

C0. Introduction

C0.1

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

The Bridgestone Group, headquartered in Tokyo, is the world's largest tire and rubber company. In addition to tires for use in a wide variety of applications, it also manufactures a broad range of diversified products, which include industrial rubber and chemical products and sporting goods. Its products are sold in over 150 nations and territories around the world.

The Corporate Communication Division is responsible for answering the 2019 CDP questionnaire. This division coordinates and manages the Group's Environmental Mission Statement compliance, providing environmental support to business sections, Strategic Business Units (SBU) at a global level.

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	Please select	<Not Applicable>

C0.3

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

Argentina
Australia
Belgium
Brazil
Canada
China
Costa Rica
France
Hungary
India
Indonesia
Italy
Japan
Liberia
Malaysia
Mexico
Philippines
Poland
Russian Federation
South Africa
Spain
Taiwan, Greater China
Thailand
Turkey
United Kingdom of Great Britain and Northern Ireland
United States of America
Viet Nam

C0.4

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

JPY

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 Executive Officer (CEO)	The CEO is a member of the board, and has the highest-level responsibility for climate-related issues. The CEO is responsible for deciding policies and measures or presenting to the board and overseeing company-wide management activities about management vision, mid-term strategies, annual policies, etc. including climate-related issues.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding business plans Setting performance objectives Monitoring and overseeing progress against goals and targets for addressing climate-related issues	Bridgestone, in accordance with its Articles of Incorporation and applicable laws, stipulates in the Regulations of the Board of Directors that the Board of Directors is the highest decision-making body within the company. The restructuring of the Board's authority conducted in February 2018 enables the Board to focus more on deliberations concerning business strategy including: 1) Fundamental management policy the foundation of which includes: -Our global CSR commitment ("Our Way to Serve") -The Environmental Mission Statement one of the important objectives of which is CO2 reduction 2) Mid-term policy which incorporates environmental/energy issues into its basis of consideration To the Board, situation and progress of execution of the items above are reported quarterly. In addition, executive officer, responsible for Sustainability also report comprehensive activities on CSR and sustainability including environment and climate change issues which have been once a year reviewed by the Global Executive Committee (Global EXCO), Bridgestone highest-level execution committee. In 2018, (1) Progress of our CSR activities such as education and enhancement of Global CSR commitment - "Our Way to Serve"- one of the 3 priority areas of which is environment including CO2 reduction (2) Introduction of "the Sustainable Global Procurement Policy" which contributes to CO2 reduction within our whole supply chain were reported to the board.

C1.2

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

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

C1.2a

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

At Bridgestone, the CEO is the highest-level management position and has ultimate responsibility for management strategy and overall management including climate-related issues. And the highest-level committee associated with the Bridgestone Group global business execution is the Global Executive Committee (Global EXCO) . Members of the Global EXCO are nominated from full-time corporate officers by the CEO/COO.

Reporting to the Global EXCO, Bridgestone has the Global CSR Enhancement Committee (GCEC) that is comprised of executive officers in charge of CSR and representatives of SBUs and functions.

Under the GCEC, Bridgestone has 7 working groups* which are related to the areas focused in our Global CSR Commitment; "Our Way to Serve". Each working group comprised of members from corresponding functions or related areas in each SBU and report to the GCEC. Among the 7-working groups, the "Environment Working Group" summarizes and reports results related to CO2 goals and management, and proposes strategies to the GCEC, taking into account the latest social trends that might represent environmental risks/opportunities.

According to deliverables from the working groups including that from the Environment Working Group as written above, the GCEC prioritizes CSR initiatives in areas pertaining to a variety of global issues including climate change, formulates global CSR strategies and tracks the progress of activities in each area. Then, the GCEC reports to the Global EXCO and ask them for decision making on important issues.

As for risk management/assessment, the Bridgestone Group broadly divides risks into two categories: business strategic risks, which are related to management decision-making, and operational risks, which include climate change risks and are related to daily operations. The former is handled through business operations, while the latter is handled by the Chief Risk Officer (CRO), who has overall responsibility for managing risks and reports to the CEO.

*7 working groups under the GCEC: "Mobility", "People", "Environment", "Compliance, Fair Competition", "BCP, Risk Management", "Human Rights, Labor Practices" and "Procurement"

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?

All employees

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction project

Comment

At Bridgestone, business, departments and individuals who have made outstanding achievements, including various climate change mitigation actions and results, such as achieving a CO2 reduction target, reducing energy use, and improving efficiency or reducing waste among others can be recognized by the Representative Executive Officers in a company-wide event held on March 1, the foundation day, and also can be recognized every year by the head of the worksite in a regional event. Bridgestone's commemorates its history and philosophy at its foundation day while reconfirming the direction the company will take in the future. This event aims to raise employees' awareness of corporate activities. A monetary recognition as well as a regional recognition is in place.

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Recognition (non-monetary)

Activity incentivized

Environmental criteria included in purchases

Comment

The Bridgestone Group Awards is the highest global recognition program for all employees that rewards efforts of organizations and individuals in five award categories. One of award categories, Environment, recognizes efforts related to climate change, such as achieving a CO2 reduction target, reducing energy use, and improving efficiency or reducing waste. This award program, raises awareness among employees and encourages their participation in environmental activities. Group Award winners are honored each year during a ceremony held at Group headquarters in Tokyo. In 2019 the Group awarded the launch of 3 global policies including the Global Sustainable Procurement Policy (presented in 2018) . This new procurement policy focuses on supplier's sustainable procurement practices that incorporate environmentally responsible measures for climate change, reduction of Green House Gas (GHG) emissions as well as the use of energy as one of four major areas.

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	5	
Medium-term	5	10	
Long-term	10	40	

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	

C2.2b

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

1. Risk Assessment Structure in the Bridgestone Group

The Bridgestone Group broadly divides risks into two categories: business strategic risks, which are related to management decision-making, and operational risks, which include climate change risks and are related to daily operations. The former is handled through business operations, while the latter is handled by the Chief Risk Officer (CRO), who has overall responsibility for managing risks and reports to the CEO. The Group promotes risk assessment as a part of comprehensive activities to appropriately manage risks common to the operations, with consideration for the scale and characteristics of each site and Group company and without limitation of time period (Six years or more). Through the dual promotion of the Group's global unified activities and autonomous risk management activities by branches, important risks common to the Group (Corporate risk, managing process of which is reported to the CRO once every half a year) and risks of each site and Group company (Asset risk, countermeasures and yearly self assessment of which are considered and conducted by each facility) are identified.

2. The process for assessing the potential size and scope of identified risks

In the Bridgestone group, both corporate and facilities conduct risk identification at least once a year, utilizing globally common direction. Then, they evaluate risks, utilizing globally unified criteria which consists of viewpoints of their impact and possibility of occurrence. The Group standardized the degree of impacts of risks by impact-type such as human life/health, financial loss, operational impact (period of suspension of sales and plant operation or time necessary for response), social trust and so on, regardless the possible timing of occurrence. The criteria to determine rank differ by the impact-type. But as for environment related risks including climate change and CO2 emission etc., the Group consider its possible impact is substantive when it falls under one of the following criteria: "Strong feeling of discomfort extending to areas surrounding the office/plant, accompanied by health damage in some cases, or health damage caused externally over a wide area", "Excess limit of financial amount (determined by company)", "Over two weeks' impact on division (period of suspension of sales and plant operation or time necessary for response)", or "Trust damaged in terms of the company's constitution (falsified reports, organizational scandal)". On the other hand, we also estimate possibility of occurrence and classify them into 4 ranks based on the likelihood.

3. How climate-related risks are identified and assessed at a company/asset level

As the result of the evaluation based on impact and possibility of occurrence, the risks "with a high possibility of occurring and major impact" and "with a significant impact of it should occur, although its possibility is low" are considered "Significant risk" and classified into "Corporate risk". And others are into "Asset Risk".

4. The process to determine the relative significance of climate-related risks in relation to other risks

The process for risk identification and assessment mentioned above is also applied to the risks other than environment related ones including climate change, so various risks which we may face can be assessed in comparable manner.

5.The definitions of risk terminologies used and references to existing risk classification frameworks

Bridgestone's definition of "risk" is events (incidents, accidents, natural disasters or problems, etc.) that may cause damage to organizations, employees, products and services, financial conditions, brands, customers, shareholders, business partners or neighbors. In addition, Bridgestone promotes improvement of risk identification and management framework referring ISO 31000, the international standard for risk management.

6.Definition of substantive financial or strategic impact on the business

Through the process written above, we figure out substantive risks. From financial perspective, the threshold for the judgement is whether the risk is anticipated to cause more financial loss than a standardized amount. And also, from strategic point of view, the standardized degree determined by impact-type such as human life/health, financial loss, operational impact(period of suspension of sales and plant operation or time necessary for response), social trust and so on is utilized to judge. The concrete criteria including the amount of financial loss is determined by each of corporate, sites and Group companies which conduct the risk assessment, with consideration for the scale and characteristics of them.

