C0. Introduction

C0.1

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

Since 1889, Michelin has constantly innovated to facilitate the mobility of people and goods. Today, the Group is setting the standard across every tire and travel-related services market, while leading a global strategy to drive responsible, sustainable and profitable growth. In short, Michelin is making mobility safer, cleaner, more connected and more accessible. Michelin enjoys exceptional geographic coverage and is stepping up its deployment in emerging markets. Currently operating in 25 countries at 121 production facilities and 3 research centers, and with marketing operations in 170 countries, Michelin employs a total of 117,400 people worldwide. Net sales in 2018 were €22 billion. Michelin holds forefront positions in every segment of the tire market. Associated brands and services also include dealerships and service centers (Euromaster, TBC, TyrePlus), online retailing (Allopneus, Blackcircles), wholesalers (Euromaster, Meyer Lissendorf and Ihle AG), truck driver assistance services (Michelin Euro Assist), fleet tire advice, maintenance and management services (Michelin fleet solutions in Europe and Michelin Business Solutions in North America), Michelin Travel Partner (maps and guides, ViaMichelin mobility assistance services) and Michelin Lifestyle products. In 2018 The Group expands its range of mining solutions and steps up growth in high-tech materials by acquiring Fenner PLC, a specialty manufacturer of conveyor belts and reinforced polymer products. Michelin strengthens its Specialty Businesses with the acquisition of Camso, a global leader in off-the-road mobility (farming, materials handling and construction industries).

Inspired by its founders, Michelin is dedicated to enhancing mobility through innovation and quality, by basing its development on the core values of Respect for Customers, Respect for People, Respect for Shareholders, Respect for the Environment and Respect for Facts. Our sustainable development approach, embodied in the 2002 Michelin Performance and Responsibility Charter, structures this corporate culture and coordinates our commitment to the principles of sustainable, balanced, responsible growth.

C0.2

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

<table>
<thead>
<tr>
<th>Row</th>
<th>Start date</th>
<th>End date</th>
<th>Indicate if you are providing emissions data for past reporting years</th>
<th>Select the number of past reporting years you will be providing emissions data for</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>janvier 1  2018</td>
<td>décembre 31  2018</td>
<td>No</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
</tbody>
</table>

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

- Brazil
- Canada
- China
- France
- Germany
- Hungary
- India
- Italy
- Japan
- Mexico
- Poland
- Romania
- Russian Federation
- Serbia
- Spain
- Thailand
- United Kingdom of Great Britain and Northern Ireland
- United States of America

C0.4

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

- EUR

C0.5

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

- Financial 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.

<table>
<thead>
<tr>
<th>Position of individual(s)</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board-level committee</td>
<td>The highest board position with responsibility for climate-related issues in the company is the Group Executive Committee (GEC), chaired by the CEO and assisted by 12 executive vice-presidents (Distribution; Passenger Car and Light Truck Product Line; Corporate Development, Progress &amp; Geographic Zones; Communication, Brands and External Relations; R&amp;D vice-president; Materials Product Line; Human Resources; CFO &amp; EVP Specialty Product Lines; Truck Product Line; COO; Quality, Audit &amp; Risk Management). The GEC focuses on strategic issues and decisions, such as corporate transformations, the business model, acquisitions, performance, brand strategy and sustainable growth. The GEC plus the Heads of Purchasing, Legal Affairs and Sustainable Development &amp; Mobility departments constitute the Sustainable Development and Mobility Committee and as such is responsible for overseeing assessment and management of risks and opportunities related to climate change for Michelin and its subsidiaries.</td>
</tr>
</tbody>
</table>

C1.1b

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

<table>
<thead>
<tr>
<th>Frequency with which climate-related issues are a scheduled agenda item</th>
<th>Governance mechanisms into which climate-related issues are integrated</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled – all meetings</td>
<td>Reviewing and guiding strategy. The Group Executive Committee (GEC) reviews all strategic actions related to climate change. To do this, it conducts an annual review, organized by the corporate sustainability officer, of decisions made and issues handled by the Sustainable Development and Mobility Committee, and specifically by the Environment and Sustainable Mobility Governance bodies, respectively. This review enables the GEC to provide guidance or directives on major climate change-related issues to the governance bodies. Monitoring and overseeing progress against goals and targets for addressing climate-related issues: Twice yearly the GEC regularly reviews the indicators monitored by the Sustainable Development and Mobility Committee, which include 2 KPIs on reducing Scope 1 &amp; 2 and Scope 3 CO2 emissions, respectively, and reduction of resource consumption in both manufacturing and in tire design. As such, it decides on whether adjustments to targets or resources are required.</td>
<td></td>
</tr>
<tr>
<td>Scheduled – some meetings</td>
<td>Reviewing and guiding business plans. The GEC conducts an annual review of how the business units’ and corporate support functions’ strategic plans are integrating sustainability actions, including opportunities related to climate change, in their product and service offers and operating plans, respectively. This review, prepared jointly by the sustainability and corporate strategy departments, is based on the 4 pillars of the World Bank initiative “Sustainable Mobility for All” (SuM4All): Green mobility (cutting CO2 emissions and improving energy efficiency of transport systems), as well as efficiency, safety and universal access. It ensures that the GEC is abreast of climate change issues and provides the necessary guidance and directives in its feedback to business units and corporate support functions on developing opportunities and managing risks related to climate change.</td>
<td></td>
</tr>
<tr>
<td>Other, please specify (Annually)</td>
<td>Setting performance objectives: Once a year the GEC reviews the indicators monitored by the Sustainable Development and Mobility Committee. As of 2018, these indicators include climate-change related objectives for emissions mitigation in manufacturing and product use as well as reducing resource consumption in both manufacturing and in product (tire) design. Overseeing major capital expenditures, acquisitions and divestitures: All major decisions on Capex and mergers/acquisitions/divestitures are overseen by the GEC in dedicated meetings either at the conclusion of the annual strategic planning process, which covers all divisions and activities, or at special ad hoc meetings. As such, decisions on climate change-related issues are not handled separately under the Sustainable Development and Mobility Committee.</td>
<td></td>
</tr>
</tbody>
</table>
(C.2.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

<table>
<thead>
<tr>
<th>Name of the position(s) and/or committee(s)</th>
<th>Responsibility</th>
<th>Frequency of reporting to the board on climate-related issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Executive Officer (CEO)</td>
<td>Both assessing and managing climate-related risks and opportunities</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Other C-Suite Officer, please specify (Executive vice president of manufacturing operations)</td>
<td>Both assessing and managing climate-related risks and opportunities</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Other C-Suite Officer, please specify (Executive vice president of Research &amp; development)</td>
<td>Both assessing and managing climate-related risks and opportunities</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Other C-Suite Officer, please specify (Executive vice president of Brands and External Engagement)</td>
<td>Both assessing and managing climate-related risks and opportunities</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Other C-Suite Officer, please specify (Executive vice president of the advanced materials division)</td>
<td>Both assessing and managing climate-related risks and opportunities</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Other C-Suite Officer, please specify (Executive vice president of corporate development)</td>
<td>Both assessing and managing climate-related risks and opportunities</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

C.2.2a

(C.2.2a) 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).

Climate change-related issues are overseen by two governance bodies operating under the Group Executive Committee’s (GEC, or board) Sustainable Development and Mobility Committee: 1) Environment and 2) Sustainable Mobility. Each governance body meets a minimum of 2 times per year. 1) The Environment Governance is chaired by 3 members of the GEC: executive vice presidents of manufacturing (lead chair), research and development, and brands/external engagement. These 3 positions cover the main operations impacted by climate change issues and because they represent the full GEC they are vested with decision-making power for all operations. The members of the Environment Governance include the chief procurement officer, chief risk officer, EHS manager, sustainability manager, and chief legal officer. Technical aids to the governance include vice-presidents of R&D and advanced materials division public affairs manager, norms and regulations manager, and industrial strategy manager. The 3 executive vice presidents, supported by the transverse expertise of the members and technical aids, jointly monitor climate-related issues with a focus on assessing their potential impacts to internal operations – manufacturing, marketing & sales of products and services, logistics and purchasing – and strategy for research and development. They are supported by several standing work groups that analyze and make recommendations on strategic issues related to energy use, carbon pricing, mitigation, adaptation, and current and future objectives, among others. Lastly, the Environment Governance is particularly suited to bottom-up identification of emerging risk factors and analyzing their impacts over the short-, medium- and long-term. All major decisions on climate change-related risks, opportunities and investments impacting operations that are not made by the GEC (board level) are made at this governance level. This approach ensures that major decisions are made at the highest level of the company with the relevant divisions and activities of the Group represented.

2) The Sustainable Mobility governance is jointly chaired by 4 members of the GEC: the CEO and 3 executive vice presidents covering brands & external engagement (lead chair), the advanced materials division and corporate development. These 4 positions cover all the business units and the departments that ensure external engagement on promoting sustainable mobility through the business operations and interaction with diverse stakeholders. Because they represent the full GEC, they are vested with decision-making power regarding strategy for external engagement on decarbonizing transport, the most material climate change issue for Michelin. The members of the Sustainable Mobility Governance include the chief sustainability officer and the director of strategic participation. These 4 joint chairs, supported by the transverse expertise of the members, jointly monitor climate-related issues with a focus on identifying and developing external partnerships and relations covering a diverse set of mobility ecosystems that are actively putting in place new approaches to low-carbon and lower impact mobility. They are supported by internal experts from Michelin-developed ecosystems for sustainable mobility (Movi'on, Movi'on Labs) and international experts representing Michelin in other sustainable mobility ecosystems (Paris Process for Mobility and Climate, Transport Decarbonization Alliance, and SuM4All). Lastly, the Sustainable Mobility Governance is more focused on identifying, developing and monitoring opportunities, but does allow for external risk factors to be identified.

In conclusion, all major decisions on climate change-related risks, opportunities and investments impacting external engagement on sustainable mobility that are not made by the GEC (board level) are made at this governance level. This approach ensures that major decisions are made at the highest level of the company with the relevant divisions and activities of the Group represented.
C1.3

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

C1.3a

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

Who is entitled to benefit from these incentives?
Chief Executive Officer (CEO)

Types of incentives
Monetary reward

Activity incentivized
Emissions reduction target

Comment
A portion (15%) of the CEO’s long-term incentive bonus is indexed on Michelin’s Environmental Footprint (MEF) composite indicator. Energy consumption and CO2 emissions targets are part of this indicator. The 3-year average of this composite indicator must be below a defined threshold for the monetary reward to be triggered.

Who is entitled to benefit from these incentives?
Other, please specify (R&D employees and managers)

Types of incentives
Monetary reward

Activity incentivized
Efficiency project

Comment
Attainment of key milestones for tire development projects involving improvement of tire energy efficiency. An individual performance bonus takes into account progress made through tire development projects: measured by passing key project milestones which assesses a new tire’s energy efficiency and carbon footprint in addition to safety and long lasting performance. Tire fuel efficiency as measured by rolling resistance is one of several tire performance indicators that drive product design and is measured by the Michelin Total Performance (MTP) KPI.

Who is entitled to benefit from these incentives?
Management group

Types of incentives
Monetary reward

Activity incentivized
Emissions reduction project

Comment
A group of managers covering environment, energy use and energy purchasing are evaluated at year-end on their performance in steering the implementation of energy and CO2 reduction targets and projects.

C2. Risks and opportunities

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

<table>
<thead>
<tr>
<th>From (years)</th>
<th>To (years)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term</td>
<td>0-5</td>
<td>This time horizon is aligned with corporate-level and business units’ management of operational risks. It applies to 1) operational decisions about energy purchasing and usage in manufacturing (e.g., contracts for purchasing renewable electricity); 2) management of CO2 quotas under emissions trading systems; 3) strategic planning and partnerships for new mobility offers (e.g., hydrogen fuel cell vehicles and related infrastructure); 4) development of supplier partnerships for reducing carbon footprints (e.g., logistics services, engagement through CDP Supply Chain); 5) market and external environment/stakeholder analysis (e.g., corporate climate strategies, NGO expectations, positions and expectations of influencers); 6) tactical implementation of norms and regulations strategy (see below); 7) management of operations risks related to extreme weather events; 8) management of media coverage of corporate responsibility regarding climate change; 9) engaging public and private actors in sustainable mobility through Movin’ on by Michelin, Open Lab Mobility, and the Transport Decarbonization Alliance.</td>
</tr>
<tr>
<td>Medium-term</td>
<td>6-15</td>
<td>This time horizon is aligned with corporate-level and business units’ management of strategic risks and the strategic planning process. It applies to 1) industrial footprint restructuring and decisions about energy usage and energy-efficient technologies in manufacturing; 2) strategic planning for CO2 quotas in emissions trading systems; 3) research and development cycle for new tire projects addressing energy efficiency/materials/mass in concert with the other key tire performances; 4) strategic anticipation analysis of mobility trends; 5) strategic plans related to norms and regulations related to vehicle/tire energy efficiency, CO2 emissions, long-lasting performance.</td>
</tr>
<tr>
<td>Long-term</td>
<td>16</td>
<td>This time horizon applies to 1) developing a corporate SBT roadmap under a 2°C or below scenario for long-term reductions to CO2 emissions from manufacturing and product use; 2) implementing the Paris Process for Mobility and Climate global macro roadmap for zero net emissions of the transport sector by 2050 under the UNFCC process.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Frequency of monitoring</th>
<th>How far into the future are risks considered?</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row 1</td>
<td>Six-monthly or more frequently &gt;6 years</td>
<td>Several time horizons are taken into account. Michelin’s overall risk map covers operational risks, considered for 1 to 2 years in the future, and tactical risks and strategic risks up to 15 years in the future. Climate change presents an array of potential consequences that would impact Michelin primarily through the need for low carbon products and services and transition its overall mobility offer as the landscape for transporting people and goods goes through major change. Through the lens of this major paradigm shift, risks are considered 16 to 30+ years in the future.</td>
</tr>
</tbody>
</table>

C2.2b
Michelin has been applying Enterprise Risk Management practices for more than ten years. Risk identification began as a bottom-up process enabling a corporate risk map to be built. The levels of acceptable or tolerable risk are defined by the Group Executive Committee (GEC), which acts as the Group’s Risk Committee. Currently, the risk map comprises 14 main families, which are overseen by separate governance committees and which are the basis for assessing existing risks, identifying emerging risks and steering necessary actions to treat risks. This process of iterative updating is overseen by the corporate risk management department across all other departments and activities. In the context of its worldwide reorganization, implemented as of January 2018, a bottom-up process has been relaunched so that each entity (geographic regions, business lines and operational directions) will maintain its risk portfolio, overseen by a risk manager.

Systemic Group-level risks are those that could have a substantive, adverse effect on annual revenue (>150 M €), annual operating income (>50 M €), image and reputation (quantitative and qualitative criteria that are confidential) and health & safety of employees and the public. They are reassessed regularly to identify the priority risks requiring actions plans. At asset level, entities integrate critical corporate-level and activity-specific risks into their 5-year business plans & annual risk management action plans. As such, climate-related risks in the corporate risk map are assessed for their significance in the same way as any other type of risk in the corporate risk map. Climate change is not considered a risk in and of itself but is articulated through the following risks: health & safety of people, safety of physical assets, volatility of energy prices, air emissions, water availability, financial loss due to production stoppage or shortage of finished product, disruption in raw materials supply non-compliance with environmental regulations – for example tire and vehicle energy/CO2 standards and emissions trading systems – and media attacks on brand or reputation and management of technology and innovation projects.

Current and emerging risks related to climate change are overseen through the corporate Sustainable Development and Mobility Committee, comprised of the full GEC. Monitoring of such risks is ensured by 2 governance bodies: 1) Environment, and 2) Sustainable Mobility, each chaired by three members of the GEC. Both governance bodies are set up to identify risks and opportunities. The Environment Governance, with representatives from the key departments concerned with climate change issues (R&D, manufacturing, purchasing, main business lines, and brands & external relations, including public affairs, norms & regulations and sustainability), is particularly suited to bottom-up identification of emerging risk factors and analyzing their impacts on operations over the short-, medium- and long-term. Risk identification and evaluation is handled by several operational work groups. While the Sustainable Mobility Governance is more focused on identifying, developing and monitoring opportunities for external engagement low-carbon & decarbonized transport & mobility, it does enable external risk factors to be identified. Examples of current and emerging risks being monitored by the 2 governance bodies are those related to potential regulations (emissions trading systems and carbon taxes, tire & vehicle energy/CO2 standards), climate change strategies of customers and competitors, and vehicle electrification trends (batteries versus fuel cells). Technology and innovation risks related to climate change are managed jointly by the R&D organization and appropriate business units, with guidance from the Corporate Innovation Board.

Finally, there are many operational risks whose impacts would be well below the above-mentioned thresholds and occurring over a short time period of 1 to 2 years but that must be identified and assessed nevertheless. These climate-related risks involve current and emerging regulation, market pressures for low-carbon products, negative media coverage. These risks are identified, assessed and managed by the concerned departments: environment/public affairs/norms & regulations, business lines/sustainability, and communications, respectively. Any risk issues that cannot be resolved at the operational level are taken to the appropriate governance body mentioned above.

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

<table>
<thead>
<tr>
<th>Relevance &amp; inclusion</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current regulation</td>
<td>Regulatory risks are assessed jointly by operational work groups comprised of specialists in the environment, public affairs and norms &amp; regulations teams. Current regulations are deemed a relevant risk because they can have impacts across Michelin activities and in multiple geographic zones, particularly on manufacturing, with potentially material costs. An example of a specific risk taken into account: the financial impact of emissions trading systems regulations in Europe and Shanghai. The level of risk is assessed, and risk reduction is managed by the CO2 Allowances Work Group, a standing work group bringing together industrial operations, EHS, purchasing, finance and accounting departments that monitors CO2 allowances applied under the EU and Chinese regulations cited above and their current and forecasted costs. All decisions on current regulatory risks evaluated above the thresholds for systemic Group-level risks are made or overseen by the Environment Governance under the Sustainable Development and Mobility Committee, which has responsibility for all climate-related issues below the board which could impact operations.</td>
</tr>
</tbody>
</table>
Emerging regulation

Emerging regulations as a corporate risk are assessed jointly by operational work groups comprised of specialists in the environment, public affairs and norms & regulations teams. Emerging regulations are a relevant risk because they can have impacts across Michelin’s activities and particularly on manufacturing and product design. Manufacturing could be impacted by newly created CO2 quota or tax systems at country or regional level. An example of a specific risk taken into account: China is rolling out additional ETS systems beyond that in Shanghai, and Michelin operations in that country could be impacted. The level of risk is assessed and risk reduction is managed by the CO2 Allowances Work Group, a standing work group bringing together industrial operations, EHS, purchasing, finance and accounting departments with support from public affairs to anticipate requirements and integrate them into operational activities. Product design could be impacted by vehicle tailpipe CO2 emissions standards, tire performance thresholds and/or tire labelling grading systems at country level. In the US, the government may weaken tailpipe standards. Under UN vehicle regulations, signatory countries are putting in place tire performance regulations; for example, Japan is expected to do so by 2024. Michelin’s activities in these two markets could be impacted. The risks and opportunities of such emerging regulations are identified and evaluated jointly between the norms and regulations and public affairs departments. Action plans to address potential compliance issues are built by the business units responsible for the type of issues impacted. All decisions on emerging regulatory risks evaluated above the thresholds for systemic Group-level risks are made or overseen by the Environment Governance of the Sustainable Development and Mobility Committee, which has responsibility for all climate-related issues below the board which could impact operations.

Technology

Technology is deemed a relevant risk for 2 reasons: 1) because of rapid changes to how people and goods are transported, with new forms of energy and mobility, and 2) increasing pressures to improve the energy efficiency of manufacturing. R&D and strategic anticipation teams identify technology trends and disruptive innovation in mobility and evaluate with the business units how that would create risks or opportunities. These trends and new ideas are also studied, developed and tested by various operational work groups within Michelin in concert with its diverse mobility ecosystems created through Movin’on (worldwide summit on sustainable mobility, called the “Davos” of mobility) and Movin’on Labs, a collaborative mobility platform. Risk assessment & management of low-carbon/decarbonized mobility is overseen by the Sustainable Mobility Governance Committee (SDMC), which has responsibility for all climate-related issues below the board that could impact sustainable mobility innovation & external engagement. In parallel, a R&D technology watch is in place for tire design that includes new means to increase energy efficiency and reduce tire mass, while incorporating more materials from recycled or renewable feed stock and maintaining key tire performances. Opportunities for developing technologies and the associated risks, in the form of costs and lost time, are evaluated within the R&D organization, with decisions on major projects overseen by the R&D management team. An example of a specific risk considered: how to incorporate sustainable materials (renewable and recycled feedstock & recyclability) without undercutting tire energy efficiency. For manufacturing, technology risks are assessed in terms of cost vs. energy efficiency vs. CO2 reductions by the Corporate Energy Expert Team, comprised of specialists from manufacturing, environmental management and purchasing who advise the manufacturing management team on managing risks. All decisions on technology risks evaluated above the thresholds for systemic Group-level risks are made or overseen by the Environment Governance under the SDMC, which has responsibility for all climate-related issues below the board which could impact operations. An example of a specific risk considered: long-term availability of different types of renewable energy and their providers.

Legal

As regulations are promulgated on CO2 tailpipe emissions standards, compliance is relevant for vehicle manufacturers, but not for tire manufacturer like Michelin. Because tire rolling resistance contributes significantly to vehicle energy efficiency and therefore to the CO2 emissions generated by the vehicle, Michelin does strongly advocate for the use of real rolling resistance values, and not just theoretical values, in the determination of vehicle CO2 emissions. However, this issue is a technical one, and does not represent a material legal risk for Michelin. CO2 regulations on industrial emissions via quotas or taxes can have a financial impact, but have not in actual practice represented any kind of legal risk for Michelin and are therefore not material.

Market

The relevance of market conditions as a corporate risk is assessed by business units with support from the corporate sustainability team. Jointly they also assess the level of risks, with the business units deciding on how to manage them. Market risks are relevant because an increasing number of customers are including climate change-related criteria in tenders and supplier awards, as well as requesting environmental audits of Michelin sites and those of Michelin’s suppliers that include energy efficiency and CO2 emissions. An example of a specific risk considered in assessments: following two customer requests for Michelin supplier audits in China in 2018, the corporate brands and external engagement department, which also assesses and manages risks represented any kind of legal risk for Michelin and are therefore not material.

Reputation

Reputational risks related to climate change are relevant because of increasing scrutiny by the public authorities, citizen, NGOs etc. Media attention is assessed by the corporate brands and external engagement department, which also assesses and manages risks through a) a media watch to monitor issues related to climate change and b) transparency in all Michelin communications on the topic.

Acute physical

Extreme weather events are a relevant risk due to their increasing frequency and force. While the number of Michelin sites impacted by such events over the last 10 years remains quite low, impacts to sites in the upstream and downstream value chain are being identified more and more often. For example, a number of supplier sites were shut down following Hurricane Harvey in Texas in 2017. An example of a specific risk taken into consideration: supplier sites located in areas prone to acute water shortages have been identified. More and more often. For example, a number of supplier sites were shut down following Hurricane Harvey in Texas in 2017. An example of a specific risk considered in assessments: following two customer requests for Michelin supplier audits in China in 2018, the corporate brands and external engagement department, which also assesses and manages risks represented any kind of legal risk for Michelin and are therefore not material.

Please explain

In parallel, an R&D technology watch is in place for tire design that includes new means to increase energy efficiency and reduce tire mass, while incorporating more materials from recycled or renewable feed stock and maintaining key tire performances. Opportunities for developing technologies and the associated risks, in the form of costs and lost time, are evaluated within the R&D organization, with decisions on major projects overseen by the R&D management team. An example of a specific risk considered: how to incorporate sustainable materials (renewable and recycled feedstock & recyclability) without undercutting tire energy efficiency. For manufacturing, technology risks are assessed in terms of cost vs. energy efficiency vs. CO2 reductions by the Corporate Energy Expert Team, comprised of specialists from manufacturing, environmental management and purchasing who advise the manufacturing management team on managing risks. All decisions on technology risks evaluated above the thresholds for systemic Group-level risks are made or overseen by the Environment Governance under the SDMC, which has responsibility for all climate-related issues below the board which could impact operations. An example of a specific risk considered: long-term availability of different types of renewable energy and their providers.

Environment Governance under the Sustainable Development and Mobility Committee, which has responsibility for all climate-related issues below the board which could impact operations.
<table>
<thead>
<tr>
<th>Relevance &amp; inclusion</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic physical</td>
<td>Unlike acute physical impacts, chronic physical impacts from climate change are not relevant to Michelin activities at this time. The reason is two-fold: 1) impacts have not been observed, and 2) information about future impacts is not specific enough to inform the company about potential risks. Example: as global temperatures increase, geographic distribution of crops and vegetation will shift. This could have an impact on production of natural rubber, a key raw material for making tires. Areas of optimum versus suitable rubber production will surely evolve but what predictions exist are long-term hypothesis and with levels of uncertainty so high that they do not influence current decision-making on rubber procurement. In the meantime, Michelin's response to this future unknown situation is 1) diversification with supplies from different countries in the tropical zone; and 2) ensuring the resilience of its own plantations in Indonesia through a holistic approach to sustainable natural rubber production.</td>
</tr>
<tr>
<td>Upstream</td>
<td>Upstream risks are relevant for the following reason: with the mobility sector undergoing major transformation, new mobility offers will not only involve new technologies provided by future suppliers but also new partnerships both upstream and downstream in order to roll out innovative products and services. An example of a specific risk taken into account: the production of natural rubber. To develop sustainable sourcing of natural rubber, redress deforestation and address the lack of arable land for food crops, Michelin entered into a business partnership with the Barito Pacific Group and a sustainability partnership with WWF France and is also a founding and active member of the GPSNR (Global Platform for Sustainable Natural Rubber). Decisions on risks evaluated above the thresholds for systemic Group-level risks are made or overseen by the Environment Governance under the Sustainable Development and Mobility Committee, which has responsibility for all climate-related issues below the board which could impact operations.</td>
</tr>
<tr>
<td>Downstream</td>
<td>Downstream risks are relevant for the following reason: with the mobility sector undergoing major transformation, new mobility offers will not only involve new technologies provided by future suppliers but also new partnerships both upstream and downstream in order to roll out innovative products and services. Example of a specific risk taken into consideration: to develop zero carbon mobility, Michelin has been actively promoting the use of hydrogen fuel cells with industrial partner SymbioFuel Cell and as a member of French and European public-private fuel cell associations. Risk assessment &amp; management of low-carbon/decarbonized mobility is overseen by the Sustainable Mobility Governance under the Sustainable Development and Mobility Committee, which has responsibility for all climate-related issues below the board that could impact sustainable mobility innovation &amp; external engagement.</td>
</tr>
</tbody>
</table>
(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

The Group Executive Committee (GEC) makes all decisions about major risks and opportunities, including those related to climate change. The GEC serves as the Sustainable Development and Mobility (SDM) Governance. As such, it oversees all climate change risks and opportunities for Michelin and its subsidiaries. To manage opportunities and risks, it is supported the Corporate Innovation Board (CIB) and corporate risk management and corporate development departments.

