scenario analysis 2. Looked into identified risks and opportunities covering both transitional and physical changes. 3. Decided on public scenarios and identified the potential impact on: CO2 taxes, energy pricing, policy regulation, technology, reputation, production disruptions, supply chain disruptions, physical damage to assets and changes in demand for our products. 4. Compared the scenarios with our identified risks and opportunities. In this process, we did not find any major new risks, but we assume that the risk for extreme weather events will be significant in this scenario. 5. Compared the result with our business strategies and mitigating actions and input in our risk management system to evaluate if adjustments were needed. Changes from the reference scenarios: Since our long-term business planning only runs up to 10 years ahead, we have adjusted the consequences in the 2040 and 2050 scenarios. Results and outcomes: We have not identified any new actions we need to implement, but it is obvious, that the order in which we need to implement our mitigating actions changes from having focus on the transitional changes to the physical changes. In a RCP 8.5 scenario the prioritized order will be: 1. Secure our sites towards eg. flooding. 2. Secure our supply chain to ease change of production site and have dual sourcing for critical raw materials and services. 3. Increase our engagement with suppliers concerning climate adaptation. These top 3 actions are all related to an expectation of more frequent extreme weather events compared to the RCP 2.6 scenario. 4. Develop our climate strategy. 5. Implement energy efficient solutions at our sites especially when renovating and building new. These results have been communicated to relevant managers in the organization and included in our risk management system. Influence on business strategy: The results of our scenario analysis emphasize the importance of our continuous focus on future climate related risks. In the RCP 8.5 scenario focus is on mitigating actions related to extreme weather events and potential disruptions in our supply chain. These risks are all included in our Business Impact Analysis and our Risk Management Process where supply chain disruptions continuously are evaluated and developed. Eg. one of our partners are currently constructing a second site for manufacturing our products. Monitoring procedures: Once a year the scenario analysis is updated and significant changes reported to relevant managers and in the risk management system. So far we are using the analysis internally, but will develop it if investors and banks shows interest in it.</p>

C4. Targets and performance

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

Absolute target

C4.1a

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

Abs 1

Scope

Scope 1 +2 (market-based)

% emissions in Scope

100

Targeted % reduction from base year

30

Base year

2016

Start year

2018

Base year emissions covered by target (metric tons CO2e)

19943

Target year

2026

Is this a science-based target?

Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science-Based Targets initiative

% of target achieved

66

Target status

New

Please explain

Our target cover 100% of our headquarter functions and all our 4 production sites. Our sales affiliates are not covered by the target. Our sales affiliates constitute app. 5% of our total GHG emissions. Since we achieved our previous target in 2016 we have prepared a new climate target that was decided in 2018. The scope 1 and 2 part of the target is prepared in accordance with the SDA method and complies with the ambitions in the Paris agreement.

Target reference number

Abs 2

Scope

Scope 1 +2 (market-based)

% emissions in Scope

100

Targeted % reduction from base year

3

Base year

2017

Start year

2017

Base year emissions covered by target (metric tons CO2e)

17244

Target year

2018

Is this a science-based target?

Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science-Based Targets initiative

% of target achieved

100

Target status

Achieved

Please explain

Apart from our long-term target we have a supporting annual target. A 3% annual reduction will secure the realization of our longterm target, and a 3% annual reduction complies with the required annual reduction in the Absolute contraction method, we consider the target to be science based.

Target reference number

Abs 3

Scope

Scope 1 +2 (market-based)

% emissions in Scope

100

Targeted % reduction from base year

70

Base year

2016

Start year

2019

Base year emissions covered by target (metric tons CO2e)

19943

Target year

2035

Is this a science-based target?

Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science-Based Targets initiative

% of target achieved

28

Target status

New

Please explain

This target include some reductions in our scope 1 emissions and zero emissions in our scope 2 in 2040. In 2040 all our citygas, district heating and electricity will be based on renewable energy sources. Additionally we continuously look for possibilities to increase our conversion from fossil oil to bio oil. Today 93% of oil consumption at our Danish chemical site is bio oil. Since this is more ambitious than the Paris agreement, we consider this target as science-based.

C4.2

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

Target

Engagement with suppliers

KPI – Metric numerator

Engage with 2/3 of the biggest upstream suppliers by emission and all downstream transportation suppliers to motivate them to develop ambitious climate targets by 2026.

KPI – Metric denominator (intensity targets only)

Base year

2016

Start year

2018

Target year

2026

KPI in baseline year

0

KPI in target year

211

% achieved in reporting year

19

Target Status

New

Please explain

This target is our first scope 3 target and include all our significant suppliers by emission (up- and downstream). At the moment 211 suppliers are included in our target and 40 suppliers have climate targets in 2018.

Part of emissions target

The target is an engagement target and not a part of our absolute emission targets.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

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	26	
To be implemented*	5	301
Implementation commenced*	2	50
Implemented*	6	958
Not to be implemented	3	

C4.3b

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

Initiative type

Process emissions reductions

Description of initiative

Changes in operations

Estimated annual CO2e savings (metric tonnes CO2e)

66

Scope

Scope 1

Voluntary/Mandatory

Voluntary

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

250000

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

500000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

The steam supply has been optimized and changed from central supply to local supply.

Initiative type

Process emissions reductions

Description of initiative

New equipment

Estimated annual CO2e savings (metric tonnes CO2e)

7

Scope

Scope 1

Voluntary/Mandatory

Voluntary

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

34000

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

400000

Payback period

4 - 10 years

Estimated lifetime of the initiative

Ongoing

Comment

Installation of new dehumidifiers.

Initiative type

Energy efficiency: Processes

Description of initiative

Cooling technology

Estimated annual CO2e savings (metric tonnes CO2e)

103

Scope

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

332000

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

1000000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

Dynamic pressure regulation of evaporator flow and control of capacitor in our cooling plant.

Initiative type

Energy efficiency: Building services

Description of initiative

HVAC

Estimated annual CO2e savings (metric tonnes CO2e)

3

Scope

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

10000

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

10000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

Stop of unnecessary process exhaust ventilation.

Initiative type

Energy efficiency: Processes

Description of initiative

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

37

Scope

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

120000

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

200000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

Reuse of air.

Initiative type

Low-carbon energy purchase

Description of initiative

Wind

Estimated annual CO2e savings (metric tonnes CO2e)

742

Scope

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

57000

Payback period

No payback

Estimated lifetime of the initiative

>30 years

Comment

In order to reach our annual GHG reduction target we have had to buy certificates of origin on electricity in Denmark. We expect this initiative to continue because it becomes increasingly more difficult to reach our annual GHG reduction targets. For many years we have been able to optimize our production and processes. Since 2006 we have reduced our energy consumption with 34%. Quality and environmental requirements along with plans about future business growth makes this development very difficult to continue. We are determined to reduce our GHG emissions which means we will continue to buy renewable energy.

C4.3c

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

Method	Comment
Other (Our GHG reduction targets are a strong driver for our emission reduction activities)	One of the most important drivers for investments in emission reduction activities is our annual GHG reduction target. To be a responsible company Lundbeck has decided to support the Paris agreement by making annual GHG reductions.
Financial optimization calculations	Energy reductions is good business. Since 2006 we have reduced our annual energy costs by app. 27 MDKK due to reduced energy consumption. We have a procedure to continuously consider energy reductions when optimizing production and utilities, renovating, building new and replacing old equipment.
Partnering with governments on technology development	At our chemical site in Lumsås, Denmark we have a partnership with the Danish Technical University about optimizing production equipment for continuous production. This will result in much more efficient equipment using less raw materials and less energy.
Internal incentives/recognition programs	Lundbeck uses monetary reward to managers having specific responsibility for energy savings. The reward consists of an annual bonus for meeting short term targets related to energy reduction and GHG emission reduction targets. The short term target is created by breaking down the corporate long term target on GHG emission to business functions. The size of the bonus is managed in our Performance Management System.
Compliance with regulatory requirements/standards	The implementation of the Directive on energy efficiency has catalyzed improvements in our energy screening and mapping. This improve our possibilities for identifying even more potentials for energy savings in the future. Once a year our Danish sites are audited by an external auditor challenging our efforts on energy reducing activities. Lundbecks research, development and production sites and our headquarter are covered by our HSE system, certified according to ISO 14001 and OHSAS 18001. This require that HSE considerations (including energy and GHG emissions) are made every time we make investments and/or make changes. For example when old windows need to be replaced, they are replaced with low energy windows. Compliance with the SBT guidance is also a strong driver for investing in emission reduction activities both at our own sites and at our suppliers.
Dedicated budget for energy efficiency	Lundbeck has established dedicated teams of skilled internal engineers and maintenance employees who challenge habits and conventional thinking to identify new ways to reduce energy use. These teams have successfully identified possibilities for closing down equipment when it is not in use, optimizing ventilation, temperature control etc. In terms of internal resources, this corresponds to a budget of 1 MDKK in 2018.
Internal price on carbon	Lundbeck have implemented several energy saving activities since 2006. In 2017 energy savings were integrated in our ordinary maintenance and rebuilding activities. Some of these activities require financial investments and are managed through our internal finance system for investments. If the activity includes energy savings, the savings can be sold to an energy supplier and the benefit from this is included in the cost for the activity resulting in a lower return on investment. This is considered as an internal price on carbon. Due to this, energy activities can be favored over other activities. In 2018 energy efficiency projects with a total investment on 2 MDKK was identified and approved for implementation.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

No

C5. Emissions methodology

C5.1

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

Scope 1

Base year start

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

6626

Comment

Lundbeck adopted a new CO2 strategy in 2018 with 2016 as base year. Our long-term target commits Lundbeck to cut our scope 1 + 2 CO2 emissions 30% by 2026 when compared to 2016 emission levels. In 2019 another long-term target was adopted also with base year in 2016: In 2035 Lundbeck will reduce our scope 1 + 2 CO2 emissions by 70% compared to 2016. Lundbeck have no structural changes in our organization in 2018 that trigger a recalculation of base year emissions, as our organization has made no changes through acquisitions and/or divestments, the methodology or boundary used to calculate our emissions. Hence, we need not to recalculate our base year emissions in order to directly compare it with our current emissions.

Scope 2 (location-based)

Base year start

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

12800

Comment

Location-based CO2 emission from the use of district heating and electricity.