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	Recently, various regulations have been introduced for the purpose of curbing climate change. With respect to tires also, maximum limits on rolling resistance and the labelling system have been introduced. Following such new regulations, operational cost such as to develop low rolling resistance tires, to measure rolling resistance coefficient value and to print labels has been increased. There is a possibility of further increase of operational cost in case such regulations become stricter and/or expand globally. The global Environment Working Group is monitoring social trends including current regulations and Bridgestone encourages the development and launch of low rolling resistance tires to contribute to CO2 emissions reduction activities.
Emerging regulation	Relevant, always included	There are discussions about introducing carbon pricing in many countries, and since Bridgestone has facilities in over 20 countries, there is a possibility of increasing operational cost. The global Environment Working Group is monitoring social trends including emerging regulations such as carbon tax, etc. and Bridgestone encourages activities to reduce CO2 emissions.
Technology	Relevant, always included	There is a possibility of sales decrease in case of becoming less competitive because of delay of low carbon technology development enhancing energy efficiency of products/manufacturing. By introducing such energy- efficient technologies, Bridgestone encourages providing products and services which can contribute to reduce CO2 emissions, such as fuel-efficient tires.
Legal	Relevant, always included	Bridgestone encourages ESG disclosures, however, there is a possibility of litigation claim in case of providing inaccurate information on climate-related issues such as description of energy efficiency at a tire label.
Market	Relevant, always included	Bridgestone encourages providing products and services which can contribute to reducing CO2 emissions, such as fuel-efficient tires. However, changes on climate-related requirements in the market may impact our sales. For instance, expectations for fuel efficient tires and retread tires are increasing, however, there is a possibility of losing competitiveness and drop in market share in case of delaying the development and providing tires which can improve customer satisfactions related to CO2 reductions. In addition, in case that global temperature becomes significantly higher and snowfall becomes lower, demand for winter tires might be lower. The global Environment Working Group is monitoring social trends including market requirements from customers such as automakers.
Reputation	Relevant, always included	Bridgestone encourages ESG disclosures, however, there might be a potential of criticisms and drop in stock price in case of providing inaccurate information on climate-related issues. The global Environment Working Group monitors external ratings of Bridgestone by externals. The global Environment Working Group also monitors social trends including reputations of advanced companies on ESG as benchmark and criticisms for companies with ESG related misdoings to avoid future negative reputational impacts.
Acute physical	Relevant, always included	There is a risk of rubber supply shortage caused by drought or floods occurred in regions where para rubber tree grows. It can lead to lower profit because of the higher rubber procurement cost. In addition, severe weather such as floods and hurricanes could affect operations at manufacturing facilities and/or distribution channels. The global Environment Working Group is monitoring social trends including yearly climate change status in all regions.
Chronic physical	Relevant, always included	There is a risk of rubber supply shortage as climate pattern changes in regions where para rubber tree grows and rubber production efficiency worsen. It can lead to lower profit because of a higher rubber procurement cost. The global Environment Working Group is monitoring social trends including publications about long-term estimations related to climate-change.
Upstream	Relevant, always included	There are risks of rubber supply shortage caused by (1)drought or floods occurred in regions where para rubber tree grows (it can lead to lower profit because of a higher rubber procurement cost) and (2)climate pattern change in regions where para rubber tree grows and rubber production efficiency worsen (It can lead to lower profit because of a higher rubber procurement cost). The global Environment Working Group is monitoring social trends including yearly climate change status in all regions, publications about long-term estimations related to climate-change, movements about supplier activities for adaptation to climate risks etc.
Downstream	Relevant, always included	In Bridgestone's value chain and business, automobile market is one of the primary fields. Therefore, Bridgestone encourages providing products and services which can contribute to reducing CO2 emissions, such as fuel-efficient tires. However, changes in market requirements may possibly impacts sales. For instance, expectations for fuel efficient tires and retread tires are increasing, however, there is a possibility of losing competitiveness and drop in market share in case of delay in developing and providing tires which can improve customer satisfactions related to CO2 reductions. The global Environment Working Group is monitoring social trends including market requirements from customers such as automakers.

C2.2d

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

1. Bridgestone's approach to managing climate-related risks

For risk management, the Bridgestone Group broadly divides risks into two categories: business strategic risks, which are related to management decision-making, and operational risks, which include climate change risks and are related to daily operations. The former is handled through business operations, while the latter is handled by the Chief Risk Officer (CRO), who has overall responsibility for managing risks including climate change and reports to the CEO.

The Group promotes comprehensive activities to appropriately manage risks common to it, with consideration for the scale and

characteristics of each site and Group company and without limitation of time period, more than 6 years. Through the dual promotion of Group global unified activities and autonomous risk management activities, the Group identifies, prevents and mitigates risks, and formulate Crisis Management and Business Continuity Plans to enable appropriate support for the continuation or resumption of business.

<Process to mitigate, transfer, accept, control and/or prioritize climate-related risks>

The Group assesses risks, utilizing globally unified criteria which consists of viewpoints of their impact and possibility of occurrence then classified into "Corporate Risk" and "Asset Risk" (Detail of the methodology is written in 2.2b). As for the Corporate Risk, it discusses on and establishes action plan of measures to manage the risks from various perspective such as mitigation, transfer, accept and/or control. And the progress is reported to the CRO once every half-year period. Then the CRO deliberates the report content and as necessary, gives instructions for improvements to responsible department. As for the Asset Risk, corresponding facilities consider countermeasure and reduce impact of the risk. And they conduct self assessment of the progress per year and perform corrective actions as necessary.

2. Management processes regarding climate-related opportunities

As the first step of our managing process of climate-related opportunities, the Environmental Working Group under the GCEC comprising members from each Strategic Business Unit monitors social trends and oversees company's activities on CO2 reduction, biodiversity, resource efficiency and so on.

Based on the discussion at the Environmental Working Group level, the overall global decision-making regarding the environment, including climate change, is normally carried out by the GCEC. Members of the committee are composed of an executive officer in charge of CSR and representatives of regions and functions. As for important items, the GCEC reports them to the Global EXCO and ask them for decision on them. Then, based on the management plan finalized at Global EXCO, SBUs reflect it in each Mid-term Management Plan, prioritizing such opportunities from effect and investment viewpoints.

3. Case Study

<Physical risk>

For Bridgestone, disruption of supplies of raw material including natural rubber is regarded as one of major risks. So far, its probability of occurrence is not very high. But on the other hand, as the Group uses large quantities of natural rubber in tires and other rubber products, it estimates its potential financial impact is substantive. Therefore, the Group classifies it into Corporate Risk. From climate related viewpoint, productivity of natural rubber which is the main raw material in tires could be decreased by droughts in South East Asia as primary growing area of para rubber trees. Then, shortage and cost increase of natural rubber could adversely affect the Companies' operating results and financial position.

As part of countermeasures, the Group is promoting various research projects aimed at practical applications for guayule, which shows promise as a new supply source for natural rubber. Aiming for practical applications in the 2020s, it will continue to strengthen various factors going forward, including improving guayule productivity through sustainable methods, establishing production processes and improving logistics.

<Transition risk>

The Group's operations around the world is subject to diverse national laws and regulations including environmental protection. It considers such Legal, regulatory and litigation risk could have potential to be one of the major risks. Labeling systems and regulations regarding tire performance like fuel efficiency are one of such risks. This risk has potential to decrease sales if investment in new technology for lower rolling resistance -which makes tires more fuel-efficient in align with other performances including cost - is unsuccessful. As the tire business is our primary business, the potential financial impact is significant. As this type of systems/regulations are expanding around the world, the probability of occurrence is relatively high. Therefore, Bridgestone regards this risk as Corporate Risk and tackle with developing tires with low rolling resistance.

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

Introducing carbon pricing in various countries would cause increase of operational cost since Bridgestone has facilities in over 20 countries. For example, in October 2012, the Tax for Climate Change Mitigation was introduced in Japan. In response to such introduction, the Bridgestone Group is paying more taxes directly according to the use of fuel and indirectly according to the use of electricity. Specifically, by using a CO2 emissions factor of each fossil fuel, the tax rate per unit quantity (kilo liter or tonne) is set so that each tax burden is equal to 289 yen per tonne of CO2 emissions. (The tax rate was raised in three stages over three and a half years). In addition, there is a possibility of increasing payments since the Paris Agreement was ratified and there are discussions about introducing carbon pricing in Japan. For Bridgestone, it is an important climate risk to consider because approx. 30% of our manufacturing facilities are located in Japan and CO2 emission of these facilities accounts for approx. 24% of our Scope1 & Scope 2.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

951000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Current carbon tax rate in Japan is 289 yen/tCO2e, however, financial impact in case of increase in tax rate can be roughly calculated as following formula. Financial impact = increase in tax rate times CO2 emission volume in Japan (about 951 thousand yen/1 yen increase in tax rate. This calculation includes impact of price increase of electricity)

Management method

In order to reduce CO2 emissions, we are promoting conversion to energy that produces little CO2 emissions and also reducing energy use itself. Energy saving initiatives at production sites is one of our primary activities. We have been implementing CO2 reduction measures such as the introduction of high efficiency equipment, installing steam turbine generators, converting to fuel emitting less CO2 and so on. In addition, in 2018, Bridgestone announced its smart factory concept with its original ICT/IoT technology. From an energy perspective, ICT named "Bridgestone Intelligent Device" conduct energy control utilizing AI one of the contribution of which is automatic optimization of manufacturing process utilizing market and development information of product. Bridgestone will introduce this new concept sequentially from 2019 including fostering at least 100 data scientists. Investments mainly for enhancing energy saving through improvements of equipment, including upgrading equipment to high efficiency equipment and converting them to inverter, at Bridgestone plants amounted to 4,079million yen in 2018.

Cost of management

4079000000

Comment

As example of other activities, we are promoting energy saving initiatives at offices. We have reduced the number of units of equipment by promoting scrapping and integration through the visualization of the layout and utilization rate of office equipment such as printers and multifunction office equipment. We also have long succeeded in reducing power consumption by resetting illuminance by thorough measurement of lighting illuminance of business offices. We have introduced an "electric power visualization" system at the business office of Technical Center which is used to visualize the status of power consumption and verify the effects of reduction measures and to set reduction targets.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Supply chain

Risk type

Physical risk

Primary climate-related risk driver

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

Type of financial impact

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

Company- specific description

Bridgestone's main business is tires whose raw materials consist of natural rubber. Currently, natural rubber is almost entirely made from the sap(latex) of para rubber tree. 90% of the growing area of para rubber tree is in Southeast Asia and owing to droughts in the tropical rainforests of Southeast Asia caused by El Nino, the deciduous period for para rubber tree becomes longer and the period during which sap can be obtained becomes shorter, thereby leading to a decrease in yield. As a result, the balance of supply and demand is expected to be upset and the price of natural rubber, which plays a vital role as a raw material of tires, is expected to surge. If the price of natural rubber rises and it becomes difficult to procure such rubber, the cost of tire production will increase. This in turn is expected to result in lower profit or a decrease in share due to higher tire prices.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

5220000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

At this moment, we are unable to accurately estimate the financial implications. However, we estimate that once this scenario takes

place, the procurement cost will increase drastically. For example, an increase of about 5.22 billion yen worldwide for every yen rise per kilogram of whole raw material for our production including natural and synthetic rubber, based on 2018 production levels.

Management method

In order to avoid the risk above, Bridgestone produces a portion of the raw materials at our own rubber tree farms, as well as establishes disease diagnostic technology and conducts research on genome decoding aimed at breed improvement. Through these efforts, we are augmenting output and preparing for the risk of being unable to procure. The Bridgestone Group owns natural rubber tree farms in Indonesia and Liberia. The entire research and development expenses of the Global Group, including measures like establishing disease diagnostic technology and conducting research on genome decoding aimed at breed improvement totaled 103.5 billion yen per year in 2018.

Cost of management

103500000000

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Customer

Risk type

Transition risk

Primary climate-related risk driver

Reputation: Increased stakeholder concern or negative stakeholder feedback

Type of financial impact

<Not Applicable>

Company- specific description

Disclosure of GHG related information is increasingly being required around the world. Meanwhile, foreign investors own about 27% of Bridgestone stocks. If Bridgestone stocks are deemed to be outside the scope of ESG investment by financial institutions due to our failure to disclose information or negative campaigns are conducted by NGOs there is a risk that this would lead to a decline in the stock price. We think the reputation risk would be comparatively higher for Bridgestone because of its leader position in the industry and should be managed properly by the measures as written below.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

760000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

A one-yen decline in the stock price per share would result in total losses of corporate value approximately 760 million yen as of December 31, 2018. It brings more difficult access to capital.