The SDM Committee, supported by 2 governance bodies – Environment and Sustainability Mobility – has 2 roles: 1) managing opportunities in sustainable mobility by bringing together a diverse array of actors in the transport sector – public and private – in ecosystems for innovation, experimentation and action, and on creating the conditions for successful implementation of the Paris Agreement within the transport sector; 2) monitoring and making decisions on current and emerging risks and opportunities related to mitigation, resilience, regulation and stakeholder expectations. Each governance body oversees standing and ad hoc work groups of experts from the relevant departments. Decisions on risks and opportunities are made at the appropriate level depending on strategic importance, amount of resources to mobilize and complexity, from working groups, to the governance level of the GEC, to the full GEC. Transitional risk example: the European ETS presents a financial risk if CO2 allowances are not well managed over time. To minimize costs and ensure regulatory compliance, a CO2 Allowances Work Group, staffed with EHS, purchasing and finance experts monitors pricing vs. level of allowances across sites, according to country-level regulations, on an annual basis. It makes recommendations that are validated by the corporate finance department, and it executes the actions. Any issues not resolved by this work group are taken up by the Environment Governance for decision.

The CIB’s mission is to define the innovation strategy from a cross-functional perspective, ensure innovation dynamism and make decisions on research priorities and investments. It enables Michelin to open up to fresh opportunities to expand its resources and methods, focus its research priorities, seek customer and market feedback on projects as early as possible in order to speed up innovation and maintain alignment on requirements. Not all topics are related to climate change, but those that are follow this steering process. Transitional opportunity example: In the context of carbon-free mobility, the objective is to implement viable solutions on the ground. Michelin’s main action in this area has focused over the last 15 years on developing hydrogen fuel cell technology and infrastructure approaches in its incubator and R&D departments, both overseen by the CIB. This carbon-free mobility opportunity is now being pursued as a business activity through Michelin’s investment in Symbio FCell and JV with Faurecia formed in 2018, and as test project in a public-private partnership named “Zero Emission Valley” in the Auvergne-Rhône-Alpes region.

The corporate risk management department focuses its risk management activities on the set of substantive risks assessed above corporate thresholds. It manages risks through 1) ensuring assignment of all risks in the corporate map to a risk manager at the asset level, and 2) checking that risk portfolio management at the asset level is up-to-date, through a) a review of adequacy of actions taken against the assessed risk level, b) internal audit, c) lower-level internal control, d) advising on transfer of risk via insurance and e) overseeing crisis management readiness where appropriate. All decisions on risk management are made by the responsible department or business unit with support from the corporate risk management department. This department monitors risks in the corporate risk map to ensure that any residual exposure remaining after implementing the risk management process is consistent with the Group’s risk tolerance. Physical risk example: To reduce the risk of supply rupture from suppliers in the hurricane-prone Gulf of Mexico region, a region experiencing increasing frequency and intensity of climate event, Michelin has put in place strategic stocks of certain raw materials.

The corporate development department supports management of risks and opportunities by ensuring business units’ 5-year strategic plans have taken into account sustainable mobility goals and trends identified by the sustainability and strategic anticipation departments, including opportunities for mitigation and resilience. Physical opportunity example: Resilience for motorists means facing increasingly unpredictable weather and driving conditions that can suddenly become dangerous. Michelin’s CrossClimate tire was a strategic choice supported by the corporate development department to meet this need as the world’s first summer tire certified for winter (snow) use.

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

Yes

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.
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
Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company-specific description
Michelin manufacturing operations are subject to carbon quota systems and taxes in several jurisdictions: European Union (20 sites), Shanghai (1 site) and France (16 sites). Since the EU ETS costs alone are projected to exceed annual operating expenses & capital investments for sustainable use of energy by up to 50%, this risk is relevant.

Time horizon
Medium-term

Likelihood
Virtually certain

Magnitude of impact
Low

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

Potential financial impact figure (currency)
26000000

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

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

Explanation of financial impact figure
The annual financial impact for CO2 allowances covering Michelin operations is projected to increase from € 0 to € 26 million.

Management method
In 2005, the multidisciplinary CO2 Allowances Work Group was created to track legislation governing carbon markets and taxes in all of the Michelin plants’ host countries. Comprising specialists in greenhouse gases, energy buying, energy efficiency, finance and accounting, its role is to define carbon quota management principles and guidelines, ensure their proper application, conduct the necessary forecasting studies, make recommendations to the corporate head of finance on major decisions to buy, sell or hold allowances and to execute the decisions. This work is done currently, and for both the short- and medium-term time horizons and is supported by the norms and regulations and public affairs departments to anticipate upcoming legislation around the world. In 2018, the following work was done to mitigate financial risks regarding the EU ETS regulations: evaluation of cost differential between ETS Phase 3 and 4, analysis of market prices, purchase of CO2 quotas to fill a deficit of attributed CO2 allowances at 2 sites, estimation of CO2 emissions, adjustment to the 2030 forecast cost of CO2 quotas. Any issues not resolved by the finance department would be taken to the Sustainable Development and Mobility Committee at Group executive level. The management cost represents the number of full-time equivalent staffing of the CO2 Allowances Work Group required on an average annual basis.

Cost of management
50000

Comment

Risk 2

Where in the value chain does the risk driver occur?
Direct operations
Risk type
Transition risk

Primary climate-related risk driver
Technology: Costs to transition to lower emissions technology

Type of financial impact
Costs to adopt/deploy new practices and processes

Company-specific description
Michelin has committed to reducing its manufacturing carbon footprint by 50% over the long term (2010-2050). One major means to achieve this goal is increasing the energy efficiency of industrial operations. With 70 plants across 4 geographic zones, the financial implications are major. Thus, the choice and cost of new methods, equipment and technologies constitutes the risk driver. Manufacturing energy efficiency can be optimized across all Michelin's plants with new types of equipment and processes, as well as application of new management methods. Examples of process improvements: actions include reducing steam leaks in the tire curing process, controlling leaks of compressed air, capturing heat in cooling towers, increasing the efficiency of electric motors. Example of management methods: optimizing machine start-up and shut-down time to curtail energy needs.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
Low

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

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
10000000

Potential financial impact figure – maximum (currency)
25000000

Explanation of financial impact figure
The figures represents the range of estimated annual capital investments in energy efficiency required to achieve Michelin's 2020 energy intensity objective of -38% compared to the 2005 baseline.

Management method
To manage the financial risk over the short-term, the main opportunities (energy audits, the identification and application of best practices, equipment upgrades, etc.) and their deployment across Michelin's manufacturing facilities is coordinated at the corporate level by a team of energy experts in the industrial operations department and implemented by a network of on-site energy experts. In all, 19 initiatives have been launched worldwide covering behavioral changes (no cost), management of industrial processes (low cost), and capital investment in equipment and infrastructure (medium to high costs). Projects implemented at one site can often be replicated at others. An example from 2018: Installation of heat pumps in air cooling systems to recover heat for reuse in plant buildings, which reduces water consumption CO2 emissions and heat generation; a successful project in France has led to projects to install similar units at 2 other sites in 2019. Plant-level operating and capital costs are managed through the annual strategic planning process, starting with bottom-up plans, with major capital investments approved by the Group Executive Committee (GEC). Progress against the 2020 energy efficiency target (-38% in energy intensity from 2010 to 2020) is monitored by the GEC’s Sustainable Development and Mobility Committee. The management cost represents the number of full-time equivalent staffing required on an annual basis.

Cost of management
1000000

Comment

Identifier
Risk 3

Where in the value chain does the risk driver occur?
Direct operations

Risk type
Primary climate-related risk driver
Technology: Costs to transition to lower emissions technology

Company-specific description
5 of Michelin's production sites are fueled by energy from burning coal. Four are equipped with coal-fired burners: Olsztyn (Poland), Louisville KY (United States), Bassens (France) and Pirot (Serbia). A fifth plan in Shenyang, China, purchases steam from a coal-fired plant. With international momentum via the Paris Agreement, CO2 regulations, and societal demand to reduce fossil fuel usage, and in particular to eliminate coal, these sites represent a significant reduction in future CO2 emissions, and as such are part of the pathway in achieving Michelin's proposed science-based target for Scopes 1 and 2. All the majors levers to put reductions on a <2°C pathway have been grouped into 3 categories: those achieving reductions under 50kT CO2/year, between 50 and 100kT CO2/year, and greater than 100kT/year. Substitution of coal will bring the largest reductions of over 100kT/year. As such, complete substitution of coal would reduce the Group's CO2 weighted average emission factor by 9 to 13% out of a total of -60% required for a <2°C pathway. The costs of replacing current coal-burning equipment with low- or zero-carbon equipment represent a significant proportion of investments for other industrial improvements and thus constitute the financial risk driver.

Time horizon
Medium-term

Likelihood
Very likely

Magnitude of impact
Medium

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

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
60000000

Potential financial impact figure – maximum (currency)
150000000

Explanation of financial impact figure
The figures represent the range of estimated capital investment required under several options for setting up alternative sources of thermal power for the 5 manufacturing sites in question. The final cost will depend on the options chosen following the conclusion of feasibility studies. The cost bracket corresponds to 3 to 7.5% of current levels Michelin's total capital expenditure of just under € 2 billion/year.

Management method
A strategy for completely phasing out coal-fired boiler use by 2030 has been under development by the EHS, industrial operations, engineering and purchasing departments since 2017. In 2018, the Environment Governance, operating under the Sustainable Development and Mobility Committee at Group executive level, approved the goal of eliminating coal as an energy source by 2030. Studies to assess the feasibility of replacing coal with natural gas, biomass or other primary energy source are already underway at four of the five plants. In 2018, the Olsztyn facility took the first step towards phasing out coal by installing a new gas boiler, which is expected to supply nearly 20% of its heating needs as from 2020. At 3 other sites, key project milestones were passed in 2018. Any operational decisions that would result in not meeting the 2030 coal phase-out goal would be addressed the Environment Governance under the Sustainable Development and Mobility Committee at Group executive level. The management cost represents the number of full-time equivalent staffing required and partnerships/contracts with external organizations to carry out the coal phase-out projects from beginning to end.

Cost of management
3800000

Comment

Identifier
Risk 4

Where in the value chain does the risk occur?
Direct operations

**Risk type**
Physical risk

**Primary climate-related risk driver**
Acute: Increased severity of extreme weather events such as cyclones and floods

**Type of financial impact**
Other, please specify (Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions) & Increased capital costs (e.g., damage to facilities))

**Company-specific description**
Taking into account Michelin's diverse activities around the world, the type of business operations that could be impacted materially by a severe weather event is manufacturing. Several Michelin facilities have been impacted in the past 10 years in different geographic regions: Thailand and India (flooding), Brazil (electrical supply shortages caused by drought) and North America (tornado). A number of Michelin supplier sites have also been impacted, for example during the North American hurricane season in 2017.

**Time horizon**
Medium-term

**Likelihood**
About as likely as not

**Magnitude of impact**
Medium

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

**Potential financial impact figure (currency)**
<Not Applicable>

**Potential financial impact figure – minimum (currency)**
0

**Potential financial impact figure – maximum (currency)**
15000000

**Explanation of financial impact figure**
Extreme weather events could be a direct or an indirect cause of disruption to manufacturing operations. Business continuity disruption is assessed as a risk in and of itself. Many scenarios are evaluated, including those involving severe weather events as a cause. Given all the scenarios evaluated and the mitigation measures in place, the potential financial impact has been estimated within a bracket that would not in a given year reduce turnover by more than the higher end figure reported.

**Management method**
Michelin's production plants are located in 17 countries across Europe, North America, Brazil, Thailand, India and China. This geographic distribution means that different tire lines are produced in locations subject to varying weather phenomena. Tire production is local, with back-up supplies in the same geographic zone, limiting risk of shortages of finished products. In line with recommendations issued by the corporate risk department, risks associated with climate change have been reviewed and business continuity plans in the event of extreme weather events have been assessed. Extreme weather events have thus far concerned only a few facilities, without material financial repercussions for the Group, which have devised appropriate business continuity plans specific to their locations and activities. An example is the Chennai production site in India: Following the 2015 monsoon floods, existing emergency management protocols were reinforced, and personnel policies were modified to increase the number of employees hired from neighboring locations. The number and diversity of suppliers has enabled Michelin to avoid climate-related supply chain disruptions. While some supplier sites have been impacted by extreme weather events in the last few years (e.g., Hurricane Harvey in 2017), none led to a supply disruption for Michelin. Management cost represents the number of full-time equivalent staffing required on an annual basis to manage site-specific business continuity plans.

**Cost of management**
400000

**Comment**

**Identifier**
Risk 5

**Where in the value chain does the risk driver occur?**
Direct operations

Risk type
Transition risk

Primary climate-related risk driver
Market: Uncertainty in market signals

Type of financial impact
Increased production costs due to changing input prices (e.g., energy, water) and output requirements (e.g., waste treatment)

Company-specific description
Michelin's short- and long-term objectives are to lower the CO2 emissions per tonne of finished product by 32 percent in 2020 and by 50 percent in absolute value by 2050 compared with 2010. A major means of achieving this target is through purchasing renewable energy, primarily electricity. Michelin's approach to renewable energy purchases, regardless of the geographic zone, is to meet 3 feasibility criteria: business continuity, capital and operating costs, and CO2 reductions. A given renewable energy source may not meet all three criteria at a sufficiently robust and sustainable level. Furthermore, the production process requires significant use of steam. Unlike electricity, steam cannot be easily generated by renewable energy sources, which increases the risk of unavailability or prohibitive costs.

Time horizon
Long-term

Likelihood
Very likely

Magnitude of impact
Medium

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

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
100000000

Potential financial impact figure – maximum (currency)
200000000

Explanation of financial impact figure
Renewable energy prices can fluctuate, depending on the choice between procurement through renewable energy certificates or through dedicated on- or off-site installations and the type of contractual arrangements. The minimum and maximum figures provided represent an initial estimate of the cumulative capital investment in from 2020 to 2030 and cumulatively in 2050, respectively, for dedicated renewable energy installations that would provide the level of renewable energy required to meet Michelin's CO2 reduction target for 2050.

Management method
Management of this risk is handled by the corporate-level Energy Expert Team, drawn from the EHS, purchasing and industrial operations departments, which is tasked with 1) researching all possible opportunities for renewable energy sourcing worldwide, 2) evaluating the risks and opportunities of specific purchasing projects, and 3) applying the 3 feasibility criteria (cost, stability and security of supplies over time, and CO2 reductions). An example of a renewable energy purchasing decision: after a successful trial purchasing program in 2016 in Europe, all production plants in Europe as of 2017 are supplied with renewable energy for 100% of electricity needs. Another example in 2017 was a potential source of steam generated from biomass for a plant in Europe. The identified supplier, however, was unable to follow-up on the necessary project criteria and the project was ended. The portfolio of potential and ongoing projects is reviewed by the Environment Governance of the Group Executive Committee's Sustainable Development and Mobility Committee. It also monitors progress against the 2020 CO2 reduction target noted above. The management cost represents the number of full-time equivalent staffing required on an annual basis for the Energy Expert Team.

Cost of management
55000

Comment
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**
The rolling resistance of passenger car/light truck tires can account for 15% to 20% of the vehicle’s fuel consumption, and for trucks it can account for up to 30%, depending on the vehicle’s size, use and how it is driven. Michelin is highly favourable to regulations setting minimum performance standards for tire rolling resistance. In the European Union, tire performance minimum requirements and grading -- including rolling resistance -- displayed on standardized labels have been mandatory since November 2012. Stricter minimum requirements are being introduced between 2016 and 2018 for passenger car and light trucks tires and between 2016 and 2020 for truck and bus tires. A third and stricter level of minimum performance is envisioned for introduction starting from 2024. Similar legislation has been in effect in South Korea since 2012 (labeling) and 2013 (thresholds), Brazil since 2015 and other countries; voluntary grading was introduced in Japan in 2010. Legislation introducing minimum performance standards for rolling resistance and wet traction was passed in the United States in December 2015 and is included on the US Federal Government’s Spring 2019 regulatory agenda as a rulemaking priority to launch by first quarter 2020. Regulated tire labeling systems are also under consideration in China. Other countries like India, Vietnam and Thailand are likely to follow in the near future.

**Time horizon**
Short-term

**Likelihood**
Virtually certain

**Magnitude of impact**
High

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

**Potential financial impact figure (currency)**
4932000000

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

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

**Explanation of financial impact figure**
Product labeling standards are expected to strengthen demand for low rolling resistance tires, with sales of these tires expected to increase from 200 million units in 2010 to 500 million in 2020 on the original equipment market. This represents a potential market value as of 2020 of US$4,932 million per year. Tire labeling and minimum requirements in Europe, in particular, has shifted the entire market to higher performing tire and accelerate the withdrawal of lower-performing tires.

**Strategy to realize opportunity**
Michelin is a global leader in tire performance related to GHG emissions and fuel efficiency. Regulations will demonstrate the advantages of Michelin products. Through R&D investment, Michelin’s strategic target is to remain the technological leader in the market. The Group commissions annual studies by independent bodies to compare its products with the average competing range. Norms and regulations department executes a worldwide strategy to advocate the promulgation of country-level regulations setting minimum performance standards and labeling regulations for tire rolling resistance. An example is Europe where legislators promulgated minimum tire performance standards in 2009. Michelin helps to define the minimum performance levels and participates in the improvement of test methods and in the discussions around the review of the European labeling regulation. Michelin has advocated in other countries e.g., Korea, where tire rolling resistance regulations have come into effect from 2012-2014, and Brazil where legislation was passed in 2015. Michelin works directly with policy makers and through trade associations on consumer awareness, rule making and technical aspects: in the US, within the US Tire Manufacturers Association; in Brazil, as a member of Associaçao Nacional da Industria de Pneumaticos. The cost to realize opportunity in 2018 corresponds to R&D expenses that stood at €648 million. 6,000 employees were devoted to furthering the Group's innovation commitment.

Cost to realize opportunity
648000000

Comment

Identifier
Opp2

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
Regulations and taxes associated with vehicle emissions provide an opportunity for Michelin to contribute towards emissions reductions through increased demand for low rolling resistance tires. Michelin is a global leader in tire performance related to GHG emissions and fuel efficiency, and regulations will demonstrate the advantages of Michelin products. Through research and development investment, Michelin's strategic objective is to remain the technological leader in the market. The Group's green tire ranges help improve the fuel efficiency of vehicles; for example, the Energy Saver tire allows a significant drop of CO2 emissions per km, helping car manufacturers meet the increasingly stringent EU targets for car CO2 emissions. Thus, car manufacturers are voluntarily purchasing Michelin's products to help their vehicles meet new fuel efficiency regulations.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
High

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

Potential financial impact figure (currency)
160000000

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

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

Explanation of financial impact figure
Regulations and taxes associated with vehicle emissions are expected to strengthen demand for low rolling resistance tires for passenger cars and trucks. In Europe, the potential value of this market for Michelin as of 2022 is estimated at €1,600M per year. Other markets are foreseen in North America and Asia.

Strategy to realize opportunity
Michelin has launched both passenger car and truck tire research and development projects aimed at improving the rolling resistance and reducing the tire mass and associated CO2 emissions. As part of the Plateforme of the Automotive Sector (PFA), Michelin, Solvay, the research lab LRCCP, the French Development Agency (ADEME), and other partners launched 2 research projects: 1) BASYS project, launched in 2014, focused on ‘low hysteresis’ LDV materials aims to reduce CO2 emissions by 4 g/km in the passenger car B-segment (subcompacts, super minis, and city cars). The target is to achieve a passenger car fuel efficiency of 2L/100km. 2) PEGASE project, This 3-year research initiative aims to reduce the rolling resistance (-1kg/t) and mass (-10kg) of long-haul truck tires while improving the useful lifetime by 10 to 20%. Michelin has also provided technical support in the development of VECTO, a calculation tool introduced by the European Commission for Heavy Duty Vehicle CO2 emissions and fuel consumption. This tool allows the evaluation of a vehicle’s fuel efficiency in the use phase by taking into account the impact of tires and a range of other components. Phase 2, for Bus & coaches has been started and extends the regulation to passenger transports. The cost to realize opportunity corresponds to R&D expenses in 2018 and Michelin’s contributions to the BASYS and PEGASE initiatives, €23.1M and €32M respectively, over 3-year periods.

Cost to realize opportunity
703000000

Comment

Identifier
Opp3

Where in the value chain does the opportunity occur?
Supply Chain

Opportunity type
Resilience

Primary climate-related opportunity driver
Other

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

Company-specific description
Natural rubber’s physical properties make it irreplaceable for the production tires, which is why 75% of the global output goes to the tire industry. Michelin is among the world’s leading buyers of natural rubber. Roughly 40% of the rubber used in tire manufacturing is natural and 60% is synthetic. The production of natural rubber is geographically concentrated, with around 90% of the global output coming from Asia. As a global commodity, natural rubber is subject to extreme pricing variations. Due to growing global demand, the rubber industry may be associated with the deforestation of primary tropical forests, an important climate change driver. Conscious of its footprint and its responsibility to address it, Michelin has committed to source exclusively from plantations that respect “zero deforestation” principles as per its Sustainable Natural Rubber Policy published in 2016, including from the sustainable rubber plantations currently being set up in Indonesia under the joint venture between Michelin the Barito Pacific Group. The purchase of sustainable natural rubber is an opportunity to strengthen CSR practices within the industry and to mitigate impacts on natural environments. Michelin is one of the founding members of the GPSNR (Global Platform for Sustainable Natural Rubber) launched in 2018, to lead improvements in the environmental and socio-economic performance of the natural rubber suppliers.

Time horizon
Short-term

Likelihood
About as likely as not

Magnitude of impact
Low

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

Potential financial impact figure (currency)
79000000

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

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

In the supply chain, the joint-venture project in Indonesia ultimately aims to create 16,000 direct or indirect long-term stable local jobs (see management method). All the actions taken to make Michelin's natural rubber supply sustainable add to the Group's brand value that was estimated at US$7.9 billion in 2018. If these actions add 1% to this value, this could represent a potential financial impact of US$79 million.

**Strategy to realize opportunity**

Michelin published its first Sustainable Natural Rubber Policy in 2016, based on the respect for people, protection of the environment, the prudent use of natural resources, improvement of farming practices and transparent governance. The sector is dominated by smallholders with plantations of less than 5 hectares, making the value chain complex. Michelin assesses the CSR performance of its direct natural rubber suppliers via the EcoVadis rating platform. Michelin also works with suppliers and NGOs to map out its complex value chain using CSR questionnaires adapted to farmers, intermediaries and factories. The Group aims to achieve this mapping for at least 80% of purchased volumes by 2020. In 2015 Michelin entered into a joint-venture with the Barito Pacific Group to produce sustainable natural rubber in Indonesia. This cooperation involves 3 concessions totalling 88,000 ha in the provinces of Sumatra and Borneo, which have been devastated by deforestation. 31,000 ha of HEV forest will be preserved and the richest hot spots will be protected. 34,000 ha will be planted with rubber trees, (in 2018, 18,500ha have been planted). 23,000 ha will be planted with subsistence crops. This JV will enable Michelin to source ~5% of its natural rubber needs. Michelin has a partnership with WWF to implement this strategy. The cost to realize opportunity corresponds to Michelin's 47% stake in the JV with Barito Pacific Group that was valued at $US 55 million.

**Cost to realize opportunity**

55000000

**Comment**

**Identifier**

Opp4

**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**

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

**Company-specific description**

Michelin stands ready to meet changing customer demand for different tire performances able to respond to changing and new weather conditions (e.g., with winter tires and all-season tires). Climate change might alter consumer demand for tires: in the US, Michelin is already responding to customers demand for all-season tires to avoid having to switch from winter tires to summer tires and vice versa. With the introduction of CrossClimate range in Europe in 2015, that combines excellent performance in winter with excellent performance in summer, Michelin has launched a major extension of this approach: All Season market have grown since then in Europe by 25% per year (vs market average growth around 2%). In this new market, Michelin has taken a leader role and will continue in the future, in particular by aiming at homologating with European OEMs this all season range.

**Time horizon**

Short-term

**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)**

1020000000

**Potential financial impact figure – minimum (currency)**

<Not Applicable>

**Potential financial impact figure – maximum (currency)**

CDP
**Explanation of financial impact figure**
The global tire market was estimated at US$ 170 billion in 2017, with light-vehicle tires accounting for 60% for a total market segment worth US$102 billion. Michelin’s market share was 14% in 2017; an increase in market share of just 1% could represent an increase in earnings of US$ 1.02 billion. This is without considering increased demand for tires; over the period 2017-2023. Michelin anticipates an annual segment growth of 2.5%. Over the long term, Michelin expects demand for tires to grow by 1-2% a year in mature markets and by 5-10% a year in the new markets. Note: these financial estimates have been officially published in US$ in the 2018 annual report. Converting them here to euros would not provide a meaningful value given the exchange rate fluctuations.