Scope 2 (market-based)

Base year start

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

13317

Comment

Market-based CO2 emission from the use of district heating and electricity. In our targets we use the market-based method.

C5.2

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

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)

7110

Start date

January 1 2018

End date

December 31 2018

Comment

This Scope 1 emission includes the sum of cooling agents, combustion of natural gas, methan, F-gas, gasoil, emergency diesel and biooil.

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

Lundbeck have used the Scope 2 accounting method (GHG Protocol Scope 2 Guidance, January 2015). The market based approach is used in our annual reporting of CO2 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

9361

Scope 2, market-based (if applicable)

8863

Start date

January 1 2018

End date

December 31 2018

Comment

CO2 emission from the use of district heating and electricity.

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

Global sales offices in Europe, Africa, Asia and North/South America are excluded. (However our sales offices at our HQ in Valby, Denmark are included).

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

Technically our sales offices are not included in our GHG inventory in our CO2 Strategy - hence we report them as exclusions. The emissions from sales offices are 'not relevant' to Lundbeck, as they do not make up a large proportion of our overall emissions. Our estimate is that no more than 5% originates from energy consumption in our global sales office buildings. Data from global sales offices are not included due to the vast number of small leased office area in a greater office building making it difficult to gather Lundbeck specific data. The challenge is difficulties in retrieving information and unreliable data. CO2 emissions are only accounted for sites with research, development and/or production and headquarter functions with 50 FTE or more. In total this is relevant for 4 sites (2 in Denmark, 1 in Italy and 1 in France). This covers about 45% of the organization (regarding employees FTE), but 95% or more of the total energy consumption.

C6.5

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

Purchased goods and services

Evaluation status

Relevant, calculated

Metric tonnes CO2e

113569

Emissions calculation methodology

Spend data from the 9 main spend categories in "Purchased goods and service" was investigated (Commercial CRO Development, Consultancy, Raw materials, Packaging materials, Other sourcing areas, Professional Services, Marketing, Royalties, Commercial CRO Research). METHODE: Lundbeck use an EXIOBASE v3 database to calculate the CO2 emission. In the database the total 2016 spend data of "Purchased goods and service" is converted to CO2 emissions. Data is generated in the Lundbeck corporate sourcing system and cover 95-100% of the spend. The value is a constant of 113569 tones CO2/year for 5 years (2021). The emission is 49.6% of our total combined scope 1+2+3 in 2018) – a 0,8% increase compared to 2017.

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

0

Explanation

No data obtained directly from suppliers or value chain partners. A few years back we collected data directly from our 30 biggest suppliers of chemicals and packaging materials. However this was difficult and not all data was provided by the suppliers. Today data is generated in the Lundbeck corporate sourcing system and cover 95-100% of the spend. In the database spend data is converted to CO2 emissions. CO2 emission from 2016 spend data on purchased goods (9 main spend categories). Constant value of 113569 tones CO2/year until reevaluated in 5 years (2021). Calculation of Lundbeck's scope 3 GHG emissions are based on economic spend data from Lundbeck and the multi-regional hybrid input-output database Exiobase. Exiobase is a global detailed multi-regional environmentally extended input output database. The Exiobase v3 database (<http://www.exiobase.eu/>) is the product of in total four large EU funded projects under the 6th and 7th framework programmes: FORWAST (<http://forwast.brgm.fr/>), EXIOPOL (<http://www.feemproject.net/exiopol/>), CREEA (<http://www.creea.eu/>) and DESIRE (<http://fp7desire.eu/>). Exiobase can be used for national level footprints (<http://www.exiobase.eu/index.php/9-blog/27-creea-booklet>) as well as for detailed corporate footprints, e.g. see <http://lca-net.com/p/2343>. Source for EXIO databasen: Merciai S, Schmidt J (2017). Methodology for the construction of global multi-regional hybrid supply and use tables for the EXIOBASE v3 database. Journal of Industrial Ecology, early on line view 12 December 2017. <http://onlinelibrary.wiley.com/doi/10.1111/jiec.12713/full>

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

29087

Emissions calculation methodology

Spend data from the 4 main spend categories in "Capital goods" was investigated (IT/Telecommunication, Lab equipment, Building and machines, FM services: Office and Canteen-related). METHODE: Lundbeck use an EXIOBASE v3 database to calculate the CO2. In the database the total 2016 spend data from "Capital goods" is converted to CO2 emissions. Data is generated in the Lundbeck corporate sourcing system and cover 95-100% of the spend. The value is a constant of 29087 tones CO2/year for 5 years (2021). The emission is 12,7% of our total combined scope 1+2+3 in 2018 – a 0.8% increase compared to 2017.

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

0

Explanation

No data obtained directly from suppliers or value chain partners. Data is generated in the Lundbeck corporate sourcing system and cover 95-100% of the spend. CO2 emission from 2016 spend data on Capital goods (4 main spend categories). Constant value of 29087 tones CO2/year until reevaluated in 5 years (2021). At Lundbeck we focus on low energy consuming equipment as an important parameter when buying new equipment. We always conduct a risk assessment when sourcing new equipment to e.g. assess the energy consumption or use of raw materials. Emissions from the use of capital goods by Lundbeck is accounted for in scope 1 or scope 2. Calculation of Lundbeck's scope 3 GHG emissions are based on economic spend data from Lundbeck and the multi-regional hybrid input-output database Exiobase. Exiobase is a global detailed multi-regional environmentally extended input output database. The Exiobase v3 database (<http://www.exiobase.eu/>) is the product of in total four large EU funded projects under the 6th and 7th framework programmes: FORWAST (<http://forwast.brgm.fr/>), EXIOPOL (<http://www.feemproject.net/exiopol/>), CREEA (<http://www.creea.eu/>) and DESIRE (<http://fp7desire.eu/>). Exiobase can be used for national level footprints (<http://www.exiobase.eu/index.php/9-blog/27-creea-booklet>) as well as for detailed corporate footprints, e.g. see <http://lca-net.com/p/2343>. Source for EXIO databasen: Merciai S, Schmidt J (2017). Methodology for the construction of global multi-regional hybrid supply and use tables for the EXIOBASE v3 database. Journal of Industrial Ecology, early on line view 12 December 2017. <http://onlinelibrary.wiley.com/doi/10.1111/jiec.12713/full>

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

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

Lundbeck do not have production of fuels and energy purchased and consumed that are not included in scope 1 or scope 2. Emissions from the combustion of fuels or energy consumed is already accounted for in our scope 1 and 2 (Market based Scope 2 method is used). Extraction, production, and transportation of fuels is not part of our business - nor is generation of energy (electricity, steam, heating, and cooling). Lundbeck have a very energy low production, hence upstream/downstream emissions of purchased fuel/electricity (mining of coal, refining of gasoline, transmission and distribution of natural gas, production of biofuels etc.) is a insignificant factor on our scope 3 emissions.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

10900

Emissions calculation methodology

Spend data from distribution. METHODE: Lundbeck use an EXIOBASE v3 database to calculate the CO2 emission. In the database total 2016 spend data on "Upstream transportation and distribution" is converted to CO2 emissions. Data is generated in the Lundbeck corporate sourcing system and cover 95-100% of the spend. The value is a constant of 10900 tones CO2/year for 5 years (2021). The emission is 4.8% of our total combined scope 1+2+3 in 2018 – a 0.8% increase compared to 2017.

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

0

Explanation

No data obtained directly from suppliers or value chain partners. Data is generated in the Lundbeck corporate sourcing system and cover 95-100% of the spend. Scope 3 emissions from transportation of products purchased by Lundbeck. CO2 emission from total 2016 spend data on "Upstream transportation and distribution". Constant value of 10900 tones CO2/year until reevaluated in 5 years (2021). Calculation of Lundbeck's scope 3 GHG emissions are based on economic spend data from Lundbeck and the multi-regional hybrid input-output database Exiobase. Exiobase is a global detailed multi-regional environmentally extended input output database. The Exiobase v3 database (<http://www.exiobase.eu/>) is the product of in total four large EU funded projects under the 6th and 7th framework programmes: FORWAST (<http://forwast.brgm.fr/>), EXIOPOL (<http://www.feemproject.net/exiopoli/>), CREEA (<http://www.creea.eu/>) and DESIRE (<http://fp7desire.eu/>). Exiobase can be used for national level footprints (<http://www.exiobase.eu/index.php/9-blog/27-creea-booklet>) as well as for detailed corporate footprints, e.g. see <http://lca-net.com/p/2343>. Source for EXIO databasen: Merciai S, Schmidt J (2017). Methodology for the construction of global multi-regional hybrid supply and use tables for the EXIOBASE v3 database. Journal of Industrial Ecology, early on line view 12 December 2017. <http://onlinelibrary.wiley.com/doi/10.1111/jiec.12713/full>

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO2e

3940

Emissions calculation methodology

Only waste from Denmark is in this scope (non hazardous waste, chemical waste and waste for reuse). In total 10 fractions of waste are accounted for: glass, paper, cardboard, plastic PET, plastic LPDE, rubble, chemical waste, wood, concrete and rock wool). This covers 85% of the Danish waste. The emission accounts for 1,7% of our total combined scope 1+2+3 emission in 2018 - the same as 2017. The web-based calculator "Klimakompasset" is used to sum up the specific emissions from the different types of non hazardous waste. Chemical waste is calculated in co-operation with our national waste disposal facility "Fortum". Primary data originates from Denmark only and covers 85% of the country total - data is then extrapolated to 100% (3,940 tonnes CO2). 91% of our total waste is either recycled or incinerated at plants where the energy is used for heat and power production. Only 9% of our total waste ends up in landfill.

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

85

Explanation

Data obtained directly from suppliers or value chain partners. Lundbeck uses supplier data obtained directly from the waste treatment supplier on the tonnage of waste received/handled. Waste generated in operations: The web-based calculator "Klimakompasset" is used to sum up specific CO2 emissions from different types of non hazardous waste. Klimakompasset: www.klimakompasset.dk Liquid Chemical waste: The supplier provides annual sum of hazardous waste delivered by Lundbeck. This data is used to calculate the specific CO2 emissions from liquid chemical waste.