Management method

In order to prevent decreasing in brand value, we believe that it is important to accurately disclose information on supply chain GHG. When disclosing GHG information, we deem the following 3 points crucial. 1) Guarantee of reliability of information We obtained a third-party verification of our 2018 calculation results through an external organization and disclosed it. And we utilize external evaluation schemes to secure objectivity from stakeholders' viewpoint. As the result of such effort by 2018, We were ranked or selected to A- on CDP Climate Change, DJSI World and FTSE4Good Index Series etc. as of Feb.2019. 2) Secure

method of information disclosure We think we can meet stakeholder's expectations by disclosing information in accordance with CDP requirements. The disclosure connected with the objective under long-term environmental vision has made our initiatives easily understandable. 3) Secure means of access to information We use our website and Global Sustainability Report to make it possible for all stakeholders to access information of our various activities. The effort to communicate with stakeholders through the Global Sustainability Report was awarded "Environmental Communication Awards 2017 Excellent prize" by the Ministry of the Environment of Japan in Feb, 2018. We spent approx. 33 million yen in 2018 in total for implementing measures above such as obtaining third-party verification of our 2018 GHG calculation results and issuing a Sustainable Report.

Cost of management

33000000

Comment

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Customer

Risk type

Transition risk

Primary climate-related risk driver

Technology: Unsuccessful investment in new technologies

Type of financial impact

<Not Applicable>

Company- specific description

Recently, various regulations have been introduced to curb climate change. With respect to tires also, maximum limits on rolling resistance and the labelling system have been introduced. Although tires do not emit GHG when they are used, passenger cars and trucks emit a large volume of GHG. Improving fuel consumption, would be a countermeasure against such emissions. Although the fuel consumption of passenger cars and trucks is determined by engine performance and various resistance factors, among such factors, the impact of resistance by tire is said to be about 10-20% for passenger cars and about 20-30% for trucks, though this depends on driving conditions. Resistance by tire mentioned here is referred to as "rolling resistance" which is resistance arising when a tire rolls. In other words, the same vehicle will have better fuel consumption if the tire rolling resistance is low. As such, each country is adopting the following systems as a measure to lower rolling resistance.1. Set a maximum value for rolling resistance and prohibit sale if this maximum value is exceeded. (Maximum limit) 2. Grade rolling resistance according to 5-7 levels and carry out labelling. For example, Europe (EU member states), South Korea, Brazil and the Middle East (GCC, Israel) have already introduced the maximum limit and labelling systems, and Japan has introduced the labelling system as a voluntary industry standard. Bridgestone considers that these systems could be a risk to decrease sales units if investment in new technology for better rolling resistance in align with other performances including price is unsuccessful. Therefore, we are developing products with better rolling resistance to prevent reduction of sales volume.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

30510000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

The global tire market is valued at approximately 168 billion US dollars in 2017 (Reference: Tire Business – Global Tire Company Rankings) and is expected to grow two to three-fold by 2050. Our tire sales in 2018 was about 3,051 billion yen. When considering

the maximum limit and labelling system of rolling resistance as a risk to bring financial impact, we estimate potential financial impact to be 30.51 billion yen per 1% decreasing of annual sales. The actual value depends on the degree of sales decrease of tires not satisfying fuel efficiency level required by a future system.

Management method

The most important factor to prevent this risk is the development of technology for reducing tire-rolling resistance. To this end, we are developing technology for tires in overall focusing on the molecular structure of raw materials, weight reduction, internal structure of tires, and tire groove configuration, among other things. As example of the achievements in 2018, we successfully expand to original equipment for new vehicles of the "Large and Narrow concept tire" employing "ologic" technology. Tires with this new technology are able to realize levels of fuel efficiency that greatly exceed those of the fuel-efficient tires we have already put on the market, and as a result, this is expected to reduce CO2 and occurrence of this risk. Additionally, we have successfully developed a new polymer to bond rubber and resins at the molecular level. This new polymer, called High Strength Rubber (HSR), boasts unprecedented durability with higher crack resistance, higher abrasion resistance and tensile strength than natural rubber, which itself has higher destruction resistance than common synthetic rubber. The new material could contribute to improving fuel efficiency with its low rolling resistance thanks to lighter weight of tires accompanied by reducing material for its higher durability. We invested in development aiming to reduce rolling resistance every year. Tire's research and development expenses, including such investments, totaled 86.7 billion yen in 2018.

Cost of management

8670000000

Comment

C2.4

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

Yes

C2.4a

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

Identifier

Opp1

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Type of financial impact

Increased revenue through demand for lower emissions products and services

Company-specific description

Recently, various regulations have been introduced with the purpose of curbing climate change. With respect to tires also, maximum limits on rolling resistance and the labelling system have been introduced. Although tires do not emit GHG when they are used, passenger cars and trucks emit a large volume of GHG. Improving fuel consumption, etc. would be a countermeasure against such emissions. Although the fuel consumption of passenger cars and trucks is determined by engine performance and various resistance factors, among such factors, the impact of resistance by tire is said to be about 10-20% for passenger cars and about 20-30% for trucks, though this depends on driving conditions. The tire resistance mentioned here is referred to as "rolling resistance" which is resistance arising when a tire rolls. In other words, the same vehicle will have better fuel consumption if the tire rolling resistance is low. As such, each country is adopting the following systems as a measure to lower rolling resistance. 1. Set a maximum value for rolling resistance and prohibit sale if this maximum value is exceeded. (Maximum limit) 2. Grade rolling resistance according to 5-7 levels and carry out labelling. For example, several regions and countries such as Europe (EU member states), South Korea, Brazil and the Middle East (GCC, Israel) have already introduced the maximum limit and labelling systems,

and Japan has introduced only the labelling system as a voluntary industry standard. Bridgestone sells tires all over the world as a global leader in the industry and the portion of tires for passenger/trucks/buses which are strongly related to the systems above accounts for 71% of our revenue. Therefore, Bridgestone considers the introduction of these systems could be comparatively large opportunity to fairly disclose and appeal to consumers the maximum limit and grading of rolling resistance of our products due to its wide range of region of operation.

Time horizon

Current

Likelihood

Very likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

30510000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

The global tire market was valued at approximately 168 billion US dollars in 2017 (Reference: Tire Business – Global Tire Company Rankings) and is expected to grow two to three-fold by 2050. By considering the maximum limit and labelling system of rolling resistance as an opportunity and making use of such opportunity, there is huge financial potential. Sales of tires, including fuel-efficient tires, were about 3,051 billion yen in 2018. We estimate potential financial impact is 30.51 billion yen per 1% increasing of annual sales. Its actual value depends on percentage of sales increase by such fuel-efficient tires.

Strategy to realize opportunity

The most important factor in taking advantage of such systems is the development of technology to reduce tire-rolling resistance. To this end, we are developing technology for tires, focusing on the overall molecular structure of raw materials, weight reduction, internal structure of tires, and tire groove configuration, among other things. At the same time, we are implementing the sales strategy of focusing on expanding sales of "ECOPIA" tires with substantially lower rolling resistance as a global brand. We have successfully been increasing sales of "ECOPIA" brand products and will foster this brand continuously. Also, we successfully developed the "Large and Narrow concept tire" employing "ologic" technology as a new tire environmental technology. Tires with this new technology are able to realize levels of fuel efficiency that greatly exceed those of the fuel-efficient tires we have already put on the market, and as a result, this is expected to reduce CO2. In addition, we are promoting development of tires with better rolling resistance by setting a mid-term target for us to reduce 25% of rolling resistance vs 2005 until 2020. As of 2018, we achieved 21% reduction vs 2005 (improved approx.2% from 2017) which is equivalent to 13.4 million t-CO2 of our Scope3 reduction from 2005. We invested in development aiming to reduce rolling resistance every year. Tire's research and development expenses, including such investments, totalled 86.7 billion yen in 2018.

Cost to realize opportunity

86700000000

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Supply Chain

Opportunity type

Resilience

Primary climate-related opportunity driver

Resource substitutes/diversification

Type of financial impact

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

Company-specific description

Currently, natural rubber, the main raw material of tires, is almost entirely produced from the sap of para rubber trees. 90% of growing areas of para rubber trees are in Southeast Asia and its price often fluctuates due to issues such as demand change, climate change and speculation etc. Therefore, finding a substitute for the raw material source will be one key factor to enhance competitiveness and resilience of Bridgestone's business. The Bridgestone Group proactively conducts research and production of natural rubber resources consisting of Guayule cultivated in arid climates and Russian Dandelion cultivated in temperate climates as substitutes for para rubber trees. Additionally, we have successfully developed a new polymer to bond rubber and resins at the molecular level. This new polymer, called High Strength Rubber (HSR), boasts unprecedented durability with higher crack resistance, higher abrasion resistance and tensile strength than natural rubber, which itself has higher destruction resistance than common synthetic rubber. We expect this new material would be alternative material of natural rubber and/or contribute to reducing its usage amount. Through these activities, we can use this opportunity to differentiate ourselves in terms of diversity of raw material source and cost competitiveness and supply of tires.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

210000000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Financial impact to tire sales in case of change in Bridgestone's share can be roughly calculated as following formula. Financial impact = Current sales divided by current share multiplied by percentage of change in share (about 210 billion yen per 1 % change in share). *The calculation is based on approx. 3,051 billion yen as Bridgestone's sales in tire business and 14.5% as Bridgestone's share in the tire industry in 2017

Strategy to realize opportunity

As a means of gaining opportunities, we have been promoting research and development on alternative resources in other climatic zones aimed at easing the overconcentration of natural rubber producing areas in Southeast Asia. 1. Guayule: The Bridgestone Group conducts research and development of guayule as a new natural rubber source replacing para rubber tree to stabilize supply. As guayule grows in arid regions, unlike para rubber tree, and the rubber component contained in its tissue has similar properties to the natural rubber harvested from the para rubber tree, it is expected to be a new natural rubber source. We commenced experimental production of natural rubber harvested from guayule in 2015 and are conducting studies for its practical application in the 2020s. 2. Russian Dandelion: Russian Dandelion, a plant native to Kazakhstan and Uzbekistan, is a material for natural rubber and is cultivated in temperate zones which are completely different from the climate conditions for para rubber tree. 3.High Strength Rubber (HSR): Our new polymer to bond rubber and resins at the molecular level. It boasts unprecedented durability with higher crack resistance, higher abrasion resistance and tensile strength than natural rubber, which itself has higher destruction resistance than common synthetic rubber. The entire research and development expenses on Group/Global basis, including development of alternative resources above, totalled 103.5 billion yen per year in 2018.