**Strategy to realize opportunity**
Michelin invests in research and innovation to retain the technological leadership required to meet changing customer demands. The innovation strategy is driven by the Corporate Innovation Board which supervises a process involving: 1/ R&D teams and their adoption of new technologies, collaboration with external research centers and cooperation with advanced marketing teams specialized by product lines; 2/marketing teams to adapt products or service concepts to customers’ needs & get them quickly to market, while meeting the highest quality. Michelin launched two new products over the last 3 years: 1/the all-season Premier A/S tire for the North American market designed for safe braking under varied temperatures and prolonged wet grip traction to handle onset of rain; 2/the CrossClimate tire, the first summer tire in the world with a winter certification, providing enhanced mobility for motorists in daily changing conditions. A CrossClimate+ with longer lasting performances was launched in 2016. All these products are designed to perform optimally in extreme temperatures from -30°C to +40°C and rely on Michelin EverGrip, a combination of material and sculpture technology. This opportunity has been confirmed by the market response and an industry award: annual sales for the tire line exceeded forecasts. The cost to realize opportunity in 2018 corresponds to R&D expenses that stood at €648 million. 6,000 employees were devoted to furthering the Group’s innovation commitment.

**Cost to realize opportunity**
648000000

**Comment**

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Opp5</th>
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**Where in the value chain does the opportunity occur?**
Customer

**Opportunity type**
Products and services

**Primary climate-related opportunity driver**
Development of new products or services through R&D and innovation

**Type of financial impact**
Increased revenue through new solutions to adaptation needs (e.g., insurance risk transfer products and services)

**Company-specific description**
In every market, climate issues and societal expectations (e.g., COP21) are forcing people to seek alternatives for their personal mobility. Consumer aspirations are converging on the importance of vehicles that are safe, with a low total cost of ownership and a small environmental footprint. Thus, fuel-efficient, durable and safe tires are important. With its technical leadership in total performance of tires, Michelin stands to benefit from its business to consumers, both directly and via original equipment manufacturers. Meeting the challenges of sustainable mobility require continuous improvement in the energy efficiency of all vehicles, whatever the power train. Rolling resistance accounts for 20% of fuel use in a passenger car and 30% in a truck. For electric vehicles, the impact of tires can exceed 30% of total energy consumption. Michelin’s research leadership in reducing rolling resistance and tire mass without sacrificing safety offers many opportunities for growth and differentiation.

**Time horizon**
Short-term

**Likelihood**
More likely than not

**Magnitude of impact**
Medium

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

**Potential financial impact figure (currency)**
The global tire market was estimated at US$ 170 billion in 2017, with light-vehicle tires accounting for 60% for a total market segment worth US$102 billion. Michelin’s market share was 14% in 2017; an increase in market share of just 1% could represent an increase in earnings of US$ 1.02 billion. This is without considering increased demand for tires; over the period 2017-2023. Michelin anticipates an annual segment growth of 2.5%. Over the long term, Michelin expects demand for tires to grow by 1-2% a year in mature markets and by 5-10% a year in the new markets. Note: these financial estimates have been officially published in US$ in the 2018 annual report. Converting them here to euros would not provide a meaningful value given the exchange rate fluctuations.

Strategy to realize opportunity
Sustainable mobility requires vehicles to move towards cleaner propulsion. OEMs have to consistently improve the CO2 emissions of their new cars. Michelin has been a leader providing them low rolling resistance (RR) tires. Michelin aims to continue improving the energy efficiency of its offers. The goal of reducing the average RR of the tyres by 12% between 2010-2020 (20% by 2030) is on its way to be achieved. This is achieved while keeping the best possible balance of performance on wear and grip to provide the best cost of ownership improving the longevity. R&D teams are currently working on specific projects that push their RR to improve up to 30% in the coming 5 to 10 years. Michelin has adapted its tire offers for the electric vehicle market with MICHELIN ENERGY™ E-V (Electric Vehicle) tire being the first step in a joint R&D program with Renault Zoe (improvement the vehicle’s general autonomy while providing excellent grip, longevity, silence and comfort). New E-V tire lines are being defined in the 2021 and above Product Plan. Michelin has also initiated collaboration programs with other EV car makers (Tesla and Xiaopeng). Convinced that hydrogen is an optimized solution to reduce environmental footprint, Michelin develops partrtnerships with major players of this market. The cost to realize opportunity in 2018 correspond to R&D expenses that stood at €648 million. 6,000 employees were devoted to furthering the Group’s innovation commitment.

Cost to realize opportunity
648000000

Comment

Identifier
Opp6

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
Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

Company-specific description
Business to Business – Road transportation accounts for over 70% of total transport-related emissions worldwide. Consequently, the road transportation industry as a whole has to respond to the challenge of maintaining mobility while decreasing GHG emissions. The influence of tires (i.e., rolling resistance) can account for over 30% of total energy consumption of a truck. Michelin’s research leadership in reducing rolling resistance and tire mass without sacrificing safety is captured by the Group’s “materials-efficiency index”, which ensures that tire performance is steadily increased while using fewer materials. Optimizing tire rolling resistance is a key lever for original equipment manufacturers (OEMs) and truck fleets to reduce their environmental footprints; it is also an extremely attractive means to improve overall truck energy efficiency in terms of cost, time to market, and technical accessibility. The Michelin group develops a wide range of services to help fleets and OEMs to optimize their operations, in tire and asset management (e.g., number of trailers).

Time horizon
Short-term

Likelihood
Very 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)
510000000

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 estimated at US$170 billion in 2017, with truck tires accounting for 30% for a total market segment worth US$51 billion. Michelin's market share was 14% in 2017; an increase in market share of just 1% could represent an increase in earnings of US$510 million. This is without considering increased demand for tires; over the period 2017-2023 Michelin anticipates an annual segment growth of 1.5%. Over the long term, Michelin expects demand for tires to grow by 1-2% a year in mature markets and by 5-10% a year in the new markets. Note: these financial estimates have been officially published in US$ in the 2018 annual report. Converting them here to euros would not provide a meaningful value given the exchange rate fluctuations.

Strategy to realize opportunity
Innovations known as MICHELIN Durable Technologies deliver a significant improvement in fuel efficiency. MICHELIN X® LINE™ ENERGY™ tires for large-volume trucks are the first set of big rig tires rated A in energy efficiency under EU tire-labeling rules. Retreading and regrooving increases the lifespan of a tire by 2.5 times. A non-retreadable tires vs. a retreaded one, allows 70% material savings, 19% water saving and 21% less air pollution than producing a new tire. Lower rolling resistance enables 24% less CO2 emissions. Michelin launched the XMulti Energy range in Europe to offer a solution of CO2 reduction in haulage operations. This range supports OEMs challenge with the new VECTO regulation. In USA, the Michelin X Line Energy D+ tire has been developed for Daimler’s Cascadia Class 8 heavy-duty truck and participate to the 5% CO2 reduction of the vehicle. In China Michelin supports the eBus developing a specific tyre for electric bus offering a better TCO. Services for fleet operators: MyBestRoute, MyRoadChallenge, MyInspection and MyTraining. These products aim to reduce costs, improve efficiency and reduce CO2 emissions. A Michelin value toolkit was developped offering integrated tire management, with the supply of the best low-rolling resistance tires (EFFITIRES™). EFFITRAILER™ optimizing the semi-trailer management (reducing the number of empty run km and truck downtime). The cost to realize opportunity in 2018 corresponds to R&D expenses.

Cost to realize opportunity
648000000

Comment
The source for the retreading information can be found in the EY report “The socio-economic impact of truck tire retreading in Europe,” October 2016.
(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

<table>
<thead>
<tr>
<th>Impact</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products and services</td>
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</tr>
<tr>
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<tr>
<td>Adaptation and mitigation activities</td>
<td>Impacted for some suppliers, facilities, or product lines</td>
</tr>
<tr>
<td>Investment in R&amp;D</td>
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</tr>
<tr>
<td>Operations</td>
<td>Impacted for some suppliers, facilities, or product lines</td>
</tr>
<tr>
<td>Other, please specify</td>
<td>Not evaluated</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Relevance</th>
<th>Description</th>
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<tbody>
<tr>
<td>Revenues</td>
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<tr>
<td>Operating costs</td>
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<tr>
<td>Capital expenditures / capital allocation</td>
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<tr>
<td>Acquisitions and divestments</td>
<td>Impacted</td>
</tr>
<tr>
<td>Access to capital</td>
<td>Impacted</td>
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<tr>
<td>Assets</td>
<td>Impacted for some suppliers, facilities, or product lines</td>
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<tr>
<td>Liabilities</td>
<td>Not impacted</td>
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<tr>
<td>Other</td>
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</tr>
</tbody>
</table>

C3. Business Strategy

(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, quantitative

C3.1c
Michelin's past explains clearly why its current objectives and strategy have been influenced climate-related issues. Michelin has historically been addressing climate-related issues through its two major innovations of the 20th century: the radial tire and the "green tire". The radial tire has a lower rolling resistance than the traditional bias ply tires, thus increasing the energy efficiency of the vehicle and reducing CO2 emissions. Michelin was the first major tire manufacturer to design, develop, patent, and commercialize the radial tire. The green tire, invented by Michelin in 1992 with the introduction of silica into rubber mixes, brought a breakthrough in achieving lower rolling resistance of tires and thus higher energy efficiency of the vehicle, while maintaining or improving safety, longevity and other key performance characteristics. Furthermore, Michelin has been a pioneer in the circular economy (e.g., retreading tires) and the functional economy (e.g., selling tires as a service), and has been at the forefront advocating sustainability of the transport sector through the Challenge Bibendum event created in 1998 and transformed in 2017 to become Movin’On, unique international summit on sustainable mobility. Against this historical backdrop, current business strategy has been influenced by climate-related issues in the following ways:

1) Operations – internal awareness, regulatory changes & rising energy costs have changed both how Michelin uses and sources energy to produce tires with energy efficiency programs and renewable energy procurement; 2) Products, solutions & services – continued development of long-lasting, energy-efficient tires and innovative offers for fleets to improve fuel efficiency; 3) New markets – exploration of new business areas to address the need for zero- and low-carbon mobility (e.g., hydrogen fuel cells); 4) Decarbonized transport – Michelin plays a leading role to drive decarbonization in the transport sector as a cofounder of the Paris Process for Mobility and Climate (PPMC), designated by the UNFCCC to promote dialogue and coordinated action, and as organizer of Movin’On bringing diverse public and private actors together to innovate, collaborate and demonstrate on low- and zero-carbon mobility.

Michelin’s short-, medium- and long-term business strategy is linked to short-, medium- and long-term objectives and targets: 1) Short-term targets: Michelin’s externally published 2020 ambitions and internal KPIs, followed by the Environment and Sustainable Mobility Governance bodies, include sustainability ambitions which serve as inputs to the annual 5-year strategic planning process and include several targets for reducing CO2 emissions (all with a 2010 baseline): a/ improving tire fuel efficiency to reduce CO2 emissions by more than 8 million tons; b/ improving energy efficiency in manufacturing operations by 25%; and c/ achieving a 10% reduction in CO2 emissions of downstream logistics operations. 2) Short-term objective: Double revenues from mobility services and solutions, including offers that improve fleet fuel efficiency, from 2015 to 2020; 3) Medium-term target: In 2015 Michelin publicly committed to reducing CO2 emissions associated with tire performance by 20% between 2010 and 2030; this ambition will guide medium-term research and development programs as it gets formalized in a Science Based Target. 3) Long-term: In 2015 Michelin publicly committed to a 50% reduction in manufacturing-related CO2 emissions by 2050; this target is driving technical and cost feasibility studies and will inform future investments once it is formalized as a Science Based Target.

In line with strategy, objectives and targets, the most substantial strategic decisions in 2018 were: 1) Environment Governance approved the goal of eliminating coal as energy source for its manufacturing sites by 2030. Feasibility studies aiming to replace coal by natural gas, biomass or other primary energy source have been conducted at four of the five plants that use coal. The Olstzyn facility is currently taking the first step towards phasing out coal by installing a new gas boiler, which is expected to supply nearly 20% of its heating needs as from 2020. 2) Environment Governance decided also to buy electricity guaranteed from renewable sources for an additional cost of 427,000€. The purchases represented nearly 1,590,000 MWh or 34% of all the power used by the Group in Europe. Without these purchases, which avoided the emission of 385,000 tonnes of CO2, the Group’s carbon emissions would have been 11% higher in 2018. 3) Michelin signed a commitment letter with the Science Based Targets initiative, agreeing to define shorter-term reduction targets for Scopes 1, 2 and 3. The commitment is designed to ensure that the 2030 and 2050 objectives of the Group on carbon emissions reduction are consistent with the below 2°C global warming scenario. 4) At Movin’On 2018, Michelin announced its ambitious plan to ensure that in 30 years time, all of its tires will be manufactured using 80 percent sustainable materials and 100 percent of all tires will be recycled. This ambitious sustainable material target will be achieved by research programs into bio-sourced materials like Biobutterfly and working with Michelin’s high-level partners. Michelin is also developing innovative solutions in order to integrate more recycled and renewable materials in its tires. This is demonstrated by the recent acquisition of Lehigh Technologies, specialized in designing and producing innovative materials with a lower carbon footprint by recycling end-of-life tires and other rubber-based industrial products. 5) Backed by Michelin and Engie, France’s Auvergne-Rhône-Alpes region has decided to launch the highly ambitious Zero Emission Valley project, which will simultaneously step up the deployment of 1,000 zero-emission, fuel-cell powered vehicles and the construction of 20 hydrogen stations across the region, to drive the faster development of the hydrogen mobility market. As part of the project, Michelin has invested in the Hymulsion SAS start-up, which plans to deploy 20 hydrogen filling stations over the next three years, including 14 capable of producing hydrogen by water electrolysis. 6) Michelin is a founding members of the Transport Decarbonisation Alliance (TDA) launched at the 2018 International Transport Forum (ITF) in Leipzig. TDA was announced as part of the commitments of the One Planet Summit in Paris in 2017. This alliance represents a unique coalition of the “3Cs” (Countries, Cities/Regions and Companies) that are spearheading the systemic transformation of mobility into a “net zero emissions” system before 2050, ahead of the Paris Agreement timetable. 7) Michelin joined the Steering Committee of the World Bank’s ambitious SuM4All initiative, which advocates a comprehensive vision of sustainable mobility that is at once carbon-free, safe, effective and accessible to all.
C3.1d

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

<table>
<thead>
<tr>
<th>Climate-related scenarios</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCP 2.6</td>
<td>In 2016 Michelin conducted a scoping study as part of preparations for making a commitment to the Science Based Targets initiative (commitment made in May 2018) under assumption that the SBT target would be Michelin’s 2050 ambition to reduce scope 1 and 2 emissions of manufacturing operations by 50% in absolute value by 2050 compared to a 2010 base-year. The 2050 time horizon is appropriate for planning a complete retooling of manufacturing operations required to achieve major CO2 reductions. After modelling this target against different 2°C scenarios, it was assessed that this percentage reduction is aligned to the low-end reduction of the IPCCs range in its 5th Assessment Report (linear decarbonization equivalent to a -49% reduction from 2010 to 2050) but under the RCP 2.6/Global scenario (equivalent to a -66% reduction from 2010 to 2050). Because a reduction of 50% in absolute value from 2010 to 2050 has major implications for retooling all manufacturing plants and developing a renewable energy purchasing strategy, it was decided based on the scenario analysis described above to conduct technical and cost feasibility studies of the key opportunities for improving energy efficiency and reducing the Group’s overall CO2 emissions coefficient. These studies are currently in progress. The SBT scenarios will be refined in the next year towards submitting Michelin’s proposed targets. Separately, for Scope 3 SBT targets, Michelin is using the International Energy Agency (IEA) Mobility Model 2DS and has provided technical information to IEA in 2017-early 2018 on the tire’s contribution to vehicle energy efficiency in order for the model to be refined. In parallel, Michelin is working with WWF France, through an overall partnership, to finalize the “Auto Parts” SBTi tool that was partially developed by WWF as part of the work group that produced the “Transport Science-Based Target Setting Guidance” in 2018. Since the main CO2 reduction opportunities are now well known, Michelin was able to submit its proposed target to the SBTi. The target is currently in the review and validation process.</td>
</tr>
</tbody>
</table>

IEA B2DS | Separately, for Scope 3 SBT targets, Michelin is using the International Energy Agency (IEA) Mobility Model B2DS and, as a Mobility Model partner, has provided technical information to IEA in 2018 on the tire’s contribution to vehicle energy efficiency in order for the model to be refined. In parallel, Michelin is working with WWF France, through an overall partnership, to finalize the “Auto Parts” SBTi tool that was partially developed by WWF as part of the work group that produced the “Transport Science-Based Target Setting Guidance” in 2018. |

Other, please specify (Qualitative mobility scenarios) | In 2018 Michelin’s strategic anticipation department developed 3 qualitative scenarios that incorporate varying degrees of global temperature increases, economic and socio-political conditions and major societal trends projected to 2035. Each scenario has a narrative that includes both desirable and undesirable elements. The scenarios are used to help business and operational units’ strategic thinking around complexity and paradox, to develop a shared understanding of the main terms and concepts in the scenarios, and to facilitate the integration of climate change and energy transition impacts into strategic plans. |

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.

<table>
<thead>
<tr>
<th>Target reference number</th>
<th>Abs 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope</td>
<td>Scope 1 +2 (market-based)</td>
</tr>
<tr>
<td>% emissions in Scope</td>
<td>100</td>
</tr>
</tbody>
</table>
Targeted % reduction from base year
15

Base year
2010

Start year
2016

Base year emissions covered by target (metric tons CO2e)
4067000

Target year
2020

Is this a science-based target?
No, but we are reporting another target that is science-based

% of target achieved
100

Target status
Achieved

Please explain
The trend is line with a 2-degree trajectory. Yet, our Science Based Targets, submitted to SBTi, are towards 2030 and 2050, not 2020. 1/ Explanation regarding 2020 objective set in 2016: Michelin’s objective by 2020 is to lower CO2 emissions per metric ton of finished product by 32 percent compared with 2010. If production growth is 25 percent over the same period, then CO2 emissions will be reduced by 15 percent over the period. The actual % complete is 175% (100% was entered as the ORS system does not accept a higher value). The target is -15%, and the 2018 result is -26%, which is partly explained by the fact that the we anticipated our renewable electricity purchases necessary to reach the 2020 target, and partly because production growth has been lower than expected. Yet, if Michelin’s production growth prediction for 2020 is met, which is still highly likely through on-going external acquisitions, the resulting reduction will be around -15%. This is why the target status is “underway” through 2020 when the final result will be known. Intermediate results cannot be considered as achieved because of the increase in production awaited from new acquisition. 2/ On-going recalculation of base year emissions for SBT submission: As described in our 2015 registration document (p 178), the same emission factor was used until 2014 for all of the sites purchasing steam, regardless of the primary energy or technology used by the vendor. As of 2015, in order to more accurately depict foreseeable developments in energy sourcing, we decided to use three emissions factors, one for each primary energy used (coal, fuel oil and gas), including reasonable energy efficiency and loss assumptions. Now, we are preparing our submission to Science Based Targets Initiative and, in this framework, we recalculated our 2010 (base year) emissions with the new emission factors (EF) applied to steam purchases: with the new EFs, our 2010 emissions would have been 3,850,000 tonnes instead of 4,067,000. For simplicity reasons in our internal communication and target setting, our short term, non-submitted to SBTi 2020 target set is still based on our historical 2010 emission value (4,067,000 tonnes) However, the recalculated 2010 base-year emissions (3,850,000 tonnes) will be the base for our SBTi submission (2030 and 2050 targets).

Target reference number
Abs 2

Scope
Scope 1 +2 (market-based)

% emissions in Scope
96

Targeted % reduction from base year
27

Base year
2010

Start year
2018

Base year emissions covered by target (metric tons CO2e)
3877273

Target year
2030
**Is this a science-based target?**
Yes, we consider this a science-based target, but this target has not been approved as science-based by the Science-Based Targets initiative

**% of target achieved**
81

**Target status**
New

**Please explain**
Michelin has a long-term ambition to halve its Scope 1 & 2 emissions between 2010 and 2050. Intermediary targets are being prepared to guide this process. Note: Michelin is in the process of having its science-based targets (SBT) formally approved by the SBT Initiative. Michelin is covering all 3 scopes since scope 3 emissions are greater than 40% of the total. On scopes 1 and 2, reducing emissions from 2010 base year will necessitate reducing annual emissions to 2830410 metric tons while absorbing our organic growth. To date Michelin is on track to meet this scope 1 and 2 ambition by 2030. Recalculation of base year emissions for SBTi submission: As described in our 2015 registration document (p 178), the same emission factor was used until 2014 for all of the sites purchasing steam, regardless of the primary energy or technology used by the vendor. As of 2015, in order to more accurately depict foreseeable developments in energy sourcing, we decided to use three emissions factors, one for each primary energy used (coal, fuel oil and gas), including reasonable energy efficiency and loss assumptions. When we were preparing our submission to SBTi and, in this framework, we recalculated our 2010 (base year) emissions with the new emission factors (EF) applied to steam purchases: with the new EFs, our 2010 emissions would have been 3,850,000 tonnes instead of 4,067,000. For simplicity reasons in our internal communication and target setting, our short term, non-submitted to SBTi 2020 target set is still based on our historical 2010 emission value (4,067,000 tonnes). However, the recalculated 2010 base-year emissions (3,850,000 tonnes) is the basis for our SBTi submission (2030 and 2050 targets).

**Target reference number**
Abs 3

**Scope**
Scope 1 +2 (market-based)

**% emissions in Scope**
96

**Targeted % reduction from base year**
50

**Base year**
2010

**Start year**
2015

**Base year emissions covered by target (metric tons CO2e)**
3877273

**Target year**
2050

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

**% of target achieved**
44

**Target status**
Revised

**Please explain**
Michelin has a long-term ambition to halve its Scope 1 & 2 emissions between 2010 and 2050. Intermediary targets are being prepared to guide this process. Note: Michelin is in the process of having its science-based targets (SBT) formally approved by the SBT Initiative. Michelin is covering all 3 scopes since scope 3 emissions are greater than 40% of the total. On scopes 1 and 2, halving emissions from 2010 base year will necessitate reducing annual emissions to 1 939 000 metric tons. To date Michelin is on track to meet this scope 1 and 2 ambition by 2050. Recalculation of base year emissions for SBT submission: As described in our 2015 registration document (p 178), the same emission factor was used until 2014 for all of the sites purchasing steam, regardless of the primary energy or technology used by the vendor. As of 2015, in order to more accurately depict foreseeable developments...
in energy sourcing, we decided to use three emissions factors, one for each primary energy used (coal, fuel oil and gas), including reasonable energy efficiency and loss assumptions. Now, we are preparing our submission to Science Based Targets Initiative and, in this framework, we recalculated our 2010 (base year) emissions with the new emission factors (EF) applied to steam purchases: with the new EFs, our 2010 emissions would have been 3 850 000 tonnes instead of 4 067 000. For simplicity reasons in our internal communication and target setting, our short term, non-submitted to SBTi 2020 target set is still based on our historical 2010 emission value (4 067 000 tonnes) However, the recalculated 2010 base-year emissions (3 850 000 tonnes) will be the base for our SBTi submission (2030 and 2050 targets).

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
Scope 1 +2 (market-based)

% emissions in Scope
100

Targeted % reduction from base year
0

Metric
Metric tons CO2e per metric ton of product

Base year
2017

Start year
2017

Normalized base year emissions covered by target (metric tons CO2e)
0.89

Target year
2018

Is this a science-based target?
No, but we are reporting another target that is science-based

% of target achieved
100

Target status
Achieved

Please explain
2018 target published in the 2017 Registration Document (annual report). This target is a year-on-year target. The target set was a stabilisation at previous year level, but we actually achieved a decrease of 1.4 percent 100 percent has been entered as the "% achieved" as the ORS system does not accept a higher value.

% change anticipated in absolute Scope 1+2 emissions
-1.29

% change anticipated in absolute Scope 3 emissions
0

Target reference number
Int 2

Scope
Scope 1 +2 (market-based)

% emissions in Scope
Targeted % reduction from base year
32

Metric
Metric tons CO2e per metric ton of product

Base year
2010

Start year
2016

Normalized base year emissions covered by target (metric tons CO2e)
1.28

Target year
2020

Is this a science-based target?
No, but we are reporting another target that is science-based

% of target achieved
99

Target status
Underway

Please explain
This target is not published. It is an internal target consistent with the Michelin Environmental Footprint target of -50 % between 2010 and 2020, published in the 2015 Registration Document (annual report). The 99% completion stated here relates to Michelin's reported reduction in CO2 emissions intensity from 1.28 to 0.875 metric tons per metric ton of tire produced between 2010 and 2018, compared with the target of 0.87 metric tons per metric ton of tire produced (32% reduction) by 2020. Michelin’s objective is to lower the CO2 emissions per metric ton of finished product by 32 percent in 2020 compared with 2010. If the growth in tire production is 25 percent over the same period, which is still highly likely through on-going external acquisitions, then CO2 emissions will be reduced by 15 percent over the period.

% change anticipated in absolute Scope 1+2 emissions
-15

% change anticipated in absolute Scope 3 emissions
0

Target reference number
Int 3

Scope
Scope 3: Use of sold products

% emissions in Scope
86

Targeted % reduction from base year
8

Metric
Grams CO2e per kilometer*

Base year
2010

Start year
2013

Normalized base year emissions covered by target (metric tons CO2e)
50

Target year
2020
Is this a science-based target?
No, but we are reporting another target that is science-based

% of target achieved
100

Target status
Achieved

Please explain
The key to reducing vehicular CO2 emissions is to improve the energy efficiency of tires. 1 out of 5 fuel tanks for a passenger car and 1 out of 3 for a truck are required to overcome the phenomenon referred to as “rolling resistance”. This target covers Michelin's product plan for passenger/light vehicle and truck tires. In 2010, vehicles equipped with Michelin tires generate on average 50g CO2/km, to compensate for rolling resistance of their tires. Michelin is committed to reducing rolling resistance of its tires by 8.5% on average by 2020 compared to 2010. So, in 2020, vehicles equipped with Michelin tires will generate 8 Mt of CO2 less than compared to 2010, which corresponds to a reduction of 8% of the gCO2 emitted per km on average. Note about SBT: while there is a method for the transport sector has a whole, it cannot be applied to auto parts suppliers without taking into account the different actors in the auto sector. A work group was run by WWF from 2017 to 2018 to develop more refined decarbonization pathways for the road transport sector. Michelin was a participating member of this work group and continues to work with WWF and the International Energy Agency to finalize an appropriate tool for auto equipment manufacturers like Michelin to set SBT targets. In 2018, Michelin has exceeded its target in rolling resistance reduction: that is to say a reduction of around 8.4 MtCO2, compared to 2010.