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

5053

Emissions calculation methodology

Transportation of employees in business related activities (air travel and employees driving in own car for business meetings). AIR TRAVEL: Our two travel companies report data directly to Lundbeck about emissions from fuel by plane in several EU and non-EU countries. The calculation is based on the miles from short, medium or long haul respectively. Emission factors are based on the guidelines produced by DEFRA's GHG Conversion Factors. The value represents Total Green House Gas (GHG) emissions. • This method evaluates flights based on airport locations and calculates emissions based upon the actual distance flown. • The total emissions of carbon dioxide equivalent (CO2e kg) include carbon dioxide, plus methane (CH4) and nitrous oxide (N2O), converted to carbon dioxide equivalents. PRIVATE CAR: Emissions from private car in Denmark, driving to and from business related meetings. Our employees report their mileage (km) in a central system and the total mileage (km) is converted to liters of fuel (1 liter of fuel = 15 km). The fuel is then converted to kg CO2 emission (1 liter of fuel = 2.5 kg/CO2). The data covers about 65% of the total Lundbeck travel activity from air and car from/to Denmark. Extrapolated to 100% the number is 5053. The emission accounts for 2.2% of our total combined scope 1+2+3 emission in 2017 - 3.6% decrease compared to 2017. A key element in doing business at Lundbeck is through engagement with stakeholders in many different capacities through face to face dialogues, conferences, meetings and other. As a company with global outreach, this means that we will always travel for various meetings, quality audits, conferences and other. To facilitate other means of engagement Lundbeck encourages alternatives to travelling. We have rolled out Skype for Business and online conversations.

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

65

Explanation

Data are obtained directly from our travel partners. Annual calculations on CO2 emission is provided to Lundbeck in a report. The Green House Gas Protocol is used: Factors and calculations for conversion are for global data (<http://ghgprotocol.org/about-ghgp>).

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

7534

Emissions calculation methodology

Scope 3 emissions from transportation of employees between their home and worksite is considered relevant - but it is a difficult area to investigate. There are many variables to estimate emission for all sites taking into account average commuting modes (bus, car, train, subway, plane, boat, bicycle, walk) depending on the site location. Hence we have not assessed the emissions by conducting a specific survey. Instead we have used a general factor for the average FTE and multiplied by the total number of FTE. The factor used is: 1,465 ton CO2/employee (found by using calculation model based on numbers from piers). The Average-data method, has been used for this purpose, as the Fuel-based method and the Distance-based method will be almost impossible to complete. However we are aware that using a general factor based on the Average data method is not very accurate, as it is based on a lot of assumptions. The CO2 emission from employee commuting contribute to 3.3% of our total scope 1,2 and 3 emissions in 2018 - a 4.1% increase compared to 2017.

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

0

Explanation

No data obtained directly from our employees or from their commuting patterns.

Upstream leased assets

Evaluation status

Relevant, calculated

Metric tonnes CO2e

4540

Emissions calculation methodology

The emissions are based on reports from the leasing companies on company cars leased by Lundbeck. Available information on 197 company cars in Lundbeck (registered in Denmark (190) and Italy (7)). This corresponds to about 15% of the total number of cars on a corporate level (primarily used by our managers and sales force locally in 55 countries). The total emission from upstream leased assets is calculated for all cars at Lundbeck by extrapolating from 15% to 100%. The emission accounts for 2.0% of our total combined scope 1+2+3 emission in 2018 - a 9.7% reduction compared to 2017. METHODE: Lundbeck receive the amount of fuel used from our leasing partner and make a calculation to CO2 emission. The emission factors used is 2.65 kg CO2/liter diesel and 2.35 kg CO2/l gasoline.

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

15

Explanation

Based on fuel consumption data directly from our leasing companies. Reasons for decreasing emissions included using more fuel efficient cars or a different type of fuel, using newer car models or reducing the number of leased cars. Two other potential relevant categories to include could be production equipment and IT-equipment. In Lundbeck we own our own production equipment and store data in-house (virtual servers). Therefore do not have these type of material upstream leased assets and find this insignificant.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

4694

Emissions calculation methodology

Transportation of products to end user. Emissions from fuel by transportation in Denmark, Europe and overseas. Each transportation mode is taken into account (truck, railway, ship, airplane). Trucks with EURO Norm 5 (using less fuel and emitting less particles and CO₂) or above are required by Lundbeck. METHODE: Distribution companies have to send in a report on CO₂ emissions every 3 months to Lundbeck (this is part of our written contract with the transportation company). The emission accounts for 2,1% of our total combined scope 1+2+3 emission in 2018 - a 1.8% decrease compared to 2017. All calculations have been done by the companies by adopting the internationally recognized 'GHG Protocol Product Lifecycle Accounting and Reporting Standard'.

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

100

Explanation

All data originates directly from our distributors by reporting of CO₂ emissions every 3 months.

Processing of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

33392

Emissions calculation methodology

Lundbeck have CMO activities at our site in France and Italy. The CO₂ emission from the production of these products is already calculated as a part of the total energy consumption (and scope 1 and 2 emission) from Lundbeck production. Spend data on Processing of sold products (in 4 main spend categories: CMO, global marketing activities, congress, events. Data is generated in the Lundbeck corporate sourcing system and cover 95-100% of the spend. METHODE: Lundbeck use an EXIOBASE v3 database to calculate the CO₂ emission. In the database the total 2016 spend data on "Processing of sold products" is converted to CO₂ emissions. The value is a constant of 33392 tones CO₂/year for 5 years (2021). The emission is 14.6% of our total combined scope 1+2+3 in 2018 - a 0.8% increase compared to 2017.

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

0

Explanation

No data obtained from suppliers or value chain partners. Calculation of Lundbeck's scope 3 GHG emissions are based on economic spend data from Lundbeck and the multi-regional hybrid input-output database Exiobase. Exiobase is a global detailed multi-regional environmentally extended input output database. The Exiobase v3 database (<http://www.exiobase.eu/>) is the product of in total four large EU funded projects under the 6th and 7th framework programmes: FORWAST (<http://forwast.brgm.fr/>), EXIOPOL (<http://www.feemproject.net/exiopoli/>), CREEA (<http://www.creea.eu/>) and DESIRE (<http://fp7desire.eu/>). Exiobase can be used for national level footprints (<http://www.exiobase.eu/index.php/9-blog/27-creea-booklet>) as well as for detailed corporate footprints, e.g. see <http://lca-net.com/p/2343>. Source for EXIO databasen: Merciai S, Schmidt J (2017). Methodology for the construction of global multi-regional hybrid supply and use tables for the EXIOBASE v3 database. Journal of Industrial Ecology, early on line view 12 December 2017. <http://onlinelibrary.wiley.com/doi/10.1111/jiec.12713/full> Lundbeck products are not sold for use in other companies' processes or in other ways further processed. The category is therefore only material to Lundbecks's carbon footprint on CMO, global marketing activities, congress, events.

Use of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

The use of our products does not induce carbon emissions in the use phase. Lundbeck produce pharmaceuticals - not equipment designed to consume or save energy (or emit CO2 when in use), hence we do not see any CO2 emission regarding use of sold products (both direct use-phase emissions and indirect use-phase emissions). The products sold have insignificant lifetime emission, nor emissions associated with maintenance of sold products during use. Therefore this category is not relevant to us and is insignificant.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

Lundbeck does not see any significant emission producing activities regarding end of life treatment of sold products. The disposal of unused pharmaceuticals from the end user/hospitals/pharmacy, is very small, as most pharmaceuticals are used for treatment (consumed by the patient) and do not end up as waste. The end-of-life treatment methods used by consumers is disposal by urin/feaces in waste water or by waste of unused medicin (flushing in toilet or disposed in the waste bin). The CO2 emission from incineration of the consumer disposed pharmaceuticals is insignificant (and imposible to estimate) and not further evaluated by Lundbeck. Therefore this is not relevant to us as medicin is not using a lot of energy nor emitting much CO2 when handled as waste (incinerated). The category is not expected to be significant.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

This category is insignificant and therefore not relevant to track. Lundbeck does not have any products leased to customers or other activities regarding downstream leased assets, therefore this area has not been evaluated as this is not relevant to us.

Franchises

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

Lundbeck have no business operating under a license to sell or distribute another company's goods or services nor other franchise activities, therefore this area has not been evaluated as this is not relevant to us. The category is not relevant.

Investments

Evaluation status

Relevant, calculated

Metric tonnes CO2e

167

Emissions calculation methodology

METHODE: Lundbeck use corporate Partnership production data to calculate the CO2 emission. The number of products/items is multiplied by our intensity figure of "ton CO2 per unit produced". In 2018 the figure was 8,946 g CO2 pr. unit. The data show this emission is 0.1% of our total combined scope 1+2+3 in 2018 - a 10.4% decrease compared to 2017. Data is generated by the Lundbeck corporate reporting system and cover 95-100% produced by our Partners.

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

100

Explanation

Production data originates directly from the value chain partner. Operation of investments (partnerships and co-production with other companies).

Other (upstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

Lundbeck do not have any major activities regarding other upstream activities, therefore this area has not been evaluated as this is not relevant to us. The category is therefore insignificant.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

Lundbeck do not have any major activities regarding other downstream activities, therefore this area has not been evaluated as this is not relevant to us. The category is therefore insignificant.

C6.7

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

Yes

C6.7a

(C6.7a) Provide the emissions from biologically sequestered carbon relevant to your organization in metric tons CO2.

Row 1

Emissions from biologically sequestered carbon (metric tons CO2)

832

Comment

CO2 emission from use of biooil (by-product from the production of sunflower- and rapeseed oil) at our chemical site in Lumsås, Denmark.

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

0.8816

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

15972

Metric denominator

unit total revenue

Metric denominator: Unit total

18117

Scope 2 figure used

Market-based

% change from previous year

11.78

Direction of change

Decreased

Reason for change

REDUCTION ACTIVITIES: Decrease due to energy reduction projects, favorable weather conditions and purchase of certificates of origin on electricity in Denmark, is the main reason for the CO2 reduction in 2018 compared to 2017. The intensity figure is based on a higher revenue (883 mio. DKK - equals 5,12%) and less emission of CO2 (1271 tons - equals 7.4%) compared to 2017. Metric denominator: Unit total is provided in mio. DKK

Intensity figure

2.96

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

15972

Metric denominator

full time equivalent (FTE) employee

Metric denominator: Unit total

5383

Scope 2 figure used

Market-based

% change from previous year

11.85

Direction of change

Decreased

Reason for change

REDUCTION ACTIVITIES: Decrease due to energy reduction projects, favorable weather conditions and purchase of certificates of origin on electricity in Denmark, is the main reason for the CO2 reduction in 2018 compared to 2017. The intensity figure is based on a higher number of FTE (263 people more - equals 5.14%) and less emission of CO2 (1271 tons - equals 7.4%) compared to 2017.