Cost to realize opportunity

103500000000

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Type of financial impact

Increased revenue through demand for lower emissions products and services

Company-specific description

Bridgestone delivers a wide range of products to customers around the world, including tires, rubber and other diversified products. We have been providing best-in-class services, sensor devices, data-driven technology and tire asset management systems as "Solution Business" that enable increased productivity for our customers. Among the customers, Commercial Fleet operators are under constant pressure to maximize their fleet performance whilst minimizing costs. Bridgestone's integrated solution offering, combining premium products, extensive services and state of the art digital platforms provide fleet customers with safer, more sustainable and economical mobility. From climate-related viewpoint, improvement of fuel efficiency brought by our solution have been contributing to CO2 reduction. In case that stricter emission control and/or carbon pricing etc. are introduced with the rise of social momentum in future, CO2 emission reduction would become more important theme for such operators. We consider it could be our business opportunity. Bridgestone has focused on this solution business in recent years by measures represented by the acquisition of Bandag in 2007, introducing "ECO Value Pack" service which bundles new tires, retread tires and tire maintenance service into a single package for transport operators and other customers. Therefore, Bridgestone would be able to grasp the expansion of solution business related opportunity comparatively easily.

Time horizon

Current

Likelihood

Very likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

210000000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Success of our solution business would contribute to growth of our tire business including sales increase. Financial impact to the tire sales in case of change in Bridgestone's share can be roughly calculated as following formula. Financial impact = Current sales divided by current share multiplied by percentage of change in share (about 210 billion yen per 1 % change in share). *The calculation is based on approx. 3,051 billion yen as Bridgestone's sales in tire business and 14.5% as Bridgestone's share in the tire industry in 2017

Strategy to realize opportunity

As announced in Feb, 2019, Bridgestone recently introduced a new strategy named "Bridgestone T&DPaaS(Tire&Diversified products as a Solution)". The "Bridgestone T&DPaaS" will sort and link digitally, all the necessary customer, products and service related info (data) and its causality obtained from our deep knowledge and insight, to our Engineering chain, Value chain and Supply chain. Combined with our "Dan-Totsu Products" and "Dan-Totsu" Service, this whole ecosystem will continuously create new values including Co-Creation with the customer, as the "Dan-Totsu" Solution. *Dan-Totsu means "the absolute and clear leader" To drive our tire solution business further, development of various technologies other than tires is necessary. Among them, for example, retread technology and business will be one of the key components. We will drive the development of retread technology to ensure durability, increase the number of times retreaded and to contribute to the lifecycle CO2 reduction of tires. Tire's research and development expenses, including such investments, totaled 86.7 billion yen in 2018.

Cost to realize opportunity

86700000000

Comment

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

	Impact	Description
Products and services	Impacted	Tire industry has maximum limits on rolling resistance and the labelling system have been introduced. For Bridgestone, failing to respond to these systems could be a risk of sales decline of ECO products, however, it also could be an opportunity to increase our sales of such products by improving rolling resistance of a tire. The potential of financial impact to net sales is estimated 30.51 billion yen per 1% of our sales is increased by taking the opportunity or decreased by occurrence of the risk. Since this risk impact is big, Bridgestone provides products and services which can reduce customers' CO2 emissions such as fuel-efficient tires, in order to take opportunities of product efficiency regulations and standards and changing consumer behavior toward low rolling resistance tires.
Supply chain and/or value chain	Impacted	There is a risk of rubber supply shortage as climate pattern changes in regions where para rubber tree grows and rubber production efficiency worsen. It can lead to lower profit because of higher rubber procurement cost. The actual impact is estimated 5.22 billion yen worldwide for every yen rise per kilogram of whole raw material for our production including natural and synthetic rubber, based on 2018 production level. Since this risk of impact is big, Bridgestone has the Global Sustainable Procurement Policy, which include commitment driving actions to realize long-term environmental benefits, to help identify and evaluate qualified suppliers, promote best practices on our value chain, and serve as a communication and improvement tool on enhancing CSR perspective on the supply chain among the industry.
Adaptation and mitigation activities	Impacted	There are discussions about introducing carbon pricing in many countries, and since Bridgestone has facilities in over 20 countries, there is a possibility of increasing operational cost. In Japan's case, the actual impact is estimated 951000 yen per 1 yen increase in tax rate. Since this risk impact is not small, Bridgestone encourages energy efficient operations such as fuel conversions, LED introduction, etc. to reduce CO2 emissions.
Investment in R&D	Impacted	By introducing new technologies Bridgestone encourages providing products and services which can contribute to reducing CO2 emissions, such as fuel-efficient tires.. There is a possibility of sales decrease in case of becoming less competitive because of a delay in technology development. Since this risk impact is big, Bridgestone invests in R&D for eco-products/services, alternative materials in case of material shortage caused from climate-change. The entire research and development expense of the Global Group totalled 103.5 billion yen per year in 2018. Among that expense, tire's research and development expenses totalled 86.7 billion yen in 2018.
Operations	Impacted	There is a risk of rubber supply shortage as the climate pattern changes in regions where para rubber tree grows and rubber production efficiency worsen. It can lead to lower profit because of higher rubber procurement cost. Since this risk impact is significant, Bridgestone has been promoting research and development on alternative resources in other climatic zones aimed at easing the overconcentration of natural rubber-producing areas in Southeast Asia. The entire research and development expenses on Global Group basis, including development of alternative resources such as Guayule and Russian Dandelion, totalled 103.5 billion yen per year in 2018.
Other, please specify	Please select	

C2.6

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

	Relevance	Description
Revenues	Impacted	In case climate change becomes worse and/or related regulation(s) becomes strict, sales of vehicles and demand for tires will be affected. This is one major risk for Bridgestone's revenue. It is also expected as opportunity that revenue from eco-products/services (i.e. our ECOPIA brand tires) is increased according to market changing to low-carbon. The potential of financial impact is estimated 30.51 billion yen per 1% of our sales is increased by taking the opportunity or decreased by occurrence of the risk.
Operating costs	Impacted	In case of rubber supply shortage as climate pattern changes in regions where para rubber trees grow or getting rubber production efficiency worse, rubber procurement cost becomes high. The actual impact is estimated 5.22 billion yen worldwide for every yen rise per kilogram of whole raw material for our production including natural and synthetic rubber, based on 2018 production level. Since this risk impact is significant, Bridgestone has a Global Sustainable Procurement Policy, which include commitment driving actions to realize long-term environmental benefits, to help identify and evaluate qualified suppliers, promote best practices on our value chain, and serve as a communication and improvement tool on enhancing CSR perspective on the supply chain among the industry.
Capital expenditures / capital allocation	Impacted	The entire research and development expense of the Global Group including costs for developing eco-related technology (i.e. developing tires with low rolling resistance), machines/equipment (i.e. tire building machine with low energy consumption) etc. totalled 103.5 billion yen per year in 2018. Among that expense, tire's research and development expenses totalled 86.7 billion yen in 2018. Expenses and investments mainly for introducing equipment for energy saving, including upgrading them, at Bridgestone plants amounted to 4,079 million yen in 2018.
Acquisitions and divestments	Impacted	To increase sales of products including fuel efficient tires which contributes to CO2 reduction while driving in the market, expansion of sales channel could be a strong option. In 2018, Bridgestone announced the full share acquisition of the UK automotive service provider ETB - a leading service provider including tire sales in the south-west of Britain. In addition, Bridgestone has focus on the solution business, represented by the newly launched strategy named "Bridgestone T&DPaaS (Tire & Diversified products as a Solution)". Our solution business has contributed and will contribute to customer's safety, efficiency productivity on their utilization of mobility including fuel saving by fuel efficient product, CO2 reduction of our manufacturing by retread tires.. To promote this new strategy, we utilize M&A if necessary. As example, Bridgestone's subsidiary Bridgestone Europe NV/SA has announced its acquisition of TomTom Telematics, a digital fleet solutions business, for a cash consideration of 910 million euro (114 billion yen) in 2019.
Access to capital	Impacted	Good result of external evaluation against Bridgestone from ESG perspective makes Bridgestone easier or better access to capital by increasing investors' and lenders' confidence that the company's climate-related risks are appropriately assessed and managed. As of 2018, Bridgestone obtained relatively good score on some of representative index such as CDP, DJSI and these results brought us more opportunities to access to capital. A one-yen increase in the stock price per share would result in total increase of corporate value approximately 760 million yen as of December 31, 2018. It brings easier access to capital such as issuance of new shares.
Assets	Impacted	Introducing highly efficient equipment to manufacturing facilities is one important measure for CO2 reduction and we have promoted and will promote this. As an example, in 2018 Bridgestone's Turkish affiliate BRISA (Brisa Bridgestone Sabancı Lastik Sanayi ve Ticaret A.Ş.) established a new manufacturing facility for radial tires in Aksaray Province, Turkey with an investment amounted to 300 million USD. This new plant achieved 30% energy saving and contributes to our manufacturing with less CO2 emission.
Liabilities	Not yet impacted	Bridgestone has an option to increase corporate liabilities for introducing machines/equipment to produce eco-products or reducing resource consumption in future. Additionally, in case carbon tax/carbon pricing is newly introduced or tightened, financial impact will be realized. In that sense, it could be "potential liabilities". For example, if Japan carbon tax rate increase, financial impact will be approx. 951 thousand yen/1 yen increase in the tax rate. In addition, on the Emission Trading Scheme in EU, reduction of free allowance for tire industry by transition to phase IV (from 2021-) might be financial impact for our manufacturing facilities in EU.
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) How the strategy has been influenced

All global decision making regarding environment, including climate change, is carried out by the Global GCEC. Members of the committee are composed of an executive officer in charge of CSR and representatives of all regions and functions. Important decisions made by GCEC are reported to the Global EXCO, Bridgestone's body of global business execution, and based on the management plan finalized at Global EXCO, Strategic Business Units (SBUs) reflect it in each Year Mid-term Management Plan. From viewpoint of our countermeasure against climate change, Bridgestone established the "Environmental Mission Statement" to contribute in aspects of circular economy, biodiversity and low carbon society (including long-term target to reduce over 50% of our CO2 emission by 2050 and beyond), as a part of "the Bridgestone Essence framework" that is our corporate philosophy. From the viewpoint of contribution through solving climate-related issues is always incorporated into all our activities including planning and addressing of strategy.

ii) Explanation of whether business strategy links to an emissions reductions target or energy reduction target

Bridgestone business strategy links to Environmental long-term vision and mid-term target including emissions reductions target. Specifically, the long-term target is to reduce over 50% of our CO2 emission by 2050 and beyond, and the mid-term target is to reduce our CO2 emissions per sales from operations and products' after-use by 35 percent vs 2005 by 2020. Global Environmental Working Group summarizes progress of CO2 emissions reduction target and next strategies to achieve the target and reports to GCEC. GCEC then report to Global EXCO, and Global EXCO finalizes a management plan taking into account the report.

iii) The most substantial business decisions

In Feb.2018, Bridgestone issued the Global Sustainable Procurement Policy which is available in 12 languages, implemented/governed/enforced regionally, and applicable to all purchased materials/services/all suppliers globally. Climate change is defined as one of the requirements in the policy.