% change anticipated in absolute Scope 1+2 emissions
0

% change anticipated in absolute Scope 3 emissions
-8.7

---

C4.2

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

Target
Renewable electricity consumption

KPI – Metric numerator
% renewable energy

KPI – Metric denominator (intensity targets only)

Base year
2010

Start year
2016

Target year
2020

KPI in baseline year
0.2

KPI in target year
34

% achieved in reporting year
100

Target Status
Underway

Please explain
This target has not been set as a target in itself, but as a means to reach the 2020 CO2 target of -32 % per ton of finished product by 2020 (vs 2010). It could be readjusted in the next years depending on how far we stand from the CO2 target. In 2018, the share of renewable electricity in our electricity consumption amounted to 34%, 100 percent has been entered as the “% achieved” as the
ORS system does not accept a higher value.

**Part of emissions target**
The target covers all our industrial and research activities in scopes 1 and 2. It is part of our 2050 target to halve our CO2 emission vs 2010 (in absolute values).

**Is this target part of an overarching initiative?**
Other, please specify (It will be part of our future SBT.)

<table>
<thead>
<tr>
<th>Target</th>
<th>Land use</th>
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<tbody>
<tr>
<td><strong>KPI – Metric numerator</strong></td>
<td>Hectares reforested</td>
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<tr>
<td><strong>KPI – Metric denominator (intensity targets only)</strong></td>
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</tr>
<tr>
<td><strong>Base year</strong></td>
<td>2016</td>
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<tr>
<td><strong>Start year</strong></td>
<td>2016</td>
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<td><strong>Target year</strong></td>
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<td><strong>KPI in baseline year</strong></td>
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<tr>
<td><strong>KPI in target year</strong></td>
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<tr>
<td><strong>% achieved in reporting year</strong></td>
<td>54</td>
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<tr>
<td><strong>Target Status</strong></td>
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</tbody>
</table>

Please explain
This target involves the reforestation of a part of 3 concessions totalling 88,000 ha in the Indonesian provinces of Jambi (Sumatra) and North East Kalimantan (Borneo) that have been divested by uncontrolled deforestation. 34,000 ha will be planted with rubber trees.

**Part of emissions target**
Not part of emissions target

**Is this target part of an overarching initiative?**
Remove deforestation

<table>
<thead>
<tr>
<th>Target</th>
<th>Engagement with suppliers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KPI – Metric numerator</strong></td>
<td>% suppliers obtaining “confirmed” status through EcoVadis (&gt;45 score)</td>
</tr>
<tr>
<td><strong>KPI – Metric denominator (intensity targets only)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Base year</strong></td>
<td>2012</td>
</tr>
<tr>
<td><strong>Start year</strong></td>
<td>2013</td>
</tr>
<tr>
<td><strong>Target year</strong></td>
<td>2020</td>
</tr>
<tr>
<td><strong>KPI in baseline year</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>KPI in target year</strong></td>
<td></td>
</tr>
</tbody>
</table>
Since 2012, Michelin has evaluated the CSR performance of its key suppliers through EcoVadis. The Group assures a regular follow up of suppliers with which it works with through evaluations of their performance including CSR performance. The Group’s 2020 ambition in terms of sustainable development is to evaluate its main suppliers and accompany them so that at least 70% of them achieve the confirmed status of the Group’s standards. End of 2018 78% of the scored suppliers obtained the “confirmed” status (score \( \geq 45 \)).

**Part of emissions target**
Not part of emissions target

**Is this target part of an overarching initiative?**
No, it's not part of an overarching initiative

---

**Target**
Energy usage

**KPI – Metric numerator**
Gigajoules

**KPI – Metric denominator (intensity targets only)**
Metric tons of finished product

**Base year**
2010

**Start year**
2010

**Target year**
2020

**KPI in baseline year**
14.4

**KPI in target year**
10.8

**% achieved in reporting year**
65

**Target Status**
Underway

**Please explain**
This energy intensity target (-25% of specific consumption in 2020 compared with 2010) has been part of the Michelin Environmental Footprint since the beginning of this Groupwide indicator. In 2018, the indicator was at 12.06 GJ/ton of FP. In other words, the Group reduced its energy usage by 16.3% when compared to 2010 levels, thus avoiding the use of almost 4.2 million GJ.

**Part of emissions target**
Int1 & Int2

**Is this target part of an overarching initiative?**
Other, please specify (Michelin Environmental Footprint (MEF))
(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.

<table>
<thead>
<tr>
<th>Number of initiatives</th>
<th>Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under investigation</td>
<td>6</td>
</tr>
<tr>
<td>To be implemented*</td>
<td>7</td>
</tr>
<tr>
<td>Implementation commenced*</td>
<td>2</td>
</tr>
<tr>
<td>Implemented*</td>
<td>252</td>
</tr>
<tr>
<td>Not to be implemented</td>
<td>1</td>
</tr>
</tbody>
</table>

C4.3b

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

<table>
<thead>
<tr>
<th>Initiative type</th>
<th>Description of initiative</th>
<th>Estimated annual CO2e savings (metric tonnes CO2e)</th>
<th>Scope</th>
<th>Voluntary/Mandatory</th>
<th>Annual monetary savings (unit currency – as specified in C0.4)</th>
<th>Investment required (unit currency – as specified in C0.4)</th>
<th>Payback period</th>
<th>Estimated lifetime of the initiative</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy efficiency: Processes</td>
<td>Process optimization</td>
<td>0</td>
<td>Scope 2 (market-based)</td>
<td>Voluntary</td>
<td>0</td>
<td>0</td>
<td>&lt;1 year</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td>Process emissions reductions</td>
<td>CDP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Changes in operations

**Estimated annual CO2e savings (metric tonnes CO2e)**

12904

**Scope**

Scope 1

**Voluntary/Mandatory**

Voluntary

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

0

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

13400000

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

3-5 years

**Comment**

This initiative covers multiple Scopes (Scope 1 & Scope 2 (market based)) and split the emission savings doesn't make sense but the system doesn't allow us to choose both scopes. The deployment of basic best practices is still ongoing, e.g., pipe isolation, air leakage suppression, variable speed drivers, steam trap control, air compressor efficiency. As a whole, 13.4 M€ were invested, among which 1.4M€ on LED Lighting and 0.4M€ in energy digitalization programs.

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Initiative type</th>
<th>Description of initiative</th>
<th>Estimated annual CO2e savings (metric tonnes CO2e)</th>
<th>Scope</th>
<th>Voluntary/Mandatory</th>
<th>Annual monetary savings (unit currency – as specified in C0.4)</th>
<th>Investment required (unit currency – as specified in C0.4)</th>
<th>Payback period</th>
<th>Estimated lifetime of the initiative</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat recovery</td>
<td>Energy efficiency: Processes</td>
<td>Heat recovery</td>
<td>1300</td>
<td>Scope 1</td>
<td>Voluntary</td>
<td>0</td>
<td>0</td>
<td>4 - 10 years</td>
<td>11-15 years</td>
<td>Heating Pump: in 2017 the first heat pump that recovers heat from cooling towers has been installed in Ladoux, France. In 2018, the same was done at the plant in Montceau-les-Mines, France: the new 1.7MWth heat Pump will cover more than 50% of building heating. A 3rd heat pump will be installed at another facility in September 2019.</td>
</tr>
<tr>
<td>Other, please specify (Electricity from renewable sources)</td>
<td>Low-carbon energy purchase</td>
<td>Other, please specify (Electricity from renewable sources)</td>
<td>385000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In 2018, the decision was made to buy electricity guaranteed from renewable sources for an additional cost of 427,000€. The purchases represented nearly 1,590,000 MWh or 34% of all the power used by the Group in Europe. Without these purchases, which avoided the emission of 385,000 tonnes of CO2, the Group’s carbon emissions would have been 11% higher in 2018. There is no monetary savings for this project, but an added cost of 427,000€.

In Nongkae, Thailand, photovoltaic panels with peak capacity of 0.88 MWp were installed on the parking lot shade roofs and began generating their first MWh in November. While relatively small, the project is the Group’s first solar farm whose power will be directly used on-site. On a full-year basis, it is expected to generate around 1,100 MWh a year. There is no-pay back for Michelin since the investment is made by a third party.
IMECA, the French subsidiary that designs and integrates special tire making machinery, has mounted photovoltaic panels on its plant grounds, which began generating their first kWh in December. The installation is expected to generate around 75 MWh a year, or 10% of the plant’s power needs, while avoiding the emission of five tonnes of CO2 a year. While relatively small, the project is the Group’s first PV installation in France whose power will be directly used on-site, and the second worldwide after the Nongkae unit, in Thailand. There is no-pay back for Michelin since the investment is made by a third party.

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

<table>
<thead>
<tr>
<th>Method</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedicated budget for energy efficiency</td>
<td>In 2018, the energy efficiency improvement program was supported by €13.4 million in capital expenditure.</td>
</tr>
<tr>
<td>Internal price on carbon</td>
<td>In 2015, the Group made the decision to introduce an internal CO2 price in its return on investment (ROI) analysis tools as a decision-making element. As of 2016, the price has been set at €50 per tonne of CO2.</td>
</tr>
<tr>
<td>Other (Engagement with energy project managers.)</td>
<td>Method: Engagement with energy project managers. On each energy-saving project, the impact of CO2 reductions on the Michelin Environmental Footprint (MEF) is highlighted.</td>
</tr>
<tr>
<td>Other (Energy portfolio oversight.)</td>
<td>Method: Energy portfolio oversight. The corporate Energy Expert Team, covering all industrial operations in its scope, oversees all projects involving energy transformation or major energy efficiency gains.</td>
</tr>
</tbody>
</table>

(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**
Group of products

**Description of product/Group of products**
Low rolling resistance truck, passenger car and light truck tires.

**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 (EU Tyre Labelling Regulation (EC/1222/2009))

**% revenue from low carbon product(s) in the reporting year**
44.5

**Comment**
Tires, mainly because of their rolling resistance, account for 20% to 30% of the fuel consumption of vehicles. A low rolling resistance of tires may therefore contribute significantly to the energy efficiency of road transport and thus to the reduction of CO2 emissions. Michelin considers as "Low-carbon products" the on-road tires from all Group's brands that have been categorized under rolling resistance classes A, B or C according to the European labelling legislation, as they contribute to the carbon emissions reduction of the vehicles. The % revenue represents the ratio between the value of 2018 worldwide sales of truck, passenger car and light truck tires segments, categorized as A, B, or C in rolling resistance according to the EU tire labeling regulation over the total value of 2018 sales of "Automotive and related distribution" and "Road transportation and related distribution" segments.

C5. Emissions methodology

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

Scope 1

Base year start
janvier 1 2010

Base year end
décembre 31 2010

Base year emissions (metric tons CO2e)
1832384

Comment

Scope 2 (location-based)

Base year start
janvier 1 2010

Base year end
décembre 31 2010

Base year emissions (metric tons CO2e)
2237051

Comment

Scope 2 (market-based)

Base year start
janvier 1 2010

Base year end
décembre 31 2010

Base year emissions (metric tons CO2e)
2234380

Comment

On-going recalculation of base year emissions for SBT submission: As described in our 2015 registration document (p 178), the same emission factor was used until 2014 for all of the sites purchasing steam, regardless of the primary energy or technology used by the vendor. As of 2015, in order to more accurately depict foreseeable developments in energy sourcing, we decided to use three emissions factors, one for each primary energy used (coal, fuel oil and gas), including reasonable energy efficiency and loss assumptions. When we were preparing our submission to SBTi and, in this framework, we recalculated our 2010 (base year) emissions with the new emission factors (EF) applied to steam purchases: with the new EFs, our 2010 emissions would have been 3,850,000 tonnes instead of 4,067,000. For simplicity reasons in our internal communication and target setting, our 2020 target set is still based on our historical 2010 emission value (4,067,000 tonnes) However, the recalculated 2010 base-year emissions (3,850,000 tonnes) will be the base for our SBTi submission (2030 and 2050 targets). The recalculated 3,850,000 tonnes will consist in 1,833,070 tonnes in scope 1 (unchanged) and 2,015,503 tonnes in market-based scope 2.

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.


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)
1491138

Start date
janvier 1 2018

End date
décembre 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
Until 2015, we reported that our scope 2 emission figure was location-based, which we now understand was mistaken: in 2016, we thoroughly studied the Guide "Accounting of scope 2 emissions. Technical notes for reporting to CDP Climate Change and Supply Chain in 2016” and consulted with a CDP recommended service provider. As a result we now understand that our scope emissions have always been calculated in line with the market-based approach.

C6.3

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

Reporting year

Scope 2, location-based
1899720

Scope 2, market-based (if applicable)
1511298

Start date
janvier 1 2018

End date
décembre 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.

<table>
<thead>
<tr>
<th>Source</th>
<th>Relevance of Scope 1 emissions from this source</th>
<th>Relevance of location-based Scope 2 emissions from this source</th>
<th>Relevance of market-based Scope 2 emissions from this source (if applicable)</th>
<th>Explain why this source is excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFC gases</td>
<td>Emissions are not relevant</td>
<td>No emissions from this source</td>
<td>No emissions from this source</td>
<td>HFC are excluded because the quantities emitted are not material compared with primary operations. In the framework of our proposed science-based targets, currently undergoing a formal review by the SBTi, we updated our estimate of all potential exclusions: together they represent 4.25%, or less than 5% which is the maximum allowed according to the Greenhouse Gas Protocol.</td>
</tr>
<tr>
<td>Michelin-controlled warehouses</td>
<td>Emissions are not relevant</td>
<td>Emissions are not relevant</td>
<td>Emissions are not relevant</td>
<td>Facilities excluded: Wholesale distribution Michelin-owned warehouses are excluded because they are not material against our primary operations and industrial sites (0.61%). In the framework of our proposed science-based targets, currently undergoing a formal review by the SBTi, we updated our estimate of all potential exclusions: together they represent 4.25%, or less than 5% which is the maximum allowed according to the Greenhouse Gas Protocol.</td>
</tr>
<tr>
<td>Michelin Air Service (France-based corporate airlines)</td>
<td>Emissions are not relevant</td>
<td>Emissions are not relevant</td>
<td>Emissions are not relevant</td>
<td>Operations: Michelin Air Service (0.22%) are excluded because they are not material against our primary operations. In the framework of our proposed science-based targets, currently undergoing a formal review by the SBTi, we updated our estimate of all potential exclusions: together they represent 4.25%, or less than 5% which is the maximum allowed according to the Greenhouse Gas Protocol.</td>
</tr>
<tr>
<td>Tire distribution centers (retail and wholesale)</td>
<td>Emissions are not relevant</td>
<td>Emissions are not relevant</td>
<td>Emissions are not relevant</td>
<td></td>
</tr>
</tbody>
</table>
Emissions are not relevant

**Explain why this source is excluded**

Operations excluded: Retail distribution (3 %) are excluded because they are not material against our primary operations. In the framework of our proposed science-based targets., currently undergoing a formal review by the SBTi, we updated our estimate of all potential exclusions: together they represent 4.25%, or less than 5% which is the maximum allowed according to the Greenhouse Gas Protocol.

---

**C6.5**

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

**Purchased goods and services**

**Evaluation status**

Relevant, calculated

**Metric tonnes CO2e**

8981740

**Emissions calculation methodology**

i. Data used: The primary data used are the total global raw materials, packaging and finished goods purchases, broken down into 70 purchasing families, for 2016. They represent a total of 2,605 lines of information. For each category, a GHG emission factor (secondary data) from a representative product is selected. Other types of products from Michelin: services, roadmaps, etc. were excluded from this category as their impacts are accounted for in the capital goods category. ii. Methodology: The mass purchased is multiplied by the selected emissions factor (EF) to obtain a screening assessment of the GHG emissions associated with each family. The database used is Ecoinvent v.3 Global Warming Potential used comes from IPCC 2013 GWP 100-year values. This allows for the identification of purchasing categories likely to be the main contributors to the impact. Some emissions factors are based on specific EF for Michelin raw material. For example Carbon black emissions factor are calculated based on Michelin's supplier data. Some significant changes to EF were made to 2016 data compared to 2015 data. The most significant change is to the "Silane" category. The LCA process of "Silane" was updated to reflect the product "Silicon" as this process is more representative of the product used by Michelin, though it is to be noted that is a lower value than the true EF. iii. Quality: The quality of the primary data used is considered high. All purchases were assessed with an emission factor. Simplifications of modelling remain highly reduced. The results quality is therefore also considered high. Calculation for year 2016, first year in a 3-year cycle.

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

20

**Explanation**
Capital goods

Emission status
Relevant, calculated

Metric tonnes CO2e
1093127

Emissions calculation methodology
i. Data used: The primary data used covers the purchases from fixed assets and supplies for 2016 in monetary terms, broken down into 222 categories, and various services. For most of the capital goods, a GHG emission factor was selected from an input-output database referenced below. Some categories in the data supplies were excluded because they are redundant with other scope 3 categories. ii. Methodology: Each sub-category or flow within the categories is associated with an economic sector from the environmentally-extended Input-Output Model Open IO v1.4. The model, originally developed in 2002, was adjusted for inflation, evolution of the purchasing power parity and of energy efficiency of the global economy for 2016. The amount spent in each sub-category is then multiplied by the sector unit GHG emission factor, except for the negative amounts which were considered as zero, and for some sub-categories already accounted in other categories. Note: An overall global emission factor was chosen for the unclassifiable services category ‘Other support services’. The amount spent was then multiplied by this unique emission factor. The amount of these services represents only 15% of the total category (in €). iii. Quality: The quality of the primary data used is high. However, due to the simplification involved in the modeling, especially for the services, the quality of the emissions data is considered as medium. In particular, several flows cannot be properly characterized with existing economic sector of the database, requiring proxies for the assessment. Calculation for year 2016, first year in a 3-year cycle.

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)

Emission status
Relevant, calculated

Metric tonnes CO2e
695501

Emissions calculation methodology
i. Data used: The primary data used are the types and quantities of fuels, electricity and heat purchased worldwide in 2016, under scopes 1 & 2. Aggregated values for all countries were gathered. ii. Methodology: The emissions were calculated by multiplying fuel quantities, electricity and heat purchased by upstream and energy loss Transport and Distribution GHG emission factors for the different countries. Emissions factors and total LCA emissions factors were found or calculated from IEA (2015) and DEFRA (2016). A location-based approach was chosen to compute energy. Scope 2 and Scope 3 are related to the country mix and not a residual mix. Renewable energy emissions are based on the different production technologies of renewable sources. iii. Quality: The quality of the primary data used is medium the quality of the emissions factors is high. The quality of the emissions data is considered as medium. Calculation for year 2016, first year in a 3-year cycle.

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

Explanation
As part of preparing the SBTi submittal made in June 2018, a minor error was detected and has been corrected here.
Upstream transportation and distribution

Evaluation status
Relevant, calculated

Metric tonnes CO2e
1146585

Emissions calculation methodology
i. Data used: The primary data used are the quantity of goods purchased provided for category 1 (purchased goods and services); their origin of sourcing and the destination country, as well as the transportation mode of transporting and distributing purchased goods. This represents a total of 2,605 lines of information to be analyzed. Michelin plant locations within each country have been taken into account to establish a distance table for each continent, with the estimated distances corresponding to each type of transport taken from www.searates.com and www.maps.google.com. Data still excludes warehouses (i.e. no intermediate temporary storage locations have been included; the method is strictly from site of origin to site of destination). ii. Methodology: Transportation distances have been rounded to represent generic geographical areas (i.e. by continent). For internal transportation (within a country), generic (specific to Michelin site addresses are not taken into account yet), realistic distances have been chosen. The impacts have been obtained by multiplying the amount of transported goods by the estimated distance, and the Emission Factor corresponding to the mode of transportation. The emission factors associated with each mode of transportation (secondary data) are taken from the ecoinvent v3 database and GWP from IPCC 2013 GWP 100-year. A distinction is made between full and partial load vehicles. iii. Quality: The quality of the primary data used is high and the quality of the secondary data is high, however, some extrapolations (coming from rounding transport distance to continent) produced data considered to be medium quality. On average, the quality of the results is considered medium to high. Calculation for year 2016, first year in a 3-year cycle.

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
427613

Emissions calculation methodology
i. Data used: The primary data used for this category are the amount of waste generated at production sites. The data used are from 2015 as 2016 data are not available. The total amount of waste was given but there was no detailed information provided on the different types of end-of-life disposal method or fate of materials. ii. Methodology: Each waste flow considered has a specific end-of-life recovery associated with an emission factor to assess the GHG emissions of the treatment (Ecoinvent v3, Base Carbone from ADEME). For tire waste, Aliapur LCA study Emission Factors were used (extracted from a 2009 Aliapur report and coefficient update). For the other types of waste, emission factors for the recovery processes were updated. For some of the waste recycled, considering the limited information available in LCA databases, proxies have been used to estimate the impacts. Transportation to end-of-life installations was excluded from the modeling. Facilities are amortized over several years, so the impacts are marginal at the scale of 1 ton of waste. Transportation of waste is assumed to be insignificant for the calculation of this category’s impacts. For some waste categories (i.e. Others, Mixed Waste, Hazardous waste) recycling Emission Factors are not available and disposal was considered to occur via incineration. Mixed waste and non-hazardous waste are considered to be general Municipal Solid Waste. For Ferrous, and Plastic materials, we consider material-specific recycling processes. For hazardous waste, only one recovery process was taken into account: incineration. Additional landfilled waste was included this year by using an inert waste EF. Global Warming Potential used comes from IPCC 2013 GWP 100-year values. iii. Quality: The quality of the primary data used is medium. It is consolidated into Group-level totals for just several main recovery outlets. No details are given about different types of recovery outlets used in the different countries where production sites are located. So due to the simplification involved in the modeling (i.e. the lack of qualitative data on the end-of-life treatment of the different waste streams, no geographical differentiation of waste treatment), the overall quality of the emission is estimated as medium. Calculation for year 2016, first year in a 3-year cycle.

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

Explanation
Business travel

Evaluation status
Relevant, calculated

Metric tonnes CO2e
78782

Emissions calculation methodology
i. Data used: The primary data were gathered for car rental from the service providers in Europe, and North America, and for train and air travel from Michelin’s corporate travel agency covering the full geographic scope of activities. ii. Methodology:- Car rentals: For short-term rentals a specific calculation from one car rental agency in Europe provided information, combined with extrapolation for the rest of the world based on the number of employees per country. For long-term car leasing, the total carbon emissions were reported by service providers in Europe, and North America. An extrapolation has been done for Brazil based on the 2015 emission number and the ratio of employee count between 2015 and 2016. The other geographic zones were handled by using a per employee emission factor. - Plane & Train: Michelin CO2 emissions for 2016 have been calculated worldwide by the corporate travel agency. Moreover, a detailed methodology was provided by the travel agency, in which a relatively high confidence of accuracy is assumed. iii. Quality: The overall quality of the emissions is estimated as medium considering the extrapolations required for short-term car rentals and some minor gaps in primary data for long-term rentals. Calculation for year 2016, first year in a 3-year cycle.

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

Explanation
As part of preparing the SBTi submittal made in June 2018, a data input error was detected and a correction made to the emissions figure reported here.

Employee commuting

Evaluation status
Relevant, calculated

Metric tonnes CO2e
185133

Emissions calculation methodology
i. Data used: The primary data used covers the total number of employees per country and region. They were aggregated by geographical regions where Michelin operates. Several different commuting scenarios were considered for areas where the number of employees was sufficiently high, while a default scenario was used for the remaining areas. It is assumed that these other commuting travels are made according to “outer suburban periphery” statistics. ii. Methodology: 2011 DEFRA Guidelines for Company GHG reporting were used for this category, especially for Emission Factors and an assumption regarding the use of personal vehicles by employees. Both Ecoinvent and Base Carbone from ADEME (French EPA) were also used. IPCC 2007 GWP 100-year emission factors were used. Eurostat and specific literature were used to compute the distribution of different modes of transport. iii. Quality: Due to the generalization of these calculations, the quality of reported emissions data is medium to high. Calculation for year 2016, first year in a 3-year cycle.

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
Michelin does not own upstream assets that are leased to other entities not included in Scope 1 or 2.
**Downstream transportation and distribution**

**Evaluation status**
Relevant, calculated

**Metric tonnes CO2e**
824032

**Emissions calculation methodology**

i. Data used and ii. Methodology: The methodology follows Michelin's internal Supply Chain reference document, which relies on service provider invoicing for primary data. Distance driven by clients to obtain the sold products was excluded. The tonnage reported here is based on the tonnage calculated for the year 2014, the most recent year for which such invoicing is available. We have chosen to report the 2014 figure, which was adjusted to take into account 2016 production volumes (Finished and semi-finished goods), rather than not report any figure at all, to enable a full view of Scope 3 emissions and avoid any gaps. iii. Quality: The overall quality of the emissions is estimated as low to medium considering that there are gaps in the primary data for maritime and air transport, and for several geographic zones. Calculation for year 2016, first year in a 3-year cycle.