Intensity figure

0.000007072

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

15972

Metric denominator

unit of production

Metric denominator: Unit total

2258194100

Scope 2 figure used

Market-based

% change from previous year

3.41

Direction of change

Decreased

Reason for change

REDUCTION ACTIVITIES: Decrease due to energy reduction projects, favorable weather conditions and purchase of certificates of origin on electricity in Denmark, is the main reason for the CO2 reduction in 2018 compared to 2017. The intensity figure is based on a lower production volume (96433617 units less - equals 4.1%) and less emission of CO2 (1271 tons - equals 7.4%) compared to 2017.

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	7050	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	60	IPCC Fifth Assessment Report (AR5 – 100 year) R401a 4.4 kg in 2018. GWP: 1100 kg/CO2/kg. Source: http://www.engineeringtoolbox.com/Refrigerants-Environment-Properties-d_1220.html R404a: 2.66 kg in 2018. GWP: 3300 kg/CO2/kg. Source: http://www.engineeringtoolbox.com/Refrigerants-Environment-Properties-d_1220.html R134a: 6.2 kg in 2017. GWP 1300 kg/CO2/kg. Source: IPCC Fifth Assessment Report, 2014 (AR5), http://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf R407c: 24.0 kg in 2018. GWP: 1600 kg/CO2/kg. Source: http://www.engineeringtoolbox.com/Refrigerants-Environment-Properties-d_1220.html

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
Denmark	3145
Italy	2690
France	1275

C7.3

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

By facility
By activity

C7.3b

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

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Site Valby, Denmark	2065	55.658035	12.516765
Site Lumsås, Denmark	1080	55.94317	11.512057
Site Padova, Italy	2690	45.410201	11.926138
Site Elaiapharm, France	1275	43.628082	7.051954

C7.3c

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

Activity	Scope 1 emissions (metric tons CO2e)
Biooil	832
Methane	3966
Gasoil	194
F -gas (LPG)	45
Towngas/Citygas	2000
HFC (R404a, Ri34a, R407c)	60
Emergency diesel for generators	13

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Denmark <i>Purchased and consumed low-carbon electricity and heat in Denmark: Originates from grid mix of electricity and grid mix of district heating. 32.3% of the electricity originates from renewable energy sources (wind mills, solar, water, biogas). 60.2% of the fuel used for generating district heating originates for biofuels (hay, biomass, organic waste, wood pellets). Self generated: Steam is made by use of towngas. Cooling by use of electricity.</i>	5538	5592	37470	19876
Italy <i>Purchased electricity only. Self generated: Steam and heat is made by use of methane. Cooling by use of electricity.</i>	3452	2709	7146	0
France <i>Purchased electricity only. Self generated: Steam and heat is made by use of methane. Cooling by use of electricity.</i>	372	562	6637	0

C7.6

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

- By facility
- By activity

C7.6b

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

Facility	Scope 2 location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Site Valby, Denmark Purchased and consumed low-carbon electricity and heat. Originates from grid mix of electricity and grid mix of district heating. 41% of the electricity originates from renewable energy sources (wind mills, solar, water, biogas). 60% of the fuel used for generating district heating originates for biofuels (hay, biomass, organic waste, wood pellets). Self generated: Steam is made by use of towngas. Cooling by use of electricity.	4400	4349
Site Lumsås, Denmark Purchased and consumed low-carbon electricity. Originates from grid mix of electricity. 41% of the electricity originates from renewable energy sources (wind mills, solar, water, biogas). Self generated: Steam is made by use of towngas. Cooling by use of electricity.	1137	1243
Site Padova, Italy Purchased electricity only. Self generated: Steam and heat is made by use of methane. Cooling by use of electricity.	3452	2709
Site Elaiapharm, France Purchased electricity only. Self generated: Steam and heat is made by use of methane. Cooling by use of electricity.	372	562

C7.6c

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

Activity	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Purchased electricity	7810	7696
Purchased district heating	1551	1167

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	742	Decreased	4.3	The gross global emissions (Scope 1 + 2) of Lundbeck for this reporting year (2018) are 15937 metric tons of CO2e. The gross global emissions for the previous reporting year (2017) were 17244. metric tons of CO2e. A total change in emissions of 1271 metric tons of CO2e, equal to a 7.4% decrease, according to the formula in the explanation of terms. Formula: $((-1271/17244)*100) = -7.4$ ((change in scope 1+2 emissions attributed to other emission activities)/(previous year scope 1+2 emissions)*100). The change in emissions due to change in purchased renewable energy is attributed to certificates of origin of renewable energy. 3555 MWh electricity in Denmark bought as certified carbon neutral (certificates of origin of renewable energy) from our supplier. $3555\text{MWh} \times 0.20867 \text{ tons CO}_2/\text{MWh} = 742 \text{ tons CO}_2$. Corresponds to 4.3% of the total reduction. Formula: $((-742/17244)*100) = -4.3$ ((change in scope 1+2 emissions attributed to other emission activities)/(previous year scope 1+2 emissions)*100).
Other emissions reduction activities	216	Decreased	1.3	Other emissions reduction activities The gross global emissions (Scope 1 + 2) of Lundbeck for this reporting year (2018) are 15937 metric tons of CO2e. The gross global emissions for the previous reporting year (2017) were 17244. metric tons of CO2e. A total change in emissions of 1271 metric tons of CO2e, equal to a 7.4% decrease, according to the formula in the explanation of terms. Formula: $((-1271/17244)*100) = -7.4$ ((change in scope 1+2 emissions attributed to other emission activities)/(previous year scope 1+2 emissions)*100). The change in emissions due to other reduction activities is attributed to proactive emission reduction initiatives at our production sites. Over the years 2006 to 2017, Lundbeck has reduced its energy consumption by 35%. Expansions of our manufacturing and laboratory facilities combined with new quality requirements makes it difficult to maintain this development. In 2018, we have implemented several energy conserving initiatives. The total savings was 216 tons CO2. For instance, we optimized a cooling plant and achieved an annual saving on 400 MWh, which is equivalent to the annual energy consumption of approx. 16 households. Total decrease in CO2 due to energy projects is: 216 Tons CO2. This Corresponds to 1.0%. Formula: $((216/17244)*100) = 1.3$ ((change in scope 1+2 emissions attributed to other emission activities)/(previous year scope 1+2 emissions)*100).
Divestment	0	No change	0	Not relevant for Lundbeck in 2018.
Acquisitions	0	No change	0	Not relevant for Lundbeck in 2018.
Mergers	0	No change	0	Not relevant for Lundbeck in 2018.
Change in output	0	No change	0	Not relevant for Lundbeck in 2018.
Change in methodology	694	Decreased	4	The gross global emissions (Scope 1 + 2) of Lundbeck for this reporting year (2018) are 15937 metric tons of CO2e. The gross global emissions for the previous reporting year (2017) were 17244. metric tons of CO2e. A total change in emissions of 1271 metric tons of CO2e, equal to a 7.4% decrease, according to the formula in the explanation of terms. Formula: $((-1271/17244)*100) = -7.4$ ((change in scope 1+2 emissions attributed to other emission activities)/(previous year scope 1+2 emissions)*100). The change in emissions due to change in methodology is attributed to change in emission factors. Change in emission factors: Primarily due to more green electricity (primarily wind) in the Danish grid, factor for biooil has increased, electricity from nuclear in France. Total reduction due to changed CO2 factors in 2018 is: 694 Tons CO2. This Corresponds to 4.0% of the total reduction. Formula: $((-694/17244)*100) = -4.0$ ((change in scope 1+2 emissions attributed to other emission activities)/(previous year scope 1+2 emissions)*100).
Change in boundary	0	No change	0	Not relevant for Lundbeck in 2018.
Change in physical operating conditions	0	No change	0	Not relevant for Lundbeck in 2018.
Unidentified	381	Increased	2.2	Not identified. Formula: $((381/17244)*100) = 2.2$ ((change in scope 1+2 emissions attributed to other emission activities)/(previous year scope 1+2 emissions)*100). This increase is partly due to higher energy consumption in 2018 compared to 2017, this is due to change in production portfolio and GMP requirements for air change, new air handling unit and use of clean rooms (steam, cooling and air dehumidification).
Other	0	No change	0	Not relevant for Lundbeck in 2018.

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

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	10921	32137	43058
Consumption of purchased or acquired electricity	<Not Applicable>	12249	26293	38542
Consumption of purchased or acquired heat	<Not Applicable>	7627	5084	12711
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Total energy consumption	<Not Applicable>	30797	63514	94311

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

C8.2c

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

Fuels (excluding feedstocks)

Vegetable Oil

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

10921

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

4368

MWh fuel consumed for self-generation of steam

6553

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

Biooil (by-product from the production of sunflower- and rapeseed oil). Used for production of heat and steam in Site Lumsås, Denmark. 60% for generation of steam and 40% for generation of heat.

Fuels (excluding feedstocks)

Methane

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

19804

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

7922

MWh fuel consumed for self-generation of steam

11882

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

Used at our sites in France and Italy for heat and steam. 40% for heat and 60% for steam.

Fuels (excluding feedstocks)

Town Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

11763

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

11763

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

Used at our site i Valby Denmark. 100% for steam production. Heat originates from District heating.

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

193

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

193

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

Used for production of heat only.

Fuels (excluding feedstocks)

Diesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

45

MWh fuel consumed for self-generation of electricity

<Not Applicable>

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

Diesel used for test and maintenance of several emergency generators.

Fuels (excluding feedstocks)

Gas Oil

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

728

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

291

MWh fuel consumed for self-generation of steam

437

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

Used as backup fuel for biooil at Lumsås, Denmark. 60% for generation of steam and 40% for generation of heat.