Bridgestone had already announced its goal of "100% Sustainable Materials" for 2050 and beyond as its long-term environmental vision. Challenge for its achievement will not be simple, nor can Bridgestone achieve it alone, especially on issues like climate change which require cooperation on entire value chain. In such situation, this policy is established to help identify and evaluate qualified suppliers, promote best practices, and serve as a communication and improvement tool for the industry.

Bridgestone expects the policy works for such purposes and all of its Suppliers will recognize the importance of sustainable procurement and work with the company to implement appropriate practices to create value for all Stakeholders.

For reference, 98 percent (more than 1,600) of the company's Tier 1 tire material suppliers acknowledge the policy as of March 2019.

iv) Aspects of climate change influenced the strategy (e.g. need for adaptation, regulatory changes, or opportunities to develop green business);

Need for adaptation influences Bridgestone strategy such as developing alternative material in case of material shortage caused by climate change. Opportunities to develop green business also influences strategies such as development of tires that contribute to reduction of CO2 emissions from driving an automobile (through reduced rolling and air resistance). In 2018, we succeeded developing and started to provide new ECOPIA tires which can contribute to reducing CO2 emissions from driving with other high performance such as wet and life.

v) The most important components of the short-term strategy

Bridgestone defines the short term to be affected by climate change as the period from the present up to 2020.

-Achievement of CO2 emission reduction targets throughout the whole Group, setting 2020 as the target year, with 2005 as the baseline. We back-casted and drew up these targets from long-term environmental vision, which are ideal conditions in 2050.

-Achievement in reduction of GHG emissions mainly by the improvement in production efficiency and reduction of raw material losses at plants with an eye to regulatory compliance and acquisition of emission rights

-Product development complying with product regulations and grading of each country

-Re-examination of product structure and line-up due to shifting consumer tendencies associated with climate change.

-Needs of consumers, local residents and others in regard to climate change initiatives. In particular, acceleration of development and expansion of sales of fuel-efficient tires.

vi) The most important components of the long-term strategy

Bridgestone defines the long term to be affected by climate change as the period from the present up to 2050.

-Strengthening initiatives toward establishing a more sustainable society according to the Bridgestone Group's Environmental Mission Statement.

-As initiatives for realizing a low-carbon society, globally-agreed long-term target that contributes to reducing GHG emissions of the whole world by at least 50% in the year 2050 and beyond.

-Re-examination of production sites controlled by the changes in weather conditions and local regulations

-Development of lightweight products that consider changes in supplies and reserves of raw material resources

-Development of fuel-efficient tires for which materials are controlled at nano level

vii) How this is gaining the company strategic advantage over competitors.

Our strategic advantages over competitors are as follows.

-Research and development capabilities for raw materials such as development of biomass-derived synthetic rubber and solutions for controlling diseases and pests of rubber trees

-Strategic planning from a long-term view up to 2050 based on long-term environmental vision

-Planning and implementation of efficient and effective CO2 emission reduction measures by having own sites in the entire supply chain from in-house production sites for raw materials to production sites and sales within the Group

viii) How the Paris Agreement has influenced the business strategy

We are aware of Paris Agreement aiming to reach net zero CO2 emissions, considering necessity of revision of strategies toward long-term environmental vision. In addition, it is necessary to monitor and respond to social trend since there is a possibility of establishment of measures such as carbon tax, to achieve each country's reduction target based on Paris Agreement.

C3.1d

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

Climate-related scenarios	Details
2DS IEA 450	<p>1. Purpose Extraction of climate risks to incorporate into Mid-term policy and long-term strategy 2. Time horizon We conducted scenario analysis with business projections as of 2030 because we did the analysis as a part of the study to consider mid-term target towards 2030 when is the target year of the SDGs. 3. Boundary Global tire business as our core segment 4. Scenario identification We selected 2 degree / 4 degree scenarios to clarify climate risks widely on overall aspects (including procurement, manufacturing, logistics etc. not limiting to our product/service). We consider the 2 scenarios would be appropriate representatives of contrast viewpoints of “low carbon society” and society where climate change actualizes due to increasing of carbon emission. 5. Methodology 1)List climate risks on the scenarios widely 2)Estimate financial impacts of the risks with the following inputs and their future prediction -Financial information (Sales, cost, operating profit, capital expenditure etc.) -Non-financial information (CO2 emission, energy consumption, material consumption, water intake etc.) -External information(Carbon price/tax, price of renewable energy, material, water etc.) 3)Evaluate importance of each risk based on the impacts and probability 6. Assumption on the analysis 1) On the 2 degree scenario, we assume that physical impact such as flood, water shortage caused by climate change won't be significant impact driver so the risks to focus is limited to strong rise of social demand and stricter policy. 2) On the 4 degree scenario, we assume that GHG emission will be kept high due to insufficient climate policy and/or social actions. Therefore, the risks to focus are limited to physical impact caused by high temperature, flood, hurricane, drought etc. 3) On both scenarios, we assume that we won't conduct any particular countermeasures for the climate risks. 7.Results and implications to business objectives / strategy We found the following risks are especially important for us on each scenario. <2 degree scenario> - Increased cost especially on manufacturing due to introduction of carbon pricing / tax globally - Increased price of natural rubber caused by stronger demand for forest protection and shortage of its supply - Increased demand for products with lower CO2 emission (brought by low rolling resistance, retread etc.) and investment on technologies to achieve it <4 degree scenario> - Increased price of natural rubber caused by lower yield and supply due to abnormal weather - Damage and/or interruption on operation of manufacturing sites by sever and frequent weather disasters - Reduced revenue from winter tires caused by snowfall reduction According to the analysis, not taking any action (especially on the important risks above) will end in financial impact such as increasing of cost and the impact should be managed properly. At the same time, however, this result convinced us of appropriateness of our strategy/business model for the climate risks. We have already incorporated these risks into strategy and started action to mitigate them(e.g. CO2 reduction activity with mid-term/long-term target, development and introduction of fuel efficient tires, development of alternative materials of natural rubber, introduction of the Global Procurement Policy for sustainable natural rubber etc.). As a business case, we recently announced new strategy named “Bridgestone T&D PaaS” to meet revolution of mobility service. On this strategy, customers will obtain various benefits such as higher fuel-efficiency and longer life of tire through our solution. In relation to the result of the scenario analysis, these benefits will contribute to saving consumption of natural rubber and grasping growing demand for low CO2 emission product. To keep and improve adequacy of our climate-risk management, we will continue further analysis of the risks and opportunities brought by climate change.</p>

C4. Targets and performance

C4.1

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

Both absolute and intensity targets

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

50

Base year

2005

Start year

2010

Base year emissions covered by target (metric tons CO2e)

4570763

Target year

2050

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

% of target achieved

18.4

Target status

Underway

Please explain

Target of Bridgestone Long-term Vision is to contribute to globally-agreed target (over 50% reduction of CO2 emissions). The globally-agreed target currently refers to agreement of G8 in Toyako summit in 2008, to reduce at least 50% global GHG emissions.

Target reference number

Abs 2

Scope

Other, please specify (CO2 emission excess our contribution)

The second absolute target covers the CO2 emission amount by operations and products' after-use excess our contribution from avoided emissions when our customers use the tires by improving fuel efficiency of our tires.

% emissions in Scope

100

Targeted % reduction from base year

100

Base year

2005

Start year

2010

Base year emissions covered by target (metric tons CO2e)

15733000

Target year

2020

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

% of target achieved

95

Target status

Underway

Please explain

The Bridgestone Group is working to achieve its mid-term targets to reduce the volume of CO2 emissions over the entire lifecycle of a tire (15,733kt-CO2 in 2005). Considering the value when CO2 emissions from operations and products' after-use are offset by contribution of CO2 reduction at usage stage, the reduction in 2018 was 95% (compared to 2005). We are continuing activities with a dual approach aimed at achieving that contribution to CO2 reduction during use exceeds CO2 emissions from our operations and products' after-use by 2020.

C4.1b

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

Target reference number

Int 1

Scope

Other, please specify (Scope 1+2+3)

The target covers Scope 1+2(Market-based method + location-based method) + 3(Purchased goods & services, Upstream transportation & distribution, Downstream transportation and distribution, End-of-life treatment of sold products, Upstream leased assets)

% emissions in Scope

100

Targeted % reduction from base year

35

Metric

Metric tons CO2e per unit revenue

Base year

2005

Start year

2010

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

585

Target year

2020

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

% of target achieved

95.5

Target status

Underway

Please explain

Focusing on the lifecycle of the Group's products, we are working to reduce sales intensity of CO2 emitted in the manufacturing process from raw material procurement to production, logistics, and products' after-use. CO2 intensity of the base year is 585 tCO2/hundred million yen. Individual targets/measures are considered by each business division for achieving our overall objective, and progress is being made toward the objective. The results thereof are compiled at the Corporate Communication Division and the status of objective achievement is reviewed at Global EXCO.

% change anticipated in absolute Scope 1+2 emissions

-12

% change anticipated in absolute Scope 3 emissions

-12

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

Acknowledgment of our new Global Sustainable Procurement Policy by suppliers

KPI – Metric denominator (intensity targets only)

Base year

2018

Start year

2018

Target year

2019

KPI in baseline year

0

KPI in target year

100

% achieved in reporting year

98

Target Status

New

Please explain

*The number (98%) filled in "% achieved in reporting year" is as of Mar.2019 and result of the company's Tier 1 tire material suppliers. In Feb. 2018, Bridgestone Group introduced a new Global Sustainable Procurement Policy, which reflects our commitment to creating a thriving and sustainable supply chain including natural rubber. This new procurement policy focuses on Sustainable Procurement Practices incorporating environmentally responsible procurement including measures for climate change, reduction of GHG emission as well as the use of energy as one of four major areas. As an immediate first step, Bridgestone will prioritize working closely with its employees, suppliers and customers and other industry experts to implement the policy. Over the next 18 months, Bridgestone will work with its suppliers and partners to ensure that they have received the policy and understand it. Following acknowledgment of the policy, suppliers will then work with a third-party assessment.