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

**Explanation**

**Processing of sold products**

**Evaluation status**
Not relevant, explanation provided

**Metric tonnes CO2e**
<Not Applicable>

**Emissions calculation methodology**
<Not Applicable>

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

**Explanation**
No particular processing of sold intermediate products by third parties subsequent to sale is required.

**Use of sold products**

**Evaluation status**
Relevant, calculated

**Metric tonnes CO2e**
123500000

**Emissions calculation methodology**

i. Data used: Use of sold products is evaluated for passenger car/light truck and truck tires. Earthmover, aircraft, agricultural and two-wheel tires were not included, as they represent a minority of Michelin production and an even smaller proportion of kilometers traveled. Also excluded are products under the Michelin Lifestyle Ltd line; the calculation for 2015 showed that these products represent less than 0.01% of the total, and therefore deemed insignificant. For tire use, the primary data come from the IEA database "Mobility Model" or MoMo (published in 2017 with data updated through 2015) providing worldwide tank-to-wheel CO2 emissions for road transport and from the estimated 2016 Michelin market share in units of passenger car/light vehicle and truck tires, respectively. ii. Methodology: For tires:1/ 2016 scenario of carbon impact of tires is based on 2015 IEA worldwide market data, the most recent data available, and adjusted for 2016.2/ Fuel consumption (and by proxy CO2 emissions) associated with tire rolling resistance was determined as an average percentage for passenger car/ light vehicles (20% of vehicle fuel consumption) and for trucks (33% of vehicle fuel consumption), respectively.3/ The influence on CO2 emissions of different types vehicle engine technologies in use during 2016 was not taken into account, since the most updated MoMo data is from 2015.4/ Michelin’s share of passenger car/light vehicle and truck tires on the road in 2016 is based on estimated market share in units of tires. iii. Quality: The overall quality of the emissions is estimated as medium considering the data source (updated IEA Mobility Model), which represents a consistent approach to the carbon impacts of transport, and the application of average overall tire energy efficiency, rather than the actual energy efficiency of the many different tire lines put on the market during the year. Calculation for year 2016, first year in a 3-year cycle.

**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
3074453

Emissions calculation methodology
i. Data used: An aggregation of primary data from different End-of-Life (EoL) tire markets was provided by Michelin, including a general picture of ELT generated, with different volumes of material recovery, energy recovery, landfill in different countries. The GHG emission factors used are taken from an Aliapur study combined with Ecoinvent v3, using IPCC 2013, GWP100 (secondary data). Other end-of-life products (Michelin Travel Partner and Michelin Lifestyle Limited) were excluded because their contribution was determined as insignificant (2%). ii. Methodology: The total weight of Michelin tires at end-of-life in 2016 is based on the estimated market share (in units of tires) of tires sold by Michelin in 2012, allowing for an average 4-year lifetime. Tires sold and re-used in secondary markets were not included in this category. The sub categories are normalized based on this total amount. The emissions are then calculated by multiplying this amount by the average share for each type of end-of-life by the corresponding GHG emission factors. No benefits are considered because they are not included in the boundaries of the Scope 3 methodology defined by the GHG Protocol. Benefits can be taken into account in a life cycle assessment approach. iii. Quality: The overall quality of the emissions is estimated as medium considering, on the one hand, that the worldwide ELT data set is now more complete, but that, on the other hand, methodological details on the computation are not yet available, namely how statistical extrapolations were done. Calculation for year 2016, first year in a 3-year cycle.

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

Explanation
Note for end-of-life (EOL) tires: if the full recovery process is taken into account (that is treatment of sold products AND uses of the recovered materials in manufacturing, energy production, civil engineering applications, etc., the net CO2 emissions are negative. Overall, 1.66 kg CO2 per kg EOL tire is generated in the treatment phase, and 3.36 kg CO2 per kg EOL tire are avoided in the phase using processed materials, for a net of -1.7 kg CO2 per kg EOL tire.

Downstream leased assets

Evaluation status
Not relevant, calculated

Metric tonnes CO2e

Emissions calculation methodology

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

Explanation
Michelin does not own downstream assets that are leased to other entities not included in Scope 1 or 2

Franchises

Evaluation status
Relevant, calculated

Metric tonnes CO2e
265173

Emissions calculation methodology
i. Data used: Primary data are the number of franchise sites for each country. ii. Methodology: An average surface area was estimated for each franchise, using Google Maps, to calculate generic surface areas of the different types of franchises (Tyreplus, Euromaster). Electricity consumption in kWh/m2/year was associated (the same for every country, from Base Carbone of ADEME). Country Specific Emission factors (Ecoinvent) were associated with electricity consumption to evaluate the impacts. The IPCC 2013 GWP 100 was used. iii. Quality: The overall quality of the emissions is estimated as medium to high. Calculation for year 2016, first year in a 3-year cycle.

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**
Michelin's main activity is not related to investments: it is neither a private financial institution (e.g., commercial banks), nor a public financial institution (e.g., multilateral development banks, export credit agencies, etc.).

**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)
27000

Comment
According to GhG Protocol Scope 2 Guidance, “market-based method data that includes biofuels should report the CO2 portion of the biofuel combustion separately from the scopes”. The guidance also indicates that “while biomass can produce fewer GHG emissions than fossil fuels and may be grown and used on a shorter time horizon, it still produces GHG emissions and should not be treated with a “zero” emission factor.” Yet, the use of biofuels is an integral part of our strategy to reduce our fossil fuel CO2 emissions. The French Environmental and Energy Agency (Ademe, Agence de l'Environnement et de la Maîtrise de l'Energie) prescribes the use of “0” Emission Factors for biomass and biogas combustion. The same rule applies to the European Emission Trading Scheme, which does not require allowance surrendering for CO2 emissions from bio sources. As a consequence, we do not include the CO2 from bioenergy in our CO2 mainstream reporting. From now on, since reporting CO2 from bioenergy is also a requirement of the SBTi, we will report CO2 from biomass, and will do it separately from the scopes. Our 2050 targets cover for fossil CO2 only. Our CO2 emissions from biosources are destined to grow, as they will replace a part of our fossil fuels used for generating thermal energy.
(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
0.0001363

Metric numerator (Gross global combined Scope 1 and 2 emissions)
3002435

Metric denominator
unit total revenue

Metric denominator: Unit total
22028000000

Scope 2 figure used
Market-based

% change from previous year
1.5

Direction of change
Decreased

Reason for change
A decrease in CO2 emissions (numerator) was combined with an increase in total revenue (net sales) (denominator). The two main emission reduction activities were as follows: (a) optimized operations management and deployment of Michelin's best manufacturing practices drove a reduction in energy use; (b) renewable electricity purchases (see details in C8.2f).

Intensity figure
0.875

Metric numerator (Gross global combined Scope 1 and 2 emissions)
3002435

Metric denominator
metric ton of product

Metric denominator: Unit total
3430373

Scope 2 figure used
Market-based

% change from previous year
1.43

Direction of change
Decreased

Reason for change
Total CO2 emissions amounted to 0.875 metric tons per metric ton of tires produced in 2018, a decrease of 31% compared with 2010 and 1.3% compared with 2017. The two main emission reduction activities were as follows: (a) optimized operations management and deployment of Michelin's best manufacturing practices drove a reduction in energy use per ton of finished product; (b) renewable electricity purchases (see details in C8.2f).

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.**

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Scope 1 emissions (metric tons CO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>910198</td>
</tr>
<tr>
<td>Asia, Australasia</td>
<td>19848</td>
</tr>
<tr>
<td>Other, please specify (North America &amp; South America)</td>
<td>561092</td>
</tr>
</tbody>
</table>

## 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.**

<table>
<thead>
<tr>
<th>Business division</th>
<th>Scope 1 emissions (metric ton CO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production of passenger car and light truck tires, in Europe</td>
<td>577904</td>
</tr>
<tr>
<td>Production of truck tires, in Europe</td>
<td>122175</td>
</tr>
<tr>
<td>Production of two-wheel vehicles, aviation, agriculture and earth-moving engines, heavy-duty equipment, worldwide</td>
<td>58311</td>
</tr>
<tr>
<td>Production of semi-finished products to make all types of tires marketed by Michelin</td>
<td>378054</td>
</tr>
<tr>
<td>Research and develop activities, including testing tracks</td>
<td>10886</td>
</tr>
<tr>
<td>Production of passenger car and light truck tires, in North America</td>
<td>237909</td>
</tr>
<tr>
<td>Production of truck tires in North America and all kinds of tires in South America</td>
<td>87274</td>
</tr>
<tr>
<td>Production of all kinds of tires in Asia</td>
<td>18086</td>
</tr>
</tbody>
</table>

## C7.5

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

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Scope 2, location-based (metric tons CO2e)</th>
<th>Scope 2, market-based (metric tons CO2e)</th>
<th>Purchased and consumed electricity, heat, steam or cooling (MWh)</th>
<th>Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>548812</td>
<td>170389</td>
<td>2351741</td>
<td>1696884</td>
</tr>
<tr>
<td>Asia, Australasia</td>
<td>587764</td>
<td>587764</td>
<td>1147921</td>
<td>109</td>
</tr>
<tr>
<td>Other, please specify (North America &amp; South America)</td>
<td>753144</td>
<td>753144</td>
<td>2084499</td>
<td>50878</td>
</tr>
</tbody>
</table>

## C7.6

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

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

<table>
<thead>
<tr>
<th>Business division</th>
<th>Scope 2, location-based emissions (metric tons CO2e)</th>
<th>Scope 2, market-based emissions (metric tons CO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production of passenger car and light truck tires, in Europe</td>
<td></td>
<td>120691</td>
</tr>
<tr>
<td>Production of truck tires, in Europe</td>
<td></td>
<td>49583</td>
</tr>
<tr>
<td>Production of two-wheel vehicles, aviation, agriculture and earth-moving engines, heavy-duty equipment, worldwide</td>
<td></td>
<td>75789</td>
</tr>
<tr>
<td>Production of semi-finished products to make all types of tires marketed by Michelin</td>
<td></td>
<td>158085</td>
</tr>
<tr>
<td>Research and develop activities, including testing tracks</td>
<td></td>
<td>20087</td>
</tr>
<tr>
<td>Production of passenger car and light truck tires, in North America</td>
<td></td>
<td>499024</td>
</tr>
<tr>
<td>Production of truck tires in North America and all kinds of tires in South America</td>
<td></td>
<td>108186</td>
</tr>
<tr>
<td>Production of all kinds of tires in Asia</td>
<td></td>
<td>479852</td>
</tr>
</tbody>
</table>

(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.

<table>
<thead>
<tr>
<th>Change in emissions (metric tons CO2e)</th>
<th>Direction of change</th>
<th>Emissions value (percentage)</th>
<th>Please explain calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in renewable energy consumption</td>
<td>14800</td>
<td>Increased 0.49</td>
<td>Calculation method: (+14,800 / 3,038,782) = + 0.49% Explanation: In 2018, the Group purchased renewable electricity in eight European countries, with the total of around 1,590,000 MWh representing 34% of all of the electricity used by the Group in the region, compared to 1,583,000 MWh and 34.5% in 2017. (Calculation method: MWh of renewable electricity bought in each European Country multiplied by the country emission factor (IEA)/ total CO2 emission). Thus, we bought slightly more renewable MWh of electricity but a slightly lower share. Over the period, the weighted average of Emission factors in corresponding European countries decreased. Our purchases of renewable electricity avoided the emission of 378,000 tons of CO2 compared with 387,000 in 2017, i.e., 14,800 tons less than in 2017.</td>
</tr>
<tr>
<td>Other emissions reduction activities</td>
<td>12232</td>
<td>Decreased 0.4</td>
<td>Calculation method: (-12,232/3,038,282)*100 = -0.4%, i.e., 2017 emissions multiplied by the decrease in specific energy consumption, as a percentage (thus determining how many more ton of CO2 would have been emitted in case of higher energy consumption per ton, all other things being equal, notably no change in the energy mix. Additional Information: Even if the progress has been lower this year than in the previous years, energy use has been diligently managed for more than ten years and we are confident that the efforts made in 2018 will better show in the next year’s figure. In 2018, the energy performance improvement approach was restructured to make it more effective and a review was performed as part of the “Lean Green Belt” certification process. The review revealed a number of weaknesses in the approach. After upgrading the energy audit procedure and training the Plant Energy Performance Leaders, the Group is now working on a set of technical handbooks for Leaders and maintenance technicians. The Technical program was expanded and now includes 19 initiatives that the plants can deploy to improve their energy performance. Three examples launched in 2018: free cooling, the installation of heat pumps and the “changing employee behaviour” program. The energy efficiency improvement program was supported by €13.4 million in capital expenditure in 2018.</td>
</tr>
</tbody>
</table>

Divestment 0 No change 0

Acquisitions 0 No change 0

Mergers 0 No change 0

Change in output 2988 Increased 0.1 Calculation method: (58,722/3,038,782)*100 = 0.10%

Change in methodology 0 No change 0

Change in boundary 0 No change 0

Change in physical operating conditions 0 No change 0

Unidentified 500 Increased 0.02 Calculation method: (564/3,038,782)*100 = 0.02%

Other 41339 Please select 1.36 Calculation method: ((443-456)*10,938,032/3,600) =-41,339. (41,339/3,302,435)*100 = -1.36% Explanation: Decrease in grid electricity factors (indirect) in the countries where we do not buy renewable electricity (source: IEA). (Weighted average)

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.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Indicate whether your organization undertakes this energy-related activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption of fuel (excluding feedstocks)</td>
<td>Yes</td>
</tr>
<tr>
<td>Consumption of purchased or acquired electricity</td>
<td>Yes</td>
</tr>
<tr>
<td>Consumption of purchased or acquired heat</td>
<td>Yes</td>
</tr>
<tr>
<td>Consumption of purchased or acquired steam</td>
<td>No</td>
</tr>
<tr>
<td>Consumption of purchased or acquired cooling</td>
<td>No</td>
</tr>
<tr>
<td>Generation of electricity, heat, steam, or cooling</td>
<td>Yes</td>
</tr>
</tbody>
</table>

C8.2a

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

<table>
<thead>
<tr>
<th>Energy Consumption</th>
<th>Heating value</th>
<th>MWh from renewable sources</th>
<th>MWh from non-renewable sources</th>
<th>Total MWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption of fuel (excluding feedstocks)</td>
<td>LHV (lower heating value)</td>
<td>0</td>
<td>5909100</td>
<td>5909100</td>
</tr>
<tr>
<td>Consumption of purchased or acquired electricity</td>
<td>&lt;Not Applicable&gt;</td>
<td>162143</td>
<td>3038342</td>
<td>4659755</td>
</tr>
<tr>
<td>Consumption of purchased or acquired heat</td>
<td>&lt;Not Applicable&gt;</td>
<td>126457</td>
<td>797948</td>
<td>924406</td>
</tr>
<tr>
<td>Consumption of purchased or acquired steam</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Consumption of purchased or acquired cooling</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Consumption of self-generated non-fuel renewable energy</td>
<td>&lt;Not Applicable&gt;</td>
<td>0</td>
<td>&lt;Not Applicable&gt;</td>
<td>0</td>
</tr>
<tr>
<td>Total energy consumption</td>
<td>&lt;Not Applicable&gt;</td>
<td>1747870</td>
<td>9745391</td>
<td>11493261</td>
</tr>
</tbody>
</table>

C8.2b

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

<table>
<thead>
<tr>
<th>Fuel Application</th>
<th>Indicate whether your organization undertakes this fuel application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption of fuel for the generation of electricity</td>
<td>No</td>
</tr>
<tr>
<td>Consumption of fuel for the generation of heat</td>
<td>Yes</td>
</tr>
<tr>
<td>Consumption of fuel for the generation of steam</td>
<td>No</td>
</tr>
<tr>
<td>Consumption of fuel for the generation of cooling</td>
<td>No</td>
</tr>
<tr>
<td>Consumption of fuel for co-generation or tri-generation</td>
<td>No</td>
</tr>
</tbody>
</table>

C8.2c

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

Fuels (excluding feedstocks)
Anthracite Coal

**Heating value**
LHV (lower heating value)

**Total fuel MWh consumed by the organization**
1902014

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

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

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

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

**MWh fuel consumed for self-cogeneration or self-trigeneration**
<Not Applicable>

**Comment**

---

**Fuels (excluding feedstocks)**

**Diesel**

**Heating value**
LHV (lower heating value)

**Total fuel MWh consumed by the organization**
46192

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

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

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

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

**MWh fuel consumed for self-cogeneration or self-trigeneration**
<Not Applicable>

**Comment**

---

**Fuels (excluding feedstocks)**

**Residual Fuel Oil**

**Heating value**
LHV (lower heating value)

**Total fuel MWh consumed by the organization**
74409

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

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

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

**MWh fuel consumed for self-generation of cooling**
<Not Applicable>
<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWh fuel consumed for self-cogeneration or self-trigeneration</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Comment</td>
<td></td>
</tr>
<tr>
<td>Fuels (excluding feedstocks)</td>
<td></td>
</tr>
<tr>
<td>Natural Gas</td>
<td></td>
</tr>
<tr>
<td>Heating value</td>
<td></td>
</tr>
<tr>
<td>LHV (lower heating value)</td>
<td></td>
</tr>
<tr>
<td>Total fuel MWh consumed by the organization</td>
<td>3886486</td>
</tr>
<tr>
<td>MWh fuel consumed for self-generation of electricity</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>MWh fuel consumed for self-generation of heat</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>MWh fuel consumed for self-generation of steam</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>MWh fuel consumed for self-generation of cooling</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>MWh fuel consumed for self-cogeneration or self-trigeneration</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Comment</td>
<td></td>
</tr>
<tr>
<td>C8.2d</td>
<td></td>
</tr>
</tbody>
</table>
(C8.2d) List the average emission factors of the fuels reported in C8.2c.

**Anthracite Coal**

- **Emission factor**: 354
- **Unit**: kg CO2e per MWh
- **Emission factor source**: Emission Factors from Cross-sector Tools
- **Comment**

**Diesel**

- **Emission factor**: 266
- **Unit**: kg CO2e per MWh
- **Emission factor source**: Emission Factors from Cross-sector Tools
- **Comment**

**Natural Gas**

- **Emission factor**: 202
- **Unit**: kg CO2e per MWh
- **Emission factor source**: Emission Factors from Cross-sector Tools
- **Comment**

**Residual Fuel Oil**

- **Emission factor**: 278
- **Unit**: kg CO2e per MWh
- **Emission factor source**: Emission Factors from Cross-sector Tools
- **Comment**

---

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

<table>
<thead>
<tr>
<th></th>
<th>Total Gross generation (MWh)</th>
<th>Generation that is consumed by the organization (MWh)</th>
<th>Gross generation from renewable sources (MWh)</th>
<th>Generation from renewable sources that is consumed by the organization (MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Heat</td>
<td>4927635</td>
<td>4419483</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Steam</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cooling</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
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**
Other low-carbon technology, please specify (Heat recovery from waste combustion)

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

**MWh consumed associated with low-carbon electricity, heat, steam or cooling**
18649

**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**
Europe

**MWh consumed associated with low-carbon electricity, heat, steam or cooling**
107808

**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), not supported by energy attribute certificates

**Low-carbon technology type**
Wind

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

**MWh consumed associated with low-carbon electricity, heat, steam or cooling**
6030

**Emission factor (in units of metric tons CO2e per MWh)**
0

**Comment**

---

**Basis for applying a low-carbon emission factor**
Power Purchase Agreement (PPA) without energy attribute certificates

**Low-carbon technology type**
Solar PV

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

**MWh consumed associated with low-carbon electricity, heat, steam or cooling**
136
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), not supported by energy attribute certificates

**Low-carbon technology type**
Hydropower

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

**MWh consumed associated with low-carbon electricity, heat, steam or cooling**
1370875

Emission factor (in units of metric tons CO2e per MWh)
0

Comment

**Basis for applying a low-carbon emission factor**
Energy attribute certificates, Guarantees of Origin

**Low-carbon technology type**
Hydropower

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

**MWh consumed associated with low-carbon electricity, heat, steam or cooling**
219132

Emission factor (in units of metric tons CO2e per MWh)
0

Comment

---

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.

<table>
<thead>
<tr>
<th>Scope</th>
<th>Verification/assurance status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1</td>
<td>Third-party verification or assurance process in place</td>
</tr>
<tr>
<td>Scope 2 (location-based or market-based)</td>
<td>Third-party verification or assurance process in place</td>
</tr>
<tr>
<td>Scope 3</td>
<td>Third-party verification or assurance process in place</td>
</tr>
</tbody>
</table>

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**  
MICHELIN_DDR_2018_EXCERPT.pdf

**Page/section reference**  
2018 Registration Document, chapter 6.7, pages 269-270

**Relevant standard**  
ISAE3000

**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**  
MICHELIN_DDR_2018_EXCERPT.pdf

**Page/section reference**  
2018 Registration Document, chapter 6.7, pages 269-270

**Relevant standard**  
ISAE3000

**Proportion of reported emissions verified (%)**  
100
(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
Triennial process

Status in the current reporting year
Complete

Attach the statement
Michelin_Scope 3_20170628.pdf

Page/section reference
Entire document. In the triennial process, the last completed year was for 2016. When preparing science-based targets for submittal to SBTi in June 2018, several minor errors were detected post-verification and corrected (see C6.5).

Relevant standard
ISAE3000

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?

<table>
<thead>
<tr>
<th>Disclosure module verification relates to</th>
<th>Data verified</th>
<th>Verification standard</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>C6. Emissions data</td>
<td>Year on year emissions intensity figure</td>
<td>ISAE3000</td>
<td>100% of the data (Scope 1 and 2 emissions as the numerator, and mass of finished products as the denominator) have been verified by a third party providing limited assurance according to the ISAE3000 standard.</td>
</tr>
<tr>
<td>C5. Emissions performance</td>
<td>Other, please specify (CO2 emissions avoided)</td>
<td>ISAE3000</td>
<td>100% of the data have been verified by a third party providing limited assurance according to the ISAE3000 standard.</td>
</tr>
<tr>
<td>C8. Energy</td>
<td>Other, please specify (Energy consumption)</td>
<td>ISAE3000</td>
<td>100% of the data have been verified by a third party providing limited assurance according to the ISAE3000 standard. This data, along with the CO2 emission factors, allows the CO2 emissions to be calculated.</td>
</tr>
</tbody>
</table>

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
France carbon tax
Shanghai pilot ETS

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**
  - 52
- **Period start date**
  - janvier 1 2018
- **Period end date**
  - décembre 31 2018
- **Allowances allocated**
  - 480293
- **Allowances purchased**
  - 823000
- **Verified emissions in metric tons CO2e**
  - 771928
- **Details of ownership**
  - Facilities we own and operate
- **Comment**

**Shanghai pilot ETS**

- **% of Scope 1 emissions covered by the ETS**
  - 9
- **Period start date**
  - janvier 1 2018
- **Period end date**
  - décembre 31 2018
- **Allowances allocated**
  - 121429
- **Allowances purchased**
  - 0
- **Verified emissions in metric tons CO2e**
  - 133761
- **Details of ownership**
  - Other, please specify (Heat purchased from an ETS supplier)
- **Comment**

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

**France carbon tax**

<table>
<thead>
<tr>
<th>Period start date</th>
<th>janvier 1 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period end date</td>
<td>décembre 31 2018</td>
</tr>
<tr>
<td>% of emissions covered by tax</td>
<td>40</td>
</tr>
<tr>
<td>Total cost of tax paid</td>
<td>777378</td>
</tr>
</tbody>
</table>

**Comment**
The French carbon tax covers the Group’s natural gas and coal purchases in France during the reporting year.

---

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

First, a corporate CO2 Allowances Work Group is in charge of monitoring the trading scheme and making sure the balance between allowances and emissions is reached. The work group makes decisions on necessary banking, pooling, and purchases. It comprises team members from EHS, energy purchasing, industrial operations, finance, accounting, and norms and regulations departments. It reports to the Environment Governance of the Group Executive Committee’s (board-level) Sustainable Development and Mobility Committee.

The work group is supported by two local “mirror” work groups: one in Europe (since 2005) and one in China (created in 2013).

**Example of action:** The Committee has validated the decision to buy allowances on the market in advance of our needs by one year, so as to smooth the cost impact on our production facilities.

Second, a multi-disciplinary team focused on energy efficiency of industrial processes and on the energy mix of industrial sites continues its work. Specialists of all the fields involved in the Group are represented. Michelin has set an ambition to reduce its specific energy consumption by 25% between 2010 and 2020. In order to implement energy-efficiency programs, each plant has an appointed energy specialist.

**Example of action:** the installation of heat pumps in the air cooler system to recover heat for reuse in plant buildings. At the Ladoux Technology Center in France, a recently commissioned 0.9 MW heat pump is now covering 20% of the site’s building heating needs. Two other units under study at French plants are expected to come on stream in 2019.