C8.2d

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

0.288

Unit

metric tons CO2 per MWh

Emission factor source

<http://www.key2green.dk/forskellige-omregningsfaktorer>

Comment**Gas Oil****Emission factor**

0.2664

Unit

metric tons CO2 per MWh

Emission factor source

<http://key2green.dk/n%C3%B8gletal-fyringsolie-tr%C3%A6-og-halm>

Comment

Liquefied Petroleum Gas (LPG)

Emission factor

0.235

Unit

metric tons CO2 per MWh

Emission factor source

<http://www.primagaz.dk/>

Comment

Methane

Emission factor

0.20432

Unit

metric tons CO2 per MWh

Emission factor source

<http://key2green.dk/n%C3%B8gletal-naturgas>

Comment

Factor used for Italy and France.

Town Gas

Emission factor

0.17

Unit

metric tons CO2 per MWh

Emission factor source

<http://www.hofor.dk/baeredygtige-byer/beregn-co2/miljoedeklaration-bygas-2/>

Comment

Vegetable Oil

Emission factor

0.0762

Unit

metric tons CO2 per MWh

Emission factor source

<https://nlmv.dk/> Our contact at NLM Vantinge provides the annual emission factor. Proof of sustainability (document) provided by the supplier NLM Vantinge.

Comment

C8.2f

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

Basis for applying a low-carbon emission factor

Energy attribute certificates, Guarantees of Origin

Low-carbon technology type

Wind

Region of consumption of low-carbon electricity, heat, steam or cooling

Europe

MWh consumed associated with low-carbon electricity, heat, steam or cooling

3555

Emission factor (in units of metric tons CO2e per MWh)

0

Comment

Denmark: 3555 MWh electricity bought from the supplier with specific Certificates of origin. The electricity originates from wind power only.

Basis for applying a low-carbon emission factor

Other, please specify (Grid mix of district heating)

Low-carbon technology type

Biomass (including biogas)

Region of consumption of low-carbon electricity, heat, steam or cooling

Europe

MWh consumed associated with low-carbon electricity, heat, steam or cooling

7627

Emission factor (in units of metric tons CO2e per MWh)

0.0918

Comment

Emission factor: The values are subject to annual fluctuations, which create an uncertainty factor. To minimize this uncertainty Lundbeck use the mean of an average of the past three years. Source: <https://www.veks.dk/da/service/miljoe/miljoedeklaration> 60% of the fuel used for generating district heating in Denmark originates from biofuels (hay, biomass, organic waste, wood pellets). Source: <https://www.hofor.dk/wp-content/uploads/2018/06/Milj%C3%B8deklaration-2017-15-06-2018.pdf>

Basis for applying a low-carbon emission factor

Grid mix of renewable electricity

Low-carbon technology type

Wind

Hydropower

Biomass (including biogas)

Region of consumption of low-carbon electricity, heat, steam or cooling

Europe

MWh consumed associated with low-carbon electricity, heat, steam or cooling

8694

Emission factor (in units of metric tons CO2e per MWh)

0.20867

Comment

Emission factor: The values are subject to annual fluctuations, which create an uncertainty factor. To minimize this uncertainty Lundbeck use the mean of an average of the past three years. Source: <https://energinet.dk/-/media/F655674B7E814DF08126FF0DF4C7C69D.pdf?la=da&hash=91F3AF1C0EE7694CE84B823253E917A7182E8C98> Lundbeck do not produce any electricity ourselves, but 41% of the electricity in the national grid in Denmark in 2018 was originated from renewable energy sources (wind mills, solar, water, biogas). The share of renewable energy in adjusted gross energy consumption increased from covering 32% in 2017. This includes an increase in the consumption of wind power and in the use of biogas. <https://www.dkvind.dk/2018-blev-et-godt-aar-for-dansk-vindenergi/>

C9. Additional metrics

C9.1

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

Description

Waste

Metric value

5600

Metric numerator

Tonnes of virgin solvents used due to recovery.

Metric denominator (intensity metric only)**% change from previous year**

30.1

Direction of change

Decreased

Please explain

Solvents are recovered and reused several times. In 2018, we managed to recover 76% of the most used solvents. Our target was 50%. This eliminated the need to purchase approx. 5,600 tons of virgin solvents and consequently saved additional resources for external production, transportation and waste management. This corresponds to 3898 tonnes CO2 saved by not producing new solvents (0,696 kg/CO2/kg solvent waste * 5600 tonnes). Compared to the total use of solvents this is a 30.1% reduction in use of virgin solvents compared to last year. Total use of solvents in 2018 was 9267 tonnes (60.4% of this is recovered solvents). In 2017 these actions eliminated the need to purchase approx. 1,600 tons virgin solvents (total use 5283 tonnes - 30.2% of this is recovered solvents), but as the total use of virgin solvent is the same as 2017 (and the part of recovered solvents has increased), resulting in the part of virgin solvents used has decreased respectively. It should be noted that we during 2018 changed the calculation of the recovery percentage to reflect the total recovery of the 10 most used solvents globally. Prior only Denmark was in the scope. The target and result is therefore not directly comparable with 2017.

Description

Energy usage

Metric value

832

Metric numerator

Liters of biooil.

Metric denominator (intensity metric only)**% change from previous year**

999

Direction of change

Increased

Please explain

Biooil: CO2 reducing project by using biooil (by-product from the production of sunflower- and rapeseed oil). Used for heat/steam in Site Lumsås, Denmark. 7.4% more biooil was used in 2018 compared to 2017 (83000 liters). By using more biooil and less fossil fuel we reduce the emission of CO2. The emission factor is provided by the supplier. As the emission factor has increased from 0.00186 tonnes CO2 pr. MWh in 2017 to 0.0762 tonnes CO2 pr. MWh in 2018, the CO2 emission has increased - a difference of 813 tonnes of CO2, as the emission in 2017 was only 19 tonnes. The emission in 2018 was 832 tonnes CO2.

Description

Other, please specify (Supplier evaluation)

Metric value

0

Metric numerator

Number of suppliers not approved

Metric denominator (intensity metric only)**% change from previous year**

0

Direction of change

No change

Please explain

Supplier evaluation: HSE audits (questionnaires and on-site visits) are conducted on our main chemical suppliers in high risk countries alongside Quality audits. On these audits questions on energy consumption and CO2 emission are always addressed. If standards on environmental issues (waste water, air pollution, soil pollution, waste management etc..) are not acceptable the supplier is not approved. In 2018 of 10 audits - all suppliers was approved. In 2017 of 11 audits - all suppliers was approved.

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 and/or Scope 2 emissions and attach the relevant statements.

Scope

Scope 1

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

Auditors Assurance Report - 2018.pdf

Assurance statement - 2018.pdf

Page/ section reference

1: Verification statement from Deloitte. See page 1-2. Attachment: "Auditors Assurance Report - 2018.pdf" 2: Supplementary information from Deloitte. See page 2. Attachment: "Assurance statement - 2018.pdf"

Relevant standard

ASAE3000

Proportion of reported emissions verified (%)

100

COP_2018.pdf

HSE-Data 2016-2018.pdf

Scope

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

Auditors Assurance Report - 2018.pdf

Assurance statement - 2018.pdf

Page/ section reference

1: Verification statement from Deloitte. See page 1-2. Attachment: "Auditors Assurance Report - 2018.pdf" 2: Supplementary information from Deloitte. See page 2. Attachment: "Assurance statement - 2018.pdf"

Relevant standard

ASAE3000

Proportion of reported emissions verified (%)

100

COP_2018.pdf

HSE-Data 2016-2018.pdf

C10.1b

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

Scope

Scope 3- at least one applicable category

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Attach the statement

Auditors Assurance Report - 2018.pdf

Assurance statement - 2018.pdf

Page/section reference

Deloitte have made third party verification for Business Travel. This category corresponds to 2,2 % of our total Scope 3 emission in 2018. 1: Verification statement from Deloitte. See page 1-2. Attachment: "Auditors Assurance Report - 2018.pdf" 2: Supplementary information from Deloitte. See pages 2. Attachment: "Assurance statement - 2018.pdf"

Relevant standard

ASAE3000

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
C6. Emissions data	Year on year change in emissions (Scope 1)	ASAE3000	13.3% increase in 2018 compared to 2017. Verified by Deloitte during our annual review of HSE data in January 2019. Emission Scope 1, 2018 = 7110 Tons CO2. Emission Scope 1, 2017 = 6273 Tons CO2. Increase Scope 1, 2017-2018 = 837 Tons CO2 (13.3%). See supplementary information from Deloitte. See page 2. Attachment: "Assurance statement - 2018.pdf" Auditors Assurance Report - 2018.pdf Assurance statement - 2018.pdf
C6. Emissions data	Year on year change in emissions (Scope 2)	ASAE3000	19.2% decrease in 2018 compared to 2017. Verified by Deloitte during our annual review of HSE data in January 2019. Emission Scope 2, 2018 = 8863 Tons CO2. Emission Scope 2, 2017 = 10971 Tons CO2. Decrease Scope 2, 2017-2018 = 2108 Tons CO2 (19.2%). See supplementary information from Deloitte. See page 2. Attachment: "Assurance statement - 2018.pdf" Auditors Assurance Report - 2018.pdf Assurance statement - 2018.pdf
C6. Emissions data	Year on year change in emissions (Scope 3)	ASAE3000	0.3% decrease in 2018 compared to 2017. Verified by Deloitte during our annual review of HSE data in January 2019. Emission Scope 3, 2018 = 212877 Tons CO2. Emission Scope 3, 2017 = 213426 Tons CO2. Decrease Scope 3, 2017-2018 = 549 Tons CO2 (0.3%). See supplementary information from Deloitte. See page 2. Attachment: "Assurance statement - 2018.pdf" Assurance statement - 2018.pdf
C6. Emissions data	Change in Scope 1 emissions against a base year (not target related)	ASAE3000	50.2% decrease in 2018 compared to base year 2006. Verified by Deloitte during our annual review of HSE data in January 2018. Base year 2006. Emission Scope 1, 2006 = 14282 Tons CO2. Emission Scope 1, 2018 = 7110 Tons CO2. Reduction Scope 1, 2006-2018 = 7172 Tons CO2 (-50.2%) See supplementary information from Deloitte. See page 2 pages. Attachment: "Assurance statement - 2018.pdf" Auditors Assurance Report - 2018.pdf Assurance statement - 2018.pdf
C6. Emissions data	Change in Scope 2 emissions against a base year (not target related)	ASAE3000	73.1% decrease in 2018 compared to base year 2006. Verified by Deloitte during our annual review of HSE data in January 2018. Base year 2006. Emission Scope 2, 2006 = 32996 Tons CO2. Emission Scope 1, 2018 = 8863 Tons CO2. Reduction Scope 1, 2006-2018 = 24133 Tons CO2 (-73.1%) See supplementary information from Deloitte. See page 2. Attachment: "Assurance statement - 2018.pdf" Auditors Assurance Report - 2018.pdf Assurance statement - 2018.pdf
C6. Emissions data	Change in Scope 3 emissions against a base year (not target related)	ASAE3000	21.7% decrease in 2018 compared to base year 2013. Scope 3 from Business travel has been verified by Deloitte in April 2019. Base year 2013. Emission Scope 3 (Business travel), 2013 = 6455 Tons CO2. Emission Scope 3 (Business travel), 2018 = 5053 Tons CO2. Reduction Scope 3 (Business travel), 2013-2018 = 1402 Tons CO2 (21.7%) See page 2. Attachment: "Assurance statement - 2018.pdf" Auditors Assurance Report - 2018.pdf Assurance statement - 2018.pdf
C4. Targets and performance	Progress against emissions reduction target	ASAE3000	19.9% decrease in 2018 compared to base year 2016. Verified by Deloitte during our annual review of HSE data in January 2018. Reduction target is 30% by 2026 compared to base year 2016. Total reduction from 2016-2018 = 3970 tons CO2 (-19.9%). See page 2. Attachment: "Assurance statement - 2018.pdf" Auditors Assurance Report - 2018.pdf Assurance statement - 2018.pdf
C4. Targets and performance	Year on year change in emissions (Scope 1 and 2)	ASAE3000	7.4% decrease in 2018 compared to 2017. Verified by Deloitte during our annual review of HSE data in January 2019. Emission Scope 1+2, 2018 = 15972 Tons CO2. Emission Scope 1+2, 2017 = 17244 Tons CO2. Decrease Scope 1+2, 2017-2018 = 1272 Tons CO2 (7.4%). Our annual target was 3% reduction. Reduction target achieved in 2018! See supplementary information from Deloitte. See page 2. Attachment: "Assurance statement - 2018.pdf" Auditors Assurance Report - 2018.pdf Assurance statement - 2018.pdf