Part of emissions target

No

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	103	
To be implemented*	136	6881
Implementation commenced*	69	5964
Implemented*	85	2715
Not to be implemented	0	

C4.3b

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

Initiative type

Energy efficiency: Building fabric

Description of initiative

Other, please specify (Insulation and maintenance)

Estimated annual CO2e savings (metric tonnes CO2e)

1002

Scope

Scope 1

Voluntary/Mandatory

Voluntary

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

32922000

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

164609000

Payback period

4 - 10 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative type

Energy efficiency: Building services

Description of initiative

Other, please specify (HVAC, lighting etc.)

Estimated annual CO2e savings (metric tonnes CO2e)

440

Scope

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

19278000

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

96389000

Payback period

4 - 10 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative type

Energy efficiency: Processes

Description of initiative

Other, please specify (Switching fuel, optimizing process, etc.)

Estimated annual CO2e savings (metric tonnes CO2e)

1273

Scope

Scope 1

Voluntary/Mandatory

Voluntary

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

63908000

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

319541000

Payback period

4 - 10 years

Estimated lifetime of the initiative

6-10 years

Comment

C4.3c

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

Method	Comment
Other (Please see the Comment column)	Relevant divisions report the emission costs and reduction benefits of CO2-related measures in the budgetary discussions, and investment decisions on capital expenditure are made for overall optimization. Management examines the business plans in the yearly mid-term plan, but carefully reviews investment projects based on Investment Profit Criteria taking into account the CO2 emission costs and reduction benefits as the criteria at that time. Based on the EUA price, CO2 emissions are converted into monetary value and incorporated into the Investment Profit Criteria using the Discounted Cash Flow method and used as one of the indexes for investment decisions. Both aspects of cost increase and decrease resulting from CO2 emission increase/decrease are considered for decision making.

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?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Company-wide

Description of product/Group of products

Fuel-efficient tires: Tires that have reduced tire rolling resistance which influences vehicle fuel efficiency. A wide-ranging line-up is available, from passenger car tires to tires for trucks/buses, and the design facilitates rolling resistance in order to enhance fuel efficiency. Specifically, through the use of NanoPro-Tech which exercises control over the fine structure of materials, we are striving to reduce rolling resistance by reducing energy loss and controlling heat generation of tread rubber.

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

Avoided emissions

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

Other, please specify (LCA method of the Japan)

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

71

Comment

CO2 reduction using fuel-efficient tires during the product use stage. Reasons for the possibility of reduction: Improvement of tire rolling efficiency can contribute to fuel efficiency improvement/CO2reduction when customers use one's vehicles. Since the tire fuel efficiency or its standards differ by country, we approximate CO2 emissions. When we calculate based on "Tyre LCCO2 Calculation Guidelines" published by JATMA, due to reduction in tire rolling resistance, it contributed about 13,400,000 tons of CO2 reduction in 2018 compared with the products in 2005.

Level of aggregation

Group of products

Description of product/Group of products

Commercial roofing and building envelope solutions such as energy-saving polyiso insulations, roofing membranes, vegetative roofing solutions, airtight building envelope systems, etc. which qualify for Leadership in Energy and Environmental Design(LEED) credits and contribute to healthy, high-performance construction.

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

Avoided emissions

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

Other, please specify (Leadership in Energy and Environmental Design(LEED))

Leadership in Energy and Environmental Design (LEED)

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

29

Comment

The percentage was estimated as the number of product line which contributes to "Energy & Atmosphere" category of the LEED rating system divided by total number of product line of our subsidiary - "Firestone Building Products". As in their latest sustainability report, 4 of 14 main product line contributes to the category. (12 of 14 contributes to at least one category.)

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 2005

Base year end

December 31 2005

Base year emissions (metric tons CO2e)

2303629

Comment

Scope 2 (location-based)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 2 (market-based)

Base year start

January 1 2005

Base year end

December 31 2005

Base year emissions (metric tons CO2e)

2267134

Comment

C5.2

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

Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superseded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment)
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)

1884902

Start date

January 1 2018

End date

December 31 2018

Comment

C6.2

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

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

C6.3

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

Reporting year

Scope 2, location-based

2362089

Scope 2, market-based (if applicable)

2264331

Start date

January 1 2018

End date

December 31 2018

Comment

C6.4

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

Yes

C6.4a

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

Source

GHGs except CO2

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

At production sites in Japan and the Americas, GHGs except CO2 are collected but are excluded because emissions are minimal relative to CO2.

Source

Production sites with number of workers below 50 people and that is not the subject of accreditation of ISO14001

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

The reasons why production sites with number of workers below 50 people and are not the subject of accreditation of ISO14001, are excluded is because their influence on the total is very limited.

Source

Office/storages etc., nonproduction sites (supplementary facilities of plants are excluded)

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

Office energy is collected at major sites but excluded because emissions are minimal.

Source

Company owned car

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

Refilling company owned cars outside the premises is excluded because their influence on the total is very limited. (Refilling fuel within the premises is included in Scopes)

(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

7979623

Emissions calculation methodology

Calculated by multiplying the purchased amount of each raw material with CO₂ emission factors for each raw material determined by Japan Rubber Manufacturers Association calculation methods.

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

0

Explanation**Capital goods****Evaluation status**

Relevant, calculated

Metric tonnes CO₂e

856196

Emissions calculation methodology

Calculated by multiplying the capital expenditures material with CO₂ emission factors determined by Japanese Ministry of the Environment

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

0

Explanation**Fuel-and-energy-related activities (not included in Scope 1 or 2)****Evaluation status**

Relevant, calculated

Metric tonnes CO₂e

571697

Emissions calculation methodology

Calculated by multiplying the energy consumption with CO₂ emission factors determined by DEFRA

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

0

Explanation**Upstream transportation and distribution****Evaluation status**

Relevant, calculated

Metric tonnes CO₂e

446518

Emissions calculation methodology

[Ground transportation] Calculated by multiplying purchased amount of each raw material with CO₂ emission factors for each raw material determined by Japan Rubber Manufacturers Association calculation methods. [Marine transportation] The result for 2008 is calculated based on the volume and distance of marine transportation with respect to the CO₂ emission factors of the GHG protocol for shipment. It is calculated as a ratio of the purchased raw materials for 2018 and 2008.

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

0

Explanation

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO2e

183695

Emissions calculation methodology

Calculated by multiplying the amount of waste generated with CO2 emission factors determined by Japanese Ministry of the Environment

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

0

Explanation

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

18656

Emissions calculation methodology

Calculated by multiplying the number of employees with CO2 emission factors determined by Japanese Ministry of the Environment

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

0

Explanation

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

66129

Emissions calculation methodology

Calculated by multiplying the number of employees with CO2 emission factors determined by Japanese Ministry of the Environment

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

0

Explanation

Upstream 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

Included in scope1 and scope2

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

595022

Emissions calculation methodology

CO2 per unit sales is calculated from CO2 emitted from a part of one's own store and multiply it by total sales for proportional allotment

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

3

Explanation

Processing of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

3627

Emissions calculation methodology

Calculate the power consumed during tire installation by multiplying installation power per tire by the number of tires sold.

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

0

Explanation

Use of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

122699293

Emissions calculation methodology

Calculated from our Tyre sales unit and CO2 emission per 1 tire when it used based on "Tyre LCCO2 Calculation Guidelines Ver. 2.0" by The Japan Automobile Tyre Manufacturers Association, Inc.(JATMA) April 2012

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

0

Explanation

End of life treatment of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

2159969

Emissions calculation methodology

Calculated by multiplying the purchased quantity of each raw material with CO2 emission factors determined by Japan Rubber Manufacturers Association calculation methods.

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

0

Explanation

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

Bridgestone had no leased assets in 2018.

Franchises

Evaluation status

Relevant, calculated

Metric tonnes CO2e

90050

Emissions calculation methodology

Calculate by multiplying CO2 emission per typical shop by the number of franchise shops

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

0

Explanation

Investments

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

Investments are not main business of Bridgestone.

Other (upstream)

Evaluation status

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

Other (downstream)

Evaluation status

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

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)

14267

Comment

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

0.00000114

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

4149234

Metric denominator

unit total revenue

Metric denominator: Unit total

3650111083000

Scope 2 figure used

Market-based

% change from previous year

2.7

Direction of change

Decreased

Reason for change

Total CO2 emissions was decreased approximately 2.7% in 2018 comparing that of 2017 mainly for reduction in tire weight and energy reduction at production sites and increasing of sales price, though some other factors such as change of exchange rate etc. lowered the %.

Intensity figure

0.79443901

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

4149234

Metric denominator

Other, please specify (metric tonne of raw material)

Metric denominator: Unit total

5223000

Scope 2 figure used

Market-based

% change from previous year

6

Direction of change

Decreased

Reason for change

Result of emission reduction activities

C7. Emissions breakdowns

C7.1

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

No

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
United States of America	426740.78
Canada	24789.1
Mexico	120555.37
Costa Rica	13386.46
Argentina	18438.16
Brazil	69511.74
France	0
Belgium	4424.07
Spain	48444.18
Poland	14807.2
Italy	28219.45
Hungary	12257.51
United Kingdom of Great Britain and Northern Ireland	405.23
Turkey	40931.5
South Africa	44147.24
Liberia	10343.89
Thailand	237398.09
Indonesia	120839.44
Taiwan, Greater China	7742.19
India	20720.58
Australia	81.1
Malaysia	57.81
Philippines	54.5
Viet Nam	5858
China	66788.7
Japan	541500.58
Russian Federation	6459.5

C7.3

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

By business division

C7.3a

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

Business division	Scope 1 emissions (metric ton CO2e)
Tire	1766666
Others	118237

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)
United States of America	643001.51	634857.26	1484306.35	111884.8
Canada	19902.71	19902.71	133128.49	86473.94
Mexico	64883.47	64883.47	139744.71	21347.35
Costa Rica	699.89	699.89	58324.1	57289.58
Argentina	17060.62	17060.62	45374	12350.72
Brazil	30954.76	30954.76	257956.31	207262.85
France	19511.42	24790.65	128544.34	17093.22
Belgium	2926.46	2990.15	17034.11	2899.93
Spain	47204.6	494.74	192044.76	190818.51
Poland	165988.39	175898.42	304316.67	28043.11
Italy	1619.04	2007.88	4897.27	398.15
Hungary	21504.82	22491.28	78916.78	9193.81
United Kingdom of Great Britain and Northern Ireland	280.65	302.65	1008.82	188.65
Turkey	70878.88	70878.88	152591.77	50183.1
South Africa	56832.18	56832.18	60127.15	2629.69
Liberia	0	0	0	0
Thailand	228239.5	218524.58	537373.81	69988.21
Indonesia	79191.33	79191.33	108615.19	13913.03
Taiwan, Greater China	29606.02	29606.02	66414.16	1971.53
India	91655	91655	126281.35	20382.85
Australia	5690.41	5690.41	7500.21	1094.73
Malaysia	659.85	659.85	1007.56	135.63
Philippines	2694.29	2694.29	4440.89	1074.11
Viet Nam	14474.15	14474.15	32265.15	12599.17
China	281501.8	280985.59	522434.37	102993.64
Japan	458726.45	409403.41	843557.28	127556.47
Russian Federation	6401.13	6401.13	17890.25	3078.45