---

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

Yes

---

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

**Credit origination or credit purchase**

- Credit origination

---

(C11.2a) Project type
<table>
<thead>
<tr>
<th>Project identification</th>
<th>Livelihoods with NGO News: mangrove restauration in India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verified to which standard</td>
<td>VER+ (TÜV SÜD standard)</td>
</tr>
<tr>
<td>Number of credits (metric tonnes CO2e)</td>
<td>13145</td>
</tr>
<tr>
<td>Number of credits (metric tonnes CO2e): Risk adjusted volume</td>
<td>13145</td>
</tr>
<tr>
<td>Credits cancelled</td>
<td>No</td>
</tr>
<tr>
<td>Purpose, e.g. compliance</td>
<td>Voluntary Offsetting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credit origination or credit purchase</th>
<th>Credit origination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project type</td>
<td>Energy efficiency: households</td>
</tr>
<tr>
<td>Project identification</td>
<td>Livelihoods with NGO Hifadhi: Clean, energy-saving cookstove distribution in the Embu region at the foot of Mount Kenya</td>
</tr>
<tr>
<td>Verified to which standard</td>
<td>Gold Standard</td>
</tr>
<tr>
<td>Number of credits (metric tonnes CO2e)</td>
<td>27696</td>
</tr>
<tr>
<td>Number of credits (metric tonnes CO2e): Risk adjusted volume</td>
<td>27696</td>
</tr>
<tr>
<td>Credits cancelled</td>
<td>No</td>
</tr>
<tr>
<td>Purpose, e.g. compliance</td>
<td>Voluntary Offsetting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credit origination or credit purchase</th>
<th>Credit origination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project type</td>
<td>Energy efficiency: households</td>
</tr>
<tr>
<td>Project identification</td>
<td>Livelihoods with NGO Tiipaalga households equipped with improved cookstove in Burkina Faso</td>
</tr>
<tr>
<td>Verified to which standard</td>
<td>Gold Standard</td>
</tr>
<tr>
<td>Number of credits (metric tonnes CO2e)</td>
<td>9609</td>
</tr>
<tr>
<td>Number of credits (metric tonnes CO2e): Risk adjusted volume</td>
<td>9609</td>
</tr>
<tr>
<td>Credits cancelled</td>
<td>No</td>
</tr>
<tr>
<td>Purpose, e.g. compliance</td>
<td>Voluntary Offsetting</td>
</tr>
</tbody>
</table>
Credit origination

**Project type**
Energy efficiency: households

**Project identification**
Livelihoods with NGO ITYF households equipped with improved cookstove in Peru

**Verified to which standard**
Gold Standard

**Number of credits (metric tonnes CO2e)**
8979

**Number of credits (metric tonnes CO2e): Risk adjusted volume**
8979

**Credits cancelled**
No

**Purpose, e.g. compliance**
Voluntary Offsetting

---

Credit origination or credit purchase
Credit origination

**Project type**
Forests

**Project identification**
Livelihoods with NGO Naandi – Araku Valley

**Verified to which standard**
VER+ (TÜV SÜD standard)

**Number of credits (metric tonnes CO2e)**
3995

**Number of credits (metric tonnes CO2e): Risk adjusted volume**
3995

**Credits cancelled**
Yes

**Purpose, e.g. compliance**
Voluntary Offsetting

---

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**
Stakeholder expectations
Change internal behavior
Drive energy efficiency
Drive low-carbon investment

**GHG Scope**
Scope 1
Scope 2

**Application**
The price has been incorporated into the method of calculating return on investment for projects requiring major capital expenditure, such as production capacity increases, boiler upgrades and improvements to logistics operations worldwide.

**Actual price(s) used (Currency /metric ton)**
50

**Variance of price(s) used**
None

**Type of internal carbon price**
Shadow price

**Impact & implication**
As part of its commitment to significantly, yet cost-effectively reduce its CO2 emissions, Michelin supports the introduction of an international carbon pricing system. Today, there is no global carbon market or price, but only fragmented and uncoordinated systems in the European Union, certain Chinese provinces, California, Quebec, etc. Michelin, however, is strongly encouraging public stakeholders to support the development of a more structured market. This is why it has been a member of the World Bank’s Carbon Pricing Leadership Coalition since 2015. Since 2016, the Group has also been preparing for the emergence of a global carbon market by experimenting with an internal carbon price for its capital projects, set at €50 per ton of CO2. Since 2016, this price has been incorporated into the method of calculating return on investment for projects requiring major capital expenditure, such as production capacity increases, boiler upgrades and supply chain improvements. For projects designed to increase the energy efficiency of existing installations (curing press insulation, lighting upgrades, etc.), which require more modest outlays, the internal carbon price is now integrated into a new project consolidation application developed in 2016 as part of the new energy efficiency improvement program for industrial operations. Since 2016, each project leader is expected to submit two scenarios, one conventional and the other based on carbon costing €50 a ton. In this way, each project sponsor can compare the payback calculated with a carbon market price (now zero in every host region except Europe and Shanghai) and the payback calculated with the projected carbon price over the lifetime of the equipment being purchased today.

---

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**
Information collection (understanding supplier behavior)

**Details of engagement**
Collect climate change and carbon information at least annually from suppliers

% of suppliers by number
1.2

% total procurement spend (direct and indirect)
56

% Scope 3 emissions as reported in C6.5
4.44

Rationale for the coverage of your engagement
The rationale for this approach is to provide an overview of suppliers representing potentially high CSR risks, including on climate change issues. Michelin began to assess the CSR engagement with its suppliers in 2012 using the EcoVadis rating platform. The EcoVadis platform is a cross-industry recognized tool for assessing CSR performance, including climate change issues: formalized environmental policy including GHG emissions, type of actions in place for reducing emissions, employee awareness program, use of efficient equipment or technology, training programs. We chose to evaluate these providers because their purchase categories are the most relevant in terms of: 1) higher risk purchasing categories, 2) high risk countries, 3) high spend. The suppliers selected for this commitment belong mainly to the categories of raw materials, industry and services. The goal is to ensure that our suppliers are performing well on environmental issues - and, if not, to encourage them to improve their practices (especially for those whose score is below our expectations).

Impact of engagement, including measures of success
Impact of engagement: In 2013, Michelin set a sustainable development target of at least 70% of 400 key suppliers achieving a minimum score of 45 on the EcoVadis CSR rating platform, by 2020. A total of 654 suppliers have been scored in 2018 (out of 709 requests), and participation is iterative as progress is made and action plans are implemented. In 2018, 78% of the 654 scored suppliers had achieved a score of 45 or above of the overall rating, and about the same percentage above the confirmed level for the “environment” rating, therefore meeting the corporate target ahead of schedule and more importantly providing an assurance of supplier awareness and initiative on climate change issues. The segmentation of our materials suppliers is being modified in 2018/2019 to take into account the Ecovadis performance of the suppliers. In 2019 the assessment program will cover more than 800 suppliers. Measures of success: Suppliers which have an overall score <45 are requested to set up corrective actions. A follow-up of corrective action plans has been implemented in 2018/2019, with appropriate KPIs. This is a lever to improve supplier practices vs environment issues. We observe that the average Environmental score of Michelin suppliers is well above the average score of all suppliers scored by Ecovadis, showing that the selection of suppliers by Michelin is at or above industry standards.

Comment

Type of engagement
Information collection (understanding supplier behavior)

Details of engagement
Other, please specify (Collect climate change and carbon information from suppliers)

% of suppliers by number
0.1

% total procurement spend (direct and indirect)
16

% Scope 3 emissions as reported in C6.5
3

Rationale for the coverage of your engagement
While the EcoVadis approach provided a basic understanding of suppliers’ maturity in this area, the rationale for this new approach was to engage suppliers more concretely in CO2 mitigation. Thus, in 2018 we enhanced our supplier engagement via the CDP Climate Change Supply Chain questionnaire. This questionnaire has been sent to 67 suppliers amongst the purchase categories which have the highest impact on Michelin Scope 3 emissions. 57 of them answered the questionnaire.

Impact of engagement, including measures of success
Of all the suppliers requested to respond to the CDP Climate Change Supply Chain questionnaire, 85% responded in 2018. This survey will be renewed in 2020 to allow time in 2019 to analyse the data from the 2018 CDP reporting cycle. The segmentation of our raw material suppliers is being modified in 2018/2019 to take into account the response of the suppliers to the CDP Climate Change SC questionnaire.

Comment

Type of engagement
Compliance & onboarding

Details of engagement
Included climate change in supplier selection / management mechanism
Climate change is integrated into supplier evaluation processes
Other, please specify (Code of conduct/Michelin Purchasing Principles)

% of suppliers by number
100

% total procurement spend (direct and indirect)
100

% Scope 3 emissions as reported in C6.5
8.6

Rationale for the coverage of your engagement
The management /segmentation of our suppliers is being modified in 2018/2019 to take into account their Ecovadis performance and, where relevant the response to the CDP Climate change questionnaire. Climate change issues are integrated in RFQ where it is the most relevant, e.g. for logistics suppliers, and can represents one of the selection criteria (where relevant). When relevant, suppliers are requested to provide “greener” alternatives (e.g. for energy, logistics). We also expect our suppliers (although it is not mandatory) to be compliant with ISO14001. The Michelin Purchasing Principles clearly states Michelin expectations towards suppliers for a more environmentally friendly business (including Climate change issues)

Impact of engagement, including measures of success
CSR issues are more and more systematically addressed in the Supplier Relationship Management business review meetings, revealing an increasing interest for a shared approach to increase CSR practices. Regarding logistics, 2 forums with suppliers have been held in 2018 in North America and Europe, in order to raise awareness, collect innovative ideas to improve CSR practices and subsequent actions have been planned. 66% of raw material supplier facilities are certified to ISO14001 standards

Comment

Type of engagement
Compliance & onboarding

Details of engagement
Included climate change in supplier selection / management mechanism
Climate change is integrated into supplier evaluation processes

% of suppliers by number
50

% total procurement spend (direct and indirect)
2

% Scope 3 emissions as reported in C6.5
0.6

Rationale for the coverage of your engagement
Michelin has started to engage with about half of its logistics partners. The rationale of this approach is that even if the portion CO2 emissions is under 1% of Scope 3 emissions (as the use of sold products dominates the total emissions), we wanted to align the purchases of transport services with Michelin’s corporate values and its sustainable strategy. Works began with logistics partners in early 2018 to including GHG emissions in new tenders for maritime transportation and including climate change in its contractual conditions for European road hauliers. We chose these two categories of logistics partners as they represent about 50% of all transport related GHG emissions for the Group.

Impact of engagement, including measures of success
In 2018, the first year of supplier engagement was focused on building an action plan and onboarding transport partners. This action plan consists of 5 elements: 1) Establish a current state of play on carbon footprint, 2) Measure the carbon footprint of transporters, 3) Formulate objectives for improvement, 4) Measure and monitor progress, 5) Implement a CSR scoring system, including GHG emissions, of service providers. We worked more specially with suppliers that represent the bigger part of our activity and also those who have the capability and the possibility to operate environmentally friendly solution. We measure our progress with the following indicator: gr of CO2 per Ton Kilometre (gr.CO2.tkm). Using this indicator, in Europe, we decreased our CO2 emission (Long Haul for finished product) by 6 % using more efficient fleets, but also deploying 10 multimodal lines (Road + train). In 2019, we are deploying a more robust measuring tool out of Europe to be in a position to measure more precisely our progress.

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

**Type of engagement**
- Education/information sharing

**Details of engagement**
- Share information about your products and relevant certification schemes (i.e. Energy STAR)

**% of customers by number**
- 75%

**% Scope 3 emissions as reported in C6.5**
- 66%

Please explain the rationale for selecting this group of customers and scope of engagement
Michelin strives to engage with all segments of B2C and B2B customers worldwide through reliable information on tire performance, including rolling resistance which has a direct impact on vehicle fuel efficiency, because the purpose of the company is: to give everyone a better way forward, which means a more sustainable way forward. Michelin provides tire performance information in 3 ways: 1) through regulatory product labeling, for which Michelin has always been an advocate, covering fuel efficiency, wet grip and noise; 2) through information on tire performance and fuel efficiency provided by Michelin distribution networks, whether own (Euromaster, Allopneus, Ihle, Blackcircles), franchised (Euromaster, TCi, TyrePlus) or dealer/partnership networks; 3) through direct relations with existing and potential fleet customers.

**Impact of engagement, including measures of success**
It is estimated that through retail product labeling and other tire-performance information provided to customers through distribution networks, Michelin reaches about 3/4 of its customers, therefore potentially impacting 3/4 of the CO2 emissions during the use phase of tires. Measuring the success of this engagement is difficult, given that consumer choice in buying tires is not limited to the energy efficiency performance but takes into account many different factors. The most reliable indicator that Michelin has is through the reputational surveys that are conducted by third parties. Through transparent communications practices with its customers, Michelin has maintained strong trust, as shown by the following: 1) In 2018, for the 4th consecutive year, the Reputation Institute, which ranks the world’s brands according to their reputation, has put Michelin at the head of the French rankings and 11th worldwide. Michelin is also the French brand with the best reputation in many countries: United States, China, Germany, the United Kingdom and Italy. 2) In 2018, Michelin became the world’s most valuable tire brand following 30% brand value growth to US$7.9 billion over the last year according to the latest Brand Finance Auto & Tyres 2018 report. 3) In 2018, Michelin was ranked 9th worldwide by the Reputation Institute in the “Global CSR RepTrak® 100”.

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

**BASYS Project running from 2014 to 2020:**
Michelin is a major player in this project (for “low hysteresis”), part of the French Platform of the Automotive Sector (PFA) research program, launched in 2014, that aims to achieve passenger car fuel efficiency at 2L/100 km by developing technological bricks to produce breakthroughs at an affordable price. Michelin is investigating the tire’s role in fuel efficiency and bringing together expertise on materials by partnering with a major supplier of silica (Solvay) and several research institutions, public & private (LRCCP, ARMINES-CEMEF, IMP, IPREM-EPCP,ADEME) to make a breakthrough in tire energy efficiency. The partners will analyze the rheological properties of materials & test the industrial feasibility of the developed solutions. These partnerships bring cutting edge scientific know-how to the project. The project’s goal is to shave off 4g of CO2 per km, a major contribution to the PFA’s ultimate goal of reaching an energy efficiency of 50g of CO2 per km in the passenger car B-segment: subcompacts, super minis & city cars. Such a breakthrough would be equivalent to the market introduction of the “green tire” in the 1990s.

**PEGASE Project running from 2016 to 2019**
Michelin partnered with the ADEME on this 3-year research initiative that aims to reduce the rolling resistance (-1kg/t) and mass (-10kg) of long-haul truck tires while improving the useful lifetime by 10 to 20%.
C12.3

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

Direct engagement with policy makers
Trade associations
Funding research organizations
Other

C12.3a

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

<table>
<thead>
<tr>
<th>Focus of legislation</th>
<th>Corporate position</th>
<th>Details of engagement</th>
<th>Proposed legislative solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other, please specify (Tire rolling resistance)</td>
<td>Support</td>
<td>Michelin was very active in advocating for threshold and labelling regulation for tire rolling resistance now in place in Europe (2009 legislation), as well as in South Korea, Brazil, Norway, Turkey, Israel, Saudi Arabia and GSO. Michelin actively contributes to the introduction of regulations in other countries, in particular the USA, China and India. With the European commission, Michelin participates in the improvement of machine test methods within the EGLA (Expert Group for Laboratory Alignment for Rolling Resistance Measurement). Michelin also participates in the discussions around the review of the European labelling regulation and the update of ISO 28580 standards.</td>
<td>Based on EGLA results, proposed content for improving the European Regulation 1235/2011 amending the “Regulation N° 1222/2009.</td>
</tr>
<tr>
<td>Other, please specify (CO2 emission testing)</td>
<td>Support</td>
<td>Michelin has brought technical recommendations to the European Commission and their experts regarding tailpipe testing procedures, including CO2, for light vehicles towards implementing worldwide rules.</td>
<td>Technical recommendations for the United Nations Global Technical Regulation n° 15 on Worldwide Harmonized Light Vehicle Test Procedure (WLTP).</td>
</tr>
<tr>
<td>Other, please specify (CO2 emission testing)</td>
<td>Support</td>
<td>Michelin is bringing technical support for definition of testing procedures for calculating the CO2 emissions of trucks, including distinguishing the effects of rolling resistance versus aerodynamics (VECTO simulation tool). Michelin also participates in the Experts Group for Heavy Duty Vehicles (HDV) CO2 emissions.</td>
<td>Technical content for the European regulation 2017/2400 on the determination of the CO2 emissions and fuel consumption of HDV.</td>
</tr>
<tr>
<td>Other, please specify (Performance testing)</td>
<td>Support</td>
<td>Michelin supports testing wet grip on tires at legal tread depth limit in order to ensure safety performance level throughout the lifetime of tires. Such testing would push drivers to use their tires up to the minimum tread depth, avoiding premature renewal of tires and saving CO2 emissions.</td>
<td>Michelin supports a wet grip performance threshold at legal tread wear limit, in particular in Europe and in China.</td>
</tr>
<tr>
<td>Other, please specify (Adaptation, CO2 targets and CO2 pricing)</td>
<td>Support</td>
<td>The International Transport Forum at the OECD is an intergovernmental organization. It acts as a strategic think tank for transport policy and organizes an Annual Summit of ministers. Its goal is to help shape the transport policy agenda on a global level, and ensure that it contributes to economic growth, environmental protection, social inclusion and the preservation of human life and well-being.</td>
<td>Active participation in the Corporate Board Partnership where climate change mitigation and adaptation issues are frequently debated. Michelin is instrumental in engaging stakeholders from across a highly competitive industry to work together for sustainable multi-modal mobility. Michelin finances the “Energie et Climat” academic chair at the Paris-Dauphine University specialized on negative externalities taxation and pricing (among them Carbon) The Michelin Foundation finances IDDRI for its DDPP-T project (Deep Decarbonization Pathways Project for Transport).</td>
</tr>
<tr>
<td>Other, please specify (Sustainable mobility)</td>
<td>Support</td>
<td>The International Transport Forum at the OECD is an intergovernmental organization. It acts as a strategic think tank for transport policy and organizes an Annual Summit of ministers. Its goal is to help shape the transport policy agenda on a global level, and ensure that it contributes to economic growth, environmental protection, social inclusion and the preservation of human life and well-being.</td>
<td>Active participation in the Corporate Board Partnership where climate change mitigation and adaptation issues are frequently debated. Michelin is instrumental in engaging stakeholders from across a highly competitive industry to work together for sustainable multi-modal mobility. Michelin finances the “Energie et Climat” academic chair at the Paris-Dauphine University specialized on negative externalities taxation and pricing (among them Carbon) The Michelin Foundation finances IDDRI for its DDPP-T project (Deep Decarbonization Pathways Project for Transport).</td>
</tr>
</tbody>
</table>
Michelin is co-founder of the Paris Process for Mobility and Climate (PPMC) partnership, created in 2015 on the way to COP21, aiming to strengthen the voice of the sustainable transport community in the UNFCCC process. Under the auspices of the UN, PPMC’s work has been dedicated to building a Global Macro Roadmap for decarbonisation of the transport sector by 2050+ (GMR, final version issued and published for COP 23), a holistic, synergized transformative approach of all transportation modes in order to reach the Paris Agreement. During 2018 PPMC has been very instrumental to draft regional specific adaptations of this GMR for Morocco, Africa and Europe. This geographically differential workstream based on the initial GMR has been pursued in 2019 with 3 new adaptations for India (in partnership with FICCI, the Indian Federation of Industry Chambers), Ivory Coast (with Climate Chance Association as a lead) and Kenya (under the aegis of AFD, Agence Française de Développement).

Michelin is founding member of TDA (Transport Decarbonisation Alliance), the “coalition of the 3 Cs”, Countries, Cities and Companies, willing to enhance decarbonisation ahead of the Paris Agreement timeline, officially launched at ITF 2018, which encompasses today 23 members ambitioning to be potential game changers when it comes to decarbonize mobility and transport. TDA has published December 2018 “A TDA manifesto on how to reach net zero emission mobility through uniting Countries, Cities / Regions and Companies” http://tda-mobility.org/urban-freight-call-100k/ TDA has launched in June 2019 a concrete action on Urban Freight, with a call for action pledging the automotive industry to produce more zero emission freight vehicles. Within the first ten weeks, 39 organisations have signed the call representing a collective demand of 101,882 zero emission freight vehicles. http://tda-mobility.org/urban-freight-call-100k/

Michelin has joined in July 2018 the Steering Committee of the SuM4All (Sustainable Mobility For All) imitative, a worldwide consortium of over 50 leading organizations and agencies in the transport sector, willing to transform mobility, under the aegis of the World Bank https://sum4all.org/ Michelin organized in 2019 a process aiming to embark the private sector on the GRA Global Roadmap of Action which lays out a pathway for planners, public decision-makers and the private sector to follow to further world’s progress toward sustainable mobility. as Green, Efficient, Accessible and Safe https://sum4all.org/global-roadmap-action

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.

<table>
<thead>
<tr>
<th>Trade association</th>
<th>Details of engagement</th>
<th>Proposed legislative solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Tyre and Rubber Manufacturers’ Association (ETRMA) with the European Tires and Rims Technical Organization (ETRTO)</td>
<td>Michelin is founding member of TDA (Transport Decarbonisation Alliance), the “coalition of the 3 Cs”, Countries, Cities and Companies, willing to enhance decarbonisation ahead of the Paris Agreement timeline, officially launched at ITF 2018, which encompasses today 23 members ambitioning to be potential game changers when it comes to decarbonize mobility and transport. <a href="http://tda-mobility.org/">http://tda-mobility.org/</a> TDA has published December 2018 “A TDA manifesto on how to reach net zero emission mobility through uniting Countries, Cities / Regions and Companies” <a href="http://tda-mobility.org/urban-freight-call-100k/">http://tda-mobility.org/urban-freight-call-100k/</a> TDA has launched in June 2019 a concrete action on Urban Freight, with a call for action pledging the automotive industry to produce more zero emission freight vehicles. Within the first ten weeks, 39 organisations have signed the call representing a collective demand of 101,882 zero emission freight vehicles. <a href="http://tda-mobility.org/urban-freight-call-100k/">http://tda-mobility.org/urban-freight-call-100k/</a></td>
<td>Michelin strongly advocated and pushed successfully for the use of real rolling resistance values in the calculation of CO2 emissions for HDV.</td>
</tr>
</tbody>
</table>

Trade association
European Tyre and Rubber Manufacturers’ Association (ETRMA)

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association’s position
The European tire industry has contributed significantly to the EU objectives of reducing CO2 emissions. It supports ETS as a market-based mechanism setting a level playing field. Work is focused on renewing the ETS regulation, notably on “carbon leakage”.

How have you influenced, or are you attempting to influence their position?
Michelin organized in 2019 a process aiming to embark the private sector on the GRA Global Roadmap of Action which lays out a pathway for planners, public decision-makers and the private sector to follow to further world’s progress toward sustainable mobility. as Green, Efficient, Accessible and Safe https://sum4all.org/global-roadmap-action
Active participation in working groups and in the drafting of position papers.

<table>
<thead>
<tr>
<th>Trade association</th>
<th>USTMA (US Tire Manufacturers Association)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Is your position on climate change consistent with theirs?</strong></td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Please explain the trade association’s position</strong></td>
<td>For light duty vehicle CO2 emissions: The USTMA advocates for establishing a federal rule on tire fuel efficiency performance standards (coupled with a wet traction performance standard). For heavy duty vehicle CO2 emissions: The USTMA supports federal greenhouse gas emissions requirements for tires and the EPA Smartway fuel efficiency and emissions reduction program.</td>
</tr>
<tr>
<td><strong>How have you influenced, or are you attempting to influence their position?</strong></td>
<td>Technical and advocacy support for consumer information on tire energy efficiency and rolling resistance test methods. Advocacy within USTMA for future support for a federal tire fuel efficiency performance standard for heavy duty vehicle tires.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trade association</th>
<th>Associação Nacional da Indústria de Pneumáticos (ANIP)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Is your position on climate change consistent with theirs?</strong></td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Please explain the trade association’s position</strong></td>
<td>ANIP has given support to Brazilian authorities in the adoption of a threshold and labeling regulation regarding tire rolling resistance. The regulation was published in 2012 and took effect in October 2016.</td>
</tr>
<tr>
<td><strong>How have you influenced, or are you attempting to influence their position?</strong></td>
<td>Active participation in ANIP’s technical commission, including rolling resistance requirements for passenger car and truck tires.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trade association</th>
<th>Syndicat National du Caoutchouc et des Polymères (SNCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Is your position on climate change consistent with theirs?</strong></td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Please explain the trade association’s position</strong></td>
<td>Create a level playing field regarding CO2 emissions allowances in the European Union.</td>
</tr>
<tr>
<td><strong>How have you influenced, or are you attempting to influence their position?</strong></td>
<td>Active participation in working groups on climate change including the revision of the ETS directive.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trade association</th>
<th>Entreprises Pour l’Environnement (EPE)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Is your position on climate change consistent with theirs?</strong></td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Please explain the trade association’s position</strong></td>
<td>Business must be at the forefront of the movement towards sustainable development and tackle climate change challenges through innovation.</td>
</tr>
<tr>
<td><strong>How have you influenced, or are you attempting to influence their position?</strong></td>
<td>Active participation in working groups on climate change to share practices and dialogue with main stakeholders. Since December 2015 to May 2019 Michelin’s CEO Jean-Dominique Senard has been the president of the organization for a 4-year term.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trade association</th>
<th>Carbon Pricing Leadership Coalition (CPLC)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Is your position on climate change consistent with theirs?</strong></td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Please explain the trade association’s position</strong></td>
<td>The Carbon Pricing Leadership Coalition led by the World Bank aims at promoting carbon pricing mechanisms worldwide.</td>
</tr>
<tr>
<td><strong>How have you influenced, or are you attempting to influence their position?</strong></td>
<td>Michelin supports CPLC’s efforts to ensure the effective implementation of carbon pricing worldwide.</td>
</tr>
</tbody>
</table>
The Tire Industry Project (TIP), —currently comprised of 11 leading tire companies— it's not a trade association but the primary global forum for the tire industry on sustainability issues. Formed in 2005, TIP serves as a global, voluntary, CEO-led initiative, representing approximately 65 percent of the world’s tire manufacturing capacity. Its aim is to proactively identify and address the potential human health and environmental impacts associated with the life cycle impacts of tires to proactively contribute to a more sustainable future. The Tire Industry Project is supported by the World Business Council for Sustainable Development.

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association’s position

On top of Michelin's engagement since long towards low-CO2 emissions tyres, Michelin is co-leading the TIP (Tire Industry Project), which mission is to conduct and communicate technical & scientific studies, so as to be a reliable and trusted source of knowledge on the potential human and environmental impacts of tires through their lifecycle. This Geneva-based organization is promoting the awareness on industrial CO2 emission through a yearly release of total CO2 emission by 65% of tire industry worldwide. Also, TIP has decided to update the PCR tool (Product Category Rules) that analyses impact of a tire model on environment throughout its entire lifecycle. Notably, this tools evaluates any product's impact on CO2 emission, contributing to customers awareness on the topic.

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

Michelin has functioned as co-leader of the organization’s work to date.

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?

No

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

I. Work with the NGO the World Wildlife Fund (WWF)

1) Method of engagement: Michelin & WWF signed a partnership in 2015 and renewed it in 2019 to promote sustainable rubber cultivation & prevent deforestation.