COP_2018.pdf
Auditors Assurance Report - 2018.pdf
Assurance statement - 2018.pdf
HSE-Data 2016-2018.pdf

C11. Carbon pricing

C11.1

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

Yes

C11.1a

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

Denmark carbon tax

C11.1c

(C11.1c) Complete the following table for each of the tax systems in which you participate.

Denmark carbon tax

Period start date

January 1 2018

Period end date

December 31 2018

% of emissions covered by tax

51

Total cost of tax paid

5030000

Comment

In Denmark Lundbeck pay carbon emission tax from fuel combustion (gasoil, LPG and citygas), district heating as well as Public Service Obligation (PSO) on electricity to initiate more green energy from windmills. The PSO tax is paid through the electricity bill, and the tax money is used as a subsidy for renewable energy projects and research and development of renewable energy. All consumers in Denmark pay this PSO tax.

C11.1d

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

Lundbeck wants to be a responsible company and comply with existing and future legislation. As a part of corporate Health safety and Environment (HSE) system, that are certified according to the international ISO 14001 standard, we have implemented a firm monitoring and compliance strategy to assure compliance with new and upcoming legislation. The strategy is described in the manual for the system and implemented locally in the HSE departments at our sites in Denmark, Italy and France. The strategy requires that all sites have a set procedure to monthly monitor national legislation and the Corporate HSE department is also required to monitor EU legislation. We use a list of different web based sites/homepages with information on new and upcoming legislation to follow up and take a proactive approach. As soon as new legislation is identified, we decide how to implement and communicate about the legislation. As a part of the HSE system all HSE related legislation is audited as a minimum every 3 years.

Carbon tax is currently a part of the legislation in Denmark and France, but our activity in France is not covered by this tax (ref. according to criteria defined in Article 10a (16) (b) of Directive 2003/87 / C NACE code 2120 / Manufacture of pharmaceutical preparations)

The tax is incorporated in our billing invoice from the energy suppliers.

Between 2017-2020 the Danish PSO tax will be phased out.

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

Drive energy efficiency

GHG Scope

Scope 1

Scope 2

Application

Our indirect carbon price applies primarily to our engineering and maintenance departments, because these departments are driving all activities regarding maintenance, repairs, rebuilding and new building activities.

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

1821

Variance of price(s) used

The price is changing every year depending on the contract with our supplier. Latest we managed to raise the price from 1,400 DKK/ton to 1,821 DKK/ton. The price only applies to the Danish sites as it is only in Denmark it is possible to sell our energy reductions.

Type of internal carbon price

Internal trading

Impact & implication

In Denmark energy suppliers have a mandatory required price on energy reductions related to scope 2. This means that it is possible to sell our energy reductions to our energy supplier. The actual price/kWh saved energy are fixed in a contract between the energy supplier and the company. When new projects are identified, typically in the Engineering department, energy savings and carbon reductions are calculated. The benefit from selling the energy reductions is included in the final calculations for the project. The pricing system means that projects with large energy reduction potentials are favored. Eg. a large investment in 2017 in optimizing our control system for temperature and humidity reducing our CO2 emissions with 271 tons CO2 was reduced with around 1.2 MDKK due to selling the energy reduction. We did not manage to sell any reductions in 2018, because requirements for documentation about the reductions increased, but we do expect that we be able to sell energy reductions again in 2019. Because we have worked with energy reductions for several years our future possibilities for implementing energy reducing activities are becoming more difficult. This combined with the development in the energy price towards lower price/kWh saved energy, means that the pricing system in the future will have less influence on the implementation of energy reducing activities.

C12. Engagement

C12.1

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

Yes, our suppliers

Yes, other partners in the value chain

C12.1a

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

Type of engagement

Engagement & incentivization (changing supplier behavior)

Details of engagement

Climate change is integrated into supplier evaluation processes

Run an engagement campaign to educate suppliers about climate change

% of suppliers by number

66

% total procurement spend (direct and indirect)

55

% Scope 3 emissions as reported in C6.5

72

Rationale for the coverage of your engagement

Lundbeck act responsible in regards to climate change and we wish our suppliers to do so as well. We have climate targets and expect our suppliers to engage in such activities, by a proactive approach towards climate change. As part of our scope 3 target Lundbeck will engage with 2/3 of selected suppliers categories (based on spend and emission) before 2026 (base year is 2016) to motivate them to develop ambitious climate targets. The supplier categories in question is: CRO, IT, consultants, raw- and packaging materials for production, company cars and transportation/logistics. One example is a dedicated questionnaire on energy use and CO2 strategy sent for key suppliers on packaging materials. Other ways is to check the homepage of suppliers to see if they have any information available on their homepage on climate initiatives or targets regarding climate change. A few suppliers has been contacted directly at meetings and follow up by e-mail to understand the setup of climate target setting at site. Finally on-site audit at chemical suppliers in developing countries, energy consumption, climate change and target setting is on the agenda. Besides this Lundbeck Sourcing Department send a questionnaire to key suppliers: METHODE: Sourcing will add an environmental questions in a mandatory questionnaire to key suppliers. If relevant for the purchasing process, the questions can also have specific climate/CO2 focus, as these two questions are incorporated: 1. Does your company have a CO2 emission target? 2. What is the CO2 emission target? STRATEGY: The information will be used for specific target setting, as well as scope 3 emission calculation used for our work towards a science based target.

Impact of engagement, including measures of success

The target is an engagement target and not a part of our absolute emission targets. We will proactively push the development of climate targets at our suppliers by using requirements in sourcing process, questionnaires, audit and meetings. Our measure success in this engagement is to have at least 2/3 of all suppliers in the selected categories to commit to climate target by 2026 (base year is 2016). This target we will evaluate in 2026 by making a survey using questionnaires, audit and meetings. Until then we will keep a register of suppliers who have climate target and the suppliers (who do not have) we need to evaluate further, to annually update the register and be on track on our own target in the years to come. The impact of the climate related supplier engagement is expected to be that more of our suppliers commit to climate targets and ensure Lundbeck source from a higher number of suppliers having a proactive climate approach and targets regarding climate change. Status: By 2018 19% of the suppliers in questing have a climate target.

Comment

This target is our first scope 3 target and include all our significant suppliers by emission (up- and downstream). At the moment 211 suppliers are included in our target and 40 suppliers have climate targets in 2018.

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

100

% total procurement spend (direct and indirect)

2

% Scope 3 emissions as reported in C6.5

2

Rationale for the coverage of your engagement

Logistic suppliers (down stream) for transportation for raw materials and finished products: METHODE: Trucks with EURO Norm 4 (using less fuel and emitting less particles and CO2) or above are preferred. In our written contract with the transportation company to document CO2 emissions every 3 months. We also focus on optimal and effective packing of the trucks, so all space in the truck is being used the best way possible. This lower our own scope 3 emissions and raise the awareness on CO2 emission and climate change at the supplier. STRATEGY: Lundbeck use these data to track, if we can do better next year (Local target of 5% CO2 reduction in 2018 compared to 2017).

Impact of engagement, including measures of success

The emission was reduced 2.5% in 2018 compared to 2017. Our target was not achieved in 2018, due to more transportation of goods by air instead of by sea (we prefer sea, as this result in a lower CO2 emission and a lower cost). But due to risk of stock-out and urgent matters, we had to use air. The total transportation of goods (downstream) accounted for 2.1% of Lundbeck total scope 1+2+3 emissions in 2018. MEASURE OF SUCCESS: Suppliers will report back upon our request. If two suppliers offer the same, but have different climate profile, this can be a criteria in Sourcing for choosing new suppliers.