C7.6

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

By business division

C7.6a

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

Business division	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Tires	2093394	2005845
Others	268695	258486

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	45020.12	Decreased	1.06	Our 4 plants in Spain have introduced renewable electricity. Scope2 emission of the 4 plants in 2017 was 45020.12tCO2e in total. Therefore, the same amount which is equivalent to 1.06% was reduced from 2017. $(-45020.12/4257657) * 100 = -1.06\%$ (i.e. an 1.06% decrease in emissions) *Previous year(2017) Scope 1 + 2 emission was 4257657 tCO2e
Other emissions reduction activities	2715	Decreased	0.06	We reduced 2,715 tons as a result of energy-saving activities in 2018. Since Scope 1 and 2 emissions were 4,257,657 tons the previous year, that represents a 0.06% reduction from 2017. $(-2715/4257657) * 100 = -0.06\%$ (i.e. a 0.06% decrease in emissions) *Previous year(2017) Scope 1 + 2 emission was 4257657 tCO2e
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output		<Not Applicable>		
Change in methodology	81909.42	Decreased	1.92	Electricity emission factors was updated to the latest figures. The values on the left was difference between Scope1 + 2(Market-based) emission in 2018 with the latest electricity emission factors and that with the factors of previous year. $(-81909.42/4257657) * 100 = -1.92\%$ (i.e. an -1.92% decrease in emissions) *Introduction of renewable electricity in 4 Spanish plants written in the first column was excluded from this calculation *Previous year(2017) Scope 1 + 2 emission was 4257657 tCO2e
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other	21221.55	Increased	0.5	Due to changes in the composition of energy sources, change in production volume, etc. $(21221.55/4257657) * 100 = 0.50\%$ (i.e. an 0.50% increase in emissions) *Previous year (2017) Scope 1 + 2 emission was 4257657 tCO2e

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	No
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	32983	7551863	7584846
Consumption of purchased or acquired electricity	<Not Applicable>	1152772	3776323	4929095
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	397001	397001
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	399	<Not Applicable>	399
Total energy consumption	<Not Applicable>	1186154	11725187	12911341

C8.2b

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

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

C8.2c

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

Fuels (excluding feedstocks)

Motor Gasoline

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

14788.58

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

14788.58

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Kerosene

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

5315.08

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

5315.08

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Diesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

124901.25

MWh fuel consumed for self-generation of electricity

62450.63

MWh fuel consumed for self-generation of heat

49960.5

MWh fuel consumed for self-generation of steam

12490.13

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Fuel Oil Number 4

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

95917.68

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

95917.68

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Fuel Oil Number 6

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

197781.06

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

197781.06

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

149140.7

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

149140.7

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Liquefied Natural Gas (LNG)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

420965.04

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

27293.15

MWh fuel consumed for self-generation of steam

109172.6

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

284499.29

Comment

Fuels (excluding feedstocks)

Town Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

1042416.55

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

84807.03

MWh fuel consumed for self-generation of steam

339228.11

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

618381.42

Comment

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

4917218.81

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

892878.91

MWh fuel consumed for self-generation of steam

3571515.62

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

452824.28

Comment

Fuels (excluding feedstocks)

Coal

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

147312.41

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

147312.41

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Other, please specify (Carbon fuel oil)

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

436105.77

MWh fuel consumed for self-generation of electricity

130481.97

MWh fuel consumed for self-generation of heat

305623.8

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Wood Pellets

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

32983.12

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

32983.12

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

C8.2d

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

Coal

Emission factor

2.13

Unit

metric tons CO2e per metric ton

Emission factor source

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition):Anthracite, Brown coal briquettes, Sub bituminous coal, Other bituminous coal

Comment

Diesel

Emission factor

2.67

Unit

kg CO2e per liter

Emission factor source

"Facilities in Japan: Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superseded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment) Others:The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)"

Comment

Fuel Oil Number 4

Emission factor

2.71

Unit

kg CO2e per liter

Emission factor source

Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superceded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment)

Comment

We put information about Heavy Oil A as Fuel Oil No.4

Fuel Oil Number 6

Emission factor

3

Unit

kg CO2e per liter

Emission factor source

Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superceded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment)

Comment

We put information about Heavy Oil B/C as Fuel Oil No.6

Kerosene

Emission factor

2.49

Unit

kg CO2e per liter

Emission factor source

"Facilities in Japan: Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superceded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment) Others:The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)"

Comment

Liquefied Natural Gas (LNG)

Emission factor

2.71

Unit

metric tons CO2e per metric ton

Emission factor source

"Facilities in Japan: Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superceded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment) Others:The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)"

Comment

Liquefied Petroleum Gas (LPG)

Emission factor

3

Unit

metric tons CO₂e per metric ton

Emission factor source

Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superseded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment)

Comment

Motor Gasoline

Emission factor

2.27

Unit

kg CO₂e per liter

Emission factor source

"Facilities in Japan: Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superseded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment) Others:The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)"

Comment

Including Biogasoline

Natural Gas

Emission factor

1.89

Unit

metric tons CO₂e per m³

Emission factor source

"Facilities in Japan: Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superseded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment) Others:The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)"

Comment

Town Gas

Emission factor

2.23

Unit

metric tons CO₂e per m³

Emission factor source

"Facilities in Japan: Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superseded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment) Others:The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)"

Comment

Wood Pellets

Emission factor

0

Unit

metric tons CO2e per metric ton

Emission factor source

GHG protocol "Emission Factors from Cross-Sector Tools"

Comment

According to the GHG protocol "Emission Factors from Cross-Sector Tools, the emission factor is 1.7472. But we consider the biomass fuel as renewable/low carbon source and exclude from calculation of the Scope1.

Other

Emission factor

3.3

Unit

metric tons CO2e per metric ton

Emission factor source

Measured value of carbon content ratio of the fuel

Comment

Information of "carbon fuel oil" is shown in this row

C8.2e

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	706597.68	672540.46	399	399
Heat	1230336.41	1230336.41	0	0
Steam	4166240.18	4166240.18	26177	26177
Cooling	0	0	0	0

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

Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company

Low-carbon technology type

Solar PV

Hydropower

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

Asia Pacific

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

371

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

0

Comment

Basis for applying a low-carbon emission factor

Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company

Low-carbon technology type

Solar PV

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

Europe

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

29

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

0

Comment

Basis for applying a low-carbon emission factor

Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company

Low-carbon technology type

Biomass (including biogas)

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

Latin America

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

32983.12

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

0

Comment

Basis for applying a low-carbon emission factor

Contract with suppliers or utilities (e.g. green tariff), supported by energy attribute certificates

Low-carbon technology type

Other low-carbon technology, please specify (Breakdown of the source is unknown)

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

Europe

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

190032

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

0

Comment

4 facilities in Spain purchases renewable electricity with certificates.

Basis for applying a low-carbon emission factor

Grid mix of renewable electricity

Low-carbon technology type

Other low-carbon technology, please specify (Breakdown of the source is unknown)

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

Other, please specify (All regions)

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

962740

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

0.461469

Comment

As for purchased electricity without certificates, portion generated by renewable energy was calculated confirming renewable energy ratio with public data such as IEA, individual confirmation with suppliers etc. The Emission factor was calculated as below.
Emission factor = Total CO2 emission by purchased electricity RE ratio of which is available(MWh) / (Low carbon electricity RE ratio of which is available(MWh) + Non-Low carbon electricity(MWh)) = 2186929/(962740+3776323)=0.461469

C9. Additional metrics

C9.1

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

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

AS_BS-2018_en_signed.pdf

AS_GHG_BS-2018_en_signed.pdf

Page/ section reference

Please refer to the page.3/3 of "AS_GHG_BS-2018_en_signed.pdf" for the actual value

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)



Scope

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

AS_BS-2018_en_signed.pdf

AS_GHG_BS-2018_en_signed.pdf

Page/ section reference

Please refer to the page.3/3 of "AS_GHG_BS-2018_en_signed.pdf" for the actual value

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)100

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

AS_BS-2018_en_signed.pdf

AS_GHG_BS-2018_en_signed.pdf

Page/ section reference

Please refer to the page.3/3 of "AS_GHG_BS-2018_en_signed.pdf" for the actual value

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)100

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- all relevant categories

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Attach the statement

AS_BS-2018_en_signed.pdf

AS_GHG_BS-2018_en_signed.pdf

Page/section reference

Please refer to the page.3/3 of "AS_GHG_BS-2018_en_signed.pdf" for the actual value

Relevant standard

ISO14064-3

C10.2

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

Yes

C10.2a

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

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C8. Energy	Other, please specify (Please see the column below)	ISAE 3000	Total energy consumption, Energy consumption (fuel) including fuel from renewable sources, Energy consumption (purchased electricity) including electricity from renewable sources, Energy consumption (purchased steam), energy consumption (self-generated renewable electricity from non-fuel sources; solar, etc.) AS_BS-2018_en_signed.pdf

C11. Carbon pricing

C11.1

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

Yes

C11.1a

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

EU ETS

Japan carbon tax

C11.1b

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

EU ETS

% of Scope 1 emissions covered by the ETS

5.3

Period start date

January 1 2018

Period end date

December 31 2018

Allowances allocated

99328

Allowances purchased

3508

Verified emissions in metric tons CO₂e

112288

Details of ownership

Facilities we own and operate

Comment

C11.1c

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

Japan carbon tax

Period start date

January 1 2018

Period end date

December 31 2018

% of emissions covered by tax

28.72

Total cost of tax paid

156493789

Comment

% of emission covered by tax was calculated by Scope1 emission in Japan divided by global Scope1 emission. And total cost of tax paid was calculated by Scope1 emission in Japan multiplied Japan Carbon tax rate(289yen/tCO₂e) *In addition, the carbon tax is indirectly affect electricity price in the Scope 2.

C11.1d

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

As our strategy for carbon pricing system, we intend to minimize additional cost by CO2 emission and such system by promoting CO2 emission reduction actively and steadily on global basis. Representative measures are as followings.