2) Topic: Developing & applying responsible and sustainable rubber production practices and protecting primary forests. The renewed agreement also includes other topics regarding sustainable mobility.

3) Nature: Michelin works with WWF on natural rubber at a global level, in Indonesia through a JV with the Barito Pacific Group and helps locally in Sumatra and Borneo to protect and restore flora and fauna. These efforts jointly aim to be a model of cooperation to fight against climate change and to influence the automotive industry worldwide. Additional projects are under construction in Brazil and China. The new partnership also includes establishing SBT for the reduction of GHG emissions.

4) Actions advocated: Initially an analysis was conducted to identify the best ways to produce natural rubber responsibly. Done in collaboration with the WWF and other NGOs, this work resulted in the publication of Michelin’s Sustainable Natural Rubber Policy with commitments to zero deforestation and preservation of water resources and peatlands. This document aims at promoting best practices across the entire value chain, from the plantations to the producers. Now in the implementation phase, the identified practices are being rolled out in Indonesia, starting with the JV cited above. The local partnership strives to protect Indonesian forests & biodiversity. The partnership between WWF and Michelin has contributed in developing a Global Platform for Sustainable Natural Rubber (GPSNR) to promote best practices through the entire supply chain. This platform has been launched in 2018 and had its first General Assembly in 2019.

II. Sustainable mobility solutions for cities

1) Method of engagement: Michelin, as a member of the World Business Council for Sustainable Development, is active in development and application of the Sustainable Urban Mobility (SiMPlify) initiative.
2) **Topic**: SiMPlify is a data-driven multi-stakeholder approach with the vision to accelerate progress towards multimodal, inclusive and low-environmental impact mobility in cities.

3) **Nature**: Develop an online planning tool for improving mobility in cities. An initial group of 6 cities participated in the pilot, and an additional 6 joined the initiative in 2016. Michelin lead the task force with the City of Chengdu on its specific mobility issues to produce a road map for scaling up implementation of sustainable mobility solutions. In 2017 Michelin offered to implement the SiMPlify toolkit at the scale of a middle-sized city and proposed to assist the city Clermont-Ferrand, France towards integrating sustainability into its transportation planning process. To do so, Michelin led a group companies that are well-established in the metropolitan area and coordinated this informal public–private partnership.

4) **Actions advocated**: The SiMPlify toolkit integrates a set of tailored indicators and economic instruments for cities to measure the current level of sustainability of their transport systems and identify opportunities to improve mobility of people & goods. In April 2016 the European Commission endorsed the SiMPlify process as the recommended approach for cities in the EU. In 2017, Michelin launched a SiMPlify project with the city of Clermont-Ferrand, France, where Michelin's corporate headquarters are located. As a result, in 2018 Michelin and its partners were able to identify new mobility solutions, based on telematics or intermodal integration for instance, and have undertaken to work with the city to confirm their feasibility.

## III Transforming Urban Mobility

1) **Method of engagement**: Michelin, as a member of the WBCSD, is part of a new program launched in 2018 which aims to develop projects for improving urban mobilities

2) **Nature**: Michelin is co-chair of the program

3) **Actions advocated**: Projects & delivrables are:

   **The Sustainable Mobility Management**: a) An agnostic urban mobility system map; b) A set of priority action for cities and business to collaborate and make urban mobility systems more sustainable.

   **The data's sharing principles**: A position paper proposing data sharing principles between public and private sector stakeholders

   **The Electric vehicles**: a) Corporate EV adoption guide and database of implementation tools; b) Demonstration projects

   **Circular economy automotive deep dive**: Projects proving the models of CE in Automotive industry

## IV Factor 10

1) **Method of engagement**: Michelin, as a member of the WBCSD, participates to one project of the Factor 10 program

2) **Nature**: Michelin is part of the working team on circular metrics

3) **Actions advocated**: a) Develop a consensus-based framework for measuring circularity within companies, and contribute business-driven input into public sector KPI frameworks; b) Test the proposal.
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?

External engagement on climate change-related issues is overseen by the Group Executive Committee's (board-level) Sustainable Development and Mobility Committee, supported by its two governance bodies: 1) Environment and 2) Sustainable Mobility. Each governance body meets a minimum of 2 times per year. The Environment Governance coordinates external engagement related to a/ Michelin products and services and b/ direct operations, which is planned and executed via the norms and regulations and public affairs departments, and also to c/ actors in the value chain, which is planned and executed by the appropriate business line or by the purchasing department if suppliers are involved. The Sustainable Mobility Governance coordinates external engagement related to new mobility business models, which is planned and executed by several teams and departments, from the corporate sustainability and strategic anticipation departments to the communications department to business lines to the corporate incubator program. An example of where this coordination all comes together is the organization of Movin'on since 2017, the only international forum of its kind on sustainable mobility. This event brings together diverse actors to exchange, innovate and push forward new thinking in sustainable mobility, to transform ideas into actions. Many of these actors are those that Michelin has been already engaged with, as well as new ones.

C12.4

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

**Publication**
In mainstream reports

**Status**
Complete

**Attach the document**
Livre_MICH_DDR_2018_UK_19mars_16h.pdf

**Page/Section reference**
Registration Document 2018: Chapter 1 pages 6 - 31 Chapter 6.1 pages 204 - 207 Chapter 6.2 pages 208 - 210 Chapter 6.6 pages 247 - 268

**Content elements**
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

**Comment**

**Publication**
In voluntary sustainability report

**Status**
Complete

**Attach the document**
MICHELIN_RADD_2018_EN.pdf

**Page/Section reference**

**Content elements**
Governance
Strategy
Emissions figures
Emission targets

**Comment**
KATOWICE COMES THROUGH IN THE CLUTCH, WITH LOW-CARBON TRANSPORT ESSENTIAL FOR AMBITION AND IMPLEMENTATION. Entire document.

Content elements
Strategy
Risks & opportunities
Emissions figures
Other, please specify (Sustainable Mobility )

Comment

Publication
In voluntary communications

Status
Complete

Attach the document
SLoCaT_COP24-final-report.pdf

Page/Section reference
KATOWICE COMES THROUGH IN THE CLUTCH, WITH LOW-CARBON TRANSPORT ESSENTIAL FOR AMBITION AND IMPLEMENTATION. Entire document.

Content elements
Strategy
Risks & opportunities
Emissions figures
Other, please specify (Sustainable Mobility )

Comment

Publication
In voluntary communications

Status
Complete

Attach the document
Mobilité durable, Un appel aux decideurs européens.pdf

Page/Section reference
Mobilité durable: Un appel aux décideurs européens. Entire Document

Content elements
Risks & opportunities
Other, please specify (Sustainable mobility )

Comment

Publication
In voluntary communications

Status
Complete

Attach the document
EY_Openlab_speeding+up+to+2C_vdef3_bd.pdf

Page/Section reference
Speeding up to <2°C. Actionable clean mobility solutions: a position paper of the Open Lab "beyond 2°C" community. Pages 40-41

Content elements
Strategy
Risks & opportunities

Comment

C14. Signoff

C-FI
C14.1

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

<table>
<thead>
<tr>
<th>Job title</th>
<th>Corresponding job category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member of the Group Executive Committee, Executive Vice President of Manufacturing, Member of the Corporate Sustainable Development and Mobility Committee and lead chair of its Environment Governance.</td>
<td>Director on board</td>
</tr>
</tbody>
</table>

SC. Supply chain module

SC0.0

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

SC0.1

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

<table>
<thead>
<tr>
<th>Annual Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>22028000000</td>
</tr>
</tbody>
</table>

SC0.2

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

SC0.2a

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

<table>
<thead>
<tr>
<th>ISIN country code (2 letters)</th>
<th>ISIN numeric identifier and single check digit (10 numbers overall)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR</td>
<td>0000121261</td>
</tr>
</tbody>
</table>

SC1.1

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

Requesting member
Ford Motor Company
Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
47788

Uncertainty (±%)
2

Major sources of emissions
Energy consumption by onsite boilers at tire production sites.

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a.

Requesting member
Ford Motor Company

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
48434

Uncertainty (±%)
2

Major sources of emissions
Net purchased electricity and steam for tire production sites

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a. A market-based accounting approach is used.

Requesting member
Ford Motor Company

Scope of emissions
Scope 3

Allocation level
Company wide
Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
4576526

Uncertainty (±%) 30

Major sources of emissions
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database "Mobility Model" (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin's share of the 2016 tire market. 3/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire's contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account. 4/ The influence on CO2 emissions of different types of vehicle engine technologies in use during 2016 has not been taken into account, since the most updated Mobility Model data available at the time of calculation was from 2015. 5/ The number of Michelin tires on the road was based on 2016 market share, and did not take into account tires sold in previous years and that were used during 2016. The value reported here is based on the Scope 3 inventory for the year 2016. Scope 3 calculations for customer supply chain purposes are determined on a 3-year cycle given the high level of uncertainty of Scope 3 emissions (+/- 30%).

Requesting member
Nissan Motor Co., Ltd.

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
4395

Uncertainty (±%) 2

Major sources of emissions
Energy consumption by onsite boilers at tire production sites

Verified
Yes

Allocation method
Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a.

Requesting member
Nissan Motor Co., Ltd.

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
4454

Uncertainty (±%)
2

Major sources of emissions
Net purchased electricity and steam for tire production sites

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a. A market-based accounting approach is used.

---------------------------------------------------------------

Requesting member
Nissan Motor Co., Ltd.

Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
424406

Uncertainty (±%)
30

Major sources of emissions
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database "Mobility Model" (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin's share of the 2016 tire market. 2/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire's contribution to vehicular CO2 emissions. Rolling resistance performances of specific
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**Requesting member**
Jaguar Land Rover Ltd

**Scope of emissions**
Scope 1

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonnes of CO2e**
169

**Uncertainty (±%)**
2

**Major sources of emissions**
Energy consumption by onsite boilers at tire production sites.

**Verified**
Yes

**Allocation method**
Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a.

**Requesting member**
Jaguar Land Rover Ltd

**Scope of emissions**
Scope 2

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonnes of CO2e**
171

**Uncertainty (±%)**
2

**Major sources of emissions**
Energy consumption by onsite boilers at tire production sites.

**Verified**
Yes

**Allocation method**
Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a. A market-based accounting approach is used.
Requesting member
Jaguar Land Rover Ltd

Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
16289

Uncertainty (±%)
30

Major sources of emissions
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database "Mobility Model" (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin's share of the 2016 tire market. 3/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire's contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account. 4/ The influence on CO2 emissions of different types of vehicle engine technologies in use during 2016 has not been taken into account, since the most updated Mobility Model data available at the time of calculation was from 2015. 5/ The number of Michelin tires on the road was based on 2016 market share, and did not take into account tires sold in previous years and that were used during 2016. The value reported here is based on the Scope 3 inventory for the year 2016. Scope 3 calculations for customer supply chain purposes are determined on a 3-year cycle given the high level of uncertainty of Scope 3 emissions (+/- 30%).

Requesting member
General Motors Company

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
23198

Uncertainty (±%)
2

Major sources of emissions
Energy consumption by onsite boilers at tire production sites

Verified
Yes
Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a.

Requesting member
General Motors Company

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
23512

Uncertainty (±%)
2

Major sources of emissions
Net purchased electricity and steam for tire production sites

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a. A market-based accounting approach is used.

Requesting member
General Motors Company

Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
2240294

Uncertainty (±%)
30

Major sources of emissions
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Using ""The Green House Gas Protocol: A Corporate Accounting and Reporting Standard"" methodology, and with the help of an
external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database “Mobility Model” (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin’s share of the 2016 tire market. 3/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire’s contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account. 4/ The influence on CO2 emissions of different types of vehicle engine technologies in use during 2016 has not been taken into account, since the most updated Mobility Model data available at the time of calculation was from 2015. 5/ The number of Michelin tires on the road was based on 2016 market share, and did not take into account tires sold in previous years and that were used during 2016. The value reported here is based on the Scope 3 inventory for the year 2016. Scope 3 calculations for customer supply chain purposes are determined on a 3-year cycle given the high level of uncertainty of Scope 3 emissions (+/- 30%).

Requesting member
BMW AG

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
7117

Uncertainty (±%)
2

Major sources of emissions
Energy consumption by onsite boilers at tire production sites

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a.

Requesting member
BMW AG

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
7213

Uncertainty (±%)
2

Major sources of emissions
Net purchased electricity and steam for tire production sites

Verified
Yes

**Allocation method**
Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a. A market-based accounting approach is used.

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**Requesting member**
BMW AG

**Scope of emissions**
Scope 3

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonnes of CO2e**
687303

**Uncertainty (±%)**
30

**Major sources of emissions**
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance

**Verified**
Yes

**Allocation method**
Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**
Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database "Mobility Model" (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin's share of the 2016 tire market. 3/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire's contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account. 4/ The influence on CO2 emissions of different types of vehicle engine technologies in use during 2016 has not been taken into account, since the most updated Mobility Model data available at the time of calculation was from 2015. 5/ The number of Michelin tires on the road was based on 2016 market share, and did not take into account tires sold in previous years and that were used during 2016. The value reported here is based on the Scope 3 inventory for the year 2016. Scope 3 calculations for customer supply chain purposes are determined on a 3-year cycle given the high level of uncertainty of Scope 3 emissions (+/- 30%)."

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**Requesting member**
Volkswagen AG

**Scope of emissions**
Scope 1

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonnes of CO2e**
Uncertainty (±%)  2

Major sources of emissions
Energy consumption by onsite boilers at tire production sites
Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a.

Requesting member
Volkswagen AG

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
9240

Uncertainty (±%)  2

Major sources of emissions
Net purchased electricity and steam for tire production sites
Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a. A market-based accounting approach is used.

Requesting member
Volkswagen AG

Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
880425

Uncertainty (±%)  30

Major sources of emissions
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance
Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database “Mobility Model" (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin’s share of the 2016 tire market. 3/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire’s contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account. 4/ The influence on CO2 emissions of different types of vehicle engine technologies in use during 2016 has not been taken into account, since the most updated Mobility Model data available at the time of calculation was from 2015. 5/ The number of Michelin tires on the road was based on 2016 market share, and did not take into account tires sold in previous years and that were used during 2016. The value reported here is based on the Scope 3 inventory for the year 2016. Scope 3 calculations for customer supply chain purposes are determined on a 3-year cycle given the high level of uncertainty of Scope 3 emissions (+/- 30%).

Requesting member
Fiat Chrysler Automobiles NV

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
15183

Uncertainty (±%)
2

Major sources of emissions
Energy consumption by onsite boilers at tire production sites

Requesting member
Fiat Chrysler Automobiles NV

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
Uncertainty (±%)
2

Major sources of emissions
Net purchased electricity and steam for tire production sites

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a. A market-based accounting approach is used.

Requesting member
Fiat Chrysler Automobiles NV

Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
1466213

Uncertainty (±%)
30

Major sources of emissions
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database "Mobility Model" (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin's share of the 2016 tire market. 3/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire's contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account. 4/ The influence on CO2 emissions of different types of vehicle engine technologies in use during 2016 has not been taken into account, since the most updated Mobility Model data available at the time of calculation was from 2015. 5/ The number of Michelin tires on the road was based on 2016 market share, and did not take into account tires sold in previous years and that were used during 2016. The value reported here is based on the Scope 3 inventory for the year 2016. Scope 3 calculations for customer supply chain purposes are determined on a 3-year cycle given the high level of uncertainty of Scope 3 emissions (+/- 30%).

Requesting member
Honda Europe

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
768

Uncertainty (±%)
2

Major sources of emissions
Energy consumption by onsite boilers at tire production sites

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a.

Requesting member
Honda Europe

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
779

Uncertainty (±%)
2

Major sources of emissions
Net purchased electricity and steam for tire production sites

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a. A market-based accounting approach is used.

Requesting member
Honda Europe

Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>
Emissions in metric tonnes of CO2e
74199

Uncertainty (±%)
30

Major sources of emissions
Use phase: fuel consumed by the vehicle to overcome the tires’ rolling resistance

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database “Mobility Model” (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin’s share of the 2016 tire market. 2/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire’s contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account. 3/ The influence on CO2 emissions of different types of vehicle engine technologies in use during 2016 has not been taken into account, since the most updated Mobility Model data available at the time of calculation was from 2015. 4/ The number of Michelin tires on the road was based on 2016 market share, and did not take into account tires sold in previous years and that were used during 2016. The value reported here is based on the Scope 3 inventory for the year 2016. Scope 3 calculations for customer supply chain purposes are determined on a 3-year cycle given the high level of uncertainty of Scope 3 emissions (+/- 30%).

Requesting member
CNH Industrial NV

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
12987

Uncertainty (±%)
2

Major sources of emissions
Energy consumption by onsite boilers at tire production sites

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a.

Requesting member
CNH Industrial NV

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
15272

Uncertainty (±%)
2

Major sources of emissions
Net purchased electricity and steam for tire production sites

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a. A market-based accounting approach is used.

Requesting member
CNH Industrial NV

Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
1193285

Uncertainty (±%)
30

Major sources of emissions
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database "Mobility Model" (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin's share of the 2016 tire market. 3/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire's contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account. 4/ The influence on CO2 emissions of different types of vehicle engine technologies in use during 2016 has not been taken into account, since the most updated Mobility Model data available at the time of calculation was from 2015. 5/ The number of Michelin tires on the road was based on 2016 market share, and did not take into
account tires sold in previous years and that were used during 2016. The value reported here is based on the Scope 3 inventory for the year 2016. Scope 3 calculations for customer supply chain purposes are determined on a 3-year cycle given the high level of uncertainty of Scope 3 emissions (+/- 30%).

**Requesting member**
Walmart, Inc.

**Scope of emissions**
Scope 1

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonnes of CO2e**
587

**Uncertainty (±%)**
2

**Major sources of emissions**
Energy consumption by onsite boilers at tire production sites

**Verified**
Yes

**Allocation method**
Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a.

**Requesting member**
Walmart, Inc.

**Scope of emissions**
Scope 2

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonnes of CO2e**
691

**Uncertainty (±%)**
2

**Major sources of emissions**
Net purchased electricity and steam for tire production sites

**Verified**
Please select

**Allocation method**
Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a. A market-based accounting approach is used.

**Requesting member**
Walmart, Inc.
Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
53967

Uncertainty (±%) 2

Major sources of emissions
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance
Verified Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions.

Methodology for the use phase:
1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database "Mobility Model" (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin's share of the 2016 tire market.
3/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire's contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account.
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Requesting member
Wal Mart de Mexico

Scope of emissions
Scope 1

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
408

Uncertainty (±%) 2

Major sources of emissions
Energy consumption by onsite boilers at tire production sites
Verified Yes

Allocation method
Allocation based on mass of products purchased
Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a.

**Requesting member**
Wal Mart de Mexico

**Scope of emissions**
Scope 2

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonnes of CO2e**
480

**Uncertainty (±%)**
2

**Major sources of emissions**
Net purchased electricity and steam for tire production sites

**Verified**
Yes

**Allocation method**
Allocation based on mass of products purchased

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

A market-based accounting approach is used.

**Requesting member**
Wal Mart de Mexico

**Scope of emissions**
Scope 3

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonnes of CO2e**
37514

**Uncertainty (±%)**
30

**Major sources of emissions**
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance

**Verified**
Yes

**Allocation method**
Allocation based on mass of products purchased

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

Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability.
or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database "Mobility Model" (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin's share of the 2016 tire market. 3/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire's contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account. 4/ The influence on CO2 emissions of different types of vehicle engine technologies in use during 2016 has not been taken into account, since the most updated Mobility Model data available at the time of calculation was from 2015. 5/ The number of Michelin tires on the road was based on 2016 market share, and did not take into account tires sold in previous years and that were used during 2016. The value reported here is based on the Scope 3 inventory for the year 2016. Scope 3 calculations for customer supply chain purposes are determined on a 3-year cycle given the high level of uncertainty of Scope 3 emissions (+/- 30%).

**Requesting member**
Toyota Motor Corporation

**Scope of emissions**
Scope 1

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonnes of CO2e**
21815

**Uncertainty (±%)**
2

**Major sources of emissions**
Energy consumption by onsite boilers at tire production sites

**Verified**
Yes

**Allocation method**
Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a.

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**Requesting member**
Toyota Motor Corporation

**Scope of emissions**
Scope 2

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonne of CO2e**
22109

**Uncertainty (±%)**
2

**Major sources of emissions**
Net purchased electricity and steam for tire production sites

**Verified**
Please select

**Allocation method**
Allocation based on mass of products purchased
Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4a. A market-based accounting approach is used.

**Requesting member**
Toyota Motor Corporation

**Scope of emissions**
Scope 3

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonnes of CO2e**
2106663

**Uncertainty (±%)**
30

**Major sources of emissions**
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance

**Verified**
Yes

**Allocation method**
Allocation based on mass of products purchased

Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database "Mobility Model" (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin's share of the 2016 tire market. 3/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire's contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account. 4/ The influence on CO2 emissions of different types of vehicle engine technologies in use during 2016 has not been taken into account, since the most updated Mobility Model data available at the time of calculation was from 2015. 5/ The number of Michelin tires on the road was based on 2016 market share, and did not take into account tires sold in previous years and that were used during 2016. The value reported here is based on the Scope 3 inventory for the year 2016. Scope 3 calculations for customer supply chain purposes are determined on a 3-year cycle given the high level of uncertainty of Scope 3 emissions (+/- 30%).

**Requesting member**
Daimler AG

**Scope of emissions**
Scope 1

**Allocation level**
Company wide

**Allocation level detail**
<Not Applicable>

**Emissions in metric tonnes of CO2e**
6412

**Uncertainty (±%)**
2
Major sources of emissions
Energy consumption by onsite boilers at tire production sites

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4.a.

Requesting member
Daimler AG

Scope of emissions
Scope 2

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
6499

Uncertainty (±%)
2

Major sources of emissions
Net purchased electricity and steam for tire production sites

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The sources of emissions identified are the sources over which the company has financial control. Exclusions are noted in C6.4.a. A market-based accounting approach is used.

Requesting member
Daimler AG

Scope of emissions
Scope 3

Allocation level
Company wide

Allocation level detail
<Not Applicable>

Emissions in metric tonnes of CO2e
619207

Uncertainty (±%)
30

Major sources of emissions
Use phase: fuel consumed by the vehicle to overcome the tires' rolling resistance

Verified
Yes

Allocation method
Allocation based on mass of products purchased

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

Using "The Green House Gas Protocol: A Corporate Accounting and Reporting Standard" methodology, and with the help of an external consultant, the sources of our scope 3 emissions were identified and emissions calculated on the basis of the raw data available and modeling assumptions specific to each category. The level of uncertainty for each category was determined by the quality of the raw data used and the degree to which extrapolations and/or hypotheses were required to compensate for availability or quality of primary data. The predominate Scope 3 category is the use phase, which represents 86% of all Scope 3 emissions. Methodology for the use phase: 1/ a 2016 scenario of tank-to-wheel CO2 emissions for road transport was built, based on data for the year 2015 in IEA database "Mobility Model" (2017 version), the contribution of tires to vehicular CO2 emissions and Michelin's share of the 2016 tire market. 3/ Average tire rolling resistance for passenger car/light vehicles and for trucks was applied to determine the percentage share of the tire's contribution to vehicular CO2 emissions. Rolling resistance performances of specific tire types and models were not taken into account. 4/ The influence on CO2 emissions of different types of vehicle engine technologies in use during 2016 has not been taken into account, since the most updated Mobility Model data available at the time of calculation was from 2015. 5/ The number of Michelin tires on the road was based on 2016 market share, and did not take into account tires sold in previous years and that were used during 2016. The value reported here is based on the Scope 3 inventory for the year 2016. Scope 3 calculations for customer supply chain purposes are determined on a 3-year cycle given the high level of uncertainty of Scope 3 emissions (+/- 30%).

SC1.2

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

Scope 1 and 2 emissions are published in the Michelin Group's annual report "2018 Registration Document", pages 250-251, available on the corporate internet site (http://www.michelin.com). Scope 3 emissions for each relevant category for the year 2016 have been publicly reported to the CDP in 2017, 2018 and 2019 (3-year cycle approach), and all published sources for these calculations are cited in the replies concerning methodology.

SC1.3

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

<table>
<thead>
<tr>
<th>Allocation challenges</th>
<th>Please explain what would help you overcome these challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity of product lines makes accurately accounting for each product/product line cost ineffective</td>
<td>The main challenge in allocating emissions to different customers is that, as the emissions associated with tires are strongly dependent on the type of tire involved, the allocation of emissions depends on the dimensions of tires they buy. Several factors make it challenging to refine the allocation per customer: first, we have not been able to take into account the carbon sink associated with natural rubber plantations, as the accounting method is not yet established, and to incorporate this into the customer allocation based on the type of tires purchased and their natural rubber content; second, the manufacturing phase takes place at plants that typically produce at least two major lines of tires (e.g., passenger car and truck tires), as well as a variety of semi-finished products to be used at other plants. The breakdown at plant level of CO2 emissions associated with the production of one type of tire is not currently possible with our data reporting systems. This makes it complex, at a global level, to allocate a specific quantity of emissions to a specific customer. However, it must be kept in mind that the overwhelming contribution to the carbon footprint allocated to a given customer stems from the rolling resistance of the tires in their use phase, which represent between 85 and 90% of Scope 1, 2 and 3 emissions combined. Our aim is to continue to refine our methodology for calculating Scope 3 use phase emissions by general product category, namely passenger car tires and truck tires.</td>
</tr>
<tr>
<td>Other, please specify (Scope 3 emissions: use phase)</td>
<td>The main difficulty is the lack of data to account for the improved energy efficiency of Michelin tires actually on the road in year-on-year accounting. Our current calculation method is based on the IEA Mobility Model data available for the most recent year completed (2015). We know of no other method that can be used to reduce the uncertainty.</td>
</tr>
</tbody>
</table>

SC1.4

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

Yes
SC1.4a

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

Our main focus will be on the Scope 3 category “Purchased Goods and Services”. Our aim is to collect more primary data from our suppliers to 1) better understand the CO2 efficiency of categories of raw materials, and 2) reduce the uncertainty of the calculation of both total and customer-allocated CO2 emissions and 3) identify opportunities to promote CO2 reductions in the production of raw materials.