Comment

Type of engagement

Compliance & onboarding

Details of engagement

Climate change is integrated into supplier evaluation processes

% of suppliers by number

30

% total procurement spend (direct and indirect)

3

% Scope 3 emissions as reported in C6.5

6

Rationale for the coverage of your engagement

Assist our GMO, API suppliers and chemical suppliers at on-site audits to set targets, risk assess impact and manage climate change actions. Lundbeck wants to act responsibly and wants to influence our suppliers to act accordingly on their climate performance. We have a firm Due Diligence Process of our partners to assess them before signing a contract. Lundbeck conduct on-site HSE audits (questionnaires and visits) on our chemical suppliers, API suppliers and GMO in high risk countries only. Energy consumption, CO2 and climate change is always a part of the audit, to try to improve the performance at the suppliers. If any 'unconformities' are reported, we visit (re-visit) the suppliers to raise the standard and level at site. This helps us keep close contact to all existing and new suppliers. In 2018 we also made direct contact to key suppliers of packaging materials to make them engage in climate change actions and understand the work done by our suppliers.

Impact of engagement, including measures of success

Our target is to visit all new or low-performing (on HSE) Chemical suppliers in developing/high risk countries at on-site audit every 3-4 years. We wish to put focus on energy consumption and climate change at our chemical suppliers by conducting HSE audits. All relevant suppliers receive a self-assessment questionnaire regarding HSE, issued by our CSR department. By now all of our existing chemical suppliers in India, China, Russia, Singapore, South Africa and Taiwan have been visited. Data on energy consumption is always a part of these audits. We always aim to get more suppliers to engage and accept HSE audit by Lundbeck.

Comment

C12.1c

(C12.1c) Give details of your climate-related engagement strategy with other partners in the value chain.

We invites investors and stakeholders to learn about our sustainability work including our strategy on climate described in our annual UN Global Progress Report (Our CDP response is also available online at our www.lundbeck.com).

We considering integrating the TCFD recommendations into our disclosure and target setting in the years to come.

On our homepage we also engage investors and stakeholders in our climate progress and share our vision in our position paper on climate change. The paper is updated annually.

We believe that investors and stakeholders will feel more secure investing in a company that is in control of our climate change risks and opportunities, including climate change risks.

C12.3

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

Direct engagement with policy makers

Trade associations

Other

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Energy efficiency	Support with minor exceptions	Via the Confederation of Danish Industries we initiated and participated in a working group with the Danish Energy Agency (The national authority on energy) and representatives from the Certifying bodies in Denmark that are certifying companies according to the legislation. The purpose was to clarify the interpretation of the Danish implementation of the Energy efficiency Directive. Lundbeck and a few other companies had experienced differences in the interpretation of the Danish legislation. Lundbeck participated by delivering a document explaining the differences we had experienced and by participating in meetings. The outcome of the working group was an official document signed by The Danish Energy Agency clarifying how the legislation must be interpreted. The work went on in 2014 – 2017. Based on this document the Danish Energy Agency published a guidance document primo 2018 describing how to via ISO 14001 and one section in ISO 50001 can comply with the legislation. Parallel the Confederation of Danish Industries prepared a checklist for companies and certifying bodies. Later in 2018 an actual update of Danish Order was initiated. We have participated by commenting both the checklist and the Danish Order. Our focus has been to secure the right value of the legislation and clarify the implementation. E.g. we have given input to the number of internal and external audits a company should have to comply with the legislation.	Lundbeck support the regulation in the Energy efficiency Directive, and we do consider the legislation must be implemented equally in all companies both nationally and across the European countries. Both the guidance document, the checklist and the updated Danish Order clarify the law and promotes an equal implementation in Denmark. Unfortunately, there are still differences in the interpretation in the European countries Lundbeck operates in. E.g in Denmark we can comply with the Danish Order by including energy reviews in our existing HSE system, in Italy we must have external energy reviews every 4 year and in France we are not legally required to make energy reviews.

C12.3b

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

No

C12.3e

(C12.3e) Provide details of the other engagement activities that you undertake.

Lundbeck continuously engage with different kind of stakeholders:

Trade associations:

- EFPIA, European Federation of Pharmaceutical Industries Ass.: Lundbeck is member of a working group in the organization where all environmental and climate related legislation is discussed. In 2016 we participated in preparation of the final draft of a White Paper that commits the pharmaceutical industry to: • Establish climate change policies/strategies based on materiality and impact for individual companies• Develop actions that support science-based CO2e reduction targets• Contribute to increase energy efficiency and aim to use more energy from renewable sources• Strive to harmonize GHG reporting based on recognized calculation methodologies and publicly disclose CO2e performance. In 2018 we have participated several times in EFPIA discussions about the challenging requirements for having Science based targets. Especially challenges concerning scope 3 targets including supplier engagement are in focus.

- Via The Danish Association of the Pharmaceutical Industry (Lif) Lundbeck has participated in partnerships with the Danish Agency for Environmental Protection. The purpose of the partnerships is to influence new BREF documents. In 2018 we have participated in a new partnership concerning revision of Common Waste Gas Treatment in the Chemical Sector (WGC BREF'en). We expect also to participate in a future partnership when the BREF about Energy Efficiency will be revised.

Other:

UN Global Compact: UN Global Compact have 10 principles where 3 are related to environment which include climate change:- Businesses should support a precautionary approach to environmental challenges;- Undertake initiatives to promote greater environmental responsibility; and- Encourage the development and diffusion of environmentally friendly technologies. Lundbeck have signed the 10 principles in UN Global Compact and we annually pay membership to the UN Global Compact Foundation. Furthermore, we participate in the UN Global Compact Nordic Network, which is a forum for exchange of knowledge and best practice within the 10 principles, including energy conservation and climate change strategies. As part of the UN Global Compact commitment, we publicly report our CSR performance, challenges and targets.

Environmental projects funded by the Danish Ministry of environment: In 2018 Lundbeck participated in an environmental project focusing on identifying possibilities for reusing waste from one company as ressource in another company. This potentially reduces the need for producing and sourcing new raw materials. This reduces the overall energy consumption from producing raw materials and waste handling.

C12.3f

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

It is described in Lundbecks HSE management system how internal and external communication is coordinated in the company. All communication with authorities, trade associations and participation in other networks is coordinated and primarily performed by the Corporate HSE department. It is solely managers and employees from the Corporate HSE department that make written input to new legislation. Lundbecks Corporate HSE department is responsible for managing Lundbecks Climate strategy and for the follow up on all Lundbecks climate initiatives and the long-term target. This means that it is the same managers and employees that are responsible for the climate strategy, that participate in the network activities and the commenting on new legislation. This ensures consistent communication about our climate strategy. Furthermore Lundbeck participate in interviews with external journalists concerning climate issues. This can indirectly influence on policy makers. Managers that participate in such interviews have always, prior to the interview, coordinated and agreed on the content of the answers with the Corporate HSE department. The internal communication concerning climate issues is coordinated and controlled through Lundbecks HSE Council and HSE organization and through Lundbecks HSE management system that is certified according to ISO 14001 and OHSAS 18001 and in compliance with Art. 8 in DIRECTIVE 2012/27/EU.

C12.4

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

Publication

In mainstream reports

Status

Complete

Attach the document

1

COP_2018.pdf

Page/Section reference

UN Global Compact Progress Report 2018, page 11-12

Content elements

Governance

Strategy

Emissions figures

Emission targets

Other metrics

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

1

Position on climate change 2019 final.pdf

Page/Section reference

Position on Climate change, page 1

Content elements

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other, please specify (Our Position document describe our strategy targets and future challenges on climate performance and disclosure.)

Comment

Our Position on climate change is revised every year.

Publication

In voluntary communications

Status

Complete

Attach the document

1

Communication at www.Lundbeck.pdf

Page/Section reference

Voluntary communication at www.lundbeck.com. The document consist of climate related screen dumps from our homepage.

Content elements

Strategy

Emissions figures

Emission targets

Other metrics

Comment

At our homepage we describe about our targets and strategy and it is possible via our interactive graph module to see e.g. our Energy consumption and CO2 emissions in different timelines. It is possible to choose total figures or split on our sites.

Publication

In mainstream reports

Status

Complete

Attach the document

1

Annual Report.pdf

Page/Section reference

Our Annual Report 2018, page 20-21.

Content elements

Risks & opportunities

Comment

In our Annual Report our Risk Management process is described and the major risks listed.

Publication

In voluntary communications

Status

Complete

Attach the document

1

2018-02-07_Lundbeck_Magazine_2018-2019.pdf

Page/Section reference

Lundbeck Magazine 2018 - 2019, page 19.

Content elements

Governance

Strategy

Comment

In Lundbeck Magazine we have described those SDG's that we work actively with e.g. number 13 Climate action.

Publication

In voluntary communications

Status

Complete

Attach the document

1

CDP response public at our homepage.pdf

Page/Section reference

Our latest CDP response is made public at our homepage. See arrow at the bottom of the page.

Content elements

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

Comment

C14. Signoff

C-FI

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

C14.1

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

	Job title	Corresponding job category
Row 1	Executive Vice President (COO). Our COO is member of the Executive Management and attend the Board meetings. Our COO is appointed by our CEO to have the corporate responsibility on climate issues.	Chief Operating Officer (COO)

SC. Supply chain module

SC0.0

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

SC0.1

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

	Annual Revenue
Row 1	18117000000

SC0.2

(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?

Yes

SC0.2a

(SC0.2a) Please use the table below to share your ISIN.

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	dk	0010287234

SC1.1

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

Requesting member

Johnson & Johnson

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

4

Uncertainty (±%)

10

Major sources of emissions

- Natural gas, methane and biooil for heating, steam and cooling purposes at our two chemical sites. - Gasoil and Citygas primarily for steam production at our two Danish sites.

Verified

Yes

Allocation method

Allocation based on the number of units purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

Production of pharmaceuticals requires several process steps. Depending on the production capacity at our chemical sites some of the process steps can be made at one of the site and some process steps at the other site. The pharmaceutical production of the products delivered have been made at our site in DK. Therefore the major GHG sources on our two chemical sites and the DK pharmaceutical site have been included in the listing of the sources of emission. The GHG emission is calculated by multiplying the number of product units with the intensity figure per production unit. Our intensity figure is a combined scope 1 and 2 figure based

on our total scope 1 and 2 emission from all our production and Research sites. Scope 1 is calculated by multiplying the proportion of scope 1 constituted by the total scope 1 and 2 emission.

Requesting member

Johnson & Johnson

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

5

Uncertainty (±%)

10

Major sources of emissions

Electricity for light and equipment and district heating for heating.