- Energy saving initiatives at production sites including active introduction of highly efficient equipment to new facility(e.g. As example in 2018, Bridgestone's Turkish affiliate Brisa Bridgestone Sabancı Lastik Sanayi ve Ticaret A.Ş.(BRISA) established a new manufacturing facility for radial tires in Aksaray Province, Turkey with investment which amounted to 300 million USD. This new plant achieved 30% energy saving and contributes to our manufacturing with less CO2 emission.)
- Energy saving initiatives at business offices(e.g. turning off lights and air-controls when unnecessary)
- Enlightenment activities to raise employees' environmental awareness(e.g. continuing education not only by on-site training but also by utilizing e-learning.)

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
Drive low-carbon investment

GHG Scope

Scope 1
Scope 2

Application

Applied to decisions of investment for equipment

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

1989

Variance of price(s) used

If the actual price is available in each regional system, the price is applied preferentially. If not, the price above is utilized commonly inside company as a guide and reviewed once a year.

Type of internal carbon price

Shadow price

Impact & implication

Internal guidelines: Our Investment Profit Criteria stipulate consideration of carbon emission impacts (increase or reduction) of investments are to be integrated as cost when making judgments for strategic investment projects. The cost of emission impacts is to be calculated as the price of an emissions credit unit.

C12. Engagement

C12.1

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

Yes, our suppliers

Yes, our customers

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

Included climate change in supplier selection / management mechanism

Code of conduct featuring climate change KPIs

Climate change is integrated into supplier evaluation processes

Run an engagement campaign to educate suppliers about climate change

Other, please specify (Engaging suppliers to take the third party assessment on sustainability including environment/climate change related aspect)

% of suppliers by number

100

% total procurement spend (direct and indirect)

100

% Scope 3 emissions as reported in C6.5

6

Rationale for the coverage of your engagement

Coverage: In Feb.2018, Bridgestone issued the Global Sustainable Procurement Policy which is applicable to all purchased materials and services, as well as all suppliers globally. Rationale for the coverage: The journey towards "100% sustainable materials" which is one of the Bridgestone's goals for 2050 and beyond and includes aspect of mitigation of climate related impact, will not be simple, nor can Bridgestone achieve it alone. This policy is to help identify and evaluate qualified suppliers, promote best practices, and serve as a communication and improvement tool for the industry. Bridgestone expects all of its suppliers to recognize the importance of Sustainable Procurement, and work with the Company to implement appropriate practices to create value for all stakeholders. Note: During the development of the policy, Bridgestone gained insights from external stakeholders, including international consultants, non-governmental organizations (NGOs), materials suppliers, natural rubber farmers, and key customers to ensure the policy reflects industry standards and best practices. In addition, the policy is supported by a global implementation and communication plan. Available in 12 languages, the policy will be implemented, governed and enforced regionally. As an immediate first step, Bridgestone will prioritize working closely with its employees, suppliers and customers and other industry experts to implement the policy.

Impact of engagement, including measures of success

"The four major areas are impacted throughout Bridgestone's supply chain: "Transparency", "Compliance", "QCD(Quality/Cost/Delivery) and Innovation", "Sustainable Procurement Practices" incorporating environmentally responsible procurement including measures for climate change, reduction of GHG emission as well as the use of energy. Through a 2018 partnership with EcoVadis, a leading provider of sustainability, risk and performance ratings for global supply chains, Bridgestone conducted assessing suppliers' current sustainability practices, as well as the possible support needed to improve performance. This activity could be an opportunity for suppliers to confirm and improve their actions for preventing climate change further. As an example of the indicator to confirm the progress, Bridgestone focuses on the ratio of acknowledgement of the policy by suppliers. As of March 2019, the ratio has been increased to 98 percent (more than 1,600) of the company's Tier 1 tire material suppliers and the majority of them are in the process of completing third-party assessments with EcoVadis.

Comment

C12.1b

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

Type of engagement

Collaboration & innovation

Details of engagement

Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number

100

% Scope 3 emissions as reported in C6.5

15

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

i) In the development of new vehicle models by automakers, which are our business partners, the development and delivery of fuel-efficient tires that contribute to the reduction of fuel consumption in cooperation with automakers leads to the reduction of GHG emissions. In addition, we cooperate in calculating the emissions of automakers and contribute to reductions in the life cycle by cooperating in the GHG emission survey of automakers through the CDP supply chain program. Because we promote such activities with all automakers, 100% is input into "size of engagement" ii) By improving the rolling resistance of tires used in automobiles, we contribute to automakers' efforts to lower fuel consumption during the use of their products.

Impact of engagement, including measures of success

Improvement of fuel efficiency of tires brings CO2 reduction from vehicles. The direct impact of the engagement is calculated by the result of tire units sold to the automakers multiplied by the average of CO2 emission per tire. And the technology which is developed by the engagement can be applied tires which are sold directly to end-users for their replacement needs. From this perspective, the engagement has further potential to contribute CO2 reduction. From this viewpoint, we keep going on improvement of fuel efficiency of tires with corporate-wide and mid-term target on 25% reduction of rolling resistance which affects fuel efficiency vs 2005 until 2020. The progress towards the target is the measure of success for Bridgestone. As of 2018, the Group achieved 21% reduction which is equivalent to 13,400,000t-CO2 of our Scope3(Category11) reduction from 2005.

C12.1c

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

On tire business, sales of fuel efficient tire are one of important activities to contribute to CO2 reduction. In addition, to enhance sales of such tires by telling their value to customers appropriately, it is necessary to cooperate with tire dealers as our important partners. Specifically, we as a tire manufacture, have been making effort to let fuel efficiency of tires visible both to the dealers and customers by supporting introduction of ECO labelling system as tire industry. Display on labels supported by such system is beneficial and helpful for dealers when they recommend fuel efficient tires to their customer and when customers make decision on their purchase. And, of course, we have been promoting enrichment of such tires in our product portfolio for actual benefit for both of them.

In case that we calculate under the condition of sold number of replacement tires listed in catalog for passenger cars in Japan, 57% of those sold tires are conformable to the environmental product declaration in accordance with external standard by Japan Automobile Tyre Manufacturers Association(JATMA). From climate-change perspective, coexistence of low rolling resistance which contributes low CO2 emission and other performances like WET performance which supports safety is key challenge for our tire development. Therefore, the number of our ECO products which achieves high quality in such areas in the same time is one of our measure of success.

As a case study, Bridgestone completed development of REGNO GR-XII in 2018 and launched in Feb. 2019 as a flagship of comfort tire. Because all sizes of this new product are labelled through the system above, satisfying the criteria, dealers and customers can easily recognize the product has high wet performance and low rolling resistance with other greatly balanced performance as the feature of the product.

C12.3

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

Trade associations

C12.3b

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

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

The Japan Rubber Manufacturers Association (JRMA)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

After the commitment period of the Kyoto Protocol (since 2013), JRMA has been working consistently to achieve the goal of reducing CO2 in 2020 which has been set as a trade association's target in line with the national policy calling for the ongoing reduction of CO2. In addition, JRMA set the target for 2030 also in 2015. Based on the targets of industry groups including JRMA, Japan's reduction targets submitted to COP21 were drawn up. Every year, they give a follow-up report on the reduction status to the government and steadily promoted activities to reduce the emission. According to the follow-up report which they issued in October 2018, their CO2 emission intensity in 2017 has been improved and became 90.9% vs 2005.

How have you influenced, or are you attempting to influence their position?

At the Environmental Committee, Bridgestone leads industry activities and summarizes the opinions as the chairperson.

Trade association

The Japan Automobile Tyre Manufacturers Association, Inc. (JATMA)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

JATMA is one of the major tire industry associations in the world, and has established the Tire Labelling System in 2010, and has been contributing to increase the ratio of "Fuel Efficient Tires" in the market. (In the lifecycle of tire, CO2 emission in usage stage consists of more than 80%) In 2015, JATMA compiled and announced the benefits of CO2 emission reduction through reduced rolling resistance of passenger car tires from 2006 to 2012. In 2018, JATMA issued a report on the contribution of rolling resistance coefficient(RRC) of tires for CO2 reduction. According to the report, CO2 emission per tire has been reduced by 13.9% in 2016, compared to 2006.

How have you influenced, or are you attempting to influence their position?

Our employees have participated in various committees and presented our opinions. At the Environmental Committee, Bridgestone leads industry activities and summarizes the opinions as the chairperson.

Trade association

World Business Council for Sustainable Development (WBCSD)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Since 2006, the Tire Industry Project (TIP) under the umbrella of the World Business Council for Sustainable Development has served as a voluntary joint-initiative undertaken by 11 global leading tire manufacturers, under the leadership of the CEOs, with an aim to identify and address the potential human health and environmental impacts associated with tire development and use. TIP is a proactive organization that allows the industry's leading companies to leverage their collective action in advancing sustainability throughout the industry. In 2018, TIP conducted research on 2017 result of environmental KPIs for tire manufacturing such as CO2 emission and energy consumption for issuance of a report in 2019.

How have you influenced, or are you attempting to influence their position?

As one of the co-chair companies of the Tire Industry Project, Bridgestone is engaged in the visualization of the overall impact of climate change through discussions with other companies.

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?

In order to ensure consistency, a special team of the Corporate Communication Division which belongs to Bridgestone's headquarters is in charge of communication and negotiation with external companies and organizations, uniformly handles cooperation with industry groups. Important discussions with industry groups are reported to the Global Environment Working Group and the Global CSR Enhancement Committee(GCEC), for review and to ensure consistency and representatives of Bridgestone's feedback into industry groups.

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 voluntary sustainability report

Status

Complete

Attach the document

sr2018-2019.pdf

Page/Section reference

Governance: page 8 Strategy: pages 35-36 Risks&opportunities: page35:(Contribution to fuel efficiency) page 38(Risk Management) Emission figures: page 49 Emission targets :page 35 Other metrics :page 35(Tire-Rolling Resistance Coefficient in Reducing CO2 Emissions) page 49(Energy consumption in Environment-related Data) etc.

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Detail of our environmental and CSR related activities is written in the report.

Publication

In mainstream reports

Status

Complete

Attach the document

Asset Securities report.pdf

Page/Section reference

Each element related topics are included into the following pages: Governance: Pages 50-52(Explanation of our corporate governance structure) Strategy: Pages 10-11(Overall corporate strategy), 24 (Introduction of fuel efficient tires) Risks & Opportunities: Pages 13-16(Corporate risks), Page 24(Opportunities shown as representative R&D topics)

Content elements

Governance
Strategy
Risks & opportunities

Comment

High-level description on our governance, strategy and risk&opportunities is included in the report.

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 and Executive Officer Responsible for Global Public Relations, Government Relations and Sustainability	Chief Sustainability Officer (CSO)