SC2.1

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

Requesting member
BMW AG

Group type of project
New product or service

Type of project
Other, please specify (New product or service that reduces customers products/services operational emissions)

Emissions targeted
Other, please specify (Own/customer Scp 3 Use of sold products)

Estimated timeframe for carbon reductions to be realized
3-5 years

Estimated lifetime CO2e savings

Estimated payback
0-1 year

Details of proposal
1/ Since 1992 Michelin has been continually reducing rolling resistance and believes itself to be the most advanced tire manufacturer based on total performance. Michelin proposes to pursue efforts with BMW to develop tires with lower rolling resistance while maintaining longevity and other key performances to satisfy the end user and optimize the use of materials for the next generation of vehicles. 2/ Michelin also proposes to work with BMW on reducing vehicle weight by eliminating the spare wheel and developing a low rolling resistance standard & extended tires. Michelin strongly supports BMW's approach to have only Label A tires starting in 2020 to improve overall fleet consumption.

Requesting member
BMW AG

Group type of project
Relationship sustainability assessment

Type of project
Assessing products or services life cycle footprint to identify efficiencies

Emissions targeted
Other, please specify (Own/customer Scp 3 Use of sold products)

Estimated timeframe for carbon reductions to be realized
3-5 years

Estimated lifetime CO2e savings

Estimated payback
0-1 year

Details of proposal
Michelin proposes to demonstrate to BMW its ambition to continue reducing the life cycle environmental footprint of its tires. Two key examples are through: a) a joint venture with the Barito Group and partnership with WWF to produce sustainable natural rubber in Indonesia and reduce deforestation; b) the Biobutterfly project, which is aimed at producing synthetic rubber from biomass instead of fossil fuel sources.

During the BEV i20 quotation process, Michelin demonstrated future tire technologies’ potential to significantly reduce the CO2 footprint through main three levers: - materials sourcing: use of renewable biomass to produce synthetic rubber (Biobutterfly, see above) and increased use of steel from recycled feed stock. - tire production: already today the electricity used for tire production in the European plants is from 100% renewable sources. - the product itself that offers homogeneous tire performances throughout its life time (“long lasting performance (LLP)”; related studies prove that LLP tires have the best sustainable footprint.

**Requesting member**
BMW AG

**Group type of project**
Other, please specify (Sustainable mobility advocacy)

**Type of project**
Please select

**Emissions targeted**
Other, please specify (Scope 3 Use of sold products)

**Estimated timeframe for carbon reductions to be realized**
3-5 years

**Estimated lifetime CO2e savings**

**Estimated payback**
0-1 year

**Details of proposal**
Michelin proposes to continue working together with BMW to promote the importance of sustainability at industry and automotive conferences, such as at Movin’On in 2018 and 2019 and or during the BMW Sustainability Day.

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Since 1992 Michelin has been continually reducing rolling resistance (RR) and believes itself to be the most advanced tire manufacture based on total performance. Michelin proposes to pursue efforts with Ford to develop tires with lower RR while maintaining longevity and other key performances to satisfy the end user and optimize the use of materials for the next generation of vehicles. Specifically, we propose working with Ford to reduce RR: a) in Europe for passenger cars down to have less than 5.0 kg/T (WLTP); b) in North America for light trucks down to 6.0 kg/T; and c) in China for passenger cars while maintaining the robustness required in that zone.

**Requesting member**
Ford Motor Company

**Group type of project**
New product or service

**Type of project**
New product or service that reduces customers products / services operational emissions

**Emissions targeted**
Other, please specify (Own/customer Scp 3 Use of sold products)

**Estimated timeframe for carbon reductions to be realized**
1-3 years

**Estimated lifetime CO2e savings**
5800000

**Estimated payback**
1-3 years

**Details of proposal**
Michelin proposes to continue working together with BMW to promote the importance of sustainability at industry and automotive conferences, such as at Movin’On in 2018 and 2019 and or during the BMW Sustainability Day.
<table>
<thead>
<tr>
<th><strong>Type of project</strong></th>
<th>Assessing products or services life cycle footprint to identify efficiencies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emissions targeted</strong></td>
<td>Other, please specify (Own/customer Scp 3 Use of sold products)</td>
</tr>
<tr>
<td><strong>Estimated timeframe for carbon reductions to be realized</strong></td>
<td>3-5 years</td>
</tr>
<tr>
<td><strong>Estimated lifetime CO2e savings</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Estimated payback</strong></td>
<td>1-3 years</td>
</tr>
<tr>
<td><strong>Details of proposal</strong></td>
<td>Michelin proposes to demonstrate to Ford its ambition to continue reducing the life cycle environmental footprint of its tires. Two key examples are through: a) a joint venture with the Barito Group and partnership with WWF to produce sustainable natural rubber in Indonesia and reduce deforestation; b) the Biobutterfly project, which is aimed at producing synthetic rubber from biomass instead of fossil fuel sources. In addition to that, a LCA (Life Cycle Assessment) to identify the potential savings by using a best combination of low RR tires, wear and weight (especially with green electricity mix).</td>
</tr>
<tr>
<td><strong>Requesting member</strong></td>
<td>Nissan Motor Co., Ltd.</td>
</tr>
<tr>
<td><strong>Group type of project</strong></td>
<td>New product or service</td>
</tr>
<tr>
<td><strong>Type of project</strong></td>
<td>New product or service that reduces customers products / services operational emissions</td>
</tr>
<tr>
<td><strong>Emissions targeted</strong></td>
<td>Other, please specify (Own/customer Scp 3 Use of sold products)</td>
</tr>
<tr>
<td><strong>Estimated timeframe for carbon reductions to be realized</strong></td>
<td>3-5 years</td>
</tr>
<tr>
<td><strong>Estimated lifetime CO2e savings</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Estimated payback</strong></td>
<td>3-5 years</td>
</tr>
<tr>
<td><strong>Details of proposal</strong></td>
<td>Michelin proposes to continue working with Nissan on advanced engineering projects to improve vehicle fuel efficiency (on previous projects Michelin has obtained an overall rating of 9.5 out of 10, and for “Good fuel economy” our rating was 3.5 out of 4) and reduce CO2 emissions. Such projects allow Michelin to optimize the three major tire parameters contributing to fuel consumption: rolling resistance, mass and aerodynamics. Michelin is committed to helping Nissan improve fuel efficiency while also maintaining balanced performances between longevity, traction, wear to ensure customer satisfaction.</td>
</tr>
<tr>
<td><strong>Requesting member</strong></td>
<td>General Motors Company</td>
</tr>
<tr>
<td><strong>Group type of project</strong></td>
<td>New product or service</td>
</tr>
<tr>
<td><strong>Type of project</strong></td>
<td>New product or service that reduces customers products / services operational emissions</td>
</tr>
<tr>
<td><strong>Emissions targeted</strong></td>
<td>Other, please specify (Own/customer Scp 3 Use of sold products)</td>
</tr>
<tr>
<td><strong>Estimated timeframe for carbon reductions to be realized</strong></td>
<td>1-3 years</td>
</tr>
<tr>
<td><strong>Estimated lifetime CO2e savings</strong></td>
<td>8990000</td>
</tr>
<tr>
<td><strong>Estimated payback</strong></td>
<td>1-3 years</td>
</tr>
</tbody>
</table>
Details of proposal
Michelin proposes to pursue two areas of collaboration with GM. The first is to further develop technologies to reduce vehicle CO2 emissions through low rolling resistance road maps created globally with GM to ensure best technology availability in all zones (EU, NA, CHN). The second is reduce vehicle mass by replacing the spare tire with run-flat, sealant solutions or advanced technologies. A major recent agreement was recently made for Uptis research.

Requesting member
General Motors Company

Group type of project
Relationship sustainability assessment

Type of project
Assessing products or services life cycle footprint to identify efficiencies

Emissions targeted
Other, please specify (Own/customer Scope 3)

Estimated timeframe for carbon reductions to be realized
3-5 years

Estimated lifetime CO2e savings

Estimated payback
1-3 years

Details of proposal
Michelin proposes to support GM efforts with WWF on tire sustainability, recyclability and materials development. (2 times presence at Movin’On summit)

Requesting member
General Motors Company

Group type of project
Reduce Logistics Emissions

Type of project
Other, please specify (Optimize logistics footprint)

Emissions targeted
Other, please specify (Customer/own Scope 3 Transport)

Estimated timeframe for carbon reductions to be realized
1-3 years

Estimated lifetime CO2e savings

Estimated payback
1-3 years

Details of proposal
Michelin proposes to work with GM to optimize manufacturing locations within region which reduces logistics emissions (ex: collaboration within NA zone to propose shipping location changes or direct from factory shipping to optimize Michelin & GM business models)

Requesting member
Jaguar Land Rover Ltd

Group type of project
New product or service

Type of project
New product or service that reduces customers products / services operational emissions

Emissions targeted
Other, please specify (Own/customer Scp 3 Use of sold products)

Estimated timeframe for carbon reductions to be realized
3-5 years
Estimated lifetime CO2e savings

Estimated payback
3-5 years

Details of proposal
Since 1992 Michelin has been continually reducing rolling resistance (RR) and believes itself to be the most advanced tire manufacturer based on total performance. Michelin proposes to work with Jaguar Land Rover on improving rolling resistance on new vehicles (especially to meet WLTP regulations), while maintaining Michelin Total Performance (=keeping balanced performances between longevity, traction, wear and other key performances) to ensure customer satisfaction.

Requesting member
Volkswagen AG

Group type of project
New product or service

Type of project
New product or service that reduces customers products / services operational emissions

Emissions targeted
Other, please specify (Own/customer Scp 3 Use of sold products)

Estimated timeframe for carbon reductions to be realized
3-5 years

Estimated lifetime CO2e savings

Estimated payback
3-5 years

Details of proposal
Since 1992 Michelin has been continually reducing rolling resistance and believes itself to be the most advanced tire manufacturer based on total performance. Michelin proposes to pursue efforts with Volkswagen to develop tires with lower rolling resistance while maintaining longevity and other key performances to satisfy the end user and optimize the use of materials for the next generation of vehicles. Michelin also proposes to work with Volkswagen on reducing vehicle weight by eliminating the spare wheel and developing a low rolling resistance standard & extended tires. Michelin strongly supports Volkswagen's approach to have mainly Label A tires starting in 2019 to improve overall fleet consumption.

Requesting member
Toyota Motor Corporation

Group type of project
Relationship sustainability assessment

Type of project
Assessing products or services life cycle footprint to identify efficiencies

Emissions targeted
Other, please specify (Customer/own Scope 3)

Estimated timeframe for carbon reductions to be realized
3-5 years

Estimated lifetime CO2e savings

Estimated payback
3-5 years

Details of proposal
Michelin proposes to demonstrate to Volkswagen its ambition to continue reducing the life cycle environmental footprint of its tires. Two key examples are through: a) a joint venture with the Barito Group and partnership with WWF to produce sustainable natural rubber in Indonesia and reduce deforestation; b) the Biobutterfly project, which is aimed at producing synthetic rubber from biomass instead of fossil fuel sources.

Requesting member
Fiat Chrysler Automobiles NV
Group type of project
New product or service

Type of project
New product or service that reduces customers products / services operational emissions

Emissions targeted
Other, please specify (Own/customer Scp 3 Use of sold products)

Estimated timeframe for carbon reductions to be realized
1-3 years

Estimated lifetime CO2e savings

Estimated payback
0-1 year

Details of proposal
Michelin proposes to work with Fiat Chrysler on improving rolling resistance on new vehicles (especially to meet WLTP regulations), while maintaining Michelin Total Performance (=keeping balanced performances between longevity, traction, wear and other key performances) to ensure customer satisfaction.

Requesting member
Fiat Chrysler Automobiles NV

Group type of project
Reduce Logistics Emissions

Type of project
Other, please specify (Optimize loads and reduce trips)

Emissions targeted
Other, please specify (Customer/own Scope 3 Transport)

Estimated timeframe for carbon reductions to be realized
0-1 year

Estimated lifetime CO2e savings

Estimated payback
0-1 year

Details of proposal
At the logistics level, Michelin proposes to continue finding solutions for shipments that optimize loads and reduce trips, thereby reducing CO2 emissions (as Michelin has done for the new Wrangler programs, for which tire shipments will be all loose-laced, as opposed to bundled/banded like the current Wrangler).

Requesting member
Honda Europe

Group type of project
New product or service

Type of project
New product or service that reduces customers products / services operational emissions

Emissions targeted
Other, please specify (Own/customer Scp 3 Use of sold products)

Estimated timeframe for carbon reductions to be realized
3-5 years

Estimated lifetime CO2e savings

Estimated payback
3-5 years

Details of proposal
Michelin proposes to work with Honda on 2 opportunities to reduce CO2 emissions. The first is to offer a low rolling resistance, robust tire for emerging markets with slim line & LLRC design concept through co-development for new EVs in 2022, while
maintaining Michelin Total Performance (=keeping balanced performances between longevity, traction, wear and other key performances) to ensure customer satisfaction. The second opportunity involves global mono specifications tire offer for the next generation of HR-V 22MY, specifically to integrate developed & emerging country specifications.

<table>
<thead>
<tr>
<th>Requesting member</th>
<th>Toyota Motor Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group type of project</strong></td>
<td>New product or service</td>
</tr>
<tr>
<td><strong>Type of project</strong></td>
<td>New product or service that reduces customers products / services operational emissions</td>
</tr>
<tr>
<td><strong>Emissions targeted</strong></td>
<td>Other, please specify (Own/customer Scp 3 Use of sold products)</td>
</tr>
<tr>
<td><strong>Estimated timeframe for carbon reductions to be realized</strong></td>
<td>3-5 years</td>
</tr>
<tr>
<td><strong>Estimated lifetime CO2e savings</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Estimated payback</strong></td>
<td>3-5 years</td>
</tr>
</tbody>
</table>

**Details of proposal**
Michelin proposes to work with Toyota on 2 opportunities to reduce CO2 emissions. The first is to offer low rolling resistance with “real world” situation using the APOE approach and try to manage Dry / Wet mu level. The second is to pursue improvements in aerodynamics by optimizing the combination of vehicular and tire aerodynamics.

<table>
<thead>
<tr>
<th>Requesting member</th>
<th>CNH Industrial NV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group type of project</strong></td>
<td>New product or service</td>
</tr>
<tr>
<td><strong>Type of project</strong></td>
<td>New product or service that reduces customers products / services operational emissions</td>
</tr>
<tr>
<td><strong>Emissions targeted</strong></td>
<td>Other, please specify (Own/customer Scp 3 Use of sold products)</td>
</tr>
<tr>
<td><strong>Estimated timeframe for carbon reductions to be realized</strong></td>
<td>3-5 years</td>
</tr>
<tr>
<td><strong>Estimated lifetime CO2e savings</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Estimated payback</strong></td>
<td>3-5 years</td>
</tr>
</tbody>
</table>

**Details of proposal**
For agricultural applications, Michelin has two proposals to work with CNH Industrial on reducing CO2 emissions. The first is to pursue implementation of CTIS (Central Tire Inflation System) systems on agricultural vehicles by using tires specifically designed to offer traction in field and the lowest possible rolling resistance on the road. Michelin has combined these technologies in the EvoBib tire, for example, which was awarded a SIMA Innovation Gold Medal in 2016. The potential of these combined technologies has generated much interest with OEMs, and Michelin would like to pursue their application with CNH Industrial products. The second is to further develop energy-efficient tires for longer road-travel needs. This has been a development priority for Michelin, as shown by the launch of the RoadBib. Michelin would like to explore with CNH Industrial how this type of road-travel need can be addressed with fuel-efficiency in mind. For truck applications, Michelin has two proposals to work with CNH Industrial on reducing CO2 emissions through long-lasting tire performance. The first is to address regional transport needs with low rolling resistance tires. The second is to explore opportunities for applying tire monitoring systems.
Other, please specify (Optimize soil sequestration of CO2)

Emissions targeted
Other, please specify (Sequestration of CO2))

Estimated timeframe for carbon reductions to be realized
Other, please specify (>5 years for research and development)

Estimated lifetime CO2e savings

Estimated payback
Other, please specify (>5 years)

Details of proposal
This proposal to CNH Industrial involves better understanding the link between minimizing soil compaction in agricultural fields and the ability of those fields to sequester CO2. Improving this understanding could lead to interesting co-development projects.

Requesting member
Walmart, Inc.

Group type of project
Relationship sustainability assessment

Type of project
Assessing products or services life cycle footprint to identify efficiencies

Emissions targeted
Other, please specify (Customer/own Scope 3)

Estimated timeframe for carbon reductions to be realized
3-5 years

Estimated lifetime CO2e savings

Estimated payback
3-5 years

Details of proposal
Michelin proposes a collaborative project with Wal-Mart to explore together how technology can be used to increase transparency and supply chain accountability, one of the focuses of Wal-Mart's Gigaton project. Specifically, we would like to share approaches to deploying technology towards our common goal of zero deforestation. Michelin is particularly interested in the natural rubber supply chain, which could be a complement to Wal-Mart's efforts in the palm oil, soy, beef and pulp & paper sectors.

Background: In 2015, Michelin and World Wildlife Fund formed a partnership to transform the natural rubber market by instilling more sustainable practices. To support its "Natural Rubber Procurement Policy" published in 2015 (attached below), the Group formalized its public commitments in a "Sustainable Natural Rubber Policy", which was drafted with input from stakeholders, particularly environmental and human rights NGOs, and is now a contractual reference document for suppliers. downloadable from the Michelin purchasing website, the policy precisely defines the conditions for farming natural rubber, both in terms of the environment (zero deforestation, protection and preservation of peatlands, High Conservation Value areas and High Carbon Stock areas), and in terms of social responsibility and human rights (working conditions, free, prior and informed consent of the local communities, etc.). Michelin developed a mobile application in 2016 to enable actors across the natural rubber supply chain (small farmers, large plantations, brokers and direct suppliers) to input their CSR data, which can then be analyzed on a web platform. We would like to share approaches to deploying technology towards our common goal of zero deforestation.

Requesting member
Wal-Mart de Mexico

Group type of project
Reduce Logistics Emissions

Type of project
Other, please specify (Optimize loads and distances)

Emissions targeted
Other, please specify (Customer/own Scope 3 Transport)

Estimated timeframe for carbon reductions to be realized
0-1 year

Estimated lifetime CO2e savings
Estimated payback
0-1 year

Details of proposal
Michelin proposes to work with Wal Mart de México on reducing the CO2 emissions and associated with the delivery of tires to Wal Mart's distribution centers. The idea is to arrange direct deliveries to the final sales points, which will reduce the overall distances traveled by delivery trucks and optimize tire loads on each truck. An additional benefit would be to eliminate the plastic packaging waste currently generated at Wal Mart distribution centers.

Requesting member
Daimler AG

Group type of project
New product or service

Type of project
New product or service that reduces customers products / services operational emissions

Emissions targeted
Other, please specify (Own/customer Scp 3 Use of sold products)

Estimated timeframe for carbon reductions to be realized
3-5 years

Estimated lifetime CO2e savings

Estimated payback
0-1 year

Details of proposal
Since 1992 Michelin has been continually reducing rolling resistance and believes itself to be the most advanced tire manufacturer based on total performance. Michelin proposes to pursue efforts with Mercedes to develop tires with lower rolling resistance while maintaining longevity and other key performances to satisfy the end user and optimize the use of materials for the next generation of vehicles.

Requesting member
Daimler AG

Group type of project
Relationship sustainability assessment

Type of project
Assessing products or services life cycle footprint to identify efficiencies

Emissions targeted
Other, please specify (Own/customer Scp 3 Use of sold products)

Estimated timeframe for carbon reductions to be realized
3-5 years

Estimated lifetime CO2e savings

Estimated payback
0-1 year

Details of proposal
Michelin proposes to demonstrate to Mercedes its ambition to continue reducing the life cycle environmental footprint of its tires. Two key examples are through: a) a joint venture with the Barito Group and partnership with WWF to produce sustainable natural rubber in Indonesia and reduce deforestation; b) the Biobutterfly project, which is aimed at producing synthetic rubber from vegetal sources instead of fossil fuel sources.

Requesting member
Daimler AG

Group type of project
Other, please specify (Sustainable mobility advocacy)

Type of project
Other, please specify (industry and automotive conferences)

**Emissions targeted**
Other, please specify (Scope 3 Use of sold products)

**Estimated timeframe for carbon reductions to be realized**
3-5 years

**Estimated lifetime CO2e savings**

**Estimated payback**
0-1 year

**Details of proposal**
Michelin proposes to continue to work with Mercedes to promote the importance of sustainability at industry and automotive conferences, such as at Movin’On in 2020.

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**Requesting member**
Daimler AG

**Group type of project**
New product or service

**Type of project**
New product or service that reduces customers products / services operational emissions

**Emissions targeted**
Other, please specify (Own/customer Scp 3 Use of sold products)

**Estimated timeframe for carbon reductions to be realized**
1-3 years

**Estimated lifetime CO2e savings**

**Estimated payback**
1-3 years

**Details of proposal**
Michelin propose to support innovation on next zero emission vehicle generation electric and autonomous including connected tyre system technology.

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**SC2.2**

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

No

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**SC3.1**

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

No

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**SC3.2**

**SC3.2** Is your company a participating supplier in CDP’s 2018-2019 Action Exchange initiative?

No
SC4.1

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

SC4.1a

(SC4.1a) Give the overall percentage of total emissions, for all Scopes, that are covered by these products.
94

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

<table>
<thead>
<tr>
<th>Name of good/service</th>
<th>Description of good/service</th>
<th>Type of product</th>
<th>SKU (Stock Keeping Unit)</th>
<th>Total emissions in kg CO2e per unit</th>
<th>±% change from previous figure supplied</th>
<th>Date of previous figure supplied</th>
<th>Explanation of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger car tires</td>
<td>Thick elastic rubber ring, filled with air, fitted around the outer edge of the wheel of a car, allowing the vehicle to stick to the road surface and to travel over the ground more easily, increasing safety and facilitating driving.</td>
<td>Final</td>
<td>Single 11.56-kg tire</td>
<td>961</td>
<td>0</td>
<td>juillet 26 2016</td>
<td>The figure reported is for the year 2016. Because the calculation method is simplified to represent an average Michelin passenger car tire, improvements to energy efficiency from reduced rolling resistance and mass across different product lines has not been included in the figure reported here.</td>
</tr>
<tr>
<td>Truck tires</td>
<td>Thick elastic rubber ring, filled with air, fitted around the outer edge of the wheel of a car, allowing the vehicle to stick to the road surface and to travel over the ground more easily, increasing safety and facilitating driving.</td>
<td>Final</td>
<td>Single 62-kg tire</td>
<td>12643</td>
<td>0</td>
<td>juillet 26 2016</td>
<td>The figure reported is for the year 2016. Because the calculation method is simplified to represent an average Michelin truck tire, improvements to energy efficiency from reduced rolling resistance and mass across different product lines has not been included in the figure reported here.</td>
</tr>
</tbody>
</table>

SC4.2b

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

**Please detail emissions reduction initiatives completed or planned for this product.**

<table>
<thead>
<tr>
<th>Name of good/service</th>
<th>Initiative ID</th>
<th>Description of initiative</th>
<th>Completed or planned</th>
<th>Emission reductions in kg CO2e per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger car tires</td>
<td>Initiative 1</td>
<td>Since 1992, Michelin has been increasing the energy efficiency of vehicles by reducing the energy required for a vehicle to overcome rolling resistance. The figure reported at the right represents Michelin’s ambition for 2030 to achieve a reduction in CO2 emissions associated with the rolling resistance of a passenger car tire on a unit basis and over the course of one year. Much of Michelin’s progress to date stems from the efficient Energy™ Saver line, created in 1992 and now in its fifth generation. Energy™ Saver tires are delivering an improvement of up to 0.2 L/100 km (compared to the first generation), in an average, equivalent-size European car, for an average of 4g/km reduction in CO2 emissions.</td>
<td>Ongoing</td>
<td>15.5</td>
</tr>
<tr>
<td>Truck tires</td>
<td>Initiative 2</td>
<td>Since 1992, Michelin has been increasing the energy efficiency of vehicles by reducing the energy required for a vehicle to overcome rolling resistance. The figure reported to the right represents Michelin’s ambition for 2030 to achieve a reduction in CO2 emissions associated with the rolling resistance of a truck tire on a unit basis and over the course of one year. In truck tires, the technological innovations collectively known as “Michelin Durable Technologies” offer a wide range of benefits, including a significant improvement in fuel efficiency and therefore also in CO2 emissions. These technologies also increase a truck’s load capacity and the tire’s total life-span, which has doubled since 1980.</td>
<td>Ongoing</td>
<td>95</td>
</tr>
<tr>
<td>Passenger car, truck, two-wheel, aviation, earth-movers and agricultural engines: Reducing the carbon emissions of our manufacturing plants.</td>
<td>Initiative 3</td>
<td>We are reducing the energy consumption in plants by extending the use of energy audits, sharing best practices and installing new equipment and processes. We are also developing the use of renewable energies, including solar installations, wind turbines and biomass heating boilers, as well as a green energy purchasing program. These are ongoing initiatives that contribute to our short-term and long-term CO2 reduction goals (see targets section of CDP reply). Site-specific projects have been completed, others are in progress and more are being planned. The CO2 reduction is expressed in kg per ton of finished product in 2018 compared to 2017.</td>
<td>Ongoing</td>
<td>10</td>
</tr>
</tbody>
</table>

### SC4.2d

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

No

### Submit your response

**In which language are you submitting your response?**

English

**Please confirm how your response should be handled by CDP**

<table>
<thead>
<tr>
<th>Public or Non-Public Submission</th>
<th>I am submitting to</th>
<th>Are you ready to submit the additional Supply Chain Questions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am submitting my response</td>
<td>Public</td>
<td>Investors, Customers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes, submit Supply Chain Questions now</td>
</tr>
</tbody>
</table>

**Please confirm below**

I have read and accept the applicable Terms