Verified

Yes

Allocation method

Allocation based on the number of units purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

Production of pharmaceuticals requires several process steps. Depending on the production capacity at our chemical sites some of the process steps can be made at one of the site and some process steps at the other site. The pharmaceutical production of the products delivered have been made at our site in DK. Therefore the major GHG sources on our two chemical sites and the DK pharmaceutical site have been included in the sources of emission. The GHG emission is calculated by multiplying the number of product units with the intensity figure per production unit. Our intensity figure is a combined scope 1 and 2 figure based on our total scope 1 and 2 emission from all our production and Research sites. Scope 2 is calculated by multiplying the proportion of scope 2 constituted by the total scope 1 and 2 emission.

Requesting member

Johnson & Johnson

Scope of emissions

Scope 3

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

123

Uncertainty (±%)

15

Major sources of emissions

The scope 3 emission is a mix of all our scope 3 emissions since all activities in scope 3 are directly or indirectly included in the process developing, producing or selling our products.

Verified

No

Allocation method

Allocation based on the number of units purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

The emission is calculated by multiplying our total scope 3 emission with the percentage the product amount for Johnson and Johnson accounts for. Lundbeck's scope 3 GHG emissions are primarily based on economic spend data from Lundbeck and the multi-regional hybrid input-output database Exiobase. But some data we also get directly from our suppliers e.g. for downstream transportation. Exiobase is a global detailed multi-regional environmentally extended input output database. The Exiobase v3 database (<http://www.exiobase.eu/>) is the product of in total four large EU funded projects under the 6th and 7th framework programmes: FORWAST (<http://forwast.brgm.fr/>), EXIOPOL (<http://www.feemproject.net/exiopol/>), CREEA (<http://www.creea.eu/>) and DESIRE (<http://fp7desire.eu/>). Exiobase can be used for national level footprints (<http://www.exiobase.eu/index.php/9-blog/27-creea-booklet>) as well as for detailed corporate footprints, e.g. see <http://lca-net.com/p/2343>. Source for EXIO databasen: Merciai S, Schmidt J (2017). Methodology for the construction of global multi-regional hybrid supply and use tables for the EXIOBASE v3 database. Journal of Industrial Ecology, early on line view 12 December 2017. <http://onlinelibrary.wiley.com/doi/10.1111/jiec.12713/full>

Requesting member

CVS Health

Scope of emissions

Scope 3

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

512

Uncertainty (±%)

15

Major sources of emissions

The emission is located in Lundbecks scope 3, but accumulated as our suppliers scope 1, 2 and 3 together. The major sources of emission in scope 1 is probably methan gas, in scope 2 electricity and scope 3 is a mix of all the scope 3 emissions we have in our scope 3.

Verified

No

Allocation method

Allocation based on the number of units purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

The products for CVS Health are solely produced at Lundbecks supplieres in scope 3. At the moment we have not been able to get precise data from our suppliers about the CO2 emission from these products. Instead we have informed about the total scope 1, 2 and 3 emission if the products had been produced at our own sites, because we expect that the CO2 is comparable at our suppliers. If the products had been produced at Lundbecks own sites the scope 1 emission had been: 16 ton, Scope 2: 23 ton and Scope 3: 512 ton. Total of 550 ton. Especially scope 3 is subject to great uncertainty e.g. we do not expect that our suppliers have the same amount of research and development related to their production as we have.

SC1.2

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

In our CDP investor response 2019 all data are public. In section 6 you can find intensity data and detailed scope 1, 2 and 3 data.

SC1.3

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

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	Different products, weight and packaging sizes emit different amounts of GHG emissions. This makes it very complicated to make an exact calculation of the emission the different product units we have. Installation of energy meters on relevant production equipment could be one step on the way to more precise calculation. Another challenge is that we do not have a method for calculating our research and development activities on product level. Research and development and especially legally required clinical studies and analyses emit huge amounts of CO2. We do however use a multi regionalhybrid input-output database Exiobase, to calculate the emission based on economic spend data.
Other, please specify (Lack of data)	When products are produced solely by scope 3 suppliers and we do not have detailed data from our suppliers. Allocation becomes very uncertain.

SC1.4

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

Yes

SC1.4a

(SC1.4a) Describe how you plan to develop your capabilities.

We expect to increase the dialogue about climate changes and product specific emissions in the future. This will make our scope 3 data more precise and it will increase our possibilities for allocating CO2 emissions for products produced solely in our scope 3.

Target of Engagement with suppliers:

The target is an engagement target and not a part of our absolute emission targets.

Engage with 2/3 of the biggest upstream suppliers by emission to motivate them to develop ambitious climate targets by 2026. Suppliers in scope are: CRO's, IT, consultants, raw- and packaging material for production and company cars.

Engage with all downstream transportation suppliers to motivate them to develop ambitious climate targets by 2026.

This target is our first scope 3 target and include all our significant suppliers by emission (up- and downstream). At the moment 211 suppliers are included in our target and 40 suppliers have climate targets in 2018.

SC2.1

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

Requesting member

Johnson & Johnson

Group type of project

Relationship sustainability assessment

Type of project

Assessing products or services life cycle footprint to identify efficiencies

Emissions targeted

Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings

10

Estimated payback

3-5 years

Details of proposal

Establishment of a single database or similar solution where companies can exchange experiences on different climate issues like: Specific energy reducing initiatives, good ways to buy carbon credits, good ways to reduce scope 3 emissions, tools to forecast GHG emissions, tools to allocate CO2 emissions to customers, tools to motivate suppliers to establish climate targets etc.

Requesting member

CVS Health

Group type of project

Relationship sustainability assessment

Type of project

Assessing products or services life cycle footprint to identify efficiencies

Emissions targeted

Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized

Other, please specify (5-10 years)

Estimated lifetime CO2e savings

5

Estimated payback

Cost/saving neutral

Details of proposal

Both the time frame and the CO2 savings are very difficult to define since it depends on how the cooperation with the supply chain develop.

SC2.2

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

No

SC3.1

(SC3.1) Do you want to enroll in the 2019-2020 CDP Action Exchange initiative?

No

SC3.2

(SC3.2) Is your company a participating supplier in CDP's 2018-2019 Action Exchange initiative?

No

SC4.1

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

Yes, I will provide data

SC4.1a

(SC4.1a) Give the overall percentage of total emissions, for all Scopes, that are covered by these products.

0.3

SC4.2a

(SC4.2a) Complete the following table for the goods/services for which you want to provide data.

Name of good/ service

Cipramil and Lexapro

Description of good/ service

Anti depressive medicine for Johnson&Johnson

Type of product

Final

SKU (Stock Keeping Unit)

1

Total emissions in kg CO2e per unit

5.04

±% change from previous figure supplied

2.2

Date of previous figure supplied

July 1 2018

Explanation of change

Total emissions in kg CO2e per unit in 2017 was 5.15. This is an decrease of 2.2% compared to 2017. Change due to lower Intensity figure (ton CO2/tablet) in 2018.

Methods used to estimate lifecycle emissions

GHG Protocol Product Accounting & Reporting Standard

Name of good/ service

Pharmaceuticals

Description of good/ service

Anti depressive medicine for CVS

Type of product

Final

SKU (Stock Keeping Unit)

1

Total emissions in kg CO2e per unit

7.98

±% change from previous figure supplied

16.1

Date of previous figure supplied

July 1 2019

Explanation of change

Total emissions in kg CO2e per unit in 2017 was 6.87. This is an increase of 16.1% compared to 2017. Change due to different mix in units bought and less sales to CSV.

Methods used to estimate lifecycle emissions

GHG Protocol Product Accounting & Reporting Standard

SC4.2b

(SC4.2b) Complete the following table with data for lifecycle stages of your goods and/or services.

Name of good/ service

Cipramil and Lexapro for Johnson&Johnson

Please select the scope

Scope 1, 2 & 3

Please select the lifecycle stage

Cradle to gate

Emissions at the lifecycle stage in kg CO2e per unit

5.04

Is this stage under your ownership or control?

No

Type of data used

Primary and secondary

Data quality

In order to inform about "cradle to gate" we need all scope 1, 2 and 3. The only topics we have not included is the transport, as our customers do this part themselves. CO2 emissions from the incineration of the empty packaging and unused medicine is also not included. Scope 1 and 2 is under our control but many of our scope 3 emissions are not. Details about ownership and emissions can be read in our CDP response.

If you are verifying/assuring this product emission data, please tell us how

We are not verifying these data.

Name of good/ service

Pharmaceuticals for CVS

Please select the scope

Scope 3

Please select the lifecycle stage

Cradle to gate

Emissions at the lifecycle stage in kg CO2e per unit

7.98

Is this stage under your ownership or control?

No

Type of data used

Primary and secondary

Data quality

In order to inform about "cradle to gate" we need all scope 1, 2 and 3. The only topics we have not included is the transport, as our customers do this part themselves. CO2 emissions from the incineration of the empty packaging and unused medicine is also not included. Scope 1 and 2 is under our control but many of our scope 3 emissions are not. Details about ownership and emissions can be read in our CDP response.

If you are verifying/assuring this product emission data, please tell us how

We are not verifying these data.

SC4.2c

(SC4.2c) Please detail emissions reduction initiatives completed or planned for this product.

Name of good/service	Initiative ID	Description of initiative	Completed or planned	Emission reductions in kg CO2e per unit
All our products	Initiative 1	We cannot specify which of our energy reducing initiatives that are specifically related to one type of product because most of our initiatives are related to our facilities and therefore impact all our products. A complete list of our energy reducing activities can be seen in section C.4.3b Of energy reducing examples can be mentioned insulation, optimization, adjustment to energy on demand and renewal of old machines/equipment like pumps, ventilation, cooling ect. The total reduction in CO2 emission from Lundbeck in 2018 compared to 2017 was 7,4% (1271 tons). The part of the CO2 reduction for J&J and CVS corresponds to 3.8 tonnes (0.3% calculated as number of tablets sold). A reduction of 0.04 kg/CO2 per unit (SKU).	Completed	0.04

SC4.2d

(SC4.2d) Have any of the initiatives described in SC4.2c been driven by requesting CDP Supply Chain members?

No

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	Public or Non-Public Submission	I am submitting to	Are you ready to submit the additional Supply Chain Questions?
I am submitting my response	Public	Investors Customers	Yes, submit Supply Chain Questions now

Please confirm below

I have read and accept the applicable Terms